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Transport for New South Wales

24 June 2019

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Hawkesbury Station Upgrade

Landscape Character and Visual Impact Assessment

Hawkesbury River Station Upgrade

Landscape Character and Visual Impact Assessment

Client: Transport for New South Wales s

ABN: 18 804 239 602

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Table of Contents

Figures

Tables

1.0 Introduction

1.1 Background information

Transport for NSW (TfNSW) has proposed the upgrade of Hawkesbury Station (the 'Proposal'). The Proposal forms part of the Transport Access Program (TAP), a NSW Government initiative to provide accessible, modern, secure and integrated transport infrastructure.

In 2019, Aurecon (commissioned by TfNSW) produced accessibility upgrade concept plans and undertook options development and assessment for Hawkesbury Station. Two options were developed to address deficiencies at the Hawkesbury Station Precinct to meet its accessibility obligations in an efficient and cost-effective manner, while being easy to maintain.

The preferred option (Option 1) has since been refined and is being progressed towards construction. As part of the Review of Environmental Factors (REF), AECOM has been commissioned by TfNSW to undertake a Landscape Character and Visual Impact Assessment of the operation of the Proposal. A high level commentary is also provided for likely construction impacts.

1.2 Scope

The scope of this Landscape Character and Visual Impact Assessment (LVIA) is to:

- describe the existing landscape character of the Proposal study area and the visibility of the proposed works at Hawkesbury Station;
- describe the site context and relevant aspects of the Proposal;
- identify and describe key existing landscape receivers, and representative viewpoints from which the Proposal would be visible;
- assess landscape character effects of the Proposal;
- assess visual effects of the Proposal; and
- recommend management and mitigation strategies to minimise any impacts from the Proposal.

1.3 Proposed works

The Proposal involves an access upgrade of Hawkesbury Station as part of the Transport Access Program which would improve accessibility for customers, and comprise the following key elements:

- construction of two new lifts to provide access to the existing footbridge and station platforms, including associated landings and support structures
- provision of a kiss and ride space and accessible parking space within the Dangar Road carpark as well as an access path and pedestrian crossing from the carpark to the station entrance
- regrading of the footpath at the access points to the Station on the Dangar Road side of the Station and extending approximately 50 metres (m) north east from the station entrance
- construction of a new family accessible toilet, a new unisex ambulant toilet, and a new staff toilet within the existing toilet facilities
- installation of a horizontal glass canopy over the entrance of the family accessible toilet
- installation of a new padmount transformer as well as ancilliary electrical works to supply the station and new lifts with electricity
- ancillary works including adjustment to lighting, electrical upgrades, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage and installation of tactile ground surface indicators (TGSIs) as required.

2.0 Methodology

Landscape and visual impact assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity.

There is no accepted National published guidance on LVIA specific to Australia. Therefore, the industry typically refers to guidance from elsewhere for producing LVIA. The method for this assessment has been developed with reference to Guidelines for Landscape and Visual Impact Assessment (GLVIA3), Third Edition (2013), developed by the Landscape Institute and Institute for Environmental Management (UK). GLVIA3 is widely recognised as comprising an example of 'best practice' in this field.

This report undertakes an assessment of the Proposal at operation using GLVIA3. It also provides a brief, high level commentary around visual impacts arising from the construction process. The method distinguishes between the:

- 'impact', defined as the action being taken, and the
- 'effect', defined as the change resulting from that action.

The following section outlines the detailed methodology undertaken for the preparation of this LVIA report.

2.1 Environmental and planning baseline

2.1.1 Desktop analysis of proposal, landscape and visual resources

Existing data was gathered and reviewed, including:

- Site inspection protocols, available information on sensitive visual receptors, Proposal design, and photos of similar examples of key infrastructure elements;
- The Preliminary Environmental Assessment undertaken for the Proposal (AECOM, 2019);
- Draft McGregor Coxall, 2016. Brooklyn Improvement Master Plan – Constraints Analysis (McGregor Coxall, 2016);
- GIS mapping, including visual envelope mapping, zoning / land use, topography and land cover;
- Google Earth and Google Street View.

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

2.1.2 Visual envelope mapping

Based on the desktop review, the likely visibility of the Proposal, once operational, from surrounding areas was broadly mapped to define a visual envelope. This provides an indication of which parts of the Proposal are likely to be viewed from surrounding land uses. The mapping typically shows 'worst case', i.e. some receivers may only see the roofline of the new lifts and canopies, while other receivers may view a more substantial part of the Proposal.

2.1.3 Site inspection

A site inspection was undertaken by two AECOM team members on 4 March 2019. The purpose of the inspection was to:

- Identify views from sensitive visual receptors within publicly accessible locations, and assess landscape character; and
- Undertake site photography suitable for preparation of photomontages, and to record key views and landscape character.

2.1.4 Existing environment

The above information was summarised into a broad description the landscape within which the Proposal is located, and identification of elements and features relevant to assessment of the Proposal, including site setting, topography, land use, landscape and heritage values.

2.1.5 Landscape character zones

Drawing from the above, a Landscape Character Assessment was undertaken. This identifies what makes a place distinctive, without necessarily assigning a value to it. It considers the way different components of the environment - both natural (the influences of geology, soils, climate, flora and fauna), and cultural (the historical and current impact of land use, settlement, enclosure and other human interventions) – interact together and are perceived to form a distinct pattern, which gives its particular sense of place.

To provide a framework for more clearly describing the area, and assessing how the Proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character, distinct parts of the overall landscape have been separately defined and mapped as 'Landscape Character Zones' (LCZ).

2.2 Impact assessment and reporting

2.2.1 Landscape effects

Assessment of landscape effects deals with the effect of change and development on landscape as a resource in its own right. Landscape effects are assessed at operation.

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 magnitude of change to landscape character depends on the nature, scale and duration of the change that is expected to occur.

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

- Sensitivity of landscape to proposed change, based on:
  - susceptibility to change - this means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular LCZ, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the existing situation and/or the achievement of landscape planning policies and strategies;
  - value of landscape; and
- Magnitude of landscape effect, based on:
  - size or scale of change;
  - geographical extent of effects;
  - duration and reversibility of effects.

The extent of sensitivity and magnitude are each assessed and graded as being:

- High, Moderate, Low, Negligible or No Impact, and
- Adverse, Neutral or Beneficial.

A matrix is used to combine the ratings for sensitivity and magnitude to provide an overall 'Significance of Landscape Effects' finding, described as being High, High to Moderate, Moderate, Moderate to Low, Low, Negligible or No Impact in relation to the existing environment. Ratings of High and High to Moderate are considered to be significant. Refer *Table 1*.

Table 1 Landscape character and visual impact grading matrix

	HIGH CHANGE	MODERATE CHANGE	LOW CHANGE	NEGLIGIBLE CHANGE	ADVERSE	NEUTRAL	BENEFICIAL
HIGH	HIGH	HIGH TO MODERATE	MODERATE	NEGLIGIBLE			
MODERATE	HIGH TO MODERATE	MODERATE	MODERATE TO LOW	NEGLIGIBLE			
LOW	MODERATE	MODERATE TO LOW	LOW	NEGLIGIBLE			
NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE			

2.2.2 Visual effects

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 (GLVIA3). Visual effects are assessed at operation. Additionally, a high level commentary is provided around likely construction effects.

Visual receptors have been considered in terms of the views they are likely to obtain from locations within proximity of the Proposal, including consideration of any key vantage points, e.g. lookouts where there is particular interest in the view.

The evaluation of potential effects on visual amenity is based on the sensitivity of the viewpoint (and the visual receptors it represents) to change, and the magnitude of change arising from the Proposal that is likely to occur.

The sensitivity of each viewpoint is mainly a function of:

- The occupation or activity of the people experiencing the view at particular locations, and
- The extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations, e.g.:
  - people who are engaged in outdoor recreation where their attention or interest is likely to be focused on views and the visual amenity they experience, are likely to be more sensitive to a proposed change in that view; rather than
  - people at their place of work whose attention may be focused on their work, not on their surroundings, and where the setting is not important to the quality of working life.
- Value attached to the view experienced, e.g.:
  - in relation to heritage assets, or through planning designations; or
  - indicators of value attached to views, e.g. through appearing on tourist maps, or provision of facilities for their enjoyment (such as parking places, sign boards and interpretative material).

The magnitude of change to views and visual amenity depends on:

- Size or scale of change in the view with regard to the:
  - loss or addition of features in the view and changes in its composition;
  - degree of contrast or integration of any new features with the existing landscape, in terms of form, scale and mass, line, height, colour and texture;
  - nature of the view of the proposed development in terms of amount of time it will be experienced, and whether the views will be full, partial or glimpses.
- Geographical extent of the visual effect with different viewpoints including the:
  - angle of view in relation to the main activity of the receptor;
  - distance of the viewpoint from the proposed development;
  - extent of area over which the changes would be visible.
- Duration and reversibility of visual effects, e.g.:
  - duration in terms of short term (0-5 years), medium term (6-15 years) or long term (16-30+ years); and
  - reversibility with regard to the prospects and practicality of a proposed change being reversed in a generation, e.g. housing can be considered permanent, but wind energy developments for example are often argued to be reversible since they have a limited life, and could eventually be removed and the land reinstated (GLVIA3).

The extent of sensitivity and magnitude are each assessed and graded as per the assessment of landscape effects described above in *Section 2.2.1*. Refer *Table 1*.

2.2.3 Photomontages

A photograph of Hawkesbury Station from each of the nominated receptor locations has been used to assist in the analysis process.

A set of photomontages were then prepared to illustrate the likely visual changes from a key visual receptor locations. These images are used to demonstrate a particular view of the Proposal in its wider setting, at the view level of a pedestrian. The visual receptor location was chosen due to its proximity to the station and the anticipated high frequency of people viewing the Proposal from this location, including while traveling in a vehicle. The materials and finishes used are indicative only and would be further investigated during detailed design. To prepare the photomontage, a 3D model of the Proposal was developed and confirmed against survey information, architectural plans, elevations and sections from 2D concept design drawings. The visual receptor location was selected and photographed during a site visit on Monday 4 March, 2019. Image matching was undertaken using reference points common to the 3D model and physical features in the photograph. The model was then rendered with the photograph and edits to the foreground elements made as necessary

2.2.4 Mitigation measures

Following on from the assessment of impacts on the landscape and visual resource, a set of mitigation measures have been developed aimed at avoiding and reducing adverse impacts of the Proposal on identified sensitive receptors. Mitigation measures typically include a range of techniques including, but not limited to, appropriate lighting design, staging or construction method, materials and colour selection, and landscape planting.

2.3 Assumptions and limitations

This methodology includes the following assumptions and limitations:

- For assessment purposes, it is assumed that no landscape mitigation is in place.

3.0 Proposal description

Chapter 3.0 describes the Proposal and summarises key design parameters and construction methodology. The description of the Proposal is based on the scoping design and is subject to detailed design.

3.1 Scope of works

As described in *Section 1.1* and *Section 1.2*, the Proposal involves an accessibility upgrade of Hawkesbury River Station as part of the Transport Access Program (TAP) which would improve accessibility and amenity for customers. Key features of the Proposal are listed in this Section.

3.1.1 Station accessibility upgrade

Details of the Proposal to improve accessibility include:

- construction of two new lifts to provide access to the existing footbridge and station platforms, including associated landings and support structures
- provision of a new accessible parking space within the Dangar Road car park
- provision of a new access path and pedestrian crossing from the new accessible parking / kiss and ride spaces in the Dangar Road car park to the station entrances
- re-grading of the footpath at the access points to the station on the Dangar Road side of the Station and extending to the entrance point of the access path approaching the ferry wharf
- construction of a new family accessible toilet, a new unisex ambulant toilet, and a new staff toilet within the existing toilet facilities and installation of false walls to accommodate toilet cisterns
- re-grading of the station platform surfaces to provide compliant access to station amenities.
- installation of a resting zone along the Dangar Road pedestrian footpath adjacent to the rail corridor. The exact location of the resting zone would be confirmed during detailed design.

3.1.2 Other works

- installation of mechanical ventilation systems for new toilets and lifts
- installation of signage and line-marking for the new accessible parking space, kiss and ride space and pedestrian crossing
- installation of Closed-Circuit Television (CCTV) cameras and Public Address (PA) systems to areas impacted by the construction contractor's activities
- relocation and/or repositioning station Help Points and telephone so that they are accessible to all customers
- relocation and provision of additional Opal card readers
- relocation of services as required by the construction contractor's activities
- installation of a glass canopy over the entrance to the proposed family accessible toilet.

3.1.3 Electrical work

Electrical work required to support the Proposal includes:

- installation of a new padmount transformer to supply electricity the Station and new lifts
- installation of all related cabling works connecting from Sydney Trains 11kV system to the distribution padmount transformer
- installation of a new service pole within the rail corridor, near the distribution padmount transformer to take the existing electricity supply to the new transformer
- provision of new three-phase distribution board, including installation of circuit breakers and switches
- disconnect and remove the overhead 11kVA aerial lines between private pole No. 11 and Ausgrid pole BR83732
- remove pole No. 11 to facilitate the installation of the lift on Dangar Road.

3.1.4 Drainage

Drainage work required to support the Proposal includes the installation of lift downpipe systems to support the new lifts and sanitary drainage, potable water adjustments for the station toilets and a downpipe from the proposed canopy over the entrance to the proposed family accessible toilet. It is proposed that drainage is discharged to the existing stormwater drainage and not the track drainage system. The sanitary drainage for the upgraded toilets would be extended and connected to the existing sanitary drainage system.

3.1.5 Materials and finishes

Materials and finishes for the Proposal have been selected based on the criteria of durability, low maintenance, cost effectiveness, and ensuring it is aesthetically pleasing and sympathetic to the existing heritage fabric. Consideration has also been given to life cycle impacts of the materials. The life cycle impacts are calculated by looking at the environmental impacts of materials from the point of extraction, through to transportation, use, operation and end of life.

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

- platform floor: asphalt
- ceiling inside toilet areas: ripple iron to match existing
- downpipe and gutter on lifts: paint finish to match the colour of the steel frames
- handrail: 30-50mm diameter handrail on stainless steel brackets or stainless-steel pins to supporting structure, finished with stainless steel
- lift glazing: clear glass
- lift base wall: shot-blast concrete block - 100mm, quarter stretcher bond, natural grey in colour
- lift ventilation louvre: horizontal storm proof louvre, dark charcoal grey in colour
- lift roof: metal roof sheeting, dark charcoal grey in colour
- lift canopy and platform glass canopy: glazed canopy
- lift landing protection screen: mesh screen with boundary steel frame, colour to match existing footbridge protection screen
- lift steel frame: painted steel frame, dark charcoal grey in colour
- toilet floor: floor tiles to match existing
- toilet wall: wall tiles and skirting to match existing.

4.0 Planning

4.1 Brooklyn Improvement Master Plan

Hornsby Shire Council engaged McGregor Coxall to prepare a Brooklyn Improvement Master Plan in 2016, the purpose of which was to provide a comprehensive blueprint for the future of Brooklyn, taking into account all the factors that impact local residents and visitors.

McGregor Coxall (2016) prepared the reporting to the stage of a Vision and Place Principles Report. Council determined in December 2018 to halt the project at this stage, and use it as a working document for engagement purposes, which although not endorsed formally by Council, provides a basis for further discussions with the community on moving forward with a place-making approach to improving Brooklyn.

The report provides a comprehensive analysis of the existing environment, aspirations of and issues affecting the Brooklyn community. Key issues identified by the community as requiring resolution, and which are also of relevance to the Proposal comprise:

- Accessibility:
  - to resolve parking (both car and boats);
  - to create an accessible option via a ramp or lift at the train station;
  - to ensure ongoing accessibility to Brooklyn by the river community;
  - to enhance parking opportunities that seek to simplify the parking options and ensure convenience for the multitude of users (locals, river residents, workers and visitors);
- Connectivity:
  - for pedestrians;
  - cyclists and cars into and out of Brooklyn;
  - on the roads;
  - within the car parks;
  - in and around the village core;
- Preservation and environmental management - effectively and sensitively managing future development (McGregor Coxall, 2016)

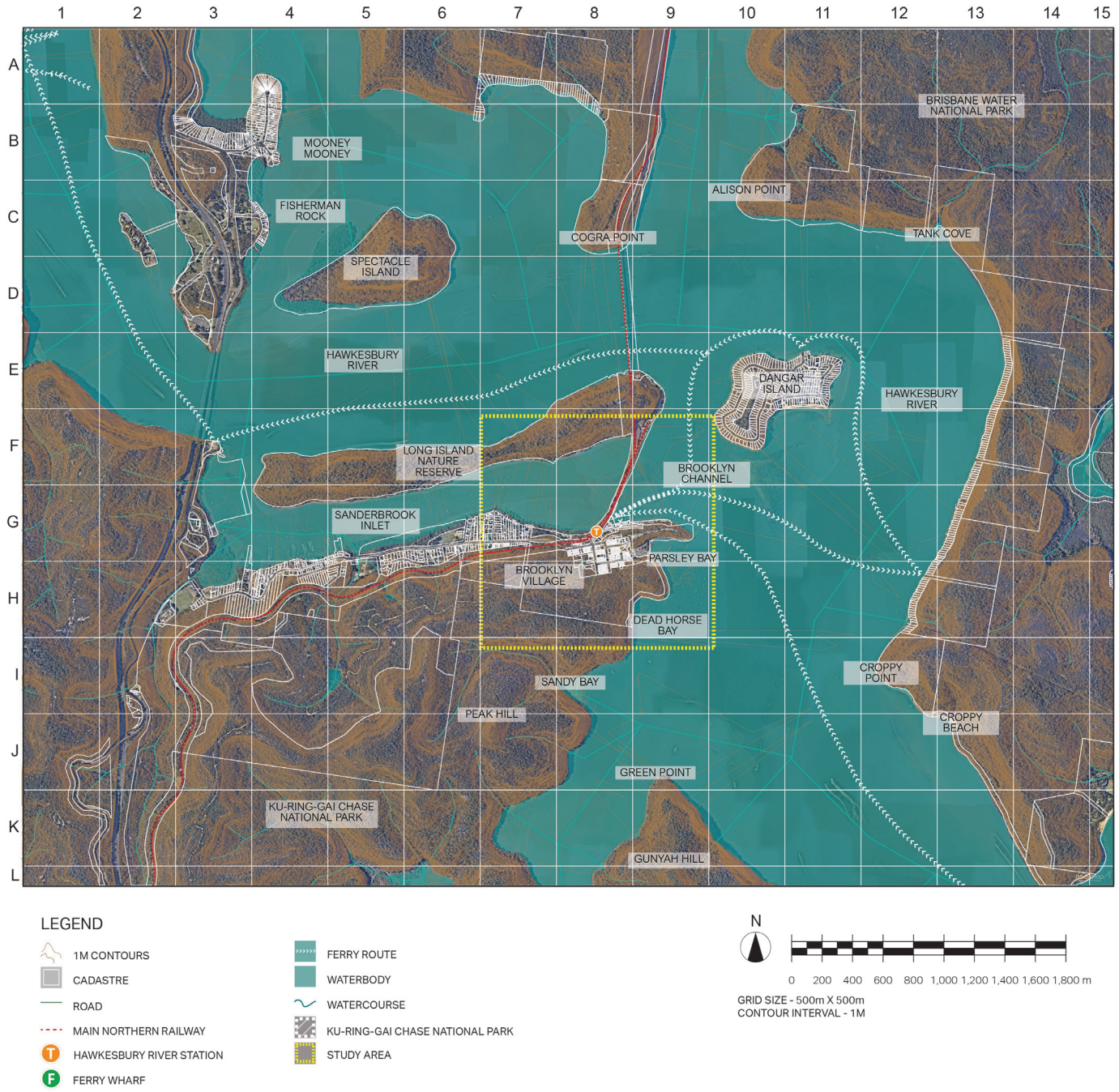

Figure 1 Site setting

5.0 Contextual analysis

5.1 Existing environment

5.1.1 Site setting

Brooklyn, sometimes referred to as 'the gateway to the Hawkesbury', is located on the Hawkesbury River about 60km north of Sydney. The Pacific Motorway runs about 3km west of Brooklyn village, providing access to Brooklyn via the Mooney Mooney exit. The village is set within an exceptional landscape fringing the Hawkesbury River, and bounded to the south by Ku-ring-gai Chase National Park, to the west by Muogamarra Nature Reserve, and to the north by Sandbrook Inlet and Long Island Nature Reserve, and to the east by the Hawkesbury River and the forested and populated Dangar Island. The Main Northern Railway runs through Ku-ring-gai Chase National Park broadly alongside the Pacific Motorway, and through Brooklyn Village before crossing a land bridge to Long Island followed by an 840m long bridge crossing of the Hawkesbury River, and then traveling along the water's edge of Brisbane Water National Park, before tunneling to the Central Coast on Brisbane Water. Refer *Figure 1*.

5.1.2 Study area

Brooklyn comprises an area 1.5 square kilometres, centred on Hawkesbury River Station. Key elements within the study area comprise:

- Brooklyn village to the south of Hawkesbury River Station, which is set against the rugged, forested backdrop of Ku-ring-gai Chase National Park;
- McKell Park and Parsley Bay to the east, both of which comprise popular recreational day visitor locations, and are a focus of boating activity including berthing of small pleasure craft at Hawkesbury River Marina, and substantial boat ramp facilities at Parsley Bay;
- Sandbrook Inlet and Long Island Nature Reserve, linked by the Main Northern Railway land bridge; and
- Brooklyn riverside settlement comprising free-standing housing and a small marina, set between the Main Northern Railway and Sandbrook Inlet. Refer *Figure 2*.

Boating is Brooklyn's major attraction, with the 'River Postman' ferry which runs some 16km upriver to the small settlement of Marlow, the local Dangar Island and Nobby Beach ferry, water taxis, boat ramps, hire boats and houseboats, in addition to a number of marinas and small craft berthing jetties stretching along the shoreline from Brooklyn.

Figure 2 Study area

5.1.3 Geology / topography

The Hawkesbury Sandstone geology of the area provides a steep and highly dissected landform. The landscape was flooded at the end of the last ice age c.10,000 BCE, resulting in the steep slopes typically falling unabated into the drowned river valley. The Brooklyn settlement hugs a narrow band of low foothills and Quaternary sediments between Sandbrook Inlet and the forested peaks upslope reaching up to 210m above sea level (ASL). Refer *Figure 3*.

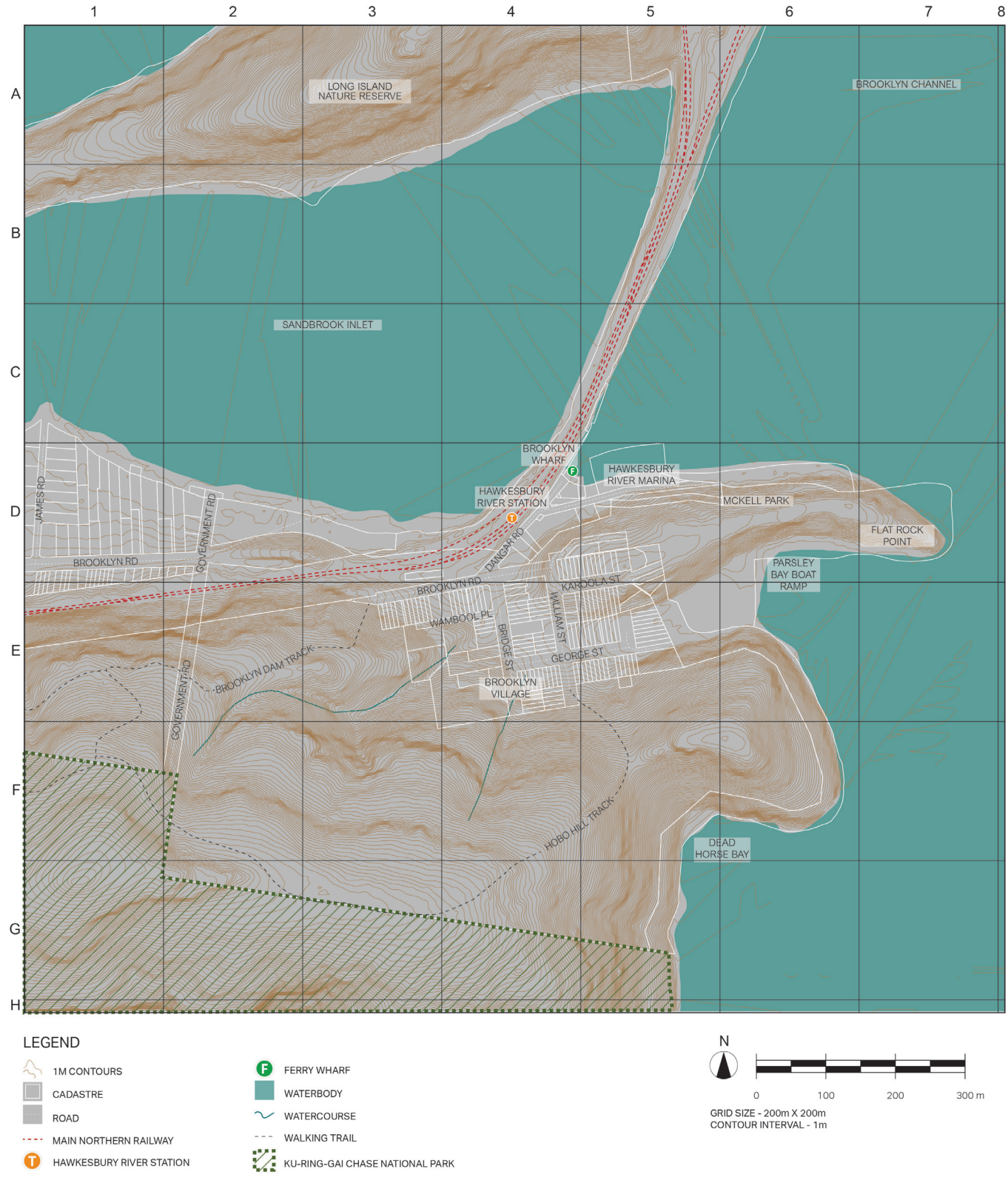

Figure 3 Topography

5.1.4 Land use

Land use zones for the Proposal area are defined in the *Hornsby Local Environmental Plan 2013* (HLEP 2013).). As can be seen in *Figure 4*, conservation comprises the primary land use within the study area, comprising: Long Island Nature Reserve (E1); Ku-ring-gai Chase National Park (E1), and bushland downslope of it (E3), a seagrass protection area (E2), and oyster leases (E2) within Sandbrook Inlet. The Main Northern Railway Line and Brooklyn Road comprises a strong corridor of infrastructure (SP2) running through the landscape, including the ferry wharf, adjoining the land bridge (SP2) to Long Island. Nestled at the foot of Ku-ring-gai National Park and adjoining E3 Environmental Management area, Brooklyn Village comprises of a small Local Centre (B2), adjoined on three sides by Low Density Residential (R2) and Working Waterfront (IN4) within and adjoining McKell Park (RE1). A waterfront band of RE1 Public Recreation runs from Ku-ring-gai National Park to Parsley Bay, and west of Hawkesbury River Station to an area of foreshore residential settlement (R2).

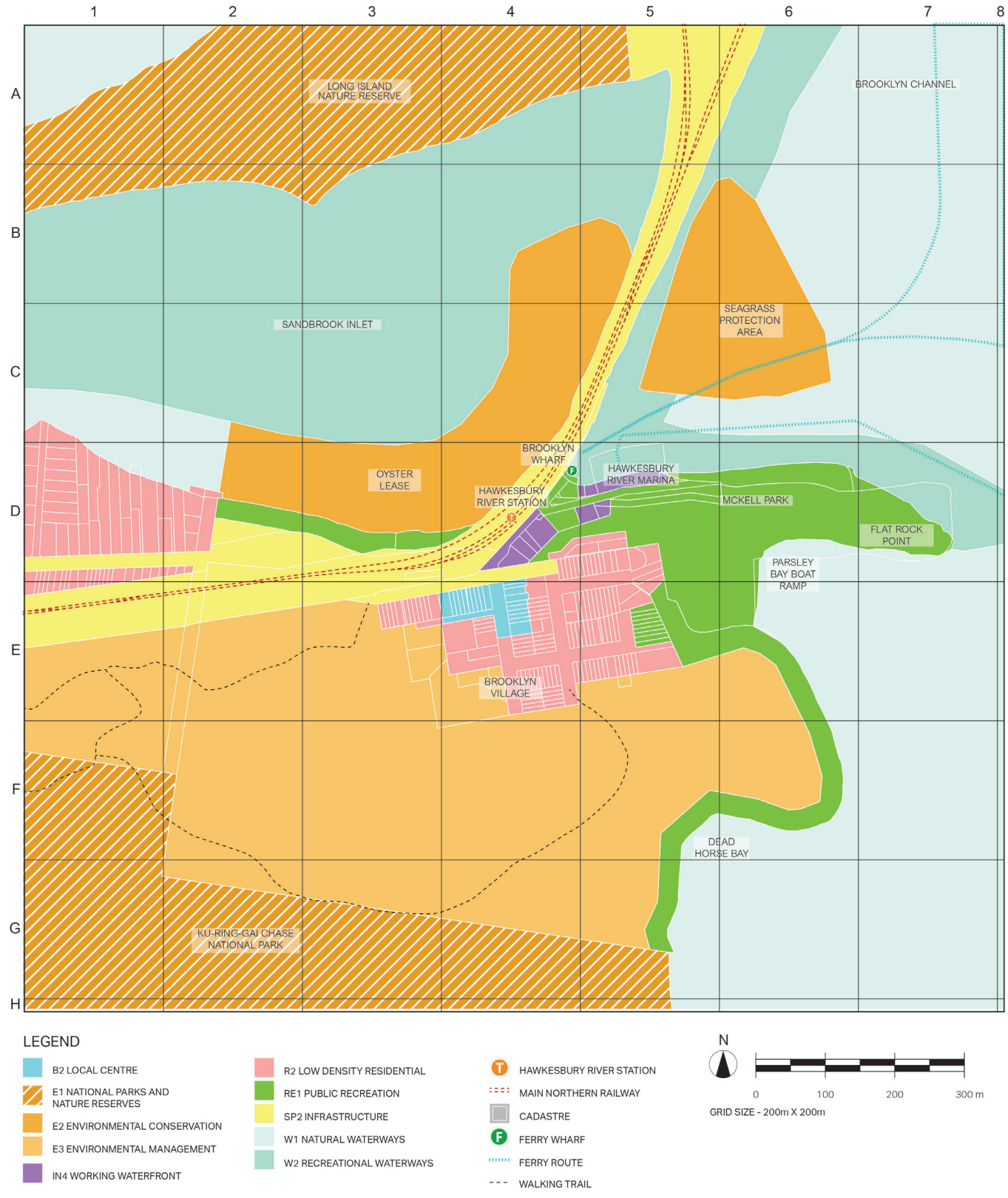

Figure 4 Land use

5.1.5 Heritage

5.1.5.1 Non-Indigenous heritage.

Hawkesbury River Railway Station Group is listed as an item of State heritage significance under the State Heritage Register (SHR 01166), and RailCorp State Heritage Inventory (SHI 4801021), and local heritage significance in the HLEP 2013 as both general and archaeological heritage (227 and A16). Refer *Figure 6*. Key relevant matters from the State heritage listing for Hawkesbury River Railway Station are outlined in *Table 2*.

Table 2 Summary of heritage listing of Hawkesbury River railway station as relevant to landscape and visual impact assessment.

SHR Criteria	Summary of Significance
a (historical significance)	The Hawkesbury River Railway Station has historic associations with the rail linkage of Sydney and Newcastle, which was a major event in the history of NSW railways. It forms part of a significant railway landscape including the Long Island Maintenance Depot, land bridge and tunnels, the current and former Hawkesbury River Rail bridges and railway worker accommodation in Brooklyn township. The station complex is able to evoke a former era of travel, communication and trade. This is heightened by the presence of a water spout at the southern end of the station from the former days of steam powered railway travel (refer *Figure 6*) and the jetty, which forms an interface between transport on land and sea (refer *Figure 9*).
c (aesthetic significance)	The station group has an outstanding degree of aesthetic significance. It has a particularly picturesque setting on the edge of the Hawkesbury, with views over the water to the east and west and to Long Island to the north. The station affords a view of the land bridge between Brooklyn and Long Island and the portals of the current and former Long Island tunnels, providing a rare opportunity to easily view some of the technical achievements of the Short North line construction (i.e. prior to the bridging of the Hawkesbury River). Its waterside setting is unusual and as such it is one of the most picturesque station settings in NSW.
d (social significance)	The place has the potential to contribute to the local community's sense of place and can provide a connection to the local community's history.
f (rarity)	The station group also forms part of an unusual late nineteenth and early twentieth century railway landscape of outstanding significance clustered around the Hawkesbury River, which includes the Long Island tunnels and maintenance depot, the current and former Hawkesbury River railway bridges and worker accommodation in Brooklyn township.
g (representativeness)	The station building is a good representative example of Type A8-10 stations due to its high degree of intactness and integrity.
Integrity/Intactness	The station building is a good representative example of Type A8-10 stations due to its high degree of intactness and integrity.

Other items of local heritage significance within 50 metres of the Proposal area, as outlined in the HLEP 2013 are listed below:

- Governor Phillip Memorial, Dangar Road (A15);
- Hawkesbury River Rail Bridge and Long Island Group (A19);
- Shop, 1-3 Bridge Street (197);
- Shop, 5 Bridge Street (198);
- Shop, 7 Bridge Street (199);
- “Blinkbonnie”, 206 Brooklyn Road (222);
- House, 176 Brooklyn Road (223);
- Shopfronts, 212-214 Brooklyn Road (224);
- McKell Park - lower, upper, cabbage palms and World War II gun and emplacements,
- Dangar Road (225);
- Railway shelter shed, 6 Dangar Road (228); and
- House, 10 Dangar Road (229).

Figure 5 A water spout at the southern end of the station from the former days of steam powered railway travel (Source: AECOM)

Figure 6 Heritage

5.2 Landscape character zones

Based on the desk-top analysis and site inspection, five landscape character zones have been identified which have the potential to be affected by the Proposal. Refer *Figure 7*, comprising:

- LCZ 1 – wooded / disturbed Foreshore
- LCZ 2 – rail corridor
- LCZ 3 – village main street
- LCZ 4 – Riverfront Street
- LCZ 5 – marina

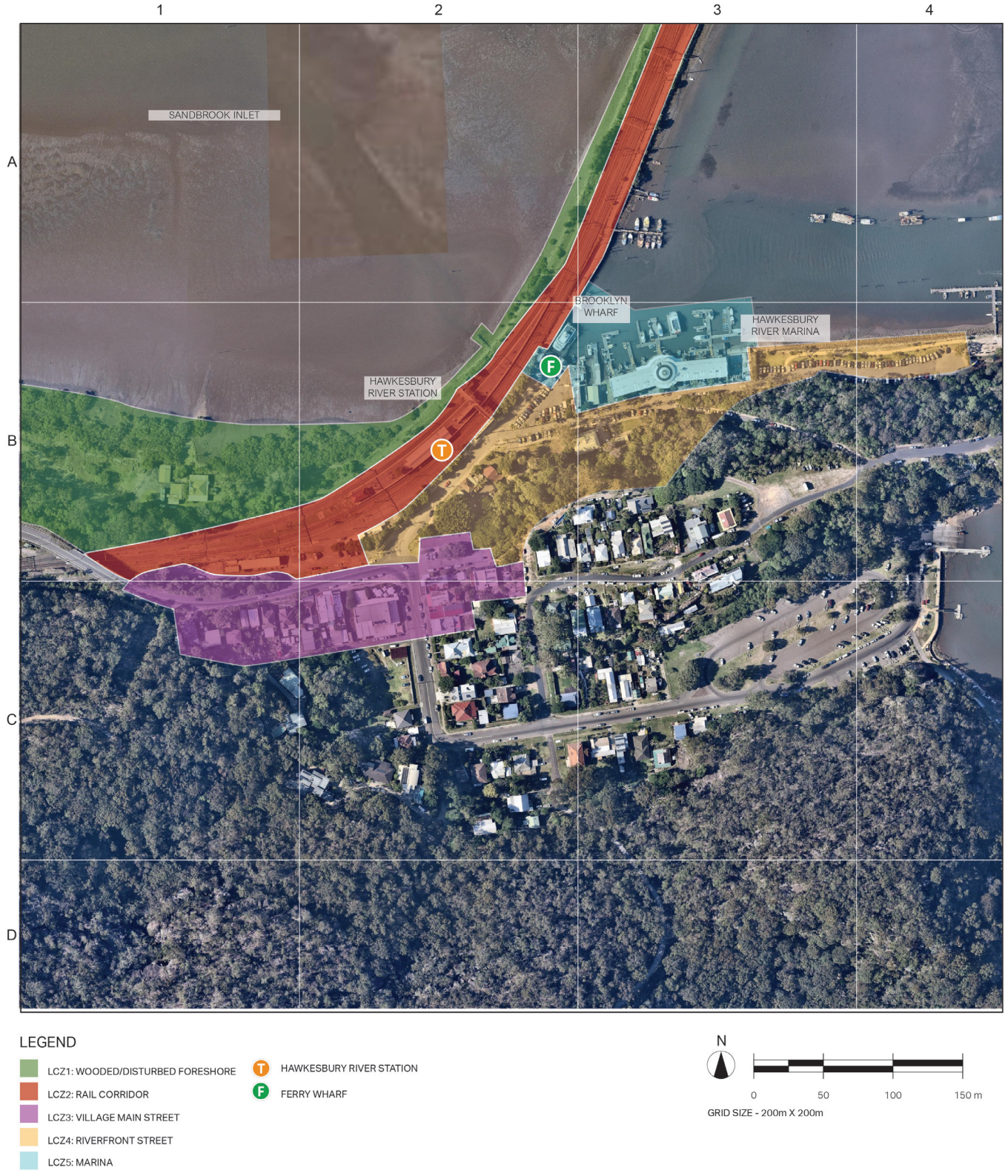

Figure 7 Landscape Character Zones

5.2.1 LCZ 1 – Wooded / disturbed foreshore

LCZ 1 stretches along the foreshore of Sandbrook Inlet, including the western edge of the Main Northern Railway land bridge. Refer *Figure 7*.

The western part of the LCZ comprises a generally well-wooded, disturbed setting comprising an ~30m wide bank of Gray Mangroves (*Avicennia marina*), with remnant patches of dry sclerophyll forest upslope, including some Swamp Oak (*Casuarina glauca*) and a substantially weed infested edge approximately 20-30m wide alongside Brooklyn Road and the rail corridor. Set within this area is a visually well protected private residence with a large adjoining cleared area to the west. To the east of the house a stand of five planted Cabbage Tree Palms (*Livstonia australis*) with a further outlier to the east are present. Given that both the size and alignment of these palms closely equates with the avenue planting of Cabbage Tree Palms in McKell Park, these seem likely to have been part of a once single longer avenue of palms stretching to the shoreline, with a section having been removed to facilitate construction of the railway in c.1886. Refer *Figure 8*.

Adjoining and to the north of the station, the foreshore narrows to a thin strip approximately 10m wide. Steps located on the northern end of the station pedestrian overpass bridge alight onto a rough mown area of the foreshore, which provides a ‘goat track’ link to a small jetty, facilitating water access via Sandbrook Inlet to the station and Brooklyn village. North of this point, a narrow band of foreshore is present along the edge of the rail corridor land bridge between the Brooklyn and the Long Island Nature Reserve, colonised with a small number of mangroves, and several moderately sized stands of swamp oak colonising above the tidal edge, interspersed with a bright green cover of weed species. Refer *Figure 9*.

Figure 8 View looking north-east across LCZ 1 from Brooklyn Road rail crossing bridge (Source: AECOM)

Figure 9 View looking north-east from Hawkesbury River Station pedestrian overbridge with LCZ 1 edge (Source: AECOM)

5.2.2 LCZ 2 – Rail corridor

LCZ 2 stretches from the Brooklyn Road bridge crossing of the Main Northern Railway to the land bridge north of Hawkesbury River Station. Refer *Figure 7*. The LCZ is subject to varying degrees of enclosure:

- west of the station by a dense mix of colonising native tree cover and introduced weed species providing a high degree of visual enclosure;
- at the station by a dense cultural planting of shrubs and small trees along the Dangar Road edge, with open views from the platform north across open water to the Long Island Nature Reserve (refer *Figure 10*), and
- north across the rail corridor land bridge with open views to the east, and intermittent views west to Long Island and Sandbrook Bay (refer *Figure 9*).

Looking towards the corridor from the village centre, an open view is available across a ~70m frontage. The area between the operational corridor fence and Brooklyn Road contains a small grouping of security fenced sheds and an open, unmarked gravel parking area. The character of this area is highly utilitarian and visually discordant with the adjoining ordered main street landscape. Refer *Figure 11*.

Figure 10 View of rail corridor looking south-west from Hawkesbury River Station (Source: AECOM)

Figure 11 View from corner of Brooklyn Road and Bridge Street looking towards rail corridor parking area (Source: Google Earth)

5.2.3 LCZ 3 – Village Main Street

LCZ 3 encompasses the commercial centre of Brooklyn village. Refer Figure 7. The structure of the Brooklyn village reflects the tightly rolling foothills topography of the area, with the Brooklyn Road entry from the west descending a moderately steep incline to a contained flat, before again rising quickly after the Bridge Street intersection, and terminating at a low retained hill edge. The descent into the village provides motorists with a brief surprise feature view to the north across the rail corridor and Sandbrook Inlet, to Long Island and Dangar Island in the middle ground, and rolling hilltops of Brisbane Water National Park in the background.

The village centre is laid out in an informal colonial grid, commencing with a generously widened Brooklyn Road, onto which much of the commercial centre faces (refer Figure 12). The character of the 'main street' is one of neat, one to two storey mostly attached development, much of which is heritage listed. The commercial buildings front directly onto the footpath, and in conjunction with an absence of street trees, the main street presents as strongly open and unadorned (refer Figure 13). The exception to this is the 'Anglers Rest' Hotel on the corner of Brooklyn Road and Bridge Street, which is setback from both streets, and has a substantial hedged shrubbery along the Brooklyn Road frontage.

The grid extends south up the steep slope of Bridge Street, flanked by a further few commercial buildings, to residential blocks quickly contained by the steep forested slopes of Ku-ring-gai Chase National Park, and which subsequently extends east along foot slopes towards McKell Park and Parsley Bay.

A further key characteristic of the village main street is its strong visual containment by steep forested hills from west through to south, and the culturally well-wooded hilltop of McKell Park to the east.

Figure 12 View looking west along Brooklyn Road to Village entry with rail parking area to right of frame (Source: AECOM)

Figure 13 View looking south-east towards the corner of Brooklyn Road and Bridge Street (Source: AECOM)

5.2.4 LCZ 4 – Riverfront Street

LCZ 4 encompasses the full length of Dangar Road and the adjacent wooded hillside of McKell Park. Refer *Figure 7*. The character of this LCZ is in stark contrast to the open, unadorned character of the adjoining LCZ 3 (Village Main Street). The LCZ 4 Riverfront Street is characterised by extensive street and parkland planting with views to the Hawkesbury River available from most locations, in addition to a focus on car access and parking.

The LCZ has two distinct sub-types comprising:

- western end: Corner of Dangar Road and Brooklyn Road to McKell Park entry (refer *Figure 14*), and
- eastern end: McKell Park entry to the end of Dangar Road (refer *Figure 15*).

5.2.4.1 Riverfront Street – western end

Figure 14 encapsulates key character elements of the western end of LCZ 4, including:

- a densely planted mix of hardy and bright flowering shrubs and small trees between the rail corridor and the street, with no parking along this northern edge;
- stands of large and small trees along the southern side of the road including the stand of venerable heritage listed Cabbage Tree Palms seen against the skyline at the entry to McKell Park, and restricted provision for on-street parking on this side of the road;
- an informal pedestrian / vehicle ‘share zone’ along the northern edge of the road, defined by a narrow concrete footpath with a flush connection (i.e. no kerb) to the bitumen road surface; and
- a feature view at the end of the street incorporating a new, quaint ‘Riverboat Postman’ ticket office, and enticing glimpse water view, set against the forested backdrop of Dangar Island.

Although not seen from this camera location, the southern steps and retaining walls of Hawkesbury River Station comprise a prominent street edge element within LCZ 4, with a faux ‘sandstone’ concrete block wall and carefully articulated combination of steel gray ‘angle iron’ and mesh balustrades, steel girder supports and lighting stands with stainless steel railings. Refer *Figure 16*.

Other key elements of the western end of the street comprise:

- the heritage listed (refer *Figure 5* and *Figure 17*):
  - Railway Shelter Shed (228), partially 'enveloped' by a large evergreen tree;
  - a simple timber and corrugated iron cottage (229), and
  - a sandstone obelisk, placed in 1939 to commemorate 150 years since the discovery and naming of the Hawkesbury River by Governor Phillip in 1789, and located opposite the proposed Dangar Road lift (refer *Figure 18*);
- 'Fitzies' Fish & Chips, a locally renowned takeaway food outlet;
- the marina end of the street with informal car parking area, jetty and ticket office for the 'River Postman', and
- the rail corridor land bridge, along can be accessed the Brooklyn Public Wharf, a jetty for fishing vessels, beyond which an intermittent, narrow band of Gray Mangroves has colonised.

Figure 14 View looking north-east along Dangar Road (Source: AECOM)

Figure 15 View from Hawkesbury River Station pedestrian overbridge looking east along Dangar Road (Source: AECOM)

Figure 16 View looking north from 'Fitzies' Fish and Chips towards Hawkesbury River Station pedestrian overpass (Source: AECOM)

A further important character element of this LCZ is the elevated backdrop of cultural plantings on the low ground and forest bushland remnants to the hillside running through McKell Park, which enhances the sense of enclosure and relatively intimate experience of walking down this road. Refer *Figure 17*.

Figure 17 View looking south from Hawkesbury River Station pedestrian overpass to Dangar Road (Source: AECOM)

Figure 18 View of obelisk placed in 1939 to commemorate 150 years since the discovery and naming of the Hawkesbury River by Governor Phillip in 1789 (Source: AECOM)

5.2.4.2 Riverfront street – eastern end

Figure 15 encapsulates key character elements of the eastern end of LCZ 4, including:

- an avenue planting of heritage listed cabbage tree palms;
- extensive car access and parking with slowed traffic, and within proximity of the entry, the narrow
- road being informally used as a shared pedestrian space;
- small park settings adjoining Dangar Road with visually dominant heritage park plantings of Hoop Pine (*Araucaria cunninghamii*) and Canary Island Date Palm (*Phoenix canariensis*);
- hillside backdrop of dense remnant bushland;
- small buildings either side of the road, other than for the long, double-storey Hawkesbury River Marina building; and
- extensive 90^{o} degree parking to both sides of the eastern end of the road and panoramic view across the Hawkesbury River to Long Island, Dangar Island and Brisbane Water National Park.

5.2.5 LCZ 5 – Marina

Figure 19 encapsulates key character elements of the Marina (LCZ 5), including:

- Small pleasure craft, pontoons and ancillary shoreline buildings including marine industry work sheds and the Riverboat Postman ticket office;
- The avenue of Cabbage Tree Palms adjacent forested hillside at the entry to McKell Park;
- The rail corridor including the Main Northern Railway land bridge, overhead rail gantries and lines, 166kV power lines, and both sides and parts of the top of the Hawkesbury River Station pedestrian overpass (centre of frame); and
- The highly textured deep-green, forested backdrop of Ku-ring-gai Chase National Park in the middle ground and
- the long, dark green forested ridgelines of Muogamarra Nature Reserve in the background.

Figure 20 shows a view from the rail corridor looking towards the Hawkesbury River Marina, including:

- the long and relatively low marina building with shaded outdoor decks and seating;
- structured pontoon decking with associated boating and boat fuelling facilities;
- the backdrop of the densely forested McKell Park hillside and Cabbage Tree Palms seen against the skyline.

The Marina landscape is strongly separated from the adjoining LCZ 4, with the Marina building facing onto the water, and ‘turning its back’ on Dangar Road.

Figure 19 View from pontoon (Hawkesbury River Marina) looking south-west towards Dangar Road with backdrop of Ku-ring-gai Chase National Park (Source: AECOM)

Figure 20 View from Brooklyn Ferry Wharf looking south-east towards Hawkesbury River Marina (Source: AECOM)

6.0 Landscape character impact assessment

An assessment of landscape character impacts at operation arising from the Proposal has been undertaken for each Landscape Character Zone (LCZ) to determine the effects of the change on the character of the landscape within which the Proposal is set, and the significance of those effects. Refer *Section 5.2* for description of LCZs and *Section 2.2.1* for a description of the landscape character grading matrix used in the assessment. Refer below tables for the assessment of LCZs.

6.1 LCZ 1 – Wooded / disturbed foreshore

The potential effects of change on LCZ 1 are described in *Table 3*.

Table 3 LCZ 1 – wooded / disturbed Foreshore – landscape character impact assessment

LCZ 1 – Wooded / disturbed foreshore
Refer *s.5.2.1* for description of LCZ 1.
Anticipated change to LCZ 1 There would be no physical change to LCZ 1. The LCZ heritage setting would change with the addition of two modern steel-framed glass lift shafts. These uncharacteristic elements (from a heritage setting perspective) would project 6m above the level of the pedestrian overpass walkway, with the closer of the two being 3.0m square and projecting 11.9 metres above the station platform. It is noted that the entry steps and footbridge have recently been upgraded using heritage contextual materials but in a modern architectural form. The Proposal is complimentary with and extends upon this recent heritage sensitive architectural response.
Sensitivity to change The sensitivity of LCZ1 to the anticipated change is considered to be Low (adverse), as: *Susceptibility to change* The susceptibility of LCZ 1 to change is low given that the Proposal would not detract from its aesthetic qualities or landscape condition. *Value of landscape receptor* The LCZ has a local level of landscape value given that it comprises the interface with the water, and contains: six very old Cabbage Tree Palms, potentially once part of the heritage listed avenue of Cabbage Tree Palms at the entry of McKell Park; a substantial stand of Gray Mangroves; and sporadic occurrence of Swamp Oak. However, much of the LCZ falls within the SP2 Infrastructure Corridor, and the character of the area is run down with a rough mown grassed area adjacent the pedestrian access steps, and substantial weed infestation through the vegetated corridor, including the area zoned RE1 Public Recreation.
Magnitude of change The magnitude of change for LCZ 1 is considered to be Low (adverse) as: *Size or scale* The scale of change in the landscape would be Low, given there would be no loss or addition of features within LCZ 1; but the aesthetic quality of the LCZ 1 would perceptibly change in response to the change in the aesthetic / heritage quality of the adjoining LCZ 2 with the addition of modern lift elements. *Geographical extent* The effects of the Proposal would be minor within this LCZ. *Duration and reversibility* The duration of the Proposal would be long-term, with low potential for reversibility.
Significance of landscape character effect The significance of landscape character effects arising from the Proposal on LCZ 1 is considered to be Low (adverse).

6.2 LCZ 2 – Rail corridor

The potential effects of change on LCZ 2 are described in *Table 4*.

Table 4 LCZ 2 – rail corridor – landscape character impact assessment

LCZ 2 – Rail corridor
Refer *s.5.2.2* for description of LCZ 2.
Anticipated change to LCZ 2 The key change to the LCZ would be the introduction of the two modern steel-framed glass lift shafts, with the roadside lift shaft having a width of 2.3m and length of 3.0m, projecting 15.2m above footpath level, about 1.0m beyond the outside line of the lower pedestrian steps. The lift would project 3.1m beyond the line of the existing concrete block wall that supports the upper pedestrian overpass steps, resulting in a localised narrowing of the proposed pedestrian access path where it adjoins the lift to between about 1.2-1.5m wide. The existing path would be reformed with a new kerb to match that of the existing sandstone kerb, and extend between the foot of the existing footbridge stairs, and the entrance to the Brooklyn Wharf.
Sensitivity to change The sensitivity of LCZ 2 to the anticipated change is considered to be Moderate (adverse), as: *Susceptibility to change* The susceptibility of LCZ 2 to change is moderate given that the Proposal would in some measure change the character of the station, with the lifts comprising uncharacteristic modern lift shaft forms, that would be in moderate contrast to much of the fabric and aesthetic of the State listed Hawkesbury River Railway Station Group. However, it is noted that the fabric of the pedestrian overpass steps and footbridge have recently been upgraded in an aesthetically sympathetic manner with the heritage item, comprising a well-considered family of elements, including: steel gray balustrades and throw screens with substantially 'transparent' mesh; consistent steel gray mounting of modern elements including lighting, signage, and a row of openable aluminium windows along the windward side of the footbridge; moulded stainless steel hand rails with steel gray attachment points, and visually recessive concrete steps with gray non-slip edge treads. Perhaps less successful is the faux sandstone block retaining wall used to support this structure, which appears somewhat visually incongruous within the heritage setting of the station, and the adjoining original battered, rough-stacked sandstone wall which supports the rail corridor edge west of the station entry. *Value of landscape receptor* The LCZ has a high level of landscape value given the State Heritage listing of the Station Group, particularly with regard to State Heritage Register (SHR) significance criteria such as: • '… able to evoke a former era of travel, communication and trade'; • 'The station group has an outstanding degree of aesthetic significance'; and • 'The Station Group also forms part of an unusual late nineteenth and early twentieth century railway • landscape of outstanding significance clustered around the Hawkesbury River.'

LCZ 2 – Rail corridor
Magnitude of change The magnitude of change for LCZ 2 is considered to be Low (adverse) as: *Size or scale* The scale of change in the landscape would be Low given: addition of two lift shafts within the SHR listed station, which would be in moderate contrast to the fabric and aesthetic qualities of the station, particularly given integration of these elements with the recent upgrading of the pedestrian steps and footbridge. However, the proportion of the station affected by the Proposal would be low, with the lift shafts separated from the station building by the pedestrian overpass and associated steel lattice support structures, in addition to the steps. Within this context, the Proposal is considered not to change the key characteristics of the landscape which are critical to its distinctive character, comprising: the wider Station Group; and the aesthetic significance of the railway landscape, particularly the 'picturesque setting on the edge of the Hawkesbury, with views over the water to the east and west and to Long Island to the north, including the land bridge between Brooklyn and Long Island and the portals of the current and former Long Island tunnels. *Geographical extent* The geographical extent of the area over which the effects of the Proposal would be visible is considerable, influencing to varying degrees all five identified LCZs. *Duration and reversibility* The duration of the Proposal would be long-term, with low potential for reversibility.
Significance of landscape character effect The significance of the landscape character effects arising from the Proposal on LCZ 2 is considered to be Moderate to Low (adverse)

6.3 LCZ 3 – Village Main Street

The potential effects of change on LCZ 3 are described in *Table 5*.

Table 5 LCZ 3 – Village Main Street – landscape character impact assessment

LCZ 3 – Village Main Street
Refer *s.5.2.3* for description of LCZ 3.
Anticipated change to LCZ 3 There would be no physical change to LCZ 3 arising from the Proposal. Landscape effects would be limited to potential perceptions of heritage character quality within the LCZ arising from the addition of modern steel-framed glass lift shafts within the immediate setting (LCZ 4).
Sensitivity to change The sensitivity of LCZ 3 to the anticipated change is considered to be Low (adverse), as: *Susceptibility to change* The ability of LCZ 3 to accommodate the Proposal without undue consequences for the maintenance of its existing landscape character is high given there is no impact within the Village Main Street. *Value of landscape receptor* The LCZ has a high level of landscape value given the number of heritage listed buildings within the LCZ (refer *Figure 5*), and the distinctive, open colonial street pattern (refer *s.5.2.3*).
Magnitude of change The magnitude of change for LCZ 3 is considered to be Low (adverse) as: *Size or scale* There would be no loss of elements within the LCZ. There could be a minor perceptual loss of heritage character given visual connection of the main street with the modern lift shaft forms in the adjoining LCZ 4 (Riverfront Street). However, this effect would not change the key characteristics of LCZ 3. The scale of change would therefore be low. *Geographical extent* The geographical extent of the area affected by the Proposal would be highly localised along the Brooklyn Road frontage of the Anglers Rest Hotel. *Duration and reversibility* The duration of the Proposal would be long-term ~50-60 years, with a low potential for reversibility.
Significance of landscape character effect The significance of the landscape character effects arising from the Proposal on LCZ 3 is considered to be Low (adverse).

6.4 LCZ 4 – Riverfront Street

The potential effects of change on LCZ 4 are described in *Table 6*.

Table 6 LCZ 4 – Riverfront Street – landscape character impact assessment

LCZ 4 – Riverfront Street
Refer *s.5.2.4* for description of LCZ 4.
Anticipated change to LCZ 2 The key changes to the LCZ would be: the introduction of the two modern steel-framed glass lift shafts, with the roadside lift shaft being about 2.3m wide by 3.0m long, projecting 15.2m above footpath level, and about 2.0m beyond the line of the existing outer concrete block wall supporting the pedestrian overpass steps. Further, the proposed accessible car space and kiss and ride bay has the potential to compromise the landscape curtilage of the heritage-listed 'Hawkesbury River Art' house and garden, Governor Phillip obelisk, and adjacent Cabbage Tree Palms and Canary Island Palms.
Sensitivity to change The sensitivity of LCZ 4 to the anticipated change is considered to be Moderate (adverse), as: *Susceptibility to change* The ability of the LCZ to accommodate the Proposal without undue consequences for the maintenance of its existing landscape character is high given: • The existing pedestrian overpass steps comprise a large, uncharacteristic contemporary structure within the street comprising a faux 'sandstone' concrete block wall with concrete steps and architecturally well-considered balustrades and railings that reference the existing steel girder and 'angle iron' lattice supports of the pedestrian overbridge; • The modern steel and glass design of the upper sections of the lift shafts above the lift base wall would artfully combine similar steel and mesh materials with glass for the proposed lifts, providing a relatively seamless, architecturally well-integrated, visually recessive outcome with the above described steel elements of the pedestrian overbridge; • The use of light grey concrete modular blocks, with sharp edges, and in quarter stretcher bond to the lift base wall, introduces a new building material, pattern and colour to the existing station setting, the scale of which is small compared with that of the adjacent faux sandstone retaining walls, and extensive use of dark charcoal grey steel for the pedestrian overbridge; • The pairing of the lift shafts with pedestrian overbridge supports helps to integrate the lift shafts into the landscape, and diminish the visual scale of the lift shafts. *Value of landscape receptor* Notwithstanding the significant vehicle usage and parking of the Riverfront Street, the LCZ has a high level of value within the context of the heritage items within it, and its distinctive qualities including the heritage listed avenue of Cabbage Tree Palms, views to Sandbrook Inlet, Brooklyn Channel and the Hawkesbury River with its backdrop of Nature Reserves and National Parks, and the intimate, informal character of the 'street' that is 'shared' between pedestrians and cars.

LCZ 4 – Riverfront Street
Magnitude of change The magnitude of change for LCZ 4 is considered to be Moderate (adverse) as: *Size or scale* The size or scale of change likely to be experienced in the landscape would be moderate given that: • no landscape elements would be lost, • the proportion of the LCZ that the Proposal represents is low; • the intimate heritage and maritime influenced character of the street has the capability to visually absorb the landscape effects of the Proposal, without changing the key characteristics of the LCZ which are critical to its distinctive character. However, there is potential for the following adverse landscape effects arising from the proposed accessible pathway, accessible parking and kiss and ride parking, comprising impact on the landscape curtilage of the heritage-listed: • 'Hawkesbury River Art' house and garden; • Governor Phillip obelisk, and • Cabbage Tree Palms and Canary Island Palms. *Geographical extent* The geographical extent of the area over which the effects of the Proposal would be visible would comprise a substantial addition, but affecting a localised area. Notwithstanding, the effects would influence several LCZs. *Duration and reversibility* The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.
Significance of landscape character effect The significance of the landscape character effects arising from the Proposal on LCZ 4 would be Moderate (adverse)..

6.5 LCZ 5 – Marina

The potential effects of change on LCZ 5 are described in *Table 7*.

Table 7 LCZ 5 – Marina – landscape character impact assessment

LCZ 5 – Marina
Refer *s.5.2.5* for description of LCZ 5.
Anticipated change to LCZ 5 There would be no physical change to LCZ 5 arising from the Proposal. Landscape effects would be limited to potential for perceptions of impact on the quality of this LCZ arising from the addition of modern steel-framed glass lift shafts within the immediately adjoining high amenity setting of LCZ 4. The lift shafts would be seen projecting above the height of the pedestrian overbridge from pontoons within the Marina.
Sensitivity to change The sensitivity of LCZ 5 to the anticipated change is considered to be Low (adverse), as: *Susceptibility to change* The ability of the LCZ to accommodate the Proposal without undue consequences for the maintenance of its existing landscape character is moderate to high given: • there is no physical change arising from the Proposal within the LCZ, but • the Dangar Road lift shaft would comprise a moderately prominent new infrastructure element within the substantially naturalistic backdrop to the marina. Refer *Figure 19*. It is noted that the station entry steps and footbridge have recently been upgraded using heritage contextual materials but in a modern architectural form. The Proposal is complimentary with and extends upon this recent heritage sensitive architectural response. *Value of landscape receptor* The Marina comprises a high amenity / high value landscape. The backdrop of cultural plantings within LCZ 4, and the densely forested backdrop Ku-ring-gai National Park in the middle ground, and Muogamarra Nature Reserve in the background comprise important complementary elements that contribute to the high rating of this LCZ.
Magnitude of change The magnitude of change for LCZ 4 is considered to be Low (adverse) as: *Size or scale* The size or scale of change likely to be experienced in the landscape would be low given that: • no landscape elements would be lost within this LCZ; • the introduction of the lift shafts within the adjoining LCZ 4 would cause a low to potentially moderate change in the 'naturalistic' setting of the Marina, noting that the dark colours and 'transparent' qualities of the lift shafts would moderate the landscape effects of the Proposal; • the above effects on LCZ 5 arising from the Proposal would not significantly change the key characteristics of the landscape, which are critical to its distinctive character. *Geographical extent* The geographical extent of the area over which the effects of the Proposal would be felt would be localised. The effects would have an influence at the level of the immediate setting of the LCZ. *Duration and reversibility* The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.
Significance of landscape character effect The significance of the landscape character effects arising from the Proposal on LCZ 5 would be Low (adverse).

7.0 Visual impact assessment

7.1 Visual envelope mapping

Mapping of the visual envelope of the Proposal, i.e. where it would be seen from, is shown in *Figure 21*. The area from which the Proposal would be seen was found to be relatively small, broadly comprising:

- the Brooklyn Road crossing of the Main Northern Railway;
- a limited part of the main street which has a view down Dangar Road to the station;
- Hawkesbury Marina and adjacent areas;
- Hawkesbury River Station;
- the land bridge to Long Island (up to the fenced off area);
- the slashed area along the northern edge of the station; and from
- watercraft on Sandbrook Inlet and Brooklyn Channel entering and leaving Brooklyn Wharf.

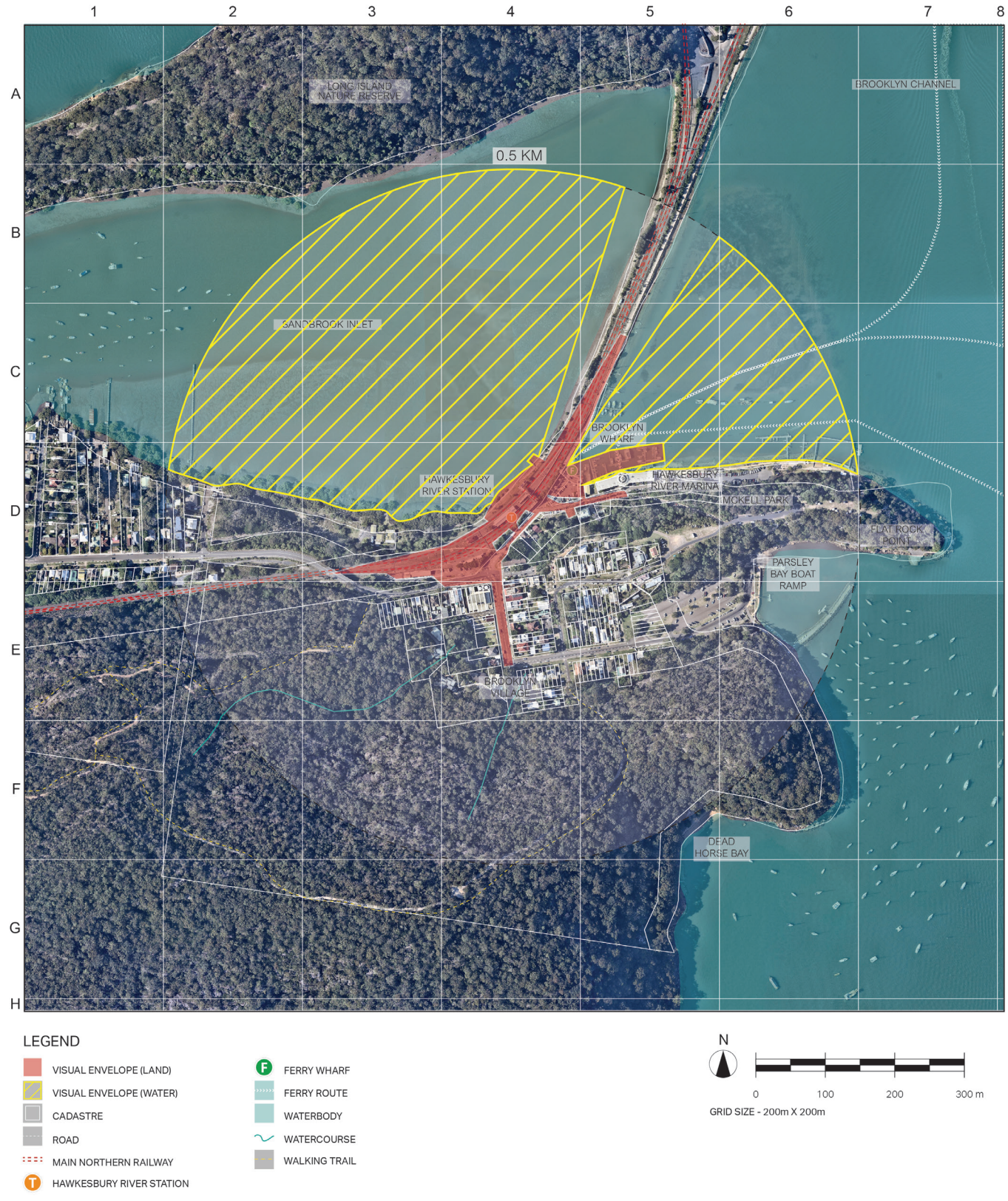

Figure 21 Visual envelope map showing key areas from which the Proposal would be seen

7.1.1 Visual receptors

Visual effects of the Proposal are assessed for the following key visual receptors:

- tourists / day visitors to Brooklyn, and
- local residents / rail commuters.

7.1.2 Visual receptor locations rationale

The rationale for choice of visual receptor locations comprises:

- VR 1 - McKell Park entry: representative view for day visitors as they leave McKell Park, and rail commuters who drive and park within McKell Park and walk back towards the station.
- VR 2 - Brooklyn Public Wharf: representative view for local and river residents who use this wharf, and for the River Postman jetty, where tourists board and alight from the River Postman ferry.
- VR 3 - 'Fitzies' Fish & Chips: representative view for tourists / day visitors to Brooklyn, and local / river residents.
- VR 4 - Brooklyn Road: representative view for tourists / day visitors walking along the main street, and patrons within the Anglers Rest Hotel beer garden.
- VP 5 - Hawkesbury River Station: representative view for local rail commuters.

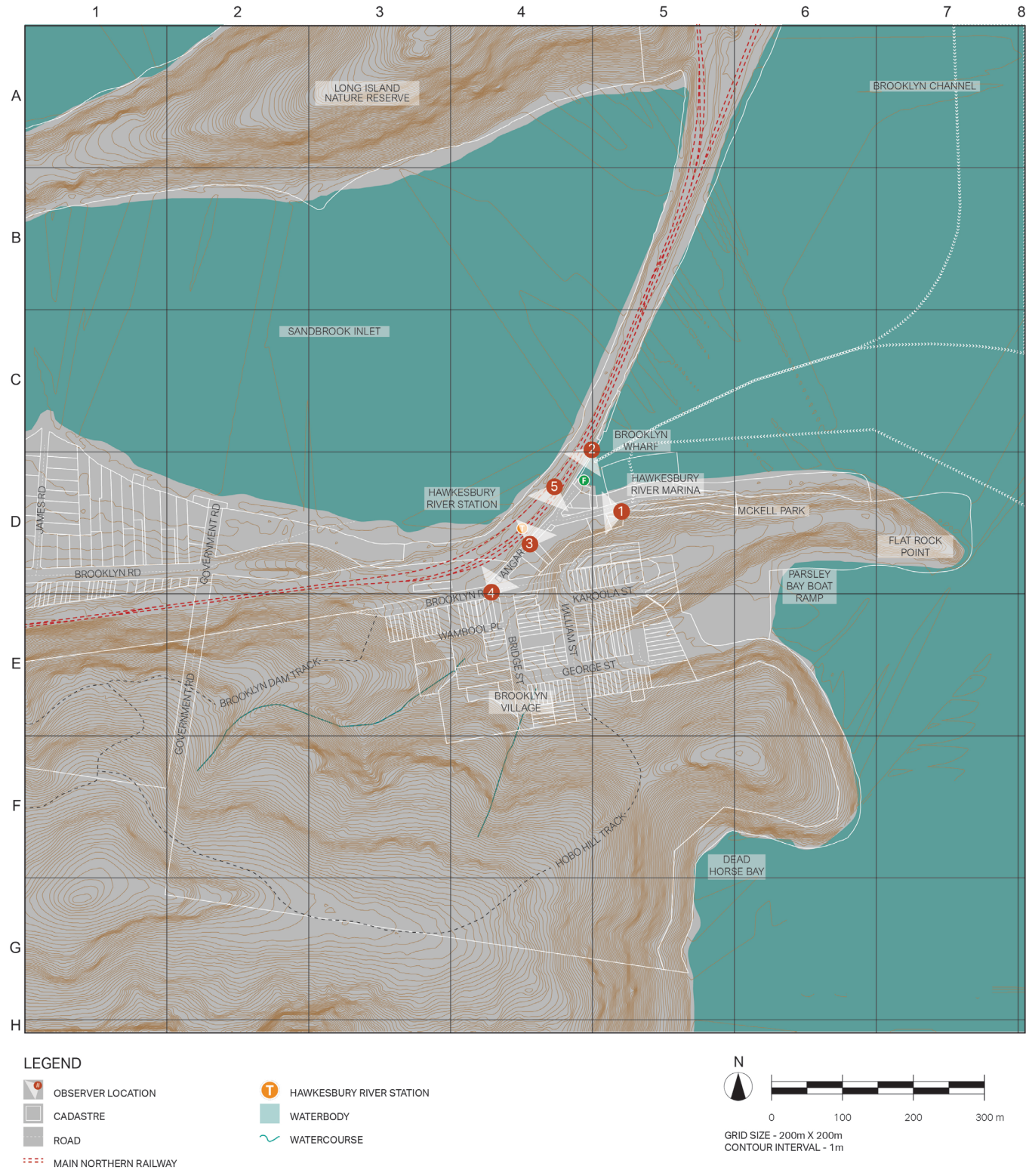

Figure 22 Map of visual receptor locations

7.2 Visual impact assessment

7.2.1 Construction visual impacts

Visible construction elements would be expected to typically include a range of site sheds, hoardings, plant - including for excavation of lift wells, a crane to place the lifts, and heavy vehicles bringing in and unloading materials. Traffic management would periodically be in place given the location of the Dangar Road lift in particular, and for the commuter parking areas east of the Proposal.

These visual impacts would be substantial, but would be temporary over a period of about 18 months until completion of the Proposal. Refer Section 9.2 for mitigation measures proposed for implementation during the construction period.

7.2.2 Operational visual impacts

7.2.2.1 VR 1 – McKell Park entry

Table 8 assesses the significance of visual effects arising from this visual receptor location.

Figure 23 Panorama of existing view looking west towards the Proposal from Dangar Road parking area (Source: AECOM)

Figure 24 Photomontage showing the proposed view with the Proposal in place (Source: AECOM)

Table 8 VR 1 - McKell Park entry – visual impact assessment

VR 1 – McKell Park entry
Existing view Key elements of the existing view *Figure 23* comprise: • the formal entry avenue of heritage-listed (local) Cabbage Tree Palms to McKell Park along Dangar Road • the small reserve setting flanked by office building and amenities block (left of frame), set within an informal cultural planting including Hoop Pine and Jacarandas (Jacaranda mimosifolia), and regrowth eucalypts on the hillside • the 'hard' environment of Dangar Road with unmarked gravel car parking in the foreground and middle ground, the Hawkesbury Marina building with 'back-of-house' façade to the street, a moderately sized, utilitarian shed, signage, and intermittent, opportunistic tall shrub planting • Hawkesbury River Station in the middle ground centre of frame, with the pedestrian footbridge and steps, and station building behind, seen at a distance of between about 100-150m.

VR 1 – McKell Park entry
Anticipated change to view *Figure 24* shows the view with the Proposal in place. The key seen elements comprise: • a new steel frame lift shaft with glass cladding and dark louvres at the top projecting some 4.4m above the footbridge deck height, and the deck extending some 5.0m out towards Dangar Road • a similar lift shaft projecting up from the station platform some 4.8m above the footbridge deck height • the steel frame fabric of the lift shafts would be visually sympathetic to the recent renovation of the station steps and footbridge – refer *Table 4* • the upper sections of the lift shafts are seen with the pedestrian footbridge in relief against the skyline.
Sensitivity to change The sensitivity of VR 1 to the anticipated change in the view is considered to be Low (adverse) due to: *Susceptibility to change* Primary visual receptors would be: • recreational day visitors to McKell Park and/or Brooklyn, who can be expected to have a moderate level of their attention focused on the view and the visual amenity they experience at this location, given people's perception of the view be tempered by the fact that they are within a transport location where they would expect to see elements they associate with a station building (such as lifts) and • rail commuters who drive to the station and park within McKell Park, and then experience the view as they walk back towards the station, who can be expected to have a low level of their attention focused on the view and the visual amenity they experience at this location, taking into consideration the routine nature of the experience. *Value of landscape receptor* The value attached to VR1 is moderate, given: • the NSW State Heritage Register listing of the Hawkesbury River Railway Station Group, but noting this listing is for a range of values, many of which would not be significantly impacted when viewed from this location • the (local) heritage listing of the avenue of Cabbage Tree Palms.

VR 1 – McKell Park entry
Magnitude of change The magnitude of change is considered to be Moderate (adverse) as: *Size or scale* The size or scale of change likely to be experienced in the view would be moderate given: • the addition of two uncharacteristic lift shafts to the view, both projecting above the existing skyline, but noting these additions are not wholly inconsistent with the overall character and function of the site which is a Railway Station • the lift shafts would comprise a modern steel frame and glass paneling construction, with the dark charcoal gray steel frames referencing the form and materials of the pedestrian footbridge balustrades, while the clear glass paneling would provide framed views through the lift shaft to the landscape and sky behind • the height, squared form and colour of the lift shafts would integrate well with the existing footbridge 'steel' elements, while the glass panels would facilitate a 'lightness' of structure that referenced the 'angle iron' lattice structure of the existing footbridge supports • this view of the Proposal would be experienced rarely by most recreational day visitors to Brooklyn, and five days a week for 'park and ride' commuters, with the view being partially obscured by intervening tall shrub and small tree planting alongside Dangar Road and Hawkesbury River Station, and the avenue of Cabbage Tree Palms. *Geographical extent* The geographical extent of the visual effect from VR 1 would be low due to: • the Proposal being seen at a distance of about 100 m and therefore in a high level of detail • the extent of the area over which the changes would be visible would be small. *Duration and reversibility* The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.
Significance of visual effect The significance of the visual effects arising from the Proposal on VR 1 would be Moderate to Low (adverse).

7.2.2.2 VR 2 – Brooklyn public wharf

Table 9 assesses the significance of visual effects arising from this visual receptor location.

Figure 25 Panorama of existing view looking south-west towards the Proposal (Source: AECOM)

Table 9 VR 2 - Brooklyn public wharf - visual impact assessment

VR 2 – Brooklyn public wharf
Existing view Key elements of the existing view *Figure 25* comprise in the foreground: • Hawkesbury River Station to centre of frame, seen on an elevated ballast formation behind the chain wire corridor fence, and including the station platform, the pedestrian footbridge with wind protection wall and windows to much of the north-western facing edge, and the remainder with open railings and steps down to the Sandbrook Inlet side of the station • rusted gantries and very tall telegraph poles supporting high voltage transmission lines • the unsealed land bridge maintenance access road with weedy, unkempt edges, and • the Brooklyn Public Wharf shelter shed and jetty, with the quaint ‘River Postman’ ticket office and pontoon jetty and foreshore seen behind. These elements are seen against a verdant backdrop of dense tree and shrub planting in the middle ground, including: • a dense vegetative screen alongside the rail corridor • the Cabbage Tree Palm avenue planting, and further cultural plantings of large trees behind that, including Canary Island Palms, Hoop Pines, Jacarandas and eucalypts within McKell Park, • a range of small to very large garden trees within the properties opposite the station, • and a mix of foreshore endemic remnant tree regrowth and cultural plantings between Sandbrook Inlet and Brooklyn Road / the Main Northern Railway corridor. Set behind this diverse and often lush cultural planting, and seen against the skyline, lies the monolithic hillside backdrop of Ku-ring-gai Chase National Park, with a contrasting more homogenous, matt gray-green cover of dense forest. Notwithstanding the above, a lot of the foreground of this view comprises the land bridge maintenance access road with its weedy edges and chain wire fence, the rail corridor ballast formation and station platform wall, and rusty gantries and telegraph poles with a dense cover of overhead wiring.

VR 2 – Brooklyn public wharf
Anticipated Change to view The key seen elements would comprise: • a new steel frame lift shaft with glass cladding and dark louvres at the top projecting from the station platform some 4.8m above the footbridge deck height • the view of the Dangar Road lift shaft would be predominantly, or fully screened from view. • the steel frame fabric of the lift shaft would be visually sympathetic to the recent renovation of the station steps and footbridge – refer *Table 4* • • the upper section of the platform lift and pedestrian footbridge are seen against the above described forested backdrop. Refer *Figure 25*.
Sensitivity to change The sensitivity of VR 2 to the anticipated change in the view is considered to be Moderate (adverse) due to: *Susceptibility to change* The susceptibility of the visual receptors to the proposed change is considered to be low (adverse). Primary visual receptors would be: • residents of Dangar Island and Wobby Beach, and • to a lesser degree recreational day visitors to these locations. Recreational day visitors would be expected to pay close attention to the view, whereas the attention of residents who regularly take in the view may be more cursory. *Value of Landscape receptor* The value attached to VR2 is moderate, given: • the NSW State Heritage Register listing of the Hawkesbury River Railway Station Group, but noting this listing is for a range of values, many of would not be significantly impacted when viewed from this location • the (local) heritage listing of the avenue of Cabbage Tree Palms, and the extensive vegetated backdrop, including Ku-ring-gai Chase National Park • the immediate, hard infrastructure setting of VR1 which comprises a significant proportion of the view.

VR 2 – Brooklyn public wharf
Magnitude of change The magnitude of change is considered to be Low (adverse) as: *Size or scale* The size or scale of change likely to be experienced in the view would be low given: • the addition of a modern, glass paneled lift shaft to the view, which however is likely to have some capacity for visual absorption against the forested backdrop • the lifts would not be seen in isolation but as a part of the station building as a whole • the proportion of the view occupied by the Proposal would be small • this view of the Proposal would be experienced for generally short periods of time as people waited for or disembarked from the ferry. The view of the Proposal would be partial, with the Dangar Road lift shaft likely to be predominantly, or fully screened from view. *Geographical extent* • The geographical extent of the visual effect from VR 2 would be low due to: • the Proposal being seen at a distance of about 100m and therefore in a high level of detail, but • the extent of the area over which the changes would be visible would be small. *Duration and reversibility* The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.
Significance of visual effect The significance of the visual effects arising from the Proposal on VR 2 would be Moderate to Low (adverse).

7.2.2.3 VR 3 - 'Fitzies' Fish & Chips

Table 10 assesses the significance of visual effects arising from this visual receptor location.

Figure 26 Panorama of existing view looking north from 'Fitzies' Fish & Chips to the Proposal (Source: AECOM)

Figure 27 Photomontage showing the proposed view with the Proposal in place (Source: AECOM)

Table 10 VR 3 - 'Fitzies' Fish & Chips – visual impact assessment

VR 3 - 'Fitzies' Fish & Chips
Existing view Key elements of the existing view *Figure 26* comprise: • The narrow Dangar Road as perceived by pedestrians, with a variable footpath width to the Proposal side of the street, footpath set at the same height as the road, parking along the 'Fitzies' side of the road, no line marking, and periodically moderate to high traffic volumes • Conversely to the above, the high level of visual enclosure to the road vegetation and predominantly historic buildings also creates a quite intimate corridor space that focuses the 'river' view at the end of the street • the entry steps and footbridge to Hawkesbury River Station • extensive vegetation along both sides of the street, including the McKell Park entry avenue of Cabbage Tree Palms • the framed view at the end of the street of Hawkesbury Marina with the River Postman ticket office, seen against the backdrop of Dangar Island and a small but visually significant water view of Brooklyn Channel which reveals the river setting • power infrastructure along both sides of the road, comprising high and low voltage power poles and rail gantries.

VR 3 - 'Fitzies' Fish & Chips

Anticipated change to view

Figure 27 shows the view with the Proposal in place.

- The Dangar Road lift shaft:
  - is seen in full view projecting out to the street and above the height of the footbridge, to which it is connected by a new extension
  - comprises a simple, slender form that has a good visual fit with the existing infrastructure elements of the footbridge and steps
  - glass paneling causes the lift shaft to be substantially transparent, with both roadside vegetation and the sky seen through it, thereby reducing the visual bulk of the structure
  - gray strap metal framing and cladding top and bottom matches closely with the fabric of the footbridge support structure, stair balustrades, light poles and footbridge window fittings
  - the lift comprises an unambiguously 'modern' infrastructure addition to the heritage-listed Hawkesbury River Railway Station Group, but this is seen within the context of the contemporary refurbishing of the steps and footbridge which, in their form, materials and colour are visually sympathetic to the Station Group.
- In contrast to the above, the station platform lift is effectively fully screened from view by existing rail corridor edge screen planting. The clad top of the lift shaft can just be seen projecting above the footbridge windows, with the small section of the lift shaft seen below the cladding and through the footbridge windows, being seen as sky through the glass paneling.

Sensitivity to change

The sensitivity of VR 3 to the anticipated change in the view is considered to be Low (adverse) arising from:

Susceptibility to change

Primary visual receptors would be:

- recreational day visitors to McKell Park and/or Brooklyn, who can be expected to have a moderate level of their attention focused on the view and the visual amenity they experience at this location, particularly the feature view of Hawkesbury Marina, River Postman ticket office, Brooklyn Channel, and Dangar Island at the end of the street, noting the periodically moderate to high traffic volumes experienced along this road, particularly by pedestrians
- rail commuters who drive to the station and park within McKell Park, or park within the informal rail corridor parking area opposite the main street, and then experience the view as they walk towards the station, or drive past it into McKell Park. These visual receptors could be expected to have a low level of their attention focused on the view and the visual amenity they experience at this location given the routine nature of the experience, and likely moderate to high traffic levels experienced at workday morning and evening station travel times.

Within the context of the above, and the nature of the change in the view (refer 'Anticipated Change to View), the susceptibility of these receptors to the proposed change is considered to be moderate, and potentially low.

Value of landscape receptor

The value attached to VR3 is considered to be high, given:

- other that for the footbridge and its support structures, the seen elements of Hawkesbury River Station in this view do not comprise nominated elements of the NSW State Heritage Register listing of the Hawkesbury River Railway Station Group
- the (local) heritage listing of the Cabbage Tree Palms seen in the seen in the view
- 'Fitzies' comprises a locally recognised feature of Brooklyn, and the buildings either side of it are heritage (local) listed
- the intimate scale of the road corridor, in conjunction with the character of the heritage buildings and garden settings opposite the station, and the 'river' view at the end of the street are considered to comprise a valuable Brooklyn view.

VR 3 - 'Fitzies' Fish & Chips
Magnitude of change The magnitude of change is considered to be Low (adverse) as: *Size or scale* The size or scale of change likely to be experienced in the view would be low given: • the addition of effectively one lift shaft to the view, projecting above the existing skyline • the design of the lift shaft would comprise a modern dark charcoal gray steel frame and glass paneling construction, with the steel frames referencing the form and materials of the pedestrian footbridge balustrades, while the clear glass paneling would provide framed views through the lift shaft to the landscape and sky behind • the height, squared form and colour of the lift shafts would integrate well with the existing footbridge steel elements, while the glass panels would facilitate a 'lightness' of structure that referenced the 'angle iron' lattice structure of the existing footbridge supports • the Proposal is considered to comprise a visually sympathetic addition to the Station Group (refer Anticipated Change to View) • the proportion of the view occupied by the Proposal would be low • the view of the Proposal would be experienced for a relatively short time. *Geographical extent* The geographical extent of the visual effect from VR 3 would be low due to: • the Proposal being seen at a distance of about 50m and therefore in a high level of detail • the extent of the area over which the changes would be visible would be small. *Duration and reversibility* The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.
Significance of visual effect The significance of the visual effects arising from the Proposal on VR 3 would be Low (adverse).

7.2.2.4 VR 4 - Brooklyn Road

Table 11 assesses the significance of visual effects arising from this visual receptor location.

Figure 28 Panorama of existing view looking north-east along Dangar Road from Brooklyn Road to the Proposal (Source: AECOM)

Figure 29 Photomontage showing the proposed view with the Proposal in place (Source: AECOM)

Table 11 VR 4 - Brooklyn Road - visual impact assessment

VR 4 - Brooklyn Road
Existing view Key elements of the existing view *Figure 23* comprise: • a well-vegetated streetscape comprising Brooklyn Road, Dangar Road opposite with a partial view of the station steps, and Dangar Island with a small but significant view of blue water and the Hawkesbury River Marina, comprising an enticing feature view at the end of the road – the roadside planting of mainly large shrubs and small trees comprises a wide range of endemic and cultural species • extensive pole and gantry infrastructure within and alongside the rail corridor, located behind the above screen planting • the Brooklyn Community Health Centre (blond brick to centre of frame), set against a densely vegetated backdrop which makes it visually prominent • the well vegetated eastern ‘dead end’ of Brooklyn Road with heritage listed (local) two storey corner shop with upstairs residence • the large, open expanse of road surface with no street trees on Brooklyn Road west of Bridge Street.

VR 4 - Brooklyn Road

Anticipated change to view

Figure 24 shows the view with the Proposal in place. The key seen element comprises the Dangar Road lift shaft which:

- is viewed as a tall element located 'on the street' with a semi-transparent quality arising from the glass paneling
- blocks part of the view to Dangar Island and projects well-above the skyline, with the top of lift shaft seen as a solid, 'floating' squared element seen in high contrast against the sky
- is visually 'read' as a further infrastructure element located between numerous power poles and transmission lines adjoining the rail corridor and within Dangar Road – this has the effect of visually aggregating these elements into a concentration of infrastructure within the station area of the view.

Sensitivity to change

The sensitivity of VR 4 to the anticipated change in the view is considered to be Moderate (adverse) due to:

Susceptibility to change

Primary visual receptors would be:

- tourists / recreational day visitors walking along the main street could be expected to have a passing, moderate level of their attention focused on the view and the visual amenity they experience at this location, given the enticing glimpses of the water view and Dangar Island at the end of this section of Dangar Road, and
- patrons of The Anglers Rest Hotel beer garden (locals, tourists / recreational day visitors) could be expected to occasionally have their attention focused on the view and the visual amenity they experience at this location, given that for the majority of time, patrons would be expected to be focused on conversation with their friends.

Within the context of the above, and the nature of the change in the view (refer 'Anticipated Change to View), the susceptibility of these receptors to the proposed change is considered to be moderate.

Value of landscape receptor

The value attached to VR 4 is considered to be low to moderate, given the noticeable glimpse view of Brooklyn Channel and Dangar Island, which reveals the presence of the river landscape at the end of the road, but noting that it seen across the substantial foreground of an exposed Brooklyn Road footpath (e.g. no street trees), large bitumen intersection and the regular passing of cars.

VR 4 - Brooklyn Road

Magnitude of change

The magnitude of change is considered to be Moderate (adverse) as:

Size or Scale

The size or scale of change likely to be experienced in the view would be moderate given:

- the addition of a lift shaft to the view, projecting out onto the street, and above the Dangar Island skyline
- the lift shaft would comprise a modern steel frame and glass paneling construction, with the dark charcoal gray steel frames referencing the form and materials of the pedestrian footbridge balustrades, while the clear glass paneling would provide views through the lift shaft to the landscape and sky behind
- the height, squared form and colour of the lift shafts would integrate well with the existing footbridge steel elements, while the glass panels would facilitate a 'lightness' of structure – however the top of the lift shaft is visually prominent, reading as a solid, 'floating' squared element, seen in high contrast against the sky
- the lift shaft would be viewed as a further substantial infrastructure element located between numerous power poles and transmission lines adjoining the rail corridor and within Dangar Road – this has the effect of visually aggregating these elements into a concentrated 'block' of infrastructure within the station area of the view.
- the lift shaft would be seen for generally short periods of time, but seen in full view from this location.

Within the context of the above, and the nature of the change in the view (refer 'Anticipated Change to View), the susceptibility of these receptors to the proposed change is considered to be moderate.

Geographical extent

The geographical extent of the visual effect from VR 4 would be Low due to:

- the Proposal being seen at a distance of about 160m and therefore in a high to moderate level of detail
- the small area over which the changes would be visible.

Duration and reversibility

The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.

Significance of visual effect

The significance of the visual effects arising from the Proposal on VR 4 would be Moderate (adverse).

7.2.2.5 VR 5 - Hawkesbury River station

Table 12 assesses the significance of visual effects arising from this visual receptor location.

Figure 30 Panorama of existing view looking south-west from the station platform to the Proposal (Source: AECOM)

Figure 31 Photomontage showing the proposed view with the Proposal in place (Source: AECOM)

Table 12 VR 5 - Hawkesbury River station - visual impact assessment

VR 5 - Hawkesbury River station
Existing view Key elements of the existing view *Figure 23* comprise: • the station corridor including the platform, footbridge and steps, rusted gantries and wiring, view to Sandbrook Inlet including the chain wire boundary fence and mown edge, and the Dangar Road corridor edge planting • the middle ground and backdrop view of cultural plantings including the Cabbage Tree Palms, Hoop Pines and forested backdrop of Ku-ring-gai Chase National Park • the existing view has a strong horizontal character comprising Sandbrook inlet, the station platform and tracks, and the pedestrian footbridge which only marginally projects above the broadly flat top of the forested Ku-ring-gai Chase National Park backdrop.
Anticipated change to view *Figure 24* shows the view with the Proposal in place. The key seen elements comprise: • the new platform lift shaft which protrudes above the skyline, but the fabric of which visually references the existing footbridge and steps (refer *Table 10* – 'Anticipated Change to View'), and • the top of the Dangar Road lift shaft and associated extension to the footbridge.
Sensitivity to change The sensitivity of VR 5 to the anticipated change in the view is considered to be Moderate (adverse) due to: *Susceptibility to change* Primary visual receptors would be rail commuters with a range of high to potentially low levels of their attention focused on the view and the visual amenity they experience at this location, given the nature of their daily workday commutes, e.g. where the view may to varying degrees tend to become 'commonplace' over time for some commuters, with their attention more often focused on the tasks ahead for the day. A smaller cohort of visual receptors would comprise recreational day visitors who catch the train to Brooklyn, and bushwalkers traveling to and from 'The Great North Walk' Brooklyn Trackhead. Within the context of the above, and the nature of the change in the view, the susceptibility of these receptors to the proposed change is considered on balance to be low. *Value of landscape receptor* The value attached to VR 5 is high, given: • the State Heritage Register listing of the Hawkesbury River Railway Station Group, and • the views to Sandbrook Inlet, and the vegetated setting and backdrop to the station.

VR 5 - Hawkesbury River station

Magnitude of change

The magnitude of change is considered to be Low (adverse) as:

Size or scale

The size or scale of change likely to be experienced in the view would be moderate given:

- the addition of two lift shafts to the view, one projecting well above the existing skyline, and adding a visually modern vertical element to the 'subdued', horizontal characteristics of the elements within the view (refer 'Existing View')
- notwithstanding the above, lifts are becoming an increasingly common and therefore characteristic element of station rail infrastructure experienced by commuters within the Sydney Metropolitan Area and railway lines north, south and west of this
- the fabric of the Proposal, which visually references the existing footbridge and steps, and is considered to be a good visual fit in this regard (refer *Table 10* – 'Anticipated Change to View'),
- the view of the Proposal would generally be experienced five days a week, but for generally low periods of time as commuters waited for their scheduled trains, or alight and leave the station, and
- The station platform lift shaft would be in full view, while the Dangar Road lift shaft would be substantially obscured by the existing footbridge and corridor screen planting.

Geographical extent

The geographical extent of the visual effect from VR 5 would be low due to:

- the Proposal being seen at a distance of about 30m and therefore in a high level of detail, but
- the extent of the area over which the changes would be visible would be small.

Duration and Reversibility

The duration of the Proposal would be long-term (50-60 years), with low potential for reversibility.

Significance of visual effect

The significance of the visual effects arising from the Proposal on VR 5 would be Moderate to Low (adverse).

8.0 Summary of outcomes

8.1 Summary of effects on landscape character

As shown in *Table 13*, the significance of effects on landscape character all fell between Low (Adverse) and Moderate (Adverse), with three of the five LCZ's rated as Low, and LCZ 4: Riverfront Street rating as Moderate. As such, this report finds that there was no significant effect on landscape character arising from the Proposal (i.e. no rating of High (Adverse), or Moderate–High (Adverse)).

Table 13 Summary of effects on landscape character

LANDSCAPE CHARACTER ZONE	SENSITIVITY	MAGNITUDE	SIGNIFICANCE OF LANDSCAPE EFFECTS	ADVERSE	NEUTRAL	BENEFICIAL
LCZ 1: WOODED / DISTURBED FORESHORE	LOW	LOW	**LOW**	●		
LCZ 2: RAIL CORRIDOR	MODERATE	LOW	**MODERATE TO LOW**	●		
LCZ 3: VILLAGE MAIN STREET	LOW	LOW	**LOW**	●		
LCZ 4: RIVERFRONT STREET	MODERATE	MODERATE	**MODERATE**	●		
LCZ 5: MARINA	LOW	LOW	**LOW**	●		

8.2 Summary of effects on views and visual amenity

As shown in *Table 14*, the significance of effects on views and visual amenity all fell between Low and Moderate, with both VR 1: McKell Park Entry and VR 4: Brooklyn Road rating as Moderate. As such, this report finds that there was no significant impact on landscape character arising from the Proposal (i.e. no rating of High (Adverse), or Moderate–High (Adverse)).

Table 14 Summary of effects on views and visual amenity

VISUAL RECEPTOR LOCATION	SENSITIVITY	MAGNITUDE	SIGNIFICANCE OF VISUAL EFFECTS	ADVERSE	NEUTRAL	BENEFICIAL
VR 1: MCKELL PARK ENTRY	LOW	MODERATE	**MODERATE TO LOW**	●		
VR 2: BROOKLYN PUBLIC WHARF	MODERATE	LOW	**MODERATE TO LOW**	●		
VR 3: 'FITZIES' FISH & CHIPS	LOW	LOW	**LOW**	●		
VR 4: BROOKLYN ROAD	MODERATE	MODERATE	**MODERATE**	●		
VR 5: HAWKESBURY RIVER STATION	MODERATE	LOW	**MODERATE TO LOW**	●		

9.0 Mitigation measures

Drafting Note: These mitigation measures are proposed by AECOM Landscape and Visual team. Please confirm if these are ok to be transferred to the REF. Please discuss if necessary.

Mitigation measures would be implemented to minimise the level of visual impact during the design development, construction and operation phases of the Proposal

9.1 Design development

The following general mitigation measures are recommended to minimise visual impacts during the design development process:

- provide detail design integration of the new access path and pedestrian crossing from the Dangar • provide detail design integration of the new access path and pedestrian crossing from the Dangar Road station entry to the kiss and ride and accessible carpark, including with the existing Governor Phillip monument, e.g. align the footpath with the base of the monument, and provide a sufficient landscape curtilage around it, and/or provide other intervention that recognises and responds to the monument, e.g. artist integration within the new footpath that recognises and responds to the monument. Refer to *Figure 18.*
- consider the use of a darker, 'heavier' colour for the lift base wall that more closely reflects the dark charcoal grey colour predominant within the pedestrian overbridge, and provides increased visual strength / weight to the base of the shaft.
- consider minor relocation and realignment of the Governor Phillip monument away from the proposed accessible footpath, e.g. 1-2 metres south, to provide an improved landscape curtilage for this historic element.

9.2 Construction

The following mitigation measures are recommended to minimise visual impacts as a result of construction:

- consider further cleaning of the lime leaching from the small section of recently constructed rough-stacked, battered sandstone wall adjoining the new faux sandstone block wall at the southern end of the Dangar Road pedestrian steps, to lift the presentation of the station entry
- consider pressure cleaning the existing faux sandstone block retaining wall to improve the presentation of the station entry
- consider an appropriate screen enclosure for the refuse and green bins currently stored near the proposed Dangar Road lift, or make provision for further bin 'cabinet' enclosure within the entry steps retaining wall to match the existing bin enclosure
- establish TPZs around trees to be retained. Tree protection would be undertaken in line with AS 4970-2009 Protection of Trees on Development Sites and would include exclusion fencing of TPZs
- provide well-presented and maintained construction hoarding and site fencing with shade cloth (or similar material) (where necessary) to minimise visual impacts on key view points during construction. Hoardings and site fencing would be removed following construction completion
- construction personnel to keep the construction areas clean and tidy including refuse placed in appropriate receptacles
- measures taken to ensure no tracking of dirt and mud into public roads and other public spaces
- provide cut-off or directed lighting to be used with and outside of the construction site, with lighting location and direction considered to ensure glare and light spill is minimised.

9.3 Operation

The following mitigation measures are recommended to minimise visual impacts during operation:

- ongoing maintenance and repair of constructed elements
- removal of graffiti in accordance with Sydney Trains maintenance requirements
- long term maintenance and replacement (where required) of tree planting and landscaping to maintain visual filtering and the framing of views to the station, and to maintain adjoining streetscape amenity
- regular high-pressure washing of the existing faux sandstone concrete block wall to maintain the presentation of the station entry.

10.0 Conclusion

The effects of the Proposal on both landscape character and views and visual amenity fell between the rating values of Low (Adverse) and Moderate (Adverse). As such, this report finds that there was no significant effect on landscape character arising from the Proposal (i.e. no rating of High (Adverse), or Moderate–High (Adverse)), nor was there a significant effect on views and visual amenity arising from the Proposal.

The key reason for the above findings is that the design of the Proposal has been closely considered within the context of the State Heritage Register listing for the Hawkesbury River Railway Station Group, including the recently upgraded station steps and footbridge, which sympathetically reflect the structural and material character of much of the heritage item. These comprise a well-considered family of elements including steel gray balustrades and throw screens with substantially ‘transparent’ mesh, and consistent steel gray mounting of modern elements including lighting, signage, and the mounting of moulded stainless steel hand rails. The Proposal lift shafts substantially draw upon the same family elements including steel gray framing and cladding to the top of the lift shaft, with transparent glass panels to much of the lift shaft height reflecting the backdrop of sky and vegetation, and giving the structure a visual ‘lightness’ of form and mass.

11.0 References

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