TAP 3
Warrawee Station

Statement of Heritage Impact

Report to WSP on behalf of Transport for NSW

March 2019

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EXECUTIVE SUMMARY

TfNSW is proposing upgrades to Warrawee Station as part of the Transport Access Program (TAP), an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure where it is needed most.

Artefact has been engaged by WSP on behalf of TfNSW to prepare a Statement of Heritage Impact (SoHI) report for the proposed Warrawee Station upgrade (the 'Proposal'). The aim of the report is to identify heritage items which may be impacted by the proposed works, assess the level of heritage significance of any listed heritage items within the Proposal area, and provide a preliminary assessment of heritage impacts that would occur as a result of the Proposal. An assessment of historical archaeological potential has also been prepared. This report also provides recommendations for heritage sympathetic design during further design development of the Proposal.

A Preliminary Environmental Assessment (PEA) was prepared for the Proposal in October 2018 (TfNSW 2018). This contained a review of design options by OzArk Environmental & Heritage Management Pty Ltd (OzArk) which assessed non-Indigenous heritage related risks and opportunities. The PEA assessed the concept design for the Proposal only, and this current SoHI report includes a detailed impact assessment for final construction design which will be incorporated into a Review of Environmental Factors (REF) for the Proposal.

Conclusions

Based on the findings of this report, the following conclusions have been made:

Built Heritage

Warrawee Station is listed on the following registers as an item of local heritage significance:

- 'Warrawee Railway Station Group', RailCorp s.170 register no. 4802042
- 'Warrawee Railway Station', Ku-ring-gai Local Environment Plan (LEP) 2015 item 1105

Warrawee Station is locally significant due to its historic, aesthetic and social values, as well as its representativeness as a model example of a standard 'type A8' station design. However, the recent addition of a covered area at both ends of the station has altered the historical nature of the station and obstructed views of its original layout. Type A8 stations were built along the North Shore Line in the early 20th century and were the most simply designed stations at the time. They featured linear station buildings with all rooms contained under a single gable roof with awning extensions at either side.[1]

The station is located in proximity to a number of heritage items listed on the Ku-ring-gai LEP 2015, of local heritage significance:

- Dwelling house, item no. I1072
- Rowardennan (formerly Lyndon Lodge), dwelling house, item no. I1074
- Maiala, dwelling house, item no. I1075
- Wirepe, dwelling house, item no. I1050
- Dwelling house, item no. I1028

[1] State Rail Authority, Office of Rail Heritage, 2009. Overview of station buildings for s170, p. 14.

- Reaycroft, dwelling house, item no. I1054
- Chantreys, dwelling house, item no. I1055
- Dwelling house, item no. I1056
- Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area, item no. C2
- Warrawee Conservation Area, item no. C3

Potential Archaeological Remains

The study area has been assessed as containing:

- **Nil-low** archaeological potential for **Phase 1** (1813-1900) remains associated with early land use and occupation
- **Low** archaeological potential for **Phase 2** (1900-1909) remains associated with the first Warrawee Railway Station platform, railway line and land use. These would be considered 'works' under the Heritage Act
- **Moderate** archaeological potential for **Phase 3** (1909-1995) remains associated with the current Warrawee Railway Station's former footbridge. These would be considered 'works' under the Heritage Act

Impacts

Based on architectural drawings, the proposed works would result in the following heritage impacts:

- The introduction of a new lift and platform-level canopy would result in the following impacts:
  - Moderate direct (physical) and indirect (visual) impacts to the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group
  - Minor indirect (visual) impacts to the following Ku-ring-gai LEP 2015 listed items:
    - Wirepe, dwelling house, item no. I1050
    - Reaycroft, dwelling house, item no. I1054
    - Dwelling house, item no. I1072
    - Dwelling house, item no. I1028
    - Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area, item no. C2
    - Warrawee Conservation Area, item no. C3
- Modifications to the car parks and footpaths along Warrawee Avenue and Heydon Avenue would result in the negligible direct (physical) and indirect (visual) impacts to the study area and surrounding heritage listed items and conservation areas.
- Modifications to the Warrawee Station platform would result in minor direct (physical) and indirect (visual) impacts to the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group
- Ancillary works including adjustments to lighting, signage, electronic ticketing, relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth) and CCTV modifications would have a minor impact on the heritage significance

of the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group (provided all recommendations in this report are followed)

- The establishment of a temporary site compound area east of the rail corridor and west of Warrawee Avenue and a pedestrian footpath would have a negligible direct (physical) impact and minor indirect (visual) impact to the heritage significance of the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group, and Ku-ring-gai LEP 2015 conservation areas and items.
- Provided all recommendations in this report are followed, modifications to the interior of the station platform building toilets would result in a minor direct (physical) and minor indirect (visual) impact to the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group.
- Areas of identified archaeological potential associated with Phase 2 (1900-1909) and Phase 3 (1909-1995) may be impacted by the proposed works. Depending on the nature of these remains, the Proposal would have a minor to moderate impact on the heritage significance of the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group.
- Electrical upgrades including the installation of an 11kv isolating transformer and new service pole (to be confirmed) within the rail corridor may impact potential archaeological remains. Final designs for these upgrades have not been prepared and the level of impact associated with these works is unknown.

Recommendations

Based on the conclusions of this report, the following recommendations have been made:

Built Heritage

During design development, consideration should be given to developing heritage sympathetic design, particularly in relation to the size, form and materials used for the lift and platform-level canopy as well as any modifications to the existing bathrooms. Heritage sympathetic design considerations include:

- The proposed platform canopy would have a moderate indirect (visual) impact on the Warrawee Railway Station Group as a whole. It is recommended that the canopy size and form be relocated to remain in keeping with the symmetry of the station if feasible. If this is not considered practicable, it is recommended that the design of the canopy be sympathetic to the existing nature of the station and endeavour to be as unobtrusive as possible. For example, the use of canopy supports should be minimal and the width of the structure reduced.
- Consideration should be given to replacing an existing awning between the footbridge stair landing and station building to match the proposed platform canopy. This would reduce visual impacts to the Warrawee Railway Station Group and surrounding heritage listed items and conservation areas.
- Consideration should be given to designing proposed lift and landing structures in a way that is sympathetic to the historical nature of the Warrawee Railway Station and surrounding area. For example, the overall size and height of the lift should be planned with views to the station from

surrounding heritage items and conservation areas in mind. If tinted glass is required, neutral tones should be considered rather than colours such as green or blue.

- It is recommended that the brick tiles proposed for the lower portion of the lift shaft be similar in material type, colour, pointing and bond (in this case Flemish Bond), as that on the existing platform building. This would ensure consistency with the existing architectural style of the station and surrounding area.
- A heritage consultant and/or heritage architect must be engaged throughout the design process to assist with selection of material colours and finishes proposed for the upgrade works.
- It is understood that a new garden bed and tree (of the same species) will be emplaced at Warrawee Station to offset the loss of the existing Evergreen Ash (*Fraxinus griffithi*) that would be removed for the installation of the lift. The extant platform garden bed and tree, while not original fabric, are located in the same area as original platform plantings and are considered to be an important component of the aesthetic significance of the station.
- Regrading works for the platform should avoid impacting significant fabric associated with the station buildings. This would involve protecting architectural fabric and architectural features using padded covers, fabric or establishing a fenced protection zone (with a minimum one metre buffer).
- During the installation of any new conduits or electrical items within the station master's office or station building, care should be taken to avoid making penetrations on decorative fabric (skirting boards, lintels, cornices) and original corrugated iron ceiling panels to minimise irreversible harm to elements of high heritage value.
- Removal of existing tiling and finishes from the existing men's and women's toilets should be conducted with care to avoid damaging original walls and detailing underneath. This is considered significant fabric. The reinstallation of tiling and finishes in these rooms should endeavour to use existing penetrations and fixing points to minimise harm to the original brick fabric located underneath.
- New tiling to be installed on original fabric should also be affixed and grouted with care to prevent long-term damage to underlying brickwork. Original decorative features (such as skirting boards and cornices) that may be overlayed with tiling should be physically protected prior to the installation of tiling.
- Widening of existing doorways to the bathrooms would be carried out in such a way that intact brickwork is avoided, and openings are returned to their existing appearance upon the completion of works. For example, doors should be widened in the centre of the northern elevation where bricks were replaced or reinstated during the 1995 refurbishment works. All modified rendered architraves and string courses should be reinstated to match the design and dimensions of the remainder of the station building.
- Above ground conduit, lighting and signage installation should endeavour to use existing penetrations and entry points to structures. Conduits should not cover significant fabric or areas of detailing wherever possible. Conduits and conduit casings should not introduce large noticeable structures or items in areas of significant detailing or within significant view lines.

- The relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth) should endeavour to use existing penetrations and entry points where possible. Customer facilities should not cover significant fabric or areas of detailing wherever possible.

Potential Archaeological Remains

- An area of archaeological potential (**Phase 2**) has been identified within the Warrawee Station rail corridor on either side of, and below, the platform. Potential archaeological remains may represent the First Warrawee Station. It is anticipated that they would be defined as 'works' under the Heritage Act and therefore no approval permits are required. Due to the assessed **low** potential for Phase 2 archaeological remains to occur, it is recommended that the *TfNSW Unexpected Heritage Finds Guideline* (TfNSW 2015a) is followed in this area.
- An area of archaeological potential (**Phase 3**) associated with a former footbridge has been identified within in the Warrawee Station platform. These potential remains would be defined as 'works' under the Heritage Act and therefore no approval permits are required. Service trenching may occur in this area and it is recommended that service conduit locations be designed to avoid this area of archaeological potential if possible. Should ground disturbance occur in this area, archaeological monitoring and recording may be required. A WMS must be prepared by a suitably qualified heritage specialist to guide the archaeological monitoring and recording program.
- The location of a proposed 11kv isolating transformer and service pole have not been confirmed. Installation of these items would require subsurface excavations. It is therefore recommended that an addendum Non-Aboriginal Archaeological Assessment be prepared upon the completion of 11kV feeder and transformer designs to assist in identifying any impacts to potential significant archaeological remains in the area.
- If 'relics' are identified during works, a Section 146 notification would be submitted to the NSW Heritage Council for review and approval.

1.1 Management and mitigation measures

- A heritage induction would be provided to workers prior to construction, informing them of the location of known heritage items and guidelines to follow if unanticipated heritage items or deposits are located during construction.
- In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in the T*fNSW Unexpected Heritage Finds Guideline* (TfNSW, 2015a) would be followed, and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the TfNSW Project Manager and the TfNSW Environment and Planning Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and OEH. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to works recommencing at the location.

- Where it is identified during detailed design that ground disturbance may impact Phase 3 archaeological remains, a Work Method Statement (WMS) must be prepared by a suitably qualified heritage specialist to guide archaeological monitoring and recording where required.
- If archaeological 'relics', as defined under the Heritage Act, are encountered during any ground disturbing works associated with the Proposal, a Section 146 notification would be prepared and submitted to the NSW Heritage Division, Office of Environment and Heritage prior to their removal.
- A copy of this SoHI report should be provided to Sydney Trains for their review and comment.
- Under ISEPP provisions, TfNSW should provide a copy of the complete SoHI to Ku-ring-gai Council for their comment.
- A Photographic Archival Recording (PAR) would be prepared for the station, in accordance with relevant guidelines issues by the NSW Heritage Division prior to works commencing.
- Consideration should be given to the provision of interpretation as part of the Proposal, which would outline the history, associations and significance of Warrawee Station and the wider Warrawee area. Interpretive measures could involve interpretive signage, panels or displays at entry/exit points to the station, including on the proposed lift and platform-level canopy structure.
- A notification under Section 170A of the Heritage Act would be provided to the OEH Heritage Division at least 14 days prior to commencement of works as a precautionary approach for the Proposal.

CONTENTS

FIGURES

TABLES

2.0 INTRODUCTION

2.1 Background

Transport for New South Wales (TfNSW) is proposing upgrades to Warrawee Station as part of the Transport Access Program (TAP), an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure where it is needed most.

Artefact has been engaged by WSP on behalf of TfNSW to prepare a Statement of Heritage Impact (SoHI) report for the proposed Warrawee Station TAP upgrade, tranche 3 (TAP 3) (the proposal).

The aim of the report is to identify heritage items which may be impacted by the Proposal, assess the level of heritage significance of any listed heritage items within the Proposal area, and provide an assessment of heritage impacts that would occur as a result of the Proposal. An assessment of historical archaeological potential has also been prepared. Based on the report's findings, recommendations for heritage sympathetic designs during further design development stages have been provided.

A Preliminary Environmental Assessment (PEA) was prepared for the preliminary concept design of the Proposal in October 2018 (TfNSW 2018). This contained a review of design options prepared by OzArk Environmental & Heritage Management Pty Ltd (OzArk) which assessed non-Indigenous heritage related risks and opportunities.

This current SoHI report includes a detailed impact assessment for final construction design which will be incorporated into a Review of Environmental Factors (REF) for the Proposal.

2.2 Proposal location

The study area is located at Warrawee Railway Station, which is situated on the T1 North Shore Line, 21.9 kilometres from Central Station in Lot 100 DP 1169206. The station is located within the Ku-ring-gai Council Local Government Area (LGA), within the parish of Gordon, county of Cumberland and Upper North Shore suburb of Warrawee, NSW.

It is bounded by Warrawee Avenue to the east and Heydon Avenue to the west which comprise of residential development dating from the late 19th century onwards. A footbridge provides access to the station from each side of the line. The study area boundary includes land within Heydon Avenue, Warrawee Avenue and a vehicle access road to the west of the rail corridor as illustrated in Figure 2-1.

2.3 Proposed works

The TAP 3 upgrade at Warrawee Station involves the provision of Commonwealth *Disability Discrimination Act 1992* (DDA) compliant access to the station and has been designed to meet the *Disability Standards for Accessible Public Transport 2002* (DSAPT). In order to meet these compliance standards, TfNSW are proposing to install a new lift and canopy at Warrawee Station, which would connect to the existing pedestrian footbridge and would retain the existing footbridge-to-platform stairs.

The main station building would be modified to provide new family accessible toilet facilities, an ambulant toilet (both with DDA-compliant access) and minor modifications to accommodate new and upgraded electrical equipment including a main switchboard and communications equipment.

The upgrade would also involve the establishment of a DDA-compliant level grade on the south end of the station platform, the provision for two accessible parking bays at Heydon Avenue and upgrades to existing footpaths and kerb ramps at each station entrance.

Additional works will include electrical upgrades such as a new isolating transformer (to be installed on rail land near Warrawee Avenue), a new service pole may also be required to take the existing electricity supply into the rail property boundary), ancillary works including adjustments to lighting, establishment of DDA compliant railings, nosing to existing steps, electronic ticketing, hearing augmentation and signage as well as platform edge safety zone line marking, relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth), improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage and installation of yellow lines and Tactile Ground Surface Indicators (TGSIs) along the platform edges.

A temporary compound area would be established within a vehicle access road between the railway corridor and Warrawee Avenue.

This assessment has been prepared based on the scoping design report for Warrawee Station, which was issued on 20 December 2018.

2.4 Report methodology

This SoHI has been prepared using the document *Statement of Heritage Impact* (2002), prepared by the NSW Heritage Office, contained within the *NSW Heritage Manual,* as a guideline and includes:

- desktop searches of relevant heritage registers
- review of the Proposal drawings and concept design reports
- review of the following key documents:
  - heritage register listings for Warrawee Station
  - historic plans for Warrawee Station held by the Sydney Trains Plan Room
  - previous reports and other relevant documentation provided by WSP and TfNSW
- background research into the historical development of Warrawee Station using the historic plans, historical photographs, newspapers and other primary and secondary historical sources as relevant
- a site inspection conducted on 15 January 2019 by Adele Zubrzycka (Senior Heritage Consultant) and Sarah Hawkins (Graduate Heritage Consultant). Note: all photographs within this report were taken by Artefact during these site inspections unless otherwise stated
- assessment of the Proposal against the heritage significance of Warrawee Station. The assessment has been undertaken in light of the conservation processes and principles found in *The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance* (2013). The *Burra Charter* is considered to be the pre-eminent guidance document for the management of change for places of heritage significance within Australia.
- The Proposal has also been assessed against the Sydney Trains document Heritage Platforms Conservation Management Strategy, as the most relevant management document.

2.4.1 Impact assessment

In order to consistently identify the potential impact of the Proposal, the terminology contained in Table 2-1 has been referenced throughout this document.

Table 2-1: Terminology for assessing the magnitude of heritage impact.

Grading	Definition
Major	Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.
Moderate	Actions involving the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would result in very minor changes to heritage items and no significant alteration of its heritage values.
Neutral	Actions that would have no heritage impact.

2.5 Report limitations

The purpose of this report is to identify and assess Non-Aboriginal heritage and archaeological potential which might be impacted by the Proposal only. Predictions regarding archaeological potential are based on the history of the site and perceived subsurface impacts. However, there is always potential for unrecorded structures to exist within assessment areas. These would be addressed in accordance with *TfNSW Unexpected Heritage Finds Guideline* (Transport for NSW, 2015).

This report is based on the reference design for the Proposal and it is noted that during detailed design, aspects of the Proposal may change or be refined.

2.6 Authorship

This report was prepared by Adele Zubrzycka (Senior Heritage Consultant) and Sarah Hawkins (Graduate Heritage Consultant). Josh Symons (Principal) and Sandra Wallace (Director) provided management input and review.

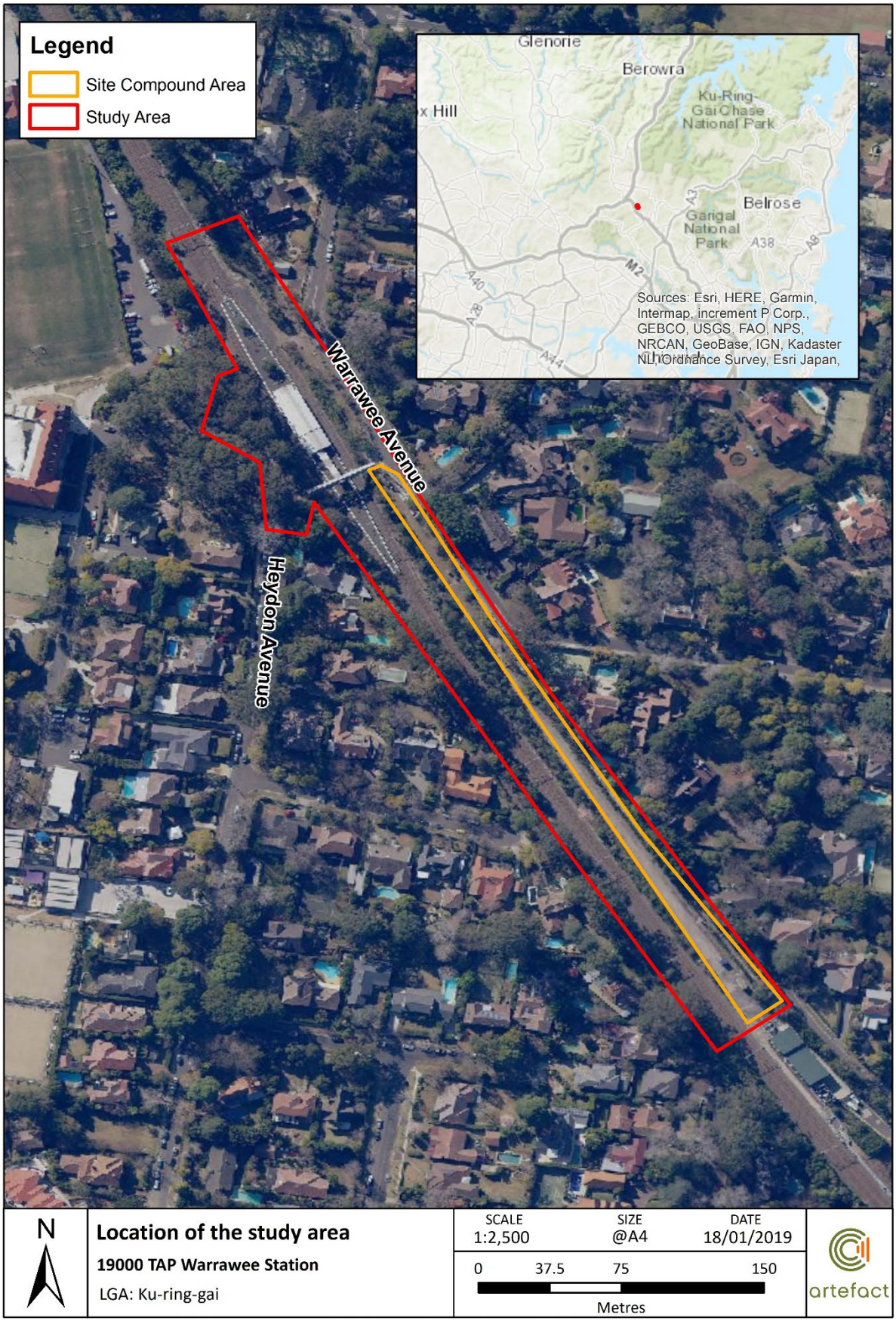

Figure 2-1. Location of the study area.

3.0 STATUTORY CONTEXT

3.1 Commonwealth legislation

3.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance, that is, flora, fauna, ecological communities and heritage places of national and international importance. Heritage items are protected through their inscription on the World Heritage List, National Heritage List or the Commonwealth Heritage List.

The EPBC Act stipulates that a person who has proposed an action that will or is likely to have; a significant impact on a World, National or Commonwealth Heritage site must refer the action to the Minister for the Environment (hereafter the Minister). The Minister would then determine if the action requires approval under the EPBC Act. If approval is required, an environmental assessment would need to be prepared. The Minister would approve or decline the action based on this assessment.

Warrawee Station is not registered on the World, National or Commonwealth Heritage Lists, the heritage provisions of this act do not apply, and proposed works would not require referral to the Minister.

3.2 State legislation

3.2.1 NSW Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) is the primary piece of State legislation affording protection to heritage items (natural and cultural) in NSW. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant. Significance is based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items can be listed on the NSW State Heritage Register (SHR) and are given automatic protection under the Heritage Act against any activities that may damage an item or affect its heritage significance. The Heritage Act also protects 'relics', which can include archaeological material, features and deposits.

Under the Heritage Act, all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 of the Act requires all government agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. They must also ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the Government on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines.

3.2.1.1 Relics Provisions

The Heritage Act also provides protection for 'relics', which includes archaeological material or deposits. According to Section 139 (Division 9: Section 139, 140-146):

(1) A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance is carried out in accordance with an excavation permit.

(2) A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.

(3) This section does not apply to a relic that is subject to an interim heritage order made by the Minister or a listing on the State Heritage Register.

(4) The Heritage Council may by order published in the Gazette create exceptions to this section, either unconditionally or subject to conditions, in respect of any of the following:

a. Any relic of a specified kind or description,
b. Any disturbance of excavation of a specified kind or description,
c. Any disturbance or excavation of land in a specified location or having specified features or attributes,
d. Any disturbance or excavation of land in respect of which an archaeological assessment approved by the Heritage Council indicates that there is little likelihood of there being any relics in the land.

Section 4 (1) of the Heritage Act (as amended in 2009) defines a relic as:

> *...any deposit, artefact, object or material evidence that:*
>
> *relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and is of State or local heritage significance*

A relic has been further defined as:

> *Relevant case law and the general principles of statutory interpretation strongly indicate that a 'relic' is properly regarded as an object or chattel. A relic can, in some circumstances, become part of the land be regarded as a fixture (a chattel that becomes permanently affixed to land).*[2]

Excavation permits are issued by the Heritage Council of NSW, or its Delegate, under Section 140 of the Heritage Act for relics not listed on the SHR or under Section 60 for relics listed on the SHR. An application for an excavation permit must be supported by an Archaeological Research Design and Archaeological Assessment prepared in accordance with the NSW Heritage Division archaeological guidelines. Minor works that will have a minimal impact on archaeological relics may be granted an exception under Section 139 (4) or an exemption under Section 57 (2) of the Heritage Act.

3.2.1.2 Works

The Heritage Act defines 'works' as being in a separate category to archaeological 'relics'. 'Works' refer to remnants of historical structures which are not associated with artefactual material that may possess research value. 'Works' may be buried, and therefore archaeological in nature, however, exposure of a 'work' does not require approved archaeological excavation permits under the Act.

The following examples of remnant structures have been considered to be 'works' by the NSW Heritage Council:

- Former road surfaces or pavement and kerbing.

[2] *Assessing Significance for Archaeological Sites and 'Relics'*, Heritage Branch, Department of Planning, 2009:7.

- Evidence of former drainage infrastructure, where there are no historical artefacts in association with the item.
- Building footings associated with former infrastructure facilities, where there are no historical artefacts in association with the item.
- Evidence of former rail track, sleepers or ballast.
- Evidence of former rail platforms and former platform copings.

Where buried remnants of historical structures are located in association with historical artefacts in controlled stratigraphic contexts (such as intact historic glass, ceramic or bone artefacts), which have the potential to inform research questions regarding the history of a site, the above items may not be characterised as 'works' and may be considered to be 'relics'. The classification of archaeological remains as a 'work' therefore is contingent on the predicted remains being associated with historical structures as well as there being no prediction of the recovery of intact artefactual deposits which may be of research interest.

3.2.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered prior to land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The Proposal is subject to assessment under Part 5 of the EP&A Act.

The EP&A Act also requires that local governments prepare planning instruments (such as Local Environmental Plans [LEPs] and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. The current Proposed location falls within the boundaries of the Ku-ring-gai Council LGA. Schedule 5 of the Ku-ring-gai LEP 2015 includes a list of items/sites of heritage significance within the Ku-ring-gai Council LGA.

3.2.2.1 Ku-ring-gai Local Environmental Plan 2015

Heritage items listed on the Ku-ring-gai LEP 2015 are managed in accordance with the provisions of Section 5.10 Heritage Conservation of this LEP. Under Clause 5 of this section of the Ku-ring-gai LEP 2015:

> *The consent authority may, before granting consent to any development:*
>
> *(a) on land on which a heritage item is located, or*
>
> *(b) on land that is within a heritage conservation area, or*
>
> *(c) on land that is within the vicinity of land referred to in paragraph (a) or (b),*
>
> *require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.*

3.2.2.2 Ku-ring-gai Development Control Plan

The Ku-ring-gai DCP came into effect in June 2016 and acts as a supporting document that compliments the provisions contained within the Ku-ring-gai LEP 2015 and provides specific design detail in regard to sympathetic development on, or in the vicinity of, items listed on Schedule 5 of the Ku-ring-gai LEP 2015.

Section B, Part 19 of the DCP 2016 provides sympathetic considerations for development that is in the vicinity of a heritage listed item. Controls are designed to retain, conserve and enhance heritage items, conservation areas and their associated settings.

These considerations include ensuring that the character, bulk, scale and height of new development is sensitive to and does not unreasonably overshadow a nearby heritage item, that colouring and texture of new materials of a new development is sympathetic to a heritage item, and that views of a heritage item should not be obscured from the point of view of areas of public domain.

3.2.3 State Environmental Planning Policy (Infrastructure) (ISEPP) 2007

In 2007, the ISEPP was introduced to streamline the development of infrastructure projects delivered by state agencies. The proposed Warrawee Station upgrade would be considered "Development Permitted without consent" under the provisions of ISEPP 2007 Clause 79.

Generally, where there is conflict between the provisions of the ISEPP and other environmental planning instruments, the ISEPP prevails. Under the ISEPP, development for the purpose of rail infrastructure facilities may be carried out by a public authority without consent on any land.

While the ISEPP overrides the controls included in the LEPs and DCPs, the proponent is required to consult with the relevant local councils when development "is likely to have an impact that is not minor or inconsequential on a local heritage item (other than a local heritage item that is also a State heritage item) or a heritage conservation area". When this is the case, the proponent must not carry out such development until it has (ISEPP 2007 Clause 14.2):

> *(a) had an assessment of the impact prepared, and*
>
> *(b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and*
>
> *(c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.*

3.3 Heritage registers search

Statutory registers provide legal protection for heritage items. In NSW, the Heritage Act and the EP&A Act provide for heritage listings. The SHR, the Section 170 Heritage & Conservation Registers and the environmental heritage schedules of LEPs are statutory listings. Places on the World, National and Commonwealth Heritage Lists are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A search of all relevant registers was undertaken on 5 January 2019. The results are displayed below in Table 3-1. A map of the curtilages of the relevant heritage items is provided in Figure 3-1.

Table 3-1: Register search results for Warrawee Railway Station.

Item	Address	Significance	Listing	Place ID (Item No.)	Distance from study area
Warrawee Railway Station Group	Heydon Avenue, Warrawee, NSW	Local	NSW RailCorp s170 Register	State Heritage Inventory (SHI) listing no. 4802042	Within
Warrawee Railway Station	Heydon Avenue, Warrawee, NSW	Local	Ku-ring-gai LEP 2015	LEP no. 1105	Within
Dwelling house	1 Warrawee Avenue, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1072	Approximately 25 metres east of the study area
Rowardennan (formerly Lyndon Lodge)	5 Warrawee Avenue, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1074	Approximately 80 metres northeast of the study area
Maiala	7 Warrawee Avenue, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1075	Approximately 30 metres northeast of the study area
Wirepe	69 Hastings Road, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1050	Approximately 30 metres east of the study area
Dwelling house	2 Borambil Street, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1028	Approximately 120 metres northwest of the study area
Reaycroft	17 Heydon Avenue, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1054	Approximately 10 metres southwest of the study area
Chantreys	32 Heydon Avenue, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1055	Approximately 50 metres southwest of the study area
Dwelling house	34 Heydon Avenue, Warrawee	Local	Ku-ring-gai LEP 2015	LEP Item No. I1056	Approximately 30 metres west of the study area
Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area	-	Local	Ku-ring-gai LEP 2015	LEP Item No. C2	Partially within
Warrawee Conservation Area	-	Local	Ku-ring-gai LEP 2015	LEP Item No. C3	Partially within

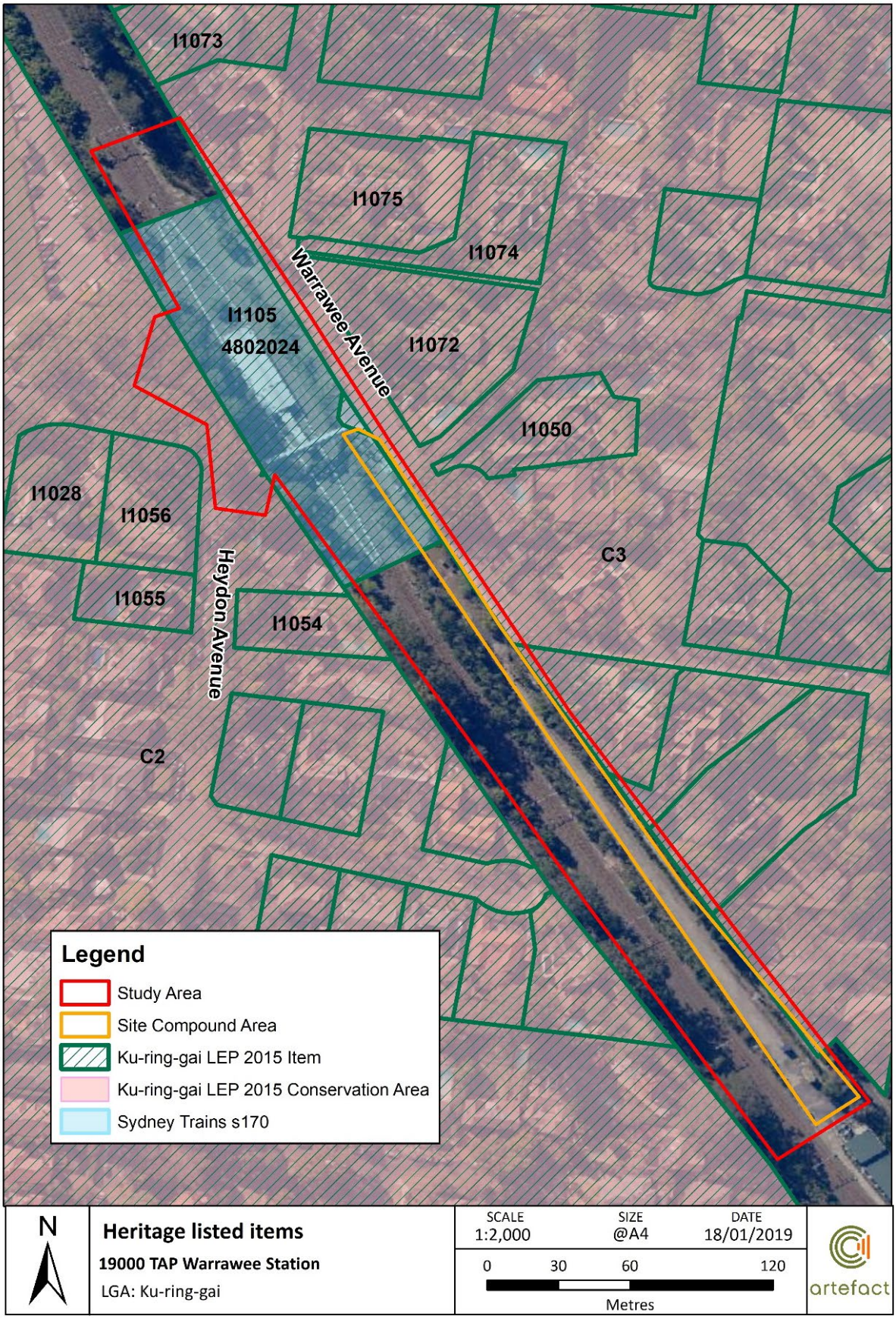

Figure 3-1. Location of relevant heritage listed items and curtilages with respect to Warrawee Station.

4.0 HISTORICAL CONTEXT

4.1 Phase 1: Early European settlement in Ku-ring-gai and Warrawee (1815-1900)

4.1.1 Early land grants, timber getting and the Big island Estate (c1800-1855)

Warrawee is located in the parish of Gordon, county of Cumberland and Ku-ring-gai LGA. The name Warrawee is derived from the Aboriginal word meaning 'stop here' while Ku-ring-gai derives from the Kuringgai or Guringai Aboriginal language group who traditionally inhabited the area.

Early settlement and land use in Warrawee centred around timber getting, orcharding and the establishment of large rural estates.[3] Warrawee Railway Station and much of the suburb occupies land originally granted to timber contractor and ex-convict Thomas Hyndes in 1822 (shown in Figure 4-1). Hyndes leased his grant to timber getters throughout the 1820s and 30s until it was obtained by John Terry Hughes (the nephew of merchant land owner Samuel Terry), under formal deed in 1842 and over time became known as the Big Island Estate.

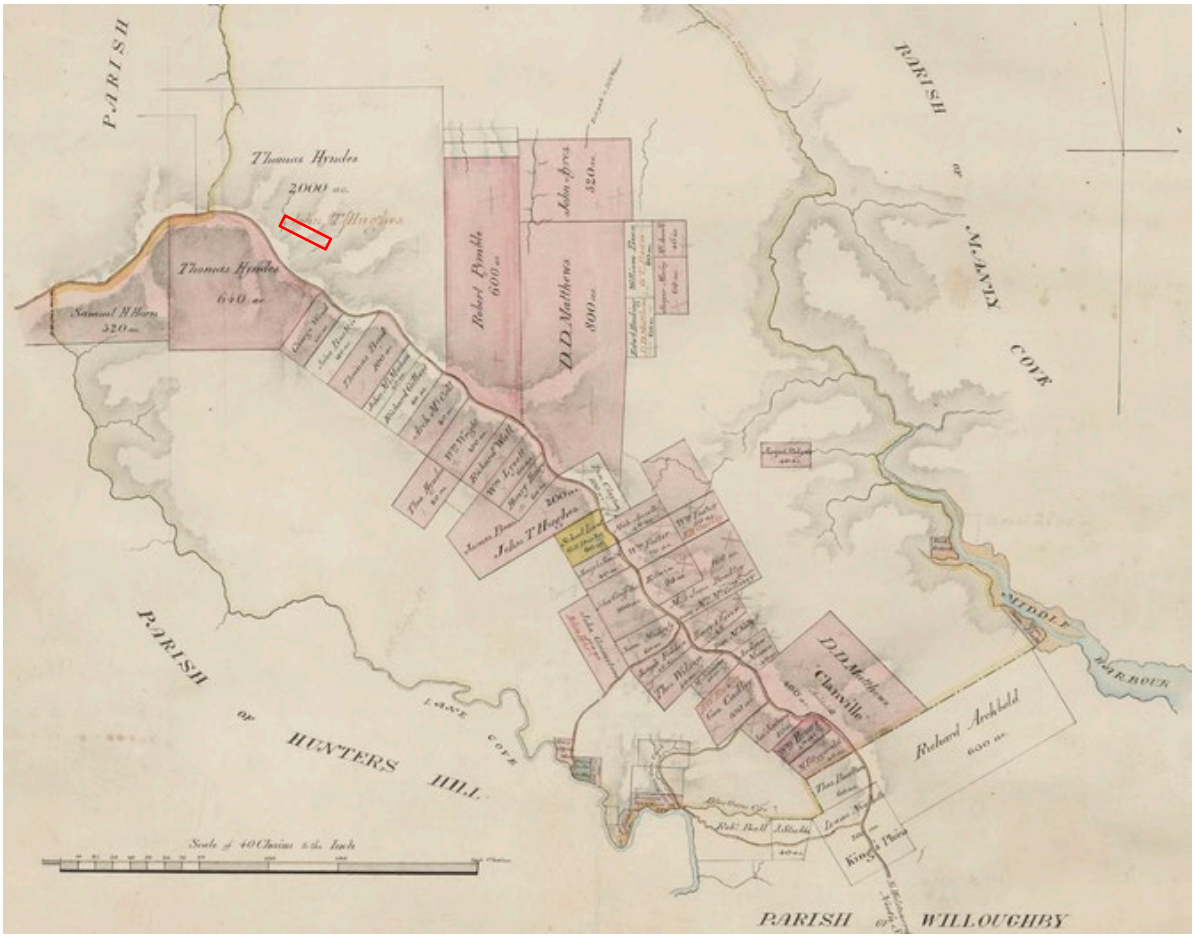

Figure 4-1. Pre-1900 parish map showing approximate location of the study area (outlined in red) within Thomas Hyndes' 2000 acre grant and surrounding properties. Source. Lands Registry Office (LRS) Historical Maps Viewer.

[3] Pollon, F. 1988. The Book of Sydney Suburbs: Warrawee, p. 263 and Edwards, Zeny, Warrawee, Dictionary of Sydney, 2008, http://dictionaryofsydney.org/entry/warrawee, viewed 12 Jul 2017.

4.1.2 Subdivisions, farming and orcharding (1855 1900)

The Big Island Estate was put up for sale in 1855 after being divided into forty eight, twelve to fifty acre farms (Figure 4-2). These were advertised as containing fertile soil being suitable for orchards, farms and vineyards [4] No improvements were listed in the advertisement; however, this does not mean that no structures occupied the estate at the time. The study area was located within Portions 4, 6, 8 and 10 approximately 270 - 400 metres north of Lane Cove Road (also shown in Figure 4-2). No structures occupied the study area at this time, with the closest building comprising of a hut situated approximately 395 metres south of the study area in Portion 6 and fronting onto Lane Cove Road.

In 1887, land within the Big Island Estate was purchased by a syndicate of politicians and businessmen and amalgamated with their adjoining land holdings. The estate was subsequently subdivided into large properties of four to seven acre allotments which would go on to be occupied by market gardens, timber cottages and orchards. [5] No substantial developments are known to have taken place in the study area during this period, although further land clearance is likely to have occurred.[6]

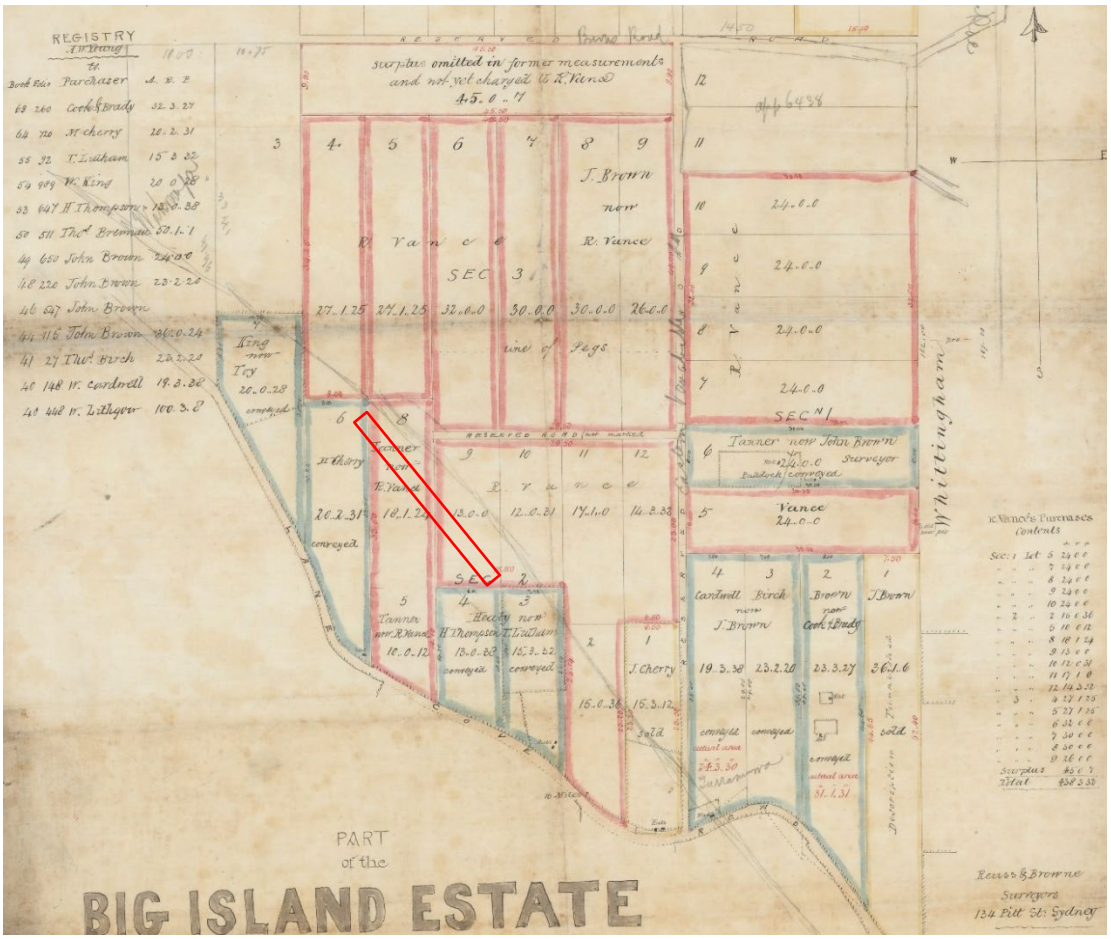

Figure 4-2. 1862 plan showing part of the Big Island Estate (no boundaries shown), including approximate location of land now occupied by the study area (outlined in red). Source. State Library NSW.

[4] The Sydney Morning Herald, Thu 5 Apr 1855, Page 7.
[5] Edwards, Zeny, Warrawee, Dictionary of Sydney, 2008, http://dictionaryofsydney.org/entry/warrawee, viewed 15 January 2019.
[6] Paul Davies Pty Ltd, Architects Heritage Consultants, November 2010. Ku-Ring-Gai Potential Heritage Conservation Areas North Review, p. 158.

4.2 Phase 2: Establishment of the North Shore Line and the first Warrawee Station (1900-1909)

4.2.1 First Warrawee Station (1900-1909)

Construction of the North Shore Line began in c.1887 and was completed in 1890. Warrawee Station was opened in August 1900, making it the last station along the line to be completed.[7] Little is known about the first station at Warrawee although its State Heritage Inventory listing notes that it comprised of "an unattended station with two temporary timber buildings on the platform. The platform was built on the down side of the (single) line and arranged to be suitable for future adaptation for the duplication works".[8]

Extensive earthworks would have been required to create a level grade for the rail corridor. These are evident today through the existing cuttings visible on either of the Warrawee rail corridor which are most prominent along the southern end of the platform (Figure 5-9 and Figure 5-10). It is likely that these activities would have removed archaeological resources associated with Phase 1 occupation in the northern portion of the study area.

During this period, the surrounding landscape consisted of large consolidated land grants such as the Warrawee Estate (shown in Figure 4-3) and residential properties owned by wealthy and prominent members Sydney's society such as businessmen and politicians. The suburb was notable for its absence of commercial businesses centred around the entrance to station, a feature which can be attributed to developer Joseph Beresford Grant who bought up any properties threated by commercial use. [9]

Figure 4-3. 1902 photograph Warrawee Estate taken from Warrawee Railway Station illustrating the surrounding landscape during this period. Source. State Library NSW.

[7] Pollon, F. 1988. The Book of Sydney Suburbs: Warrawee, p. 263.
[8] Office of Environment and Heritage, State Heritage Inventory listing for the 'Warrawee Railway Station Group'. Accessed online at: http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4802042 on 12/07/2017.
[9] Edwards, Zeny, Warrawee, Dictionary of Sydney, 2008, http://dictionaryofsydney.org/entry/warrawee, viewed 15 January 2019.

4.3 Phase 3: Second (Current) Warrawee Station (1909-1995)

4.3.1 Duplication of the line and development of the new station and suburb of Warrawee (1909- 1995)

The North Shore Line was gradually duplicated between 1900 and 1909. This required the original timber platform at Warrawee to be demolished and replaced with the current railway station at some time in 1909 (Figure 4-4 and Figure 4-5). The new station comprised of a brick island platform and station building which remain at the site today. The station's architecture is characteristic of the standard 'type A8' station designs from c.1910 which were prominent throughout the North Shore line. Type A8 stations were the most simply designed stations at the time and featured a linear station building with all rooms contained under a single gable roof with awning extensions at either side.[10]

The platform, which is situated lower than the surrounding streets, was initially accessed via a timber overhead footbridge that provided access from Warrawee Avenue and Borambil Street, also shown in Figure 4-7. The original footbridge was replaced in 1977 with a precast concrete footbridge.

The station building features red face brick construction with moulder render architraves, a gabled corrugated iron roof with timber bargeboards, and timber framed platform awnings. The architecture of the southern area of the building is unusual in that it is freestanding with a central opening. A photograph taken of the station soon after it opened indicates palms were planted within the platform at this time (Figure 4-4).

4.3.2 Electrification

The North Shore Line was electrified in 1927-28 and automatic signalling followed, however, Warrawee never received a signal box.[11] The station made headlines repeatedly in the 1920 and 1930s as it was robbed numerous times over the years, with the safe frequently broken into overnight. By 1956 the original palm plantings within the Warrawee station platform had been replaced with hedges and trees as shown in Figure 4-7.

4.3.3 Development of the suburb of Warrawee

The construction of the railway line throughout the North Shore and in Warrawee has been credited with allowing rapid subdivision and development in the area which today is predominantly made up of tree lined residential subdivisions and Federation style architecture.[12] The extent of subdivision and formalisation of the suburb can be seen in Figure 4-6.

Over the next seven decades many of the weatherboard cottages and orchards were replaced with large homes designed by famous architects such as Glenn Murcutt, Jules Vernon, B J Waterhouse, Leslie Wilkinson (professor of architecture at the University of Sydney) and John Horbury Hunt for the suburb's wealthy residents.[13] Many of these surround Warrawee Railway Station, including Maiala (LEP item I1075) which was designed by Leslie Wilkinson in c1927 and is shown in Figure 4-8 and Figure 5-66 and their established gardens with large trees and often prominent fence lines and boundary walls contribute to the area's unique character.

[10] State Rail Authority, Office of Rail Heritage, 2009. Overview of station buildings for s170, p. 14.
[11] Office of Environment and Heritage, State Heritage Inventory listing for the 'Warrawee Railway Station Group'. Accessed online at: http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4802042 on 12/07/2017.
[12] Pollon, F. 1988. p. 263.
[13] Edwards, Zeny, Warrawee, Dictionary of Sydney, 2008, http://dictionaryofsydney.org/entry/warrawee, viewed 15 January 2019 and Ku-ring-gai Historical Society Inc. n. d. Warrawee https://www.khs.org.au/local/warrawee.html viewed on 17 January 2019.

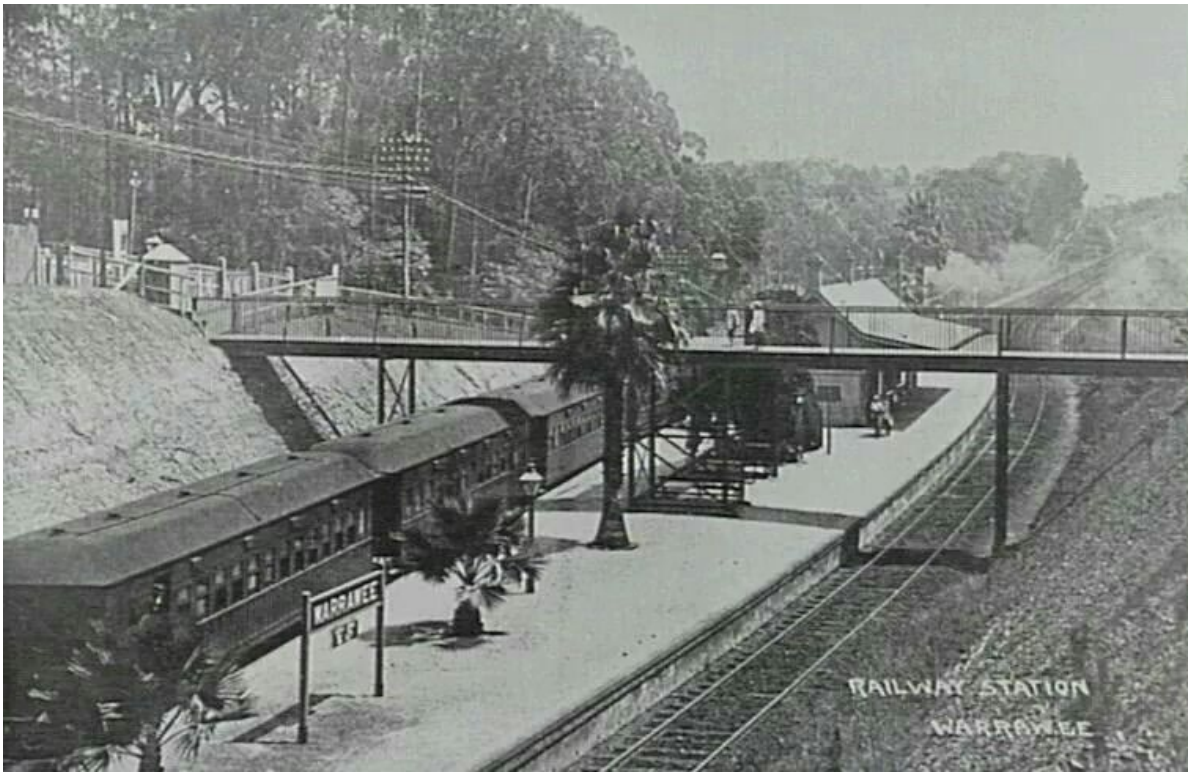

Figure 4-4. The second Warrawee Station viewed from the Warrawee Avenue side of the line sometime after 1909. The original timber footbridge can be seen in the foreground alongside palms and early examples of light fixtures and signs. Source. Pinterest.

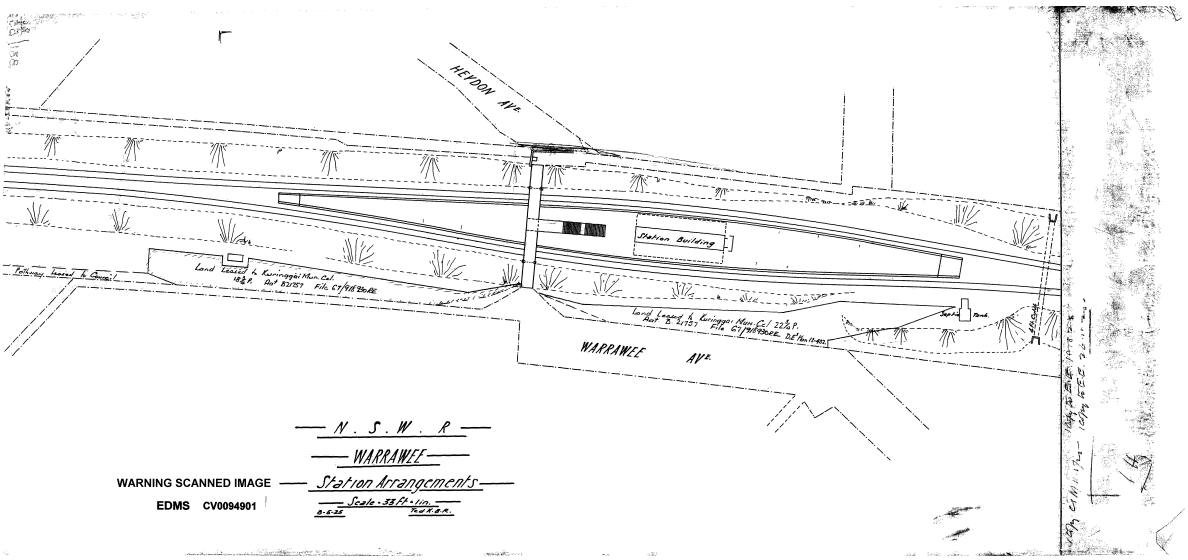

Figure 4-5. 1925 plan of Warrawee Station showing location of the original timber footbridge, septic tank, culvert, unidentified structure at the top of the cutting and station building arrangement. Source. Sydney Trains Plans Room.

Figure 4-6. 1917 parish of Gordon plan showing location of Warrawee Railway Station (outlined in red). Source. LRS Historical Maps Viewer.

Figure 4-7. Warrawee Station RRC No 1375 in 1956 showing the original pedestrian footbridge leading to the station platform. Note that the palms shown in Figure 4-4 have been replaced with a hedge and tree. Source. Sydney Trains Plans Room.

Figure 4-8. Maiala (no. 7 Warrawee Avenue) viewed from the gardens, Warrawee, Sydney, New South Wales, ca. 1970 photographer by Wes Stacey. Source. National Library of Australia.

4.4 Phase 3: Modern Warrawee Station (1995 to present)

The station was upgraded in 1995, where a new steel framed roof was added at each end of the station, which were attached directly to the building with heavy steel brackets. The northern side of the building was altered to include male and female toilets, which were constructed in an architectural style similar to that of the rest of the building.

The pedestrian footbridge also had a gabled steel roof added for weather protection as part of the 1995 upgrades. The station is located less than 100 metres east of Knox Grammar School (established in 1924), and the surrounding area is densely occupied residential area which maintains its original Federation era character.

Figure 4-9. Warrawee Station as it appears today from Heydon Avenue. Note the extended awning between the station building and modern stairs leading from the pedestrian footbridge. Source. Artefact Heritage, 2019.

5.0 SITE INSPECTION

5.1 Introduction

A site inspection was conducted on 15 January 2019 by Adele Zubrzycka (Senior Heritage Consultant) and Sarah Hawkins (Heritage Consultant) from Artefact Heritage. Andrew Smith (TfNSW), Zoe McLaughlin (WSP) and Suzie Rawlinson (Iris Visual) were also present. The aim of the inspection was to examine the area of proposed impacts, inform a preliminary assessment of archaeological potential, and identify significant fabric at the station and items in the vicinity of the study area that may be affected by the Proposal. The inspection was undertaken on foot and a photographic record was made.

5.2 Site context and setting

Warrawee Station is located in the suburb of Warrawee and serviced by the North Shore Line. The North Shore Line consists of two tracks and is orientated south-southeast to north-northwest in this location. The station consists of an island platform located within a deep rail cutting (Figure 4-9). Access is provided by a pedestrian footbridge that connects Warrawee Avenue to the east (Figure 5-5) and Heydon Avenue to the west (Figure 5-1).

The station is bounded by late-19th and early to mid-20th century residential development to the along Heydon Avenue and Warrawee Avenue, these have limited or partial views towards the station and railway corridor. Many of these properties are registered on the Ku-ring-gai LEP 2015 as having local heritage significance and are associated with well-established trees and plantings (Figure 5-2, Figure 5-4 and Figure 5-6).

A heavily treed parkland is located northeast of the station between Heydon Avenue and Knox Grammar School (Figure 5-3). All land on the eastern side of the station and railway corridor is within the Warrawee Conservation Area, while all land to the western side is within the Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area.

The station itself is located within a deep rail cutting, which varies in depth along the corridor, its highest point being near the pedestrian footbridge and southern end of the platform (Figure 5-7 and Figure 5-8). Some sections of the cutting have been stabilised using shotcrete (Figure 5-9). Dense vegetation, primarily ferns and eucalyptus trees, are present above the cutting on either side of the corridor (Figure 5-7 - Figure 5-10).

Figure 5-1. View east towards Warrawee Station entrance at Heydon Avenue.

Figure 5-2. View south towards residential development along Heydon Avenue from the station entrance.

Figure 5-3. View north towards Knox Grammar School and heavily treed reserve along Heydon Avenue. A modern bus shelter can be seen in the foreground.

Figure 5-4. View north towards Warrawee Avenue and entrance to Warrawee Station.

Figure 5-5. Warrawee Station entrance, Warrawee Avenue. View south.

Figure 5-6. View south towards Warrawee Avenue and station entrance.

Figure 5-7. View southwest showing the extent of the rail cutting along the southern end of the Warrawee Station platform.

Figure 5-8. View northwest showing the relatively flat nature of the topography along the northern end of the Warrawee Station platform.

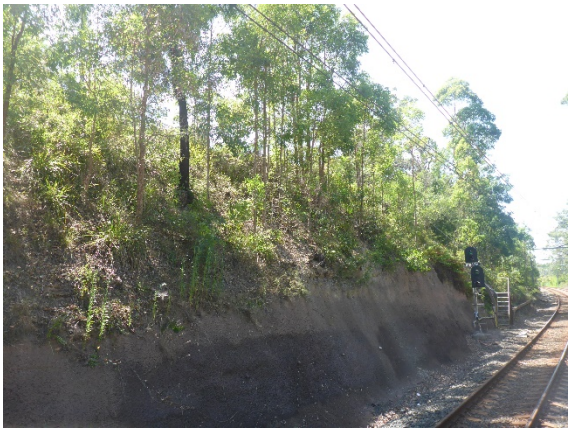

Figure 5-9. Example of shotcrete used to stabilise the cutting along the eastern side of the corridor

Figure 5-10. View northwest towards the northern end of the Warrawee Station Platform showing change in topography and surrounding trees and plantings.

5.3 Pedestrian footbridge and station platform

5.3.1 Pedestrian footbridge and stairs

The pedestrian footbridge consists of a concrete deck supported by the railway cutting and a vertical concrete beam located in the centre of the island platform and the footbridge (Figure 5-11 and Figure 5-13). A set of concrete stairs descend north from the centre of the footbridge to the southern end of the island station platform (Figure 5-14). The stairway consists of concrete steps and a continuation of the vertical steel railings (Figure 5-25 and Figure 5-26). Horizontal steel handrails run along the vertical rails, and the stairs are lined with metal nosing. The footbridge connects the pedestrian footpaths on Heydon Avenue and Warrawee Avenue and was constructed in 1977, replacing an earlier timber version.[14]

The concrete deck of the footbridge features steel hand rails and has a variable uneven grade, sloping up to the west towards Heydon Avenue (Figure 5-11). Steel vertical beams run along the footbridge and become the A-Frame beams of the footbridge roof structure, which is covered with a corrugated steel canopy which was added in 1995 (Figure 5-13 and Figure 5-14).

5.3.2 Station platform

The island platform is orientated north-northwest to south-southeast and approximately 160 metres long and ten metres wide at its widest point. The only built structure on the platform is the main platform building, which features the station master's office, storeroom (former waiting room), and bathrooms. There are three medium sized Evergreen Ash (*Fraxinus griffithii*) trees and ornamental shrubs planted into the platform, one at its southern end (Figure 5-15 and Figure 5-17) and two at its northern end (Figure 5-16).

Modern lighting, vending machines, Opal card facilities, benches and water fountains are present along the platform (Figure 5-11, Figure 5-18, Figure 5-21, Figure 5-23 and Figure 5-24). The platform surface is asphalted and bordered with TGSIs (Figure 5-19 and Figure 5-22). The platform face is brick.

[14] NSW Office of Environment and Heritage , SHI listing for the Warrawee Railway Station Group, https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4802042, accessed on 16 January 2019.

Figure 5-11. View northwest from the south end of the Warrawee Station platform looking towards the pedestrian footbridge. Note the variable grade, with the western extend of the bridge sloping up towards Heydon Avenue.

Figure 5-12. View northwest towards Warrawee Station entrance and pedestrian footbridge from Warrawee Avenue.

Figure 5-13. View east of the pedestrian footbridge from the Heydon Avenue entrance. Note the corrugated iron canopy.

Figure 5-14. View northeast showing stairs leading up the pedestrian footbridge from the Warrawee Station platform. Note the corrugated iron canopy.

Figure 5-15. View towards the southern end of the Warrawee Station platform showing the Evergreen Ash (*Fraxinus griffithii)* tree which is proposed to be relocated/removed.

Figure 5-16. View northwest along the northern end of the platform showing two Evergreen Ash (*Fraxinus griffithii*) trees and existing benches and light poles.

Figure 5-17. View north towards pedestrian footbridge, stairs and Evergreen Ash (*Fraxinus griffithii)* tree from the southern end of the platform.

Figure 5-18. Detail of existing platform benches and Evergreen Ash (*Fraxinus griffithii)* tree at southern end of platform.

Figure 5-19. Detail of existing TGSIs along the station platform.

Figure 5-20. View north towards station building and modern Opal card facilities from the base pedestrian footbridge stairs.

Figure 5-21. Existing water fountain along eastern elevation of the Warrawee Station building.

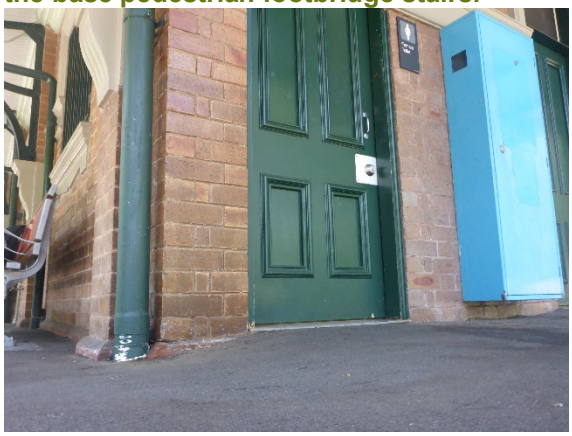

Figure 5-22. Detail of modern asphalt platform surface. Note the slight rise where the platform surface has been filled in to create an even grade at the entrance to the women's bathrooms.

Figure 5-23. Modern vending machines along the eastern side of the island platform.

Figure 5-24. Detail of modern lighting located along the platform.

Figure 5-25. Detail of nosing on stairs.

Figure 5-26. Detail of hand rails on stairs

5.4 Station building

5.4.1 Exterior

The Warrawee station building is situated in the centre of the island platform, approximately 10 metres north of the overhead pedestrian footbridge landing (Figure 5-20). The building is modified a 'type A8' red face brick structure approximately 25 metres in length and five metres in width. The station was constructed in c1909 and features its original 'moulded render architraves, string course and window sills' (Figure 5-30).[15] The station building's windows are timber framed and double hung sash and has retained its original four panel doors (Figure 5-30). Windows and fanlights along the southern, eastern and western elevations feature coloured glazing 'cathedral glass' (shown in Figure 5-30, Figure 5-31 and Figure 5-42).

The station roof and awnings are made from corrugated metal sheeting, with gables at either end and awnings that extend out to the edge of either platform and station building. These are supported by cantilevered cast iron brackets (Figure 5-28, Figure 5-29 and Figure 5-34).

The southern end of the building, where the ticket booth is located, has been painted in a cream colour and features an uncommon freestanding elevation with a central opening which provides access to the ticket window (Figure 5-27).

The northern end of the building, where the toilets are located, was modified during 1995 upgrades to the station. These upgrades required the addition of two doors within the northern elevation and new windows, architraves and string course above each entrance (Figure 5-32 and Figure 5-33).

[15] NSW Office of Environment and Heritage , SHI listing for the Warrawee Railway Station Group, https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4802042, accessed on 16 January 2019.

These were designed to be in keeping with the original architectural features of the station. A portion of the wall between each doorway appears to have been infilled or re-constructed using slightly different brick and mortar to the rest of the station building. A blue metal box has been fastened to the wall between the doorways.

Figure 5-27. View north towards Station Master's office and ticket window located at the southern end of the station building. Note the freestanding elevation.

Figure 5-28. View north showing western elevation of the Warrawee station building and gabled roof.

Figure 5-29. Detail of gabled roof and cantilevered curved cast iron brackets.

Figure 5-30. Detail of original 'cathedral glass' window panes, moulded render architraves, string course, window sills and four panel doors.

Figure 5-31. Detail of original 'cathedral glass' window panes, moulded render architraves, string course and window sills.

Figure 5-32. The northern elevation of the station building showing the entrance to the male and female bathrooms. Note the modified brick between each door where the wall was modified to accommodate each two entrance during upgrades to the station in 1995 and intrusive blue box secured to the wall.

Figure 5-33. Detail of new window, architrave and string course above the entrance to the female bathrooms added during upgrades to the station in 1995.

Figure 5-34. Detail of awning at northern of the station building. This was extended during upgrades to the station in 1995.

5.4.2 Interior

The station building contains a station master's room (Figure 5-35 and Figure 5-36), a store room (Figure 5-40), a ladies' toilet and a men's toilet (Figure 5-48 - Figure 5-52). Much of the original interior floor layout of the platform building has been preserved, although a wall which once divided the ticket office from the station has been removed and the male and female toilets have been modified.

The station master's office is located at the northern end of the building and contains modern furnishings, shelves and electrical equipment, including a switchboard (Figure 5-35). The installation of conduits, lighting and other modern services has resulted in localised damage to the ceiling at the northern end of the room (Figure 5-35 - Figure 5-39). Ceiling fans have also been removed, although their decorative mini orb fixtures have been retained (Figure 5-38). Other details that have been retained within the station master's office include corrugated iron ceiling panels and decorative cast-plaster air vents (Figure 5-37 - Figure 5-39).

The store room is located between the station master's office and the bathrooms and originally acted as a waiting room. The room is partially divided into three areas and the larger of the rooms, which

abuts the station master's office is currently used to hold a range of moveable heritage items (shown in Figure 5-41 - Figure 5-43) and cleaning equipment. The second room holds CCTV and electrical equipment (Figure 5-44 and Figure 5-45) and the third room holds plumbing and heating services (Figure 5-46 and Figure 5-47).

The bricks of a semi-circular arch – which may represent a doorway between the storage area and current bathrooms – is visible underneath the rendering of the northernmost wall in the third room (Figure 5-46). This has been filled in with brick and painted over. The ceiling in the first two storage rooms has retained its original corrugated iron panels (Figure 5-44 and Figure 5-45). Corrugated iron panels are missing in the room where a water heater has been installed (Figure 4 45). The ceiling is instead covered by a mesh sheet, leaving the insulation of the roof visible. Like the station office, the installation of conduits, lighting and other modern services has resulted in localised impacts to the ceiling at the end of the room (Figure 5-44 - Figure 5-47).

The bathrooms are located at the northern end of the building and represent the most heavily modified room at Warrawee station (Figure 5-48 - Figure 5-52). These changes have included new floor and wall tiling, installation of new toilets, urinals, mirrors and sinks, partition walls, ventilation and lighting. It is possible that the tiling, wall and ceiling panels has been placed over the original building fabric although this could not be confirmed during the inspection.

Figure 5-35. Interior of the station master's office (former booking office) showing the main switch board which is located at the northern end of the room.

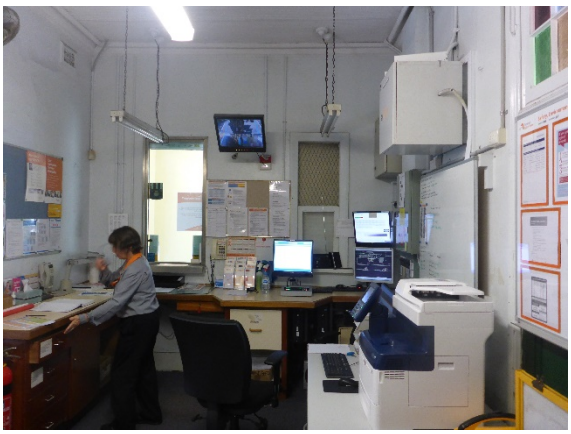

Figure 5-36. View north showing interior of the station master's office and ticket window.

Figure 5-37. Detail of original corrugated iron ceiling panels and decorative cast-plaster air vents in the station masters office.

Figure 5-38. Detail of existing conduit leading from the main switchboard to the corrugated iron ceiling.

Figure 5-39: Detail of decorative mini orb ceiling fixtures which once accommodated a ceiling fan (now removed). Note unsympathetic addition of LED light fixtures.

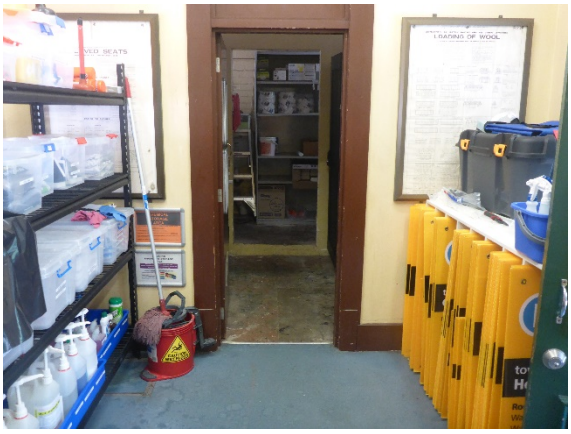

Figure 5-40: Interior of store room (former waiting room) looking north.

Figure 5-41. Movable heritage located in the store room (former waiting room).

Figure 5-42. Movable heritage located store room (former waiting room).

Figure 5-43. Movable heritage located store room store room (former waiting room).

Figure 5-44. Interior of the store room (former booking office) showing an ETS primary enclosure for equipment and conduits leading into original corrugated iron ceiling.

Figure 5-45. Detail of conduits leading into corrugated iron ceiling the store room (former booking office).

Figure 5-46. Detail of bricked-in door in partition wall at northern end of the store room (former booking office). This may have led into the bathrooms prior to their upgrade in 1995.

Figure 5-47. Detail of missing corrugated iron ceiling panels in the northern end of the storeroom (former waiting room).

Figure 5-48. Interior of the women's bathrooms upgraded in 1995.

Figure 5-49. Interior of the male bathrooms upgraded in 1995.

Figure 5-50. Window in male bathrooms.

Figure 5-51. Detail of ceiling in women's bathrooms. Note that no original details are visible.

Figure 5-52. Detail of modern floor tiles and partition in women's bathrooms.

5.5 Car parks and entrance

The current Warrawee Station does not possess any dedicated car parks, with commuters instead relying on street parking along Warrawee Avenue or Heydon Avenue (Figure 5-53 and Figure 5-56). Both streets are sloped on moderately steep gradients, with the slope descending to the north of the pedestrian footbridge. The kerb on Heydon Avenue does not currently have any ramps that would be appropriate for wheelchairs or prams, the footpath is an uneven surface and does not have TGSI surfaces (Figure 5-55). On Warrawee Avenue there is a sloped kerb point for entry to the station however the surface is still irregular and not DDA compliant (Figure 5-54). The current streets would require kerb works and possible widening of the road to provide a safe kiss and ride zone and accessible parking (Figure 5-53 and Figure 5-56). Bollards, which are currently located at each entrance would be replaced with a single bollard under the Proposal to allow for DDA-compliant access (Figure 5-57 and Figure 5-58).

Figure 5-53. Proposed location of two new disabled parking bays on Heydon Avenue, view southwest from the station entrance.

Figure 5-54. Existing ground surface and pedestrian footpath outside Warrawee Station along Warrawee Avenue, view northwest.

Figure 5-55. Entrance to Warrawee Station. Note absence of ramp and TGSI surface, View north.

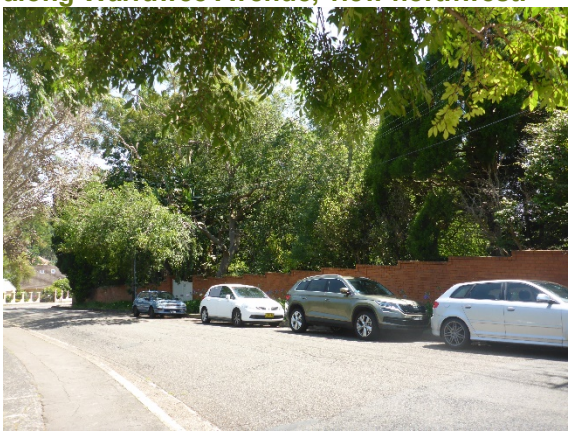

Figure 5-56. General location of proposed kiss and ride bays along Warrawee Avenue. View north.

Figure 5-57. Existing bollards outside Warrawee Station's Warrawee Avenue entrance which would be removed under the Proposal.

Figure 5-58. Existing bollards outside Warrawee Station's Heydon Avenue entrance which would be removed under the Proposal.

5.6 Proposed temporary compound area

The proposed temporary compound area is located within an existing vehicle access road which runs east of the rail corridor and west of Warrawee Avenue and a pedestrian footpath (Figure 5-61) and is bounded by the Warrawee Avenue entrance to the station to the north (Figure 5-59) and substation to the south (Figure 5-62). Access to the compound area is via Warrawee Avenue to the north and Brentwood Avenue to the south.

The road comprises of a loose dirt track surrounded by trees and aluminium fence (Figure 5-60). Views to and from the compound area are generally obstructed by trees and fence lines, however some gaps in vegetation are present (Figure 5-62).

Figure 5-59. View northwest towards proposed temporary site compound access gate at Warrawee Avenue.

Figure 5-60. View northwest towards proposed temporary site compound showing nature of ground surface and fencing.

Figure 5-61. View southeast along pedestrian footpath between proposed temporary site compound (to the right) and residential boundary wall (left).

Figure 5-62. View northwest towards Brentwood Avenue entrance to proposed temporary site compound showing thick vegetation on either side of the gate.

5.7 Warrawee Conservation Area (C3) and associated heritage listed items

The Warrawee Conservation Area (C3) is located immediately east of the study area and contains the following Ku-ring-gai LEP 2015 listed items in the close proximity to the study area:

- Dwelling House (I1072) - Figure 5-63
- Wirepe, Dwelling House (I1050) - Figure 5-64
- Rowardennan (formerly Lyndon Lodge), Dwelling House (I075) - Figure 5-65
- Maiala, Dwelling House (I1075) - Figure 5-66

The Warrawee Avenue component of the Warrawee Conservation Area is located on the high ridgeline to the east of Warrawee Station and slopes down to the north. The road runs north-west to south-east, parallel to the rail corridor.

The footbridge and platform is visible from some sections of Warrawee Avenue where the topography is slightly raised or trees have been removed to provide access for vehicles into the rail corridor and surrounding parklands (Figure 5-67 and Figure 5-69) and partially visible from heritage items I1050, I1072 and I1074, although they are obstructed by trees and fence lines (Figure 5-67, Figure 5-70, Figure 5-70 and Figure 5-72).

In certain areas at the northern end and slightly south of the pedestrian footbridge the proposed location of the elevator would be visible from the street and would therefore alter the existing view lines towards the station from the street (Figure 5-67 and Figure 5-68). However, the majority of the train station and the proposed work locations are blocked by vegetation (Figure 5-72 and Figure 5-73).

Figure 5-63. Dwelling House (I1072)

Figure 5-64. Wirepe, Dwelling House (I1050).

Figure 5-65. Rowardennan (formerly Lyndon Lodge), Dwelling House (I075)

Figure 5-66. Maiala, Dwelling House (I1075)

Figure 5-67. View south towards Warrawee Station from northern end of Warrawee Avenue. Footbridge is visible to the left.

Figure 5-68. View northwest towards Warrawee Station from Warrawee Avenue showing extent of views towards station and existing footbridge.

Figure 5-69. View southwest towards Warrawee Station Platform from Warrawee Avenue.

Figure 5-70. View north along Warrawee Avenue and the Warrawee Conservation Area from the southern end of the street. Warrawee Station is to the right and views are obstructed by trees and residential development.

Figure 5-71. View south along Warrawee Avenue and the Warrawee Conservation Area from the northern end of the street. Warrawee Station is to the left.

Figure 5-72. Example of views towards the Warrawee station platform and building partially obstructed by trees, view west from Warrawee Avenue.

Figure 5-73. Example of views towards the Warrawee station platform and building partially obstructed by trees, view northwest towards station from Warrawee Avenue.

5.8 Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (C2) and associated heritage listed items

The Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area which includes Heydon Avenue and Borambil Street is located immediately west of the study area and contains the following Ku-ring-gai LEP 2015 listed items in the close proximity to the study area:

- Reaycroft, Dwelling House (I1054) - Figure 5-74
- Chantreys, Dwelling House (I1055) - Figure 5-75
- Dwelling House (I056) - Figure 5-76
- Dwelling House (I1028) - Figure 5-77

Vegetation between the street and the train station is much denser and the rail cutting is slightly steeper than on Warrawee Avenue, which provides a visual barrier between the residential properties and Warrawee Station (Figure 5-78 - Figure 5-81). The road runs north-west to south-east, parallel to the rail corridor. The station building, platform and existing footbridge is partially visible from Heydon Avenue although trees and fence lines obstruct these site lines (Figure 5-78 and Figure 5-81). The station is not visible from I1055, I1056 or I1028. View lines from I1054 could not be assessed as the property was not accessible during the inspection. However, due to the property's location, which backs onto the rail corridor, there is potential for the dwelling to have unobstructed views to the station.

Figure 5-74. Reaycroft, Dwelling House (I1054).

Figure 5-75. Chantreys, Dwelling House (I1055).

Figure 5-76. Dwelling House (I056).

Figure 5-77. Dwelling House (I1028).

Figure 5-78. View north towards Warrawee Station from pedestrian footpath located to the east of Heydon Avenue. Note large trees and extensive vegetation on either side of the path.

Figure 5-79. Pedestrian bath running parallel to Warrawee Station and rail corridor. Fence lines and trees associated with a residential property can be seen to the right.

Figure 5-80. View north towards Warrawee Station from southern end of Heydon Avenue showing existing character of the area.

Figure 5-81. View east towards Warrawee Station entrance from corner of Borambil Street and Heydon Avenue. The footbridge and canopy are clearly visible although trees obstruct views towards the proposed lift structure.

6.0 ASSESSMENT OF SIGNIFICANCE

The following assessments of significance have been included in order to inform the impact assessment component of this SoHI.

6.1 Assessment of significance for Warrawee Railway Station Group

The Warrawee Railway Station Group is listed on the Railcorp s170 heritage conservation register and Ku-ring-gai LEP 2015. The assessment of significance in Table 6-1 has been adapted from the RailCorp s170 SHI entry for the Warrawee Railway Station Group.[16]

Table 6-1: Significance assessment for Warrawee Railway Station Group

Criterion	Explanation
A – Historical Significance	*Warrawee Railway Station is historically significant at local level. Built in 1909 following the duplication of the North Shore line between Lindfield and Hornsby, the present station has historical significance as the construction of the railway encouraged rapid subdivision and the development of the area.* **Warrawee Railway Station Group has local significance under this criterion**
B – Associative Significance	There is no evidence to suggest that Warrawee Station is associated with any significant individuals or events. The station was built to serve the North Shore Line and residents of the surrounding area. **Warrawee Railway Station Group does not meet the threshold for local significance under this criterion**
C – Aesthetic or Technical Significance	*Warrawee Railway Station has aesthetic significance at a local level. The station building is a god example of early twentieth century railway station design with fabric and details typical of this period and is similar to other rail buildings of the late nineteenth and twentieth centuries in the Sydney region. The station contributes to the character of the North Shore line with its homogenous, early 20th century railway architecture and landscaped settings. Unlike other stations on this line however, it does not have its original footbridge or any landscaping of particular note. The significance of the place is largely embodied in its original station building and platform.* **Warrawee Railway Station Group has local significance under this criterion**
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 past.* **Warrawee Railway Station Group has local significance under this criterion**
E – Research Potential	Warrawee Station was designed in a relatively common form of early 20th century railway station architectural in NSW, it is therefore not considered to contain research potential. Many plans for the station exist in the Sydney Trains Plans Room and it is well documented in newspapers and its SHI listing. Therefore, the station itself is not considered to contain research potential. **Warrawee Railway Station Group does not meet the threshold for local significance under this criterion**

[16] NSW Office of Environment and Heritage, SHI listing for "Warrawee Railway Station Group", accessed online 4 January 2018, https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?id=4802042

Criterion	Explanation
F – Rarity	Warrawee Station represents a relatively common form of early 20th century railway station design and layout in NSW, it is therefore not considered to represent a rare example of railway station in the region. **Warrawee Railway Station Group does not meet the threshold for local significance under this criterion**
G – Representativeness	*Warrawee station building is a representative example of the standard 'type A8-10' station designs that were built c.1910 throughout the North Shore line. The footbridge was identified as an item of moderate heritage significance in the comparative analysis from the 2016 'Railway Footbridges Heritage Conservation Strategy'.* **Warrawee Railway Station Group has local significance under this criterion**

6.2 Statement of significance

Warrawee Station is of local heritage significance.

The following statement of significance has been sourced from the SHI database listing for the Warrawee Railway Station Group. [17]

> *Warrawee Railway Station is significant at a local level. Built in 1909 following the duplication of the North Shore line between Lindfield and Hornsby, the present station has historical significance as the construction of the railway encouraged rapid subdivision and the development of the area and is associated with the early 1900s expansion of the suburban railway network. The station contributes to the character of the North Shore line with its homogenous, early 20th century railway architecture and landscaped settings. Unlike other stations on this line however, it does not have its original footbridge or any landscaping of particular note. The significance of the place is largely embodied in its original station building and platform.*[18]

6.2.1 Warrawee Station components

Based on historical research, information provided in public heritage register listings and the results of the site inspection, the following Table 6-2 summarises the heritage significance of the components of Warrawee Station.

Table 6-2: Grades of significance for components of the Warrawee Station

Element	Description	Grading
Platform station building – External	*Warrawee Station is a modified standard 'type A8' station design, c.1910. It is of red face brick construction (tuckpointed) with moulded render architraves, string course and window sills. The gabled corrugated iron roof features timber bargeboards. The timber framed platform awnings are supported by cantilevered curved cast iron brackets. The awnings feature timber valances at either end.*	**High**

[17] NSW Office of Environment and Heritage, SHI listing "Warrawee Railway Station Group", accessed online 4 January 2018, https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?id=4802042
[18] NSW Office of Environment and Heritage, SHI listing for the 'Warrawee Railway Station Group'. Accessed online at: http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4802042 on 10/07/2017.

Element	Description	Grading
	The southern wall of the building is an unusual freestanding element with a central opening through which customers walk to reach the ticket window. The roofline of the building, including the awning extends to this point. At each end of the station building a new steel framed roof has been added, following the line of the original roof (the station was upgraded in 1996). These structures have been attached directly to the building with heavy steel brackets. *The northern wall of the building has been modified to include two doors, for both male and female toilets. These have been done in a similar style to the original building, with rendered architraves and string course.*	
Platform station building - Internal	*Warrawee Station retains the majority of its original configuration and fittings. Walls are rendered, with decorative cast plaster air vents. Mini-orb ceilings with pressed metal roses have been retained. Windows are timber framed double hung sash, and most original four panel doors remain. Windows and fanlights feature coloured glazing 'cathedral glass'. A wall originally dividing the ticket office and station office has been removed to create one large space. Fireplaces have been infilled.*	**High**
Platform	*The original island platform, convex shaped, with brick faces and modern asphalt surface remains in use. Coping has been partially concrete on Platform 1. Both the north and south ends have had small gardens added.*	**High**
Pedestrian footbridge and stairs	*A 1977 precast concrete footbridge gives access to the station from both Warrawee Avenue and Borambil Street. The bridge is a pre-stressed concrete girder structure built during the experimental period of concrete superstructures, comprising wide-stem T-sections with overhanging top flanges forming the concrete deck. The bridge has had a gabled steel roof added (1995) to give weather protection.*	**Moderate**
Moveable	*Warrawee Station contains a significant collection of items relating to the station, the majority of which are displayed in the waiting room. Moveable heritage items include a Seth Thomas drop case NSW Government Railways Clock (no glass) (No. 1631); former Warrawee Station sign; 2 x "Ladies" signs with top bracket; "Parcels" sign with top bracket; "Height above Sea Level 591ft" sign; "Show Tickets Here" sign; "Applications for Season Tickets for Month of _____ NOW DUE" sign; framed posters outlining requirements for "Reserved Seats" and "Loading of Wool"; and a parcels trolley marked Warrawee. On the platform remain two indicator boards, used when required. Various framed historical photos are found throughout the station.*	**High**
Evergreen Ash (*Fraxinus griffithii*) and associated ornamental plantings	The Warrawee Station platform is currently occupied by three Evergreen Ash (*Fraxinus griffithii*), two at its northern end and one at its southern end. These trees are not original plantings associated with the station, as evidenced by photographs taken soon after it opened (Figure 4-5) and in 1956 (Figure 4-7). However, the trees occupy the same location as original plantings and contribute to the overall character of the station and surrounding area.	**Moderate**
Car park and Pedestrian Areas	There is currently no dedicated car park for Warrawee Station. Pedestrian areas are located outside of the train station area and its heritage curtilage and are modern repaved roads and footpaths.	**Little**

6.3 Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (C2)

The following statement of significance for the Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (Ku-ring-gai LEP 2015 C2) has been derived from public information provided by the Ku-ring-gai Council. [19] This statement of significance is consistent with the results of historical research and the site inspection of the item.

> *The Heydon Avenue Warrawee/Woodville Avenue Wahroonga Heritage Conservation Area is a distinctive residential area of historical and aesthetic significance for its fine Federation and Inter-war period streetscapes, including Yosefa Avenue, which contains houses designed by architect Augustus Aley. The area contains a number of heritage items by notable architects including Redleaf and Inglewood, both designed by Howard Joseland. Significantly, the area retains its oldest house, Reaycroft at 17 Heydon Avenue, built in the Federation Queen Anne style in 1895 to a design by architects Castletron and Lake for Judge Heydon, after whom Heydon Avenue is named.*

6.4 Warrawee Conservation Area (C3)

The following statement of significance for the Warrawee Conservation Area (Ku-ring-gai LEP 2015 C3) has been derived from public information provided by the Ku-ring-gai Council.[20] This statement of significance is consistent with the results of historical research and the site inspection of the item.

> *Warrawee Heritage Conservation Area is of aesthetic significance for its remarkable concentration of architecturally distinguished houses set within fine landscaped garden settings on large sites, many of the houses designed by notable architects including Eleanor Cullis-Hill, John Venables Vernon, Waterhouse & Lake, and Wilson, Neave & Berry. Fine gardens blend with regenerated native trees and the undulating topography to create an aesthetically fine residential landscape.*
>
> *Warrawee Heritage Conservation Area is of historical significance as an exclusively residential area, which retains evidence of its early settlement, subdivision and continuing development, in its main road pattern created in the 1890s, and evidence of later subdivision of earlier estates such as the Pibrac Estate subdivision of 1920, which created Pibrac Avenue.*
>
> *A notable feature of the area's layout, which is of historical significance, is the early creation of battleaxe allotments from the 1917 subdivision of the Warrawee Garden Estate. The area is also of historical significance for its collection of early houses associated with prominent historical figures including Pibrac, the home of Frederick Eccleston Du Faur (1832-1915); Roseburn and Kooyong designed for two of the Gillespie brothers, proprietors of Anchor Flour Mills and prominent benefactors of Knox Grammar School, and Audley, designed for Preston L. Gowing of Gowings department stores.*

[19] Ku-ring-gai Council, 2015. Heritage data form for Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (C2). Accessed online on 18/201/2019 at: http://www.kmc.nsw.gov.au/Plans_regulation/Building_and_development/Heritage/Heritage_Conservation_Areas

[20] Ku-ring-gai Council, 2015. Heritage data form for Warrawee Conservation Area (C3). Accessed online on 18/201/2019.

6.5 Heritage listed items

In addition to Conservation Areas, a number of properties in proximity of the Proposal are registered on the Ku-ring-gai LEP 2015 as items of local significance. Statements of significance for these items have been derived from the SHI entries for each item or prepared based on their known history have been provided in Table 6-3 below.

Table 6-3: Statements of significance for nearby local heritage listed items

Item	Statement of significance
Maiala, dwelling house Ku-ring-gai LEP no. I1075[21]	Maiala is considered to contain historical, social, aesthetic at a local level. It was designed by the famous and influential Australian architect Leslie Wilkinson in the Georgian revival and Mediterranean style. It is considered to have high technical and architectural; significance and has retained its external architectural features.
Rowardennan (formerly Lyndon Lodge), dwelling house Ku-ring-gai LEP no I1074[22]	Rowardennan is considered to contain aesthetic and historical significance at a local level. The house was designed by Bertrand James Waterhouse, a well-known Sydney architect famous for designing May Gibbs' home Nutcote in Neutral Bay.
Dwelling house Ku-ring-gai LEP no I1702	There is no listing for this item on the NSW OEH SHI.
Wirepe, dwelling house, Ku-ring-gai LEP no I1050[23]	Wirepe is considered to contain aesthetic and historical significance at a local level. The dwelling was built for W. M. Trail between 1901-1920 and comprises a two storey brick Federation style home.
Reaycroft, dwelling house Ku-ring-gai LEP no I1054[24]	Reaycroft is considered to contain local significance as it represents a 'largely intact example of a late Federation Period "rural" style dwellings attributed to the architectural firm of Castledon and Lake'; and social significance for its role 'as the home of Rev. Jackson and his family for over 60 years'.
Dwelling house Ku-ring-gai LEP no I1056[25]	This item is considered to contain aesthetic and historical significance at a local level. It comprises a two storey rendered Spanish revival style home which occupies a large allotment on the corner of Heydon Avenue and Borambil Street.
Dwelling house Ku-ring-gai LEP no I1028[26]	This item is considered to contain aesthetic and historical significance at a local level. It is currently owned and occupied by Knox Grammar School.
Chantreys, dwelling house Ku-ring-gai LEP no I1055[27]	There is no listing for this item on the NSW OEH SHI, however it is described it as a fine example of an inter-war period residence designed by architect John Brogan for Professor Charles Fawsitt, Professor of Chemistry, University of Sydney in c1934 in the Ku-ring-gai Potential Heritage Conservation North review.

[21] NSW Office of Environment and Heritage, SHI listing for "*Maiala*." Accessed 4/1/2019 at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1880127
[22] NSW Office of Environment and Heritage, SHI listing for "Rowardennan." Accessed 4/1/2019 at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1880128
[23] NSW Office of Environment and Heritage, SHI listing for 'Wirepe." Accessed 4/1/19 at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1880129
[24] Perumal Murphy Alessi Study, 2006. Review of potential heritage items in the Ku-ring-gai area, 17 Heydon Avenue, Warrawee, p. 43.
[25] NSW Office of Environment and Heritage, SHI listing for "Dwelling house'." Accessed 4/1/19 at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1880187
[26] NSW Office of Environment and Heritage, SHI listing for "Dwelling house'." Accessed 4/1/19 at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1880190
[27] Paul Davies Pty Ltd Architects Heritage Consultants, 2010. Potential Heritage Conservation Areas North Review, p. 124.

7.0 PRELIMINARY ARCHAEOLOGICAL ASSESSMENT

7.1 Introduction

This section discusses the study area's potential to contain historical archaeological resources. The potential for the survival of archaeological remains is significantly affected by activities which may have caused ground disturbance. This assessment is therefore based on consideration of current ground conditions, and analysis of the historical development of the study area.

'Archaeological potential' refers to the likelihood that an area contains physical remains associated with an earlier phase of occupation, activity or development of that area. This is distinct from 'archaeological significance' and 'archaeological research potential'. These designations refer to the cultural value of potential archaeological remains and are the primary basis of the recommended management actions included in this document.

7.2 Land use summary

European occupation of the study area has been divided into four general phases of historical activity, which are summarised below:

- Phase 1 (1813 – 1900) – European settlement, timber getting and agriculture at Warrawee
- Phase 2 (1900-1909) – First Warrawee Station
- Phase 3 (1909 – 1995) – Second (current) Warrawee Station
- Phase 4 (1995 – present) – Modern Warrawee Station

7.3 Assessment of archaeological potential

7.3.1 Phase 1: Early European settlement (1813 – 1900)

This phase is associated with large land grants and estates which were gradually subdivided into farms, orchards and generous residential allotments from c1870 onwards. The study area was originally located within Thomas Hyndes' 200 acre grant which would later become part of the Big Island Estate. No structures are known to have occupied the area during this phase, although land clearing activities may have occurred. Temporary saw pits may also have been established. The study area occupies a rise in the landscape which was cut into during Phase 2 occupation to create a level grade for the North Shore Line railway corridor.

Due to the lack of evidence to suggest any occupation of land within the study area during this period, as well as the significant impacts incurred to the landform during the construction of the North Shore Line, there is nil-low potential for archaeological remains associated with Phase 1 occupation to exist within the study area.

Conclusion

There is **nil-low** potential for archaeological remains associated with Phase 1 occupation to exist in the study area.

7.3.2 Phase 2: First Warrawee Station (1900-1909)

Phase 2 occupation is associated with the establishment of the North Shore Line which at this time was a single line corridor and the construction of the first Warrawee Railway Station (completed in 1900). As discussed in Section 7.3.1 above, construction of the railway corridor required significant

subsurface excavations and would have removed or disturbed any archaeological evidence of Phase 1 occupation within the study area.

The first Warrawee Station comprised of two temporary timber buildings on a platform (building material unknown). The exact location of the first platform is difficult to determine. The SHI listing for Warrawee Station describes it as being located along the Down side of the then single line and arranged to adapt to any future duplication works. If this is the case, it may have occupied the eastern side of the line; however, if it was positioned to accommodate future duplication works it would be logical for it to be located in the middle of the rail corridor.

Additional structures and features such as culverts, level crossings, privies and railway infrastructure are likely to have been established along the corridor, however the location of these is also unknown. Refuse deposits associated with use of the station may exist in close proximity to the original platform.

The duplication of the North Shore Line during Phase 2 occupation and construction of the new island platform are likely to have resulted in located disturbance and would have disturbed, truncated or removed evidence of the first station.

Conclusion

There is **low** potential for archaeological remains associated with Phase 2 occupation to exist in the study area.

7.3.3 Phase 3: Second (current) Warrawee Station (1909 – 1995)

The North Shore Line was duplicated within the study area in c1909. This required the demolition of the first Warrawee Station platform and timber buildings and establishment of a new Down line. As discussed in Section 7.3.3 above, these works are likely to have removed or disturbed evidence of the first Warrawee railway station and its associated infrastructure, although the extent of this is not known. A timber footbridge was constructed to provide access to the platform from either side of the line.

The second Warrawee Station continues to exist and has retained its original layout along the platform and within the railway corridor, although the original timber footbridge was replaced in 1977. A plan of the station prepared in 1925 shows the location of the original footbridge, unidentified structure along the top of the eastern side of the cutting, septic tank and a culvert (Figure 4-5). The septic tank and culvert are located to the north of the platform and the septic tank is still visible in contemporary aerials. The footbridge appears to have been located approximately 3.5 metres north of the current footbridge, although this may reflect an inaccuracy in the 1925 plan. The footbridge can be seen in Figure 4-4 and Figure 4-7.

The majority of structures and features associated with the second Warrawee Station continue to exist today. However, there is moderate potential for remains associated with an early footbridge and unidentified structure to survive within the study area today.

Conclusion

There is **moderate** potential for archaeological remains associated with a Phase 3 footbridge and unidentified structure to exist in the study area.

7.3.4 Phase 4: Modern Warrawee Station (1995 – present)

Phase 4 is associated with various upgrades to the Warrawee Station building. Notable upgrades to the building include the removal of an internal wall within the station master's office and renovations to the male and female bathrooms.

Although these works are unlikely to have impacted potential archaeological remains associated with earlier phases (due to their location on the platform) they may have damaged original fabric and floor surfaces. General maintenance of the railway corridor is also likely to have occurred during this period. This may have disturbed or truncated evidence of earlier occupation phases.

Conclusion

Due to the modern nature of works and structures associated within this period, there is **high** potential for evidence of Phase 4 occupation to survive within the study area. However, due to their contemporary nature, they would not be considered archaeological in nature.

7.4 Assessment of archaeological significance

7.4.1 Introduction

This section assesses the heritage significance of the known or potential archaeological remains outlined in 7.3. As with other types of heritage items, archaeological remains should be managed in accordance with their significance. Assessing the heritage value of archaeological remains is complicated by the fact that their extent and nature is often unknown. Judgement must therefore be based on expected or potential attributes.

The *NSW Heritage Manual* provides the framework for the following significance assessment of the study area. These guidelines incorporate the aspects of cultural heritage value identified in the *Burra Charter* (Australia ICOMOS 2013). The Heritage Branch (now Heritage Division) has also issued the 2009 *Assessing Significance for Historical Archaeological Sites and 'Relics.*[28] and the 1996 *Archaeological Assessment Guidelines*.[29] The assessment of historical archaeological sites requires a specialised framework in order to consider the range of values of an archaeological site.

Archaeological significance assessments have only been prepared for those historical phases which potential archaeological remains have been identified.

Note. As discussed in Section 7.3.4, evidence of **Phase 4** activities will not be assessed as they are not considered to contain research significance due to their contemporary nature.

7.4.2 Phase 1: Early European settlement (1813 – 1900)

Potential archaeological remains associated with early European settlement in the study area are associated with timber getting, the estates of ex-convict Thomas Hyndes and John Terry Hughes (the nephew of merchant land owner Samuel Terry), the Big Island Estate and later creation of smaller properties which orchards, markets gardens and weatherboard cottages. There is however no evidence to suggest that any structures occupied land within the study area during Phase 1 occupation and later developments associated with the construction of the North Shore Line would have removed or significantly disturbed physical evidence associated with this period.

If, in the unlikely event such remains were identified, they would contain historical significance for their association with early European land settlement and land use in Warrawee and associative

[28] NSW Heritage Branch 2009
[29] NSW Heritage Office 1996: 25 – 27

significance for their relationship with Samuel Terry Hughes and Thomas Hyndes. They would also have research significance for their ability to yield information regarding this early phase of land settlement, including the nature of timber getting activities, crop cultivation and domestic settlement. These remains would be significant at a local level.

Conclusion

Archaeological remains associated with Phase 1 occupation would have heritage significance at a **local** level.

7.4.3 Phase 2: First Warrawee Station (1900-1909)

Archaeological remains relating to this first phase of Warrawee Station would consist of timber posts and postholes related to the first station platform and associated infrastructure such as rails and sleepers. The station was the last to be constructed along the North Shore Line at a time when the majority of land holdings in Warrawee were used for orcharding, market gardens and large estates.

Archaeological remains of the first station would be representative of early informal and temporary stations in the Ku-ring-gai, which while not materially robust are demonstrative of the early development of the North Shore Line. They would therefore have historical and research significance at a local level yet fall under the definition of 'works', as discussed below in Section 7.5.

Conclusion

Archaeological remains associated with the first Warrawee Station would have heritage significance at a **local** level.

7.4.4 Phase 3: Second (current) Warrawee Station (1909-1995)

Archaeological remains related to the original timber footbridge and unidentified structure would be demonstrative of early 20th century construction and engineering methods associated with the rail industry and bridge construction. Remains would be demonstrative of methods used to provide access to stations located within deep cuttings.

Such remains may have historical significance for their associations with the early 20th century railway industry, however they would not contain research potential. This is mainly due to the various resources presently available that can provide information about the footbridge, for example photographs of the station taken in c1909 and 1956, as well as a plan prepared in 1925 (Figure 4-4, Figure 4-5 and Figure 4-7). Therefore, these items are more likely to be considered 'works', as discussed below in Section 7.5.

Conclusion

Potential archaeological remains associated with the second Warrawee Station may have heritage significance at a **local** level.

7.5 Archaeological 'works', 'relics' and management

As discussed in Section 3.2.1.2, archaeological remains would be considered to be 'works', not 'relics', under the Heritage Act should they consist of the remnants of former structures, and no moveable artefactual material (such as discrete domestic or refuse deposits of glass, bone or ceramic) are present in association with these remains.

While the potential for Warrawee Station to contain archaeological remains has been identified, all remains associated with Phase 2 and 3 occupation would be classified as 'works', providing no artefactual remains with research potential are identified in associated with the remains. The

potential for Phase 1 archaeological remains to survive within areas proposed to be impacted as part of the TAP 3 upgrade is nil-low.

Based on these findings, an excavation permit to impact archaeological remains does not need to be sought from the NSW Heritage Council prior to works commencing.

However, as items of heritage significance, 'works' should be managed in accordance with their significance, and adequately recorded. Identified impacts to significant archaeological 'works' should be managed according to their heritage significance. This may include the preparation of a Work Method Statement (WMS) for guiding archaeological monitoring where appropriate.

In order to manage any additional impacts to potential archaeological remains that may contain research potential, the *TfNSW Unexpected Heritage Finds Guideline* (2015) would also be followed for the duration of the Proposal.

7.6 Summary of archaeological potential and significance

A summary of significant potential archaeological resources at Warrawee Station is provided in Table 7-1. The location of these resources is illustrated in Figure 7-1.

Table 7-1: Summary of significant potential archaeological deposits within the study area

Phase	Potential archaeological remains	Potential	Significance	'Relics' or 'Works'?
Phase 1 (1813 – 1900)	Former agricultural and timber getting activities	**Nil-low**	**Local**	**Relics**
Phase 2 (1900-1909)	Former platform and railway infrastructure.	**Low**	**Local**	**'Works'**
Phase 3 (1909-1995)	Remains of former footbridge and unidentified structure	**Moderate**	**None**	**'Works'**

Figure 7-1 Location of areas containing archaeological potential. Note that potential Phase 1 and 2 remains are located below the existing platform.

8.0 PROPOSED WORKS

8.1 Overview of works

The TAP 3 upgrade at Warrawee Station involves the provision of DDA-compliant access to the station. In order to meet DDA compliance standards, TfNSW are proposing to install a new lift and landing structure at Warrawee Station, which would provide access between the pedestrian bridge and the platforms. Upgrades to the existing stairs are proposed to include new compliant handrails, TGSIs and nosing. The construction of a new platform-level canopy from the lift to the existing canopy is also proposed.

Proposed upgrades to the railway platforms include the replacement of the non-compliant TGSIs along Platforms 1 and 2 with a new yellow line and tactile indicators. The platform surfaces would also be re-graded and re-surfaced to provide compliant accessible paths and ramps to amenities. Internal station works would include the reconfiguration of the existing male and female toilets to accommodate both a family accessible toilet and a unisex ambulant toilet. This would require door widenings and internal reconfiguration.

Minor building and ancillary works include upgrades to various electrical equipment, CCTV cameras, customer facilities and amenities, signage, and station communications equipment and the relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth).

Car park upgrades are also proposed to include two accessible car parking on Heydon Avenue and three new kiss and ride bays on Warrawee Avenue. The footpaths at both the Heydon Avenue and Warrawee Avenue entrances would be widened under the proposed works, and associated kerb works would also occur. It is proposed that bollards at both entrances would be removed and replaced with single bollards, and that replacement landscaping and planting would occur.

An illustration showing the location of works associated with the Proposal is shown in Figure 8-1.

Detailed illustrations of the proposed works are shown in Appendix A.

8.2 Detail of works

8.2.1 Lift and platform-level canopy structure

A lift and landing would be constructed to provide access to Platforms 1 and 2 from the pedestrian footbridge. The footbridge currently provides access to the station from Heydon Avenue and Warrawee Avenue via stairs. Demolition of the existing footbridge and stairs would not be required, although DDA compliant upgrades are proposed These works would require the following:

- Installation of a steel framed lift shaft, canopy and landing to provide access to the footbridge. This would require:
  - subsurface excavations to a depth of approximately three to four metres and width of five by five metres
  - removal and replacement of an existing Evergreen Ash (*Fraxinus griffithii*)
  - removal and relocation of existing bench
- Installation of a new platform canopy between the proposed lift and existing canopy
- Removal of existing non-DDA compliant handrails with compliant handrails
- Addition of new TGSIs and nosing trim to stairs and footbridge deck

8.2.2 Car park and footpath modifications

Upgrades are proposed for parking, drop off, and pedestrian facilities at both station entrances. This would involve the following:

- Two new accessible car parking spaces are proposed on Heydon Avenue (Figure 5-53)
- Three new kiss and ride bays are proposed on Warrawee Avenue (Figure 5-56)

Footpath modifications at each entrance would involve:

- Footpath widening and associated kerb works including the addition of a ramp at Heydon Avenue and TGSIs
- Removal of existing bollards at Heydon Avenue and Warrawee Avenue entrance to footbridge (Figure 5-57 and Figure 5-58) and replacement with one bollard in the centre of the path to achieve minimum 1200 millimetre clearance

8.2.3 Platform modifications

The existing platforms of Warrawee Station are not DDA compliant, and upgrades are proposed. These works would involve:

- Addition of new compliant TGSIs along Platforms 1 and 2, as well as a new yellow line and TGSIs
- Re-grading and re-surfacing works to existing platforms, with compliant accessible paths and ramps constructed to allow access to station amenities. Regrading of platform around the station building to lift landing to achieve a maximum cross fall of 1:40.

8.2.4 Modifications to platform station building

Internal station building works have been proposed. This will involve the following:

- Reconfiguration of the existing male and female toilets to accommodate a family accessible toilet and a unisex ambulant toilet
- Widening existing bathroom doorways to achieve a minimum clearance of 850 millimetres
- Installation of new electrical equipment, including a new main switchboard and upgraded communications equipment in the station master's office
- Construction of new platform-level canopy which would run from the new lift to the existing canopy adjoining the exterior of the station building
- Installation of new service routes to support installation of new lift.

8.2.5 Ancillary works

Proposed ancillary works throughout the station include:

- Improvement to communications systems where required, including:
  - CCTV cameras
  - Hearing loops

  - Wayfinding signage
- Upgrades and modifications including:
  - Installation of yellow lines and TGSIs
  - Lighting
  - Electronic ticketing
  - Relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth)

Preliminary locations of these items are shown in Figure 8-1 and Appendix A.

8.2.6 Electrical upgrades

Electrical upgrades would include:

- Installation of a new 11kv isolating transformer (to be located on rail land near Warrawee Avenue).
- Potential for a new service pole to take the existing electricity supply into the rail property boundary.

Works associated with electrical upgrades and communications systems will be assessed for arcaheological impacts once final utility service solutions have been prepared. Preliminary locations of these items are shown in Figure 8-1 and Appendix A.

8.2.7 Temporary site compound area

A temporary site compound area would be established for the duration of the proposed works within an existing vehicle access road to the east of the railway corridor and west of Warrawee Avenue and a pedestrian footpath.

The compound area would be used to accommodate site sheds and other construction related plant and materials. No subsurface excavations or vegetation clearance would be required, and the site will be returned to its current condition at the end of the Proposal.

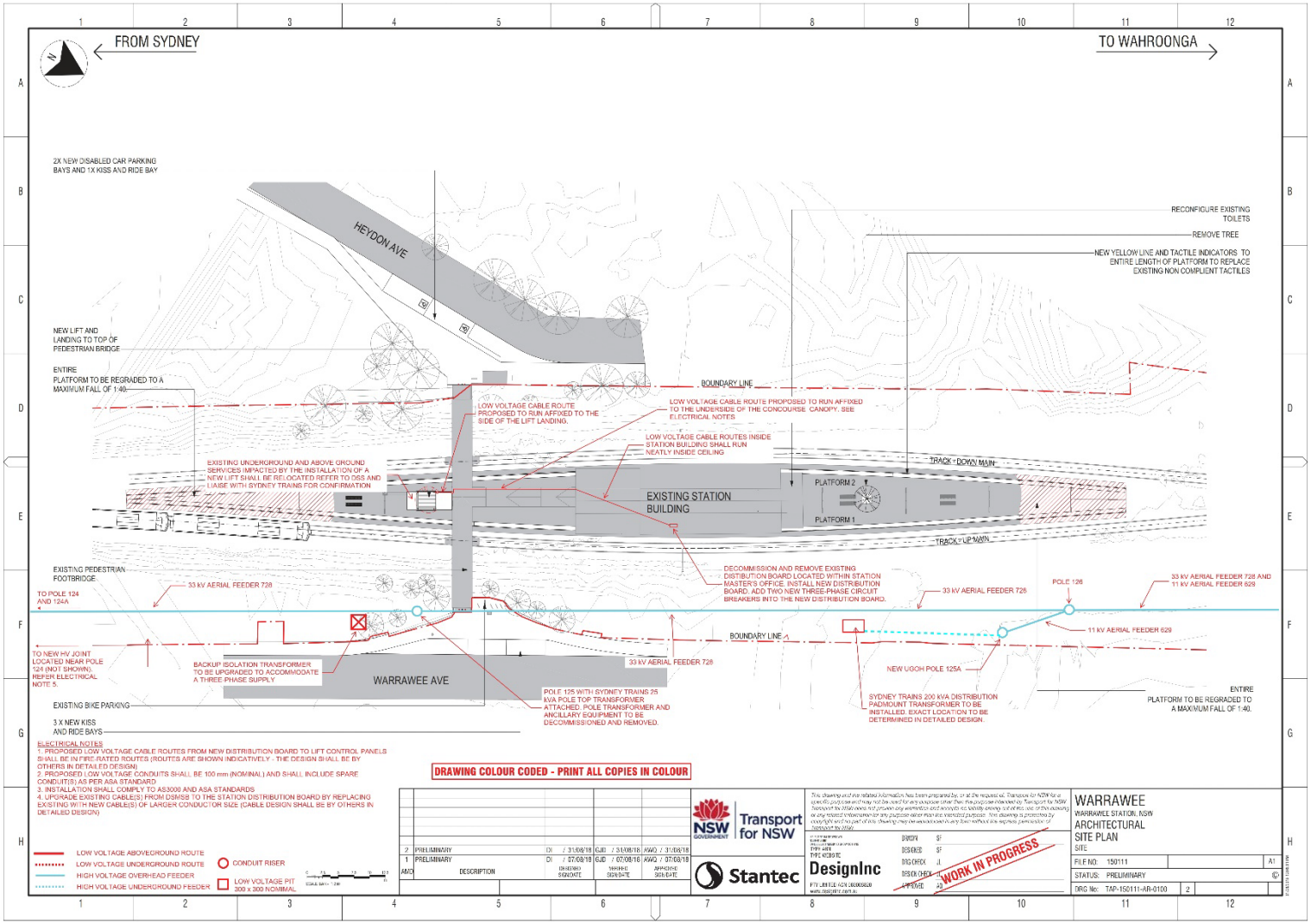

Figure 8-1. Preliminary architectural site plan for Warrawee Station TAP 3 upgrades showing location of proposed service routes and electrical upgrades. Source. Design Inc. February 2019.

9.0 HERITAGE IMPACT ASSESSMENT

9.1 Heritage impacts to Warrawee Railway Station Group and Conservation Areas C2 and C3.

9.1.1 Direct (physical) heritage impacts

9.1.1.1 Lift and platform-level canopy structures

The proposed lift and canopy structure would be attached onto the existing pedestrian footbridge, requiring the removal of some sections of fixings and handrails associated with the current footbridge deck. The deck of the footbridge is not considered significant fabric.

The new lift would result in the removal of an existing garden bed and Evergreen Ash (*Fraxinus griffithii*) tree. While the garden bed and tree are not original fabric, they are in the same location as earlier original trees planted on the station platform (as shown in Figure 4-4 and Figure 4-7). This would be considered a minor to moderate direct (physical) impact to the heritage significance of the Warrawee Railway Station Group.

The installation of the lift would involve the removal of part of the platform (considered to contain high significance) to accommodate the base of the lift shaft. This would be considered a moderate direct (physical) impact to the heritage significance of the Warrawee Railway Station Group.

9.1.1.2 Carparking and footpath modifications

Grading works on the public footpath would be constrained to areas within the road corridor only and would not occur within the lot boundaries of any private properties or Warrawee Station. They would however occur within the curtilages of the Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (C2) and Warrawee Conservation Area (C3). These works would not require the removal of any existing structures or trees. Impacts to fabric associated with the conservation areas would therefore be avoided and impacts to the conservation areas considered negligible to minor.

9.1.1.3 Platform modifications

The surface on platform 1 and 2 would be regraded to create a DDA-compliant level surface for commuters. It is unlikely that the horizontal extent of regrading would impact original fabric associated with the platform 1 or 2 coping and retaining wall. These works would therefore be considered a minor direct (physical) impact to the heritage significance of the Warrawee Railway Station Group. However, if platform coping and fabric associated with the retaining wall were to be directly impacted, this would be considered a moderate impact.

9.1.1.4 Modifications to platform station building

Service upgrades

The upgrade of services in the station master's office would involve fastening new items to existing internal walls. Impacts to fabric would therefore be considered minor.

Bathroom upgrades (internal)

The conversion of the existing women's bathroom into a unisex ambulant toilet would involve the removal of existing toilets, tiling and finishes and the installation of new tiling and toilet amenities in the room and installation of new bathroom facilities. These works would largely involve replacing non-original fabric (tiling, toilets, cubicles, sinks) with similar fabric. The new family accessible toilet facility would involve the replacement of existing tiling, finishes and toilet amenities in the men's bathroom

with new material of the same. The existing tiling, finishes and toilet amenities are not original, and their removal would not remove significant fabric.

The concrete slab located to the south-east of the existing men's bathroom, along with the existing brick privacy wall, would also be removed during works. These elements are modern, and their removal would not result in impacts to significant original fabric. These works are therefore considered to be a minor direct (physical) impact to the heritage significance of the Warrawee Railway Station Group.

Bathroom upgrades (external)

In order to obtain DDA-compliant access to the bathroom, existing doorways would need to be widened. This would involve direct impacts to a portion of the northern elevation which currently comprises of a modified brick wall and two doors leading into to then male and female bathrooms. The doors are associated with architraves and string courses which were added to the station building during upgrade works in 1995. Therefore, the doors, architraves and string courses are not original elements of the building. It is unclear if the modified brick wall represents original fabric.

As these elements are not considered original fabric, external works required to accommodate DDA-compliant access to the bathrooms would be considered a minor direct (physical) impact to the heritage significance of the Warrawee Railway Station Group.

9.1.1.5 Ancillary upgrades

New in-platform and above-ground services would include the addition of CCTV cameras, hearing loops, wayfinding signage, installation of yellow lines and TGSIs. Upgrades and relocation of lighting, electronic ticketing, drinking fountains, vending machines, seating and a telephone booth would also occur.

These works would require localised impacts to station building and platform fabric associated with fastening items to walls and other surfaces. However, it is understood that the majority of these upgrades will utilise existing penetrations and electrical connections. Therefore, these works would result in a minor impact to fabric associated with Warrawee Station.

9.1.1.6 Electrical upgrades

The installation of a new 11kv isolating transformer and service pole within the rail corridor are unlikely to impact fabric associated with the station and platform as they are located approximately 8 metres north of the station platform. Therefore, impacts to fabric associated with this works are considered to be negligible.

9.1.1.7 Temporary site compound area

The temporary compound area will be used to accommodate site sheds and other construction related plant and materials. No subsurface excavations or vegetation clearance would be required, and the site will be returned to its current condition at the end of the Proposal.

The establishment of a temporary site compound to the east of the station would not have a direct (physical) impact to the item. Therefore, impacts to the significance of the Warrawee Railway Station Group and conservation areas C2 and C2 would be negligible.

9.1.1.7.1 Summary of impacts to fabric

Overall, the proposed TAP 3 upgrades would have a minor to moderate direct (physical) impact to the heritage significance of the Warrawee Railway Station Group.

9.1.2 Indirect (visual) heritage impacts

9.1.2.1 Lift and platform-level canopy structures

The proposed lift and canopy structure would be attached onto the existing pedestrian footbridge and would introduce a large and prominent structure into the setting of the Warrawee Station. It would be visible from some areas within the Ku-ring-gai LEP 2015 listed Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (C2) and Warrawee Conservation Area (C3) and partially visible from heritage items "Wirepe" (I1050), 'Dwelling House' (I1072) and 'Dwelling House' (I1028).

The new lift would result in the removal of an existing garden bed and Evergreen Ash (*Fraxinus griffithii*) tree. While the garden bed and tree are not original fabric, they are in the same location as earlier original trees planted on the station platform (as shown in Figure 4-4 and Figure 4-7) and contribute to the overall aesthetic character of the station and surrounding area. Their removal would result in adverse heritage impacts to the setting and views of the station.

The base of the lift is proposed to be brick faced, a design which would not be in keeping with the remainder of the station buildings and associate features.

The addition of a new canopy on platform level, which would be located between the new lift and station building entrance, would also represent a new element to the station and alter the existing symmetrical layout of structures along the platform.

The addition of the new lift and canopy, along with the removal of the garden bed would result in a moderate indirect (visual) heritage impact.

9.1.2.2 Car park and footpath modifications

The vertical extent of regrading works, footpath modifications and car park and kiss and ride facilities along the Heydon Avenue and Warrawee Avenue footpaths is considered unlikely to result in adverse indirect (visual) heritage impacts to the Warrawee Railway Station Group or the Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area (C2) and Warrawee Conservation Area (C3).

These works would not require the removal of any existing structures or trees. Impacts to fabric associated with the conservation areas would therefore be avoided and impacts to the conservation areas considered negligible to minor.

9.1.2.3 Platform modifications

The platform surface on platform 1 and 2 would be regraded to create a DDA-compliant level surface for commuters and existing TGSIs surfaces and yellow line indicators would be replaced. These works would not significantly alter the existing appearance of the platform and would likely improve its presentation.

These works would therefore be considered to have neutral indirect (visual) impact to the heritage significance of the Warrawee Railway Station Group.

9.1.2.4 Modifications to platform station building

Service upgrades

The upgrade of services in the station master's office would involve fastening new items to existing internal walls. They would not be visible to members of the public and would replace existing electrical equipment. These works would therefore be considered to have neutral indirect (visual) impact to the heritage significance of the Warrawee Railway Station Group.

Bathroom upgrades (internal)

The conversion of the existing women's bathroom into a unisex ambulant toilet would involve the removal of existing toilets, tiling and finishes and the installation of new tiling and toilet amenities in the room. These works would largely involve replacing non-original fabric (tiling, toilets, cubicles, sinks) with similar fabric. The new family accessible toilet facility would involve the replacement of existing tiling, finishes and toilet amenities in the men's bathroom with new material of the same. These elements are modern, and their removal would not result changes to any original aesthetic characteristics of the station building.

These internal works are therefore considered to be a neutral indirect (visual) impact to the heritage significance of the Warrawee Railway Station Group.

Bathroom upgrades (external)

In order to obtain DDA-compliant access to the bathroom, existing doorways would need to be widened. This would involve direct impacts to a portion of the northern elevation which currently comprises of a modified brick wall and two doors leading into to the male and female bathrooms. The doors are associated with architraves and string courses which were added to the station building during upgrade works in 1995 and are not original. They do however match the station buildings' architectural details.

Door widening would alter the existing nature of the northern elevation and the new door dimensions would be wider that the existing station building doors. However, if design recommendations and mitigation measure outlined in Section 10.2 and 10.3 of this report are followed, visual impacts associated with this work would be minimal.

Therefore, these works would be considered a minor indirect (visual) impact.

9.1.2.5 Ancillary works

New in-platform and above-ground services would include the addition of CCTV cameras, hearing loops, wayfinding signage. These works would involve the addition of new elements to the existing appearance of Warrawee Station and may result in a minor-moderate impact to fabric associated with Warrawee Station.

These items would generally replace existing non-DDA compliant elements within the station. Therefore, they are unlikely to significantly alter its existing appearance and would be considered a minor indirect (visual) impact.

9.1.2.6 Electrical Upgrades

Visual impacts associated with a new 11kv isolating transformer and service pole will not be known until designs are finalised, however they would likely be considered a minor indirect (visual) impact.

9.1.2.1 Temporary site compound area

The temporary compound area would be used to accommodate site sheds and other construction related plant and materials. No vegetation clearance would be required, and the site would be returned to its current condition at the end of the Proposal.

The establishment of a temporary site compound to the east of the station would not have an indirect (visual) impact to Warrawee Station or surrounding conservation areas as it is shielded by trees and vegetation and would be removed at the end of the Proposal. Therefore, impacts to the significance of the Warrawee Railway Station Group and conservation areas C2 and C3 would be negligible.

9.1.2.1.1 Summary of impacts to fabric

Overall, the proposed TAP 3 upgrades would have a moderate indirect (visual) impact to the heritage significance of the Warrawee Railway Station Group.

9.1.3 Impacts to archaeological resources

Subsurface excavations are required for the installation of a new lift structure, service route installation and relocation and 11kv isolator and service pole installation. The majority of this work would occur within the platform itself, although excavations for the lift shaft may extend below the base of the platform and 11kv isolator works would occur within the rail corridor. These excavations would occur within a small portion of the overall study area.

The study area has been assessed as containing nil-low archaeological potential for Phase 1 (1913-1900) occupation, low potential for Phase 2 (1900-1909) occupation and moderate potential for Phase 3 (1909-1995) occupation. Areas of moderate archaeological potential (Phase 3) would be limited to the location of a former timber footbridge (on the platform) and a culvert, septic tank and unidentified structure which are located in and along the cutting of the rail corridor. Areas of Phase 2 archaeological potential are limited to the rail corridor and below the base of the existing station platform.

Therefore, the proposed works have the potential to impact Phase 2 archaeological remains if depths of excavations extend below the base of the platform. If service trenches are proposed within areas associated with an earlier footbridge (Phase 3), potential remains of this item may also be impacted. Evidence of the footbridge would be defined as a 'work' under the Heritage Act.

If archaeological remains associated with Phase 2 structures were uncovered during the Proposal they would be considered 'works'. However, if intact refuse deposits or cultural material was found in direct association with these structural remains, they be considered 'relics' under the Heritage Act. This is however unlikely.

If potential archaeological remains associated with Phase 1, 2 or 3 occupation were impacted, it would be considered a minor to moderate impact to the heritage significance of the Warrawee Railway Station Group. However, this is dependent on the nature of potential archaeological remains and the risk of impacts to significant archaeology is low.

9.1.3.1 Temporary site compound area

The temporary compound area will be used to accommodate site sheds and other construction related plant and materials. No subsurface excavations or vegetation clearance would be required.

Therefore, no impacts to potential archaeological remains are anticipated as a result of the works.

9.1.3.2 11kv isolating transformer and service pole

Installation of a new 11kv isolating transformer (on rail land near Warrawee Avenue) and service pole would require subsurface excavations. However, their location, depth and configuration has not been finalised, and an assessment of archaeological impacts for these works would be conducted following detailed design.

9.2 Summary of heritage impacts to Warrawee Railway Station Group and Conservation Areas C2 and C3

A summary of heritage impacts from the proposed works to the Warrawee Railway Station Group is provided in Table 9-1 below.

Table 9-1: Summary of heritage impacts to the Warrawee Railway Station Group

Proposed work	Direct (physical) impacts	Indirect (visual) impacts	Archaeological impacts
Installation of new lift, structure and platform-level canopy	Moderate	Moderate	Minor
Modifications to existing pedestrian footbridge	Minor	Minor	Negligible
Car park and footpath modifications	Neutral	Minor	Negligible
Platform modification	Minor	Negligible	Negligible
Ancillary works	Minor	Minor	Negligible
Electrical upgrades (11kv isolator and service pole)	Negligible	Minor	To be confirmed
Conversion of women's bathroom to ambulant toilet and new family accessible toilet in existing men's bathroom (internal)	Minor	Minor	Negligible
Conversion of women's bathroom to ambulant toilet and new family accessible toilet in existing men's bathroom (external)	Minor to moderate	Minor	Negligible
Temporary site compound area	Negligible	Negligible	Negligible

9.3 Heritage considerations for the Proposal for Warrawee Railway Station Group

Heritage guidelines[30] prepared by the NSW Heritage Office (now the Heritage Division of the OEH) outline design considerations for developments that involve major additions to a heritage item. These considerations are discussed in Table 9-2 below.

Table 9-2: Heritage considerations for major additions to a heritage item

Heritage Consideration	Discussion
How is the impact of the proposed lift and platform-level canopy on the heritage significance of the item to be minimised?	The proposed lift structure and associated canopy (which would link the lift to the existing footbridge) has been designed to reduce visual impacts through its simple steel frame and neutral glazing. The lift would be located away from the station building and accessed via the existing footbridge, which would be retained, thus minimising visual impacts to and from the station. Options should be considered to minimise the impact of the proposed canopy located on the platform, located between the proposed lift and existing station building It is proposed that an existing Evergreen Ash tree and bench which must be removed to accommodate the lift stricture would be replaced along the platform. This would minimise visual impacts to the station as aesthetic features would be retained.
Will the additions tend to visually dominate the heritage item?	The new lift and canopy structure would be prominent, however the 30 metre setback from the main station building would partially offset the degree to which the structure will overshadow the main station building on the platform.

[30] 'Statements of Heritage Impact', Heritage Office and Department of Urban Affairs and Planning 2002.

Heritage Consideration	Discussion
Are the additions sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered?	The proposed lift shaft would be located within the existing platform which is not considered to contain archaeological potential. However, if excavations extended below the base of the platform, they may impact potential remains of Phase 2 (1900-1909) occupation associated with the first Warrawee Station. The nature of these remains is not known, however they would likely represent 'works' under the Heritage Act. The location of the lift structure is restricted by its required access to the island platform and location of the existing staircase and footbridge. Therefore, it cannot be relocated to an alternative position. Further, its proposed location is considered the most sympathetic option.
Are the additions sympathetic to the heritage item? In what way (e.g. form, proportions, design)?	The proportions of the new lift and canopy structure are generally sympathetic to the layout and design of the existing platform buildings and footbridge at Warrawee Station. The additions of new signage, TGSIs, yellow lines, water fountains and signage are also considered to be sympathetic to the historic nature of the station as they would replace existing items of similar appearance.

9.4 Heritage impacts to nearby heritage listed items

There are eight heritage listed items, and two heritage conservation areas, located on either side of Warrawee Station. These items would not incur any physical heritage impacts from the proposed works. However, the visual heritage significance of some of these items may be affected by the proposed works. Impacts to heritage views and vistas to these items are outlined in Table 9-3 below.

Table 9-3: Potential indirect (visual) heritage impacts to nearby heritage listed items

Item name and Listing	Potential indirect (visual) heritage impacts
Dwelling house (Ku-ring-gai LEP 2015 I1072)	This item is located approximately 25 metres east of the study area. The proposed works would result in the introduction of the lift shaft and canopy into the visual catchment of this item. The lift shaft would project above the height of the rail cutting. Works involving the regrading of existing footpaths and establishment of a kiss and ride bay would involve the removal and replacement of kerbing, asphalt and concrete surfaces. The relocation/modification of these elements would not alter views from the item to the station. The addition of a new lift and canopy at Warrawee Station would disrupt views from this item to the station. However, this would be considered a **minor** indirect (visual) impact to the item's heritage significance.
Rowardennan (formerly Lyndon Lodge), dwelling house (Ku-ring-gai LEP 2015 I1074)	This item is located approximately 80 metres northeast of the study area and views towards the proposed works are obstructed by trees. Therefore, they would have a **negligible** impact on the item.
Maiala, dwelling house (Ku-ring-gai LEP 2015 I1075)	This item is located approximately 30 metres northeast of the study area and views towards the proposed lift and canopy are obstructed by trees. Works involving the regrading of existing footpaths and establishment of a kiss and ride bay would involve the removal and replacement of kerbing, asphalt and concrete surfaces and would be visible from the item. However, the

Item name and Listing	Potential indirect (visual) heritage impacts
	relocation/modification of these elements would not alter views from the item to the station. The proposed works would result in a **negligible** indirect (visual) impact to the item's heritage significance.
Wirepe, dwelling house (Ku-ring-gai LEP 2015 I1050)	This item is located approximately 30 metres east of the study area. The proposed works would result in the introduction of the lift shaft and canopy into the visual catchment of this item. The lift shaft would project above the height of the rail cutting. Works involving the regrading of existing footpaths and establishment of a kiss and ride bay would involve the removal and replacement of kerbing, asphalt and concrete surfaces. The relocation/modification of these elements would not alter views from the item to the station. The addition of a new lift and canopy at Warrawee Station would disrupt views from this item to the station. However, this would be considered a **minor** indirect (visual) impact to the item's heritage significance.
Dwelling House (Ku-ring-gai LEP 2015 I1028)	This item is located approximately 120 metres northwest of the study area. The proposed works would result in the introduction of the lift shaft and canopy into the visual catchment of this item. The lift shaft would project above the height of the rail cutting, however views are partially obstructed by trees. Works involving the regrading of existing footpaths and establishment of two accessible car parks would involve the removal and replacement of kerbing, asphalt and concrete surfaces. The relocation/modification of these elements would not alter views from the item to the station. The addition of a new lift and canopy at Warrawee Station would disrupt views from this item to the station. However, this would be considered a **negligible** indirect (visual) impact to the item's heritage significance.
Reaycroft, dwelling house (Ku-ring-gai LEP 2015 I1054)	This item is located approximately 10 metres southwest of the study area. It is likely that the proposed works would result in the introduction of the lift shaft and canopy into the visual catchment of this item, however this could not be confirmed during the site inspection. The lift shaft would project above the height of the rail cutting, however views are partially obstructed by trees. Works involving the regrading of existing footpaths and establishment of two accessible car parks would involve the removal and replacement of kerbing, asphalt and concrete surfaces. The relocation/modification of these elements would not be visible from the item. The addition of a new lift and canopy at Warrawee Station would disrupt views from this item to the station. However, this would be considered a **minor** indirect (visual) impact to the item's heritage significance.
Chantreys, dwelling house (Ku-ring-gai LEP 2015 I1055)	This item is located approximately 50 metres southwest of the study area and views towards the proposed lift and canopy are obstructed by trees. Works involving the regrading of existing footpaths and establishment of two accessible car parks would involve the removal and replacement of kerbing, asphalt and concrete surfaces. The relocation/modification of these elements would not be visible from the item. The proposed works would result in a **negligible** indirect (visual) impact to the item's heritage significance.
Dwelling House (Ku-ring-gai LEP 2015 I1056)	This item is located approximately 30 metres west of the study area and views towards the proposed lift and canopy are obstructed by trees.

Item name and Listing	Potential indirect (visual) heritage impacts
	Works involving the regrading of existing footpaths and establishment of two accessible car parks would involve the removal and replacement of kerbing, asphalt and concrete surfaces. The relocation/modification of these elements would not alter views from the item to the station. The addition of a new lift and canopy at Warrawee Station would disrupt views from this item to the station. However, this would be considered a **minor** indirect (visual) impact to the item's heritage significance.

9.5 Statement of heritage impact

A statement of heritage impact has been prepared according to NSW Heritage Office guidelines[31] in Table 9-4 below.

Table 9-4: Statement of heritage impact for the proposed works

Development	Discussion
What aspects of the Proposal respect or enhance the heritage significance of the study area?	By making Warrawee Station compliant with *Disability Standards for Accessible Public Transport 2002* and the Commonwealth *Disability Discrimination Act 1992* (DDA) as part of the Transport Access Program, the Proposal would allow the station to continue in its historical use as well as allowing for increased public access to the station and its amenities.
What aspects of the Proposal could have a detrimental impact on the heritage significance of the study area?	The new lift and canopy would be prominent within the setting of the station and portions of the surrounding locality. Depending on final design considerations, the new structure would result in a moderate visual impact to the Warrawee Railway Station Group and a minor visual impact to four nearby heritage items (I1050, I1054, I1072 and I1028) and two conservation areas (C2 and C3). The removal of an existing Evergreen Ash (*Fraxinus griffithii*) tree from the south end of the platform to accommodate the new lift shaft would be considered a moderate direct and indirect impact to the Warrawee Station. Replacing the item would reduce these impacts. The construction of the new canopy along the station platform would alter the symmetrical nature of the station layout and result in an intrusive element being added to the platform. Modifications to the external northern elevation to widen existing bathroom doors would be considered a minor to moderate physical impact and moderate visual impact to the Warrawee Railway Station Group. Modifications to existing services and installation of new service conduits may involve obscuring original detailing of the building and introducing new penetrations into original fabric. This would have minor impact to the study area. Subsurface excavations associated with the new lift shaft and service trenches has the potential to impact to Phase 2 (1900-1909) and Phase 3 (1909-1995) archaeological remains.
Have more sympathetic options been considered and discounted?	Design development has included a number of changes which have resulted in a more heritage sympathetic design, including a reduction in the size of the lift and overrun, use of sympathetic materials, and the internal alteration of rooms which have significantly altered instead of rooms which are in a good degree of integrity with their original fabric.

[31] *ibid*

10.0 MANAGEMENT AND MITIGATION MEASURES

10.1 Conclusions

Based on the findings of this report, the following conclusions have been made:

10.1.1 Built Heritage

Warrawee Station is listed on the following registers as an item of local heritage significance:

- Warrawee Railway Station Group, RailCorp s.170 register SHI no. 4802042
- Warrawee Railway Station, Ku-ring-gai LEP 2015 item 1105

Warrawee Station is locally heritage significant due to its historic, aesthetic and social values, as well as its representativeness as a model example of a standard 'type A8-10' station design which was built along the North Shore Line in the early 20th century. It is considered to represent a relatively intact example of a 'type A8' station, however the recent addition of a covered area at both ends of the station has altered the historical nature of the station and obstructed views of its original layout.

The station is located in proximity to a number of heritage items listed on the Ku-ring-gai LEP 2015, of local heritage significance:

- Dwelling house, item no. I1072
- Rowardennan (formerly Lyndon Lodge), dwelling house, item no. I1074
- Maiala, dwelling house, item no. I1075
- Wirepe, dwelling house, item no. I1050
- Dwelling house, item no. I1028
- Reaycroft, dwelling house, item no. I1054
- Chantreys, dwelling house, item no. I1055
- Dwelling house, item no. I1056
- Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area, item no. C2
- Warrawee Conservation Area, item no. C3

10.1.2 Potential Archaeological Remains

The study area has been assessed as containing:

- **Nil-low** archaeological potential for **Phase 1** (1813-1900) remains associated with early land use and occupation
- **Low** archaeological potential for **Phase 2** (1900-1909) remains associated with the first Warrawee Railway Station platform, railway line and land use. These would be considered 'works' under the Heritage Act
- **Moderate** archaeological potential for **Phase 3** (1909-1995) remains associated with the current Warrawee Railway Station's former footbridge. These would be considered 'works' under the Heritage Act

10.1.3 Impacts

Based on architectural drawings for Warrawee TAP 3 Warrawee, the proposed works would result in the following heritage impacts:

- The introduction of a new lift and canopy would result in the following impacts:
  - Moderate direct (physical) and indirect (visual) impacts to the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group
  - Minor indirect (visual) impacts to the following Ku-ring-gai LEP 2015 listed items:
    - Wirepe, dwelling house, item no. I1050
    - Reaycroft, dwelling house, item no. I1054
    - Dwelling house, item no. I1072
    - Dwelling house, item no. I1028
    - Heydon Avenue, Warrawee and Woodville Avenue, Wahroonga Conservation Area, item no. C2
    - Warrawee Conservation Area, item no. C3
- Modifications to the car parks and footpaths along Warrawee Avenue and Heydon Avenue would result in the negligible direct (physical) and indirect (visual) impacts to the study area and surrounding heritage listed items and conservation areas.
- Modifications to the Warrawee Station platform would result in minor direct (physical) and indirect (visual) impacts to the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group
- Ancillary works including adjustments to lighting, signage, electronic ticketing, relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth) and CCTV modifications would have a minor impact on the heritage significance of the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group (provided all recommendations in this report are followed)
- The establishment of a temporary site compound area east of the rail corridor and west of Warrawee Avenue and a pedestrian footpath would have a negligible direct (physical) impact and minor indirect (visual) impact to the heritage significance of the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group, and Ku-ring-gai LEP 2015 conservation areas and items.
- Provided all recommendations in this report are followed, modifications to the interior of the station platform building toilets would result in a minor direct (physical) and minor indirect (visual) impact to the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group.
- Areas of identified archaeological potential associated with Phase 2 (1900-1909) and Phase 3 (1909-1995) may be impacted by the proposed works. Depending on the nature of these remains, the Proposal would have a minor to moderate impact on the heritage significance of the s170 and Ku-ring-gai LEP 2015 listed Warrawee Railway Station Group.
- Electrical upgrades including the installation of an 11kv isolating transformer and new service pole (to be confirmed) within the rail corridor may impact potential archaeological remains. Final

designs for these upgrades have not been prepared and the level of impact associated with these works is unknown.

10.2 Recommendations

Based on the conclusions of this report, the following recommendations have been made:

10.2.1 Built Heritage

During design development, consideration should be given to developing heritage sympathetic design, particularly in relation to the size, form and materials used for the lift and platform-level canopy as well as any modifications to the existing bathrooms. Heritage sympathetic design considerations include:

- The proposed platform canopy would have a moderate indirect (visual) impact on the Warrawee Railway Station Group as a whole. It is recommended that the canopy size and form be relocated to remain in keeping with the symmetry of the station if feasible. If this is not considered practicable, it is recommended that the design of the canopy be sympathetic to the existing nature of the station and endeavour to be as unobtrusive as possible. For example, the use of canopy supports should be minimal and the width of the structure reduced.
- Consideration should be given to replacing an existing awning between the footbridge stair landing and station building to match the proposed platform canopy. This would reduce visual impacts to the Warrawee Railway Station Group and surrounding heritage listed items and conservation areas.
- Consideration should be given to designing proposed lift and landing structures in a way that is sympathetic to the historical nature of the Warrawee Railway Station and surrounding area. For example, the overall size and height of the lift should be planned with views to the station from surrounding heritage items and conservation areas in mind. If tinted glass is required, neutral tones should be considered rather than colours such as green or blue.
- It is recommended that the brick tiles proposed for the lower portion of the lift shaft be similar in material type, colour, pointing and bond (in this case Flemish Bond), as that on the existing platform building. This would ensure consistency with the existing architectural style of the station and surrounding area.
- A heritage consultant and/or heritage architect must be engaged throughout the design process to assist with selection of material colours and finishes proposed for the upgrade works.
- It is understood that a new garden bed and tree (of the same species) will be emplaced at Warrawee Station to offset the loss of the existing Evergreen Ash (*Fraxinus griffithi*) that would be removed for the installation of the lift. The extant platform garden bed and tree, while not original fabric, are located in the same area as original platform plantings and are considered to be an important component of the aesthetic significance of the station.
- Regrading works for the platform should avoid impacting significant fabric associated with the station buildings. This would involve protecting architectural fabric and architectural features using padded covers, fabric or establishing a fenced protection zone (with a minimum one metre buffer).

- During the installation of any new conduits or electrical items within the station master's office or station building, care should be taken to avoid making penetrations on decorative fabric (skirting boards, lintels, cornices) and original corrugated iron ceiling panels to minimise irreversible harm to elements of high heritage value.
- Removal of existing tiling and finishes from the existing men's and women's toilets should be conducted with care to avoid damaging original walls and detailing underneath. This is considered significant fabric. The reinstallation of tiling and finishes in these rooms should endeavour to use existing penetrations and fixing points to minimise harm to the original brick fabric located underneath.
- New tiling to be installed on original fabric should also be affixed and grouted with care to prevent long-term damage to underlying brickwork. Original decorative features (such as skirting boards and cornices) that may be overlayed with tiling should be physically protected prior to the installation of tiling.
- Widening of existing doorways to the bathrooms would be carried out in such a way that intact brickwork is avoided, and openings are returned to their existing appearance upon the completion of works. For example, doors should be widened in the centre of the northern elevation where bricks were replaced or reinstated during the 1995 refurbishment works. All modified rendered architraves and string courses should be reinstated to match the design and dimensions of the remainder of the station building.
- Above ground conduit, lighting and signage installation should endeavour to use existing penetrations and entry points to structures. Conduits should not cover significant fabric or areas of detailing wherever possible. Conduits and conduit casings should not introduce large noticeable structures or items in areas of significant detailing or within significant view lines.
- The relocation or replacement of existing customer facilities (drinking fountain, vending machine, seating and telephone booth) should endeavour to use existing penetrations and entry points where possible. Customer facilities should not cover significant fabric or areas of detailing wherever possible.

10.2.2 Potential Archaeological Remains

- An area of archaeological potential (**Phase 2**) has been identified within the Warrawee Station rail corridor on either side of, and below, the platform. Potential archaeological remains may represent the First Warrawee Station. It is anticipated that they would be defined as 'works' under the Heritage Act and therefore no approval permits are required. Due to the assessed **low** potential for Phase 2 archaeological remains to occur, it is recommended that the *TfNSW Unexpected Heritage Finds Guideline* (TfNSW 2015a) is followed in this area.
- An area of archaeological potential (**Phase 3**) associated with a former footbridge has been identified within in the Warrawee Station platform. These potential remains would be defined as 'works' under the Heritage Act and therefore no approval permits are required. Service trenching may occur in this area and it is recommended that service conduit locations be designed to avoid this area of archaeological potential if possible. Should ground disturbance occur in this area,

archaeological monitoring and recording may be required. A WMS must be prepared by a suitably qualified heritage specialist to guide the archaeological monitoring and recording program.

- The location of a proposed 11kv isolating transformer and service pole have not been confirmed. Installation of these items would require subsurface excavations. It is therefore recommended that an addendum Non-Aboriginal Archaeological Assessment be prepared upon the completion of 11kV feeder and transformer designs to assist in identifying any impacts to potential significant archaeological remains in the area.
- If 'relics' are identified during works, a Section 146 notification would be submitted to the NSW Heritage Council for review and approval.

10.3 Management and mitigation measures

- A heritage induction would be provided to workers prior to construction, informing them of the location of known heritage items and guidelines to follow if unanticipated heritage items or deposits are located during construction.
- In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in the T*fNSW Unexpected Heritage Finds Guideline* (TfNSW, 2015a) would be followed, and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the TfNSW Project Manager and the TfNSW Environment and Planning Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and OEH. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to works recommencing at the location.
- Where it is identified during detailed design that ground disturbance may impact Phase 3 archaeological remains, a Work Method Statement (WMS) must be prepared by a suitably qualified heritage specialist to guide archaeological monitoring and recording where required.
- If archaeological 'relics', as defined under the Heritage Act, are encountered during any ground disturbing works associated with the Proposal, a Section 146 notification would be prepared and submitted to the NSW Heritage Division, Office of Environment and Heritage prior to their removal.
- A copy of this SoHI report should be provided to Sydney Trains for their review and comment.
- Under ISEPP provisions, TfNSW should provide a copy of the complete SoHI to Ku-ring-gai Council for their comment.
- A Photographic Archival Recording (PAR) would be prepared for the station, in accordance with relevant guidelines issues by the NSW Heritage Division prior to works commencing.
- Consideration should be given to the provision of interpretation as part of the Proposal, which would outline the history, associations and significance of Warrawee Station and the wider Warrawee area. Interpretive measures could involve interpretive signage, panels or displays at entry/exit points to the station, including on the proposed lift and platform-level canopy structure.
- A notification under Section 170A of the Heritage Act would be provided to the OEH Heritage Division at least 14 days prior to commencement of works as a precautionary approach for the Proposal.

11.0 REFERENCES

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12.0 APPENDIX A

12.1 Proposed Designs

ARCHITECTURAL DRAWING LIST

PROJECT NO.	SHEET NO.	REV NO.	SHEET NAME	SHEET TYPE	SCALE	ISSUE DATE
0000 - GENERAL						
TAP-15011'	AR-0000	4	COVER SHEET		NTS	14.11.18
TAP-15011'	AR-0001	4	SITE ANALYSIS		1:500	14.11.18
1000 - PLANS						
TAP-15011'	AR-1001	4	GENERAL ARRANGEMENT	SITE PLAN	1:250	14.11.18
TAP-15011'	AR-1002	4	GENERAL ARRANGEMENT	PLATFORM STREET PLAN	1:200	14.11.18
TAP-15011'	AR-1003	4	GENERAL ARRANGEMENT	FOOTBRIDGE PLAN	1:200	14.11.18
TAP-15011'	AR-1004	3	GENERAL ARRANGEMENT	ROOF PLAN	1:200	14.11.18
4000 - SECTIONS						
TAP-15011'	AR-4001	4	SECTIONS	SECTION 01	1:100	14.11.18
TAP-15011'	AR-4002	4	SECTIONS	SECTION 02	1:100	14.11.18
9000 - PERSPECTIVES						
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TAP-15011'	AR-9002	4	PERSPECTIVE	3D VIEWS 02	NTS	14.11.18
TAP-15011'	AR-9003	4	PERSPECTIVE	3D VIEWS 03	NTS	14.11.18
TAP-15011'	AR-9004	4	PERSPECTIVE	3D VIEWS 04	NTS	14.11.18
TAP-15011'	AR-9005	4	ARTIST IMPRESSION			14.11.18

GENERAL NOTES:

- WAYFINDING SIGNAGE SHALL BE DESIGNED AND INSTALLED BY CONTRACTOR TO INDICATE THE LOCATION OF THE PROPOSED FAMILY ACCESSIBLE TOILETS AND LIFTS.
- WAYFINDING SHALL BE IN ACCORDANCE TO THE WAYFINDING GUIDELINES FOR STATIONS AND INTERCHANGES.
- LIFTS USED ARE IN ACCORDANCE WITH TFNSW TAP 3 STANDARD LIFT DESIGN
- HEIGHTS OF STANDARD LIFTS HAVE BEEN MODIFIED BASED ON HERITAGE CONSIDERATIONS TO MINIMIZE VISUAL IMPACT.
- ALL WORKS TO COMPLY WITH DDA, DSAPT, NCC, ESB 003, ESB 002, AS 1428.1 AND ALL RELEVANT DOCUMENTS TO THIS PROJECT.
- REFER TO DSS DRAWINGS FOR LOCATIONS AND ROUTES OF SERVICES. A DETAILED SURVEY IS TO BE CONDUCTED FOR ACCURATE INFORMATION.

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4	FINAL SCOPING DESIGN	SF / 14.11.18	GJD / 14.11.18	AWQ / 14.11.18
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2	DRAFT SCOPING DESIGN	SF / 23.10.18	GJD / 23.10.18	AWQ / 23.10.18
1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE: NTS

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DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL

COVER SHEET

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DRG No:	TAP-150111-AR-0000	4

14.11.18 10:37:39 AM

LEGEND:

1 STATION ENTRY
2 TOILET
3 SECURE BIKE LOCKER
4 KISS 'N' RIDE
5 TAP ON TAP OFF MACHINE

SCHOOL & INDUSTRIAL
COMMERCIAL
PARKLAND
PARKING
PEDESTRIAN FLOW
HIGH VOLTAGE CABLE
OVERHEAD WIRE SUPPORTS
BOUNDARY LINES

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WARRAWEE
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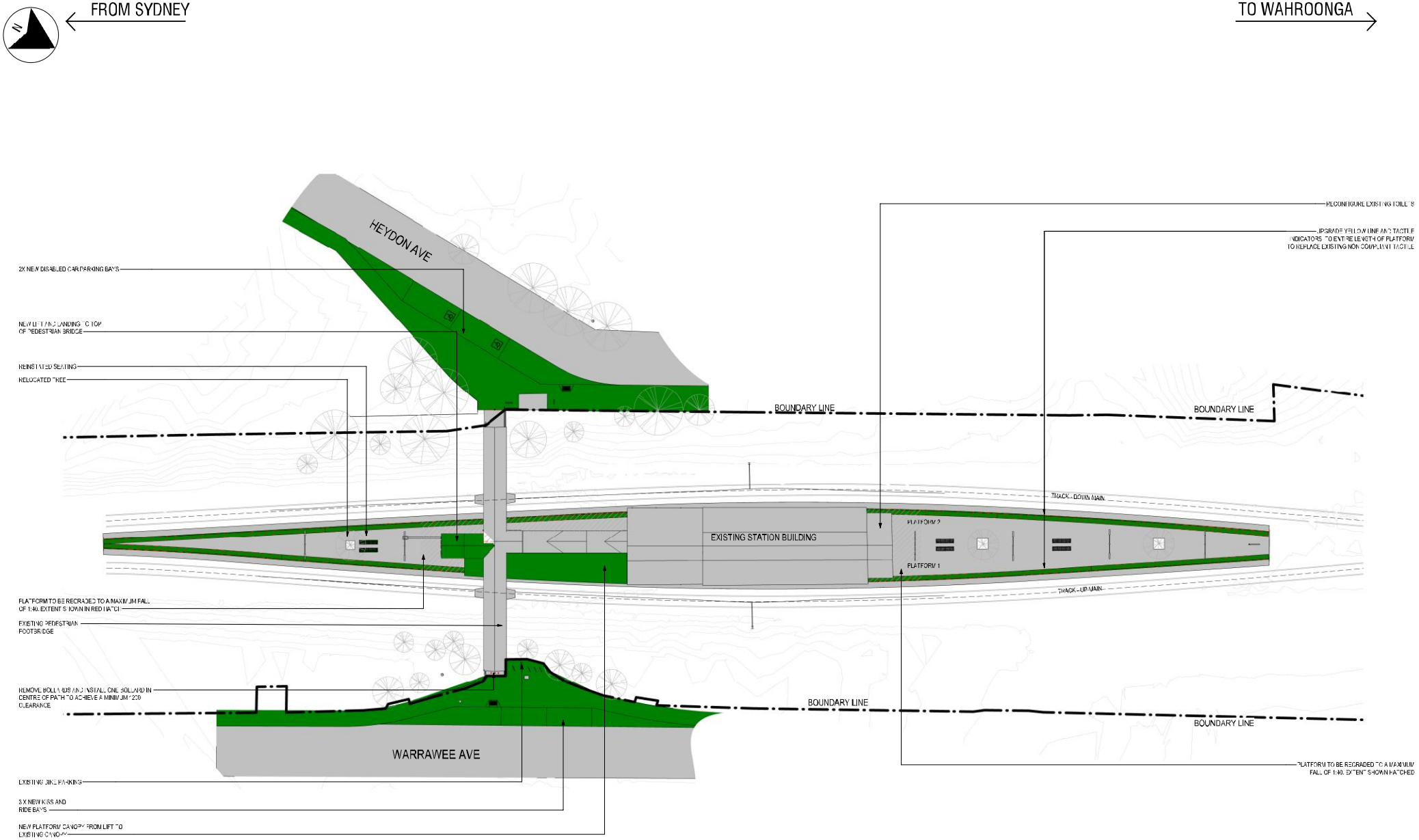

LEGEND

- EXISTING BUILDING
- NEW WORKS
- REGRADE MODIFICATION
- DEMOLISH WORKS
- BOUNDARY LINE

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WARRAWEE
NORTH SHORE LINE 21.890 km
ARCHITECTURAL
GENERAL ARRANGEMENT
SITE PLAN

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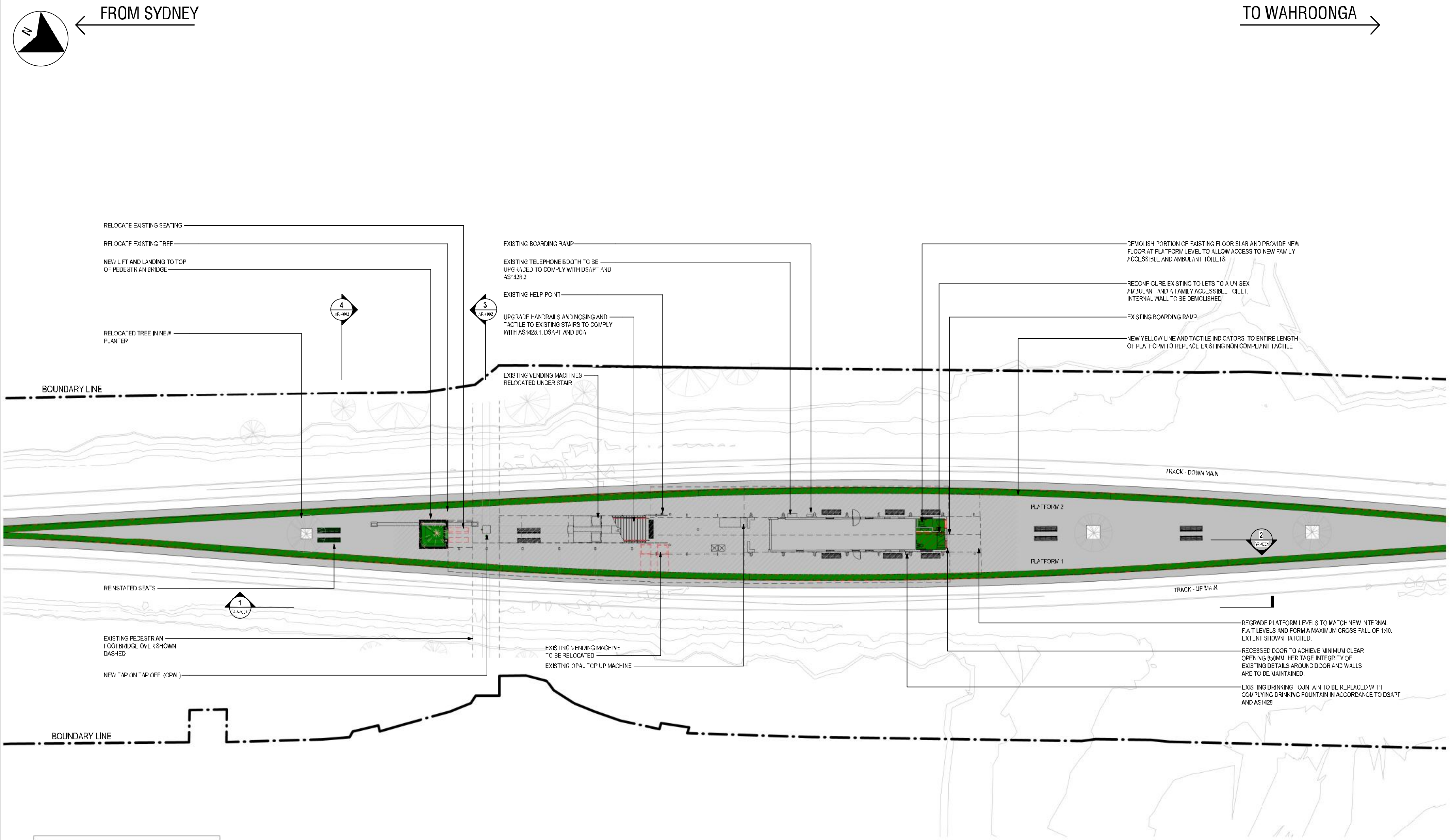

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- NEW WORKS
- REGRADE MODIFICATION
- DEMOLISH WORKS
- BOUNDARY LINE

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WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL GENERAL ARRANGEMENT

PLATFORM/STREET PLAN

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STATUS: SCOPING DESIGN ©

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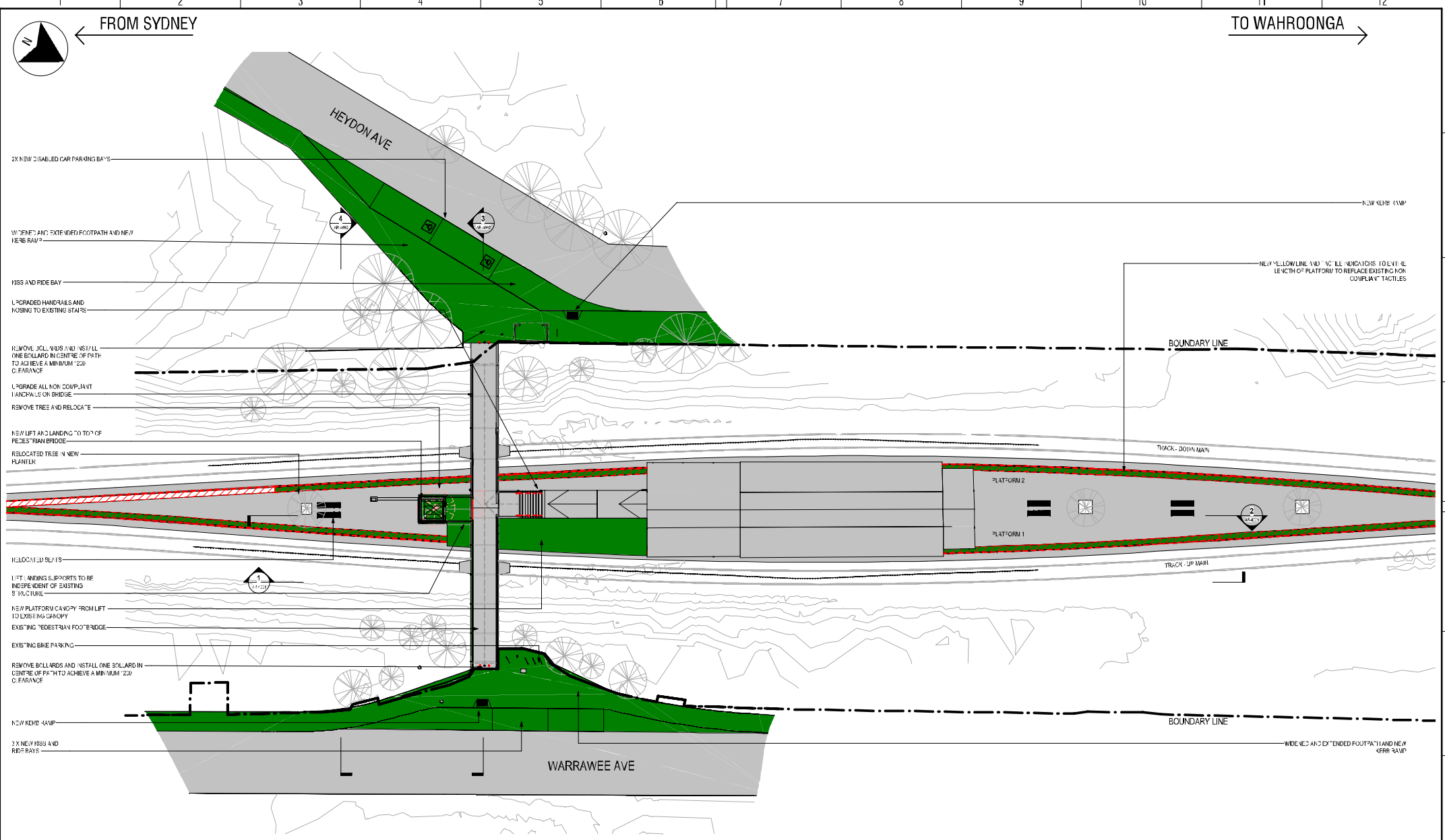

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- DEMOLISH WORKS
- BOUNDARY LINE

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WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL

GENERAL ARRANGEMENT

FOOTBRIDGE PLAN

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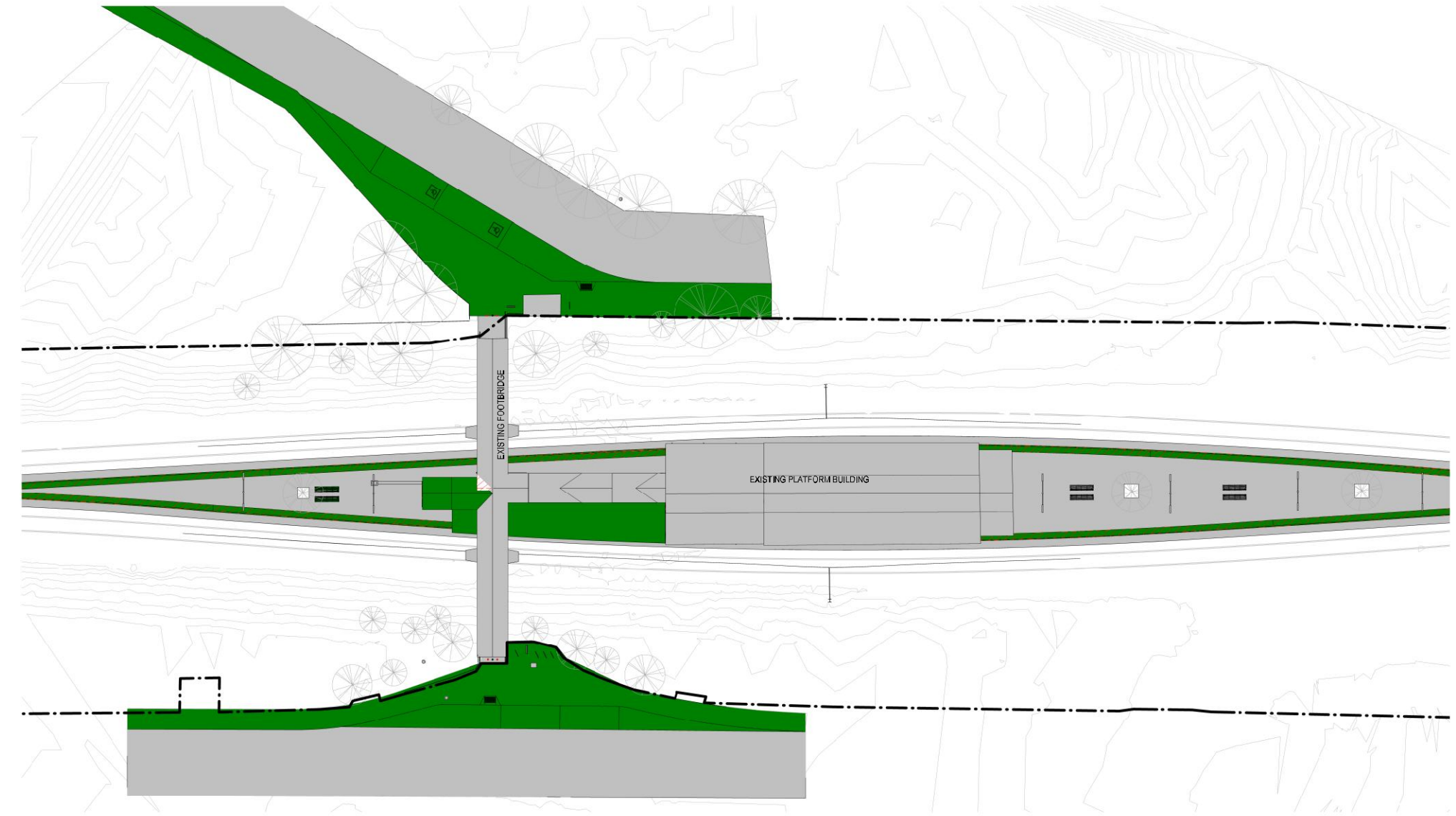

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3	FINAL SCOPING DESIGN	SF / 14.11.18	GJD / 14.11.18	AWQ / 14.11.18
2	FINAL SCOPING DESIGN	SF / 02.11.18	GJD / 02.11.18	AWQ / 02.11.18
1	DRAFT SCOPING DESIGN	SF / 23.10.18	GJD / 23.10.18	AWQ / 23.10.18

SCALE: 1:200

SCALE BAR - 1:200

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DESIGNED	SHARON FARAJ	14.11.18
DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL

GENERAL ARRANGEMENT

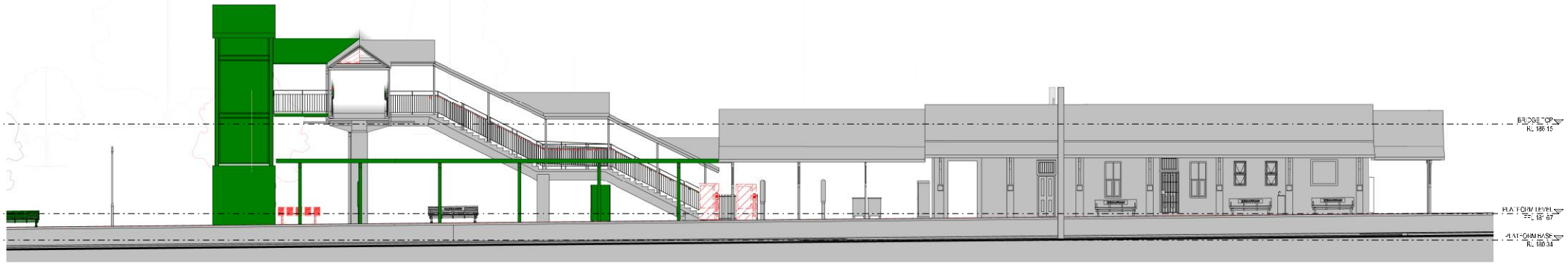
ROOF PLAN

FILE NO: TAP-150111 | A1

STATUS: SCOPING DESIGN | ©

DRG No: TAP-150111-AR-1004 | 3

14/11/2018 10:53:55 AM



1 SECTION
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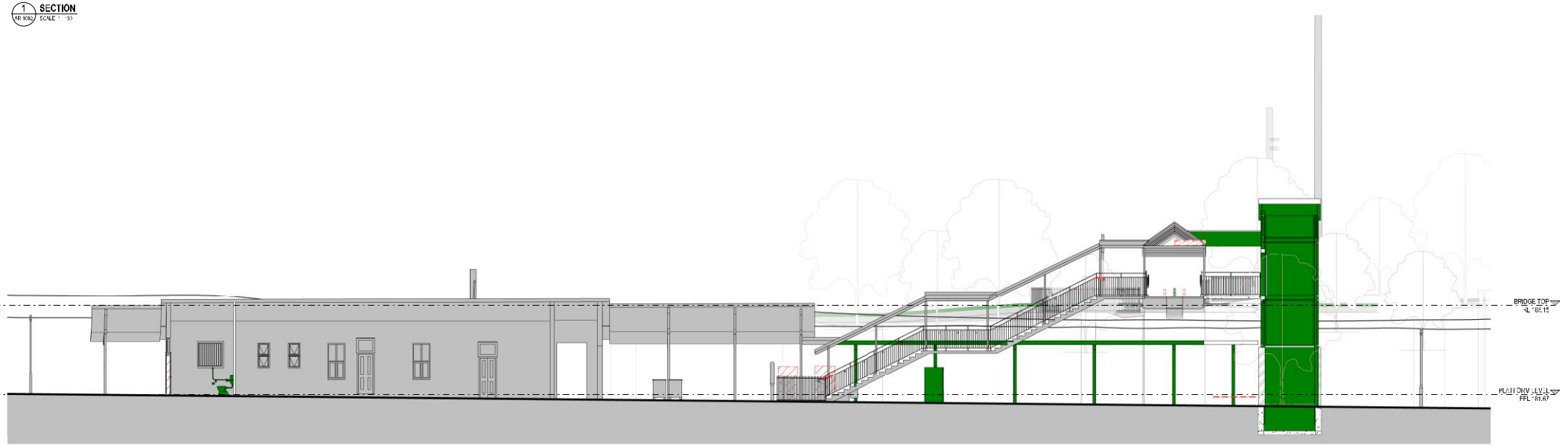

2 SECTION
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LEGEND

- EXISTING BUILDING
- NEW WORKS
- REGRADE MODIFICATION
- DEMOLISH WORKS

SCALE BAR 1:100

AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
4	FINAL SCOPING DESIGN	SF / 14.11.18	GJD / 14.11.18	AWQ / 14.11.18
3	FINAL SCOPING DESIGN	SF / 02.11.18	GJD / 02.11.18	AWQ / 02.11.18
2	DRAFT SCOPING DESIGN	SF / 23.10.18	GJD / 23.10.18	AWQ / 23.10.18
1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE: 1:100

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DESIGNED	SHARON FARAJ	14.11.18
DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL

SECTIONS

SECTION 01

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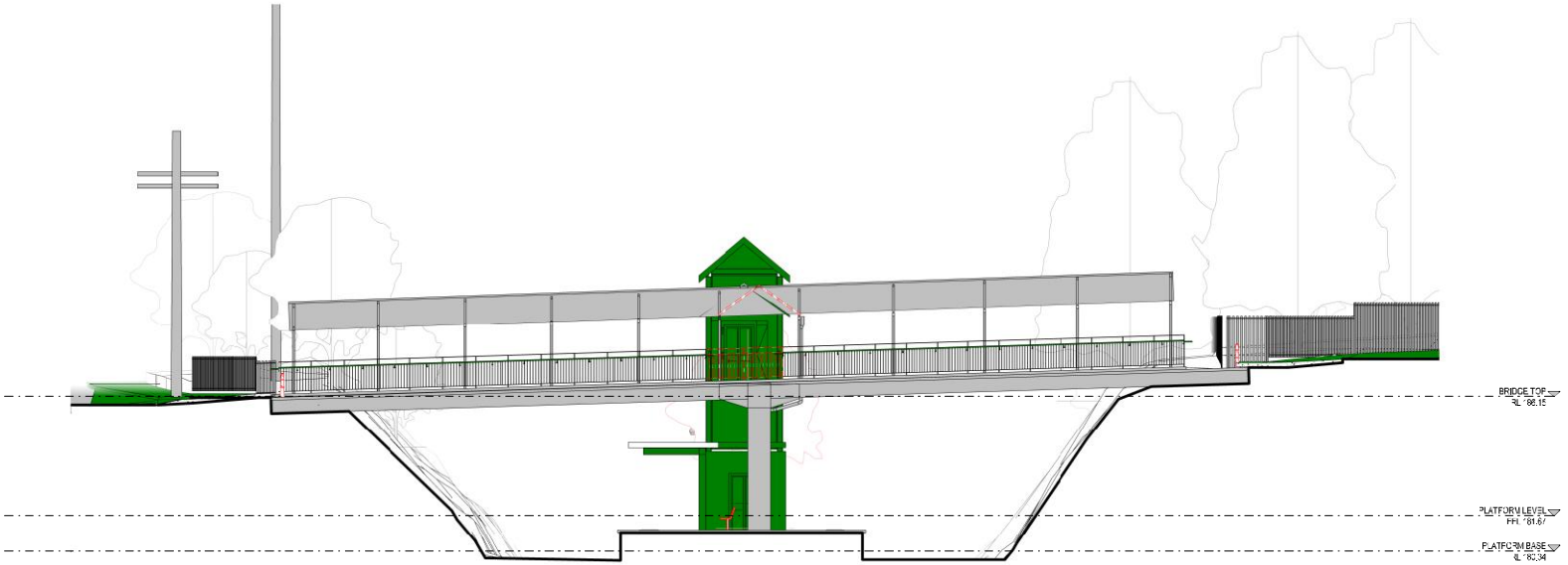

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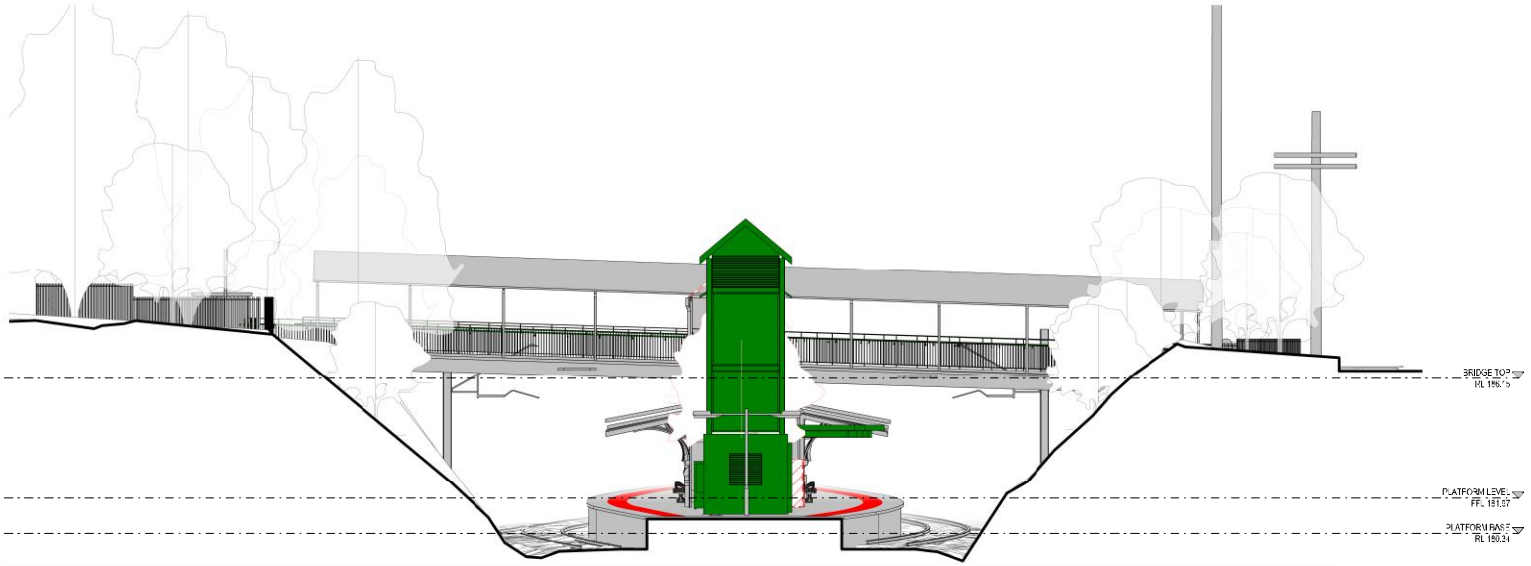

4 SECTION
SCALE 1:100

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LEGEND

- EXISTING BUILDING
- NEW WORKS
- REGRADE MODIFICATION
- DEMOLISH WORKS

SCALE BAR 0 1 2 3 4 5 m
SCALE 1:100

AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
4	FINAL SCOPING DESIGN	SF / 14.11.18	GJD / 14.11.18	AWQ / 14.11.18
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1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE: 1:100

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DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE
NORTH SHORE LINE 21.890 km
ARCHITECTURAL
SECTIONS
SECTION 02

FILE NO:	TAP-150111	A1
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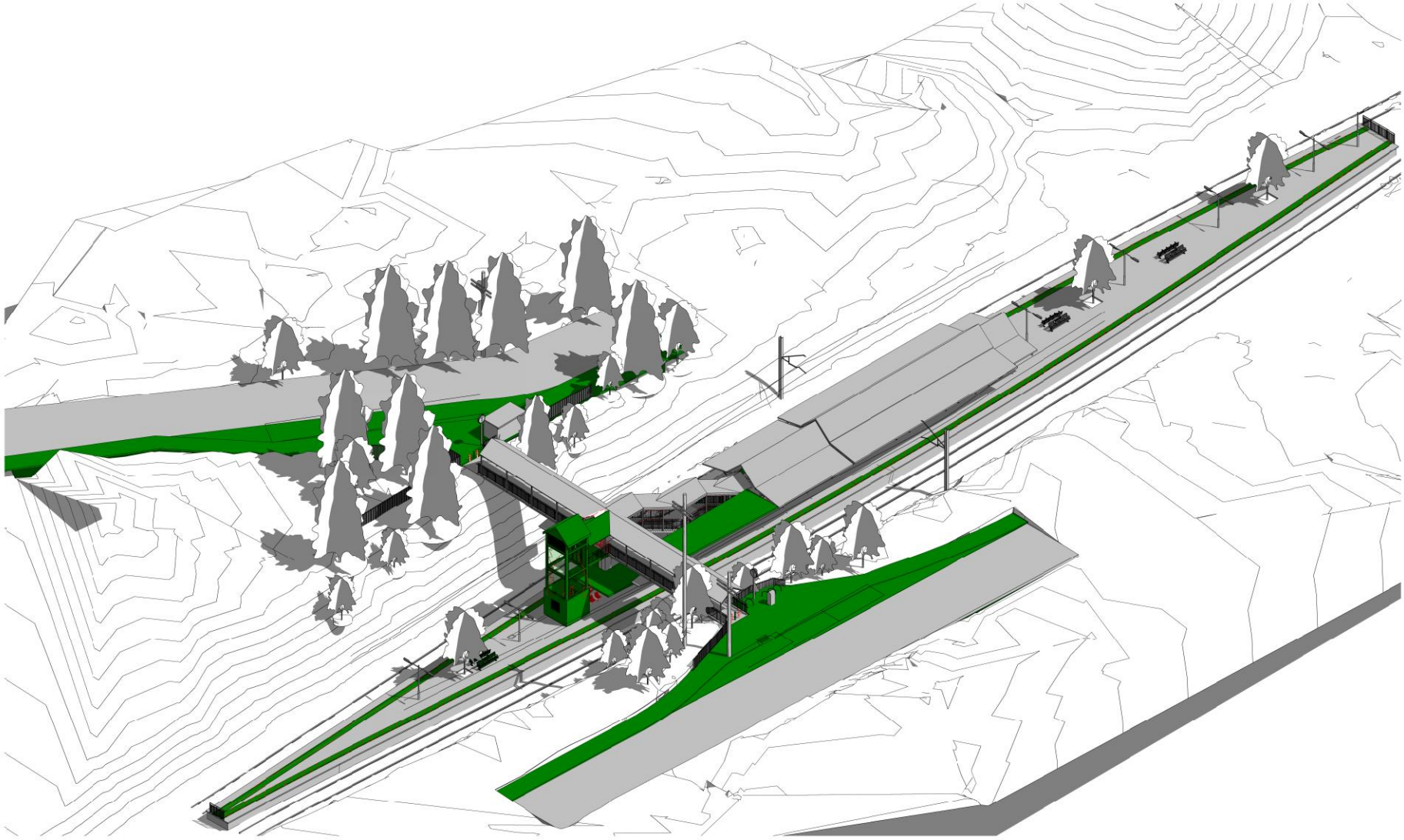

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AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
4	FINAL SCOPING DESIGN	SF / 14.11.18	GJD / 14.11.18	AWQ / 14.11.18
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2	DRAFT SCOPING DESIGN	SF / 23.10.18	GJD / 23.10.18	AWQ / 23.10.18
1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE: NTS

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DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL AXONOMETRIC

3D VIEWS 01

FILE NO:	TAP-150111	A1
STATUS:	SCOPING DESIGN	©
DRG No:	TAP-150111-AR-9001	4

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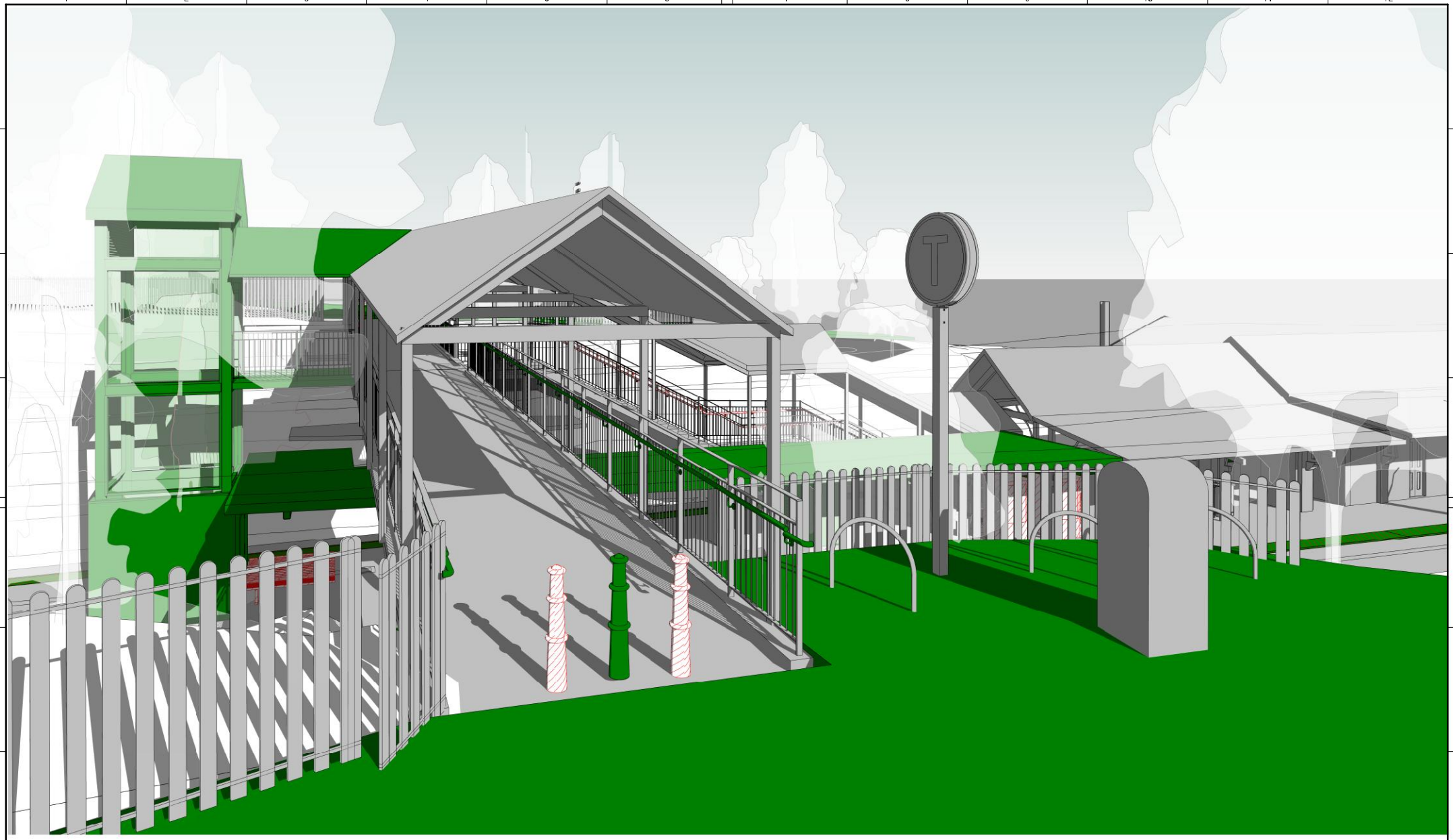

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AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
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1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE: NTS

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DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL PERSPECTIVE

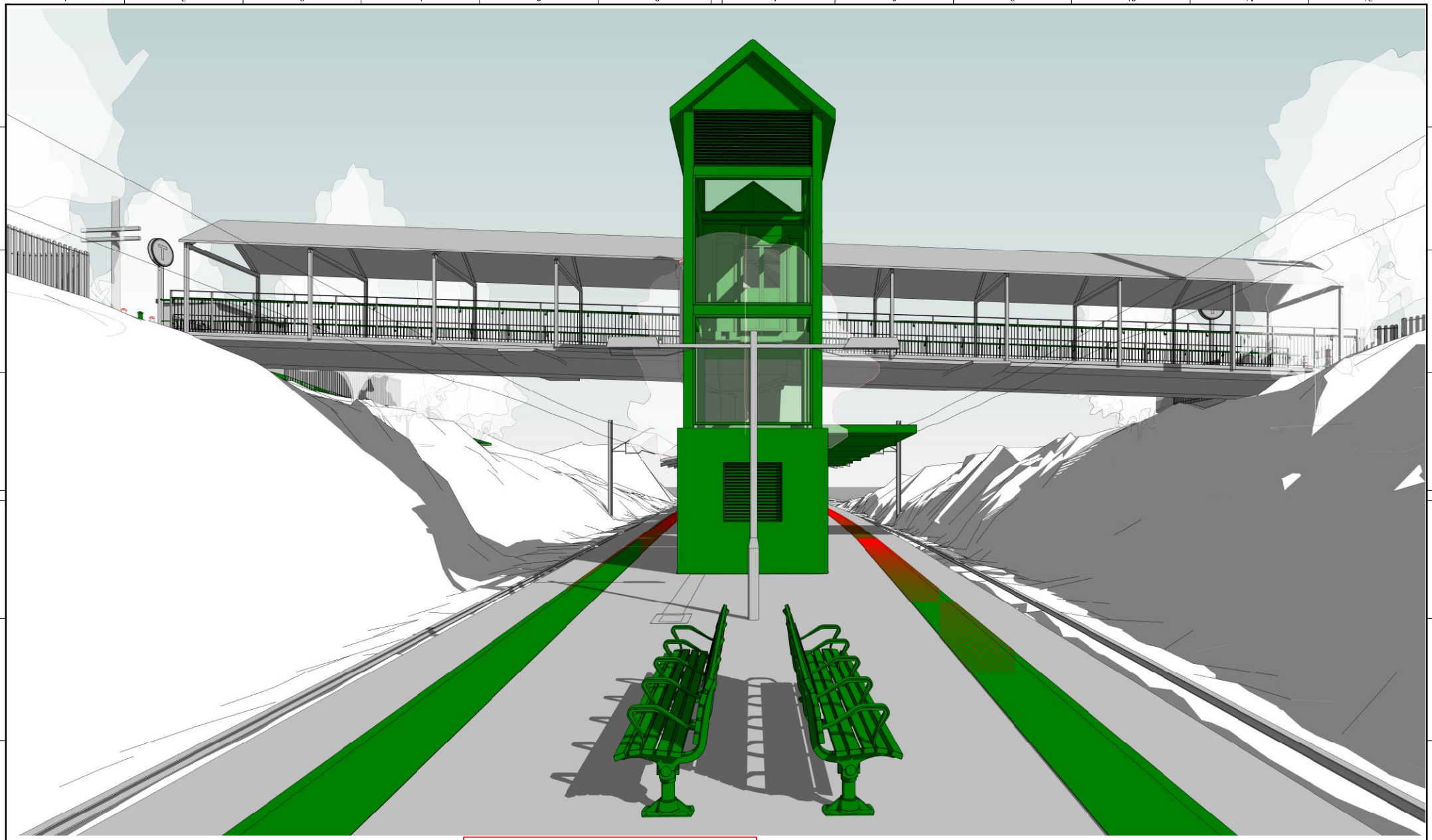
3D VIEWS 02

FILE NO: TAP-150111 | A1

STATUS: SCOPING DESIGN ©

DRG No: TAP-150111-AR-9002 | 4

14/11/2018 10:07:17 AM



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AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
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1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE: NTS

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DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL PERSPECTIVE

3D VIEWS 03

FILE NO: TAP-150111 | A1

STATUS: SCOPING DESIGN ©

DRG No: TAP-150111-AR-9003 | 4

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AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
4	FINAL SCOPING DESIGN	SF / 14.11.18	GJD / 14.11.18	AWQ / 14.11.18
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1	DRAFT SCOPING DESIGN	SF / 01.10.18	GJD / 01.10.18	AWQ / 01.10.18

SCALE BAR 0 1 2 3 4 5 m — 1:100

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DRG CHECK	JOYCE LIM	14.11.18
DESIGN CHECK	GARTH DAVES	14.11.18
APPROVED	ANTHONY QUAN	14.11.18

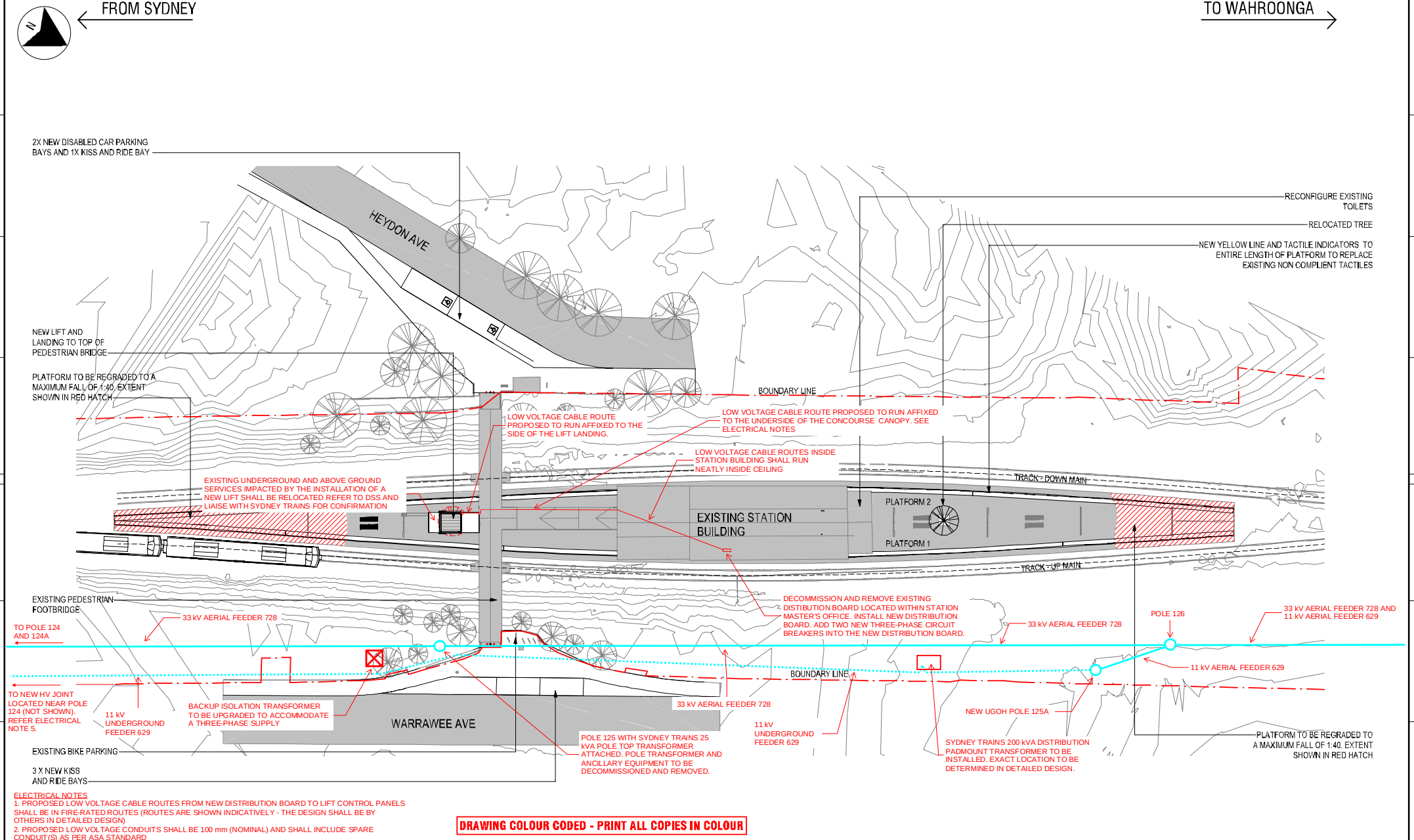
WARRAWEE

NORTH SHORE LINE 21.890 km

ARCHITECTURAL

ARTIST IMPRESSION

FILE NO:	TAP-150111	A1
STATUS:	SCOPING DESIGN	©
DRG No:	TAP-150111-AR-9005	4



ELECTRICAL NOTES

1. PROPOSED LOW VOLTAGE CABLE ROUTES FROM NEW DISTRIBUTION BOARD TO LIFT CONTROL PANELS SHALL BE IN FIRE-RATED ROUTES (ROUTES ARE SHOWN INDICATIVELY - THE DESIGN SHALL BE BY OTHERS IN DETAILED DESIGN)
2. PROPOSED LOW VOLTAGE CONDUITS SHALL BE 100 mm (NOMINAL) AND SHALL INCLUDE SPARE CONDUIT(S) AS PER ASA STANDARD
3. INSTALLATION SHALL COMPLY TO AS3000 AND ASA STANDARDS
4. UPGRADE EXISTING CABLE(S) FROM DSMSB TO THE STATION DISTRIBUTION BOARD BY REPLACING EXISTING WITH NEW CABLE(S) OF LARGER CONDUCTOR SIZE (CABLE DESIGN SHALL BE BY OTHERS IN DETAILED DESIGN)
5. 11 kV UGOH POLE 124A UNDERGROUNDING FEEDER 629 TO BE REMOVED. 33 kV UGOH POLE 124 UNDERGROUNDING FEEDER 728 TO BE RETAINED. UGOH POLE 124A TO BE TURNED DOWN AND JOINTED TO NEW 11 kV CABLE FROM NEW SUBSTATION

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- LOW VOLTAGE ABOVEGROUND ROUTE
- LOW VOLTAGE UNDERGROUND ROUTE
- HIGH VOLTAGE OVERHEAD FEEDER
- HIGH VOLTAGE UNDERGROUND FEEDER
- CONDUIT RISER
- LOW VOLTAGE PIT 300 x 300 NOMIMAL

AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
2	PRELIMINARY	DI / 31/08/18	GJD / 31/08/18	AWQ / 31/08/18
1	PRELIMINARY	DI / 07/08/18	GJD / 07/08/18	AWQ / 07/08/18

NSW GOVERNMENT Transport for NSW

Stantec

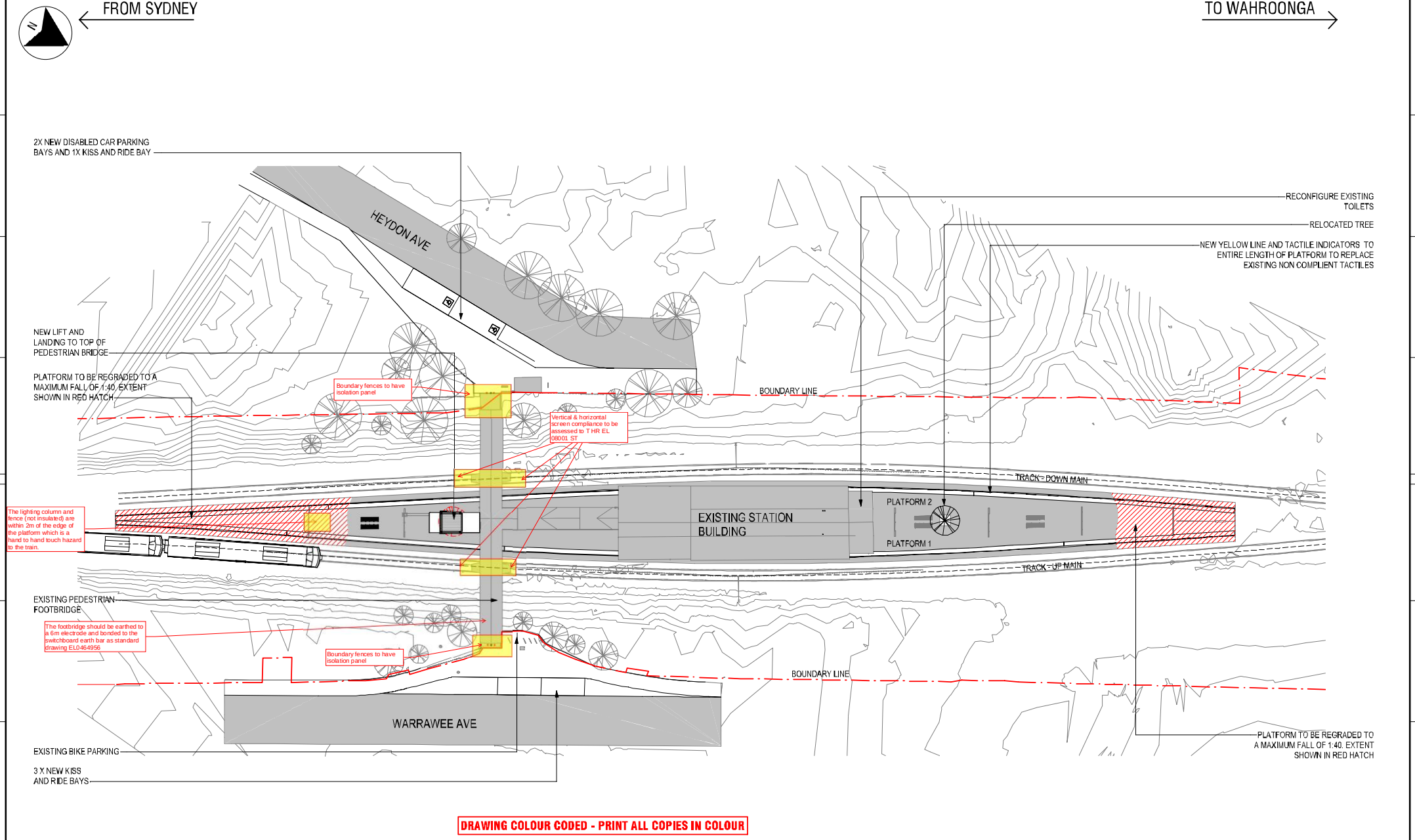
DesignInc

DRAWN SF
DESIGNED SF
DRG CHECK JL
DESIGN CHECK JL
APPROVED AQ

WORK IN PROGRESS

WARRAWEE
WARRAWEE STATION, NSW
ARCHITECTURAL
SITE PLAN
SITE

FILE NO: 150111 A1
STATUS: PRELIMINARY ©
DRG No: TAP-150111-AR-0100 2



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AMD	DESCRIPTION	DESIGNED SIGN/DATE	VERIFIED SIGN/DATE	APPROVED SIGN/DATE
2	PRELIMINARY	DI / 31/08/18	GJD / 31/08/18	AWQ / 31/08/18
1	PRELIMINARY	DI / 07/08/18	GJD / 07/08/18	AWQ / 07/08/18

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DRAWN SF
DESIGNED SF
DRG CHECK JL
DESIGN CHECK JL
APPROVED AQ

WORK IN PROGRESS

WARRAWEE
WARRAWEE STATION, NSW
ARCHITECTURAL
SITE PLAN
SITE

FILE NO: 150111 A1
STATUS: PRELIMINARY ©
DRG No: TAP-150111-AR-0100 2

artefact

Artefact Heritage

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