Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

Cessnock City Council
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Prepared by:

SLR Consulting Australia

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Australia

SLR Project No.: 630.030652.00001

12 June 2024

Revision: 1

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
0.1	11 March 2024	Drew Williams	Rob Dwyer	Alanna Ryan
1.0	12 June 2024	Drew Williams	Rob Dwyer	Alanna Ryan

Executive Summary

This Review of Environmental Factors (REF) has been prepared to examine and take into account all matters affecting or likely to affect the environment as a result of the proposed activities associated with the upgrade of approximately 2.9 km of Wollombi Road in Bellbird, Bellbird Heights and Cessnock (the proposed 'Activity'). The proposed Activity is Stage 1 of a two-stage project for the upgrade of Wollombi Road.

The Activity area traverses through the localities of Bellbird, Bellbird Heights and Cessnock. It is located within the road reserve of Wollombi Road and part of Lot DP 327580, Bellbird Heights.

The works will provide additional travel lanes at peak times along the road. The works will also include road pavement works, new kerb and guttering (including some reused sections of existing sandstone kerbs) and stormwater drainage, new intersections including Traffic Signal installations and traffic furniture, new sections of footpaths, street lighting upgrades and utility adjustments.

The proposed Activity will result in minimal adverse effect upon the environment. Various environmental impacts have been identified in this REF and these are generally temporary in nature. Based upon the information provided in this REF, there are no long-term adverse effects created by carrying out the activity. Construction impacts will be minor and minimised through appropriate mitigation and management. Therefore, no long-term operational impacts from the proposed activity are anticipated.

The REF examined and considered all relevant Commonwealth, NSW and local legislation and policies, along all matters affecting or likely to affect the environment by reason of the proposed activity. The proposed activity as described in the REF best meets the project objectives.

This REF was prepared in accordance with Section 5.5 and 5.10(a) of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). It has concluded that the proposed Activity is unlikely to significantly affect the environment and hence an EIS is not required to be prepared under section 5.7 of the EP&A Act. The proposed activity is also unlikely to affect Commonwealth land or have an impact on any MNES.

Ongoing engagement with the community and stakeholders has occurred during the preparation and exhibition of the REF. Council will continue to provide project information and updates to the community as well as liaising with key stakeholders such as schools, bus companies, and emergency services as the project develops into the detailed design stage and during construction.

The proposed Activity is unlikely to present a significant risk of harm to the environment and approval would be in the public interest.

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Acronyms and Abbreviations

ABS	Australian Bureau of Statistics
ACHA	Aboriginal cultural heritage assessment
ACHMP	Aboriginal cultural heritage management plan
Activity	The activities subject of the REF – the upgrade to Wollombi Road – Stage 1 from Abbotsford / Cox Street, Bellbird to 50 metres north of West Avenue, Cessnock.
AHIMS	Aboriginal Heritage Information Management System
APZ	Asset Protection Zone
AUL	Auxiliary Left Lane Turn
BAL	Basic Left Turn
BAR	Basic Right Turn
BDAR	Biodiversity Development Assessment report
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CPTED	Crime prevention through environment design
Council	Cessnock City Council
DD	Due Diligence
DP	Deposited Plan
DPI	Department of Primary Industries
DPE	Department of Planning and Environment (formerly the Department of Planning, Industry and Environment, DPIE)
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	NSW Environment Protection Authority
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ha	Hectares
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
MNES	Matters Of National Environmental Significance
NSW	New South Wales
NVIA	Noise And Vibration Impact Assessment
PAD	Potential Archaeological Deposit
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
PMST	Commonwealth Protected Matters Search Tool
RAPs	Registered Aboriginal Parties
RBLs	Rating Background Noise Levels
REF	Review of Environmental Factors

RFS	NSW Rural Fire Service
RNP	NSW Road Noise Policy
SEARs	Secretary's Environmental Assessment Requirements
SIA	Social Impact Assessment
SLR	SLR Consulting Australia Pty Ltd

1.0 Introduction

1.1 Background

The Cessnock City Local Government Area (LGA) covers an area of approximately 1,950 square kilometres (sq km) within the Hunter Region in New South Wales (NSW), and Cessnock City Council (Council) manages a vast network of facilities and infrastructure including (but not limited to) local roads, street lighting, libraries, community centres, parks, sporting facilities, aquatic centres, solid waste management and landfills. The Cessnock LGA has a population upwards of 64,000 which is concentrated in a thin urban belt surrounded by rural areas between the two major townships of Cessnock and Kurri Kurri. Within the Cessnock LGA there are large areas of State Forest, grazing land and areas for viticulture (wine growing).

This Review of Environmental Factors (REF) has been prepared to examine and take into account all matters affecting or likely to affect the environment as a result of the proposed activities associated with the upgrade of approximately 2.9 km of Wollombi Road in Bellbird, Bellbird Heights and Cessnock (the proposed 'Activity'). The proposed Activity is Stage 1 of a two-stage project for the upgrade of Wollombi Road.

1.2 Wollombi Road Upgrade Project Overview

Council has commenced the planning stage of Stage 1 (including an 'Early Works' component) of the upgrade of a 2.9 km section of Wollombi Road in Bellbird, Bellbird Heights and Cessnock to improve safety and ease traffic congestion. Grant applications for Stage 2, a 1.0km adjacent section of Wollombi Road closer to the Cessnock CBD are currently being prepared.

Stage 1 works of the Wollombi Road Upgrade Project, which are subject of this REF, will increase the travel lanes capacity between Cox Street, Bellbird Heights and West Avenue, Cessnock to provide two lanes each way in peak travel times. Works will include road pavement works, new kerb and guttering (including some reused section of existing sandstone kerbs) and stormwater drainage, new intersections including Traffic Signal installations and traffic furniture, new sections of footpaths, street lighting upgrades and utility adjustments.

Stage 2 works of the Wollombi Road Upgrade Project, which are not subject of this REF, will provide intersection improvements and two lanes each way between West Avenue, Cessnock, and Vincent Street Cessnock.

The primary objectives of the Wollombi Road Upgrade Project are as follows.

- Provide for additional travel lanes at peak times to alleviate current and future forecast congestion.
- Provide new and improved intersections for motorists and pedestrians.
- Provide road pavement and kerb improvements.
- Renew utilities above and below ground where necessary.

Wollombi Road upgrades were identified in the Bellbird North Section 94 Contributions Plan in 2009. Throughout 2015 - 2018, the Cessnock community was consulted on the development of the Cessnock Traffic and Transport Strategy 2018. The Strategy identifies Wollombi Road upgrade as a priority. One of the key issues identified during consultation was congestion, particularly during peak periods.

Traffic congestion during peak periods is a growing area of key concern in maintaining efficient operation and function of Wollombi Road. New residential development is occurring in Bellbird Heights and development has commenced in the Bellbird North Urban Release Area to the west. All of the above will contribute to congestion that will impact productivity and impact the safety and the reliability of travel times for businesses and the community. It could also affect the amenity of Cessnock, and undermine the lifestyle enjoyed by residents and visitors. Further, the current level of congestion during peak traffic times does not meet engineering standards.

Multiple options are included in the Cessnock Traffic and Transport Strategy 2023 to address the growing challenges of Cessnock's transport network. The upgrade of Wollombi Road is an important element of the proposed program of works within the Strategy.

Stage 1 of the Wollombi Road Upgrade Project is a major Council project and will be funded through a combination of funds from the NSW Accelerated Infrastructure Fund and development contributions. Other funding avenues are being explored by Council to fund Stage 2 of the Project. The site context, staging areas and the length of Wollombi Road impacted by the Wollombi Road Upgrade Project are shown in **Figure 1**.

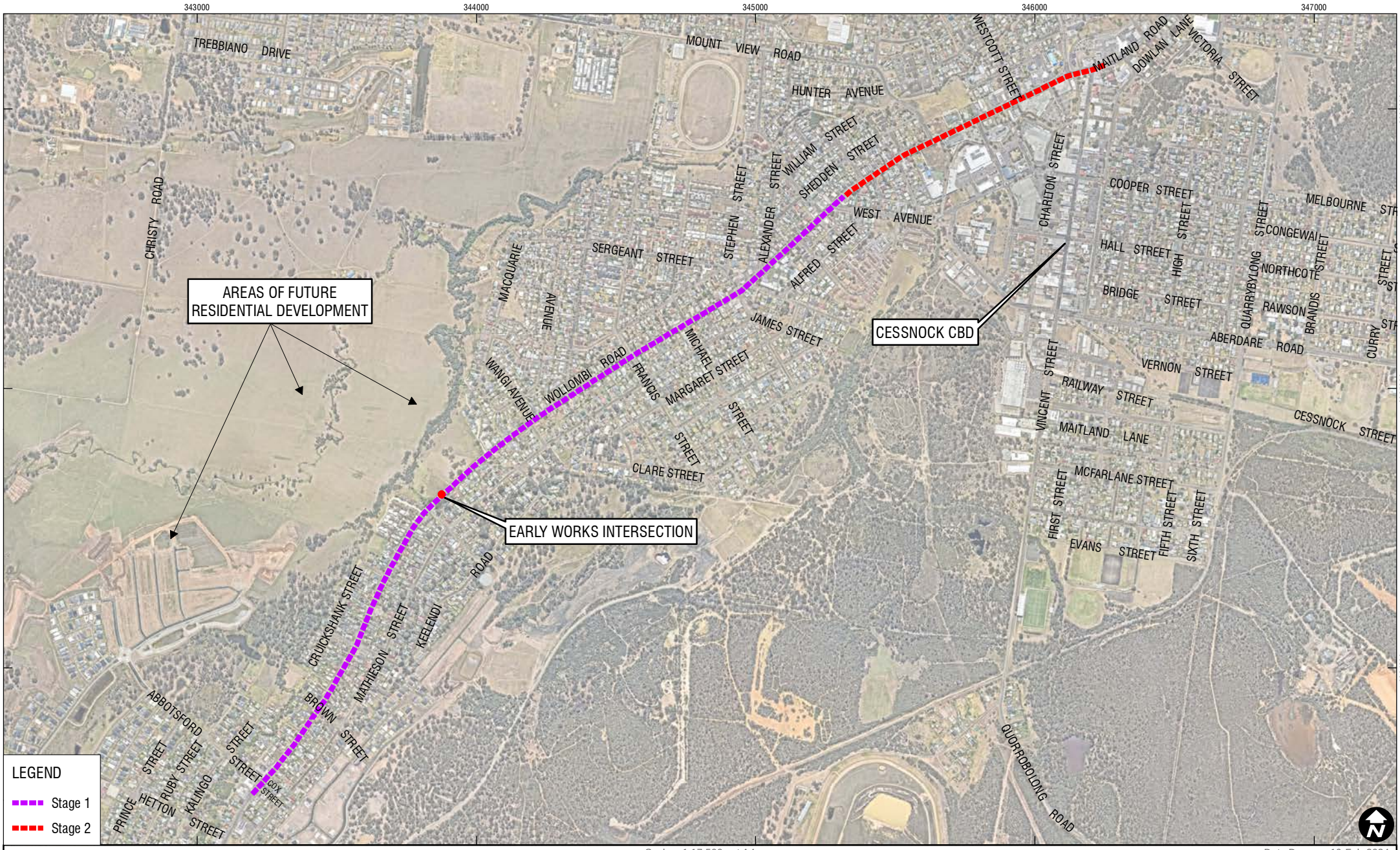
1.3 Location of the Activity and Existing Environment

The Activity area for the REF is shown in **Figure 2** and in **Figure 3**, with details of the Activity area provided in **Table 1** below. Concept Plans are contained in **Appendix D**.

Table 1: Stage 1 Wollombi Road Upgrade - Activity Area Details

Item	Details
LGA	Cessnock City
Real Property Description	Selected section of Wollombi Road reserve and part of Lot 1 DP 327580.
Activity Area	7.25 ha (approximately)
Land Use Zoning	• Wollombi Road - SP2 (Classified Road) under *Cessnock Local Environmental Plan 2011* (CLEP 2011). • Part Lot 1 DP 327580 – R2 Low Density Residential under CLEP 2011
Location	Wollombi Road, Bellbird and Bellbird Heights and Wollombi Road, Cessnock.
Site context and existing environment	The Activity area traverses through the localities of Bellbird, Bellbird Heights and Cessnock. It is located within the road reserve of Wollombi Road, Bellbird and Bellbird Heights, Wollombi Road Cessnock and part of Lot DP 327580, Bellbird Heights. The Activity area extends from a point approximately 40 metres south of Lochinvar Street, Bellbird (immediately north of the Bellbird Hotel) to a point approximately 90 metres north of the intersection of Wollombi Road with West Avenue, Cessnock. The Activity area also includes approximately 800 m2 of land within Lot 1 DP 327580 (254 Wollombi Road, Bellbird Heights). The Wollombi Road reserve is 25 metre wide and is highly disturbed. The majority of the road reserve contains a 13 to18 metre-wide asphalt pavement with the remaining areas containing mostly exotic grasses and planted trees, infrastructure such kerb and guttering, electrical poles, drainage infrastructure and formal driveways connecting to adjacent residential and commercial properties. Land within Lot 1 DP 327580 is devoid of vegetation other than exotic grasses covering the surface.

Photographs showing the character of the Activity area are provided in **Appendix B**.



Scale: 1:17,500 at A4
Coordinate System: GDA2020 MGA Zone 56

Date Drawn: 16-Feb-2024
Project Number: 630.030652

Data Source: NearMap Aerial Imagery October 2023

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SITE CONTEXT AND STAGES - WOLLOMBI ROAD UPGRADE PROJECT

FIGURE 1

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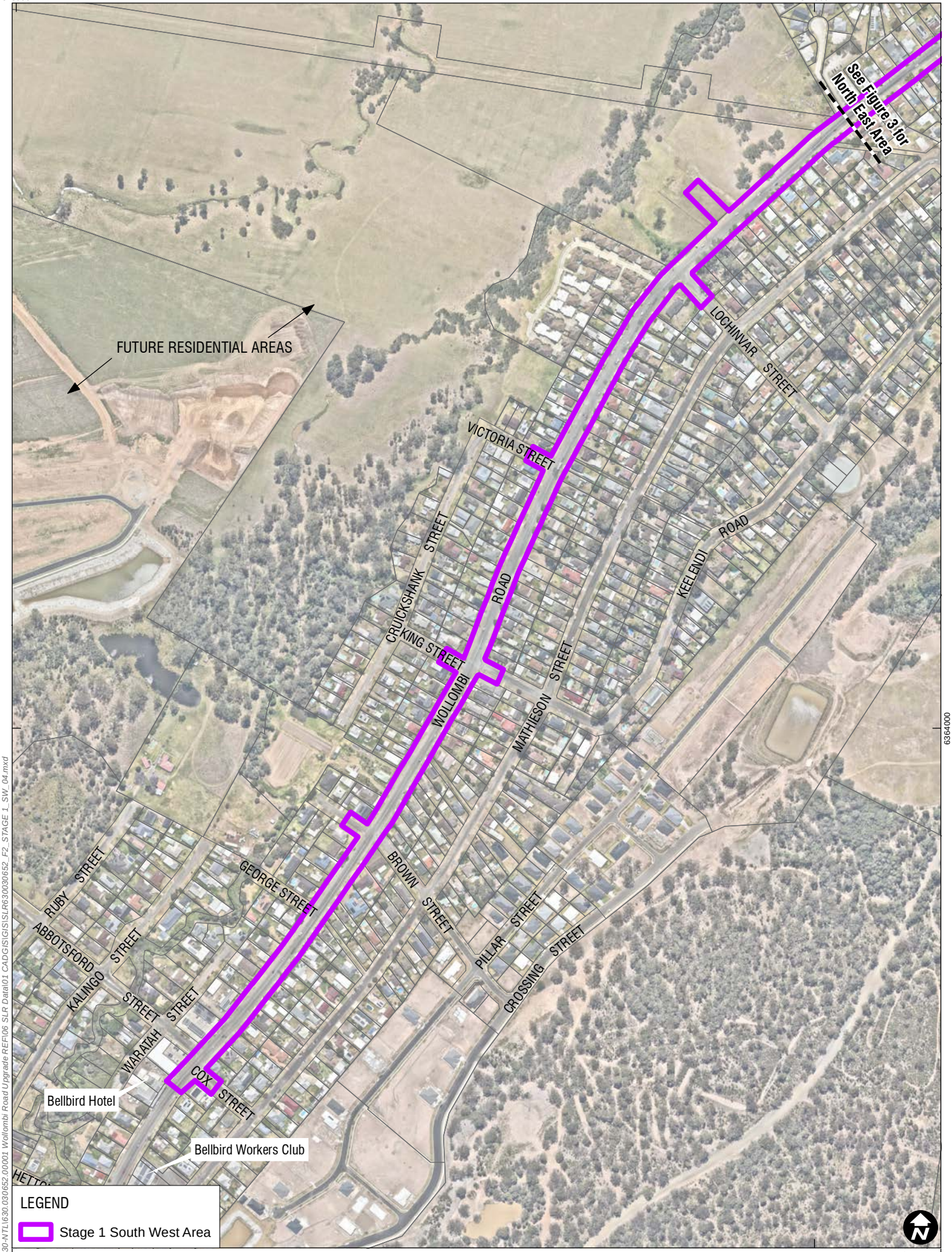

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Coordinate System: GDA2020 MGA Zone 56

Date Drawn: 22-Feb-2024
Project Number: 630.030652

Data Source: NearMap Aerial Imagery July1st, 2023

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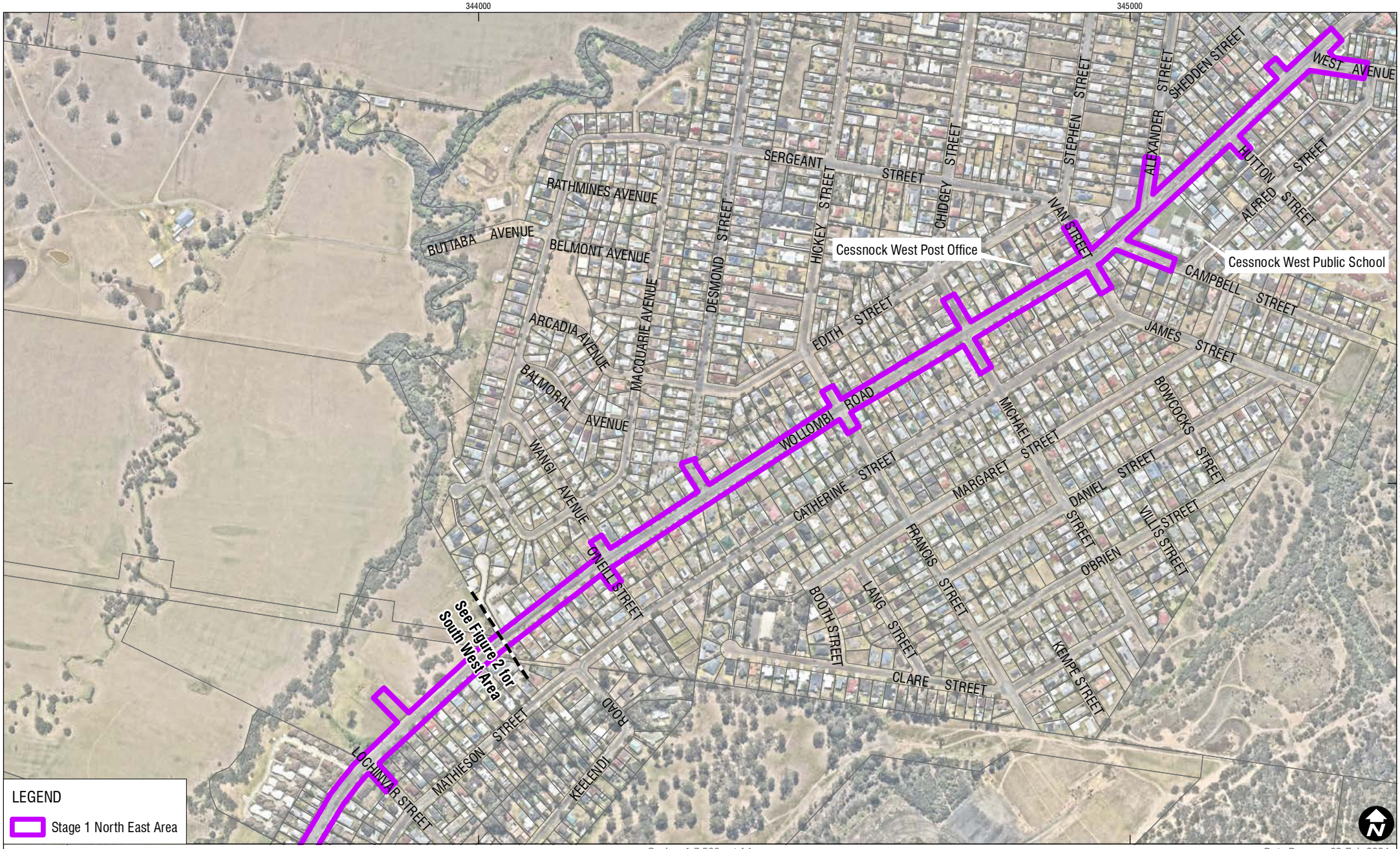
STAGE 1 REF - SOUTH WEST AREA
WOLLOMBI ROAD UPGRADE PROJECT

FIGURE 2



Scale: 1:7,500 at A4
Coordinate System: GDA2020 MGA Zone 56

Date Drawn: 22-Feb-2024
Project Number: 630.030652

Data Source: NearMap Aerial Imagery October 2023

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STAGE 1 REF - NORTH EAST AREA
WOLLOMBI ROAD UPGRADE PROJECT

FIGURE 3

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1.4 Author(s) Qualifications

Table 2: Authorship and Declaration

REF Authorship and Declaration		
Name	Rob Dwyer	Drew Williams
Role	Co-Author / Reviewer	Co Author
Qualifications	• Bachelor of Science, Human and Physical Geography (University of Newcastle) • Graduate Diploma of Urban and Regional Planning (University of New England)	• Bachelor of Environmental Science and Management (University of Newcastle) • Diploma of Architecture (Hunter TAFE)
Memberships	• Registered Planner and Fellow, Planning Institute of Australia (PIA). • Accredited under the NSW Registered Environmental Assessment Practitioner (REAP) Scheme – REAP Number 7608. • Member, Hunter Chapter Property Council of Australia (PCA).	
Signature		*D Williams*
Name	Rob Dwyer	Drew Williams
Date	12-06-2024	12-06-2024

A declaration by the author(s) regarding the preparation of this REF and whether an environmental impact statement (EIS) is, or is not required, is contained in **Section 9.0**.

1.5 Part 5 of the EP&A Act

The proposed Activity requires the preparation of an REF pursuant to Part 5 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act), which obliges the determining authority, being Council, to assess all matters affecting, or likely to affect, the environment by the construction and operation of the works. This REF has been prepared for this purpose and identifies safeguards that avoid or minimise potential impacts.

Legislative requirements for this REF are discussed in detail in **Section 4**.

2.0 Needs and Options That Have Been Considered

2.1 Strategic Need for the Proposed Activity

Council is proposing significant upgrades to Wollombi Road over the coming years to alleviate current and forecast traffic congestion. This will require increasing the travel lanes to four lanes with two in each direction in peak travel times, various upgrades to intersections with some to be signalised and utility relocations and upgrades as required.

The Activity subject of this REF will deliver high-quality, strategic infrastructure to support the growth of the local community needs. The primary objective of the Activity is to accommodate current and forecasted traffic growth and to alleviate congestion.

Throughout 2015 - 2018, the Cessnock community was consulted on the development of the Cessnock LGA Traffic and Transport Strategy 2018. The Strategy was updated in 2023. Consultation revealed that one of the key traffic and transport issues identified during consultation is congestion along Wollombi Road, particularly during peak periods.

The proposed Activity will generally consist of:

- Site preparation.
- Site establishment.
- Vegetation clearing.
- Road works including utility and stormwater adjustments.
- Finishing works and commissioning.

These activities are further detailed in **Section 3.0**.

2.2 Project Objectives

The primary objective of the Activity is to accommodate current and forecasted traffic growth and to alleviate congestion.

The objectives of the proposed Activity include:

- Provide for additional travel lanes at peak times to alleviate current and future forecast congestion.
- Provide new and improved intersections for motorists and pedestrians.
- Provide road pavement and kerb improvements.
- Renew utilities above and below ground where necessary.
- Be a ‘fit-for-purpose’ design that meets the required design specifications whilst retaining as much existing suitable infrastructure as possible to minimise costs and keep the project within budget.

2.3 Options Assessment

An Options Assessment has been undertaken by Council for the Activity. The Options Assessment is contained in **Appendix H** and considers a broad range of factors that lead to the recommendation of a Preferred Option that meets the key project objectives.

The Options Assessment considers a broad range of factors that lead to the recommendation of a Preferred Option that meets the key project objectives.

A preferred design option has been developed based on:

- Detailed site investigations undertaken between October 2023 and February 2024
- Feedback from community and stakeholder engagement.
- A review of five layout options along the road alignment.
  - Option 0 - Retain the existing road, kerb and footpath.
  - Option 1 - Retain existing road width to accommodate four travel lanes.
  - Option 2 - Road widening to provide dedicated on-street parking on both sides in addition to four travel lanes.
  - Option 3 - Realignment of westbound travel lanes with road widening for dedicated on-street parking westbound.
  - Option 4 - Realignment of eastbound travel lanes with road widening for dedicated on-street parking eastbound.
- A multi-criteria analysis considering key elements of:
  - Strategic (objectives, design, cost).
  - Technical (constructability, opportunity, risks).
  - Social and visual (environment, parking, private property).

The Options Assessment is a key component in the delivery of the Wollombi Road Upgrade Project and allows the preparation of the REF and development of the Draft Preliminary Engineering Design.

3.0 Description of the Proposed Activity

3.1 Introduction

The Activity will include the duplication of the exiting single vehicle lanes of Wollombi Road from the intersection with Abbotsford Street / Cox Street, Bellbird Heights to a point approximately 80 metres north of the intersection with West Avenue, Cessnock. Approximately 2.9 km of Wollombi Road would be subject of the proposed works which will provide additional travel lanes at peak travel times. The works will include road pavement works, new kerb and guttering (including some reused sections of existing sandstone kerbs) and stormwater drainage, new intersections including Traffic Signal installations and traffic furniture, new sections of footpaths, street lighting upgrades and utility adjustments.

Details of the proposed Activity are provided below and should be read in conjunction with the Concept Plans contained in **Appendix D**.

3.2 Outline of Construction Work

Construction works will be completed by a Civil Works Contractor on behalf of Council. Works are scheduled to commence in December 2024.

The proposed Activity will generally include the following stages and elements.

3.2.1 Site Preparation

- Pre-construction identification.
- Utility investigations.
- Removal of redundant utilities and relocation of existing ones.

3.2.2 Site Establishment

- Installation of erosion and sedimentation controls.
- Topsoil stripping.
- Hardstand, compound, laydown / stockpile establishment.
- Utilities services works.
- Erection of temporary security fencing and signage.
- Temporary pedestrian fencing and signage.
- Temporary traffic control measures, signage and lighting.
- Property adjustment work (if required).

3.2.3 Vegetation Clearing

- Changes to road geometry and utility relocations are likely to require the removal of a number of street trees as well as grubbing of surrounding areas. During detailed design of the Activity, the retention of existing street trees along Wollombi Road will be a priority. Where retention is not possible due to road or utility alignment clashes, removal will be in line with the Cessnock City Council Development Control Plan 2010 with replacement guided by the CCC Tree Strategy.

3.2.4 Road Works

Road works will include:

- Removal and demolition of existing pavements, kerbs and gutters (excluding sandstone kerb and guttering which will remain or in some instances be lifted in order to be reused) where required.
- Excavation of existing road surface and road base.
- Minor embankment cuttings where required.
- Installation of new drainage pipes and pits.
- Utility works typically including communications where necessary (power, gas, water and sewer).
- Construction of the pavement layers including the appropriate fill materials, road bases and the asphalt.
- Construction of new kerb and guttering where required.
- Construction of pedestrian footpaths in key project areas.
- Construction of traffic light-controlled intersections at the following locations.
    - Abbotsford Street, Bellbird Heights.
    - New Bellbird North entrance (opposite 265 and 263B Wollombi Road), Bellbird Heights.
    - Hickey Street / Francis Street, Cessnock.
    - Ivan Street / James Street, Cessnock.
    - Alexander Street, Cessnock (upgrade only).
    - West Avenue, Cessnock.
- Removal of existing mid-block zebra crossings with intersections providing signalised pedestrian crossings.
- Modification to turning arrangements at a number of intersections to improve traffic flow on Wollombi Road.
- Raised median / retaining wall in the centre of the roadway Adjacent to 1 and 4 Wollombi Road, Cessnock.
- New and / or upgraded bus stops where impacted by the road works.
- Installation of sign structures and street lighting.
- Minor adjustments to driveways to private properties where required.
- Relocation of bus stop signs and furniture.
- Tie-ins to existing pavement at the extents of the Activity area.

3.2.5 Finishing Works and Commissioning

- Installation of road furniture where required (i.e., lighting, safety barriers and guideposts).
- Line marking (road and footpath).
- Landscaping works.

- Removal of all remaining temporary works such as traffic control barriers, signage and lighting.
- Commissioning of new roadway and intersection/s.

3.3 Construction Plant and Equipment

A range of plant and equipment would be used during construction. An indicative list is provided below:

- Road sweepers
- Roller/compacters/compressors.
- Graders
- Concrete trucks
- Chainsaws
- Mulchers
- Backhoes
- Road trucks
- Piling rigs
- Water pumps
- Cranes
- Light vehicles
- Asphalt pavers.
- Line marking vehicles.
- Scrapers
- Generators
- Jackhammers
- Bulldozers
- Dump trucks
- Excavators
- Water trucks
- Concrete saws
- Concrete pumps / vibrators

3.4 Construction Hours

Generally, construction and all deliveries will be undertaken during the following standard hours:

- Monday to Friday 7am to 6pm.
- Saturdays 8am to 1pm.
- No construction work or deliveries will occur on Sundays or public holidays.

However, night time / works outside the above hours may occur to address emergency works and / or works that would have a lesser impact if delivered quickly under low-traffic conditions.

3.5 Material Import/Export

Materials for road construction would likely need to be imported from off-site facilities (eg quarries and asphalt batching plants).

Sources of materials for construction would be determined during further development of the design. The following materials would be required for construction:

- Erosion and sediment controls (e.g., coir logs, silt fencing, geofabric, sandbags).
- Earthwork materials (e.g., topsoil, gravel, sand, clean fill material) and other various materials for road formation.
- Bitumen and aggregates for pavement production.
- Stabilising binders to treat the road formation and culvert bases.

- Cement and aggregates for concrete (drainage construction, pavement construction, and kerb and guttering).
- Precast concrete elements for drainage construction and miscellaneous work.

3.6 Waste

Disposal, tracking and destination facilities of wastes will be recorded and undertaken in accordance with NSW EPA Waste Classification Guidelines.

3.7 Construction Staging

Staging of construction works will be determined once a Civil Works Contractor has been appointed for the project. A key parameter for Council will be to maintain two-way traffic flow on Wollombi Road during the construction period.

3.8 Construction Environmental Management Plan

A construction environmental management plan (CEMP) will be prepared to ensure that all safeguards and management measures detailed in this REF are implemented, and that construction impacts on the locality are managed. The CEMP will contain (amongst other items) traffic and pedestrian management measures to reduce potential conflicts between pedestrian, local traffic and the arrival, unloading and departure of construction and delivery vehicles. The CEMP will also include the following key components.

- Environmental management framework, including key contacts, roles and responsibilities, and regulatory requirements.
- Environmental incidents and non-compliance management strategy.
- Complaints management strategy.
- Environmental management commitments and responsibilities.
- Monitoring, inspections, and reporting requirements.
- Contingency Management Plan.

Environmental Management Commitments will cover (not limited to):

- Traffic and pedestrian management measures to reduce potential conflicts between pedestrian, local traffic and the arrival, unloading and departure of construction and delivery vehicles.
- Noise and Air Quality controls.
- Contamination and Unexpected finds protocol.
- Community Engagement strategy.
- Soil and Water Management.
- Waste Management.

The CEMP will be prepared in consideration of *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004).

3.9 Compound/Laydown Area, Site Access and Security

Compound / Laydown areas will be required to support construction of the Activity. These areas would generally include the following:

- Site compounds (toilet facilities and shed).
- Hardstands for the construction plant.
- Laydown areas.
- Stockpile sites.

Compound / laydown areas will be located within the road reserve of Wollombi Road with precise locations to be determined once a Civil Works Contractor has been appointed for the project.

3.10 Utility Adjustments

Utility works and adjustments typically include upgrades and re-configurations to communications, power, gas, water and sewer.

Traffic signals (traffic lights) will be installed at six intersections, refer to **Section 3.2.4,** as part of the upgrade works.

4.0 Legislation Requirements

4.1 Environmental Planning and Assessment Act

In NSW, the EP&A Act and the EP&A Regulation regulate development, planning and environmental impact assessment requirements. Part 5 of the EP&A Act regulates 'activities' identified as development without consent. Development that is unlikely to have a significant environmental impact requires an REF to be supplied for assessment and approval by the determining authority. In the case of this Activity Council is the proponent and the determining authority.

Under Section 5.5 of the EP&A Act, Council is required to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment.

Clause 171 of the EP&A Regulation identifies factors to be considered by Council in order to assess the likely impacts of the project on the natural and built environment. The Section 171 factors are considered in **Appendix C**.

4.2 Environmental Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is administered by the Commonwealth Department of Agriculture, Water and the Environment (DAWE), providing a legal framework to protect and manage nationally important flora, fauna, ecological communities and heritage places defined as matters of national environmental significance. An action that "has, will have or is likely to have a significant impact on a matter of national environmental significance" may not be undertaken without prior approval of the Commonwealth Minister, as provided under Part 9 of the EPBC Act.

A Protected Matters Search was undertaken on the DAWE website dated 19 July 2023 to ascertain if any matters of national environmental significance protected by the EPBC Act had been identified as occurring in or relating to within 10 km of the development site. The search returned 6 threatened ecological communities, 59 threatened species, and 16 migratory species within 10 km of the site. 1 Wetland of International Importance is located within 10 km of the site.

The REF has assessed the above matters with respect to the proposed Activity will not result in a significant impact on any MNES, refer to **Appendix C**, and, as such, does not require a referral to the Minister for the Environment.

4.3 State Environmental Planning Policies (SEPPs)

4.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

In approval terms, the proposed Activity is classed as development without consent pursuant to Division 17, Subdivision 1, Section 2.109 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP), which permits development for the purpose of road or road infrastructure facilities to be undertaken by a determining authority without requiring development consent. Thus, the proposed Activity will require the preparation of an REF pursuant to Part 5 of the EP&A Act, which obliges the determining authority, being Council, to assess all matters affecting, or likely to affect, the environment by the construction of the works. This REF has been prepared for this purpose and identifies safeguards that avoid or minimise potential impacts. An extract from Section 2.109 of the Transport and Infrastructure SEPP is provided on the following page.

2.109 Development permitted without consent—general

(1) Development for the purpose of a road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land. However, such development may be carried out without consent on land reserved under the National Parks and Wildlife Act 1974 only if the development—

(a) is authorised by or under the National Parks and Wildlife Act 1974, or

(b) is, or is the subject of, an existing interest within the meaning of section 39 of that Act, or

(c) is on land to which that Act applies over which an easement has been granted and is not contrary to the terms or nature of the easement.

(2) Development for any of the following purposes may be carried out by or on behalf of a public authority without consent on land in a prescribed zone—

(a) bus depots,

(b) permanent road maintenance depots and associated infrastructure (such as garages, sheds, tool houses, storage yards, training facilities and workers' amenities).

(2A) The following development for the purposes of bus depots may be carried out by or on behalf of a public authority without consent on land within the boundaries of an existing bus depot—

(a) the erection of a building that is—

(i) no more than 12.5m high, and

(ii) not located within 5m of a property boundary for a lot in a residential or conservation zone,

(b) the demolition of a building.

(3) In this section and section 2.112, a reference to development for the purpose of road infrastructure facilities includes a reference to development for any of the following purposes if the development is in connection with a road or road infrastructure facilities—

(a) construction works (whether or not in a heritage conservation area), including—

(i) temporary buildings or facilities for the management of construction, if they are in or adjacent to a road corridor, and

(ii) creation of embankments, and

(iii) extraction of extractive materials and stockpiling of those materials, if—

(A) the extraction and stockpiling are ancillary to road construction, or

(B) the materials are used solely for road construction and the extraction and stockpiling take place in or adjacent to a road corridor, and

(iv) temporary crushing or concrete batching plants, if they are used solely for road construction and are on or adjacent to a road corridor, and

(v) temporary roads that are used solely during road construction,

(b) emergency works or routine maintenance works,

Note—

See section 2.7(4) regarding emergency works and routine maintenance works on land to which clauses 10 and 11 of State Environmental Planning Policy (Coastal Management) 2018 apply.

(c) alterations or additions to an existing road (such as widening, narrowing, duplication or reconstruction of lanes, changing the alignment or strengthening of the road),

(d) environmental management works, if the works are in or adjacent to a road corridor.

4.3.2 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 3 of the *State Environmental Planning Policy (Resilience and Hazards) 2021* (Resilience and Hazards SEPP 2021) stipulates that no development can be undertaken without proper investigation and appropriate action into the remediation of land, in order to improve the health of the natural and human environment. This means, consent authorities should not grant approval unless the land has been assessed for contamination, and, if it is contaminated, that the land is suitable for its proposed use (or will be suitable after remediation).

A search of the Environmental Protection Agency (EPA) Contaminated Land Record database was completed on 22 June 2023 and identified no sites within the suburb of Cessnock. The closest registered contaminated sites within the Cessnock LGA are located in the suburbs of Branxton (Former Service Station), Kurri Kurri (Service Station) and North Rothbury (Ayrefield Colliery). These sites are located a substantial distance from the activity area, with the closest township (Kurri Kurri), located approximately 14km from the township of Cessnock, therefore it can be concluded that these sites will not impact the activity. An unexpected finds protocol will be incorporated into the construction environmental management plan (CEMP) to guide contractors, should potentially contaminated material be encountered during works.

4.3.3 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 1 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021* applies to the subject land. Part 2.2 sets out requirements in relation to clearing vegetation in non-rural areas. The activity will involve the removal of exotic and planted trees within the road reserve.

4.4 Local Planning Policies

The Activity area is located within the Cessnock LGA and CLEP 2011 applies to the activity area. Under CLEP 2011 the Activity area is zoned SP2 Infrastructure (Wollombi Road itself), R2 Low Density Residential and R3 Medium Density Residential, as illustrated (indicatively) in **Figure 4**. This REF has been prepared under the conditions of Part 5 of the EP&A Act and consequently the provisions of CLEP 2011 do not apply. Nevertheless, the objectives of the three (3) zones have been considered as per below.

Objectives of SP2 Infrastructure:

- *To provide for infrastructure and related uses.*
- *To prevent development that is not compatible with or that may detract from the provision of infrastructure.*

Objectives of R2 Low Density Residential:

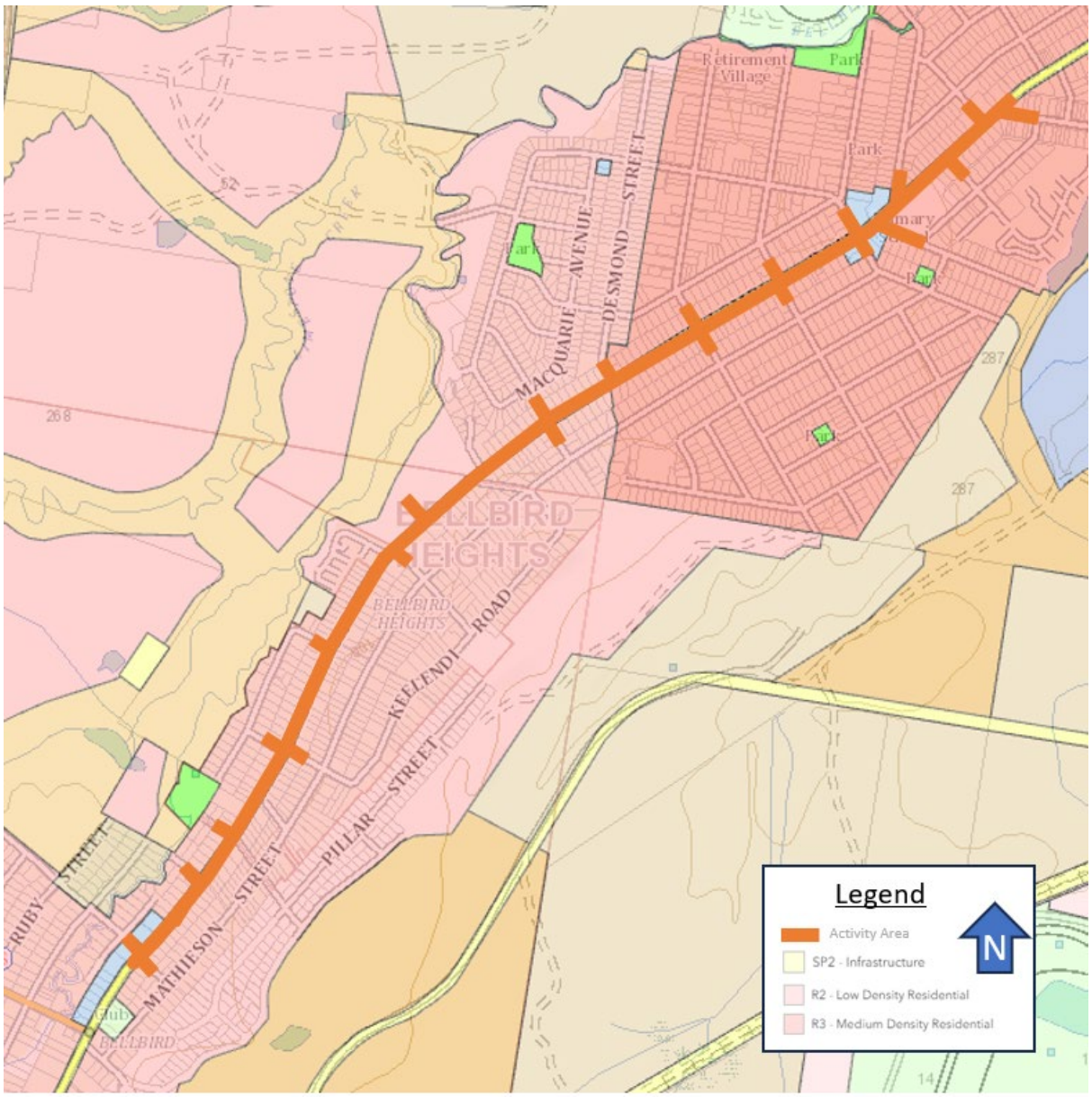
- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

Objectives of R3 Medium Density Residential:

- *To provide for the housing needs of the community within a medium density residential environment.*
- *To provide a variety of housing types within a medium density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

The Activity is consistent with the above objectives for zones SP2, R2 and R3 as it will facilitate the upgrade of road infrastructure for the benefit of current and future land uses, residents and tourists.

Figure 4: Land Use Zoning of the Indicative Activity Area



4.5 Other Legislative Requirements

4.5.1 Biodiversity Conservation Act 2016

During detailed design, the retention of existing street trees along Wollombi Road will be a priority. Where retention is not possible due to road or utility alignment clashes, removal will be in line with the Cessnock City Council Development Control Plan 2010 with replacement guided by the CCC Tree Strategy. It is not expected that the number of Street Trees that may need to be removed will meet the thresholds identified within *Biodiversity Conservation Act 2016* (BC Act). No areas within or adjoining the activity area are mapped as an area of significant Biodiversity Value from the NSW online mapping tool. This is and the need (or not) for Biodiversity Assessment Report is discussed in Section 6.

4.5.2 Water Management Act 2000

The *Water Management Act 2000 (WM Act)* aims to provide for the sustainable management and use of State water sources. The WM Act regulates controlled activities that occur within 40 m of 'waterfront land', where 'waterfront land' means the bed of any river, lake or estuary, and the land within 40 m of the riverbanks, lake shore or estuary mean high water mark.

An approval is required to undertake controlled activities on waterfront land unless that activity is otherwise exempt. Under Schedule 4 of the *Water Management (General) Regulation 2018*, public authorities do not need to obtain a controlled activity approval under the WM Act as long as the activity does not cause any change in the course of a river, and the activity has been assessed under the EP&A Act and found to not be likely to significantly affect the environment.

The Activity will not change the course of a river or occur within 40 m of a riverbank.

4.5.3 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997 (CLM Act)* establishes a process for investigating and remediating land where contamination presents a "significant risk of harm" to human health or the environment. It applies to contamination which occurred before or after its commencement.

Consideration must be given to contamination caused by past activities and potential contamination from spills and leaks in developing and managing land.

A search of the Environmental Protection Agency (EPA) Contaminated Land Record database was completed on 22 June 2023 and identified no sites within the suburb of Cessnock. The closest registered contaminated sites within the Cessnock LGA are located in the suburbs of Branxton (Former Service Station), Kurri Kurri (Service Station) and North Rothbury (Ayrefield Colliery). These sites are located a substantial distance from the activity area, with the closest township (Kurri Kurri), located approximately 14km from the township of Cessnock, therefore it can be concluded that these sites will not impact the Activity. An unexpected finds protocol will be incorporated into the construction environmental management plan (CEMP) to guide contractors, should potentially contaminated material be encountered during works.

4.5.4 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) provides for the protection and conservation of non-Aboriginal cultural heritage items such as buildings, works, relics and other places of historic, cultural, social, archaeological, architectural, natural and aesthetic significance. Approval

must be sought under Section 60 of the Heritage Act if the proposed works are likely to impact an item of heritage significance listed on the State Heritage Register.

An Aboriginal Due Diligence Assessment has been undertaken and is contained in **Appendix E.** The Activity is unlikely to directly impact heritage items.

4.5.5 National Parks and Wildlife Act 1974

Under the *National Parks and Wildlife Act 1974* (NPW Act), all Aboriginal objects and places are protected, irrespective of their level of significance or matters of land tenure. The NPW Act sets up 'strict liability' offences for harming or desecrating Aboriginal objects and Aboriginal places (this type of offence may apply even if a person is unaware that they are harming an Aboriginal object). All persons are therefore responsible for taking reasonable precautions and exercising their due diligence to ensure that their actions will not harm Aboriginal objects. A person who exercises their due diligence has a defence against prosecution if they later unknowingly harm an object.

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010) provides guidance on how to identify activities that may harm an Aboriginal object or place, and to determine whether they should apply for consent to harm an Aboriginal object or place in the form of an Aboriginal Heritage Impact Permit (AHIP) under Section 90A of the Act. *The National Parks and Wildlife Regulation 2019* removes the need to follow the due diligence process if carrying out an activity, which is specifically defined as a 'low impact activity'.

An Aboriginal Due Diligence Assessment has been undertaken and is contained in **Appendix E.** A Statement of Heritage Impact on non-Aboriginal heritage items has been undertaken and is contained in **Appendix F.**

4.5.6 Fisheries Management Act 1994

Clause 221ZZ of the *Fisheries Management Act 1994* sets out concurrence or consultation requirements if a Minister is not a consent authority under Part 4 or determining authority under Part 5 of the EP&A Act. Clause 221ZZ (3) is relevant and is set out as follows:

(3) The determining authority is not to carry out the activity, or grant an approval to carry out the activity, if the activity is likely to significantly affect threatened species, populations or ecological communities, unless the determining authority has obtained the concurrence of the Fisheries Agency Head.

The Activity is unlikely to significantly affect threatened species, populations or ecological communities and a Fisheries Permit is not required.

4.5.7 Coastal Management Act 2016

The *Coastal Management Act 2016* intention is to provide definition to coastal area types and to coordinate ecologically sustainable practices, economies, and planning processes within these areas. The Activity area does not fall under estuaries, coastal lakes and coastal areas.

4.5.8 Protection of the Environment Operations Act 1997

One of the aims of the *Protection of Environment Operations Act 1997* (PoEO Act) is to reduce risks to human health and prevent the degradation of the environment.

The proposed activities are not a scheduled activity pursuant to Schedule 1 of PoEO Act.

4.5.9 Roads Act 1993

The *Roads Act 1993* (Roads Act) regulates the carrying out of various activities on public roads.

Wollombi Road is classified as a main road with Cessnock City Council being the controlling authority. Council has consulted with TfNSW in the preparation of concept designs for the Activity. Consultation has included ongoing meetings and submissions to coordinate intersection arrangements concerning Traffic Control Signals. Submissions have included concept designs and Traffic Impact Assessment reports to inform TfNSW's review processes. An 'approval in principle' process is currently ongoing between Council and TfNSW for intersection arrangements.

4.5.10 Coal Mine Subsidence Compensation Act 2017

The Activity area is outside the Bellbird-Millfield Mine Subsidence District. As such, concurrence from Subsidence Advisory NSW is not required.

4.6 Summary

In line with the EP&A Act and relevant Commonwealth legislation, **Appendix C** (Section 171 Factors – EP&A Regulation 2021) and **Section 6.0** (Environmental Assessment) of this REF provides an assessment of the environmental issues associated with the proposed activity.

5.0 Consultation

This chapter discusses the consultation undertaken to date for the proposed activity and the consultation proposed for the future. The description contains the consultation strategy or approach used and the results of consulting with the community, relevant government agencies and stakeholders.

5.1 Community and Stakeholder Engagement During Awareness Phase

A program of early community and stakeholder engagement for the Wollombi Road Upgrade Project commenced in July 2023. Early engagement meant that Council could gather community feedback that could inform the design and planning of the road upgrade. Through a series of community engagement activities and events, Council was also able to raise awareness about the project and the need to cater for growth in the LGA.

The following engagement activities have been undertaken so far:

- Surveys of Wollombi Road businesses (about Stage 1 and Stage 2 work).
- Resident door knock on Wollombi Road (about Stage 1 and Stage 2 work).
- Coffee with the Councillor event at Wollombi Road Providore.
- Stakeholder meetings (impacted schools and local organisations).
- One information session at Cessnock Library (an additional session did not go ahead due to Covid and public health and safety precautions).
- Three pop-up information sessions at Cessnock Village Shopping Centre.
- Three project newsletters distributed to the community in July, September and December.
- Stakeholder emails, social media posts, face to face meetings, and Facebook live Q&A sessions.

A project specific contact number and email address has also been established to ensure the community has direct access to the project team.

5.2 Community Feedback During Awareness Phase

During the face-to-face engagement events, the Council team had over 300 conversations with members of the community and business owners. The team met or spoke to 64 businesses on Wollombi Road to seek feedback on the project, and how it will impact them both during and after construction.

All feedback received during the early engagement phase of the project was captured and recorded by the project team and has contributed towards the development of the preferred design.

The key project specific topics raised with Council included:

- Concerns regarding loss of parking and access for residents and businesses.
- Concerns for Wollombi Road businesses and potential loss of trade.
- Safety concerns for road users and pedestrians.
- Drainage and storm water flooding in areas of the road corridor.
- Impacts to private properties such as access and land acquisition.

- Concerns about traffic flow and congestion.
- Concerns about impacts upon heritage items.
- Concerns about tree removal.
- Suggestions for improvements to active transport.
- Noise concerns both during construction and operation of the road.
- Objections and support for the project.

Other general topics raised with Council also included the following.

- Requests for more detailed design information.
- Support for by-pass roads.
- Feedback regarding Council's planning and development decisions.

5.3 Consultation Strategy

Community engagement and participation in decision making forms an important part of local democracy. The community has the right and responsibility to access information, be consulted and actively participate in Council's planning and decision-making processes.

The purpose of the proposed Activity's consultation strategy is to identify the opportunities for genuine engagement with key stakeholders and the community during the design and planning phase and during construction of the proposed Activity.

The following objectives align with Council's Community Engagement Strategy:

- Initiate and maintain open communication with relevant stakeholders and the community.
- Clearly communicate the design and construction process to stakeholders and the community, and their opportunities to contribute.
- Ensure relevant stakeholders and the community are informed about the Activity.
- Provide stakeholders with inclusive opportunities to ask questions and to identify areas of concern with respect to the Activity.
- Provide stakeholders and the community with relevant information to show their feedback has been considered as part of the design and construction process.
- Effectively and proactively identify and manage stakeholder and community issues.

The consultation strategy for the Proposal has divided the project into three phases of engagement. These include:

- The awareness phase: Project launch and planning phase.
- The preliminary design and detailed design phase: Including REF exhibition.
- The pre-construction, construction, and post construction phase.

5.4 REF Exhibition

Council placed the REF for the Project on public exhibition from 14 March to 3 May 2024. An Engagement Report is contained in **Appendix I**. The Engagement Report summarises the engagement details and the advertising and promotion activities carried out by Council during this period. The Engagement Report also documents the key themes and responses

received during the public exhibition period. A summary of the Engagement Report is provided below.

Engagement methods used included the following.

- Together Cessnock – digital engagement webpage with Frequently asked Questions (FAQs).
- Three (3) face-to-face community engagement sessions.
- Facebook Live question and answer (Q&A) session.
- Printed copies of the REF were available at the Administration building, Cessnock and Kurri Kurri libraries.

5.4.1 Webpage Data

A digital engagement webpage was developed on Council's Together Cessnock microsite to support engagement and awareness and facilitate online submissions. The webpage received a total of approximately 3,500 visits over the exhibition period, and generated 137 online submissions via the portal, plus a further 132 written submissions.

5.4.2 Face to Face Engagement

Face to Face Engagement sessions were held in Cessnock (Cessnock Library and Cessnock Leagues Club), Paxton (Paxton Pub) and Bellbird (Bellbird Hotel) with attendance ranging from eight (8) community members (Paxton Pub) to fifteen (15) community members (Bellbird Hotel).

There were additional conversations regarding the Project and REF with several other face-to-face meetings including school principals and Department of Education representatives, as well as other community sessions and pop-ups for other Council projects.

Estimated total face-to-face conversations regarding the Project and REF during the engagement period was approximately fifty-five (55).

5.4.3 Facebook Advertising and Promotion

Council developed an integrated communications plan that's incorporate promotion through traditional media, social media, articles in electronic direct marketing and a printed newsletter distributed to the project area of 3,634 residences. The total reach of digital, print and broadcast media exceeded 720,000. Social media reach exceeded 32,000, including 4,000 views of a forty-minute Facebook Live Q&A.

5.4.4 Key Themes from Submissions and Council response

Council received 269 submissions during the public exhibition period for the REF. Comments provided by the community were categorised according to theme, with twenty (20) themes identified as per below.

- Need for four lanes
- Bypass Roads
- Staging of the works
- Traffic lights and traffic flow.
- Prioritising over other roadworks in the LGA.
- Cost of the Project
- Pedestrian Safety.
- Bus stops and Public Transport.
- Intersections and turning restrictions.
- Roundabouts vs traffic lights.
- Operation and timing of clearways.
- Raised concrete medians and access to properties.

- Need for four lanes
- Parking.
- Impact during construction
- Road widths
- Footpaths and cycleways
- Pedestrian Safety.
- Adjacent roads and intersections
- Environment and Heritage
- Stormwater and Utilities
- Other

Page 20 to 42 of Appendix I itemises and expands upon the common theme / value of the submissions received and provides a Council response to each of the common theme / value.

In general, after reviewing all submissions, there are no changes required to the Concept Plans (Appendix D) that are subject of the REF. Council has noted submissions and comments from the community and Council will work closely with the community, stakeholders, and the construction contractor to ensure suitable measures are in place to minimise impacts during construction and during operation.

5.5 Consultation under the State Environmental Planning Policy (Transport and Infrastructure) 2021

Requirements for consultation with public authorities for such activities are set out in Part 2.2. Division 1 of the Transport and Infrastructure SEPP. Clause 2.15 of the SEPP identifies 'specified development' that should be referred to the applicable 'specified authorities''. This REF is not specified under the following conditions:

- The subject site is not land nor adjacent to land reserved under the NPW Act and therefore does not require referral to the NSW Office of Environment and Heritage (OEH) for this purpose.
- The development is not on land zoned E1 (now C1) National Parks and Nature Reserves or in a land use zone equivalent to that zone, and therefore does not require referral to the NSW Office of Environment and Heritage (OEH) for this purpose.
- The proposed works do not comprise a fixed or floating structure in or over navigable waters, and consequently does not require referral to Transport for NSW under this requirement.
- The proposed works are not located within the dark sky region of NSW, and consequently do not require referral to the Director of the Observatory.
- The subject site is not on defence communications buffer land and consequently does not require referral to the Secretary of the Commonwealth Department of Defence.

5.6 Government Agency Involvement

Council, as the public authority, will be executing the works in conjunction with a Civil Works Contractor. All government agency engagement activities will occur as part of normal process for infrastructure projects, including consultation with Transport for NSW (TfNSW).

Detailed consultation has occurred with:

- TfNSW
- Hunter Water.
- Ausgrid.

- Department of Planning, Housing and Infrastructure.
- TfNSW.

These government agencies and others will continue to be consulted throughout the detailed design phase and into construction.

5.7 Aboriginal Community Consultation

Before a proposed activity commences, the potential impacts on Aboriginal cultural heritage should be identified and managed appropriately.

An Aboriginal Due Diligence Assessment was carried out across the Activity area. The Assessment was prepared in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010). A copy of the Aboriginal Due Diligence Assessment is contained in **Appendix E**.

As part of the Aboriginal Due Diligence Assessment a site inspection of the Activity area was undertaken by a qualified archaeologist and a representative from the Mindaribba Local Aboriginal Land Council.

5.8 Ongoing or Future Consultation

Council will continue to provide project information and updates to the community as well as liaising with key stakeholders such as schools, bus companies, and emergency services as the project develops into the detailed design stage and during construction. The project email address and direct contact phone number will continue to be available to the community during construction.

6.0 Environmental Assessment

6.1 Potential Impacts

6.1.1 Construction

Impacts generated during the construction phase of the activity may include:

- Biodiversity.
- Water quality.
- Hydrology and flooding.
- Geology and contamination.
- Air quality.
- Noise.
- Aboriginal heritage.
- Non-Aboriginal heritage.
- Visual amenity.
- Bushfire.
- Waste.
- Traffic and access.
- Socio-economic.
- Climate change and hazards.
- Cumulative impacts.
- Ecologically Sustainable Development (ESD).

6.1.2 Operation

An ‘operational’ phase of the works is also proposed, this phase is limited to the public use of the upgraded road. These operational activities are considered to be low impact and low risk. The activity is expected to benefit the area in providing traffic and congestion improvements into the future.

6.2 Biodiversity

This section describes the potential biodiversity impacts and mitigation measures associated with the activity.

The Activity area has not been identified as within an area of significant Biodiversity Value from the NSW online mapping tool. Land adjoining the activity is also not mapped as an area of significant Biodiversity Value from the NSW online mapping tool as illustrated in the extract contained in **Appendix A**.

6.2.1 Construction Impact

During detailed design, the retention of existing street trees along Wollombi Road will be a priority. Where retention is not possible due to road or utility alignment clashes, removal will be in line with the Cessnock City Council Development Control Plan 2010 with replacement

guided by the CCC Tree Strategy. Should removal of Street Trees be required these will likely be either grevillea species (Australian native) and/or Crape myrtles (Lagerstroemia) based on the existing Street Tree population.

The activity would not result in a loss of vegetation cover that would have a significant impact on a threatened species, ecological community or its habitat listed under the BC Act (i.e., No loss of habitat for a threatened species or ecological community).

A Landscape Plan will be developed for the Activity prior to construction, and it is recommended that replacement trees be planted within appropriate areas of the Activity area in Councils Landscaping requirements.

6.2.2 Operational Impacts

There is unlikely to be any negative impacts to biodiversity during the operational phase.

6.2.3 Safeguards and Management Measures

A Landscape Plan shall be developed prior to construction commencing that will identify replacement plant species consistent with Council Landscaping requirements and also identify locations of the replacement trees.

6.3 Water Quality and Flooding

This section describes the potential water quality and flooding impacts and mitigation measures associated with the Activity.

The Activity area is not located near any natural freshwater catchment, with stormwater and runoff draining into the local stormwater system and flowing into Bellbird Creek and Black Creek.

The Activity area is largely outside Council's Flood Planning Area excepting for an area around the Abbotsford / Cox Street intersection with Wollombi Road, Bellbird.

6.3.1 Construction Impacts

Potential construction impacts would include soil erosion and groundwater contamination. The Activity does not require works by which the water table is likely to be lowered below 1m AHD. Surface water across the activity area will be managed in accordance with Landcom's *Managing Urban Stormwater – Soils and Construction* (the Blue Book) to ensure any impacts to surface water are minimised.

Localised drainage could be impacted during construction, however regular inspection of sediment and erosion control devices will ensure this impact is minimsed.

6.3.2 Operational Impacts

There is unlikely to be any negative impacts to water quality, hydrology, flooding during the operational phase due to the road being sealed and serviced by Council (owned and serviced) kerbing and stormwater systems. Road geometry will be designed in such a way to minimise impact to surrounding properties from flooding.

6.3.3 Safeguards and Management Measures

The following mitigation measures are recommended to minimise impacts associated with hydrology and flooding during construction:

- Erosion potential would be limited by managing runoff fetches and velocities, with measures such as coir logs, booms and silt fences and curtains.

- Sediment and nutrient controls, prepared in accordance with the Landcom *Managing Urban Stormwater - Soils and Construction* (the Blue Book), will be implemented to reduce the impacts of stormwater, erosion, and sedimentation on water quality. Specific erosion and sediment controls are to be contained within the site CEMP. All erosion and sediment control measures will be established before physical activity begins. Control measures are to remain in place until all surfaces have been fully restored and stabilised.
- Sediment and erosion control devices will be inspected regularly, maintained to ensure effectiveness over the entire duration of the project, and cleaned out before 30% capacity is reached.
- Temporary stockpiles will have appropriate erosion control devices installed to control runoff and prevent sedimentation.

6.4 Geology and Contamination

This section describes the potential geology and contamination impacts and mitigation measures associated with the activity.

The Activity area is not located within an area that contains known contaminants and the proposed activity itself is unlikely to create contamination. Construction activities such as disturbance of existing road base and dirt will increase the risk of erosion and sediment laden runoff, though such impacts will be minimized through the implementation of the safeguards and management measures detailed in this section and **Section 6.3.3**. As discussed in **Section 4.5.3**, the closest registered site to the activity area is located in Kurri Kurri, approximately 14km away and is not considered to be a risk to the activity area.

6.4.1 Construction Impacts

The proposed activity involves the disturbance of existing road base materials and dirt. Construction activities may generate small amounts of dust and surface water from site preparation activities and from vehicles driving in and out of the area during works.

6.4.2 Operational Impacts

There is not expected to be any operational geology and contamination impacts associated with the activity area.

6.4.3 Safeguards and Management Measures

The following measures are recommended in the event that potentially contaminated soils or materials are uncovered during construction:

- An unexpected finds protocol shall be developed and implemented in the event that any potentially contaminated sand / soils or materials are uncovered during excavations.
- Treatment, handling, and disposal methods for contamination, when encountered, will be done in accordance with EPA Guidelines.
- All potentially contaminated sand/soil excavated must be stockpiled in a secure area and be assessed and classified in accordance with the Waste Classification Guidelines (EPA, 2014) before being transported from the site for disposal at an appropriately licensed waste facility.
- Site disturbance will be minimised by containing machinery access to site areas required for approved repair works.

- No chemicals, fuels, and/or waste will be stored or collected for disposal within or adjacent to drainage lines or unsealed surfaces. Nevertheless a 'spill kit' will be always kept on site for potential chemical or fuel spills.

6.5 Air Quality

This section describes the potential air quality impacts and mitigation measures associated with the Activity. The Activity area is not located within an area that typically experiences regular poor air quality.

6.5.1 Construction Impacts

Construction of the proposed Activity (road upgrade work) will involve ground disturbance and will have the potential to generate dust. Dust from the activities can be adequately minimised and managed using a suite of controls typically adopted to manage dust on construction sites. Any air quality impacts associated with the emissions from vehicles and plant associated with the proposed Activity would likely be minor, localised and temporary.

6.5.2 Operational Impacts

There is not expected to be any operational air quality impacts associated with the Activity.

6.5.3 Safeguards and Management Measures

The following mitigation measures are recommended to minimise impacts associated with air quality during construction:

- Machinery and vehicles will not be left running or idling when not in use for long periods.
- All vehicles and machinery will be fitted with approved exhaust systems to maintain exhaust emissions within accepted standards.
- Odour or air pollutant emission complaints will be dealt with promptly and the source will be eliminated wherever practicable.
- Loads of excavated material and loads transported to the site will be kept covered at all times during transportation and will remain covered until they are unloaded either for use at the work site, reused or disposal at an EPA licensed waste disposal facility.
- All work sites, general work areas and stockpiles will be closely monitored for dust generation and watered down (with clean water) or covered in the event of dry and/or windy conditions.
- Water carts for dust suppression will be used regularly and adaptively to the conditions.

6.6 Noise and Vibration

This section describes the potential noise impacts and mitigation measures associated with the Activity.

The activity area is situated predominantly within the road reserve of Wollombi Road at Bellbird, Bellbird Heights and Cessnock, all within a low-density residential area.

Sensitive receivers are as close as 10m from the Activity area. An Acoustic Assessment has been prepared by RAPT Consulting and is contained in **Appendix G**.

To establish background and ambient noise levels, noise monitoring was undertaken by RAPT Consulting from 22 November to 28 November 2023. The monitoring was undertaken

at various locations along Wollombi Road. Site observations noted these locations were considered indicative of the local ambient noise environment in the vicinity of Wollombi Road. During site visits it was noted that Wollombi Road traffic dominated the ambient noise environment and is indicative of an urban noise environment.

6.6.1 Construction Impacts

The primary source of construction noise will be from machinery and vehicles associated with the works. These impacts will be short term and would include associated traffic movements. Works will include the use of plant and equipment outlined in **Section 3.3**.

Acoustic modelling was undertaken using SoftNoise's "Predictor" to predict the effects of construction noise. Predictor is a computer program for the calculation, assessment, and prognosis of noise propagation.

Calculated noise levels would inevitably depend on the number and type of plant items and equipment operating at any one time and their precise location relative to the receiver of interest. In practice, the noise levels would vary due to the fact that plant and equipment would move about the worksite and would not all be operating concurrently. In some cases, reductions in noise levels would occur when plant are located behind obstacles or even other items of equipment.

Predicted noise levels are representative of the reasonable worst-case impact, for a given receiver type and are intended to give an indication of the possible noise levels from construction work when work is at their closest. For most construction activities, it is expected that construction noise levels would frequently be lower than predicted at the most exposed receiver.

The Assessment concludes that construction noise management levels may be exceeded at many receivers depending on work locations and activities. However, the highly affected noise level of 75dB(A) is expected to be complied with in most scenarios. Depending on work activity and locations there is the possibility for the highly affected noise level to be exceeded. There are no anticipated vibration exceedances.

A set of standard mitigation measures for construction noise and vibration are suggested. It is believed construction noise can be minimised and managed to be acceptable to the local community through the implementation of a Construction Noise and Vibration Management Plan (CNVMP).

6.6.2 Operational Impacts

The results of the Assessment indicate there are receivers that already have an operational exceedance with consideration to the NSW Road Noise Policy (RNP). However, the predicted operational levels will increase by less than 1.1dBA when comparing the build and no build situations.

6.6.3 Safeguards and Management Measures

The following mitigation measures, in line with industry best practice are recommended to minimise the impact of potential construction and operational noise from the proposed activity on residential/sensitive receivers.

- All equipment used will comply with Australian Standard: AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites.
- Work and deliveries will only occur during the following times: Monday to Friday 7am to 6pm and Saturdays 8am to 1 pm. No construction work or deliveries will occur on Sundays or public holidays. However, night time / works outside the above hours

may occur to address emergency works and / or works that would have a lesser impact if delivered quickly under low-traffic conditions.

- A Construction Noise and Vibration Management Plan (CNVMP) shall be prepared and form part of the overall CEMP for the Activity.
- Plant and equipment which is used intermittently will either be shut down in the intervening periods between works or throttled down to a minimum.
- Any portable equipment with the potential to create high levels of noise (e.g., generators) will only be selected for use if it incorporates effective noise control.
- All employees, contractors and sub-contractors will undergo an environmental site induction prior to commencing work on-site. The induction should include information about:
  - relevant project-specific noise issues.
  - information about nearest sensitive receivers.
  - environmental safeguards and management measure
  - limitations on high noise-generating activities.
  - behavioural practices.

Provided the mitigation measures documented above are implemented there would be no significant noise and vibration impacts resulting from the proposed Activity.

6.7 Aboriginal Heritage

This section describes the potential Aboriginal heritage impacts and mitigation measures associated with the Activity.

An Aboriginal Due Diligence Assessment was carried out across the Activity area. The Assessment was prepared in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010). A copy of the Aboriginal Due Diligence Assessment is contained in **Appendix E**.

The Activity area has been extensively altered by post-European contact impacts, such as the development of Wollombi Road, and the history of rural infrastructure and grazing in the area. These impacts, in combination with the shallow soils, have been ongoing since the 1800s and have likely limited the potential for the survival of Aboriginal cultural heritage objects.

As part of the Aboriginal Due Diligence Assessment an extensive search of the AHIMS database found 89 AHIMS sites within a 2 km search area. No Aboriginal sites were registered within the Activity area. The registered AHIMS sites in close proximity to the Activity area contained stone artefacts and were identified along Bellbird Creek. A search of the AHIP public register identified a number of AHIPs immediately adjacent to the Activity area. A review of AHIP boundaries published by the NSW Seed Data portal indicate these AHIPs do not extent into the Activity area.

A site inspection of the Activity area was undertaken by a qualified archaeologist and a representative from the Mindaribba Local Aboriginal Land Council. The inspection was carried out on 20 June 2023. No Aboriginal objects and places were identified within the Activity area during the inspection.

6.7.1 Construction Impacts

Based upon the desktop assessment and visual inspection carried out, the Aboriginal Due Diligence Assessment concluded that there was a low probability to encounter unknown Aboriginal objects during construction. Notwithstanding this, it is recommended that the CEMP for the works include an unexpected finds protocol in the event of any potential heritage items are uncovered during excavation.

6.7.2 Operational Impacts

There is not expected to be any operational Aboriginal Heritage impacts associated with the Activity.

6.7.3 Safeguards and Management Measures

With reference to the Aboriginal Due Diligence Assessment, the following mitigation measures should be applied throughout the duration of works.

- It is recommended that the CEMP for the works include an Unexpected Finds Procedure. In the unlikely event that a suspected Aboriginal object/s is identified the procedure should include the following
    - Works are to stop immediately.
    - The area of the suspected find/s is to be fenced off with an appropriate buffer and protected.
    - A qualified archaeologist and representative of MLALC are to be contacted to inspect the area and the nature of the find.
    - Representative of MLALC to determine the find's significance, in consultation with a qualified archaeologist or Heritage NSW, and the requirement for an Aboriginal Heritage Impact Permit (AHIP).
    - Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW on the appropriate management of the find.
- It is recommended that the CEMP for the works include a Human Remains unexpected finds protocol to be developed and implemented in the event that any potential heritage items are uncovered during excavation, which in the event of a potential find should include:
    - Works are to stop immediately.
    - The area of the suspected Human Remains find is to be secured and cordoned off.
    - NSW Police are to be notified. No further works can be undertaken until the NSW Police provide written advice.
    - If these remains are deemed to require archaeological investigation by the NSW Police or NSW Coroner, then:
    - Heritage NSW and the relevant Aboriginal parties must be notified.
    - a plan of management for any identified Aboriginal human remains must be put in place or conducted under an AHIP methodology developed in consultation with all relevant Aboriginal parties and the Heritage NSW.
    - Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW.

- It is recommended that all site workers and personnel involved in site impact works should be inducted and briefed on the possible identification of Aboriginal sites and objects during construction and their responsibilities according to the provisions of the NPW Act 1974 and NPW Regulation 2019 in the unlikely event that unknown objects or items are uncovered during proposed works. This induction package should be developed in consultation with MLALC, prior to works proceeding. The induction must include:
    - The contact phone numbers of the Heritage NSW regional archaeologist, EnviroLine 131 555, and MLALC.
    - The relevant contact phone number Environmental Officer responsible for this project in case unknown objects or items are uncovered during excavation.
    - The penalties for moving Aboriginal objects need to be made clear and given due consideration.
    - An outline types of unexpected heritage objects, items & relics, and their legal protection
    - The Unexpected Finds and Human Remains Procedures, as outlined above.

6.8 Non-Aboriginal Heritage

This section describes the potential non-Aboriginal heritage impacts and mitigation measures associated with the Activity.

A non-Aboriginal Heritage (Historic Heritage) Due Diligence Assessment was carried out by Virtus Heritage across the Activity area in October 2023. The Assessment was prepared in accordance with the Heritage Council of NSW Guidelines for Assessing Cultural Heritage Significance (DPIE, 2001) and in reference to The Burra Charter (ICOMOS 2013). Subsequently a Statement of Heritage Impact (SoHI) on non-Aboriginal heritage items was undertaken by Virtus Heritage and is contained in **Appendix F.** The following provides a summary of the SoHI including proposed mitigation measures.

The Activity area and surrounding areas have been extensively altered by post-European contact impacts, such as the development of Wollombi Road, and the history of rural infrastructure and grazing in the area. A history of Wollombi Road's construction and works is found in Appendix B of the SoHI. Council commissioned the Sandstone kerb and gutter Conservation Management Strategy (Nelson Heritage Consulting, 2022) details conservation policies and provides strategies together with an action plan to guide future management of the sandstone kerb and gutter in the LGA.

A site inspection by Virtus Heritage was conducted on Tuesday 25 July 2023 and the Activity area was extensively trafficked. Additional fieldwork for the SoHI was undertaken in mid-February 2024 to record the condition of the kerb and guttering and heritage items in the Activity area.

6.8.1 Heritage Items Adjacent to the Activity Area

There are four items listed on the State Heritage Inventory within or directly adjacent to the Activity area as identified in **Figure 5** and **Figure 6** and **Table 3.**

Figure 5: Heritage Items and Location of Sandstone Kerb and Guttering – Southwest Portion of Activity Area

Source: Virtus Heritage, 2024

Sandstone Guttering

Figure 6: Heritage Items and Location of Sandstone Kerb and Guttering – Northeast Portion of Activity Area

Source: Virtus Heritage, 2024

Sandstone Guttering

Table 3: Heritage Items Adjacent to the Activity Area

Item	Address	Property Description	Significance	Item No.
Bellbird Hotel	388 Wollombi Road	Lots 2-4, Section F, Local DP 6264	Local	121
O'Neill's Wine Bar (former)	4 Wollombi Road	Lot 1, DP 310886	Local	180
Cessnock West Public School	113 Wollombi Road	Lot 1, Section A, DP 9252	Local	181
Australia Hotel	136 Wollombi Road	Lot 1, DP 390312	Local	182

The 475m of sandstone kerb and guttering observed within the Activity area has been assessed as having local heritage significance under the following criteria: historical significance, aesthetic and technical achievement, research potential, rarity, and representative assessment.

6.8.2 Construction Impacts

The SoHI concludes that the heritage items identified, refer to **Table 3**, **Figure 5** and **Figure 6**, are not likely to be directly impacted by the proposed works. This is due to the Activity being designed to avoid any direct harm to the items.

However, the final detailed design of the Activity is yet to be finalised and there is a possibility that in some limited circumstances sandstone kerb and guttering may need to be lifted in order to be reused.

6.8.3 Operational Impacts

There is not expected to be any non-Aboriginal Heritage impacts associated with the Activity during operation.

6.8.4 Safeguards and Management Measures'

The following mitigation measures are recommended during construction.

- The sandstone kerbs and guttering are to be flagged and fenced to mitigate against impact where appropriate.
- Processes such as the laying of bitumen are to be appropriately managed to ensure there is no impact on sandstone kerb. Management could include measures such as laying protective materials on the surface of the sandstone and kerb to protect it from bitumen blowing onto the surface during spraying and laying and potentially damaging the faces of sandstone kerb and guttering.
- If Council, during the final design process, determine that any sandstone kerb and guttering needs removal, replacement or lifting (either temporarily or permanently), following the policies set out in Nelson Consulting (2022) by Council, the following actions must occur prior to works proceeding:
    - Council's Heritage Advisor determines with Heritage NSW if there is a required notification or consent pathway prior to works proceeding. Note that this action may require an additional revised impact assessment and/or archival recording depending on the outcome of the consultation with Heritage NSW.
    - Actions must be undertaken by Council or Council's delegated project manager in accordance with Policy Objectives 3 and 5 of Councils' Sandstone kerb and gutter Conservation Management Strategy (Nelson Heritage Consulting 2022).

- The recommended minimal distances for equipment operating in proximity to heritage listed items (as noted in the Acoustic Assessment, RAPT 2024) must be maintained around the heritage items adjacent to the Activity area for the duration of all works to ensure no damage to heritage items occurs.
- The recommended minimal distances for equipment operating in proximity to heritage listed items should also be maintained where possible in proximity to the sandstone kerb and guttering to ensure vibrational impacts do not cause damage to these items.
- A site induction must be undertaken by all workers. This induction must convey the above recommendations and must explain that if unexpected archaeological remains are uncovered as a result of this project, then work must cease in the affected area which is to be fenced off. Information should be sought in the first instance from a suitably qualified archaeologist who will provide advice on next steps and could arrange for the finds to be recorded in situ.
- The CEMP for the Activity include an Unexpected Heritage Finds protocol for discoveries as listed below.
    - Remains of other infrastructure including sandstone or bricks, drainage services, conduits, old kerbs and pavement, former road surfaces, timber and stone culverts, bridge footings and retaining walls, artefact scatters including broken and complete bottles, glass, ceramics, animal bones and clay pipes.

6.9 Visual Amenity

This section describes the potential visual amenity impacts and mitigation measures associated with the Activity.

The Activity area is within a portion of Wollombi Road reserve and various connecting street junctions. The existing infrastructure within the road reserve consists of two (2) travel lanes (one in each direction) and other typical road infrastructure elements. Low density, mostly single storey dwellings are located on either side of the road with some two-storey commercial / hotels and retail shops. The verge within the existing road reserve consists of various street trees, some native and some exotic species. The existing character of the Activity area is depicted in photos contained in **Appendix B**.

6.9.1 Construction Impacts

Temporary visual impacts will occur during construction including:

- Temporary fencing and signage.
- Changes in cycle and foot traffic conditions.
- Machinery presence and movements (including deliveries).

Construction of the Activity will be relatively short term in duration.

6.9.2 Operational Impacts

Once completed, the works will be typical of the built form within the current road reserve. The new road conditions are not likely to result in a significant altered visual amenity. Any noticeable change will not be out of character for the roadway and the surrounding town character. The changed visual character will be in keeping with and expanding upon the existing Wollombi Road environment.

6.9.3 Safeguards and Management Measures

The following mitigation measures are recommended during construction:

- During construction works the site shall be kept in a clean and orderly manner to reduce the visual impact to site users.
- Install screening to temporary fencing where appropriate.

6.10 Bushfire

This section describes the potential bushfire impacts and mitigation measures associated with the Activity.

The Activity area is largely outside land identified as Bushfire Prone Land (Non-EPI) in accordance with the NSW e-planning special viewer. Only a small section of Wollombi Road and land on Lot 1 DP 327580 sit within the 'Vegetation Buffer' area as mapped.

6.10.1 Construction Impacts

Due to the Activity area being located within the 'vegetation buffer' safeguards will need to be implemented to avoid an increase in the probability of bushfire.

6.10.2 Operational Impacts

There is not expected to be any operational bushfire impacts associated with the Activity.

6.10.3 Safeguards and Management Measures

The following mitigation measures are recommended during construction.

- Daily monitoring of local NSW Rural Fire Service Fire Danger Ratings and Meteorological conditions.
- No hot works during High or above Fire Dander Rating.
- Fire extinguishers to be on all major plant and equipment.
- Fire extinguishers available for use in emergencies.
- Bushfire risk management and Emergency Plan to be included in site inductions and toolbox talks.

6.11 Waste

This section describes the potential waste impacts and mitigation measures associated with the Activity.

The Activity area consists of road asphalt, concrete, road base materials, soils grass and kerb and gutters. Grasses made up of exotic weed species border the existing road pavement.

6.11.1 Construction Impacts

Wastes will be generated during the construction phase including site commission and decommission. Expected waste streams include:

- Construction waste (spoil, concrete and road materials).
- Waste oils and liquids from machinery.
- Domestic wastes generated by workers.

- Existing signage and guard railing.

Waste minimisation will be practiced throughout the Activity by promotion of waste segregation and correct disposal. Waste generated from the proposed activity will be managed in accordance with the CEMP and resource management hierarchy principles of the *Waste Avoidance and Resource Recovery Act 2001*.

6.11.2 Operational Impacts

There is not expected to be any operational waste impacts associated with the Activity.

6.11.3 Safeguards and Management Measures

Management of waste during the construction phase should be in accordance with the principles of the waste hierarchy as detailed in the *Waste Avoidance and Resource Recovery Act 2001.* Any waste generated during construction will be classified in accordance the NSW EPA Waste Classification Guidelines (2014). Waste that cannot be avoided, reused, or recycled will be classified in accordance with the Waste Classification Guidelines and disposed of at appropriately licensed facilities.

The following mitigation measures should be applied throughout the duration of the works:

- Wherever possible waste generated during site preparation and construction will be reused. Waste that cannot be avoided, re-used, or recycled will be managed in accordance with the principles of the *Waste Avoidance and Resource Recovery Act 2001* and classified in accordance with the Waste Classification Guidelines and disposed of at appropriately licenced facilities.
- All waste generated during the works will be reused or removed from the work areas as soon as practicable and disposed of in accordance with the waste disposal safeguards.
- All vessels used for contaminated or hazardous waste should be sealed, labelled according to their contents, and stored within bunded areas until their removal from the work site.
- Any fuel, lubricant or hydraulic fluid spillages will be collected using absorbent material and the contaminated material disposed of at an EPA licensed waste depot.
- In the unlikely event of a pollution incident, the relevant authorities will be notified in accordance with Clause 148 of the POEO Act and remedial actions undertaken. Environmental incident response and notification procedures will be detailed in the CEMP prior to the commencement of construction.
- The work site will be left clean and free of debris and other rubbish at the end of works.
- All hazardous wastes on site will be removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials.
- Treatment, handling, and disposal methods for contaminated soils, if encountered, will be done in accordance with NSW EPA Guidelines. Contaminated soils will be disposed of at an EPA licensed waste depot.

6.12 Traffic and Transport

This section describes the potential traffic and transport impacts and mitigation measures associated with the Activity.

6.12.1 Construction Impacts

The Activity would result in temporary traffic and transport related impacts including the following.

- Potential short delays to through traffic along Wollombi Road and potentially various side streets.
- Potential minor delays for vehicles entering and exiting surrounding residential properties.
- The presence of construction equipment within the road reserve.
- Potential changed on-street parking car parking conditions.
- Potential changed pedestrian pathway conditions.
- Increased movement of heavy vehicles.

6.12.2 Operational Impacts

There is unlikely to be any negative impacts to traffic and transport during the operational phase of the Activity.

6.12.3 Safeguards and Management Measures

- A traffic control plan shall be prepared by a suitably qualified person as part of the CEMP. The CEMP shall detail construction vehicle movements and controls and the location of compound / laydown areas. Details within the CEMP are to ensure that compliance with AS 1742.3 Traffic Control at Worksites, WHS 2011 & Roads Act 1993 occurs.
- Work areas shall be bounded by fencing or barriers and appropriate signage to prevent pedestrian access during construction. Safe, alternative access should be provided for pedestrians where required.
- Where works would result in delays to traffic, where possible, they would be scheduled to occur outside of morning and afternoon peak traffic periods and the public would be notified in advanced.
- Parking for construction workers would be accommodated within the compound footprint and within the nearby road reserve.
- Traffic would be managed by traffic controllers throughout construction.
- Where possible, all loading and unloading operations will be conducted within the internal construction zone.

6.13 Amenity and Pedestrian Access

This section describes the potential amenity, pedestrian and recreational usage impacts and mitigation measures associated with the Activity.

6.13.1 Construction Impacts

Along with the required fencing and traffic control measures, there would be various items of construction plant on site as outlined in **Section 3.3**, as well as temporary stockpiles materials in designated areas.

Appropriate safety precautions would be taken during the construction of the works, such as incorporation of security fencing and construction barrier fencing and temporary traffic

changes such as detours and short delays (As per Traffic Control Plan), to ensure public and worker safety. It would be a requirement of the CEMP for the construction contractor to employ or contract persons to control vehicular and pedestrian movements on adjacent roads, as required to ensure safety.

In summary, while there may be some temporary inconvenience to road users during the construction period, such inconvenience will be short term.

6.13.2 Operational Impacts

There is not expected to be any operational impacts associated with the Activity. The Activity will produce smoother vehicular traffic flow and improved pedestrian access and safety.

6.13.3 Safeguards and Management Measures

The following measures are recommended to manage amenity and pedestrian access.

- Work areas shall be bounded by fencing or barriers to prevent pedestrian access during construction.
- Safe, alternative access should be provided for pedestrians where required.

6.14 Socio-Economic

This section describes the potential socio-economic impacts and mitigation measures associated with the Activity.

The Activity area is within a portion of Wollombi Road reserve and various connecting street junctions. The existing infrastructure within the road reserve consists of a dual lane road, and other typical road infrastructure elements. The surrounding land consists of residential dwellings and some commercial buildings.

6.14.1 Construction Impacts

There would be short term construction impacts on the existing residents and businesses including the presence of machinery for the purposes of the road works and associated traffic movements, changed on street parking conditions, traffic conditions and a corresponding visual impact. These may result in feelings of inconvenience and frustration.

Minor visual impacts during construction will be confined to excavations, soil disturbance, road work activities and the presence of machinery and associated noise and workers' vehicles. The impacts will be limited in duration and will not create any long-term socio-economic issues. Any short-term impacts are likely to be significantly outweighed by long-term benefits.

6.14.2 Operational Impacts

Once construction is complete the Activity will provide a positive economic benefit on local businesses and create an improved traffic flow and reduced congestion. Retention of existing sandstone kerb and guttering will maintain a link to earlier forms of Wollombi Road.

Changes to on street parking conditions, including the introduction of a clearway in peak times, will occur as a result of the Activity. This change may result in feelings of inconvenience for residents that may utilise on street parking at the moment.

Overall, the socio- economic impacts of the proposed Activity are considered to be positive.

6.14.3 Safeguards and Management Measures

- Construction works will take place in accordance with hours specified in which exclude 'night time' hours, thus reducing disturbance and impact. However, night time works may occur to address emergency works and / or works that would have a lesser impact if delivered quickly under low-traffic conditions. Impacted property owners will be notified ahead of any of these works.
- Traffic, pedestrian and cyclist arrangements will be established and maintained throughout the construction phase through the implementation of the Traffic Management Plan and the CEMP.

Provided that the mitigation measures documented in this REF are implemented there will be no significant socio-economic impacts other than the positive impact of creating a more efficient, safe and functional roadway.

6.15 Climate Change and Hazards

This section describes the potential climate change and hazard impacts associated with the Activity.

An increase in the global concentration of greenhouse gas has led to an increase in the earth's average surface temperature and has contributed to the phenomenon of 'climate change'. The State of the Climate 2020 (CSIRO and Bureau of Meteorology 2020) report confirms that Australia's climate has warmed on average by 1.44 ± 0.24 °C since national records began in 1910, leading to an increase in the frequency of extreme heat events.

Other findings from the report indicate that in the southeast of Australia there has been a decline of around 12 per cent in April to October rainfall since the late 1990s. There has been a decrease in streamflow at the majority of streamflow gauges across southern Australia since 1975. Rainfall and streamflow have increased across parts of northern Australia since the 1970s. There has been an increase in extreme fire weather, and in the length of the fire season, across large parts of the country since the 1950s, especially in southern Australia.

Oceans around Australia are acidifying and have warmed by around 1°C since 1910, contributing to longer and more frequent marine heatwaves. Sea levels are rising around Australia, including more frequent extremes, that are increasing the risk of inundation and damage to coastal infrastructure and communities.

The NSW and ACT Regional Climate Modelling (NARCliM) is a partnership between the NSW, ACT and South Australian governments and the Climate Change Research Centre at the University of NSW. NARCliM provides high resolution climate projections at a scale that supports local decision makers.

Based on long-term (1910–2011) observations, temperatures in the Hunter Region have been increasing since about 1960, with higher temperatures experienced in recent decades.

The region is projected to continue to warm during the near future (2020–2039) and far future (2060–2079), compared to recent years (1990–2009). The warming is projected to be on average about 0.7°C in the near future, increasing to about 2°C in the far future. The number of high temperature days is projected to increase in parts of the region, with fewer potential frost risk nights anticipated.

The warming trend projected for the region is large compared to natural variability in temperature and is of a similar order to the rate of warming projected for other regions of NSW. The Hunter Valley currently experiences considerable rainfall variability across the region, seasons and from year-to-year and this variability is also reflected in the projections. However, most models agree that autumn rainfall will increase.

With the implementation of management measures identified below there are not expected to be any significant impacts associated with climate change during construction

- The use of alternative fuels and power sources for construction plant and equipment will be investigated and implemented, where appropriate.
- Recycled materials will be incorporated where possible.

During operation, routine inspections and maintenance would be carried out to ensure any issues are identified and appropriately managed. As such, there are not expected to be any significant impacts associated with climate change during operation.

6.16 Cumulative Impacts

This section describes the potential cumulative impacts and mitigation measures associated with the Activity.

The impacts on the environment due to the construction of the Activity are considered to be minor. There will be a change in the type of vehicles entering the activity during construction namely construction and delivery vehicles and employee vehicles.

Cumulative impacts could occur if the construction of the Activity coincided with the construction of other projects particularly any that may be contemplated on adjacent land.

It is anticipated that potential adverse cumulative impacts would relate to the temporary increase in construction traffic and cumulative noise and air impacts. These impacts would be largely avoidable through the implementation of mitigation measures detailed in this REF and through consulting with respective divisions within Council, if necessary, to ensure that the proposed construction works do not coincide with other as yet unknown developments and/or routine maintenance activities.

Where conflicting construction schedules are unavoidable, cumulative construction impacts would be manageable through the implementation of the safeguards and mitigation measures identified in this REF.

The assessment within this REF indicates that the activity is not likely to have a significant effect on the environment. A range of environmental factors as listed in Clause 171 of the Environmental Planning and Assessment Regulation 2021 (as amended) and Commonwealth Matters of National Environmental Significance have been considered as contained.

Implementation of the mitigation measures and safeguards identified above will minimise the risk of any impact and therefore further reduce the significance of any effect of cumulative impacts.

6.17 Ecologically Sustainable Development (ESD)

This section describes the potential ESD aspects associated with the Activity.

Ecologically Sustainable Development (ESD) is a primary objective of environmental protection in NSW, ESD is an objective of the EP&A Act under section 1.3, is defined under Section 1.4 of the EP&A Act and is a required assessment consideration under section 171 of the Environmental Planning and Assessment Regulation 2021. ESD has the same meaning it has in section 6(2) of the Protection of the Environment Administration Act 1991 and requires environmental assessments to include the reasons justifying the carrying out of the proposed activity in the manner proposed, having regard to biophysical, economic and social considerations.

ESD is defined as:

"ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs—

a. the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

   (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

   (ii) an assessment of the risk-weighted consequences of various options,

b. inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

c. conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

d. improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and services, such as:

   (i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

   (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

   (iii) environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

The overall objectives of ESD are to use, conserve and enhance natural resources. This ensures that ecological processes are maintained, facilitating improved quality of life, now and into the future.

The proposed activity will be effectively managed to avoid significant and/or costly environmental impact or degradation. This REF has been developed to appropriately identify, avoid, mitigate and manage environmental risk in line with the principles and objectives of ESD including:

- The Precautionary Principle.
- Social Equity, Inter-Generational Equity.
- Conservation of Biological Diversity and Ecological Integrity.
- Improved Valuation and Pricing of Environmental Resources.

Each of these principles is explained below:

6.17.1 The Precautionary Principal

The precautionary principle, in summary, holds that where there are threats of serious or irreversible environmental damage, the lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Specialist assessment for the design of the Activity has occurred. To this end, there has been careful evaluation undertaken in order to avoid where possible, serious or irreversible damage to the environment. In the circumstances where avoidance was not possible, appropriate mitigated measures have been developed.

6.17.2 Social Equity, Inter-Generated Equality

Intergenerational equity is centred on the concept that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. There is a moral obligation to ensure that today's economic progress, which will benefit both current and future generations, is not offset by environmental deterioration.

The various consultation activities have ensured that the planning, design and environmental assessment phases of the activity have been transparent. The content of this REF (including appendices) has enabled an understanding of the potential implications of the activity and therefore identify the required management strategies and mitigation measures to ensure potential for impact is appropriately minimised.

6.17.3 Conservation of Biological Diversity and Ecological Integrity

The principle of conservation of biological diversity and ecological integrity holds that the conservation of biological diversity and ecological integrity should be a fundamental consideration for the proposed activity.

6.17.4 Improved Valuation and Pricing of Environmental Resources

The principle of improved valuation, pricing and incentive mechanisms deems that environmental factors should be included in the valuation of assets and services. The cost associated with using or impacting upon an environmental resource is seen as a cost incurred to protect that resource. Bases for evaluating costs relating to issues of biodiversity, noise, air quality, soil and water, traffic and transport, heritage and visual impacts have been considered in the preparation of the REF.

The approach taken in the REF acknowledges and accepts the financial costs associated with all the measures required for the activity to avoid, minimize, mitigate and manage potential environmental and social impacts for the proposed activity.

7.0 Summary of Mitigation Measures

Table 4 below contains a summary of mitigation measures to be implemented for the activity for each environmental aspect assessed in **Section 6.0**.

Table 4: Summary of Mitigation Measures

Environmental Assessment Section	Section No.	Mitigation Measures
General	3.8	• A CEMP shall be prepared prior to commencement of construction to ensure that all safeguards and management measures detailed in this REF are implemented, and that construction impacts on the locality are managed. The CEMP shall include the following plans and protocols. o Construction Noise and Vibration Management Plan o Unexpected finds protocol for Aboriginal objects. o Unexpected finds protocol for heritage objects. o Traffic control plan. o Unexpected contamination finds protocol.
Biodiversity	6.2	• A Landscape Plan shall be prepared prior to construction, and it is recommended that replacement trees be planted within appropriate areas of the Activity area in accordance with Councils Landscaping requirements.
Water quality and flooding	6.3	• Erosion potential would be limited by managing runoff fetches and velocities, with measures such as coir logs and silt fences. • Sediment and nutrient controls, prepared in accordance with the Landcom Managing Urban Stormwater - Soils and Construction (the Blue Book), will be implemented to reduce the impacts of stormwater, erosion, and sedimentation on water quality. Specific erosion and sediment controls are to be contained within the site CEMP. All erosion and sediment control measures will be established before physical activity begins. Control measures are to remain in place until all surfaces have been fully restored and stabilised. • Sediment and erosion control devices will be inspected regularly, maintained to ensure effectiveness over the entire duration of the project, and cleaned out before 30% capacity is reached. • Temporary stockpiles (if any) will have appropriate erosion control devices installed to control runoff and prevent sedimentation.
Geology and contamination	6.4	• An unexpected finds protocol shall be developed and implemented in the event that any potentially contaminated sand / soils or materials are uncovered during excavations. • Treatment, handling, and disposal methods for contamination, when encountered, will be done in accordance with EPA Guidelines. • All potentially contaminated sand/soil excavated must be stockpiled in a secure area and be assessed and classified in accordance with the Waste Classification Guidelines (EPA, 2014) before being transported from the site for disposal at an appropriately licensed waste facility. • Site disturbance will be minimised by containing machinery access to site areas required for approved repair works. • No chemicals, fuels, and/or waste will be stored or collected for disposal within or adjacent to drainage lines or unsealed surfaces. Nevertheless a 'spill kit' will be always kept on site for potential chemical or fuel spills.

Environmental Assessment Section	Section No.	Mitigation Measures
Air quality	6.5	• Machinery and vehicles will not be left running or idling when not in use for long periods. • All vehicles and machinery will be fitted with approved exhaust systems to maintain exhaust emissions within accepted standards. • Odour or air pollutant emission complaints will be dealt with promptly and the source will be eliminated wherever practicable. • Loads of excavated material and loads transported to the site will be kept covered at all times during transportation and will remain covered until they are unloaded either for use at the work site, reused or disposal at an EPA licensed waste disposal facility. • All work sites, general work areas and stockpiles will be closely monitored for dust generation and watered down (with clean water) or covered in the event of dry and/or windy conditions. • Water carts for dust suppression will be used regularly and adaptively to the conditions.
Noise and Vibration	6.6	• All equipment used will comply with Australian Standard: AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites. • Work and deliveries will only occur during the following times: Monday to Friday 7am to 6pm and Saturdays 8am to 1 pm. No construction work or deliveries will occur on Sundays or public holidays. However, night time / works outside the above hours may occur to address emergency works and / or works that would have a lesser impact if delivered quickly under low-traffic conditions. • A Construction Noise and Vibration Management Plan (CNVMP) shall be prepared and form part of the overall CEMP for the Activity. • Plant and equipment which is used intermittently will either be shut down in the intervening periods between works or throttled down to a minimum. • Any portable equipment with the potential to create high levels of noise (e.g., generators) will only be selected for use if it incorporates effective noise control. • All employees, contractors and sub-contractors will undergo an environmental site induction prior to commencing work on-site. The induction should include information about: o relevant project-specific noise issues. o information about nearest sensitive receivers. o environmental safeguards and management measures. o limitations on high noise-generating activities. o behavioural practices.
Aboriginal Heritage	6.7	• It is recommended that the CEMP for the works include an Unexpected Finds Procedure. In the unlikely event that a suspected Aboriginal object/s is identified the procedure should include the following: o Works are to stop immediately. o The area of the suspected find/s is to be fenced off with an appropriate buffer and protected. o A qualified archaeologist and representative of MLALC are to be contacted to inspect the area and the nature of the find. o Representative of MLALC to determine the find's significance, in consultation with a qualified archaeologist or Heritage NSW, and the requirement for an Aboriginal Heritage Impact Permit (AHIP). o Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW on the appropriate management of the find.

Environmental Assessment Section	Section No.	Mitigation Measures
		• It is recommended that the CEMP for the works include a Human Remains unexpected finds protocol to be developed and implemented in the event that any potential heritage items are uncovered during excavation, which in the event of a potential find should include: o Works are to stop immediately. o The area of the suspected Human Remains find is to be secured and cordoned off. o NSW Police are to be notified. No further works can be undertaken until the NSW Police provide written advice. o If these remains are deemed to require archaeological investigation by the NSW Police or NSW Coroner, then: o Heritage NSW and the relevant Aboriginal parties must be notified. o a plan of management for any identified Aboriginal human remains must be put in place or conducted under an AHIP methodology developed in consultation with all relevant Aboriginal parties and the Heritage NSW. o Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW. • It is recommended that all site workers and personnel involved in site impact works should be inducted and briefed on the possible identification of Aboriginal sites and objects during construction and their responsibilities according to the provisions of the NPW Act 1974 and NPW Regulation 2019 in the unlikely event that unknown objects or items are uncovered during proposed works. This induction package should be developed in consultation with MLALC, prior to works proceeding. The induction must include: o The contact phone numbers of the Heritage NSW regional archaeologist, EnviroLine 131 555, and MLALC. o The relevant contact phone number Environmental Officer responsible for this project in case unknown objects or items are uncovered during excavation. o The penalties for moving Aboriginal objects need to be made clear and given due consideration. o An outline types of unexpected heritage objects, items & relics, and their legal protection o The Unexpected Finds and Human Remains Procedures, as outlined above.
Non-Aboriginal Heritage	6.8	• The sandstone kerbs and guttering are to be flagged and fenced to mitigate against impact where appropriate. • Processes such as the laying of bitumen are to be appropriately managed to ensure there is no impact on sandstone kerb. Management could include measures such as laying protective materials on the surface of the sandstone and kerb to protect it from bitumen blowing onto the surface during spraying and laying and potentially damaging the faces of sandstone kerb and guttering. • If Council, during the final design process, determine that any sandstone kerb and guttering needs removal, replacement or lifting (either temporarily or permanently), following the policies set out in Nelson Consulting (2022) the following actions must occur prior to works proceeding: o Council's Heritage Advisor determines with Heritage NSW if there is a required notification or consent pathway prior to works proceeding. Note that this action may require an additional revised impact assessment and/or archival recording depending on the outcome of the consultation with Heritage NSW. o Actions must be undertaken by Council or Council's delegated project manager in accordance with Policy Objectives 3 and 5 of

Environmental Assessment Section	Section No.	Mitigation Measures
		Councils' Sandstone kerb and gutter Conservation Management Strategy (Nelson Heritage Consulting 2022). • The recommended minimal distances for equipment operating in proximity to heritage listed items must be maintained around the heritage items adjacent to the Activity area for the duration of all works to ensure no damage to heritage items occurs. • The recommended minimal distances for equipment operating in proximity to heritage listed items should also be maintained where possible in proximity to the sandstone kerb and guttering to ensure vibrational impacts do not cause damage to these items. • A site induction must be undertaken by all workers. This induction must convey the above recommendations and must explain that if unexpected archaeological remains are uncovered as a result of this project, then work must cease in the affected area which is to be fenced off. Information should be sought in the first instance from a suitably qualified archaeologist who will provide advice on next steps and could arrange for the finds to be recorded in situ. • The CEMP for the Activity include an Unexpected Heritage Finds protocol for discoveries as listed below. o Remains of other infrastructure including sandstone or bricks, drainage services, conduits, old kerbs and pavement, former road surfaces, timber and stone culverts, bridge footings and retaining walls, artefact scatters including broken and complete bottles, glass, ceramics, animal bones and clay pipes.
Visual Amenity	6.9	• During construction works the site shall be kept in a clean and orderly manner to reduce the visual impact to site users. • Install screening to temporary fencing where appropriate.
Bushfire	6.10	• Daily monitoring of local NSW Rural Fire Service Fire Danger Ratings and Meteorological conditions. • No hot works during High or above Fire Dander Rating. • Fire extinguishers to be on all major plant and equipment. • Fire extinguishers available for use in emergencies. • Bushfire risk management and Emergency Plan to be included in site inductions and toolbox talks.
Waste	6.11	• Wherever possible waste generated during site preparation and construction will be reused. Waste that cannot be avoided, re-used, or recycled will be managed in accordance with the principles of the Waste Avoidance and Resource Recovery Act 2001 and classified in accordance with the Waste Classification Guidelines and disposed of at appropriately licenced facilities. • All waste generated during the works will be reused or removed from the work areas as soon as practicable and disposed of in accordance with the waste disposal safeguards. • All vessels used for contaminated or hazardous waste should be sealed, labelled according to their contents, and stored within bunded areas until their removal from the work site. • Any fuel, lubricant or hydraulic fluid spillages will be collected using absorbent material and the contaminated material disposed of at an EPA licensed waste depot. • In the unlikely event of a pollution incident, the relevant authorities will be notified in accordance with Clause 148 of the POEO Act and remedial actions undertaken. Environmental incident response and notification procedures will be detailed in the CEMP prior to the commencement of construction.

Environmental Assessment Section	Section No.	Mitigation Measures
		• The work site will be left clean and free of debris and other rubbish at the end of works. • All hazardous wastes on site will be removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials. • Treatment, handling, and disposal methods for contaminated soils, if encountered, will be done in accordance with NSW EPA Guidelines. Contaminated soils will be disposed of at an EPA licensed waste depot.
Traffic and transport	6.12	• A traffic control plan shall be prepared by a suitably qualified person as part of the CEMP. The CEMP shall detail construction vehicle movements and controls and the location of compound / laydown areas. Details within the CEMP are to ensure that compliance with AS 1742.3 Traffic Control at Worksites, WHS 2011 & Roads Act 1993 occurs. • Work areas shall be bounded by fencing or barriers and appropriate signage to prevent pedestrian access during construction. Safe, alternative access should be provided for pedestrians where required. • Where works would result in delays to traffic, where possible, they would be scheduled to occur outside of morning and afternoon peak traffic periods and the public would be notified in advance. • Parking for construction workers will be nominated within the CEMP. • Traffic would be managed by traffic controllers throughout construction. • Where possible, all loading and unloading operations will be conducted within the internal construction zone.
Amenity, pedestrian access and recreation	6.13	• Work areas shall be bounded by fencing or barriers to prevent pedestrian access during construction. • Safe, alternative access should be provided for pedestrians where required.
Socio-economic	6.14	• Construction works will take place in accordance with hours specified in which exclude ‘night time’ hours. However, night time works may occur to address emergency works and / or works that would have a lesser impact if delivered quickly under low-traffic conditions. • Traffic, pedestrian and cyclist arrangements will be established and maintained throughout the construction phase through the implementation of the Traffic Management Plan and the CEMP.
Climate change	6.15	• The use of alternative fuels and power sources for construction plant and equipment will be investigated and implemented, where appropriate. • Recycled materials will be incorporated where possible.

8.0 Conclusion

8.1 Summary of Beneficial Effects

The Activity will facilitate safe, ongoing operation of Wollombi Road.

Environmental, economic and community benefits of the Activity include:

- Improved traffic and reduction in congestion for current and future road users.
- Improved road surfaces and road infrastructure.
- Improved safety for motorists and pedestrians.

8.2 Conclusion

This REF has been prepared to examine and take into account all matters affecting or likely to affect the environment as a result of the proposed Activities associated with the upgrade of approximately 2.9 km of Wollombi Road in Bellbird, Bellbird Heights and Cessnock. The Activity is Stage 1 of a two-stage project for the upgrade of Wollombi Road.

The works will provide additional travel lanes at peak times along the road. The works will also include road pavement works, new kerb and guttering (including some reused sections of existing sandstone kerbs) and stormwater drainage, new intersections including Traffic Signal installations and traffic furniture, new sections of footpaths, street lighting upgrades and utility adjustments.

The REF has examined and considered all relevant Commonwealth, NSW and local legislation and policies, along all matters affecting or likely to affect the environment by reason of the proposed activity. The proposed activity as described in the REF best meets the project objectives.

This REF has been prepared in accordance with section 5.5 and section 5.10(a) of the EP&A Act. It has concluded that the proposed activity is unlikely to significantly affect the environment and hence an EIS is not required to be prepared under section 5.7 of the EP&A Act. The proposed activity is also unlikely to affect Commonwealth land or have an impact on any MNES.

Council will continue to provide project information and updates to the community as well as liaising with key stakeholders such as schools, bus companies, and emergency services as the project develops into the detailed design stage and during construction.

9.0 Declaration

We certify that we have prepared the contents of this REF and to the best of our knowledge:

- It is in accordance with section 5.5 and 5.10(a) of the EP&A Act and Section 171(2) of the Environmental Planning and Assessment Regulation 2021.
- It examines and takes into account all matters affecting or likely to affect the environment as a result of the activities associated with this project.
- It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.
- The proposed activity is not likely to significantly affect the environment. No EIS is required.
- The proposed activity will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats or impact biodiversity values.
- The proposed activity may be approved subject to mitigation measures detailed in this document.
- The proposed activity is unlikely to present a significant risk of harm to the environment and approval would be in the public interest.

SLR			
Name	**Position within SLR**	**Date**	**Signature**
Rob Dwyer	Technical Director-Environmental Impact Assessment	12-06-24	
Drew Williams	Senior Project Consultant	12-06-24	

Cessnock City Council			
Name	**Position within Cessnock City Council**	**Date**	**Signature**
Ken Liddell	General Manager, Cessnock City Council	25.06.24	

10.0 References

Environmental Planning and Assessment Act, 1979.

Matters of National Environmental Significance

Bureau of Meteorology/CSRIO - State of the Climate 2014 Report.

Australian Standard (AS) 2436: 2010 Guide to noise and vibration control on construction, demolition and maintenance sites.

Landcom - Managing Urban Stormwater: Soils and construction - Volume 1 (Blue Book), 2004.

NSW EPA Local government air quality toolkit – Module 3 Module 3: Guidelines for managing air pollution.

NSW EPA (2014). Waste Classification Guidelines – Part 1: Classification of waste.

NSW EPA (2009). Interim Construction Noise Guideline.

NSW EPA (2020). Draft Construction Noise Guideline.

NSW ePlanning Portal.

Cessnock City Council Online Planning Mapping Portal.

Cessnock City Council - Sandstone kerb and gutter Conservation Management Strategy (Nelson Heritage Consulting, 2022),

NSW Rural Fire Service 2019 – Planning for Bush Fire Protection - A guide for councils, planners, fire authorities and developers November 2019.

Appendix A Background Searches

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 19-Jul-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	59
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	16
Commonwealth Heritage Places:	None
Listed Marine Species:	24
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	11
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Hunter estuary wetlands	20 - 30km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area	In feature area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In buffer area only
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In buffer area only
Hunter Valley Weeping Myall (Acacia pendula) Woodland	Critically Endangered	Community may occur within area	In buffer area only
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Botaurus poiciloptilus](#) Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Callocephalon fimbriatum](#) Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
[Calyptorhynchus lathami lathami](#) South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Climacteris picumnus victoriae](#) Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Erythrotriorchis radiatus](#) Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
[Falco hypoleucos](#) Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Grantiella picta](#) Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Melanodryas cucullata cucullata](#) South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Neophema chrysostoma](#) Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Pycnoptilus floccosus](#) Pilotbird [525]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
[Stagonopleura guttata](#) Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FROG			
[Heleioporus australiacus](#) Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Litoria aurea](#) Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area	In feature area
[Litoria littlejohni](#) Littlejohn's Tree Frog, Heath Frog [64733]	Endangered	Species or species habitat may occur within area	In buffer area only
[Mixophyes balbus](#) Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Mixophyes iteratus](#) Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat may occur within area	In buffer area only
MAMMAL			
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Notamacropus parma			
Parma Wallaby [89289]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Acacia bynoeana			
Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat known to occur within area	In feature area
Allocasuarina glareicola			
[21932]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus parramattensis subsp. decadens Earp's Gum, Earp's Dirty Gum [56148]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus pumila Pokolbin Mallee [16510]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leionema lamprophyllum subsp. fractum [89743]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Ozothamnus tesselatus [56203]	Vulnerable	Species or species habitat may occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Persoonia pauciflora North Rothbury Persoonia [67214]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Prostanthera cineolifera [11233]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area	In feature area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Rutidosis heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat known to occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thesium australe			
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Delma impar			
Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area	In feature area
Hoplocephalus bungaroides			
Broad-headed Snake [1182]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus			
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis			
Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat may occur within area	In buffer area only
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands	[Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Commonwealth Trading Bank of Australia		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Trading Bank of Australia [15903]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [12643]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [12649]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12654]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12651]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12661]	NSW	In buffer area only
Unknown		
Commonwealth Land - [12659]	NSW	In feature area
Commonwealth Land - [12658]	NSW	In feature area
Commonwealth Land - [12664]	NSW	In feature area
Commonwealth Land - [12660]	NSW	In feature area
Commonwealth Land - [12655]	NSW	In buffer area only
Commonwealth Land - [12662]	NSW	In buffer area only
Commonwealth Land - [12653]	NSW	In feature area
Commonwealth Land - [12657]	NSW	In feature area
Commonwealth Land - [12656]	NSW	In buffer area only
Commonwealth Land - [12663]	NSW	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Symposiachrus trivirgatus as Monarcha trivirgatus			
Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area	In buffer area only
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Pokolbin	Flora Reserve	NSW	In buffer area only
Werakata	National Park	NSW	In buffer area only
Werakata	State Conservation Area	NSW	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Ellalong Lagoon	NSW	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Development of the Hunter Economic Zone Industrial Estate	2004/1417	Controlled Action	Post-Approval	In buffer area only
Hunter employment zone road construction	2002/782	Controlled Action	Post-Approval	In buffer area only
Hunter Employment Zone - Stage 1, Road and Rail access	2002/653	Controlled Action	Completed	In buffer area only
Not controlled action				
construction of 33kV substation and relocation of power line	2005/2395	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Hebburn No 2 Colliery	2001/301	Not Controlled Action	Completed	In feature area
Hunter Natural Gas Pipeline	2004/1902	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Proposed Road Centreline Clearing	2002/765	Not Controlled Action	Completed	In buffer area only
Revised alignment Hunter Natural Gas Pipeline	2005/2470	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2717	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Collection and reprocessing of carbonaceous materials	2005/2196	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Hunter	Northern Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Wollombi Road - Stage 1

Client Service ID : 801889

SLR Consulting

10 Kings Rd

Newcastle New South Wales 2292

Attention: Drew Williams

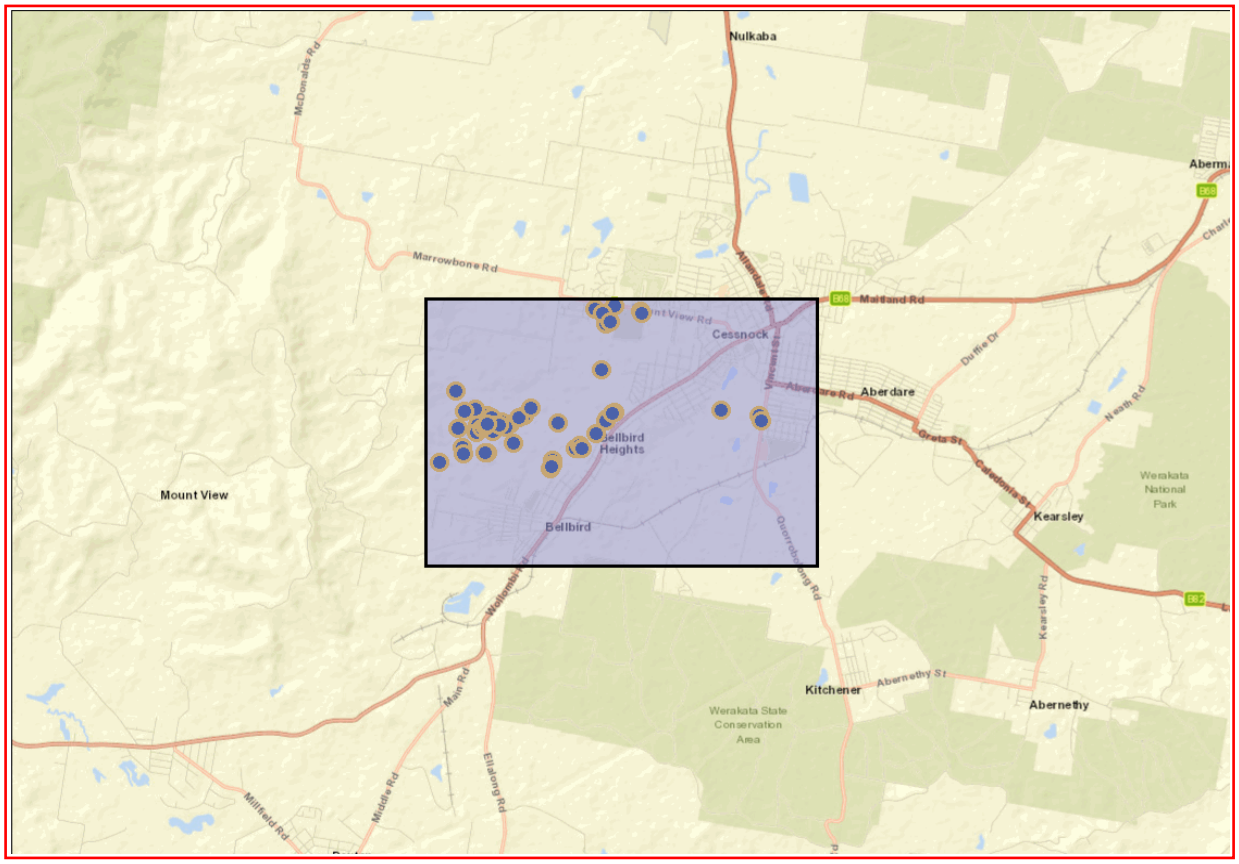
Email: dewilliams@slrconsulting.com

Date: 19 July 2023

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -32.8646, 151.3011 - Lat, Long To : -32.8285, 151.3629, conducted by Drew Williams on 19 July 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

59	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

Appendix B Activity Area Images

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

Photo 1 Wollombi Road looking northwest towards early works area

Photo 2 Looking towards the west at Lot 1 DP 327580 -Early works area

Photo 3 Looking towards the north-west at Lot 1 DP 327580

Photo 4 Roadside vegetation and adjacent residential properties near proposed intersection.

Photo 5 Wollombi Road looking north along Wollombi Road near proposed intersection.

Photo 6 – Sandstone kerb and guttering in front of Bellbird Hotel

Photo 7 Standstone kerb and cut-in cement driveway

Photo 8 – Bellbird Hotel

Photo 9 – Oneill's Wine Bar Building

Photo 10 – The Australia Hotel

Appendix C Consideration of Section 171 and MNES Matters

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

Consideration of Section 171 Factors

The following factors, listed in Section 171 of the *Environmental Planning and Assessment Regulation 2021*, are required to be considered to assess the likely impacts of the proposed activity on the natural and built environment.

Clause 171 Factors		Impact
(a)	*the environmental impact on a community,*	Minor construction noise, visual and access impacts. (Short term). No long term impacts.
(b)	*the transformation of a locality*	Neutral impact
(c)	*the environmental impact on the ecosystems of the locality,*	Neutral impact.
(d)	*the reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality,*	Neutral impact
(e)	*the effects on any locality, place or building that has—* *(i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or* *(ii) other special value for present or future generations,*	Neutral impact.
(f)	*the impact on the habitat of protected fauna, within the meaning of the Biodiversity Conservation Act 2016,* The proposed activity is unlikely to have a significant impact on any threatened species, populations, ecological communities or migratory species in the locality.	No significant impact identified within the meaning of the *Biodiversity Conservation Act 2016*.
(g)	*the endangering of any species of animal, plant or other form of life whether living on land, in water or in the air,*	Nil
(h)	*long term effects on the environment?*	Unlikely to be any long-term impacts. Short-term impacts will be reduced through appropriate mitigation and management.
(i)	*Any degradation of the quality of the environment?*	Degradation will be mitigated through appropriate management.
(j)	*risk to the safety of the environment,*	Risks will be managed through appropriate controls.
(k)	*reduction in the range of beneficial uses of the environment,*	No significant reduction identified
(l)	*pollution of the environment,*	Minor impacts from vehicle/equipment fuel pollution. These matters would be addressed through the CEMP.
(m)	*environmental problems associated with the disposal of waste,*	No waste disposal issues likely during construction or operation.
(n)	*increased demands on resources (natural or otherwise) that are or are likely to become in short supply,*	No impact identified
(o)	*the cumulative environmental effect with other existing or likely future activities,*	Long term positive impact
(p)	*the impact on coastal processes and coastal hazards, including those under projected climate change conditions*	Neutral impact

(q)	*applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1,*	Relevant plans and statements have been considered in the preparation of this REF and it is concluded that the activity is not inconsistent with the vision and planning priorities set out within each plan. Neutral impact.
(r)	*other relevant environmental factors.*	No other environmental factors are considered relevant.

Consideration of Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth), the following Matters of National Environmental Significance are required to be considered to assist in determining whether the proposed activity should be referred to the Australian Government Department of the Environment and Water Resources.

Factor	Impact
Any impact on a World Heritage property? There are no world heritage properties within the vicinity of the proposed activity.	Nil
Any impact on a National Heritage place? There are no National Heritage places within the vicinity of the proposed activity.	Nil
Any impact on a wetland of international importance? There are no RAMSAR listed wetlands located within 5km of the proposed activity.	Nil
Any impact on a listed threatened species or communities? Assessment of impacts against the Significant Impact Guidelines Commonwealth Department of the Environment (DotE) found that a referral is not recommended for any of the listed Matters of National Environmental Significance (MNES) species. .	No significant impact
Any impacts on listed migratory species? No threatened flora or fauna species were identified in the activity area.	No significant impact
Any impact on a Commonwealth marine area? No Commonwealth marine areas are located within 10km of the Proposed activity.	Nil
Any impact on the Great Barrier Reef Marine Park? The proposed activity will not have a significant adverse effect on the Great Barrier Reef Marine Park, as this area is not within the region.	Nil
Does the proposal involve a nuclear action (including uranium mining)? The proposed activity will not involve a nuclear action.	Nil
Water resource, in relation to coal seam gas development and large coal mining development. The proposed activity is not considered to significantly impact upon a water resource, and thus does not contribute to this MNES.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? Commonwealth Land is located to west of the activity area however due to the nature of the proposed activity its proximity and use will have no impact (direct or indirect) on the Commonwealth Land.	Nil

Appendix D Concept Plans

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

CESSNOCK
CITY COUNCIL

Cessnock LGA 2024

WOLLOMBI ROAD DESIGN OPTIONS REPORT

CESSNOCK CITY COUNCIL

SEGMENT 1

Segment 1 – Abbotsford/Cox to Lochinvar

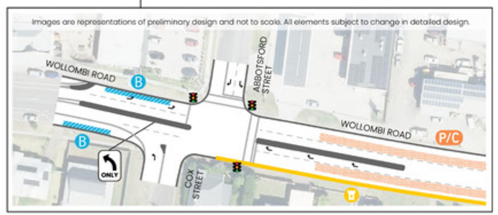
Overview

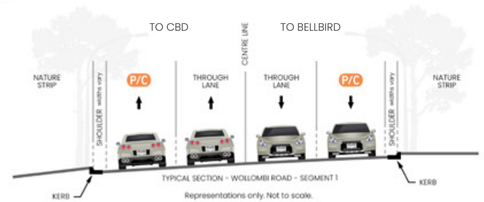
Segment 1 includes the first 1.2 km of Wollombi Road from the western end at Cox Street/ Abbotsford Street to the tie-in to Early Works at Lochinvar Street. The segment has similar road layout, poor existing kerb and gutter condition, and is mostly bounded by residential properties with a small number of businesses.

Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan





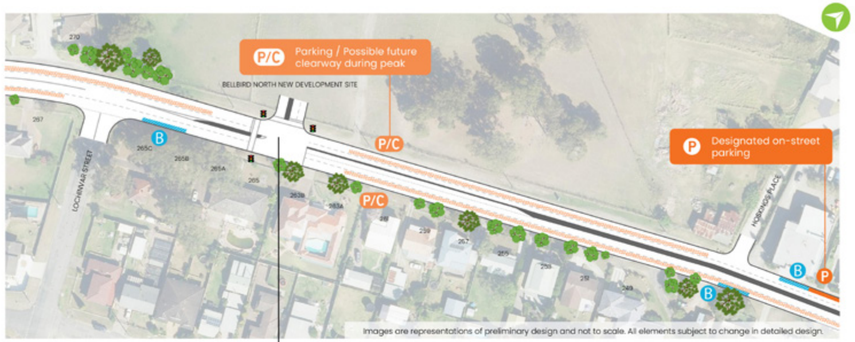
SEGMENT 2

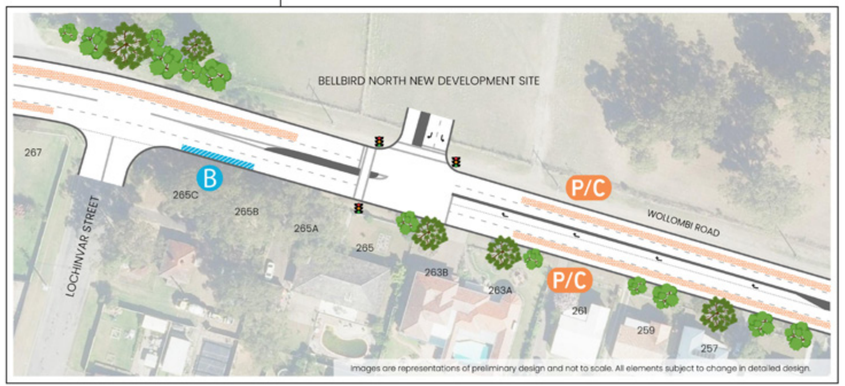
Segment 2 – Lochinvar to Hoskings (Early Works)

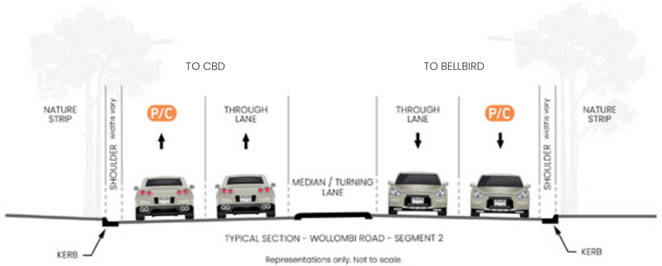
Overview

Segment 2 is a 300m section between Lochinvar Street and Hosking Place. Council has progressed this design as part of an early works package for the new access road into Bellbird North.

While an options analysis for this segment is not included in this document, the proposed design for this segment is included below.







Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan

SEGMENT 3

Segment 3 – Hoskings to Hickey

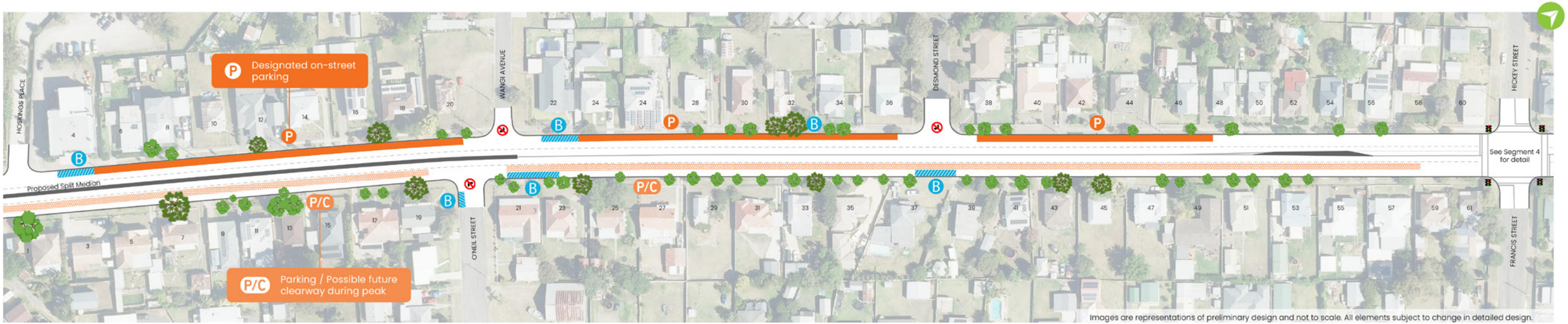
Overview

Segment 3 is 600m long from Hosking Place to Hickey Street/Francis Street.

Key plan.

Legend

- P/C Parking / Possible future clearway during peak
- B Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

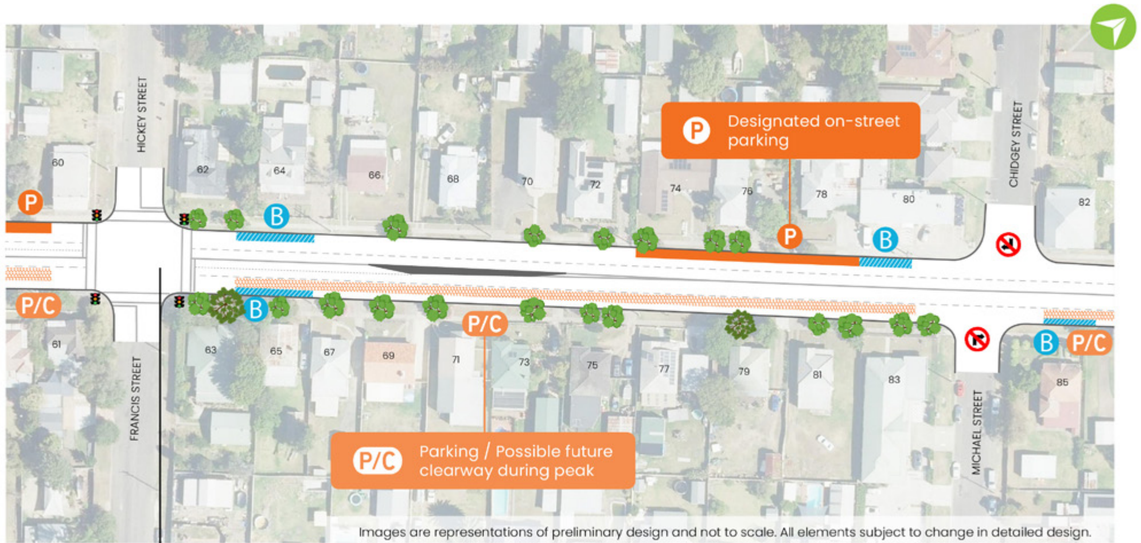


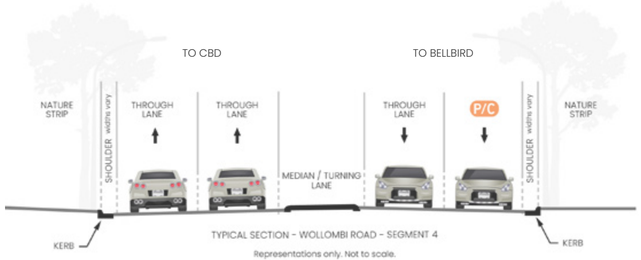
SEGMENT 4

Segment 4 – Hickey to Chidgey

Overview

Segment 4 is approximately 200 metres in length from Hickey Street/ Francis Street intersection up to Chidgey Street/Michael Street intersection.

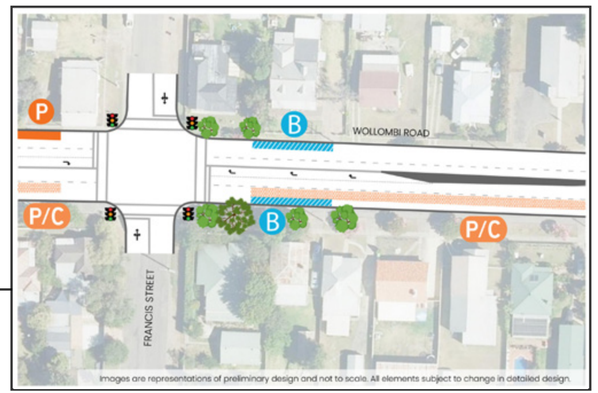




Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan

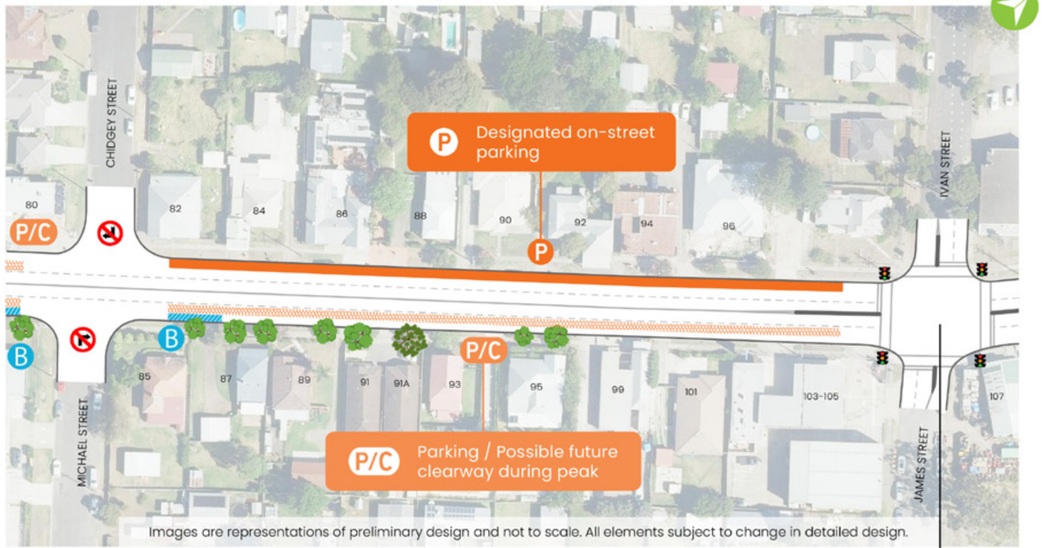


SEGMENT 5

Segment 5 – Chidgey to Ivan

Overview

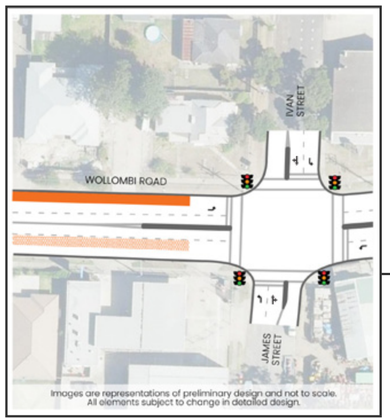
Segment 5 is 200 metres in length from Michael Street/Chidgey Street intersection to Ivan Street/James Street.



Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan

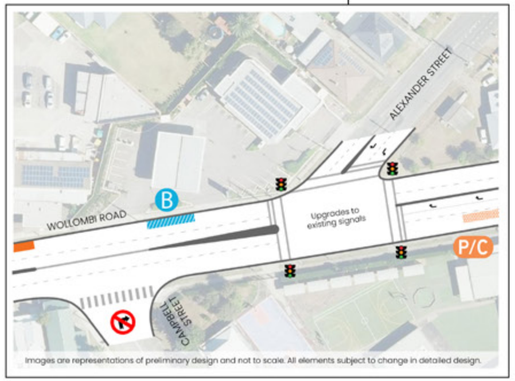


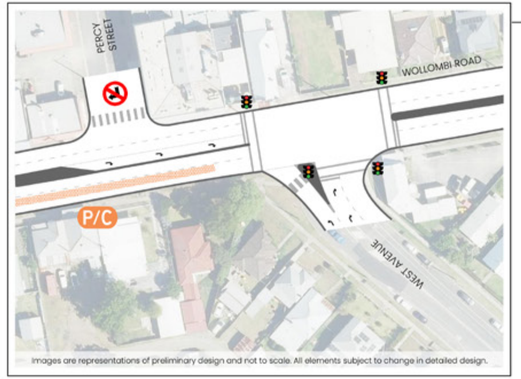
SEGMENT 6

Segment 6 – Ivan to West

Overview

Segment 6 is 500 metres in length the James Street/Ivan Street intersection up to the end of Stage 1 works at West Avenue.





Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan

SEGMENT 7

Segment 7 – West to Miller (STAGE 2)

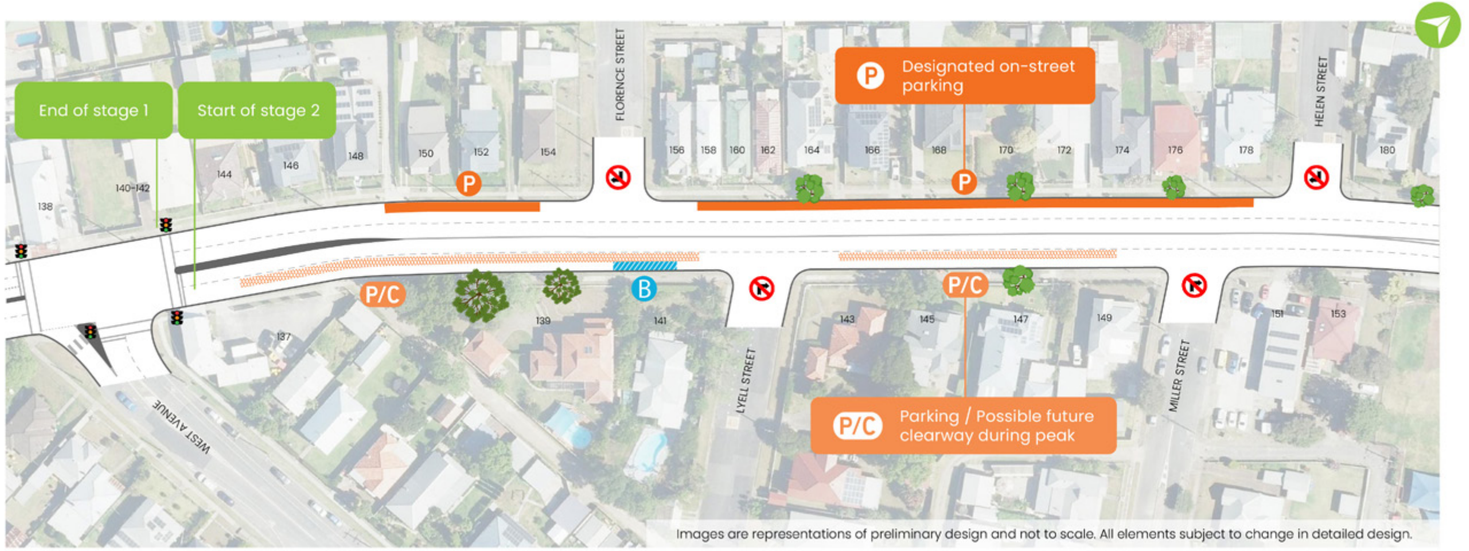
Overview

Segment 7 is 280 metres in length from the intersection at West Avenue up to Miller Street. This is the first segment in Stage 2 of the project.

Key plan

Legend

- P/C Parking / Possible future clearway during peak
- B Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

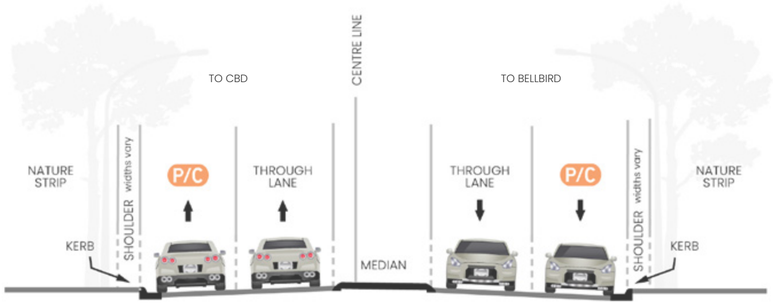


SEGMENT 8

Segment 8 – Miller to Allandale (STAGE 2)

Overview

Segment 8 is 640 metres in length from Miller Street up to end of Stage 2 works at Allandale Road.



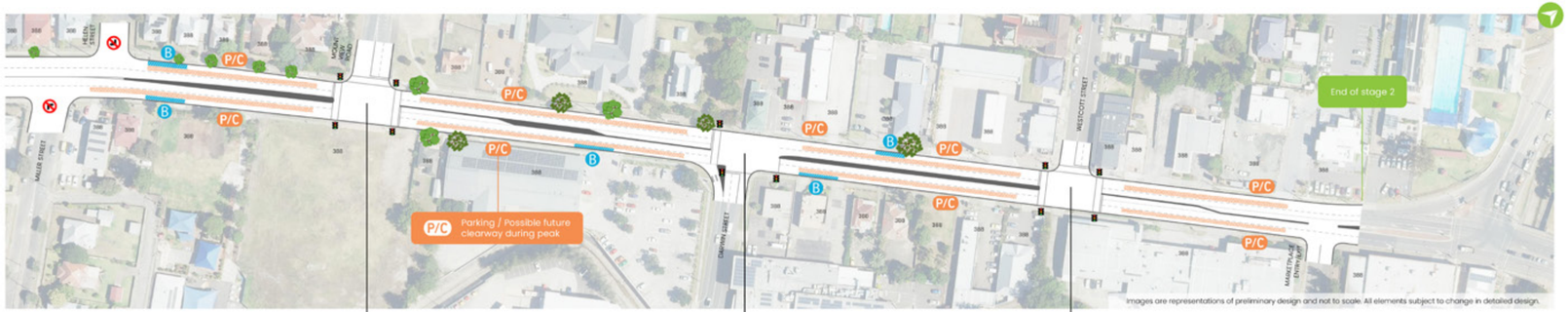
TYPICAL SECTION - WOLLOMBI ROAD - SEGMENT 8

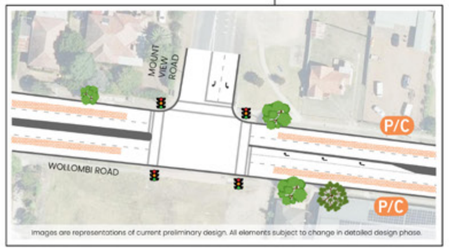
Representations only. Not to scale.

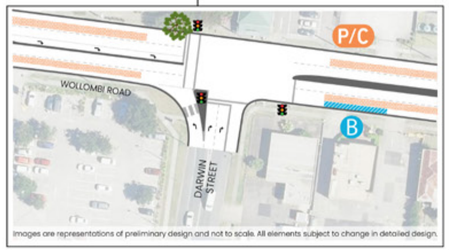
Key plan

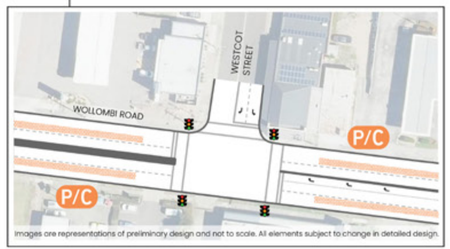
Legend

- P/C Parking / Possible future clearway during peak
- B Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights









Appendix E Aboriginal Due Diligence Assessment

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

VIRTUSHERITAGE

Wollombi Road Upgrade Project

Cessnock, NSW

Aboriginal Archaeological Due Diligence Assessment

FINAL • October 2023

Prepared for SLR Consulting Australia Pty Ltd on behalf of the City of Cessnock

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Version	Date	Prepared by	Approved by	Comments
1c	16.08.2023	Garth Thompson	Clare Anderson	Draft
V2	21.09.2023	Garth Thompson	Clare Anderson	Draft post client review
V2a	4.10.2023	Garth Thompson	Rob Dwyer (SLR)	Draft sent to Mindaribba LALC
FINAL	26.10.2023	Garth Thompson	Clare Anderson	Final delivered to SLR and the City of Cessnock

Disclaimer And Cultural Restrictions

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All queries related to the content, or to any use of this report must be addressed to the Director/Associate Director.

EXECUTIVE SUMMARY

Virtus Heritage was engaged by SLR Consulting Australia Pty Ltd (SLR) on behalf of Cessnock City Council to prepare an Aboriginal archaeological due diligence assessment for three stages of the Wollombi Road Upgrade Project. The project aims to increase the width of a 4km stretch of Wollombi Road from a two-lane road to a four-lane road, and upgrade surrounding infrastructure. The project area is located within the Cessnock Local Government Area (LGA), connecting the localities of Bellbird and Cessnock, and within the boundaries of Mindaribba Local Aboriginal Land Council (MLALC). The project is proposed to be undertaken in two stages – Stage 1 and Stage 2, with an Early Works component within the Stage 1 area..

Consultation for Cultural Inputs & Values

Consultation for this assessment was undertaken by Virtus Heritage with MLALC. Les Draper (MLALC) attended the site inspection to assist with identifying Aboriginal sites and objects and to provide cultural information about the project area.

A draft copy of this report was provided to MLALC for review and comment. No comments were received.

Understanding Landform Sensitivity

Vegetation has been cleared in the project area, with no mature native plants within the project area. The project area runs roughly parallel to Bellbird Creek and is within 200m of the creek for its entire length. Black Creek has been concreted where it bisects the project area close to the north-east edge. *The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) identifies land within 200m of water as having an increased likelihood for the potential for Aboriginal objects where land is not disturbed.

The project area is located is flat to gently inclined, well drained lands with shallow podzolic soils that have been heavily modified by previous land usage. Currently, the project area is dominated by Wollombi Road and is lined by residential and commercial buildings, with the exception of part 254 Wollombi Road. Proposed works in the Early Works phase in part 254 Wollombi Road would impact on a paddock that has been associated with a previous dairy, livestock grazing and rural infrastructure. The history of previous land use history within the project area meets the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) definition of 'disturbed land'.

Predicting Potential for Aboriginal Objects/Places

An extensive search of the AHIMS database found 89 AHIMS sites within the search area. No Aboriginal sites were registered within the project area. The registered AHIMS sites in close proximity to the project area contained stone artefacts and were identified along Bellbird and Black Creeks. A search of the AHIP public register identified a number of AHIPs immediately adjacent the project area however these AHIP and their supporting documentation were not available during this assessment.

After a review of previous archaeological assessment in the local area the following statements were made:

- Culturally modified trees are unlikely in the project area due to the history of past vegetation clearance.

- Grinding grooves, while possible due to the sandstone geology of Black Creek, are unlikely in the project area due to the modification and concreting of Black Creek.

- Stone artefacts of mudstone, silcrete and chert are the most likely Aboriginal object to occur within the project area and can occur in any landform.

- While the project area is within a sensitive landform identified by the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010), recent Cessnock archaeological models indicate that the sites are expected to be fewer and contain lower densities of stone artefacts as distance from water increases and where they are more than 50m from a watercourse (McCardle Heritage Pty Ltd 2021). The project area is more than 100m from a water course. Stone artefact sites, where they survive, are predicted to have a relatively spare distribution and density, and may represent evidence of localised, one-off behaviour.

- The project area has been extensively altered by post-European contact impacts, such as the development of Wollombi Road, the history of rural infrastructure and grazing in 254 Wollombi Road and the concreting of Black Creek. These impacts, in combination with the shallow soils, have been ongoing since the 1800s and have likely limited the potential for the survival of Aboriginal cultural heritage objects.

Site Inspection & Results

The site inspection was undertaken on 20 June 2023. Les Draper (MLALC), Garth Thompson (Graduate Archaeologist, Virtus Heritage), and Liam Clerke (Geomorphologist, Virtus Heritage) undertook pedestrian inspection of the project area.

No Aboriginal objects and places were identified within the project area during the inspection. The visual inspection confirmed that the entire length of the project area had extensive ground disturbance associated with the road, and the residential and commercial addresses that lined the road. The Early Works area (refer to Figure 1) displayed characteristics of disturbances unique to the rest of the project area including cattle grazing, installation of fencing, erosional and water drainage disturbances and the construction and deconstruction of a building.

Discussion on site between Mindaribba LALC and Virtus Heritage, when considering the disturbance, it was agreed that while the project area was within 200m of Bellbird and Black Creeks, the potential for unknown Aboriginal objects to be harmed was lowered due to the combination of shallow soils and the level of disturbances across all phases of the project area.

Due Diligence Process and Requirements

This report outlines the results of the Due Diligence Assessment generic process in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (2010).

Following the conditions of the Due Diligence Code, the desktop assessment and visual inspection found no known Aboriginal objects within the project area and concluded that there was a low probability to encounter unknown Aboriginal objects.

The following recommendations have been made based on the information provided on project impacts, consultation to date, relevant archaeological and environmental background research, and the results of the site inspection.

1. Unexpected Find Procedure

   It is recommended that an Unexpected Finds Procedure be implemented for the duration of the project. In the unlikely event that a suspected Aboriginal object/s is identified the procedure should include the following:

   - Works are to stop immediately.
   - The area of the suspected find/s is to be fenced off with an appropriate buffer and protected.
   - A qualified archaeologist and representative of MLALC are to be contacted to inspect the area and the nature of the find.
   - Representative of MLALC to determine the find's significance, in consultation with a qualified archaeologist or Heritage NSW, and the requirement for an Aboriginal Heritage

Impact Permit (AHIP).

- Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW on the appropriate management of the find.

2. Unexpected Human Remains Procedure

   It is recommended that an Unexpected Human Remains procedure be implemented for the duration of the project. In the unlikely event that suspected Human Remains are identified the procedure should include the following:

   - Works are to stop immediately.
   - The area of the suspected Human Remains find is to be secured and cordoned off.
   - NSW Police are to be notified. No further works can be undertaken until the NSW Police provide written advice.
   - If these remains are deemed to require archaeological investigation by the NSW Police or NSW Coroner, then:
     - Heritage NSW and the relevant Aboriginal parties must be notified.
     - a plan of management for any identified Aboriginal human remains must be put in place or conducted under an AHIP methodology developed in consultation with all relevant Aboriginal parties and the Heritage NSW.
   - Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW.

3. Induction

   It is recommended that all site workers and personnel involved in site impact works should be inducted and briefed on the possible identification of Aboriginal sites and objects during all phases of this project and their responsibilities according to the provisions of the NPW Act 1974 and NPW Regulation 2019 in the unlikely event that unknown objects or items are uncovered during proposed works.

   This induction package should be developed in consultation with MLALC, prior to works proceeding. The induction must include:

   - The contact phone numbers of the Heritage NSW regional archaeologist, EnviroLine 131 555, and MLALC.
   - The relevant contact phone number project supervisor responsible for this project in case unknown objects or items are uncovered during the project.
   - The penalties for moving Aboriginal objects need to be made clear and given due consideration.
   - An outline types of unexpected heritage objects, items & relics, and their legal protection
   - The Unexpected Finds and Human Remains Procedures, as outlined in Recommendation 1 and 2.

4. Comment by Mindaribba LALC

   A draft copy of the report has been made available to MLALC for comment and review. Any additional comments by MLALC will be considered where possible by SLR and the City of Cessnock.

CONTENTS

APPENDICES

FIGURES

TABLES

DEFINITIONS

AHD	Australian Heritage Database
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
Code of Practice	*Code of Practice for Archaeological Investigation of Aboriginal Objects* (NSW)
DPC	Department of Premier and Cabinet
EP&A Act	*Environmental Planning and Assessment Act 1979*
LEP	Local Environment Plan
LGA	Local Government Area
NNTT	National Native Title Tribunal
NPW Act	*National Parks and Wildlife Act 1974*
NTA	*Native Title Act 1993*
PAD	Potential Archaeological Deposit
SHI	State Heritage Inventory

GLOSSARY

Aboriginal object - A term used in the NPW Act legislation, meaning: '… any deposit, object, or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains' (s.5 NPW Act).

Registered Aboriginal party – An individual or party who registers for Aboriginal consultation as part of the consultation and notification process following Aboriginal cultural heritage consultation requirements for proponents 2010 (NSW DECCW 2010b).

AHIP – An Aboriginal Heritage Impact Permit which is a document provided by Heritage NSW which provides a defence to the applicant to certain activities which constitute 'harm' to Aboriginal objects or Aboriginal places under Part 6 of the NPW Act. A proponent must prepare an application for an AHIP and other relevant documentation (including an ACHA) to obtain an AHIP from Heritage NSW in the Department of Premier and Cabinet.

Declared Aboriginal place - A term used in the NPW Act legislation, meaning any place declared to be an Aboriginal place (under s.84 of the NPW Act) by the Minister administering the NPW Act, by order published in the NSW Government Gazette, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture. It may or may not contain Aboriginal objects.

Due Diligence assessment – Due diligence is taking reasonable and practical steps to determine whether a person's actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm. A due diligence assessment will assess the potential for harm and provide recommendations to mitigate harm, generally in the form of an Aboriginal Cultural Heritage Assessment (ACHA), if Aboriginal objects or places are likely to be harmed by proposed works.

Harm - A term used in the NPW Act Amendments meaning '… any act or omission that destroys, defaces, damages an object or place or, in relation to an object – moves the object from the land on **which it had been situated' (s.5 NPW Act).**

Project area - Area proposed to be impacted as part of a specified activity or development proposal. These activities include indirect impact.

Place - An area of cultural value to Aboriginal people in the area (whether or not it is an Aboriginal place declared under s.84 of the Act).

Proponent - A person proposing an activity that may harm Aboriginal objects or declared Aboriginal places and who may apply for an AHIP under the NPW Act.

1. INTRODUCTION

Virtus Heritage was engaged by SLR Consulting Australia Pty Ltd (SLR) to prepare an Aboriginal archaeological due diligence assessment for the Wollombi Road Upgrade Project (the project). The project has been split into three stages of works, the Early Works Stage, Stage 1, and Stage 2. This assessment is addressing all three stages of works for the project. The project area is a 4km stretch of Wollombi Road between Abbotsford Street and Vincent Street located within the City of Cessnock Local Government Area (LGA), and within the boundaries of the Mindaribba LALC (MLALC) (**Figure 1**).

1.1 Report Requirements to the Code of Practice and Limitations

This report was compiled with reference to the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (NSW) (Due Diligence Code). The aim of this report is to advise on the archaeological (scientific) potential of the project area in order to assist the proponent in exercising due diligence in determining if their actions will harm Aboriginal objects.

This report follows the below steps, in line with the Due Diligence Code:

- identify whether or not Aboriginal objects are, or are likely to be, present in the area.
- if objects are present or likely to be present, determine whether the proposed development activities are likely to harm Aboriginal objects.
- determine whether further assessment or an Aboriginal Heritage Impact Permit (AHIP) is required.

Table 1. Code of Practice Requirements.

Due Diligence CoP Process	Section of Report
Step 1: Will the activity disturb the ground surface?	Refer to **Section 1.2**, project descriptions to be provided by SLR.
Step 2a: AHIMS Search Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?	Refer to **Section 4.1.1**, data provided by databases is assumed as accurate.
Step 2b: Are there any other sources of information of which a person is already aware? e.g., this may include other searches, knowledge from landholders, Aboriginal community, oral history, history or some other resource or knowledge holder.	Refer to **Section 4**.
Step 2c: Are there landscape features that are likely to indicate presence of Aboriginal objects? • within 200m of waters, or • located within a sand dune system, or • located on a ridge top, ridge line or headland, or • located within 200m below or above a cliff face, or • within 20m of or in a cave, rock shelter, or a cave mouth, or • is one land that is not disturbed land.	Yes, refer to **Section 3**, and **Section 4.3**.
Step 3. Can you avoid harm to the object or disturbance of the landscape feature?	Yes, refer to **Section 6** for further information

Due Diligence CoP Process	Section of Report
Step 4: Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?	No, refer to **Section 6** for further information.

This report is limited to the assessment of project impacts (described in **Section 1.2** below) within the mapped project area. The site inspection undertaken was confined to areas of proposed works provided by SLR and illustrated in **Figure 1**. The areas of the project area that were accessible had limited ground surface visibility.

The assessment undertaken by Virtus Heritage provides the archaeological (scientific) potential of the project area, and the management strategies related to these. The cultural (social) and spiritual values can only be commented on by the Aboriginal community representatives for any project.

Virtus Heritage takes no responsibility for errors within Heritage NSW's Aboriginal Heritage Information Management Systems (AHIMS) data, and the Heritage NSW listings and has assumed information provided by Heritage NSW is accurate. Reports associated with AHIPs on the AHIP public register were not available in AHIMS at the time of this assessment.

1.2 Project Description

Cessnock City Council are investigating the upgrade of Wollombi Road to ease traffic congestion throughout the project area. The project is split into three stages, namely the Early Works Stage, the Stage 1 Area and the Stage 2 Area. The design of Stage 2 is yet to be finalised; however, the impacts and general works are understood to be identical to Stage 1's, with the same maximum termination of impacts. The project impacts of the stages and works at the time of reporting are:

- Removal / relocation or protection of existing utilities within the project area;
- Installation of erosion and sediment controls;
- Topsoil stripping;
- Establishment of a hardstand, compound, laydown/stockpile, and safe park area.
- Instillation of temporary security and pedestrian fencing;
- Vegetation clearing of exotic trees within the road reserve;
- Removal and demolition of existing pavements, kerbs and gutters where required.
- Excavation of existing road surface and road base;
- Minor embankment cuttings where required;
- Installation of new drainage pipes and pits;
- Utility works where necessary;
- Construction of pavement layers including fill materials, road bases and asphalt;
- Construction of kerb and guttering on southeastern side of the road reserve;
- Implementation of major and minor sign structures, traffic lights and street lighting;
- Relocation of bus stop signs and furniture;
- Construction of a shared pathway;
- Construction of tie-ins to existing pavement at the extents of the activity area;
- Installation of road furniture where required (i.e., lighting, safety barriers and guideposts).
- Landscaping works.

1.3 Project Team and Qualifications

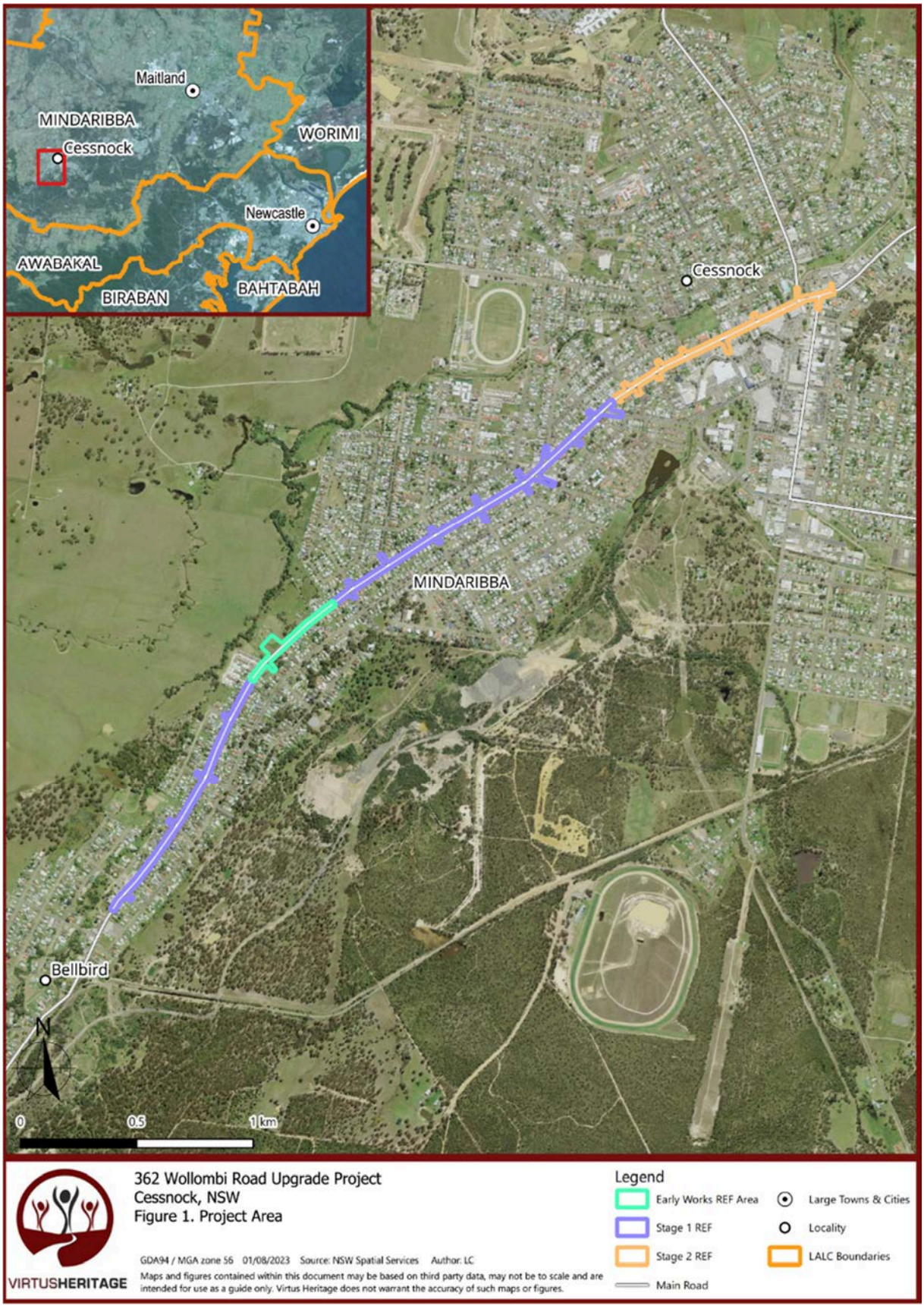
This project was directed by Senior Archaeologist, Martin Wright (B. Arts Archaeology, Hons, University of Sydney). This report was compiled by Graduate Archaeologist, Garth Thompson (B. Arts Archaeology, University of Sydney). Quality review was undertaken by Principal Archaeologist, Clare Anderson (B. Arts Prehistoric and Historical Archaeology, Hons, University of Sydney). The site inspection was conducted by Garth Thompson, with assistance from Liam Clerke (Geomorphologist). GIS Mapping was also prepared by Liam Clerke. Project information and description of works was provided by Rob Dwyer from SLR.

1.4 Acknowledgements

We would like to acknowledge the assistance of the following individuals for the completion of this report:

- Les Draper (Mindaribba LALC).
- Tara Dever (Chief Executive Officer, Mindaribba LALC).
- Robert Dwyer (Technical Director – Environmental Assessment & Management, SLR).

Figure 1. Project Area and Locality.



2. CONSULTATION FOR CULTURAL INPUT & VALUES

Aboriginal people are the primary determinants of their culture and heritage, and cultural values can only be assessed and advised by the relevant Aboriginal parties for the locality. It should be noted that Aboriginal heritage refers both to Aboriginal archaeological sites and sites/places of cultural value to Aboriginal people, protected under the NPW Act as "Aboriginal Objects" and "Aboriginal Places". Sites and places of Aboriginal cultural significance can only be identified by the relevant local Aboriginal people and are likely in many cases (for example, song lines and story places) do not contain any archaeological evidence.

This assessment was conducted by archaeologists providing advice on the archaeological (scientific) values of the project area. The cultural values of the project area were considered by MLALC.

A summary of the consultation undertaken for this assessment is provided in **Table 2.**

A draft copy of this report has been provided to MLALC for review and comment. No comments were received.

Table 2. Summary of Consultation.

Date	Comment	Method (Email, Phone)	Consultant Response
20.07.2023	Virtus Heritage contacted MLALC to arrange MLALC representatives to attend the site inspection. MLALC offered appropriate dates for sites officer(s).	Phone/email	Virtus Heritage followed up with client to organise site inspection
24.07.2023	Virtus Heritage contacted MLALC confirming the date of site inspection.	Email	MLALC gave details for sites officer attending inspection.
25.07.2023	Site inspection took place with MLALC sites officer Les Draper.	In person	Virtus Heritage reiterated that a draft version of this report would be given to MLALC with a review period.
4.10.2023	Virtus Heritage provided the draft Due Diligence assessment for MLALC's review and comment.	Email	No response

3. UNDERSTANDING LANDFORM SENSITIVITY

This section of the report details the existing geology, soils and topography, climate, fauna and flora, previous land use history and other environment factors to provide an environmental context to understanding the potential for Aboriginal occupation and evidence of material culture surviving within the project impact areas.

The environmental context assessment is based on a number of classifications that have been made at the national and regional level for Australia. This report refers to the Soil Landscapes of Central and Eastern NSW (2020 classification, which provides soil landscape profiles, geomorphic and vegetation data for NSW. Area refers to the inspected Areas as demonstrated in **Section 5**.

Table 3. Predicting Potential for Aboriginal Objects/Places.

Area	Topography	Geology	Soils	Hydrology	Vegetation	Relevance to Aboriginal heritage potential
Stage 1 Works Area and Early Works Areas	The project area is located on creek flats and undulating rises to low hills. The well drained lands have been continually modified post European contact. All work areas present the same topography and follow Wollombi Road for 4km between Bellbird and Cessnock.	The area is located within a Braxton Formation which includes sandstone, conglomerate, siltstone, and limited tuff. Sandstone is a common material for grinding grooves when located along natural waterways. Tuff is a notable material in the Newcastle area for its use in stone tool manufacture.	The soils of the eastern section of the project area are yellow podzolic soils. These soils are brown sandy loams with a weak structure to a depth of 20cm, with a sharp change to bright brown light medium clays after.	Bellbird Creek runs roughly parallel to the project area, being as close as 80m north of the project area in the western border. 12 of the AHIMS registered sites near the project area are in close proximity to, or directly related to Bellbird Creek.	The native vegetation within the project area has been extensively cleared (refer to **Figure 2 and 3**). The vegetation present was noted during the site inspection as being mostly non-native (**Section 5**).	All areas within the project area are relatively flat to gently inclined. No outcrops were visible. The project area is within 200m of water, which is considered a sensitive landform under the Due Diligence Code. Land which if undisturbed according to the definition of the Due Diligence Code would be classified as archaeologically sensitive and having archaeological potential. However past land use and disturbance, in combination with the shallow soils with weak structure, would have impacted the survivability of Aboriginal cultural heritage materials in-situ.
Stage 2 Works Area			The soils of the western section of the project area are identified as yellow (orange) podzolic soils. These soils are a very dark brown to yellowish brown loamy sand to a depth of 35cm. After 35cm a sharp change to bright reddish brown or yellowish-brown light medium to heavy clays with a red mottling increasing with depth.	Black Creek bisects the Stage 2 Works Area approximately 100m from the area's north-east extent. Black Creek originates at the Hunter River approximately 24km north, bringing water to Cessnock, and on to Kitchner Dam south of Cessnock. It should be noted that the sections of Black Creek that bisect the project area have been paved, considerably impacting their archaeological potential.		

3.1 Previous Land Use History

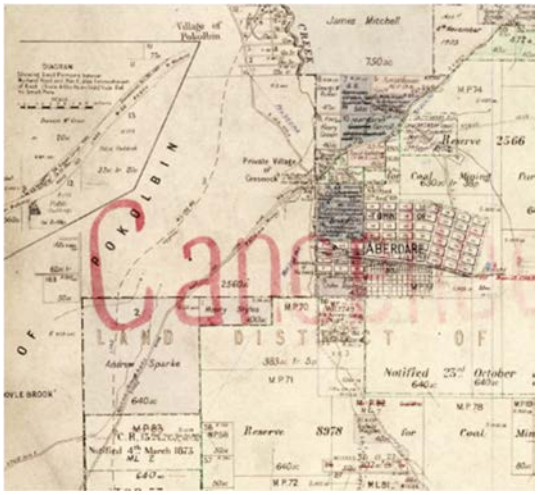
Understanding previous land use history is critical to understanding if the sensitivity of a landform, soils, geology, and hydrology for material evidence of Aboriginal occupation may be compromised or still extant over the passage of time.

The project area is a section of Wollombi Road that connects the city of Cessnock to the town and locality of Bellbird. Wollombi Road was a part of the Great North Road construction and was finished in 1836 (Cessnock City Library 2023). Cessnock was recorded as a hamlet with between seven and eleven adults in 1858. The discovery of significant coal deposits within the Hunter Valley in the late 19th century would encourage rapid land settlement within the Cessnock LGA, particularly from the 1910s onwards (Umwelt 2011). This development would also accelerate impacts to in-situ Aboriginal cultural heritage materials.

Historical parish maps and aerial images show the project area as having undergone extensive disturbances relating to the road construction, and the construction of the buildings that line Wollombi Road along the project area from the early 20th century onwards (Figure 2 and 3). Whilst the township of Cessnock appears to have been established by the time of the 1903 parish mapping, expansion down to Bellbird would start between 1937 and 1945 (Figure 2). From this period, further construction and disturbance would accelerate along the project.

These disturbances will have severely impacted any Aboriginal objects along Wollombi Road and removed the original soil profiles to the depth of any construction or maintenance work within the project area. The entire project area appears to have been subject to intense vegetation clearing and management, with vegetation being introduced with the patterning of the road and residential buildings. This impacts the potential for scarred or carved trees in the project area. Notably, the section of the early works phase that is the proposed location of a new intersection is a section of the early works phase that has remained largely unimpacted by the road and buildings. This area may have lessened disturbances in its land use history, which is discussed in Section 5.

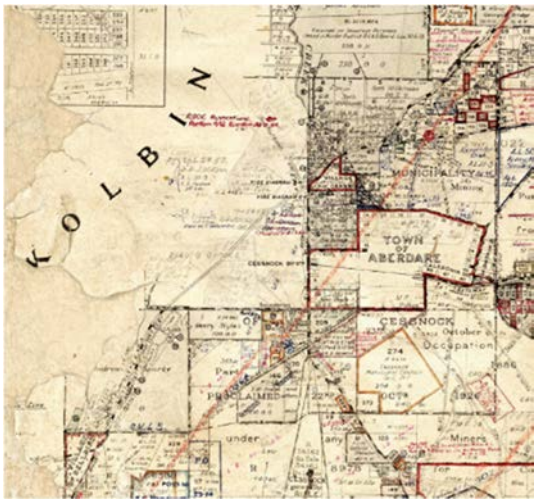
Figure 2 Historical Parish Maps



1903 Cessnock Parish Map

1923 Cessnock Parish Map

1937 Cessnock Parish Map



1945 Cessnock Parish Map

Figure 3 Historical Aerial Images.

1963 Historical Aerial.

1971 Historical Aerial.

1976 Historical Aerial.

1998 Historical Aerial.

4. PREDICTING POTENTIAL FOR ABORIGINAL OBJECTS/PLACES

The archaeological context draws on existing heritage registers and database searches, previous archaeological research, and discussions of archaeological potential to understand and predict the potential for evidence of Aboriginal occupation in the project impact areas.

4.1 Heritage Register and Database Searches

This section of the report provides a summary of the results of relevant statutory heritage register searches were undertaken as part of this Due Diligence assessment.

The following registers were searched on 27 July 2023:

- **National Native Title Tribunal**: the search found no Native Title Claims located the project area.
- **Indigenous Land Use Agreements (ILUAs):** the search found no ILUAs in the project area.
- **Aboriginal Heritage Impact Permit List**: The following AHIPs for the suburb of Cessnock and Bellbird are listed on the 2010-2021 or 2021-2023 AHIP Public Register:

Table 4:AHIPs within the vicinity of the project

AHIP number	Date issue	Project name	Applicant	Area of relevance with project area	Schedules
1121911	22/12/2010	Stages 2-7 of the redevelopment of the Oaks Country and Golf Club into an 'integrated residential golf course'	County Property Group Pty Ltd	N/A	Community collection. Harm to certain Aboriginal objects through proposed works. Certain Aboriginal objects must not be harmed
1130865	1/09/2011	Cessnock Water Supply Upgrade Project, Stage 1(b), Mount View Road pumping station	Hunter Water Corporation	Mount View Road, Cessnock	Salvage excavations Community collection Harm to certain Aboriginal objects through proposed works
4802	27/07/21	Bellbird North Precinct 1 (East)	Johnson Property Group	Abbotsford Street, Bellbird	Salvage excavations, Community collection, Harm to certain Aboriginal objects through the proposed works
4895	3/02/22	Bellbird North Precinct 2 (West) Tennant Street Bellbird NSW 2325 -Staged Residential Subdivision - New Application	Johnson Property Group	Abbotford Street, Bellbird	Salvage excavations, Community collection, Harm to certain Aboriginal objects through the proposed works
4896	3/02/22	Bellbird North Precinct 3	Johnson Property	Abbotsford Street,	Salvage excavations, Community collection,

AHIP number	Date issue	Project name	Applicant	Area of relevance with project area	Schedules
		(Central) - Tennant & Abbotsford Street and 52 Christy Street Bellbird - Staged Residential Subdivision	Group	Bellbird	Harm to certain Aboriginal objects through the proposed works
4997	19/08/22	Bellbird Water & Sewer Infrastructure	WST Mount View Grange Developments Pty Ltd	268 Wollombi Road	Harm to certain Aboriginal objects through the proposed works
5069	14/02/23	Farley West Residential Subdivision	Behvil Pty Ltd	292 Wollombi Road	Certain Aboriginal objects must not be harmed, Community collection, Harm to certain Aboriginal objects through the proposed works

A review of AHIPs in proximity to the project area and their expiry dates (for example 4997, 5069) should be undertaken to ensure that no management constraints are present for the project area.

- **World Heritage List**: the search found no heritage items located within or within close proximity to the project area.
- **National Heritage List**: the search found no heritage items located within or within close proximity to the project area.
- **Commonwealth Heritage list**: the search found no heritage items located within or within close proximity to the project area.
- **Register of the National Estate**: the search found no heritage items located within or within close proximity to the project area.
- **Cessnock Local Environmental Plan (LEP) (2011)**: the search found the following 11 heritage items located within, or directly adjacent to the project area.
    - Bellbird Mines Disaster Memorial - Wollombi Road (corner Kendal Street) Bellbird
    - Bellbird Hotel - 388 Wollombi Road, Bellbird
    - Uniting Church in Australia Bellbird Church - 478 Wollombi Road Bellbird
    - O'Neill's Wine Bar (former) - 4 Wollombi Road, Cessnock
    - Cessnock West Public School–functional style classroom building and functional style classroom building with gable roof and boxed eaves - 113 Wollombi Road, Cessnock
    - Australia Hotel - 136 Wollombi Road, Cessnock
    - "Marthaville" - 200 Wollombi Road, Cessnock
    - Cessnock Hotel - 234 Wollombi Road, Cessnock
    - Cessnock Courthouse and Police Station - 223–227 Maitland Road, Cessnock

- Cessnock Swimming Pavilion - 1A Allandale Road, Cessnock
- School of Arts - 6 Vincent Street, Cessnock
- Soldier's Memorial Hall - 14 Vincent Street, Cessnock
- Hunter District Water Board - 16 Vincent Street, Cessnock
- Kearsley Chambers - 8 Vincent Street, Cessnock

4.1.1 Aboriginal Heritage Information Management System (AHIMS)

The AHIMS is a database of registered Aboriginal sites within NSW, administered by the Department of Planning and Environment (DPE). The limitation of the AHIMS cultural heritage database is that it contains information that has been registered, and that it doesn't contain all Aboriginal cultural sites. The results of the AHIMS database can reflect patterns of development and assessment rather than necessarily providing a true picture of past Aboriginal land use. The AHIMS database is being continually updated as sites are identified.

The AHIMS search was completed on 26 May 2023 for the following search area:

- Datum: GDA, Zone: 56
- Eastings: 249379.0 – 259379.0
- Northings: 6770884.0 – 6780884.0

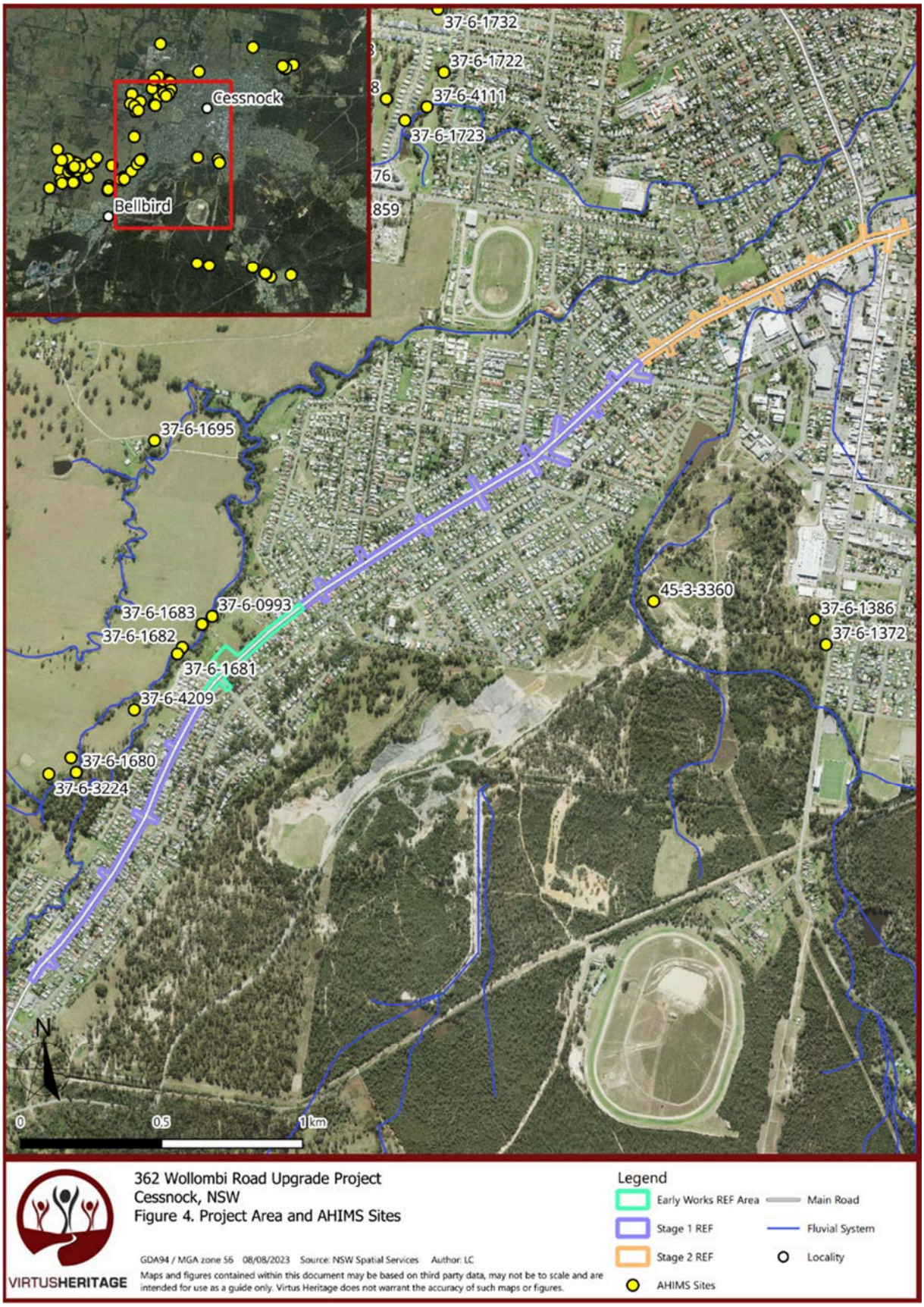
The search returned the following results:

Table 5: AHIMS Search Results

Site Type	Frequency	Percentage
Artefact	81	91%
Potential Archaeological Deposit (PAD)	2	2%
PAD with artefact	4	5%
Modified Tree	2	2%
Total	89	100%

Of these results, four sites were in close proximity (less than 200m) to the project area. These sites are discussed in Section 4.2.1

Figure 4 Project Area and AHIMS Sites



4.1.2 Other Database Searches

The following heritage registers and database searches were undertaken as part of this preliminary assessment (refer to **Table 6).** No Aboriginal history or values were noted in the heritage items within the project area. Heritage values for these items were assessed in a separate Heritage Assessment conducted by Virtus Heritage for this project.

Table 6: Heritage Database/Registers Search Results.

Heritage Database	About the Database	Search Area (LGA) and Search Date	Search Results
Australian Heritage Database	The Australian Heritage Database (AHD) is a Commonwealth administered heritage database that includes entries from the former Register for the National Estate and the current Commonwealth and National Heritage Lists.	This database was searched on the 27 July 2023 for all Indigenous heritage items within the Cessnock LGA.	The search found 2 places located within the Cessnock LGA. No places were located in or near the project area.
State Heritage Inventory and State Heritage Register	The State Heritage Inventory (SHI) is a heritage database administered by the Heritage NSW (Department of Planning and Environment). This database includes heritage listings from local and regional planning instruments and heritage studies and State significant heritage items. Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. Search results are divided into three sections.	A search of the AHI was conducted on27 July for all heritage items within the Cessnock LGA.	The results were as follows:
	Section 1 – Aboriginal Places – declared by the Minister for the Environment under the National Parks and Wildlife Act. This information is provided by Heritage NSW.		Section 1 – 1 Aboriginal place was listed within Cessnock LGA, but none were found within the project area.
	Section 2 – State Heritage Register items – listed by the Heritage Council of NSW under the Heritage Act and includes items listed in Interim Heritage Orders. This information is provided by Heritage NSW.		Section 2 – 5 items listed under the Heritage Act are located within the Cessnock LGA, but none were within the project area
	Section 3 – Heritage items listed by local councils on Local Environmental Plans under the Environmental Planning and Assessment Act, and State		Section 3 – 241 items were listed within the Local Environment Plan, with 8 found to be within the project

Heritage Database	About the Database	Search Area (LGA) and Search Date	Search Results
	government agencies under s.170 of the Heritage Act. This information is provided by local councils and State government agencies.		area. (See Section 4.1)
Cessnock LGA Local Environmental Plan 2011 (LEP)	Cessnock Council utilises different Local Environmental Plans to regulate land use and development within the Cessnock LGA. The Local Environmental Plans are planning instruments which contain provisions and listings of items of environmental heritage including heritage, conservation areas and archaeological sites within Schedule 5.	The LEP for Cessnock LGA was searched on 27 July 2023.	The Cessnock LEP 2011 lists 217 Heritage items within the Cessnock LGA. 1 of the sites are located within or adjacent to the Project Area: • Bellbird Hotel

4.2 Previous Archaeological Research

A review of the Heritage NSW AHIMS library and online searches were undertaken to obtain copies of previous Aboriginal heritage studies and archaeological investigations within the locality of the project area. This section outlines the studies in the locality that can assist in understanding the potential archaeology of the region by building up a picture. This in turn can help predict the types of sites that may be expected to be present within the project area and will assist in building a predictive model for Aboriginal sites.

4.2.1 AHIMS Sites in Close Proximity to the project Area

A search of the AHIMS library returned five sites within 200m project area. The site details are summarised in Table 7. These sites were identified with 50m of Bellbird Creek and represent low density stone artefact scatters.

Table 7: AHIMS sites in proximity to the project area

Site (AHIMS Number)	Site Type	Status	Site Details	Within the Project Area?
37-6-1681	Open artefact scatter	Destroyed	Mudstone core and red silcrete debitage. Subsurface potential recorded as low due to heavy erosion in surrounding area.	No
37-6-1682	Isolated artefact	Valid	Single red silcrete flake. No measurements recorded. Cattle disturbances recorded in area impacting site composure.	No
37-6-1683	Open artefact scatter	Valid	Four silcrete flakes, 1 banded yellow and brown tertiary flake, 1 creamy red chert flake, 1 pale grey/yellow silcrete core. Artefacts eroding out of Bellbird creek terrace.	No
37-6-4209	Open artefact scatter	Valid, AHIP 4997	Seven flakes recorded at the confluence of Bellbird Creek and an unnamed creek. Artefacts likely mudstone or red silcrete. Site noted as disturbed. An archaeological excavation undertaken at this site identified the presence of Aboriginal objects in Spit 1 and 2 (10cm depth). The excavation report for this project was not available at the time of this assessment.	No
37-6-0993	Open artefact scatter	Valid, AHIP 1392,1976	Described as an isolated stone artefact	No

4.2.2 Significant Regional & Local Studies & Aboriginal Cultural Heritage Management Plans

Cessnock, like much of the Hunter Valley, has been the subject of many archaeological investigations. Due to the volume of materials available in the area, the materials closest relating to the project area

were reviewed to understand the most likely site types to be found during the site visit.

Archaeological assessments and archaeological test excavations between 200 and 500m west of the project area completed surveys of approximately 100ha and identified three Aboriginal heritage sites including two artefact sites and one PAD (AHIMS ID#45-3-3360, 37-6-1386, 37-6-1372) (ERM 2001, McCardle Cultural Heritage Pty Ltd 2004, 2005, 2010, Insite Heritage 2009). These assessments demonstrated the infrequent presence of isolated finds and low-density stone artefact scatters in proximity to the project area.

An Aboriginal Heritage Assessment was undertaken for a proposed development at 270 Wollombi Road, Bellbird, immediately adjacent the project area. No AHIMS sites were registered in association with this assessment, however Bellbird Water & Sewer Infrastructure has an AHIP on the public register for the Mount View Grange Developments Pty Ltd at 268 Wollombi Road, Bellbird, associated with AHIMS ID#37-6-0993. This site is located with 50m of Bellbird Creek.

Umwelt Environmental Consultants (2011) undertook an Aboriginal cultural heritage and archaeological assessment relating to proposed modifications of the nearby Austar Coal Mine. This included the south-west section of the project area, and part of Bellbird Creek. The predictive model provided in the report denotes artefact scatters as being dominant site types and able to be found in all landform contexts, scarred trees being recorded in all contexts retaining mature, native vegetation, PADs being most likely in elevated areas associated with more reliable water sources, and grinding grooves being found in sandstone geological areas. Umwelt's site inspection covered all lands accessible within their project area, and found four isolated artefacts, four artefact scatters, four PADs, and one potential scarred tree.

Excavations on the lower hill slopes near 3rd and 4th order streams of Black Creek at Mount View Road in Cessnock by ERM (2003) and Stedinger Associates (2004, 2005), approximately 1 km to the north of the project area, were undertaken for a residential development. The project included subsurface testing (grader scrape monitoring) in 2004, and open area excavation in 2005 of Mount View 8, a site identified by the 2004 testing program. 270 test pits contained artefacts and a total of 3777 artefactual pieces were recovered. Of the recovered artefacts, 3302 were flakes, 265 were retouched flakes, 92 were cores, and 118 were flaked pieces. Raw materials utilised included silcrete (3152), fine grained siliceous (468), chert (66), volcanic (41), quartzite (25), quartz (19), petrified wood (5), and unidentifiable (1). In addition, three hammerstones were collected, being unflaked water worn pebbles with evidence of pitting or crushing (Stedinger Associates 2005:92). These assessments are relevant to the project area as they demonstrate that though the surface visibility may be low, Aboriginal objects may be present in relatively undisturbed soils in association with Black Creek in the vicinity of Mount View Road.

A revised archaeological model for the Cessnock area was developed by McCardle (2021). This model stated that:

- a wide variety of site types are represented in the Cessnock region with open campsites and isolated artefacts by far the most common.
- lithic artefacts are primarily manufactured from mudstone and silcrete with a variety of other raw materials also utilised but in smaller proportions.
- the majority of sites are located on elevated landforms within 50 metres of a reliable water source with a drop of site number and densities from 50 metres of water.
- sites in proximity to ephemeral water sources or located in the vicinity of headwaters of upper tributaries (1st order streams) have a sparse distribution and density of stone artefacts.
- sites located in the vicinity of the upper reaches of minor tributaries (2nd order streams) also have a relatively sparse distribution and density and may represent evidence of localised one-off behaviour.
- sites located in the vicinity of the lower reaches of tributaries (3rd order creeks) have an increased

distribution and density and contain evidence that may represent repeated occupation or concentration of activity.

- sites located in the vicinity of major tributaries (4th and 5th order streams/rivers) have the highest distribution and densities. These sites tend to be extensive and complex in landscapes with permanent and reliable water and contain evidence representative of concentrated activity.

- sites located within close vicinity at the confluence of any order stream may be a focus of activity and may contain a relatively higher artefact distribution and density.

4.3 Predictive Model

A predictive model for sites includes both analysis of the most likely site types to occur in a given area and predictions about where in the landscape sites might be likely to be located. The purpose of a predictive model is to "present a model, or series of testable statements, about the nature and distribution of evidence of Aboriginal land use within the project area" (DECCW 2010: 10).

The predictive model of Aboriginal site distribution considers the location of previously recorded sites, the results of assessments undertaken in the area, the availability of raw material and resources and is, by nature, broad in scope. The following summary provides an indication of the likely occurrence of various Aboriginal site types within the project area and surrounds.

When considering the potential for Aboriginal cultural sites in the project area, the Due Diligence Code states that 'Aboriginal objects are often associated with particular landscape features as a result of Aboriginal people's use of those features in their everyday lives and for traditional cultural activities'. Sensitive landscape features for Aboriginal sites include areas:

- within 200m of waters.
- located within a sand dune system.
- located on a ridge top, ridge line or headland.
- located within 200m below or above a cliff face.
- within 20m of or in a cave, rock shelter, or a cave mouth; or
- is on land that is not disturbed land.

Based on the above and previous archaeological research (Section 4.2) the following statements are made:

- Culturally modified trees are unlikely in the project area due to the history of past vegetation clearance.

- Grinding grooves, while possible due to the sandstone geology of Black Creek, are unlikely in the project area due to the modification and concreting of Black Creek.

- Stone artefacts of mudstone, silcrete and chert are the most likely Aboriginal object to occur within the project area and can occur in any landform.

- While the project area is within a sensitive landform identified by the ***Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*** (DECCW 2010), recent Cessnock archaeological models indicate that the sites are expected to be fewer and contain lower densities of stone artefacts as distance from water increases and where they are more than 50m from a watercourse (McCardle Heritage Pty Ltd 202). The project area is more than 100m from a water course. Stone artefact sites, where they survive, are predicted to have a relatively spare distribution and density, and may represent evidence of localised, one-off behaviour.

- The project area has been extensively altered by post-European contact impacts, such as the development of Wollombi Road, the history of rural infrastructure and grazing in 254 Wollombi

Road and the concreting of Black Creek. These impacts, in combination with the shallow soils, have been ongoing since the 1800s and have likely limited the potential for the survival of Aboriginal cultural heritage objects.

5. SITE INSPECTION & RESULTS

A pedestrian inspection of the project area was undertaken on Tuesday 25 July 2023 by Les Draper (MLALC), Liam Clerke (Virtus Heritage) and Garth Thompson (Virtus Heritage). Robert Dwyer (SLR) assisted for the Early Works and Stage 1 portions of the project area.

The inspection aimed to identify and assess any potential Aboriginal archaeological sites and/or cultural heritage constraints within the project area. Representatives of MLALC advised on any potential cultural constraints, and Garth Thompson utilised information provided by SLR to advise on the proposed inspection aeras and impacts.

Overall, the archaeological inspection aimed to:

- confirm the desktop environment context (e.g., soils, geology, and vegetation, see above).
- identify landscape features within the project area and record landscape elements that may have potential for cultural heritage.
- confirm the past land use and disturbance history within the project area.
- test the archaeological predictive model.
- identify and record cultural heritage sites.

The following methodology was implemented:

- the inspection covered both sides of Wollombi Road and the immediate surrounds of side streets intersecting the project area.
- For the Early Works Phase, the team walked the perimeter 1m apart, followed by transects (5-8m apart).
- inspection focussed on ground surfaces with higher archaeological visibility.
- where possible the inspection looked for:
    - exposure and washout areas to understand soils and potential for artefacts.
    - mature trees for evidence of cultural modification (if any).
    - any stone deposits for artefacts.
- recording the different types of surface exposures (e.g., vehicle tracks, ploughing, cattle), previous land use history and disturbance, natural features (e.g., presence of sandstone), soils, erosion, ground surface visibility, and geomorphic.
- recording all changes in disturbance (eg. Older/newer construction, cattle grazing), previous land use history, natural features, soils, ground surface visibility and geomorphology.
- mapping and recording all identified Aboriginal sites and/or PADs within the project area using a mapping software on a tablet device.

5.1 Site Inspection Results

For recording purposes, the project area was separated into four areas. Three areas were based on the different work stages, with the fourth area being the proposed location for an intersection within the early works area (refer to Figure 5). The proposed intersection area was walked in transects and covered the entire area.

No Aboriginal objects and places were identified within the project area during the inspection. The visual inspection confirmed that the entire length of the project area had been extensive ground disturbance associated with the road, and the residential and commercial addresses that lined the road. The early works area (refer to Figure 1) displayed characteristics of disturbances unique to the rest of the project area including cattle use, installation of fencing, erosional and water drainage

disturbances and the construction and deconstruction of a building. Ground surface visibility (GSV) was limited over the entire project area (<2% in most areas) due to the current road and grass coverage on the roadsides.

While located in proximity to a watercourse (Black Creek bisects the north-eastern extent of the project area, and Bellbird Creek runs within 200m of the project area throughout its length), the previous land disturbance undertaken by the development of Wollombi Road, and the erosional and water drainage disturbance in the Early works phase has led to this assessment determining that the potential for site types to be present in the project area and the potential for harm of Aboriginal objects to occur is low due to the extensive ground disturbance, and shallow soils.

A summary of the Areas, results, environmental conditions, and disturbances are provided in Table 6.

Table 6. Inspected Areas.

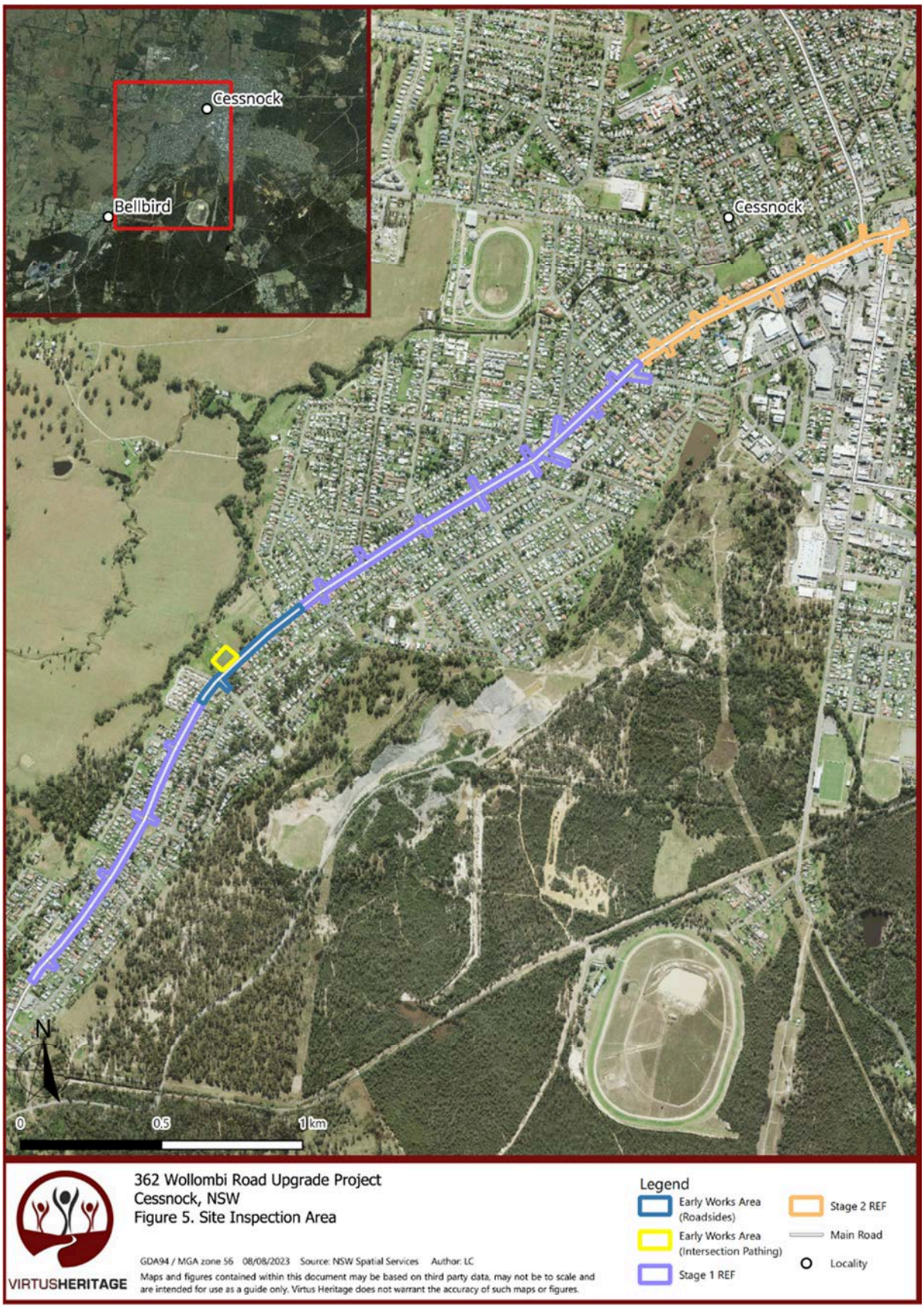
Area	Cultural Heritage	Landscape Description & Environmental Context	Land Use and Disturbance	General Overview Photo of Inspected Area
Stage 1 Works Area	No Aboriginal objects or areas of Potential Archaeological Deposit. The archaeological (scientific) values of this Area have been highly disturbed through the construction and continued use and maintenance of Wollombi Road, and the lining properties. The Stage 1 Works Area therefore retains a low potential for the presence of intact in-situ cultural materials.	This area encompasses the south-west 2950m of the project area, stretching from Abbotsford Street to West Street, excluding the 500m that forms the Early Works Area. The area is within a flat modified landscape as along Wollombi Road. All original vegetation has been removed from the Area, with the short grasses and trees along to roadside being introduced. There were no exposed soils to examine for soil type. Considering the level of disturbance from previous land use it can be reasonably concluded that there is very little potential for the natural/original ground surface to have integrity in the inspection area.	The construction and continued use of Wollombi Road, and its lining buildings are results of extensive ground disturbances throughout this Area. Disturbances include road construction, maintenance, sewerage instillation where applicable, plumbing, vegetation clearance and maintenance.	 Perimeter showing Area 1 and Area 2 to the left of the fence line, looking West showing minimal GSV.

Area	Cultural Heritage	Landscape Description & Environmental Context	Land Use and Disturbance	General Overview Photo of Inspected Area
Early Works Area (Roadsides)	No Aboriginal objects or areas of Potential Archaeological Deposit. The archaeological (scientific) significance of this Area has been highly disturbed through the construction and continued use and maintenance of Wollombi Road, and the lining properties. The Early Works Area (Roadsides) therefore retains a low potential for the presence of intact in-situ cultural materials.	This area encompasses a 500m stretch of Wollombi Road within the Stage 1 Works Area. the area is within a modified undulating hill with similar disturbances to the previous Areas along Wollombi Road. All original vegetation has been removed from the area, with the short grasses and trees along to roadside being introduced. The soil profile was mostly obscured by grass coverage, with all non-grassed areas being covered with gravel. Considering the level of disturbance from previous land use it can be reasonably concluded that there is very little potential for the natural/original ground surface to have integrity in the inspected area to the depth of previous road construction.	The construction and continued use of Wollombi Road, and its lining buildings are results of extensive ground disturbances throughout this Area.	 The Early Works Area on an undulating hill crest roadsides showing a high level of disturbance and negligible GSV.

Area	Cultural Heritage	Landscape Description & Environmental Context	Land Use and Disturbance	General Overview Photo of Inspected Area
Early Works Area (Intersection Pathing)	No Aboriginal objects or areas of Potential Archaeological Deposit identified. The archaeological (scientific) significance of the inspected area has been highly disturbed through vegetation clearing and cattle grazing, therefore retaining a low potential for the presence of intact in-situ cultural materials.	This area encompasses the pathing for the intersection proposed within the Early Works Area. The area is within the same undulating hill landscape as the rest of the Early Works Area. All native vegetation has been removed from the area, with short grasses covering the entire area. The soil profile was obscured by grass coverage.	Evidence of grazing activity found throughout the area. A deconstructed building and a hitching rail were found just west of the project area. A local informed the inspection team that this area had been used as a commercial dairy until recently. Grasses showed signs of being landscaped since deconstruction of the dairy. Notably, this area has not been impacted by Wollombi Road's development/maintenance. As the area is on an undulating hillside, erosion and water drainage to Bellbird Creek soils are anticipated to be shallow and have lower potential for Aboriginal objects in the area.	 The Early Works Phase intersection pathing on an undulating hillside showing high coverage of short grasses that have been used for grazing and negligible GSV

Area	Cultural Heritage	Landscape Description & Environmental Context	Land Use and Disturbance	General Overview Photo of Inspected Area
Stage 2 Works Area	No Aboriginal objects or areas of Potential Archaeological Deposit. The archaeological (scientific) significance of this Area has been highly disturbed through the construction and continued use and maintenance of Wollombi Road, and the lining properties. The Stage 2 works area therefore retains a low potential for the presence of intact in-situ cultural materials.	This area encompasses the north-east 1050m of the project area, stretching from West Avenue to Vincent Street. The area is within a flat modified landscape along Wollombi Road. All original vegetation has been removed from the Area, with the short grasses and trees along to roadside being introduced. There were no exposed soils to examine for soil type. Considering the level of disturbance from previous land use it can be reasonably concluded that there is very little potential for the natural/original ground surface to have integrity in the inspected area to the depth of previous road construction.	The construction and continued use of Wollombi Road, and its lining buildings are results of extensive ground disturbances throughout this Area.	 Stage 2 works area facing northeast showing the road and residential impacts to the roadsides. No GSV present.

Figure 5: Inspected Areas.



6. DUE DILIGENCE PROCESS AND REQUIREMENTS

Heritage NSW (formerly DECCW) have set out the steps under the due diligence process where further impact assessment and an Aboriginal Heritage Impact Permit may be required.

Applying the generic due diligence process for this project, **Table 7** provides the steps for further management advice based on the information provided on project impacts, consultation to date, relevant archaeological and environmental background research, and the results of the site inspection.

Table 7. Generic Due Diligence Process Applied to the Project Description.

Due Diligence CoP Process	Comment	Further steps (fill out) following the Generic due diligence process
Step 1: Will the activity disturb the ground surface?	Yes. The proposed scope of works will disturb the ground surface. Refer to **Section 1.2**.	If Yes, Go to Step 2.
Step 2a: AHIMS Search Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?	Yes (refer to **Section 4.1.1**).	If Yes to any, Go to Step 3
Step 2b: Are there any other sources of information of which a person is already aware? e.g., this may include other searches, knowledge from landholders, Aboriginal community, oral history, history or some other resource or knowledge holder.	No (refer to Section 4.2).	If Yes to any, Go to Step 3
Step 2c: Are there landscape features that are likely to indicate presence of Aboriginal objects? • within 200m of waters, or • located within a sand dune system, or • located on a ridge top, ridge line or headland, or • located within 200m below or above a cliff	No. While the project area is within 200m of Bellbird Creek for the entire length of the project area, and bisects Black Creek, which typically indicates an increased likelihood that the project area may contain Aboriginal objects as defined under the Due Diligence Code, it is in land that meets the definition of disturbed land. Further, archaeological models for Cessnock suggest that the highest potential is within 50m of a watercourse with the number of sites and the density of Aboriginal objects in those sites decreasing with distance from water	If Yes to any, Go to Step 3

Due Diligence CoP Process	Comment	Further steps (fill out) following the Generic due diligence process
face, or • within 20m of or in a cave, rock shelter, or a cave mouth, or • is one land that is not disturbed land.	Refer to **Section 4.3** for a Predictive Model.	
Step 3. Can you avoid harm to the object or disturbance of the landscape feature?	N/A. The project area is limited to the areas of proposed impacts and no objects or la.	If No, Go to Step 4
Step 4: Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?	No. There were no Aboriginal objects or places identified within the project area during the desktop assessment and visual inspection that will be knowingly harmed by the proposed works. Following the Due Diligence process, as no known or predicted Aboriginal objects or Aboriginal places are identified to date that may be harmed by the proposal, the proposed works can proceed with caution in line with the following recommendations in this report.	

This report outlines the results of the Due Diligence Assessment generic process in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (2010).

Following the conditions of the Due Diligence Code, the desktop assessment and visual inspection found no known Aboriginal objects within the project area and concluded that there was a low probability to encounter unknown Aboriginal objects.

While located in proximity to a watercourse (Black Creek bisects the north-eastern extent of the project area, and Bellbird Creek runs within 200m of the project area throughout its length), the previous land disturbance undertaken by the development of Wollombi Road, and the erosional and water drainage disturbance in the Early works phase has lead to this assessment determining that the potential for site types to be present in the project area and the potential for harm of Aboriginal objects to occur is low due to the extensive ground disturbance, and unsuitable soil properties.

The following recommendations have been made based on the information provided on project impacts, consultation to date, relevant archaeological and environmental background research, and the results of the site inspection.

1. Unexpected Find Procedure

   It is recommended that an Unexpected Finds Procedure be implemented for the duration of the project. In the unlikely event that a suspected Aboriginal object/s is identified the procedure should include the following:

   - Works are to stop immediately.
   - The area of the suspected find/s is to be fenced off with an appropriate buffer and protected.

- A qualified archaeologist and representative of MLALC are to be contacted to inspect the area and the nature of the find.
- Representative of MLALC to determine the find's significance, in consultation with a qualified archaeologist or Heritage NSW, and the requirement for an Aboriginal Heritage Impact Permit (AHIP).
- Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW on the appropriate management of the find.

2. Unexpected Human Remains Procedure

   It is recommended that an Unexpected Human Remains procedure be implemented for the duration of the project. In the unlikely event that suspected Human Remains are identified the procedure should include the following:

   - Works are to stop immediately.
   - The area of the suspected Human Remains find is to be secured and cordoned off.
   - NSW Police are to be notified. No further works can be undertaken until the NSW Police provide written advice.
   - If these remains are deemed to require archaeological investigation by the NSW Police or NSW Coroner, then:
     - Heritage NSW and the relevant Aboriginal parties must be notified.
     - a plan of management for any identified Aboriginal human remains must be put in place or conducted under an AHIP methodology developed in consultation with all relevant Aboriginal parties and the Heritage NSW.
   - Works are not to proceed until written advice is provided from the archaeologist or Heritage NSW.

3. Induction

   It is recommended that all site workers and personnel involved in site impact works should be inducted and briefed on the possible identification of Aboriginal sites and objects during construction and their responsibilities according to the provisions of the NPW Act 1974 and NPW Regulation 2019 in the unlikely event that unknown objects or items are uncovered during proposed works.

   This induction package should be developed in consultation with MLALC, prior to works proceeding. The induction must include:

   - The contact phone numbers of the Heritage NSW regional archaeologist, EnviroLine 131 555, and MLALC.
   - The relevant contact phone number Environmental Officer responsible for this project in case unknown objects or items are uncovered during excavation.
   - The penalties for moving Aboriginal objects need to be made clear and given due consideration.
   - An outline types of unexpected heritage objects, items & relics, and their legal protection
   - The Unexpected Finds and Human Remains Procedures, as outlined in Recommendation 1 and 2.

4. Comment by Mindaribba LALC

   A draft copy of the report has been made available to MLALC for comment and review. Any additional comments by MLALC will be considered where possible by SLR and the City of Cessnock.

REFERENCES

City of Cessnock, 2023, *Our Rich Heritage*. Available at: https://www.cessnock.nsw.gov.au/libraries/Local-Studies/Information-Sheets/Our-rich-heritage (Accessed 2 August 2023).

Department of Environment, Climate Change and Water 2010a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010*. Sydney, NSW.

Department of Environment, Climate Changes and Water 2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. Sydney NSW, NSW Department of Environment, Climate Change and Water.

Department of Climate Change Energy the Environment and Water 2021. *Register of the National Estate – archive*. Accessed 27 July 2023 from http://www.dcceew.gov.au/parks-heritage/heritage/places/register-national-estate

ERM 2001. Lot 23 Vincent Street Re-Zoning Archaeological Assessment.

Environmental Planning and Assessment Act 1979

Department of Planning, Industry and Environment, 2020, Soil and Land Resources of the Hunter Region, version 1.5, NSW Department of Planning, Industry and Environment, Parramatta

Insite Heritage 2001. The proposed Cessnock Aged Care Establishment, Lot4 DP 867713 Cessnock, Archaeological Assessment

McCardle Heritage Pty Ltd 2004. Indigenous Cultural Heritage Assessment; proposed Kitchener sewerage scheme

McCardle Heritage Pty Ltd 2005. Proposed Kitchener Sewerage Scheme Archaeological Test Excavation.

McCardle Heritage Pty Ltd 2005. Proposed Rezoning at Vincent Street, Cessnock - Indigenous Cultural Heritage Assessment. AR # 1827.

McCardle Heritage Pty Ltd 2021. St Philip's Christian College Cessnock LGA: Cessnock Aboriginal Cultural Heritage Assessment (ACHA). Report prepared for St Phillip's Christian Education Foundation Ltd.

National Parks and Wildlife Act 1974.

National Parks and Wildlife Regulation 2019.

NSW National Parks and Wildlife 2003. The Bioregions of New South Wales their biodiversity, conservation, and history. Hurstville: New South Wales National Parks and Wildlife Service.

RPS Harper. 2009. Aboriginal Heritage Impact Assessment for Cessnock Seniors Living Village.

Umwelt (Australia) Pty Limited 2011, *Aboriginal Cultural Heritage and Archaeological Assessment: Stage 3 Modification, Austar Coal Mine Project*, prepared for Austar Coal Mine Pty Ltd.

Appendix A Legislation

This section provides a summary of relevant legislation for the consideration of Aboriginal cultural heritage within the project area.

The *National Parks and Wildlife Act 1974* (NPW Act), the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Heritage Act 1977* are the relevant statutory controls protecting Aboriginal heritage within New South Wales. Details on these key pieces of legislation are provided below.

Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act requires that environmental impacts are considered in land use planning and decision-making. The definition of 'environmental impacts' includes impacts on the cultural heritage of the project area. The Act sets out specific statutory assessment processes including:

- Part 4: Development that requires consent under consideration of environmental planning instruments.

- Part 5: An assessment process for activities undertaken by public authorities and for developments that do not require development consent but an approval under another mechanism.

The EP&A Act also gives statutory force to planning instruments. Environmental planning instruments (such as state environmental planning policies, regional environmental plans, and local environmental plans) are legal documents that regulate land use and development.

National Parks and Wildlife Act 1974 (NPW Act)

Under the provisions of the NPW Act, all Aboriginal objects are protected regardless of their significance or land tenure. Aboriginal objects are defined as '*any deposit, object, or material evidence (not being a handicraft made for sale) relating to Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.*'

Aboriginal objects are therefore limited to physical evidence and may also be referred to as 'Aboriginal sites', 'relics' or 'cultural material'. Aboriginal objects can include pre-contact features such as scarred trees, middens, and artefact scatters, as well as physical evidence of post-contact use of the area such as Aboriginal built fencing or stockyards and missions.

The NPW Act also protects Aboriginal Places, which are defined as *'a place that is or was of special significance to Aboriginal culture. It may or may not contain Aboriginal objects'*. Aboriginal Places can only be declared by the Minister administering Part 6 of the NPW Act. The NPW Act protects Aboriginal objects and Aboriginal places in NSW. Under the *National Parks and Wildlife Act 1974* (NPW Act), and *National Parks and Wildlife Regulation 2019*, it is an offence to harm or desecrate an Aboriginal object:

- which the person knows is an Aboriginal object (a 'knowing offence').

- whether or not a person knows it is an Aboriginal object (a 'strict liability offence').

From 1 October 2010, the maximum penalty for a knowing offence is $550,000 (5000 penalty units) or imprisonment for 2 years or both for an individual or $1.1 million for a corporation. The maximum penalty for unknowingly harming offence is $110,000 (1000 penalty units) for an individual or $220,000 (2000 penalty units) for a corporation (DECCW 2010:5). A person or organisation who exercises due diligence in reasonably determining that their actions would not harm Aboriginal objects as a defence against prosecution for the s.86(2) offence if they later unknowingly harm an object without an AHIP (DECCW 2010:5). The due diligence defence (s.87(2)) is not available as a defence for any actions which harm or desecrate an Aboriginal place. The Due Diligence Code of Practice sets out a procedure which, when followed, will satisfy the due diligence requirement. If a person or company can demonstrate that they exercised due diligence and determined that it was unlikely that Aboriginal objects would be harmed, then they have a defence to prosecution under Section 86(2) of the NPW Act (DECCW 2010:5).

Harm includes activities that destroy, deface, or damage an Aboriginal object or an Aboriginal Place, and in relation to an object, moving the object from the land on which it has been situated. Under s.89A (formerly Section 91) of the Act, the Chief Executive (*now the Secretary of Department of Planning and Environment (DPE). Heritage NSW in the DPE)* must be informed upon the identification of all Aboriginal Objects. Failure to do this within a reasonable time is an offence under the Act. Under Section 87 of the Act, it is a defence for a person to destroy, deface, damage, or desecrate an Aboriginal Object or Aboriginal Place with a valid Aboriginal Heritage Impact Permit (AHIP) issued under section 90 of the Act. Aboriginal Heritage Impact Permits are issued by Heritage NSW, DPE. Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to harm them. If harm to Aboriginal objects and places is anticipated an Aboriginal Heritage Impact Permit should be sought as a defence.

The NPW Act also provides for stop-work orders under Part 6A Division 1 if an action is likely to significantly affect an Aboriginal Object or Aboriginal Place. The order may require that an action is to cease or that no action is carried out in the vicinity of the Aboriginal Object or Aboriginal Place for a period of up to 40 days.

Heritage Act 1977

The Heritage Act, 1977 (as amended in 2009) protects and aims to conserve the environmental heritage of New South Wales. Environmental heritage is broadly defined under Section 4 of the Heritage Act as consisting of "those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance" (Heritage Branch, DoP 2009:4). Aboriginal places or objects that are recognized as having high cultural value (potentially of local and State significance) can be listed on the State Heritage Register and protected under the provisions of the Heritage Act.

Amendments to the Heritage Act made in 2009 have changed the definition of an archaeological 'relic' under the Act, so that it is no longer based on age. A relic is now an archaeological deposit, resource or feature that has heritage significance at a local or State level. This significance-based approach to identifying 'relics' is consistent with the way other heritage items such as buildings, works, precincts or landscapes are identified and managed in NSW (Heritage Branch, DoP 2009:1). Section 4(1) of the Heritage Act (as amended 2009) defines 'relic' as follows:

> **Relic** *means any deposit, artefact, object, or material evidence that:*
> *a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
> *b) is of State or local heritage significance (Heritage Branch, DoP, 2009:6).*

Native Title Legislation

The Native Title Act 1993 (NTA) provides the legislative framework to:

- recognise and protect native title.
- establish ways in which future dealings affecting native title may proceed and to set standards for those dealings, including providing certain procedural rights for registered native title claimants and native title holders in relation to acts which affect native title.
- establish a mechanism for determining claims to native title.
- provide for, or permit, the validation of past acts invalidated because of the existence of native title.

The *NSW Native Title Act 1994* was introduced to make sure the laws of NSW are consistent with the Commonwealth's NTA on future dealings. It validates past and intermediate acts that may have been invalidated because of the existence of native title.

The National Native Title Tribunal has a number of functions under the NTA, including maintaining the Register of Native Title Claims, the National Native Title Register and the Register of Indigenous Land Use Agreements and mediating native title claims.

Other Acts

The Australian Government *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* may be relevant if any item of Aboriginal heritage significance to an Aboriginal community or historical heritage is under threat of injury or desecration and state-based processes are unable to protect it. The *Environment Protection and Biodiversity Conservation Act 1999* is relevant to projects where there are heritage values of national significance present.

Appendix B
AHIMS Search Results

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 362 Wollombi Road

Client Service ID : 802919

Virtus Heritage Pty Ltd - Pottsville

38 Border Crescent
Pottsville New South Wales 2489

Attention: Garth Thompson

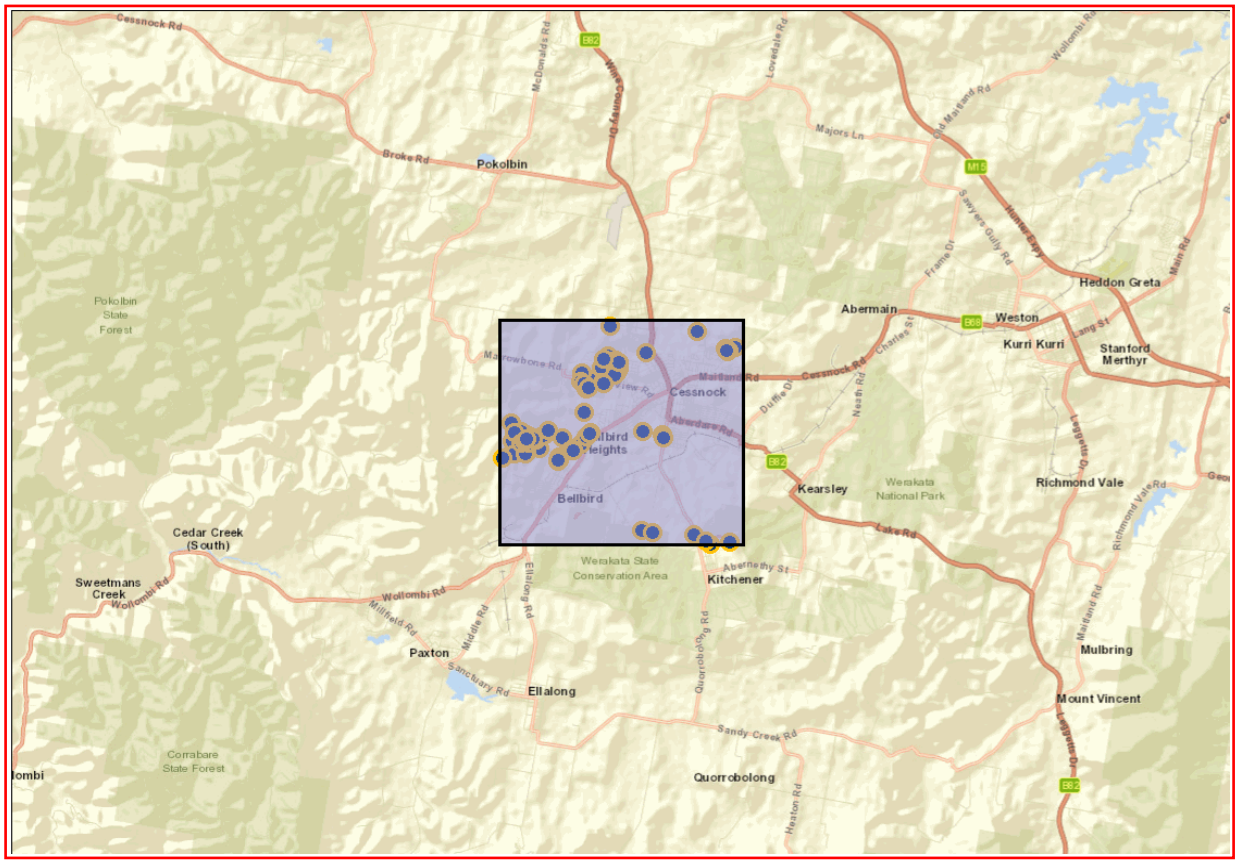
Email: g.thompson@virtusheritage.com.au

Date: 24 July 2023

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters, conducted by Garth Thompson on 24 July 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

89	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 362 Wollombi Road

Client Service ID : 802921

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-6-3666	RPS Bellbird IS 4_2016 duplicate 37-6-3665	GDA	56	342028	6364528	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					**Permits**		
37-6-3949	BB NS 6	GDA	56	342262	6364591	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**	4896	
37-6-3951	BB NS 4	GDA	56	342478	6364709	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**	4896	
37-6-1682	NB 6	GDA	56	343700	6364681	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-0948	C-IF-1 (Cessnock)	AGD	56	346810	6367710	Open site	Valid	Artefact : -		4402,102381
	Contact	**Recorders**	Mrs.Robynne Mills					**Permits**		
37-6-3683	RPS Bellbird IS 1	GDA	56	341923	6364708	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					**Permits**	4895	
37-6-1731	OGC 1	AGD	56	344200	6366790	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**	3142,3309,3353	
37-6-1685	NB9	GDA	56	342134	6364619	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Extent Heritage Pty Ltd - Py					**Permits**	4896	
37-6-4209	BWSI 01	GDA	56	343530	6364460	Open site	Valid	Artefact : -		
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd,Ms.Penny Mccardle					**Permits**	4997	
37-6-1695	NB 19	GDA	56	343602	6365415	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1681	NB 5	GDA	56	343683	6364658	Open site	Destroyed	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1042	Mt View 3	AGD	56	343579	6366008	Open site	Valid	Artefact : -		98434,102381
	Contact	**Recorders**	Stedinger Associates					**Permits**		
37-6-1456	Kerlew 1	AGD	56	344229	6367808	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant					**Permits**		
37-6-1722	OGC 5	GDA	56	344627	6366718	Open site	Valid	Artefact : 1		
	Contact Searle	**Recorders**	Jim Wheeler					**Permits**	3142,3309,3353	
37-6-3167	RPS Bellbird 1	GDA	56	342978	6364618	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Insite Heritage Pty Ltd,Insite Heritage Pty Lt					**Permits**	4802	
37-6-3224	RPS North Bellbird 3	GDA	56	343227	6364233	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton					**Permits**		
37-6-3663	RPS Bellbird IS 1_2016	GDA	56	341923	6364708	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd,RPS AAP Consulting Pty Ltd - Hamilton,M					**Permits**	4895	
37-6-4110	SLV AS2	GDA	56	344282	6366543	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 24/07/2023 for Garth Thompson for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 89

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 362 Wollombi Road

Client Service ID : 802921

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Mr.Cameron Neal (emm consu					**Permits**		
37-6-1839	AR1_	GDA	56	345409	6367223	Open site	Partially Destroyed	Artefact : 41		
	Contact	**Recorders**	Ms.Mary Dallas,Ms.Alison Lamond,Virtus Heritage Pty Ltd - Pottsville					**Permits**	4395	
37-6-2787	Kitchener Griding Bowl	GDA	56	346908	6361777	Open site	Valid	Artefact : -		104587
	Contact Mindaribba Local Aboriginal L	**Recorders**	Mr.Andrew Roberts,Heritage Now - Belmont,Mrs.Jenna Weston					**Permits**		
37-6-4099	Werakata AFT1	GDA	56	348041	6367413	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Martin Wright					**Permits**		
37-6-3664	RPS Bellbird IS 2_2016	GDA	56	342898	6363983	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					**Permits**		
37-6-1679	NB 3	GDA	56	342899	6364049	Open site	Destroyed	Artefact : 1		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**	4895	
37-6-1043	Mt View 4	AGD	56	343549	6365925	Open site	Valid	Artefact : -		98434,102381
	Contact	**Recorders**	Stedinger Associates					**Permits**		
37-6-1044	Mt View 5	AGD	56	343665	6366202	Open site	Valid	Artefact : -		98434,102231, 102381
	Contact	**Recorders**	Stedinger Associates					**Permits**		
37-6-1987	OGC PAD 2	GDA	56	344423	6366624	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : 2		
	Contact	**Recorders**	Jim Wheeler,Ms.Alison Lamond,Virtus Heritage Pty Ltd - Pottsville					**Permits**	3142,3309,3353,4395	
37-6-1988	OGC PAD 1	GDA	56	344423	6366624	Open site	Valid	Potential Archaeological Deposit (PAD) : 2		
	Contact	**Recorders**	Jim Wheeler					**Permits**	3142,3309,3353	
37-6-1734	OGC 4	AGD	56	344420	6366790	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**	3142,3309,3353	
37-6-1698	NB 22	GDA	56	341458	6365062	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Insite He					**Permits**		
37-6-0994	BBAS2	AGD	56	343200	6364100	Open site	Valid	Artefact : -		98434,102381
	Contact	**Recorders**	Mrs.Angela Besant					**Permits**	1392,1976	
37-6-3681	RPS Bellbird IS 3 duplicate 37-6-3665	GDA	56	342028	6364528	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					**Permits**		
37-6-1688	NB 12	GDA	56	342030	6364503	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1684	NB 8	GDA	56	342309	6364292	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Extent Heritage Pty Ltd - Py					**Permits**	4896	
37-6-1678	NB 2	GDA	56	342881	6363953	Open site	Destroyed	Artefact : 1		

Report generated by AHIMS Web Service on 24/07/2023 for Garth Thompson for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 89

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 362 Wollombi Road

Client Service ID : 802921

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Mr.Allan Wheeler					**Permits**		
37-6-3682	RPS Bellbird IS 2	GDA	56	342898	6363983	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					**Permits**		
37-6-1126	Mt View IF2	AGD	56	343430	6366410	Open site	Valid	Artefact : -		102381
	Contact	**Recorders**	Stedinger Associates					**Permits**	1819	
37-6-0993	BBAS1	AGD	56	343700	6364600	Open site	Valid	Artefact : -		98434,102381
	Contact	**Recorders**	Mrs.Angela Besant					**Permits**	1392,1976	
37-6-1690	NB 14	GDA	56	341555	6364229	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1680	NB 4	GDA	56	343324	6364239	Open site	Destroyed	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-3946	NB NS1	GDA	56	341781	6364564	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Insite Heritage Pty Ltd,Insite Heritage Pty Lt					**Permits**	4895	
37-6-1693	NB 17	GDA	56	341934	6364156	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1701	NB 25	GDA	56	341993	6364680	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Extent Heritage Pty Ltd - Py					**Permits**	4895	
37-6-1386	HH 1	AGD	56	345835	6364588	Open site	Valid	Artefact : -		102381,104587
	Contact S Scanlon	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**	2266	
37-6-1372	Kitchener PAD 1	AGD	56	345875	6364500	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102381
	Contact T Russell	**Recorders**	Ms.Penny Mccardle					**Permits**	2129	
37-6-4108	SLV IF1	GDA	56	344101	6366757	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Mr.Cameron Neal (emm consu					**Permits**		
37-6-2276	Mount View Road AS01	GDA	56	344157	6366314	Open site	Valid	Artefact : 8		102362
	Contact	**Recorders**	ERM Australia Pty Ltd- Sydney CBD,Ms.Holly Maclean					**Permits**	3420	
37-6-1216	Cessnock 2	AGD	56	347709	6367136	Open site	Valid	Artefact : -		102381
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**	2977	
37-6-3778	JPG2	GDA	56	347978	6361559	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Insite Heritage Pty Ltd,Insite Heritage Pty Lt					**Permits**	4059	
37-6-1686	NB 10	GDA	56	342099	6364573	Open site	Valid	Artefact : 100		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-3948	BB NS 7	GDA	56	342203	6364542	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**	4896	
37-6-1677	NB 1	GDA	56	342866	6363922	Open site	Destroyed	Artefact : 1		

Report generated by AHIMS Web Service on 24/07/2023 for Garth Thompson for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 89

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 362 Wollombi Road

Client Service ID : 802921

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1127	Mt View IF3	AGD	56	343387	6366140	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	Stedinger Associates					**Permits**	1819	
37-6-1724	OGC 7	GDA	56	344287	6367106	Open site	Valid	Potential Archaeological Deposit (PAD) : 2, Artefact : 8		
	Contact Searle	**Recorders**	Jim Wheeler					**Permits**	3142,3309,3353	
37-6-1391	KS 5	AGD	56	347305	6361313	Open site	Valid	Artefact : -		102381,104587
	Contact S Scanlon	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**	2266	
37-6-4088	Alkira Ave ST1	GDA	56	347839	6367309	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Mr.Martin Wright					**Permits**		
37-6-4091	Alkira Ave AFT	GDA	56	347840	6367324	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Martin Wright					**Permits**		
37-6-3665	RPS Bellbird IS 3_2016	GDA	56	342028	6364528	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					**Permits**		
37-6-1687	NB 11	GDA	56	342059	6364574	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-3950	BB NS 5	GDA	56	342394	6364687	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Mrs.Angela Besant,Insite Heritage Pty Ltd,Ins					**Permits**	4896	
37-6-1733	OGC 3	AGD	56	344300	6366780	Open site	Valid	Artefact : 6		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**	3142,3309,3353	
37-6-4111	SLV AS3	GDA	56	344567	6366596	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Mr.Cameron Neal (emm consu					**Permits**		
37-6-1697	NB 21	GDA	56	341496	6364508	Open site	Valid	Artefact : 3		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Insite He					**Permits**		
37-6-1696	NB 20	GDA	56	341586	6364124	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
33-6-0039	Bellbird North	GDA	56	341750	6364795	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Mrs.Angela Besant,Insite Heritage Pty Ltd,Insite Heritage Pty Lt					**Permits**	4895	
37-6-1694	NB 18	GDA	56	341901	6364142	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-4188	BWTIF1	GDA	56	345358	6361886	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Matthew Barber,NGH Heritage - Fyshwick					**Permits**		
37-6-2718	Kitchener Isolated Find 1	GDA	56	347262	6361604	Open site	Valid	Artefact : 1		

Report generated by AHIMS Web Service on 24/07/2023 for Garth Thompson for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 89

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,Mr.Kirwan Williams					**Permits**		
37-6-1392	KS 6	AGD	56	347177	6361390	Open site	Valid	Artefact : -		
	Contact S Scanlon	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**	2266	
37-6-1689	NB 13	GDA	56	342002	6364466	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-3168	RPS North Bellbird 2	GDA	56	342879	6363954	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Ms.Laraine Nelson					**Permits**		
37-6-1040	Mt View 1	AGD	56	343500	6366076	Open site	Valid	Artefact : -		98434,102381
	Contact	**Recorders**	Stedinger Associates					**Permits**		
37-6-1041	Mt View 2	AGD	56	343610	6365958	Open site	Valid	Artefact : -		102381
	Contact	**Recorders**	Stedinger Associates					**Permits**		
37-6-1683	NB 7	GDA	56	343770	6364763	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1699	NB 23	GDA	56	341580	6364769	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Extent Heritage Pty Ltd - Py					**Permits**	4895	
37-6-3961	BBcentral DB3	GDA	56	342558	6364834	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**	4896	
37-6-3947	BB NS 8	GDA	56	342111	6364571	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**	4896	
37-6-1723	OGC 6	GDA	56	344489	6366548	Open site	Valid	Artefact : 11		
	Contact Searle	**Recorders**	Jim Wheeler					**Permits**	3142,3309,3353	
37-6-1732	OGC 2	AGD	56	344500	6366750	Open site	Valid	Potential Archaeological Deposit (PAD) : 2, Artefact : 1		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**	3142,3309,3353	
37-6-4185	BWTIF2	GDA	56	345696	6361827	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Matthew Barber,NGH Heritage - Fyshwick					**Permits**		
37-6-1700	NB24	GDA	56	341235	6363989	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-1691	NB 15	GDA	56	341770	6364444	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Jim Wheeler,Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**		
37-6-3944	NB NS3	GDA	56	341850	6364519	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**		
37-6-1692	NB 16	GDA	56	341901	6364543	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Mrs.Angela Besant,Jim Wheeler,Insite Heritage Pty Ltd,Extent Heritage Pty Ltd - Py					**Permits**	4895	
37-6-3945	NB NS2	GDA	56	341931	6364586	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 24/07/2023 for Garth Thompson for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 89

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 362 Wollombi Road

Client Service ID : 802921

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Mrs.Angela Besant,Insite Heritage Pty Ltd					**Permits**		
37-6-4109	SLV AS1	GDA	56	344156	6366998	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Mr.Cameron Neal (emm consu					**Permits**		
37-6-2859	Reburial Site Mount View Road	GDA	56	344189	6366286	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Hunter Water Corporation - Newcastle,Ms.Laura Farquharson					**Permits**		
45-3-3360	Former Aberdare Extended Colliery	GDA	56	345370	6364844	Open site	Valid	Artefact : 9		102306
	Contact	**Recorders**	Hunter Land Pty Ltd					**Permits**		
37-6-4090	Alkira Ave ST2	GDA	56	347744	6367379	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Mr.Martin Wright					**Permits**		
37-6-1217	Cessnock 1	AGD	56	347691	6367126	Open site	Valid	Artefact : -		102381
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**	2977	

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 24/07/2023 for Garth Thompson for the following area at Datum :GDA, Zone : 56, Eastings : 341166.0 - 348262.0, Northings : 6361501.0 - 6368163.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 89

Appendix F Statement of Heritage Impact

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

VIRTUS HERITAGE

WOLLOMBI ROAD UPGRADE PROJECT

Cessnock, NSW

Statement of Heritage Impact

March 2024

Prepared for SLR on behalf of Cessnock City Council

Cover design: Cake
Cover image: Sandstone kerb and guttering in front of Bellbird Hotel, Virtus Heritage, 2024.

Document Controls

Client:	**SLR**
Proponent:	Cessnock City Council
Local Government Area:	Cessnock

Version History

Version	Date	Prepared by	Approved by	Comments
1b	28 February 2024	Garth Thompson	Dr Mary-Jean Sutton	Reviewed by Tara Chilcott and Dr MJ Sutton
2a	7 March 2024	Edits Tara Chilcott and MJ Sutton	MJ Sutton	Version Council put on display for public review
FINAL	13 June 2024	Garth Thompson	Dr Mary-Jean Sutton	Final report delivered to SLR and Cessnock City Council. No changes made from Version 2a.

Acknowledgement of Country

Virtus Heritage acknowledges the Traditional Custodians of the land on which this project was undertaken and pays respect to Elders past, present and emerging.

Disclaimer

This Report (including any enclosures and attachments) has been prepared by Virtus Heritage for the exclusive use and benefit of SLR and Cessnock City Council for their use regarding the Project and solely for the purpose for which it is provided. Unless we provide express prior written consent, no part of this report should be reproduced, distributed, or communicated to any third party. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report.

Information contained in the Report is current as at the date of the Report and may not reflect any event or circumstances which occur after the date of the Report.

All queries related to the content, or to any use of this report must be addressed to Dr Mary-Jean Sutton.

Executive Summary

Virtus Heritage was engaged by SLR Consulting Australia Pty Ltd (SLR) on behalf of Cessnock City Council to prepare the following Statement of Heritage Impact (SoHI). This report addresses the history of the 475m of sandstone kerb and guttering, and the four heritage items directly adjacent to the proposed works of the Wollombi Road Upgrade Project.

The 475m of sandstone kerb and guttering within the project area has been assessed as having local heritage significance under the following criteria: historical significance, aesthetic and technical achievement, research potential, rarity, and representative assessment.

PROPOSAL AND IMPACTS

The project is located on a 3.1km stretch of Wollombi Road between West Avenue and Abbotsford Street, between Bellbird and Cessnock (the project area). The project activities will upgrade this section of Wollombi Road by increasing capacity from two to four lanes, leveling the road surface, and installing infrastructure such as bus stops, upgraded turning lanes, new shared paths, and upgrades to street lighting.

The heritage items detailed in this report are not projected to be directly impacted by the proposed works. However, the vibrations caused by the equipment and project activities have the potential to indirectly impact the heritage items, particularly the sandstone kerb and guttering.

While the final project design is yet to be finalised, there is a possibility that in some limited circumstances sandstone kerb and guttering may need to be lifted in order to be reused.

MITIGATION AND MANAGEMENT

The proposed works are supported by this SoHI, provided the following mitigation measures are undertaken by SLR and Cessnock City Council:

- The sandstone kerb and guttering are to be flagged and fenced to mitigate against impact where appropriate.
- Processes such as the laying of bitumen are to be appropriately managed to ensure there is no impact on sandstone kerb. Management could include measures such as laying protective materials on the surface of the sandstone and kerb to protect it from bitumen blowing onto the surface during spraying and laying and potentially damaging the faces of sandstone kerb and guttering.
- If Council, during the final design process, determine that any sandstone kerb and guttering needs removal, replacement or lifting (either temporarily or permanently), following the policies set out in Nelson Consulting (2022) by Council, the following actions must occur prior to works proceeding:
    - Council's Heritage Advisor determines with Heritage NSW if there is a required notification or consent pathway prior to works proceeding. Note that this action may require an additional revised impact assessment and/or archival recording depending on the outcome of the consultation with Heritage NSW.
    - Actions must be undertaken by Council or Council's delegated project manager in accordance with Policy Objectives 3 and 5 of Nelson (2022); in particular (bold is used to emphasise critical points):

*8.1.3 Policy objective 3 – **Documentation***
Rationale
This CMS, when formally endorsed, should guide the management of the CCC sandstone kerb and gutter.

Policy
• The Statements of significance (Section 5.2) and the Conservation Policies (this section) should provide the basis for the future management of CCC sandstone kerb and gutter.
• This CMS should be reviewed within five years of endorsement with revisions and amendments undertaken, as necessary.
• Where conservation works are undertaken, prior investigation and assessment should be conducted including ***archival recording in accordance with Heritage NSW requirements****.*

8.1.4 Policy objective 5 – ***Conservation of fabric***
Rationale
Retention and conservation of fabric is fundamental to significance.
Policy
• Identified significant fabric should be conserved in accordance with management guidelines.
• All conservation works should be undertaken by suitably qualified persons, in accordance with accepted professional conservation, charters, guidelines and methods.

- The recommended minimal distances for equipment operating in proximity to heritage listed items listed in RAPT Consulting 2024, and the DIN 4150-3 (1999-2002) must be maintained around the heritage items adjacent to the project area for the duration of all projects works to ensure no damage to heritage items occurs.
- The recommended minimal distances for equipment operating in proximity to heritage listed items listed in RAPT Consulting 2024, and the DIN 4150-3 (1999-2002) should also be maintained where possible in proximity to the sandstone kerb and guttering to ensure vibrational impacts do not cause damage to these items.
- A site induction must be undertaken by all workers. This induction must convey the above recommendations and must explain that if unexpected archaeological remains are uncovered as a result of this project, then work must cease in the affected area which is to be fenced off. Information should be sought in the first instance from a suitably qualified archaeologist who will provide advice on next steps and could arrange for the finds to be recorded in situ.

There may also be a requirement for approval from the Heritage Council of NSW for an archaeological permit to remove any identified relics, as also noted in Nelson Consulting (2022). Reference can be made to the Transport for NSW Unexpected Heritage Finds Guidelines (2021) of relevance for roadworks. Please note that potential archaeological discoveries include the following items:

  - Remains of other infrastructure including sandstone or bricks, drainage services, conduits, old kerbs and pavement, former road surfaces, timber and stone culverts, bridge footings and retaining walls, artefact scatters including broken and complete bottles, glass, ceramics, animal bones and clay pipes.

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Definitions

AHD	Australian Heritage Database
DPC	Department of Premier and Cabinet
EP&A Act	*Environmental Planning and Assessment Act 1979*
LEP	Local Environment Plan
LGA	Local Government Area
NPW Act	*National Parks and Wildlife Act 1974*
NTA	*Native Title Act 1993*
SHI	State Heritage Inventory

1. INTRODUCTION

Virtus Heritage was engaged by SLR Consulting Australia Pty Ltd (SLR) on behalf of Cessnock City Council (CCC) to prepare a Statement of Heritage Impact (SoHI) to assess the impact of the proposed works for the Wollombi Road Upgrade Project (the project) on heritage items in close proximity to the proposed project works. A Heritage Assessment was undertaken for the project area, which included a heritage significance assessment for Wollombi Road as a stand-alone item (Virtus Heritage 2023a, **Appendix B**).

The heritage significance assessment did not identify the road as a significant heritage item, however, it did identify the sandstone kerb and guttering within Bellbird and Cessnock as an item with potential heritage significance. The proposal's close proximity to the sandstone kerb and guttering triggered the need for a SoHI. Project Description

The project is located on a 3.1km stretch of Wollombi Road between West Avenue and Abbotsford Street, situated between Bellbird and Cessnock (the project area) (Figure 1). The project activities will upgrade the section of Wollombi Road by increasing capacity from two to four lanes, leveling the road surface, and installing infrastructure such as bus stops, upgraded turning lanes, new shared paths, and upgrades to street lighting (**Appendix A**).

Project impacts include:

- Removal / relocation or protection of existing utilities within the project area;
- Installation of erosion and sediment controls;
- Topsoil stripping;
- Establishment of a hardstand, compound, laydown/stockpile, and safe park area.
- Instillation of temporary security and pedestrian fencing;
- Vegetation clearing of exotic trees within the road reserve;
- Removal and demolition of existing pavements, kerbs and gutters (excluding sandstone kerb and guttering which will remain or in some instances be lifted in order to be reused) where required.
- Excavation of existing road surface and road base;
- Minor embankment cuttings where required;
- Installation of new drainage pipes and pits;
- Utility works where necessary;
- Construction of pavement layers including fill materials, road bases and asphalt;
- Construction of kerb and guttering on southeastern side of the road reserve;
- Implementation of major and minor sign structures, traffic lights and street lighting;
- Relocation of bus stop signs and furniture;
- Construction of a shared pathway;
- Construction of tie-ins to existing pavement at the extents of the activity area;
- Installation of road furniture where required (i.e., lighting, safety barriers and guideposts);
- Landscaping works.

Proposed earthworks, vibratory rolling and use of heavy machinery will involve indirect impacts including vibration, which has the potential to impact heritage items.

1.1 METHODOLOGY AND OBJECTIVES

This report has been completed to meet the requirements of the project brief and the following NSW Heritage guidelines:

- *Guidelines for Preparing a Statement of Heritage Impact (2023)* NSW Department of Planning and Environment

Council's *Part D: Specific Development, Chapter 12: Heritage Conservation and Design Guidelines* (2010) were considered. Noting these Guidelines (Council, 2010:D.12.3) stipulate that:

> *The conservation areas of Wollombi and the Great North Road have their own unique characteristics. The collective existence of buildings, individual heritage items, trees, open spaces, views and landmarks, and smaller details such as* ***sandstone kerb and gutters all contribute to our appreciation of the area's historic value****. The loss or damage of any one attribute will erode the special character of the Conservation*
>
> *Area as a whole. On-going care and maintenance of all elements in these conservation areas is considered to be an essential part of achieving their conservation.*

City of Cessnock – Sandstone kerb and gutter Conservation Management Strategy by Nelson Heritage Consulting, January 2022 was also reviewed.

A history of the project area and locality has been previously completed and can be found in the Wollombi Road Upgrade Project Heritage Assessment (2023a). This report has been compiled in conjunction with this previous Heritage Assessment. This report does not consider the impacts of the proposal on Aboriginal heritage which is outside the scope of this SoHI.

The methods employed to complete this SoHI include the following:

- Review of heritage items listed in the area on the, State Heritage Inventory and Cessnock Council LEP, and a review of the history of the sandstone kerb and guttering within the project area.
- Review of web-based historical data for the area, including parish maps.
- Completion of this Statement of Heritage Impact (SoHI) to address the heritage significance of the sandstone kerb and guttering within the project area, assess potential impacts; and
- Develop management recommendations on the project works in relation to the heritage items and sandstone kerb and guttering in the project area, which consider Council (2010) and Nelson Heritage Consulting (2022).

1.2 PROJECT TEAM AND QUALIFICATIONS

This report was compiled by Garth Thompson (MA Archaeological and Evolutionary Science, Australian National University, Bachelor of Arts, Archaeology and Anthropology, University of Sydney) with quality review undertaken by Tara Chilcott (Grad Dip Archaeology and Heritage Management, Bachelor of Arts, Flinders University) and project management by Dr Mary-Jean Sutton (PhD, Department of Archaeology and Anthropology, University of Qld; Hons Prehistoric and Historical Archaeology, University of Sydney). Project information and description of works was provided by Rob Dwyer (SLR) on 15 February 2024.

1.3 LIMITATIONS

This report is based on the impact information as design as supplied by SLR Consulting and Cessnock City Council. We note that the final design for the project has not been finalised when this impact assessment was undertaken. Any changes to the project impacts, design, methodology or mapping may require further revision and additional assessment not currently documented in this report. Background searches were undertaken in early 2023.

1.4 ACKNOWLEDGEMENTS

We would like to acknowledge the assistance of Rob Dwyer (SLR) for the completion of this report, and Gina Scheer on earlier stages of this project.

Figure 1. Locality Map & Project Area

2. History and Condition of Sandstone Kerb and Guttering and Heritage Items in the Project Area

This section details the history of the sandstone kerb within the project area, and heritage items listed on the Cessnock City LEP and on the State Heritage Inventory that are directly adjacent to the project area (**Figures 2** and **3**).

A history of Wollombi Road's construction and works can be found in the project's Heritage Assessment (2023a, **Appendix B**). Additional research was also undertaken on Trove and online historical image databases which are integrated into this SoHI.

Additional fieldwork for the SoHI was undertaken in mid-February 2024 to record the condition of the kerb and guttering and heritage items in the project area.

There area four items listed on the State Heritage Inventory within or directly adjacent to the project area:

Table 1. Heritage Items Adjacent to the Project Area

Item Name	Address	Property Description	Significance	Item no.
Bellbird Hotel	388 Wollombi Road	Lots 2-4, Section F, Local DP 6264	Local	121
O'Neill's Wine Bar (former)	4 Wollombi Road	Lot 1, DP 310886	Local	180
Cessnock West Public School	113 Wollombi Road	Lot 1, Section A, DP 9252	Local	181
Australia Hotel	136 Wollombi Road	Lot 1, DP 390312	Local	182

Figure 2. Heritage items and sandstone kerbs and guttering in the southwest half of the project area

Figure 3. Heritage items and sandstone kerbs and guttering in northeast half of project area

2.1 SANDSTONE KERBS AND GUTTERING

The 475m of sandstone kerb found within the project area (**Figure 2**) was not part of the original road or building construction. In 1914, Wollombi Road was a dirt and gravel road, and the sandstone kerb and guttering had not yet been constructed based on historical research and a review of historical imagery (refer to **Figure 10**). An assessment which is supported by Nelson Consulting (2022) conservation management strategy of sandstone kerb and guttering within the Cessnock LGA, where Wollombi Road is not identified as an example of early street architecture.

Figure 4. Bellbird Main Street 1914. Source: Newcastle University

By 1923, the sandstone kerb and guttering had been constructed along Wollombi Road in Bellbird and is visible in historic photographs (**Figure 5**). A specific date for the implementation of the sandstone kerb and guttering could not be ascertained for this assessment, as construction records contemporary for the installation of the sandstone kerb and guttering in the LGA have notably been destroyed (Barry 2002). Historic photographs give a range of construction from between 1914 and 1923. Notably, this is after World War 1, but before The Great Depression.

There is a record in The Cessnock Eagle and South Maitland Recorder (Friday 3 June 1921) that notes the damage of recent flooding to sections of Wollombi Road including replacement of stone culverts and guttering. It is possible these modifications include the project area's kerb and guttering. Modifications which likely continued in the project area, to sandstone kerb and guttering in the LGA continued to the mid twentieth century as noted in several Council records and reports identified on Trove (The Cessnock Eagle and South Maitland Recorder (Friday 12 September 1941 and The Cessnock Eagle and South Maitland Recorder (Friday 9 May 1941).

From the late 1920s to the late 1930s, during The Great Depression unemployment relief programs were created to upgrade sections of major roads in the Cessnock LGA (Nelson 2022). Notably, this specifically included installing sandstone kerb and guttering, with 1400 men employed in 34 work gangs in 1937 (Nelson 2022). These programs notably follow the installation of the sandstone kerb and guttering in the project area by several years.

Figure 5. Wollombi Road in Bellbird in 1923.

The kerb and guttering are constructed form sandstone blocks of various sizes, generally approximately 50x40cm. The sandstone blocks have been worn over the past century of use, but still show signs of drilling from their manufacture (see **Figure 6**), as well as repair and modification with more recent concreting.

Figure 6. Sandstone kerb in front of the Bellbird Hotel with signs of potential pick marks on upper blocks, drill marks on the third and second blocks on front faces and evidence of more recent concreting.

From the implementation of the sandstone kerb and guttering in the late 1910s–1920s, Wollombi Road has been improved, and its surrounds have undoubtably changed dramatically. These changes have had impacts on the sandstone kerb and guttering over time. As Wollombi Road has been tarred, this process has covered parts of the sandstone kerb (**Figure 7**). Upgrades to existing buildings such as the Bellbird Hotel have seen cement added to parts of the kerb (**Figure 7**).

Figure 7. Sandstone kerb and guttering in front of the Bellbird Hotel showing impacts of tarring and cementing.

New housing developments have required cuts into the kerb to allow for new driveways (**Figure 8**) and drainage, the sandstone surfaces of the blocks would be subjected to attrition from modern vehicle use (**Figure 9**).

Figure 8. Sandstone kerb in the project area with sandstone driveway and cut-in cement driveway.

Figure 9. Sandstone kerb in the project area with cuts to accommodate drainage.

Similar sandstone kerb and guttering has been identified in several suburbs of the Cessnock LGA including Abermain, Braxton, Greta, Kurri Kurri, Neath, Weston, and Wollombi (Nelson 2022). It is also present in other streets in Cessnock and Bellbird. Some of these sandstone kerb and guttering are heritage listed on the State Heritage Inventory as having local significance tied to the development of the locality and being representative of local unemployment programs during the Great Depression (Barry 2002). Whilst the sandstone kerb and guttering of the project area was constructed in a time associated with the development of the locality, it pre-dates the Great Depression and its associated unemployment schemes. No doubt these schemes involved repair to the kerb and guttering and modifications over time including flood repair as documented in the historical records reviewed on Trove for this SoHI.

2.2 HERITAGE ITEM #121: THE BELLBIRD HOTEL

The Bellbird Hotel is located at 388 Wollombi Road, Bellbird and is at the southwestern extent of the project area. The Bellbird hotel was established in 1914, prior to the construction of the sandstone kerb and guttering (see **Figure 10**). Notably for this assessment, the kerb and guttering were added to the roadside in front of the Bellbird Hotel by 1924 (see **Appendix B**).

Figure 10. Bellbird Hotel during construction in 1914. Source: Cessnock City Library.

As an early pub and "the most prominent building in the town", the Bellbird Hotel has remained open through the development of the Cessnock LGA. The Hotel is home to the certificate for bravery awarded to James Orr during the Bellbird Colliery Disaster of 1923 (Pike et al. 1994). It is still operational as a hotel at the time of this assessment (see **Figure 11**).

The State Heritage Inventory form for the Bellbird Hotel describes the significance of the site as:

> *One of a group of intact pubs which distinguish the towns of the City of Cessnock local government area, and which are closely associated with the development of those towns, their mines and their economy. The most prominent building in the town, located on the main road through to Cessnock.*

Figure 11. Bellbird Hotel in 2024.

2.3 HERITAGE ITEM #180: O'NEILL'S WINE BAR (FORMER)

The former O'Neill's Wine Bar is located at 4 Wollombi Road. In 1868 Patrick O'Neill purchased two blocks, including the site of the wine bar building (Pike et al. 1994). O'Neill grew tobacco and mixed crops, including grape vines which he would use to produce wines. This would lead to O'Neill opening a wine shop in the 1890s (See **Figure 12**). The current building was constructed in 1917 and used as a wine bar.

The 1917 building is the heritage listed building and is currently used as an espresso bar and tattoo studio (See **Figure 13**)

Figure 12. O'Neill's Wine original buildings, 1904 (Sellars 2017)

Figure 13. O'Neill's Wine Bar building in 2024.

The State Heritage Inventory form for the former O'Neill's Wine Bar building describes the significance of the site as:

Provides evidence of the important role of the Wollombi Road in opening up the Hunter for settlement. Of local historic significance for its association with the property, wine growing, wine making and selling of an early wine grower, Patrick O'Neill.

2.4 HERITAGE ITEM #181: CESSNOCK WEST PUBLIC SCHOOL

Cessnock West Public School is located at 113 Wollombi Road. The initial building of Cessnock West Public School was built by M. Audet and was completed in 1920, containing three classrooms and providing accommodation for 148 pupils (NSW State Heritage Inventory, 2024). Initially the school was an "Infants school", however in 1925 six additional classrooms were constructed to turn the school into a primary school, which it continues to function as currently (See **Figure 14**). Additional buildings have been constructed on site from 1925. The entire school grounds are listed as the heritage item for their importance to the history of the Cessnock locality (See **Figure 15**).

Figure 14. Cessnock West Public School after the 1925 construction and conversion to a public school. Source: Cessnock City Library.

Figure 15. Cessnock West Public School Modern Aerial Photograph. Source: Cessnock West Public School (2024).

The State Heritage Inventory form for Cessnock West Public School describes the significance of the site as:

> *Of local historical significance demonstrating the substantial growth of Cessnock from 1905 as a mining town and as the administrative centre for the South Maitland Coalfields. With the pubs, co-op stores, Masonic temple, the primary school is one of the community facilities which form part of the distinctive character of the mining towns.*

2.5 HERITAGE ITEM #182: THE AUSTRALIA HOTEL

The Australia Hotel is located at 136 Wollombi Road. The Australia Hotel was opened in 1924 by Joseph Summer (Pike et al. 1994). The initial hotel was a wooden temporary structure, which was replaced by the current two-story brick structure I 1925 (Brick structure pictured **Figure 16**). Summer held the licence until November 1925 when it transferred to Ernest Garrett, who held it until 1938. The Australia Hotel is still operational as a hotel at the time of writing (**Figure 17**).

Figure 16. Australia Hotel during Garrett's Licencing (Galloway).

Figure 17. The Australia Hotel in 2024

The State Heritage Inventory form for the Australia Hotel describes the significance of the site as:

> *One of a group of intact pubs which distinguish the towns of the City of Cessnock local government area, and which are closely associated with the development of those towns, their mines and their economy.*

3. Heritage Assessment of the Project Area

3.1 ASSESSMENT OF SIGNIFICANCE

Accurate assessment of the cultural significance of sites, places and items is an essential component of the NSW heritage assessment and planning process. A clear determination of a site's significance allows informed planning decisions to be made for a place, in addition to ensuring that heritage values are maintained, enhanced, or at least minimally affected by development. Assessments of significance are made by applying standard evaluation criteria.

In New South Wales, two levels of significance exist in the heritage management system; Local and State. State heritage significance applies in relation to a place, building, work, relic, moveable object, or precinct. It means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural, or aesthetic value of the item. Local heritage significance applies in relation to a place, building, work, relic, moveable object, or precinct. It means significance to a local area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural, or aesthetic value of the item.

The *NSW Heritage Act* notes that if an item is primarily of State heritage significance it can also be of local heritage significance; an item that is primarily of local heritage significance, however, may not necessarily be of State heritage significance (NSW Heritage Branch, 2009: 7).

The *Burra Charter: Australia ICOMOS Charter for Place of Cultural Significance* is the widely accepted reference document for heritage conservation standards in Australia. The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians. It contains a set of thirty-four principles, defined as Articles, which can be directly applied for management of heritage items, or places. The definition of 'place' used throughout the *Burra Charter* means *site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views* (Definitions, The Burra Charter: Australia ICOMOS Charter for Places of Cultural Significance 2013, Article 1).

The Burra Charter notes that cultural significance of a place is embodied in its physical fabric, settings, contents, use, associated documents, and its meaning to people through their use and associations with the place. Its cultural significance and issues affecting future use are best understood by a methodical process of collecting and analysing information prior to making decisions. To assist with this, NSW Heritage have guidelines for assessing significance for a place / item which refer to the following seven assessment criteria see **Table 2** below.

The sandstone kerb and guttering within the project area is assessed as per these guidelines, see **Table 3**. The other four heritage items discussed within this assessment are all listed on the State Heritage Inventory as having local heritage significance, therefore will not have their significance reassessed for this project.

Table 2. Significance Assessment Criteria (Heritage NSW: 2001)

Heritage Criteria	Significance description
Criteria A; historical	An item is important in the course or pattern of NSW's cultural or natural history (or the cultural or natural history of the local area)
Criteria B; associational	An item has strong or special associations with the life or works of a person, or group of persons, of importance in NSW' cultural or natural history (or the cultural or natural history of the local area);
Criteria C; aesthetic, creative or technical	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

Criteria D; social values	An item has strong or special associations with a particular community or cultural group in NSW (or the local area) for social, cultural, or spiritual reasons
Criteria E; scientific or archaeological value	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area
Criteria F; rarity value	An item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area
Criteria G; representative value	An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural and natural environments

3.2 SIGNIFICANCE ASSESSMENT

3.2.1. Criteria A - Historical Significance

Historical photographs place the implementation of the sandstone kerb in the project area between 1914 and 1923.Noting there is some disparity as records also analysed by Nelson Consulting show that the kerb and road construction projects during the Great Depression also modified, repaired, and led to additional sandstone kerb and guttering construction in Bellbird and Wollombi (refer to Nelson Consulting 2022, 8-9).

The listings for the kerb designate the kerb as having a local heritage significance for its representation of the establishment and survival of a form of early street architecture within the Cessnock LGA. The modifications, and unemployment relief projects in the region during the Great Depression may have led to modifications to the kerb and guttering in the project area. As the sandstone kerb of the project area was potentially constructed prior to the Great Depression, based on the review of historical photographs. Similar sandstone kerb is found in many suburbs of the Cessnock LGA, and is heritage listed for local significance in Abermain, Braxton, Greta, Kurri Kurri, Neath, Weston, and Wollombi. The sandstone kerb and guttering documents history of street architecture and it does meet the requirement of historical significance under the criteria.

3.2.2. Criteria B – Historical Associational

There was no evidence found during archival research which directly linked the sandstone kerb and guttering within the project area with a person, organisation, or group of people of importance in the cultural or natural history of Bellbird or the Cessnock LGA. It does not meet this criterion.

3.2.3. Criteria C – Aesthetic/Creative/Technical Achievement

The sandstone kerb and guttering are important in demonstrating the aesthetic characteristics of sandstone kerb and guttering projects in the period between World War 1 and the Great Depression in the Cessnock LGA. Other examples of Sandstone kerb and guttering in the LGA are associated with The Great Depression. The examples within the project area pre-date these examples, standing out as an early implementation of a style that would be more widely used in the area in later years, indicating heritage significance of these items to the area. The sandstone kerb and guttering within the project area meets this criterion for local significance for its aesthetic and technical significance.

It is noted that this kerb and guttering is modified in many sections and there are other examples identified in Nelson Consulting (2022), particularly in Wollombi associated with the Great North Road and in Branxton and other areas of the LGA in Table 7 of Nelson Consulting (2022:16) which are examples of

higher degrees of original fabric or in better condition or connected more directly with the early mining history of the LGA.

3.2.4. Criteria D – Social, Cultural and Spiritual Significance

The sandstone kerb and guttering in the project area are not known to have any particular links to communities or cultural groups. Unlike other examples listed by Nelson (2022) and Barry (2002), the sections of kerb and guttering in the project area are not directly tied to the economic relief programs and working gangs of the Great Depression. Therefore, the sandstone kerbs and guttering do not meet the criterion for social, cultural, or spiritual significance.

3.2.5. Criteria E – Research Potential

The sandstone kerb and guttering may present the opportunity for further research to be conducted into the history of the construction of Wollombi Road within Bellbird and Cessnock. Records for the construction of sandstone kerb and guttering within Cessnock LGA are notably lacking, having been destroyed in intervening years. This has been similarly noted in heritage listings for sandstone kerbs and guttering in the Cessnock LGA, such as the heritage listing for Neath's kerbs (Barry 2002). However, as an example of kerb and guttering that potentially predates those installed during the Great Depression's programmes, unique areas of research may identify in the project area.

Therefore, future research on sandstone kerb and guttering of the Hunter Valley region and Cessnock LGA may provide information about the construction of the road and quarrying of the sandstone and may require the sandstone of the project area to further this research. The sandstone kerb and guttering within the project area meets this criterion for heritage significance. However, there is no evidence to date based on the research in this assessment, to suggest there is sub-surface research potential of remains of earlier road infrastructure or structural features associated with domestic material cultural commercial or other types of occupation evidence.

3.2.6. Criteria F – Rarity

The sandstone kerb and guttering of the project area has been removed and altered as Wollombi Road and its surrounds have been changed over time. This has left the remaining sections of the kerb and guttering as a rarity within the area. Therefore, the sandstone kerb and guttering within the project area meets this criterion for heritage significance.

3.2.7. Criteria G – Representative Assessment

The sandstone kerb and guttering of the project area is representative of the early additions to and works on Wollombi Road prior to the unemployment schemes of The Great Depression (although these schemes may have modified or repaired the kerb and guttering if disturbed by flood events). These sections demonstrate the development of Wollombi Road, the development of the community in Bellbird and Cessnock, and are recognised as a unique style which has been removed from the area over time. Furthermore, these sections show later works on Wollombi Road and its surrounds, with cementing, tarring, cutting and removal events all evident on the sandstone within the project area. Therefore, the sandstone kerb and guttering within the project area meets this criterion for heritage significance.

3.3 INTEGRITY/INTACTNESS/CONDITION

The 2023 site inspection of the sandstone kerb and guttering for the project's Heritage Assessment (**Appendix B**) noted that the kerb had been impacted by road tarring, concreting, cuts for driveways and

drainage pipes, and removal in various areas. The sandstone has also been worn away in places, particularly the guttering blocks.

For more information of the integrity of the sandstone kerb and culverts, please refer to the Heritage Assessment report (2023a).

3.4 STATEMENT OF HERITAGE SIGNIFICANCE

The subject sandstone kerb and guttering has aesthetic significance within the Cessnock LGA setting and depicts the development of the road and the broader community over the past 100 years. There are other examples of this sandstone kerb and guttering within the Cessnock LGA, however, estimates for their dating are later than the 1910s-1924 installation of the sections within the project area. We concur with the view of Cessnock City Council Heritage Advisor Michael Edwards that the sandstone kerb and guttering contribute to the sense of place in the LGA and reinforces the urban and rural streetscape character of the various towns and villages across the Cessnock LGA (Edwards 2023). Further, the sandstone kerbs and guttering have research potential which would assist in confirming its construction period and source of sandstone.

3.5 GRADING OF SIGNIFICANCE

The heritage significance of an item must be assessed with regards to its level of significance. This is normally conducted by assessing individual elements of a heritage item. However, as the sandstone kerb is an item with a singular element, it will be assessed for its significance in its entirety. Table 3 provides a summary of different levels of significance of items or places of heritage values from the NSW Heritage Office Heritage Manual (revised 2001).

Table 3. Levels of significance of heritage value.

Grading	Justification	Status
Exceptional	Rare or outstanding element directly contributing to an item's local or State significance.	Fulfils criteria for local or State listing.
High	High degree of original fabric. Demonstrates key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Low	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or state listing.
Intrusive	Damaging to the item's heritage significance.	Does not fulfil criteria for local or state listing.

The sandstone kerb and guttering within the project area is of **moderate** significance.

The sandstone kerbs and guttering were likely installed between 1914 and 1924. It shows signs of several stages of works to Wollombi Road and has been cut and removed to accommodate driveways and cement kerb throughout the area. Sections of the kerb have marks of picking, indicative of the sandstone block manufacture method.

The sandstone kerbs and guttering of the project area were assessed to have a high heritage significance part of a broader significance assessment of sandstone kerbs and guttering in the Cessnock LGA conducted by Nelson (2022). However, the aforementioned research findings and items' condition found during the inspection conducted for this assessment have provided further detail that have resulted in a moderate heritage significance assessment.

4. Legislative Requirements

The *NSW Heritage Act 1977* is the principal document governing the management of heritage items (relics and places containing relics) in NSW. Environmental heritage is broadly defined under Section 4 of The Act as comprising those places, buildings, works, relics, moveable objects, and precincts, identified as being of State or local heritage significance. Aboriginal places or objects that are recognised as having high cultural value (potentially of State significance) can be listed on the State Heritage Register and therefore are protected under the provisions of the *Heritage Act*. However, Aboriginal cultural heritage objects and places are protected under the *NSW NPWS Act 1974*.

Protection for heritage items listed on statutory registers in NSW is provided by the *NSW Heritage Act 1977* (amended 1998) and the *Environmental Planning and Assessment Act 1979*. Heritage listings are made on either statutory or non-statutory registers. Non-statutory registers include listings of items or places which have heritage significance, but these registers (such as the National Trust) do not provide legal protection for the items listed.

Other planning instruments that include statutory listings for heritage items in NSW include Local Environmental Plans (LEP's), which are prepared in accordance with the requirements of the *NSW Environmental Planning and Assessment Act, 1979*. They are designed to integrate heritage management and conservation into the planning and development control process to ensure that development does not affect the significance of heritage items or conservation areas.

4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The NSW Department of Planning, Industry and Environment (DPIE) currently administers the *EPA Act*, which provides for environmental planning instruments to be made to legislate and guide the process of development and land use. Local heritage items, including known archaeological items, identified Aboriginal Places and heritage conservation areas are protected through listings on Local Environmental Plans (LEPs) or Regional Environmental Plans (REPs). The Act also requires that potential Aboriginal and historical archaeological resources are adequately assessed and considered as part of the development process, in accordance with the requirements of the NPW Act and the Heritage Act.

Schedule 5 (Items of Environmental Heritage) of the Cessnock Council LEP 2011 was searched to identify any heritage items listed on this planning instrument within the vicinity of the subject site.

- Wollombi Road is not a heritage item.
- The sandstone kerb and guttering within the project area is not listed as a heritage item of the LEP. However, it was recommended for listing on the Cessnock LEP by Nelson (2022).
- There are four heritage items listed on the Cessnock City Council LEP and on the State Heritage Inventory directly adjacent to the project area (See **Table 1**).

4.2 NSW HERITAGE ACT

The entire *NSW Heritage Act* protects heritage, however historical archaeological remains are additionally protected from being moved or excavated through the operation of the 'relics' provisions. Division 9 (s139) of the Act specifically deals with the protection of relics and it protects unidentified 'relics' which may form part of the State's environmental heritage, but which have not been listed on the State Heritage Register or protected by an Interim Heritage Order.

5. Assessment of Impact

The sandstone kerb and guttering is assessed as having local heritage significance for its aesthetic, social and representative values, however it is not a heritage item listed on the Cessnock City LEP (2011). The following questions are presented in the NSW Guidelines for preparing a SoHI (2023) as questions that need to be considered for a statement of heritage impact.

Once the final project design is known, if Council needs to remove, replace and/or alter the sandstone kerb and guttering, following advice already provided by Council's Heritage Advisor and considering Nelson (2022), a condition report of the affected sections of the sandstone kerb and guttering must be undertaken by a qualified engineer with heritage experience to inform further management. This may require a revised Statement of Heritage Impact and/or an Archival Recording report, dependant on the outcome of the condition report and the final project design. This SoHI has been written as advised by Council's commitment to this project to avoid harm to the sandstone kerb and guttering.

5.1 STATEMENT OF HERITAGE IMPACTS

The following questions are presented in the NSW Guidelines for preparing a SoHI (2023) as general considerations when preparing a statement of heritage impact

5.1.1. Do the proposed works include removal of unsympathetic alterations and additions? How does this benefit or impact the heritage item and its significance?

The project has been designed to avoid any direct harms to the sandstone kerb and guttering, and registered heritage items. The works therefore do not remove unsympathetic alterations or additions, nor impact the heritage item or its significance directly.

5.1.2. Do the proposed works affect the setting of the heritage item, including views and vistas to and from the heritage item and/or a cultural landscape in which it is sited? Can the impacts be avoided and/or mitigated?

The proposed works will temporarily affect the setting of the heritage items by impacting on the views and vistas to and from the heritage items during project works. Once project works are completed the current view and vistas to and from the heritage items will be the same as they are at the time of writing due to their nature as road works. These impacts cannot be avoided or further mitigated.

5.1.3. Are the proposed works part of a broader scope of works? Does this proposal relate to any previous or future works? If so, what cumulative impact (positive and/or adverse) will these works have on the heritage significance of the item?

The proposed works are part of the larger Wollombi Road Upgrade Project, which includes a further stage of works. This further stage of works, however, will not impact on the heritage items within the project area of this assessment based on the project impact information and knowledge of fabric during the completion of this SoHI.

5.1.4. Are the proposed works to a heritage item that is also significant for its Aboriginal cultural heritage values? If so, have experts in Aboriginal cultural heritage been consulted? Has the applicant checked if any other approvals or a separate process to evaluate the potential for impacts is required?

There are no known Aboriginal objects within the project area. An Aboriginal Objects Due Diligence report was undertaken for the project, which evaluated the potential for Aboriginal objects for this project (Virtus Heritage 2023b). We acknowledge the project is within Wonnarua country and the lands of the Mindaribba LALC LGA and that to Aboriginal people cultural values are not removed or altered by highly modified landscapes such as the proposed road works.

5.1.5. Do the proposed works trigger a change of use classification under the National construction code that may result in prescriptive building requirements? If so, have options that avoid impact on the heritage values been investigated?

This is outside our scope of works for this project.

5.1.6. If the proposed works are to a local heritage item, are the requirements of the development control plans or any local design guidelines that may apply to the site considered?

As noted in earlier sections of this SoHI, Council's *Part D: Specific Development, Chapter 12: Heritage Conservation and Design Guidelines* (2010) were considered for the completion of this SoHI.

5.1.7. Will the proposed works result in adverse heritage impact? If so, how will this be avoided, minimised, or mitigated?

The additions will not visually dominate the heritage items as the road is situated lower than the listed heritage items, and the materials being used will not interfere with the views of the sandstone kerb and guttering. Adverse impact through potential indirect impacts to the heritage items and kerb and guttering can be minimised through vibration and dust mitigation and the use of protective measures such as temporary fencing/barriers and protective covering f the sandstone kerb and guttering during proposed works.

5.2 CONSIDERATIONS FOR WORKS ADJACENT TO A HERITAGE ITEM LISTED ON AN LEP

The following questions are presented in the NSW Guidelines for preparing a SoHI (2023) as specific considerations for works adjacent to a heritage item listed on an LEP.

5.2.1. Will the proposed works affect the heritage significance of the adjacent heritage item or the heritage conservation area?

The public and users of the heritage items will still be able to view and appreciate the significance of the heritage items and sandstone kerb and guttering after completion of the proposed works. There may be some temporary impact to public amenity and visual aesthetics of the project area during works only.

5.2.2. Will the proposed works affect views to, and from, the heritage item? If yes, how will the impact be mitigated?

The proposed works will obscure views to and from the heritage items for the duration of the project. After the completion of the project works, the views to and from the heritage items will be restored.

5.2.3. Will the proposed works impact on the integrity or the streetscape of the heritage conservation area?

The proposed works will impact on the streetscape of the area around the heritage items; however, the project area is not within a heritage conservation area.

5.3 INDIRECT IMPACTS – VIBRATIONAL

Vibration inducing equipment, such as rollers and jack hammers, would be required for the project works in close proximity to the sandstone kerb and the heritage listed items. This equipment has the potential to harm heritage items. The project has been recommended the following minimum distances of work for equipment from heritage items, as set by the DIN 4150 structural vibration standards, for equipment usage to ensure the protection of heritage items, as set out in the project acoustic assessment (RAPT Consulting 2024):

Table 4. Minimum distance recommendations for equipment from Rapt Consulting (2024)

Equipment	Rating/Description	Minimum Distance from Heritage Items
Vibratory Roller	<50kN (1-2 tonne)	11m
	<100kN (2-4 tonne)	13m
	<200kN (4-6 tonne)	15m
	<300kN (7-13 tonne)	31m
	>300kN (13-18 tonne)	40m
	>300kN (>18 tonne)	50m
Small Hydraulic Hammer	300kg (5 to 12 tonne excavator)	5m
Medium Hydraulic Hammer	900kg (12 to 18 tonne excavator)	15m
Large Hydraulic Hammer	1600kg (18 to 34 tonne excavator)	44m
Vibratory Pile Driver	Sheet Piles	5m to 40m
Pile Boring	<800m	5m
Jack Hammer	Handheld	3m

Rapt Consulting (2024)'s advice on minimum distances for equipment including the implementation of the mitigation measures if recommended by the acoustic and noise consultant for this project (including

dilapidation surveys, buffer zones, and vibration monitoring where buffer zones cannot be met) should ensure that any significant impacts to heritage items and the sandstone kerb and guttering is mitigated.

6. Mitigation and Management Recommendations

In conclusion, the impacts of project activities will not have a direct effect on identified heritage items due to the project being designed to avoid any direct harm to the heritage items assessed in this report. However, the project activities may have indirect impacts on associated heritage items. Therefore, the following heritage mitigation measures are recommended to SLR and CCC with regard to relevant guidelines and management strategies and taking into account Rapt Consulting (2024)'s recommendations:

- The sandstone kerbs and guttering are to be flagged and fenced to mitigate against impact where appropriate.
- Processes such as the laying of bitumen are to be appropriately managed to ensure there is no impact on sandstone kerb. Management could include measures such as laying protective materials on the surface of the sandstone and kerb to protect it from bitumen blowing onto the surface during spraying and laying and potentially damaging the faces of sandstone kerb and guttering.
- The recommended minimal distances for equipment operating in proximity to heritage listed items listed in RAPT Consulting 2024, and the DIN 4150-3 (1999-2002) must be maintained around the heritage items adjacent to the project area for the duration of all projects works to ensure no damage to heritage items occurs.
- The recommended minimal distances for equipment operating in proximity to heritage listed items listed in RAPT Consulting 2024, and the DIN 4150-3 (1999-2002) should also be maintained where possible in proximity to the sandstone kerb and guttering to ensure vibrational impacts do not cause damage to these items.
- If Council, during the final design process, determine that any sandstone kerb and guttering needs removal, replacement or lifting (either temporarily or permanently), following the policies set out in Nelson Consulting (2022) by Council, the following actions must occur prior to works proceeding:
    - Council's Heritage Advisor determines with Heritage NSW if there is a required notification or consent pathway prior to works proceeding. Note that this action may require an additional revised impact assessment and/or archival recording depending on the outcome of the consultation with Heritage NSW.
    - Actions must be undertaken by Council or Council's delegated project manager in accordance with Policy Objectives 3 and 5 of Nelson (2022); in particular (bold is used to emphasise critical points):

*8.1.3 Policy objective 3 – **Documentation***
Rationale
This CMS, when formally endorsed, should guide the management of the CCC sandstone kerb and gutter.
Policy
• The Statements of significance (Section 5.2) and the Conservation Policies (this section) should provide the basis for the future management of CCC sandstone kerb and gutter.
• This CMS should be reviewed within five years of endorsement with revisions and amendments undertaken, as necessary.
• Where conservation works are undertaken, prior investigation and assessment should be

conducted including ***archival recording in accordance with Heritage NSW requirements****.*

8.1.4 Policy objective 5 – ***Conservation of fabric***
Rationale
Retention and conservation of fabric is fundamental to significance.
Policy
• Identified significant fabric should be conserved in accordance with management guidelines.
• All conservation works should be undertaken by suitably qualified persons, in accordance with accepted professional conservation, charters, guidelines and methods.

- A site induction must be undertaken by all workers. This induction must convey the above recommendations and must explain that if unexpected archaeological remains are uncovered as a result of this project, then work must cease in the affected area which is to be fenced off. Information should be sought in the first instance from a suitably qualified archaeologist who will provide advice on next steps and could arrange for the finds to be recorded in situ.

There may also be a requirement for approval from the Heritage Council of NSW for an archaeological permit to remove any identified relics, as also noted in Nelson Consulting (2022). Reference can be made to the Transport for NSW Unexpected Heritage Finds Guidelines (2021) of relevance for roadworks. Please note that potential archaeological discoveries include the following items:

  - Remains of other infrastructure including sandstone or bricks, drainage services, conduits, old kerb and pavement, former road surfaces, timber and stone culverts, bridge footings and retaining walls, artefact scatters including broken and complete bottles, glass, ceramics, animal bones and clay pipes.

REFERENCES

Barry, J (2002) Heritage assessment and statement of heritage impact – sandstone kerb and guttering, Cessnock Road, Neath. Unpublished report to Road Transport Authority.

Galoway, A, *Cessnock West Public School (N.S.W.) [photograph]*. Accessed 23 February 2024. Found at https://cessnock.spydus.com/cgi-bin/spydus.exe/FULL/WPAC/ALLENQ/6169737/3408383,3

Cessnock West Public School 2024, *Our School.* Accessed 23 February 2024. Found at: https://cessnockw-p.schools.nsw.gov.au/gallery/extracurricular-.html#Our%20School-2

Edwards, M. (2023) E-mail to Rob Dwyer, forwarded to Garth Thompson and Gina Scheer, Virtus Heritage, 3 October.

Galloway A, 1876-1945, *The Australia Hotel (Cessnock, NSW)*.

DPE 2023, *Guidelines for Preparing a Statement of Heritage Impact*.

ICOMOS Burra Charter 2013. The Burra Charter.

Nelson Heritage Consulting 2022. City of Cessnock – Sandstone kerb and gutter Conservation Management Strategy.

NSW State Heritage Inventory, 2024, *Cessnock West Public School,* Accessed 22 February 2024. Found at: https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=1340530

Pike. P, Walker. M et al. 1994, *City of Cessnock Heritage Associates*, Cessnock City Council.

RAPT Consulting, 2024, *Acoustic Assessment – Wollombi Road Upgrade DRAFT*, for KBR

Sellars K, 2017 'Family reunion for descendants of Patrick John O'Neill at Cessnock on October 28' in *The Singleton Argus*. Accessed 23 February 2024 at: https://www.singletonargus.com.au/story/4980725/calling-all-oneills/

Swann J, 'Reproducing historic ashlar finishes in sandstone' in Discovering Stone, No. 19.

The Cessnock Eagle and South Maitland Recorder (1921). "Cessnock Shire Council". 3 June. Pg 4.

The Cessnock Eagle and South Maitland Recorder (1941). "Kearsley Shire Council: Fortnightly Meeting". 9 May. Pg. 3.

The Cessnock Eagle and South Maitland Recorder (1941). "Kearsley Shire Council: Fortnightly Meetings". 12 September. Pg 6.

Virtus Heritage, 2023a, *Wollombi Road Upgrade Project Heritage Assessment*, for SLR Consulting on behalf of Cessnock City Council.

Virtus Heritage, 2023b, *Wollombi Road Upgrade Project Aboriginal Archaeological Due Diligence Assessment*, for SLR Consulting on behalf of Cessnock City Council.

Appendix A Project Plans

Appendix B Wollombi Road Upgrade Project Heritage Assessment (Virtus Heritage 2023)

VIRTUSHERITAGE

Wollombi Road Upgrade Project

Cessnock, NSW

Heritage Assessment

Final • October 2023

Prepared for SLR Consulting Australia Pty Ltd on behalf of Cessnock City Council

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Cover image: View west along Wollombi Road (G. Thompson

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Abbreviations Used

CCC	Cessnock City Council
DA	Development Application
HA	Heritage assessment report
HCA	Heritage conservation area
LEP	Local Environmental Plan
LGA	Local Government Area
SoHI	Statement of Heritage Impact
SHI	State Heritage Inventory
SHR	State Heritage Register

EXECUTIVE SUMMARY

Virtus Heritage was engaged by SLR Consulting Australia Pty Ltd (SLR) on behalf of Cessnock City Council to prepare the following Heritage Assessment (HA). This report addresses a 4km section of Wollombi Road located within the Cessnock Local Government Area (LGA), connecting the localities of Bellbird and Cessnock (the project area). The road itself is not a listed heritage item, however, it is directly adjacent to several heritage items along the project area.

This assessment confirms local heritage significance for the project area. The significance relates to the following heritage values - historical, associational, social, research and archaeological and representative and are explained herein. In addition, there are numbers of heritage listed buildings located along the roadway that will need to be considered by a statement of heritage impact addressing the proposed works and submitted to Cessnock City Council.

This assessment confirms that a statement of heritage impact report addressing the impacts on the identified heritage significance and archaeological significance will be required prior to any works commencing. This report will provide management and mitigation methods, if any are required, such as protection of the sandstone kerb and guttering and if any further information is required. As stated, this statement of heritage impact report will need to address the following:

- any physical impacts to the historical sandstone kerb and guttering
- any impacts in relation to the heritage property boundaries, note that there are fifteen heritage items located within the works area that will need to be assessed in relation to proposed impacts
- any vibration impacts and visual impacts on the identified heritage items.

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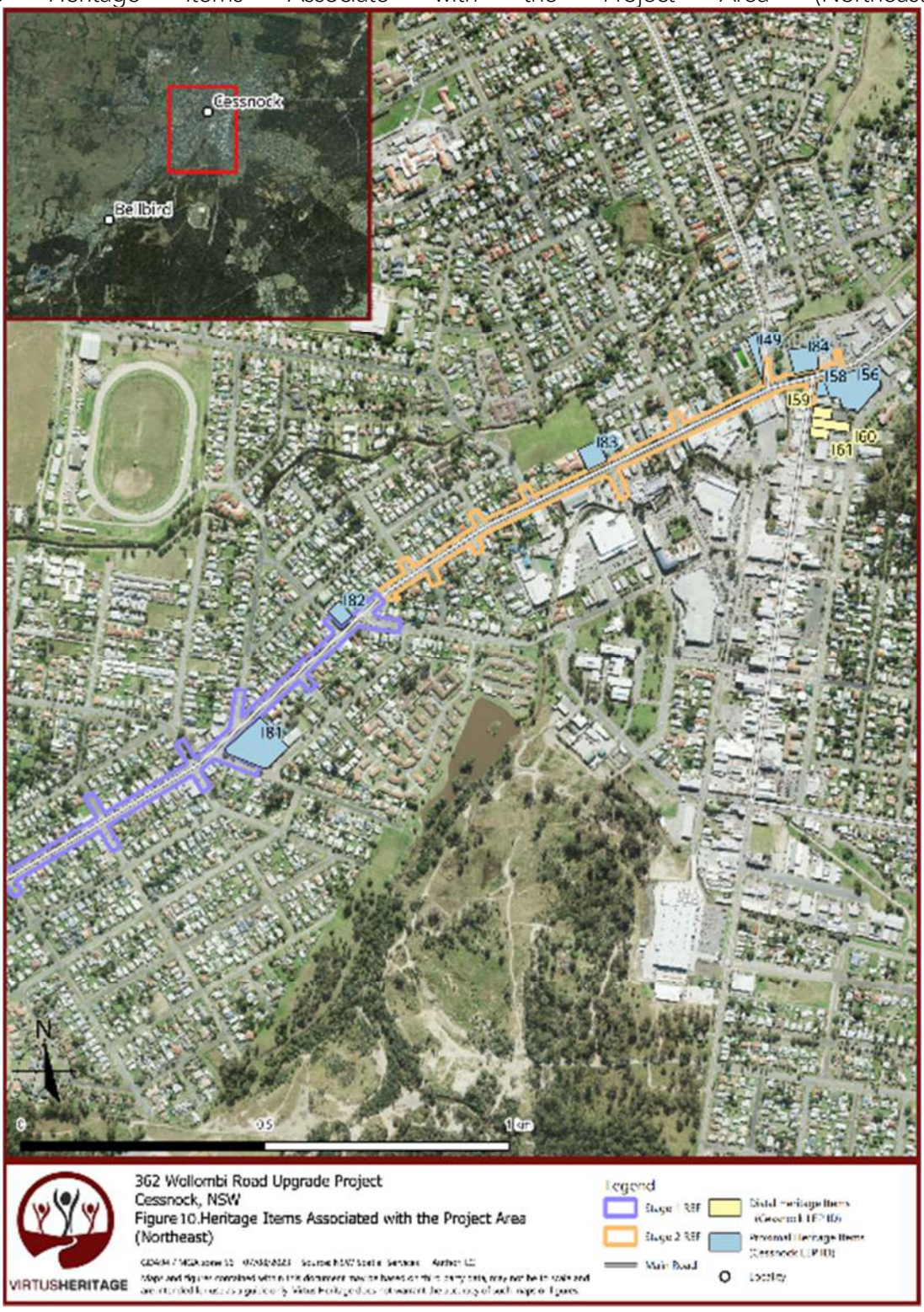


1. INTRODUCTION

Virtus Heritage Pty Limited (hereafter Virtus Heritage) were engaged by SLR Consulting Australia Pty Ltd (SLR) on behalf of Cessnock City Council to prepare the following heritage assessment addressing the proposed works for the Wollombi Road Upgrade Project (the project).

This heritage assessment (HA) has been commissioned to establish any heritage significance for a 4km stretch of Wollombi Road between Abbotsford Street and Vincent Street between Bellbird and Cessnock (the project area), and to provide information relevant to the heritage management of the site. This report addresses the proposed works and the works area in relation to historical heritage issues to provide information about any required next steps in line with statutory controls relating to heritage.

1.1 Project Description and Methodology

Cessnock City Council are investigating the upgrade of Wollombi Road to ease traffic congestion throughout the project area. The project is split into three stages, namely the Early Works Stage, the Stage 1 Area and the Stage 2 Area. The design of Stage 2 is yet to be finalised; however, the impacts and general works are understood to be similar to Stage 1's. The project impacts of the stages and works at the time of reporting are:

- Removal / relocation or protection of existing utilities within the project area;
- Installation of erosion and sediment controls;
- Topsoil stripping;
- Establishment of a hardstand, compound, laydown/stockpile, and safe park area.
- Instillation of temporary security and pedestrian fencing;
- Vegetation clearing of exotic trees within the road reserve;
- Removal and demolition of existing pavements, kerbs and gutters where required.
- Excavation of existing road surface and road base;
- Minor embankment cuttings where required;
- Installation of new drainage pipes and pits;
- Utility works where necessary;
- Construction of pavement layers including fill materials, road bases and asphalt;
- Construction of kerb and guttering on southeastern side of the road reserve;
- Implementation of major and minor sign structures, traffic lights and street lighting;
- Relocation of bus stop signs and furniture;
- Construction of a shared pathway;
- Construction of tie-ins to existing pavement at the extents of the activity area;
- Installation of road furniture where required (i.e., lighting, safety barriers and guideposts).
- Landscaping works.

Our methodology to complete the heritage assessment report is based on the Heritage Council of NSW *Guidelines for Assessing Cultural Heritage Significance* (DPIE, 2001). Virtus Heritage also refer to The *Burra Charter* (ICOMOS 2013) as it is a best practice guideline in the assessment of significance and if or when considering management and potential conservation practices. The following steps have been taken for completion of this report:

- Liaison with Robert Dwyer, Technical Director at SLR;
- Review of information provided by SLR including history, stakeholder consultation and REF concept designs;
- Limited research and review of historical information relating to the area;
- Site survey with information recorded;
- Completion of a heritage assessment and statement of significance;
- Inclusion of statutory requirements in relation to historical heritage and CCC obligations; and
- Conclusions and recommendations.

1.2 Authorship and Acknowledgements

This report was compiled by Garth Thompson (M. Archaeological and Evolutionary Science, Australian National University) Graduate Archaeologist at Virtus Heritage. Gina Scheer (M. Heritage Conservation and BA Hons Archaeology, University of Sydney) has provided further information and undertaken quality review in line with our Quality Assurance system. Unless otherwise stated, all photographs have been taken by Garth Thompson, Virtus Heritage Pty Ltd on Tuesday 25th July 2023.

1.3 Site Location

The project area for this assessment is a 4km stretch of Wollombi Road in Bellbird, and Cessnock NSW. The area is shown in the aerial photograph overleaf, Figure 1 and further information is provided in Section 3.

1.4 Limitations

This report is limited to assessing the non-Aboriginal heritage significance of the project area.

The design of Stage 2's works are not finalised at the time of writing this assessment. Stage 2 works are understood in this assessment to be similar in impact to Stage 1 and Early Works Stage impacts. Any additional impacts designed after this assessment's publishing may not be considered within.

No road maintenance history was able to be obtained during the reporting process of this assessment. It is understood that Cessnock City Council will have maintenance records relevant to road resurfacing, etc. which will need to be made available for a statement of heritage impact.

2. HISTORICAL SUMMARY

2.1 Cessnock

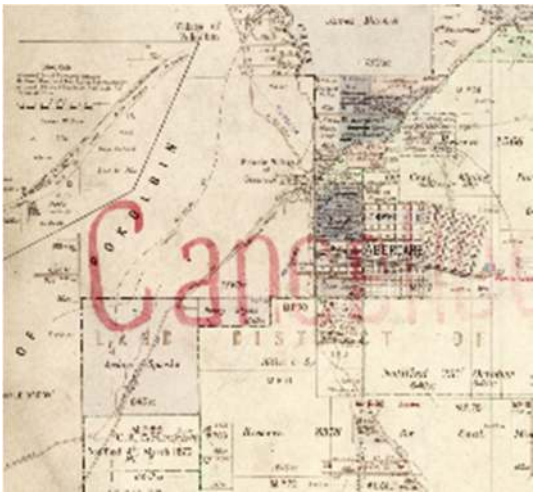
The City of Cessnock is located within the lands of the Wonnarua Nation, though Cessnock as an LGA contains the traditional lands of Awabakal and Darkinjung people also. Wonnarua land reaches from the Upper Hunter River to the north, west to the Great Dividing Range, and south to Wollombi. Today, the project area is within the boundaries of the Mindaribba Local Aboriginal Land Council.

The city of Cessnock is located within the Hunter region of NSW. John Howe made the first European (English) recorded journey into the region in 1819, although there were likely encroachments into the area by timber cutters and escaped convicts prior to this (Umwelt 2014). The colonial surveyor Henry Danger began a detailed survey of the lower Hunter Valley in 1822, which would swiftly be followed by English settlement in the valley (*ibid*).

The first land grant in Cessnock was made in 1829 to David Campbell, who chose the name Cessnock after Scotland's Cessnock Castle (University of Newcastle 2023). The same year, the Great Northern Road would be connected to the area from the north. However, the road would finish at Wollombi in 1836, with traffic through Cessnock starting from this time (Cessnock City Council 2023). The Cessnock Hotel was built in 1855 to serve as a resting point for travellers travelling the Great Northern Road. Although there were increasing travellers in the Hunter, the population of Cessnock remained tiny. In 1858 the then hamlet of Cessnock was recorded as having between seven and 11 adult residents,(Umwelt 2011).

The shire of Cessnock was established in 1906. Notable increases in population were felt after the establishment of nearby mines, namely the mines at East Greta (1891), and the Collieries south of Cessnock (1920s). In 1926, Cessnock would be declared a municipality with a population of 14000. The population would continue to grow from here, with parish maps showing the spread of residences from Aberdare to Cessnock and finally along Wollombi Road to Bellbird (refer to Figure 2). In 1903 Cessnock was still recorded as a village and Aberdare, now a suburb of Cessnock was noted to the town of Aberdare.

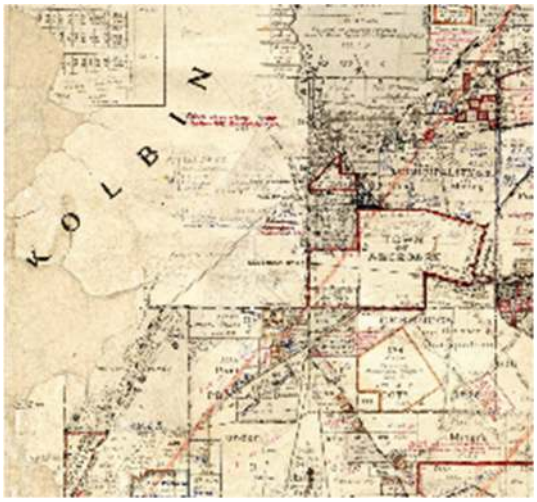
Figure 1 Historical Parish Maps.



1903 Cessnock Parish Map

1923 Cessnock Parish Map

1937 Cessnock Parish Map



1945 Cessnock Parish Map

2.2 The Project Area (Wollombi Road)

The project area is a 4km stretch of Wollombi Road from Abbortsford Street in Bellbird to Vincent Street in Cessnock (refer to Figure 1). Wollombi Road connects Cessnock to Wollombi over its 57.5 km length. The road also runs through several localities including Millfield, Paxton and Bellbird. Wollombi Road was constructed between 1826 and 1834 with convict labour as a part of the Great Northern Road.

The Great Northern Road was an ambitious project and is 240km long. It was planned as a much needed link to the entire Hunter Valley, and as a result of this goal it was planned by Surveyor Mitchell with three major branches, separating firstly at Wollombi and then splitting again at Broke. After initial survey in 1825, gangs were sent to Newcastle in 1827 and by July were around Maitland and Iron Bark Creek. By early 1829 the Maitland to Wollombi branch was ' opened, burnt off and cleared to within 18 miles of young (Richard) Wisemans'(land)', and later that year gangs were working on the ridge points. Unlike some other sections, this branch remained in use. When the Peats Ferry Road came into use in the 1840s it joined the Great North Road at Mt McQuoid (Bucketty) and then continued to Wollombi and then to Maitland. The road-line then followed the meanderings of the Wollombi Brook on the east side through Sweetmans Creek to Millfield, Bellbird and Cessnock. Beyond Cessnock a newer diversion proceeds via Neath, Weston and Kurri Kurri to Maitland (Lavelle, Karskens, 1998).

Wollombi Road reached Cessnock in 1829 from Newcastle, which enabled the first European settlement in the area now known as Cessnock. The road would connect to Wollombi in 1836, which would establish Cessnock, and particularly the Cessnock Hotel, as a rest stop for travellers along the road (Cessnock City Library 2023). The Great Northern Road forks at Wollombi, with one route continuing to Warkworth, and the other being Wollombi Road (Cessnock City Council 2023).

The original Great Northern Road, including the project area, was laid following the design of Scottish engineer John McAdam. By 1828, only four years after McAdam published his major work in England, Edmund Lockyer the Surveyor of Roads and Bridges in New South Wales, , issued detailed instructions to his Assistant Surveyors which were a hybrid of Telford's and McAdam's roads. He directed that the roadway be built from 'whinstone' or ironstone broken to a gauge of one and a half to two inches (38 to 51 mm) and laid 6 inches (152.4mm) deep and 21 feet (6.4m) wide. The wearing surface was to be a coat of ironstone gravel screened to remove soil, as both Telford and McAdam

recommended. These directives are very similar to a road design prepared by another notable English road engineer of the time, Thomas Telford. The difference was that for the extensive colonial roads being planned and laid in NSW, the expensive foundation had been omitted, as suggested by McAdam. The road gang reports reveal that a large proportion of the men in the (convict) gangs were employed breaking stone, and in picking, shovelling and raking gravel (Lavelle, 1999: 11).

The road was multi-layered with a soil and crushed stone aggregate that was then condensed with heavy rollers, locking the layers in together (Umwelt 2014). This gravelled road was noted at the time of construction for its notably high standard (Pictured in Figure 3). The 1903 Parish map of Cessnock lists the width of Wollombi Road within the project area as being "125 Links Wide" which would place the road as approximately 25m wide. Generally, rural roads in Australia measure 30m and surburban roads measure 20m.

In 1999 a conservation management plan was prepared for the Great North Road by archaeologist Siobhan Lavelle and historian Grace Karskens. That report described the section of Wollombi Road from Wollombi to Maitland via Cessnock as Section 5. They noted that the Great North Road splits at Wollombi, where the main intersection of the village forms the departure point for the alternate major branches of the road. Section 5 proceeds towards Maitland. The road is two lanes and is sealed for the 20 km from Wollombi to Cessnock. There are several creek crossings and bridges between Wollombi and Cessnock, however during field inspection none of these appeared to retain any early features. Some areas of side cutting through sandstone ridges also appear to have been affected by subsequent upgrading and widening works (c1940s / 50s style cuttings were evident). Most of the original pavements of the Great North Road have not survived as a result of subsequent sealing, grading, weathering and erosion. The CMP did not identify the section of Wollombi Road as being of significance, although areas further south (Crossings of The Wollombi Brook, Precinct 6.1.0, Sec 6, Of Great North Road) and north, the Old Maitland Road now (Sawyers Gully Precinct of Great North Road (Precinct 5.1.0) have been listed as heritage items.

Figure 2 Wollombi Road at Bellbird before being tarred (Cessnock City Library 2023).

There are no sections in the project area that include historical culverts or drains due to the flat character of the landscape. Kerbs and guttering were a much later innovation in line with the growth of development along the road. Notably, there is visible guttering along Wollombi Road made of sandstone, which appears to have been completed between 1914 and 1923 (Refer to Figures 4 and 5). This sandstone guttering can still be found sporadically within the project area.

Figure 3 Bellbird Hotel prior to construction in 1914 with no sandstone guttering on roadside, (Cessnock City Library 2023).

Figure 4 Wollombi Road in Bellbird with sandstone guttering in 1923 and also what could be a bitumen surface (Cessnock City Library 2023).

Wollombi Road was eventually tarred, though no date for this process, nor any construction/maintenance works have been identified in the reporting process to date. A 2008 article noted that "The road has only been tarred for its entire length for a relatively short time. A lot of locals, our correspondent not included, actually campaigned to keep it gravel, to discourage increased use by non-residents" (Roadrider, 2008)

3. SITE INSPECTION

A site inspection was conducted on Tuesday 25 July 2023 by Garth Thompson (Virtus Heritage), Liam Clerke (Virtus Heritage), with assistance from Rob Dwyer (SLR). The inspection began at the southwestern edge of the project area and covered the entire project area by surveying both sides of Wollombi Road. Weather conditions were clear and sunny with good visibility throughout the site inspection.

The majority of the project area was covered by the surface of Wollombi Road (refer to Figure 6). Throughout the site inspection Wollombi Road was extensively trafficked. One area within the early works phase was trisected to ensure 100% survey coverage (refer to Figure 1). This area was the property containing the remains of an old dairy, that had been demolished and removed in recent years.

Figure 5 typical view of Wollombi Road within project area.

Figure 6 The road surface and kerbside guttering in front of the Australia Hotel in Cessnock

3.1 Site Description

Whilst much of the project area is covered by Wollombi Road itself, the most notable find during the site inspection was the sandstone guttering which lines sections of both sides of the road within the locality of Bellbird (Refer to Figures 7 and 9). The guttering was well preserved, and is likely the same guttering installed prior to 1923. The remaining guttering is entirely within the Stage 1 works area, and no other area showed signs of the guttering still being in place, or in-situ.

Figure 7 Sandstone Kerbing and Guttering lining Wollombi Road within Bellbird

The remainder of the road was also found to contain no other notable aspects of heritage value. The original Wollombi Road has been tarred, all other guttering has been replaced with modern concrete guttering. The only notable buildings lining the project area that may have heritage significance were found to be listed on the City of Cessnock Local Environmental plan as heritage items. Most notable was the Bellbird Hotel, which is both a heritage item, and also still maintains the sandstone guttering along its front (refer to Figure 8 overleaf).

Figure 8 Bellbird hotel with sandstone guttering hard to see in this view

4. STATUTORY REGULATIONS AND REQUIREMENTS

The NSW Heritage Act 1977 is the principal document governing the management of heritage items (relics and places containing relics) in NSW. Environmental heritage is broadly defined under Section 4 of The Act as comprising those places, buildings, works, relics, moveable objects, and precincts, identified as being of State or local heritage significance. Significance is based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. Items of identified heritage at a level of State significance are listed on the NSW State Heritage Register (and included on the State Heritage Inventory – see below) and are afforded automatic protection against any activities that may damage an item or affect its heritage significance under the Act. Maclean Civic Hall / Mechanics Institute at 48 River Street Maclean is not listed as a State Heritage item.

Protection for heritage items listed on statutory registers in NSW is provided by the *NSW Heritage Act 1977* (amended 1998) and the *Environmental Planning and Assessment Act 1979*. Heritage listings are made on either statutory or non-statutory registers. Non-statutory registers include listings of items or places which have heritage significance, but these registers (such as the National Trust) do not provide legal protection for the items listed.

Other planning instruments that may include statutory listings for heritage items in NSW include Local Environmental Plans (LEP's), which are prepared in accordance with the requirements of the *NSW Environmental Planning and Assessment Act, 1979*. They are designed to integrate heritage management and conservation into the planning and development control process to ensure that development does not affect the significance of heritage items or conservation areas. Protection for heritage items listed on statutory registers in NSW is legislated within the *NSW Heritage Act 1977* (amended 1998) and *the Environmental Planning and Assessment Act 1979*.

Aboriginal places or objects that are recognised as having high cultural value (potentially of State significance) can be listed on the State Heritage Register and therefore are protected under the provisions of the *Heritage Act*. Aboriginal cultural heritage objects and sites are protected under the *NSW NPWS Act 1974*. Within the State, Heritage NSW are the approval body in conjunction with Aboriginal communities.

The NSW Heritage Act 1977 is the primary piece of State legislation affording protection to all items of environmental heritage (natural and cultural) in NSW. Under the Act, "items of environmental heritage" include places, buildings, works, relics, moveable objects and precincts. NSW State Heritage Inventory

The State Heritage Inventory (SHI) is a heritage database administered by NSW Heritage at the Department of Primary Industry and Environment. This database includes heritage listings from local and regional planning instruments, community-based heritage studies, State owned or managed heritage items as well as the State significant heritage items referred to above. This database was searched in relation to historical heritage items located within the immediate area of the subject property and the results were the same as those shown below for the Cessnock Council LEP listings (see tables overleaf).

- There are 247 heritage items listed within the Cessnock LGA, 5 of which are registered on the State Heritage Register, and 241 of which are listed in the Cessnock Local Environmental Plan 2011.

The entire *NSW Heritage Act 1977* protects heritage, but historical archaeological remains are additionally protected from being moved or excavated through the operation of the 'relics' provisions. Division 9 (s139) of the Act specifically deals with the protection of relics. It protects

unidentified 'relics' which may form part of the State's environmental heritage, but which have not been listed on the State Heritage Register or protected by an Interim Heritage Order. In 2009, amendments were made to the Heritage Act for the definition of an archaeological 'relic'. "A relic is now an archaeological deposit, resource or feature that has heritage significance at a local or State level. An archaeological site is an area which contains one or more archaeological relics" (NSW Heritage Branch, 2009).

- This assessment has identified archaeological potential relating to the wide sandstone kerb and gutters visible in the Bellbird section of Wollombi Road. More information is required to establish the date of these features and to confirm their significance.
- There will be archaeological potential associated with at least some of the surrounding historical properties. Provided that works are retained within the existing road corridor, there should be no impacts affecting their archaeological potential.
- These issues will need to be addressed via a statement of heritage significance report prior to works commencing

5.1 Environmental Planning and Assessment Act 1979

The NSW Department of Planning and Environment (DPE) currently administers the *EPA Act*, which provides for environmental planning instruments to be made to legislate and guide the process of development and land use. Local heritage items, including known archaeological items, identified Aboriginal Places and heritage conservation areas are protected through listings on Local Environmental Plans (LEPs) or Regional Environmental Plans (REPs). The Act also requires that potential Aboriginal and historical archaeological resources are adequately assessed and considered as part of the development process, in accordance with the requirements of the NPW Act and the Heritage Act.

Cessnock City Council has direct responsibility for the provision of local government services (local roads, street lighting, libraries, community centres, parks, sporting facilities, aquatic centres, solid waste management, landfills etc.) for the Cessnock City Council local government area.

The relevant LEP is the Cessnock Council LEP 2011. Schedule 5, Environmental Heritage Parts 1 and 2 were searched to identify heritage items listed on this planning instrument within the vicinity of the proposed Wollombi Roadworks. As was referred to in Section 3 and Section 4, there are many such items including the Courthouse and police station, Hotels and public buildings, which are located within vicinity of the subject site (Refer to Table 1, Figure 9 and Figure 10).

Table 1- Schedule 5 heritage items within or adjacent to the impact area of Wollombi Road, Cessnock

Suburb	Item	Street Address	Property address	Significance	Item #
Bellbird	Bellbird Mines Disaster Memorial	Wollombi Road (corner Kendal Street)	Lot 27, Section 7, DP 758082	Local	I23
Bellbird	Bellbird Hotel	388 Wollombi Road	Lots 2–4, Section F, DP 6264	Local	I21
Bellbird	Uniting Church in Australia Bellbird Church	478 Wollombi Road	Lot 13, Section 3, DP 758082	Local	I22
Cessnock	O'Neill's Wine Bar (former)	4 Wollombi Road	Lot 1, DP 310886	Local	I80
Cessnock	Cessnock West Public School– functional style classroom building and functional style classroom building with gable roof and boxed eaves	113 Wollombi Road	Lot 1, Section A, DP 9252	Local	I81
Cessnock	Australia Hotel	136 Wollombi Road	Lot 1, DP 306863	Local	I82
Cessnock	"Marthaville"	200 Wollombi Road	Lot A, DP 390312	Local	I83
Cessnock	Cessnock Hotel	234 Wollombi Road	Lot B, DP 369757	Local	I84
Cessnock	Cessnock Courthouse and Police Station	223–227 Maitland Road	Lots 2 and 4, Section 6, DP 758241; Part 3, Section 6, DP 758241	Local	I56
Cessnock	Cessnock Swimming Pavilion	1A Allandale Road	Lot 16, DP 48151	Local	I49
Cessnock	School of Arts	6 Vincent Street	Lot 60, DP 755215	Local	I58
Cessnock	Soldier's Memorial Hall	14 Vincent Street	Lot 169, DP 755215	Local	I59
Cessnock	Hunter District Water Board	16 Vincent Street	Lots 901 and 902, DP 1145687	Local	I60

Suburb	Item	Street Address	Property address	Significance	Item #
Cessnock	Kearsley Chambers	18 Vincent Street	Lot 51, DP 755215	Local	I61

In addition, there is the following item which is not included on Schedule 5 but was listed on the Hunter Water Conservation and Heritage Register in 2010:

Bellbird	Bellbird Heights No 1 Water Heights Pumping Station c.1953	265B Wollombi Road	Local	Hunter Water Heritage register S.170

Figure 9 Heritage Items Associate with the Project Area (Southwest)

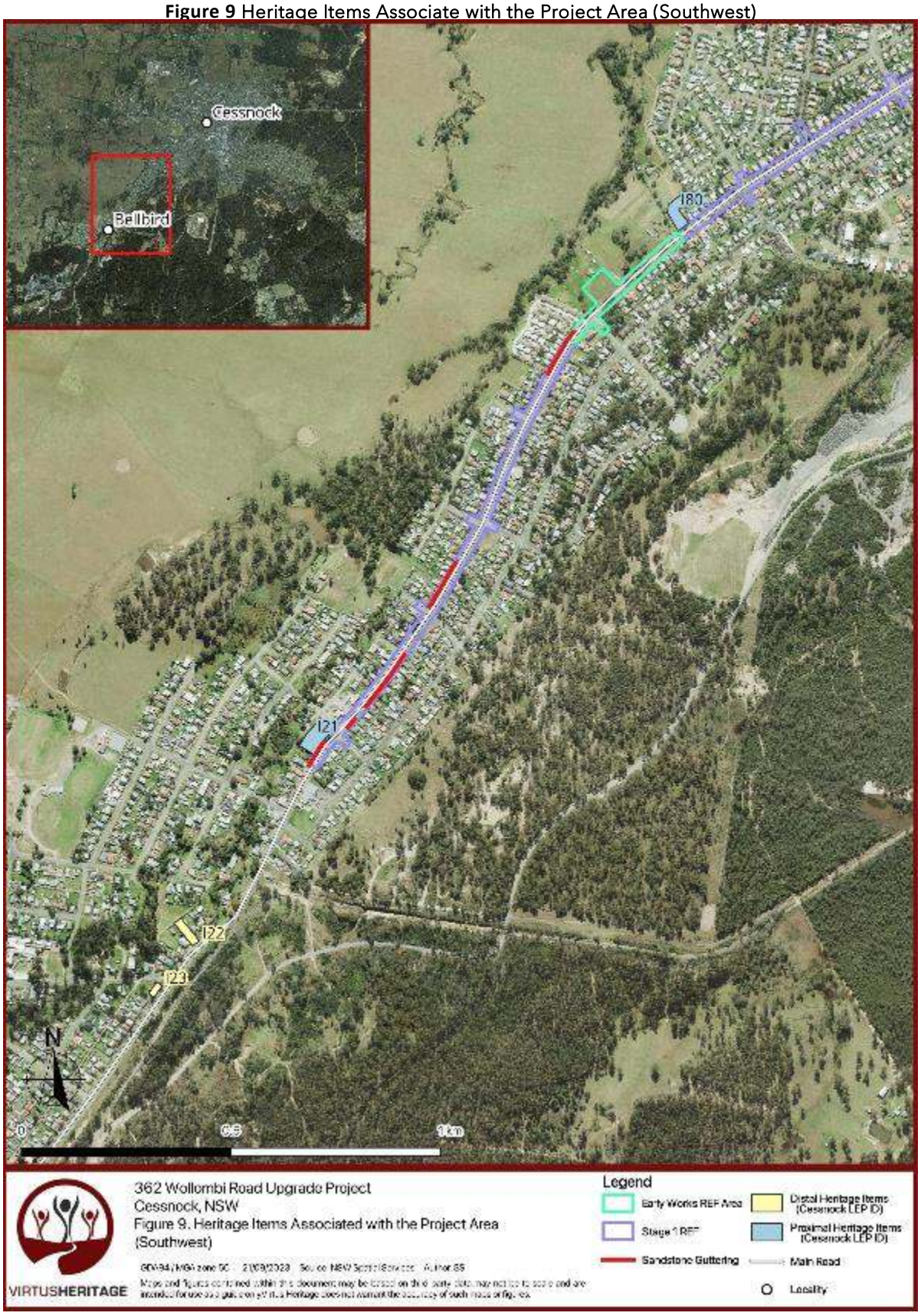
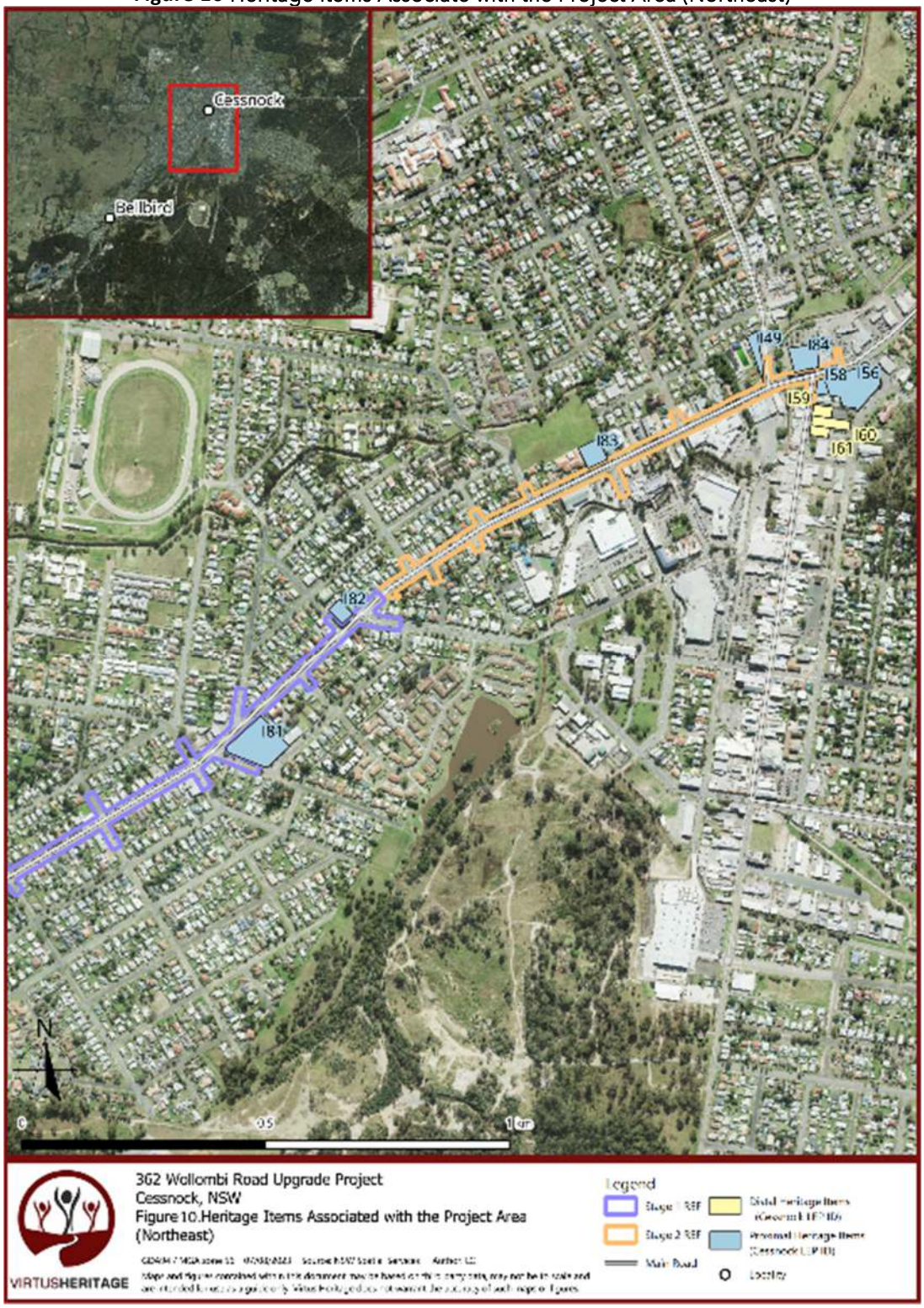


Figure 10 Heritage Items Associate with the Project Area (Northeast)



4.1.1 Cessnock City Council Planning Controls

The Local Environmental Plan (LEP) 2013 is the planning instrument administered by Cessnock City Council and is applicable to the project area. Clause 5.10 contains heritage protection controls that apply, and Schedule 5 lists items of environmental heritage including archaeological sites.

- The previously identified heritage items noted above are located immediately adjacent to the proposed works area on Wollombi Road. They are subject to the heritage planning controls in Clause 5.10 and to the guidelines contained in the Development Control Plan (DCP).
- The relevant DCP for the subject site is the Development Control Plan 2010 - Part D (Specific Development), Chapter 12: Heritage Conservation and Design Guidelines. The principal objectives of this Chapter are:

  (a) to conserve the environmental heritage of the Cessnock Local Government Area;

  (b) to conserve the heritage significance of heritage items and heritage conservation areas including associated fabric, settings and views;

  (c) to conserve archaeological sites; and

  (d) to conserve places of Aboriginal heritage significance.

In addition, Cessnock City Council have the following relevant heritage policies in place for conservation of heritage and historical items. These would need to be consulted in reference to the works and discussed in a Statement of heritage impact:

- Heritage Policy – the Cessnock City Council Heritage Policy 2020 (Adopted: 17 June 2020)
- Cessnock City Council Policy for the Protection of Stone Kerb and Guttering and the associated management strategy (Lorraine Nelson, 2022).

From the heritage listings identified and the archaeological potential identified, it is clear that an assessment of the proposed changes to Wollombi Road will need a statement of heritage impact (SoHI) to address any physical impacts to the sandstone kerb and guttering and in relation to the heritage property boundaries, as well as any vibration impacts and visual impacts on the identified heritage items.

5. ASSESSMENT OF SIGNIFICANCE

Accurate assessment of the cultural significance of sites, places and items is an essential component of the NSW heritage assessment and planning process. A clear determination of a site's significance allows informed planning decisions to be made for a place, in addition to ensuring that heritage values are maintained, enhanced, or at least minimally affected by development. Assessments of significance are made by applying standard evaluation criteria.

In New South Wales, two levels of significance exist in the heritage management system; Local and State. State heritage significance applies in relation to a place, building, work, relic, moveable object or precinct. It means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item. Local heritage significance applies in relation to a place, building, work, relic, moveable object or precinct. It means significance to a local area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The *NSW Heritage Act* notes that if an item is primarily of State heritage significance it can also be of local heritage significance; an item that is primarily of local heritage significance, however, may not necessarily be of State heritage significance (NSW Heritage Branch, 2009: 7).

The *Burra Charter: Australia ICOMOS Charter for Place of Cultural Significance* is the widely accepted reference document for heritage conservation standards in Australia. The Charter sets a standard of practice for those who provide advice, make decisions about or undertake works to places of cultural significance, including owners, managers and custodians. It contains a set of thirty-four principles, defined as Articles, which can be directly applied for management of heritage items, or places. The definition of 'place' used throughout the *Burra Charter* means *site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views (*Definitions, The Burra Charter: Australia ICOMOS Charter for Places of Cultural Significance 1999, Article 1).

The Burra Charter notes that cultural significance of a place is embodied in its physical fabric, settings, contents, use, associated documents and its meaning to people through their use and associations with the place. Its cultural significance and issues affecting future use are best understood by a methodical process of collecting and analysing information prior to making decisions. To assist with this, NSW Heritage have guidelines for assessing significance for a place / item which refer to the following seven assessment criteria see Table 2 below.

The subject of this Heritage Assessment is assessed as per these guidelines, see Table 3 overleaf:

Table 2 - Significance Assessment Criteria (Heritage NSW: 2001)

Heritage Criteria	Significance description
Criteria A; historical	An item is important in the course or pattern of NSW's cultural or natural history (or the cultural or natural history of the local area)
Criteria B; associational	An item has strong or special associations with the life or works of a person, or group of persons, of importance in NSW' cultural or natural history (or the cultural or natural history of the local area);
Criteria C; aesthetic, creative or technical	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

Heritage Criteria	Significance description
Criteria D; social values	An item has strong or special associations with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons
Criteria E; scientific or archaeological value	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area
Criteria F; rarity value	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area
Criteria G; representative value	An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural and natural environments

Previously identified heritage items within the Wollombi Road works area have the following heritage statements of significance, refer to Table 33. This information is taken from their State Heritage Inventory forms, and where the section is blank the information was not recorded on that form:

Table 3 – Existing heritage items

Suburb	Item	Street Address	Statement of Significance
Bellbird	Bellbird Mines Disaster Memorial	Wollombi Road (corner Kendal Street)	Of social significance to the coal mining community - to date the Hunter's worst mining disaster in terms of lives lost. The disaster involved many local families and many more were involved in the rescue operations. The disaster led to the establishment of the Mines Rescue Station at Abermain.
Bellbird	Bellbird Hotel	388 Wollombi Road	One of a group of intact pubs which distinguish the towns of the City of Cessnock local government area, and which are closely associated with the development of those towns, their mines and their economy. The most prominent building in the town, located on the main road through to Cessnock.
Bellbird	Bellbird Heights 1 Water Pump Station	265B Wollombi Road (corner of Lochinvar Street)	Bellbird Water Pump Station is a well-designed mid-1950s example of a small scale water pumping station, situated within a local park. It is an attractive building in good condition which makes a positive contribution to the local streetscape.
Bellbird	Uniting Church in Australia Bellbird Church	478 Wollombi Road	A very fine example of a small coalfields church of social significance to the non-conformist mining community of Bellbird in the 1920s and up to the present day.
Cessnock	O'Neill's Wine Bar (former)	4 Wollombi Road	Provides evidence of the important role of the Wollombi Road in opening up the Hunter for settlement. Of local historic significance for its

Suburb	Item	Street Address	Statement of Significance
			association with the property, wine growing, wine making and selling of an early wine grower, Patrick O'Neill.
Cessnock	Cessnock West Public School–functional style classroom building and functional style classroom building with gable roof and boxed eaves	113 Wollombi Road	Of local historical significance demonstrating the substantial growth of Cessnock from 1905 as a mining town and as the administrative centre for the South Maitland Coalfields. With the pubs, co-op stores, Masonic temple, the primary school is one of the community facilities which form part of the distinctive character of the mining towns.
Cessnock	Australia Hotel	136 Wollombi Road	One of a group of intact pubs which distinguish the towns of the City of Cessnock local government area and which are closely associated with the development of those towns, their mines and their economy.
Cessnock	"Marthaville"	200 Wollombi Road	
Cessnock	Cessnock Hotel	234 Wollombi Road	One of a group of intact pubs which distinguish the towns in the City of Cessnock, and which are closely associated with the development of those towns and their economy, particularly mining. A prominent building in the townscape of the main street of Cessnock closing the view at the northern end of Vincent Street.
Cessnock	Cessnock Courthouse and Police Station	223–227 Maitland Road	

Table 4 - Assessment of Significance for Wollombi Road – sandstone kerbing and guttering

Criteria	Significance assessment
SHR Criteria a) - [Historical significance]	Wollombi Road has been the subject of several upgrades, including tarring, from the time of its construction, until now. However, the sandstone kerbing and guttering that lines sections of the project area may be representative of the kerbing that previously lined larger sections of the project area from the early to mid 20th century and has since been removed. The history of the road is significant for the local and wider area it is part of the c.1820s Great North Road linking Sydney and Newcastle with the Hunter Valley. This section of the road dates to c.1836. In addition, the road is lined with buildings of significance associated with the construction and route of the road, such as the many hotels catering to tired travellers from 1855 onwards.
SHR Criteria b) - [Associative	None identified

Criteria	Significance assessment
significance]	
SHR Criteria c) - [Aesthetic, creative, technical, significance]	None identified.
SHR Criteria d) - [Social significance]	The Wollombi Road has been the link road for the local and wider area from the 1830s providing necessary access to many villages and towns including the project area between Bellbird and Cessnock.
SHR Criteria e) - [Research potential]	There is potential for historical research into the history of roadmaking in this area. The extant sandstone kerb and guttering has archaeological potential as an intact feature of early 20th century road building.
SHR Criteria f) - [Rarity]	Not identified.
SHR Criteria g) - [Representative]	Representative of sandstone curbing that was common in the locality from 1923 onwards and was commonly used throughout road building in NSW.

5.1 Statement of Heritage Significance

The Wollombi Road, including the 4km project area, is of historical significance for the local area due to its long association as being part of the c.1820s and c.1830s Great North Road. Wollombi Road also meets social significance as it has been the link road for the local and wider area from the 1830s providing necessary access to many villages and towns including the project area between Bellbird and Cessnock. It meets Criteria E, as there is potential for historical research into the history of roadmaking in this area and the archaeological potential of the sandstone kerb and guttering. The sandstone kerb and guttering is also representative of early 20th century roadmaking works.

6. CONCLUSION AND RECOMMENDATIONS

In conclusion, there is heritage significance identified in this assessment for the Wollombi Road itself in relation to its history, its social significance, its research value and its representative values.

The section of road is also lined by numbers of local heritage buildings, reflecting the history of the road and the area. For these reasons there are heritage management measures that will be required in relation to the proposed road works.

A statement of heritage impact report addressing the impacts on the identified heritage significance, and archaeological significance will be required prior to any works commencing. This report will provide management and mitigation methods, if any are required, such as protection of the sandstone kerb and guttering and if any further information is required. As stated this statement of heritage impact report will need to address the following:

- any physical impacts to the sandstone kerb and guttering
- any impacts in relation to the heritage property boundaries,
- any vibration impacts and visual impacts on the identified heritage items.

REFERENCES

Cessnock City Library, 2023, *Local History Photographs*. Available at: Local History Photographs | Cessnock City Library (spydus.com) (Accessed 8 August 2023).

Cessnock City Library, 2023, *Our Rich Heritage*. Available at: https://www.cessnock.nsw.gov.au/libraries/Local-Studies/Information-Sheets/Our-rich-heritage (Accessed 2 August 2023).

Cessnock City Council 2023, *The Importance of the Great North Road*. Available at: https://www.cessnock.nsw.gov.au/Council/About-council/Local-history#section-2 (Accessed 5 August 2023).

Australia ICOMOS Burra Charter, The Burra Charter, 2013

S. Lavelle, G. Karskens and RTA Technology, 1999, Stage 1 Conservation Management Plan for the Great North Road

NSW Heritage, Assessing heritage significance, 2001

Umwelt (Australia) Pty Limited 2014, Heritage Management Plan, prepared for Austar coal Mine Pty Ltd.

University of Newcastle 2023, *Living Histories: Cessnock, NSW*.

Australian Roadrider, May 7, 2008, Travel Stories, Wollombi Road, accessed at Wollombi Road - Road Rider Magazine

Appendix G Acoustic Assessment

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

Acoustic Assessment – Wollombi Road Upgrade

Prepared for
KBR

March 2024

Document Details

Acoustic Assessment – Wollombi Road Upgrade

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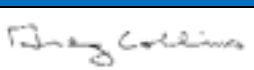
2223511_240313	0	13 March 2024	Gregory Collins - MAAS	

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1. Introduction

1.1 Background

RAPT Consulting has been engaged to undertake a noise and vibration Impact Assessment (NVIA) for KBR for the Wollombi Road Upgrade.

The project is for an upgrade ~4km of Wollombi Road from two traffic lanes with shoulders to four traffic lanes.

The proposal area is shown in Figure 1-1.

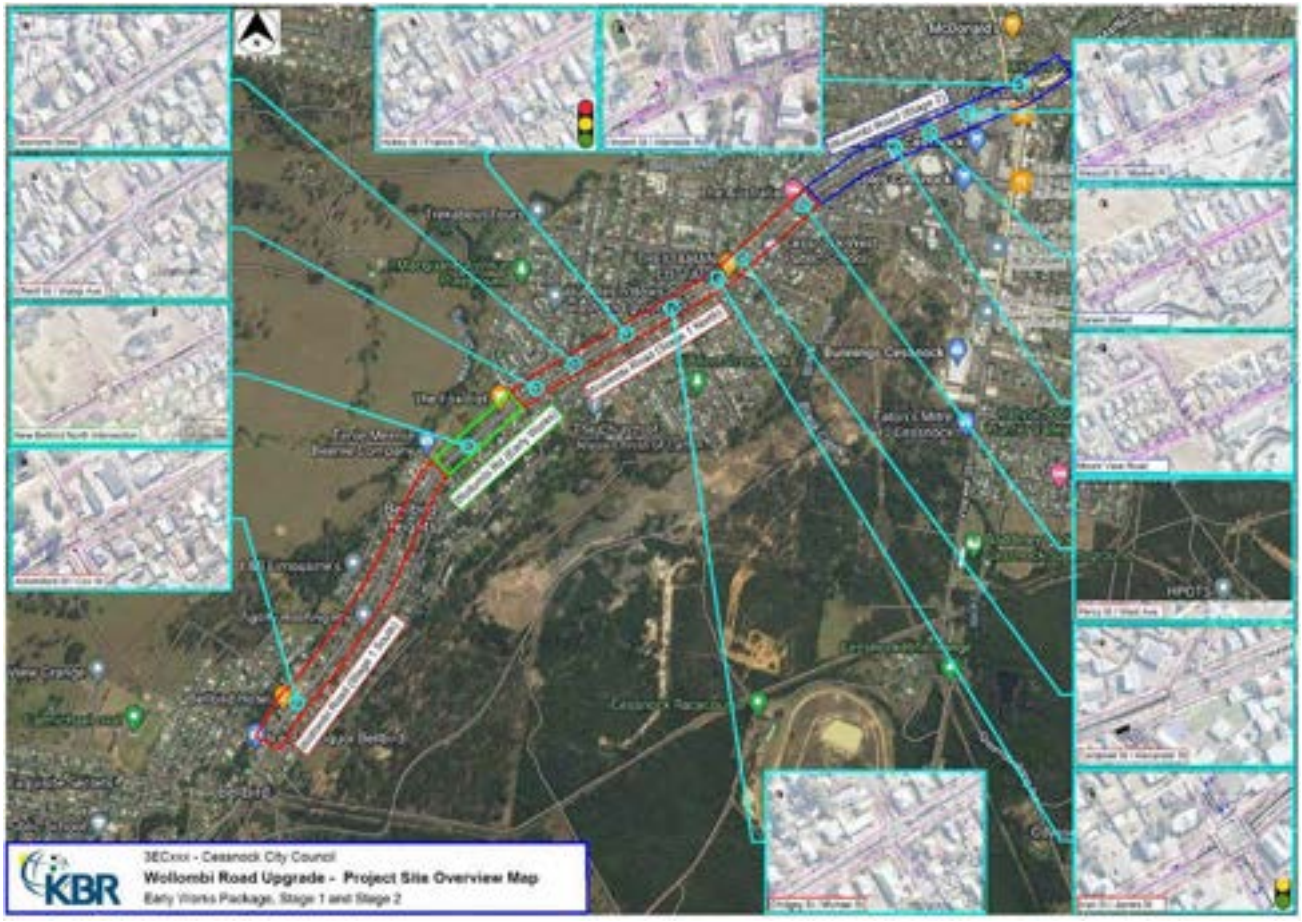


Figure 1-1 Proposed Wollombi Road Upgrade Project Site Overview

1.2 Assessment Objectives

This acoustic assessment considers the potential impacts of the construction and operation of the proposal. The purpose is to assess potential noise and vibration from the project and to recommend mitigation measures where required.

The outcomes of this assessment include recommendations for potential noise and vibration mitigation and management measures designed to achieve an acceptable noise amenity for residential (dwelling) occupants and other sensitive receivers surrounding the study area.

1.3 Scope

The acoustic assessment scope of work included:

- Initial desk top review to identify noise sensitive receptors from aerial photography
- Undertake noise measurements to determine ambient and background noise levels
- Establish project noise goals for the construction and operation of the proposal
- Identify the likely principal noise sources during construction, operation and their associated noise levels
- assessment of potential noise, vibration and sleep disturbance impacts associated with construction and operation aspects of the project
- provide recommendations for feasible and reasonable noise and vibration mitigation and management measures, where noise or vibration objectives may be exceeded.

1.4 Relevant Guidelines

The relevant policies and guidelines for noise and vibration assessments in NSW that have been considered during the preparation of this assessment include:

- Interim Construction Noise Guideline (ICNG), Department of Environment and Climate Change, 2009
- Assessing Vibration: A Technical Guideline, Department of Environment and Conservation (DEC), 2006
- British Standard BS7385.2 - 1993 Evaluation and Measurement for Vibration in Buildings, Part 2 - Guide to damage levels from ground borne vibration 1993
- DIN 4150: Part 3-1999 Structural vibration – Effects of vibration on structures 1999
- NSW Road Noise Policy (RNP), Department of Environment, Climate Change and Water (DECCW), 2011
- Noise Policy for Industry (NPfI), Environment Protection Authority (EPA), 2017.

1.5 Limitations

The purpose of the report is to provide an independent acoustic assessment for the proposal.

It is not the intention of the assessment to cover every element of the acoustic environment, but rather to conduct the assessment with consideration to the prescribed work scope.

The findings of the acoustic assessment represent the findings apparent at the date and time of the assessment undertaken. It is the nature of environmental assessments that all variations in environmental conditions cannot be assessed and all uncertainty concerning the conditions of the ambient environment cannot be eliminated. Professional judgement must be exercised in the investigation and interpretation of observations.

In conducting this assessment and preparing the report, current guidelines for acoustics, noise were referred to. This work has been conducted in good faith with RAPT Consulting's understanding of the client's brief and the generally accepted consulting practice.

No other warranty, expressed or implied, is made as to the information and professional advice included in this report. It is not intended for other parties or other uses.

2. Existing Environment

2.1 Receptors

The proposal has been split into a number of Noise Catchment Areas (NCA's), which represent various receiver areas surrounding the proposal. The three Wollombi Road NCA locations are consistent with the stages of the project with the exception of NCA which combines Stage 1 North and Stage 2 as site observations noted these two areas are considered to be similar noise environments :

- NCA 1 Stage 1 Early Works
- NCA 2 Stage 1 South
- NCA 3 Stage 1 North & Stage 2

Noise catchment areas for the project are shown in Figure 2-1.

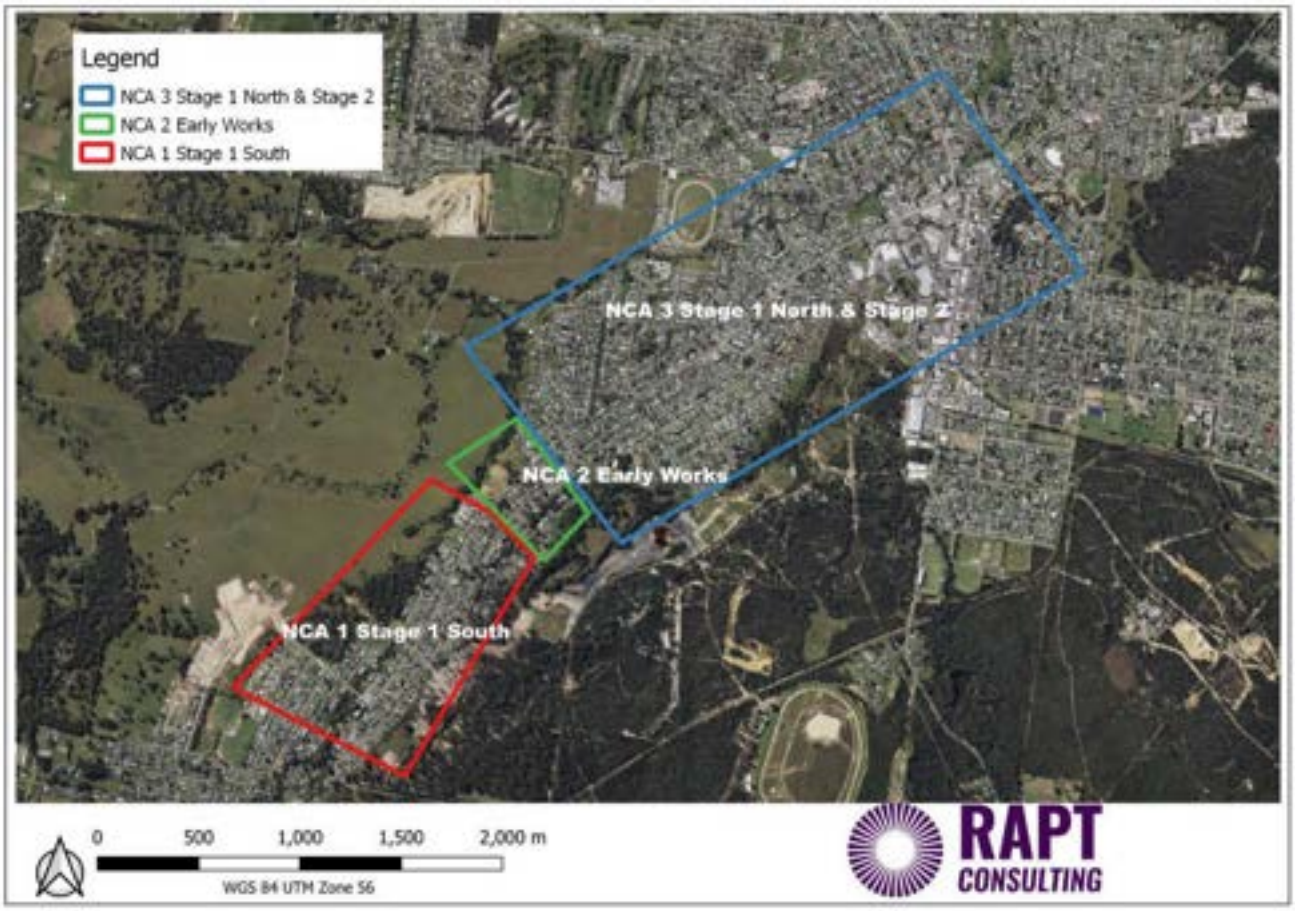


Figure 2-1 Noise Catchment Areas Surrounding the Proposal Site

2.2 Background and Ambient Noise

To establish background and ambient noise levels, noise monitoring was undertaken by RAPT Consulting from 22 November to 28 November 2023. The monitoring was undertaken

in each of the project stage locations along Wollombi Road. Noise monitoring (NM) locations were:

- NM1 337 Wollombi Road (Stage 1 South)
- NM2 261 Wollombi Road (Early Works)
- NM3 91 Wollombi Road (Stage 1 North)
- NM 4 Creightons Funeral Service 206 Wollombi Road (Stage 2)

Site observations noted these locations were considered indicative of the local ambient noise environment in the vicinity of Wollombi Road. During site visits it was noted that Wollombi Road traffic dominated the ambient noise environment and is indicative of an urban noise environment. Unfortunately the noise logger at NM 4 was vandalised during the monitoring period and the data was invalidated. However as previously noted, the ambient noise environment in the vicinity of Stage 1 North and Stage 2 were considered to be similar and therefore noise monitoring data for Stage 1 north will be utilised for Stage 2.

The monitoring locations are shown in Figure 2-2 - 2-6.

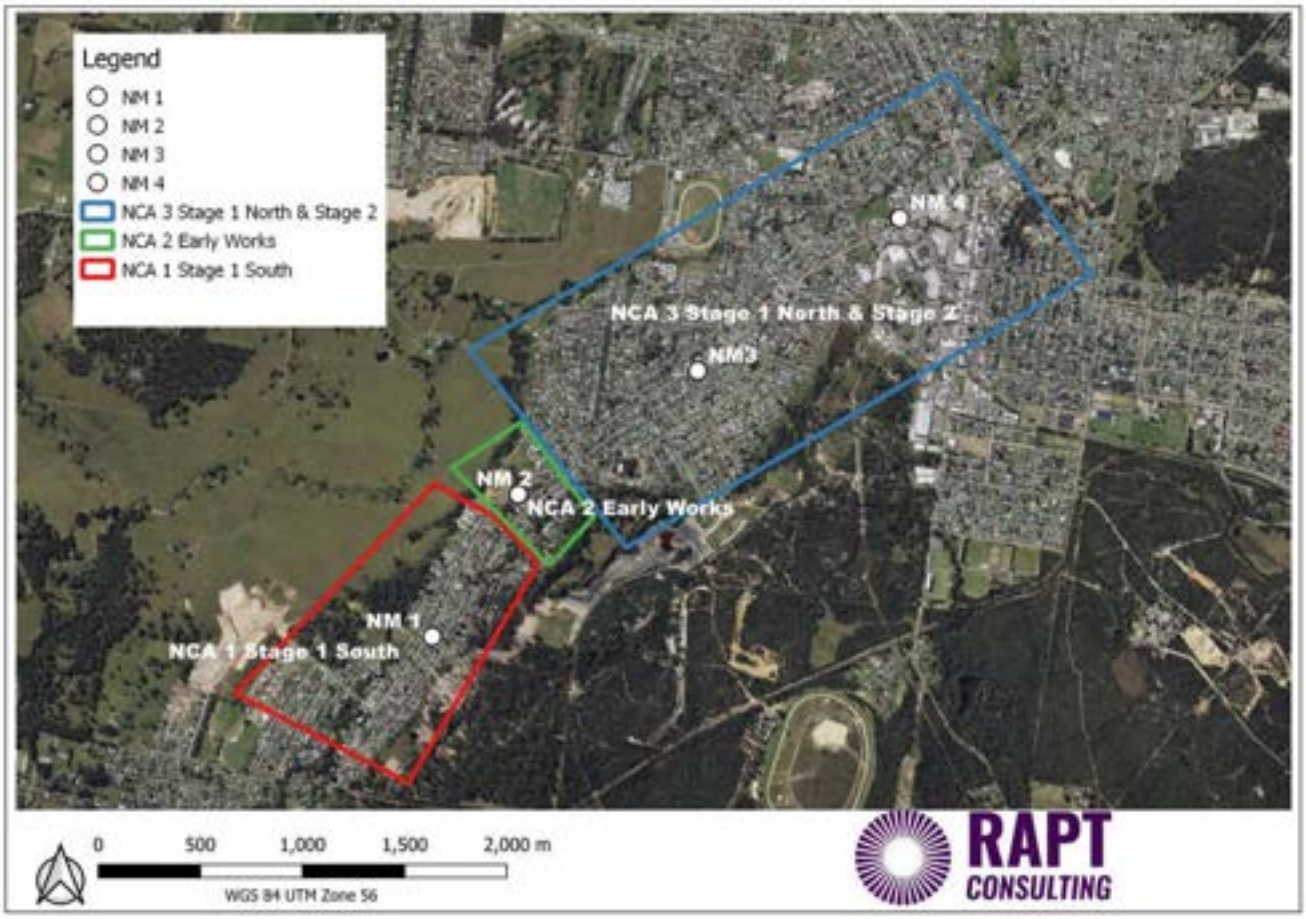


Figure 2-2 Monitoring Locations

Figure 2-3 NM 1 337 Wollombi Road

Figure 2-4 NM 2 261 Wollombi Road

Figure 2-5 NM 3 91 Wollombi Road

Figure 2-6 NM 4 206 Wollombi Road

A photo of the vandalised logger at NM 4 is shown in Figure 2-7.

Figure 2-7 Vandalised Noise Logger

Monitoring was undertaken using Rion NL 42 noise loggers with Type 2 Precision. These loggers are capable of measuring continuous sound pressure levels and are able to record L_{Amin}, L_{A90}, L_{A10}, L_{Amax} and L_{Aeq} noise descriptors. The instruments were programmed to accumulate environmental noise data continuously over sampling periods of 15 minutes for the entire monitoring period.

The noise surveys were conducted with consideration to the procedures described in Australian Standard AS 1055:2018, “Acoustics – Description and Measurement of Environmental Noise” and the NSW Noise Policy for Industry (NPfI). Calibration was checked

before and after each measurement and no significant drift occurred. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics – Sound level meters – Specifications.

The L_{A90} descriptor is used to measure the background noise level. This descriptor represents the noise level that is exceeded for 90 percent of the time over a relevant period of measurement. In line with the procedures described in the EPA's NPfI, the assessment background level (ABL) is established by determining the lowest tenth-percentile level of the L_{A90} noise data acquired over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night-time assessment periods is based on the median of individual ABL's determined over the entire monitoring duration. The RBL is representative of the average minimum background sound level, or simply the background level.

The L_{Aeq} is the equivalent continuous noise level which would have the same total acoustic energy over the measurement period as the varying noise actually measured, so it is in effect an energy average.

Weather information for the unattended noise logging was obtained from the Bureau of Meteorology Maitland AWS for the monitoring period and any data adversely affected by rain, wind (more than 5 m/s as per NPfI) or extraneous noise were discarded. Noise data graphs are provided in Appendix B.

Table 7 of the NSW RNP provides guidance on the application of a façade correction factor. As the monitoring locations were within 3.5 metres of a wall that could reflect sound, a façade correction factor has not been added to the measurements.

The RBL and ambient LAeq levels are provided in Table 2-2 below.

Table 2-1 Summary of Measured Results dB(A)

Descriptor	NM1	NM 2	NM3	Time Interval
$L_{A90\ Day}$	47	48	51	7:00am - 6:00pm
$L_{A90\ Evening}$	42	39	40	6:00pm - 10:00pm
$L_{A90\ Night}$	30 (24)[1]	30 (28)[1]	30 (29)[1]	10:00pm - 7:00am
$L_{Aeq(15hr)}$	62.6	67.2	65.0	7:00am - 10:00pm
$L_{Aeq(9hr)}$	60.1	62.1	60.5	10:00pm – 7:00am
$L_{A10(18hr)}$	64.8	69.6	67.3	6:00am – 12:00am

Note 1 Table 2.1 of the NPfI specifies a minimum assumed rating background noise level of 35dB(A) for day and 30 dB(A) for evening and night time. Number in brackets (XX) represents actual measured RBL determined for assessment period.

3. Noise and Vibration Objectives

3.1 Construction Noise

Construction noise is assessed with consideration to DECCW Interim Construction Noise Guidelines (ICNG) (July 2009). The ICNG is a non-mandatory guideline that is usually referred to by local councils and other NSW government entities when construction / demolition works require development approval. The ICNG recommend standard hours for construction activity as detailed in Table 3-1.

Table 3-1 ICNG Recommended Construction Hours

Work type	Recommended standard hours of work
Normal construction	Monday to Friday: 7 am to 6 pm. Saturday: 8 am to 1 pm. No work on Sundays or Public Holidays.
Blasting	Monday to Friday: 9 am to 5 pm. Saturday: 9 am to 1 pm. No work on Sundays or Public Holidays.

The ICNG provides noise management levels for construction noise at residential and other potentially sensitive receivers. These management levels are to be calculated based on the adopted rating background level (RBL) at nearby locations, as shown in Table 3-2.

Table 3-2 ICNG Noise Guidelines at Receivers

Period	Management Level $L_{Aeq(15\ min)}$
Residential Recommended standard hours	Noise affected level: RBL + 10 Highly noise affected level: 75 dB(A)
Residential Outside recommended standard hours	Noise affected level: RBL + 5
Classrooms at schools and other educational institutions	Internal Noise Level 45 dB(A) (applies when properties are being used, Outdoor Noise Level 55 dB(A) assumes 10 dB(A) loss through an open window)
Places of Worship	Internal Noise Level 45 dB(A) (applies when properties are being used, Outdoor Noise Level 55 dB(A) assumes 10 dB(A) loss through an open window)
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External Noise Level 65 dB(A)

Period	Management Level $L_{Aeq(15\ min)}$
Passive recreation areas (characterised by contemplative activities that generate little noise and where benfefits are compromised by external noise intrusion, for example, reading, meditation)	External Noise Level 60 dB(A)
Community Centres	Depends on the intended use of the centre. Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.
Offices, retail outlets (external)	70 dB(A)
industrial premises (external)	75 dB(A)

The above levels apply at the boundary of the most affected residences / offices or within 30 m from the residence where the property boundary is more than 30 m from the residence.

The *noise affected level* represents the point above which there may be some community reaction to noise. Where the *noise affected level* is exceeded all feasible and reasonable work practices to minimise noise should be applied and all potentially impacted residents should be informed of the nature of the works, expected noise levels, duration of works and a method of contact. The *noise affected level* is the background noise level plus 10 dB(A) during recommended standard hours and the background noise level plus 5 dB(A) outside of recommended standard hours.

The *highly noise affected level* represents the point above which there may be strong community reaction to noise and is set at 75 dB(A). Where noise is above this level, the relevant authority may require respite periods by restricting the hours when the subject noisy activities can occur, considering:

- Times identified by the community when they are less sensitive to noise (such as mid-morning or mid-afternoon for works near residences).
- If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

Based on the above and the RBL's determined from site monitoring, construction noise management levels (NML's) have been derived for residential receptors, as shown in Table 3-3.

Table 3-3 ICNG NML's for residential receivers Leq(15min) dB(A)

NCA	Period	RBL L_{A90}, dB(A)	Standard hours noise management levels, $L_{Aeq,15min}$, dB(A)	Out-of-hours noise management levels, $L_{Aeq,15min}$, dB(A)
NCA1	Day	47	57	52
	Evening	42	-	47
	Night	30	-	35

NCA 2	Day	48	58	53
	Evening	39		44
	Night	30		35
NCA 3	Day	51	61	56
	Evening	40		45
	Night	30		35

3.2 Construction Sleep Disturbance

The ICNG requires a sleep disturbance assessment to be undertaken where construction works are planned to extend over more than two consecutive nights. The ICNG makes reference to the EPA's NSW Environment Criteria for Road Traffic Noise (ECRTN), now superseded by the NSW Road Noise Policy (RNP), for the assessment of sleep disturbance. The RNP references the recommendations in the ECRTN as providing the most appropriate assessment guidance.

The guidance provided in the RNP for assessing the potential for sleep disturbance recommends that to minimise the risk of sleep disturbance during the night-time period (10pm to 7am), the $L_{A1(1\ min)}$ noise level outside a bedroom window should not exceed the $L_{A90(15\ min)}$ background noise level by more than 15 dB(A). The EPA considers it appropriate to use this metric as a screening criterion to assess the likelihood of sleep disturbance. If this screening criterion is found to be exceeded, then a more detailed analysis must be undertaken that should include the extent that the maximum noise level exceeds the background noise level and the number of times this is likely to happen during the night-time period.

The RNP contains a review of research into sleep disturbance which represents NSW EPA advice on the subject of sleep disturbance due to noise events. It concludes that having considered the results of research to date that, 'Maximum internal noise levels below 50-55 dB(A) are unlikely to cause awakening reactions. Therefore, given that an open window provides around 10 dB(A) in noise attenuation from outside to inside, external noise levels of 60-65 dB(A) are unlikely to result in awakening reactions.

Construction is generally expected to take place during standard hours, and therefore sleep disturbance is not expected to be an issue. However, out of hours work and extended construction hours may be required on limited occasions such as for special deliveries or in the case of emergencies. As such an assessment of sleep disturbance has been undertaken and construction sleep disturbance assessment levels are presented in Table 3-4.

Table 3-4 Construction Noise Sleep Disturbance Assessment Levels

Night-time rating background level, dB(A)	Sleep disturbance screening $L_{A1(1min)}$ criteria, dB(A)	Sleep disturbance awakening reaction $L_{A1(1min)}$ criteria, dB(A)
30	45	65

3.3 Construction Road Traffic Noise

Noise from construction traffic on public roads is not covered by the ICNG. However, the ICNG does refer to the ECRTN, which is now superseded by the RNP, for the assessment of noise relating to construction traffic on public roads.

To assess noise impacts from construction traffic, an initial screening test is undertaken by evaluating whether existing road traffic noise levels would increase by more than 2 dB(A). Where the predicted noise increase is 2 dB(A) or less, then no further assessment is required. However, where the predicted noise level increase is greater than 2 dB(A), and the predicted road traffic noise level exceeds the road category specific criterion then noise mitigation should be considered for those receivers affected. The RNP does not require assessment of noise impact to commercial or industrial receivers. In order to increase noise levels by 2 dB(A) an increase in traffic volume of 60% would be required, which based on the nature of works associated with the project is not expected to occur and therefore compliance is expected. Wollombi road is a heavily trafficked road. It is anticipated an average of 10 -20 construction vehicles will access the site per day. This is not expected to impact existing road network noise conditions.

3.4 Vibration Guidelines

3.4.1 Human Exposure

Vibration goals the were sourced from the DECCW's *Assessing Vibration: a technical guideline*, which is based on guidelines contained in British Standard (BS) 6472–1992, *Evaluation of human exposure to vibration in buildings (1–80 Hz).*

Vibration, at levels high enough, has the potential to cause damage to structures and disrupt human comfort. Vibration and its associated effects are usually classified as continuous, impulsive or intermittent as follows:

- continuous vibration continues uninterrupted for a defined period and includes sources such as machinery and continuous construction activities
- impulsive vibration is a rapid build up to a peak followed by a damped decay. It may consist of several cycles at around the same amplitude, with durations of typically less than two seconds and no more than three occurrences in an assessment period. This may include occasional dropping of heavy equipment or loading activities
- intermittent vibration occurs where there are interrupted periods of continuous vibration, repeated periods of impulsive vibration or continuous vibration that varies significantly in magnitude. This may include intermittent construction activity, impact pile driving, jack hammers.

The preferred and maximum values for continuous and impulsive vibration are defined in Table 2.2 of the guideline and are reproduced in Table 3-5 for the applicable receivers.

Table 3-5 Preferred and Maximum Levels for Human Comfort

Location	Assessment Period[1]	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration (weighted RMS acceleration, m/s^2, 1-80Hz)					
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Impulsive vibration (weighted RMS acceleration, m/s^2, 1-80Hz)					
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14

Note 2 Daytime is 7:00am to 10:00pm and Night-time is 10:00pm to 7:00am

The acceptable vibration dose values (VDV) for intermittent vibration are defined in Table 2.4 of the guideline and are reproduced in Table 3-6 for the applicable receiver type.

Table 3-6 Acceptable Vibration Dose Values for Intermittent Vibration (m/s1.75)

Location	Daytime [2]		Night-time [2]	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas[3]	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Note 3 Daytime is 7:00 to 22:00 and night-time is 22:00 to 7:00: and
Note 4 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be needed to assess intermittent values against the continuous or impulsive criteria for critical areas.

3.4.2 Building Damage

Currently, there is no Australian Standard that sets the criteria for the assessment of building damage caused by vibration. Guidance of limiting vibration values is attained from reference to the following International Standards and Guidelines:

- British Standard BS7385.2 - 1993 *Evaluation and Measurement for Vibration in Buildings*, Part 2 - Guide to damage levels from ground borne vibration
- German Standard DIN 4150-3: 1999-02 Structural Vibration – Part 3: *Effects of vibration on structures*.

The recommended Peak Particle Velocity (PPV) guidelines for the possibility of vibration induced building damage are derived from the minimum vibration levels above which any damage may occur are presented in Table 3-7 for DIN 4150-3: 1999-02 and Table 3-8 for BS7385.2 – 1993.

Table 3-7 DIN 4150-3 Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on structures

Type of Structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz*	
Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20-40	40-50	40
Dwellings and buildings of similar design and/or occupancy	5	5-15	15-20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 of table 5-7 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

Note 5 At frequencies above 100Hz, the values given in this column may be used as minimum values

Table 3-8 BS7385.2 Transient Vibration Guideline Values for Potential building - Cosmetic Damage

Building Type[6]	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz[5]	15 Hz and above[5]
Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
Unreinforced or light framed structures. Residential or light commercial type buildings.	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 6 Values referred to are at the base of the building: and
Note 7 For transient vibration effecting unreinforced or light framed structures at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) should not be exceeded.

Unlike noise which travels through air, the transmission of vibration is highly dependent on substratum conditions between the source/s and receiver. Also dissimilar to noise travelling through air, vibration levels diminish quickly over distance, thus an adverse impact from vibration on the broader community is not typically expected. Vibration during works is considered an intermittent source associated with two main types of impact: disturbance at receivers and potential architectural/structural damage to buildings. Generally, if disturbance issues are controlled, there is limited potential for structural damage to buildings.

Ground Vibration – Minimum Working Distances from Sensitive Receivers

The Transport for NSW Construction Noise and Vibration Strategy (CNVS) provides guidance for minimum working distances. As a guide, minimum working distances from sensitive receivers for typical items of vibration intensive plant are listed in Table 3-9. The minimum distances are quoted for both "cosmetic" damage (refer BS 7385) and human comfort (refer OH&E's Assessing Vibration - a technical guideline). DIN 4150 has criteria of particular reference for heritage structures. Table 3-9 provides the recommended minimum safe working distances for vibration intensive plant from sensitive receivers.

Table 3-9 Recommended Minimum Safe Working Distances for Vibration Intensive Plant from Sensitive Receiver

Plant Item	Rating / Description	Minimum Distance Cosmetic Damage		Minimum Distance Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Vibratory Roller	<50 kN (1-2 tonne)	5m	11m	15m to 20m
	<100 kN (2-4 tonne)	6m	13m	20m
	<200 kN (4-6 tonne)	12m	15m	40m
	<300kN (7-13 tonne)	15m	31m	100m
	>300kN (13-18 tonne)	20m	40m	100m
	>300kN (>18 tonne)	25m	50m	100m
Small Hydraulic Hammer	300kg (5 to 12 t excavator)	2m	5m	7m
Medium Hydraulic Hammer	900kg (12 to 18 t excavator)	7m	15m	23m
Large Hydraulic Hammer	1600kg (18 to 34 t excavator)	22m	44m	73m

Plant Item	Rating / Description	Minimum Distance Cosmetic Damage		Minimum Distance Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Vibratory Pile Driver	Sheet Piles	2m to 20m	5m to 40m	20m
Pile Boring	≤ 800mm	2m (nominal)	5m	4m
Jack Hammer	Hand Held	1m (nominal)	3m	2m

While the construction programme has not been finalised for the proposal which is not uncommon at this stage of a project, it is recommend the contractor utilises Table 3-9 as a guide when selecting plant and equipment with consideration to proximity to structures.

3.5 Operational Noise Criteria

The NSW RNP recommends various criteria for different road and residential developments and uses. Although it is not mandatory to achieve the noise assessment criteria in the RNP, proponents will need to provide justification if it is not considered feasible or reasonable to achieve them. Based on the definitions in the RNP, Wollombi Road is a Sub-Arterial Road. The following noise goals for residences are provided in Table 3-10 Below. The assessment timeframe for the criteria are the year of opening and 10 years after opening.

Table 3-10 Residential Road Traffic Noise Criteria

Road Category	Day	Night
Existing residences affected by noise from redevelopment of existing freeway/arterial/sub-arterial roads	60 $L_{Aeq(15hr)}$	55 $L_{Aeq(9hr)}$

For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

Table 3-11 provides road traffic noise criteria for other non-residential land uses taken from Table 4 of the RNP.

Table 3-11 Road Traffic Noise Assessment Criteria for Non-Residential Land Uses affected by Proposed Road Projects and Traffic Generating Developments

Existing Sensitive Land Use	Assessment Criteria – dB(A)		Additional Considerations
	Day (7am-10pm)	Night (10pm-7am)	
1. School Classrooms	LAeq, (1 hour) 40 (internal) when in use	-	In the case of buildings used for education or healthcare, noise level criteria for spaces other than classrooms and wards may be obtained by interpolation from the 'maximum' levels shown in Australian Standard 2107:2016 (Standards Australia 2016).
2. Hospital Wards	LAeq, (1 hour) 35 (internal)	LAeq, (1 hour) 35 (internal)	
3. Places of Worship	LAeq, (1 hour) 40 (internal)	LAeq, (1 hour) 40 (internal)	The criteria are internal, i.e. the inside of a church. Areas outside the place of worship, such as a churchyard or cemetery, may also be a place of worship. Therefore, in determining appropriate criteria for such external areas, it should be established what in these areas may be affected by road traffic noise. For example, if there is a church car park between a church and the road, compliance with the internal criteria inside the church may be sufficient. If, however, there are areas between the church and the road where outdoor services may take place such as weddings and funerals, external criteria for these areas are appropriate. As issues such as speech intelligibility may be a consideration in these cases, the passive recreation criteria (see point 5) may be applied.
4. Open Space (Active Use)	LAeq, (15 hour) 60 (external) when in use	-	Active recreation is characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion. Passive recreation is characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, e.g. playing chess, reading. In determining whether areas are used for active or passive recreation, the type of activity that occurs in that area and its sensitivity to noise intrusion should be established. For areas where there may be a mix of passive and active recreation, e.g. school playgrounds, the more stringent criteria apply. Open space may also be used as a buffer zone for more sensitive land uses.

Existing Sensitive Land Use	Assessment Criteria – dB(A)		Additional Considerations
	Day (7am-10pm)	Night (10pm-7am)	
5.Open Space (Passive Use)	LAeq, (15 hour) 55 (external) when in use		
6. Isolated Residences in Commercial or Industrial Zones	-	-	For isolated residences in industrial or commercial zones, the external ambient noise levels can be higher than those in residential areas. Internal noise levels in such residences are likely to be more appropriate in assessing any road traffic noise impacts, and the proponent should determine suitable internal noise level targets, taking guidance from Australian Standard 2107:2016 (Standards Australia 2016).
7. Mixed Use Development	-	-	Each component of use in a mixed use development should be considered separately. For example, in a mixed use development containing residences and a childcare facility, the residential component should be assessed against the appropriate criteria for residences in Table 3, and the childcare component should be assessed against point 8 below.
8. Childcare Facilities	Sleeping rooms LAeq, (1 hour) 35 (internal) Indoor play areas LAeq, (1 hour) 40 internal) Outdoor play areas LAeq, (1 hour) 55 (external)	-	Multi-purpose spaces, e.g. shared indoor play/sleeping rooms should meet the lower of the respective criteria. Measurements for sleeping rooms should be taken during designated sleeping times for the facility, or if these are not known, during the highest hourly traffic noise level during the opening hours of the facility.
9. Aged Care Facilities	-	-	Residential land use noise assessment criteria should be applied to these facilities

In addition to the assessment criteria outlined in Table 3-10 and 3-11, any increase in the total traffic noise level at a location due to a proposed project or traffic-generating development should be considered. Residences experiencing increases in total traffic noise level above the relative increase criteria in Table 3-12 below should also be considered for mitigation. For other existing sensitive land uses as outlined in Table 4, the relative increase criteria should be applied to the respective LAeq, (period) for that land use type, except for open

space. For road projects where the main subject road is a local road, the relative increase criterion does not apply.

Table 3-12 Relative Increase Criteria for Residential Land Uses

Road Category	Type of Project / Development	Day	Night
freeway/arterial/sub-arterial roads and transit ways	New road corridor/redevelopment of existing road/land use development with the potential to generate additional traffic on existing road	Existing Traffic $L_{Aeq(15hr)}$ +12dB (external)	Existing Traffic $L_{Aeq(9hr)}$ + 12 dB (external)

Receivers alongside Wollombi Road are already exposed to high levels of traffic noise. Since this project is an upgrade of an existing road with changes to the road width and alignment. There are no locations where the project will cause an increase of more than 12dB over the existing noise levels. The project therefore complies with these relative increase criteria.

4. Acoustic Assessment

4.1 Construction

Location and timing of construction activities can exacerbate noise levels and their effects on sensitive land uses such as residences. Construction noise by its nature is temporary, may not be amenable to purpose-built noise control measures applied to industrial processes, and may move as construction progresses. With these constraints in mind, the ICNG was developed to focus on applying a range of work practices most suited to minimise construction noise impacts, rather than focusing only on achieving numeric noise levels. While some noise from construction sites is inevitable, the aim of the Guideline is to increase protection of residences and other sensitive land uses from noise pollution most of the time.

This section provides a summary of the likely methodology, staging, work hours, plant and equipment that would be used to complete the proposed work. For the purposes of the REF, indicative construction staging, and options are provided. Detailed methods and staging would be established by the construction contractor.

This staging is indicative, based on the current concept design and may change once the detailed design methodology is finalised. The staging is also dependent on the selected construction contractor's preferred methodology, program and sequencing of work.

4.1.1 Construction Hours and Duration

The proposed work would be undertaken during standard work hours:

- Monday to Friday, 7am to 6pm
- Saturday, 8am to 1pm
- No works on public holidays.

While not expected, out of hours work and extended construction hours may be required on limited occasions such as for special deliveries to minimise disruption or in the case of emergencies.

4.1.2 Construction Equipment Source Noise Levels

An indicative list of activities, plant and equipment that may be used for the construction of this proposal are provided in Table 4-1.

The individual sound power levels (SWL) for the anticipated type of construction plant have been referenced from RAPT Consulting's database of noise sources and the RMS Construction Noise Estimator. Other equipment and activities may be utilised and undertaken, however it is expected the emitted noise levels would be similar.

Table 4-1 Construction Plant and Equipment Sound Power Levels

Activities	Anticipated type of plant and equipment	SWL L_{Aeq} dB(A)	Estimated Usage % during 15-minute period[8]
Site Preparation	Road Truck / Light Vehicle	108	50
	Trucks medium rigid	103	50
	Power Generator	103	100
	Light Vehicles	88	50
Utilities Infrastructure	Excavator	110	50
	Dump Truck	110	50
	Franna Crane	98	50
	Backhoe	111	50
	Power Generator	103	100
Vegetation Removal and Excavation Works	Bulldozer	116	50
	Excavator	110	50
	Chipper / Mulcher	116	50
	Compactor	106	50
	Roller	109	50
	Water Cart	107	50
	Dump Truck	110	50

Activities	Anticipated type of plant and equipment	SWL L_{Aeq} dB(A)	Estimated Usage % during 15-minute period[8]
Drainage / Paving	Backhoe	111	50
	Excavator	110	50
	Concrete Truck	109	50
	Vibratory Roller	109	50
	Road Truck	108	50
Finishes	Road Truck	108	50
	Line Marking Truck	108	100

Note 8 The sound power levels for the individual plant items are worst-case levels representative of the equipment operating at maximum capacity. In practice, not all plant items would operate at maximum capacity at the same time and therefore the estimated usage has been adjusted to reflect this. This adjustment is consistent with RAPT Consulting experience on similar projects.

4.1.3 Construction Assessment

Acoustic modelling was undertaken using SoftNoise's "Predictor" to predict the effects of construction noise. Predictor is a computer program for the calculation, assessment and prognosis of noise propagation. Predictor calculates environmental noise propagation according to ISO 9613-2, "Acoustics – Attenuation of sound during propagation outdoors". The method predicts the sound pressure level under meteorological conditions favourable to propagation from sources of known sound emission. These conditions are for downwind propagation or equivalently under a well-developed moderate ground based temperature inversion. Terrain topography, ground absorption, atmospheric absorption and relevant shielding objects are taken into account in the calculations.

Other Key assumptions in the model include:

- topographical information was obtained from NSW Government Spatial Services
- all cleared areas were modelled considering a conservative ground factor of 0.8 to account for grassed areas
- all receivers were modelled at 1.5 metres above the ground surface

Construction noise levels have been predicted based on the potential construction noise levels provided in Table 4-1. These noise levels represent different equipment noise levels

and give an idea how noise levels may change across the proposal area with different activities being undertaken.

The magnitude of off-site noise impact associated with construction would be dependent upon several factors:

- The intensity of construction activities
- The location of construction activities
- The type of equipment used
- Intervening terrain, and
- The prevailing weather conditions.

The calculated noise levels would inevitably depend on the number and type of plant items and equipment operating at any one time and their precise location relative to the receiver of interest. In practice, the noise levels would vary due to the fact that plant and equipment would move about the worksites and would not all be operating concurrently. In some cases, reductions in noise levels would occur when plant are located behind obstacles or even other items of equipment. Predicted noise levels have been assessed from each of the work scenarios outlined above in a number of work locations. As work moves away from receivers noise levels decrease as can be seen in Figure 4-1.

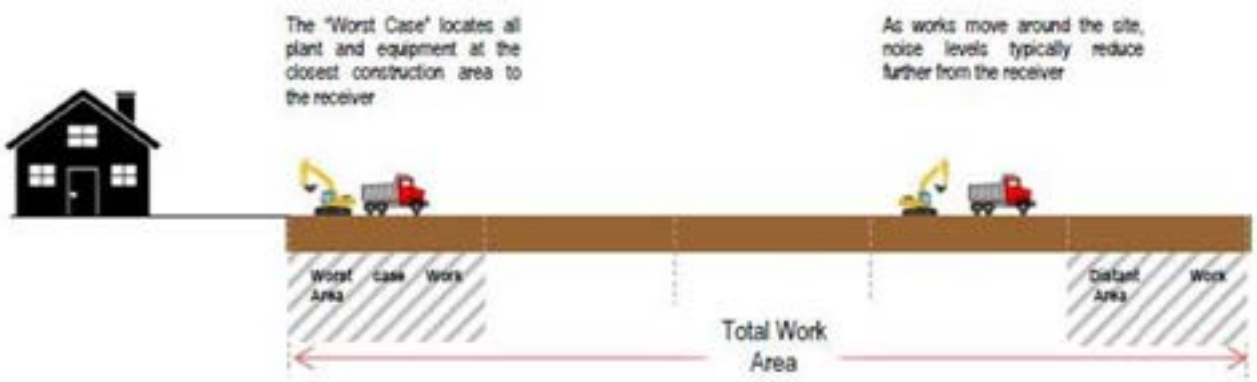


Figure 4-1 Example of Differing Work Areas

The noise levels are representative of the reasonable worst-case impact, for a given receiver type and are intended to give an indication of the possible noise levels from construction work when work is at their closest. For most construction activities, it is expected that construction noise levels would frequently be lower than predicted at the most exposed receiver. A general description of NML exceedance groups are provided below. The impact of these potential exceedances depends on the period in which they were to occur (generally night-time is more sensitive than daytime or evening for most people).

- Noise levels 1 – 10 dB(A) above NML – Impact generally marginal to minor
- Noise Levels 11 – 20 dB(A) above NML – Impact generally moderate
- Noise Levels > 20 dB(A) above NML – Impact generally high

During any given period, the machinery items to be used in the study area would operate at maximum sound power levels for only brief stages. At other times, the machinery may produce lower sound levels while carrying out activities not requiring full power. It is highly unlikely that all construction equipment would be operating at their maximum sound power levels at any one time. Finally, certain types of construction machinery would be present in the development footprint for only brief periods during construction. Therefore, the modelled construction noise results are considered to represent a reasonable worst-case scenario. Four locations were modelled in each of the NCA's in closest proximity to nearest receivers as shown in Figure 4-2. These scenarios also demonstrate how received noise levels can change due to location of construction activity.

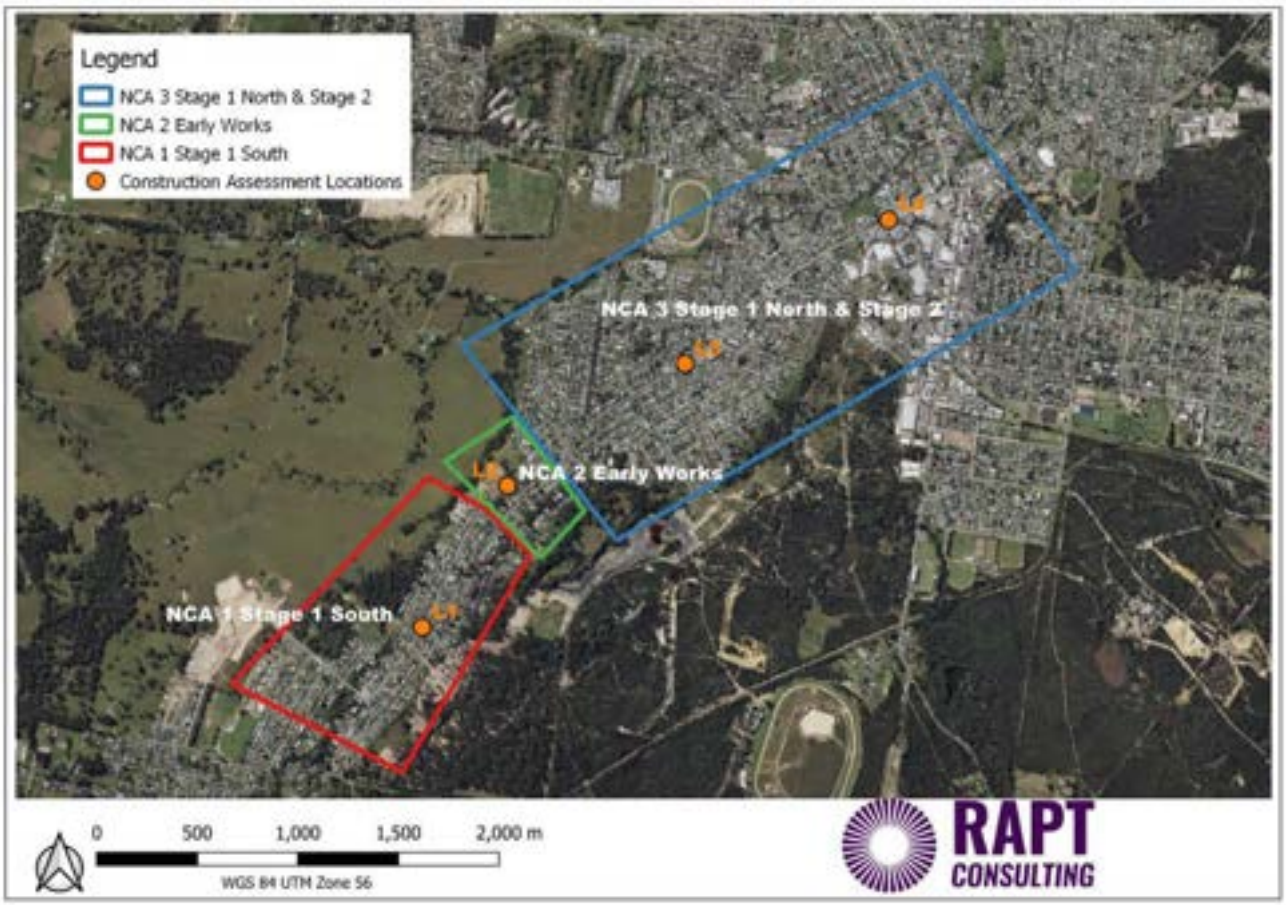


Figure 4-2 Assessed Locations

Construction noise impact assessment results

Noise levels were predicted to each noise monitoring receptor location in each NCA. assuming receiver heights of 1.5m above ground level for typical construction activities. This represents receivers which would be potentially 'closest' to the construction works as they are located on Wollombi Road. Table 4-2 - 4-6 summarises the maximum predicted noise level from each of the construction scenarios at identified assessed receptors. Predicted exceedances of NML's are highlighted in RED. Construction noise modelling contours are provided in Appendix C.

Table 4-2 Site Preparation Predicted Construction Noise Levels dB(A) LAeq(15min)

Site Preparation									
Receiver	L1	L2	L3	L4	Standard Hours NML	OOH Daytime NML	OOH Evening NML	OOH Night NML	Highly Affected Noise Level
R1	72	27	2	0	57	52	47	35	75
R2	15	71	14	3	58	53	44	35	75
R3	1	13	72	25	61	56	45	35	75
R4	0	2	18	71	61	56	45	35	75

Table 4-3 Utilities Infrastructure Works Predicted Construction Noise Levels dB(A) LAeq(15min)

Utilities Infrastructure									
Receiver	L1	L2	L3	L4	Standard Hours NML	OOH Daytime NML	OOH Evening NML	OOH Night NML	Highly Affected Noise Level
R1	78	33	8	1	57	52	47	35	75
R2	21	77	20	9	58	53	44	35	75
R3	7	19	78	31	61	56	45	35	75
R4	0	8	24	77	61	56	45	35	75

Table 4-4 Vegetation Removal and Excavation Predicted Construction Noise Levels dB(A) LAeq(15min)

Vegetation Removal & Excavation									
Receiver	L1	L2	L3	L4	Standard Hours NML	OOH Daytime NML	OOH Evening NML	OOH Night NML	Highly Affected Noise Level
R1	83	38	13	6	57	52	47	35	75
R2	26	82	25	14	58	53	44	35	75
R3	12	24	83	36	61	56	45	35	75
R4	2	13	29	82	61	56	45	35	75

Table 4-5 Drainage Paving Predicted Construction Noise Levels dB(A) LAeq(15min)

Drainage and Paving									
Receiver	L1	L2	L3	L4	Standard Hours NML	OOH Daytime NML	OOH Evening NML	OOH Night NML	Highly Affected Noise Level
R1	79	34	9	2	57	52	47	35	75
R2	22	78	21	10	58	53	44	35	75
R3	8	20	79	32	61	56	45	35	75
R4	0	9	25	78	61	56	45	35	75

Table 4-6 Finishing Works Predicted Construction Noise Levels dB(A) LAeq(15min)

Finishing Works									
Receiver	L1	L2	L3	L4	Standard Hours NML	OOH Daytime NML	OOH Evening NML	OOH Night NML	Highly Affected Noise Level
R1	73	28	3	0	57	52	47	35	75
R2	16	72	15	4	58	53	44	35	75
R3	2	14	73	26	61	56	45	35	75
R4	0	3	19	72	61	56	45	35	75

While in many instances the construction NML's are anticipated to be complied with, the results of the construction assessment indicate exceedances of NML's may occur depending on work location, work activity and proximity to receivers. The highly affected noise levels are expected to be complied with in many situations however also have the potential to be exceeded particularly for vegetation removal and drainage and paving works at closest receptors. These potential exceedances are based on reasonable worst case scenarios and would be expected to be short term as the project progresses away from receptors. However there is a risk for NML's to be exceeded depending on work activities and locations. Additionally, if out of hours night time work is proposed, there is also a risk of sleep disturbance occurring depending on work location as can be seen in Tables 4-2 – 4-6. Therefore it is generally recommended that construction works take place during standard hours, OOH Daytime, or OOH Evening and OOH night-time should only be undertaken for special deliveries or in the case of emergencies.

With this in mind, it is recommended a construction noise and vibration management plan be implemented as part of the proposal to minimise the risk of adverse noise emanating upon the community.

4.2 Construction Noise and Vibration Mitigation Measures

4.2.1 Noise Mitigation Measures

The TFNSW Construction Noise and Vibration Guideline (CNVG) provides guidance for additional mitigation measures and may be used to minimise the impacts on the community from noise and vibration. The range of additional measures are described below.

Appendix B of the CNVG provides guidance for standard mitigation measures and is reproduced as Table 4-7.

Table 4-7 Standard Mitigation Measures

Action required	Applies to	Details
Management measures		
Implementation of any project specific mitigation measures required.	Airborne noise	Implementation of any project specific mitigation measures required.
Implement community consultation or notification measures (refer to Appendix C for further details of each measure).	Airborne noise. Ground-borne noise & vibration.	Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 5 working days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required. Website (If required) Contact telephone number for community Email distribution list (if required) Community drop in session (if required by approval conditions).
Site inductions	Airborne noise. Ground-borne noise & vibration	All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include: • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures • site opening/closing times (including deliveries) • environmental incident procedures.
Behavioural practices	Airborne noise	No swearing or unnecessary shouting or loud stereos/radios on site. No dropping of materials from height, throwing of metal items and slamming of doors.

Action required	Applies to	Details
Verification	Airborne noise Ground-borne noise & vibration	Where specified under Appendix C a noise verification program is to be carried out for the duration of the works in accordance with the Construction Noise and Vibration Management Plan and any approval and licence conditions.
Attended vibration measurements	Ground-borne vibration	Where required attended vibration measurements should be undertaken at the commencement of vibration generating activities to confirm that vibration levels are within the acceptable range to prevent cosmetic building damage.
Update Construction Environmental Management Plans	Airborne noise. Ground-borne noise & vibration.	The CEMP must be regularly updated to account for changes in noise and vibration management issues and strategies.
Building condition surveys	Vibration Blasting	Undertake building dilapidation surveys on all buildings located within the buffer zone prior to commencement of activities with the potential to cause property damage
Source controls		
Construction hours and scheduling.	Airborne noise. Ground-borne noise & vibration.	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.
Construction respite period during normal hours and out- of-hours work	Ground-borne noise & vibration. Airborne noise.	Please refer to Appendix C for more details on the following respite measures: • Respite Offers (RO) • Respite Period 1 (R1) • Respite Period 2 (R2) • Duration Respite (DR)
Equipment selection.	Airborne noise. Ground-borne noise & vibration	Use quieter and less vibration emitting construction methods where feasible and reasonable. For example, when piling is required, bored piles rather than impact-driven piles will minimise noise and vibration impacts. Similarly, diaphragm wall construction techniques, in lieu of sheet piling, will have significant noise and vibration benefits. Ensure plant including the silencer is well

Action required	Applies to	Details
		maintained.
Plant noise levels.	Airborne-noise.	The noise levels of plant and equipment must have operating Sound Power or Sound Pressure Levels compliant with the criteria in Appendix H. Implement a noise monitoring audit program to ensure equipment remains within the more stringent of the manufacturers specifications or Appendix H.
Rental plant and equipment.	Airborne-noise.	The noise levels of plant and equipment items are to be considered in rental decisions and in any case cannot be used on site unless compliant with the criteria in Table 2.
Use and siting of plant.	Airborne-noise.	The offset distance between noisy plant and adjacent sensitive receivers is to be maximised. Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers. Only have necessary equipment on site.

Action required	Applies to	Details
Plan worksites and activities to minimise noise and vibration.	Airborne noise. Ground-borne vibration.	Locate compounds away from sensitive receivers and discourage access from local roads. Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site. Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm. Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters. If programmed night work is postponed the work should be re-programmed and the approaches in this guideline apply again.
Reduced equipment power	Airborne noise. Ground-borne vibration.	Use only the necessary size and power
Non-tonal and ambient sensitive reversing alarms	Airborne noise.	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work. Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level.
Minimise disturbance arising from delivery of goods to construction sites.	Airborne noise.	Loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers. Select site access points and roads as far as possible away from sensitive receivers. Dedicated loading/unloading areas to be shielded if close to sensitive receivers. Delivery vehicles to be fitted with straps rather than chains for unloading, wherever possible.

Action required	Applies to	Details
		Avoid or minimise these out of hours movements where possible.
Blasting regime	Airborne noise. Ground-borne vibration.	The noise and vibration impacts of blasting operations can be minimised by: • Choosing the appropriate blast charge configurations • Ensuring appropriate blast-hole preparation • Optimising blast design, location, orientation and spacing • Selecting appropriate blast times, and • Utilising knowledge of prevailing meteorological conditions. • AS 2187.2 Explosives-Storage, transport and use, Part 2: Use of Explosives provides more detailed advice on ground vibration and airblast overpressure impact minimisation options.
Engine compression brakes	Construction vehicles	Limit the use of engine compression brakes at night and in residential areas. Ensure vehicles are fitted with a maintained Original Equipment Manufacturer exhaust silencer or a silencer that complies with the National Transport Commission's 'In-service test procedure' and standard.
Path controls		
Shield stationary noise sources such as pumps, compressors, fans etc.	Airborne noise.	Stationary noise sources should be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained. Appendix D of

Action required	Applies to	Details
		AS 2436:2010 lists materials suitable for shielding.
Shield sensitive receivers from noisy activities.	Airborne noise.	Use structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when situating plant.
Receptor controls		
Structural surveys and vibration monitoring	Ground-borne vibration.	Pre-construction surveys of the structural integrity of vibration sensitive buildings may be warranted. At locations where there are high-risk receptors, vibration monitoring should be conducted during the activities causing vibration.
See Appendix C for additional measures	Airborne noise. Ground-borne vibration.	In some instances additional mitigation measures may be required.

Where exceedances are anticipated after implementing standard mitigation measures, additional mitigation measures can be applied where feasible and reasonable. The CNVG provides guidance for additional mitigation measures and may be used to minimise the impacts on the community from noise and vibration. The provision of additional mitigation is based on predicted exceedances above RBLs and when the exceedances occur. Additional mitigation measures taken from Appendix C of the CNVG are provided below.

Notification (letterbox drop or equivalent)

Advanced warning of works and potential disruptions can assist in reducing the impact on the community. The notification may consist of a letterbox drop (or equivalent) detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of 5 working days prior to the start of works. The approval conditions for projects may also specify requirements for notification to the community about works that may impact on them.

Specific notifications (SN)

Specific notifications are letterbox dropped (or equivalent) to identified stakeholders no later than seven calendar days ahead of construction activities that are likely to exceed the noise objectives. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops.

Phone calls (PC)

Phone calls detailing relevant information made to identified/affected stakeholders within seven calendar days of proposed work. Phone calls provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs. Where the resident cannot be telephoned then an alternative form of engagement should be used.

Individual briefings (IB)

Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Project representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project. Where the resident cannot be met with individually then an alternative form of engagement should be used.

Respite Offers (RO)

Respite Offers should be considered made where there are high noise and vibration generating activities near receivers. As a guide work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers.

The purpose of such an offer is to provide residents with respite from an ongoing impact. This measure is evaluated on a project-by-project basis, and may not be applicable to all projects.

Respite Period 1 (R1)

Out of hours construction noise in out of hours period 1 shall be limited to no more than three consecutive evenings per week except where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and no more than 6 evenings per month.

Respite Period 2 (R2)

Night time construction noise in out of hours period 2 shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and 6 nights per month. Where possible, high noise generating works shall be completed before 11pm.

Duration Respite (DR)

Respite offers and respite periods 1 and 2 may be counterproductive in reducing the impact on the community for longer duration projects. In this instance and where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked through Duration Respite so that the project can be completed more quickly.

The project team should engage with the community where noise levels are expected to exceed the NML to demonstrate support for Duration Respite.

Where there are few receivers above the NML each of these receivers should be visited to discuss the project to gain support for Duration Respite.

Verification

Verification of Noise and Vibration levels as part of routine checks of noise levels or following reasonable complaints. This verification should include measurement of the background noise level and construction noise. Note this is not required for projects less than three weeks unless to assist in managing complaints.

Table 4-8 provides how to implement additional airborne noise mitigation measures.

Table 4-8 Triggers for Additional Mitigations Measures - Airborne Noise

Predicted airborne $L_{Aeq(15min)}$ noise level at receiver			Additional mitigation measures	
Perception	**dB(A) above RBL**	**dB(A) above NML**	**Type[8]:**	**Mitigation Levels [8]:**
All hours				
75dBA or greater			N, V, PC, RO	HA
Standard Hours: Mon - Fri (7am – 6pm), Sat (8am – 1pm), Sun/Pub Hol (Nil)				
Noticeable	5 to 10	0	-	NML
Clearly Audible	10 to 20	< 10	-	NML
Moderately intrusive	20 to 30	10 to 20	N, V	NML+10
Highly intrusive	> 30	> 20	N, V	NML+20
OOHW Period 1: Mon – Fri (6pm – 10pm), Sat (7am – 8am & 1pm – 10pm), Sun/Pub Hol (8am – 6pm)				
Noticeable	5 to 10	< 5	-	NML
Clearly Audible	10 to 20	5 to 15	N, R1, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, N, R1, DR	NML+15
Highly intrusive	> 30	> 25	V, IB, N, R1, DR, PC, SN	NML+25
OOHW Period 2: Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)				
Noticeable	5 to 10	< 5	N	NML
Clearly Audible	10 to 20	5 to 15	V, N, R2, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR	NML+15
Highly intrusive	> 30	> 25	V, IB, N, PC, SN, R2, DR	NML+25

Note 9: V = Verification, IB = Individual briefings, N = Notification, R1 = Respite Period 1, R2 = Respite Period 2, DR = Duration Respite, SN = Specific notifications, Perception = relates to level above RBL. NML = Noise Management Level, HA = Highly Affected (> 75 dB(A) - applies to residences only)

Based on the predicted noise levels in Section 4.1.3, additional mitigation measures have been determined for works during standard and out of hours works.

As the proposed construction work is linear and would occur progressively, not all receivers would require the highest level of mitigation for the full duration of the work. Table 4-9 details the approximate distances from a given works area where additional mitigation measures would apply along the construction corridor and should be used as a guide as construction progresses through the project area.

Table 4-9 NCA 1 Receiver Distances Identified for Additional Mitigation

Work Location and Approximate Nearest receiver location to works	Typical Distance from works where Additional Mitigations would apply				
	Site Preparation	Utilities Infrastructure	Vegetation removal & Excavation Works	Drainage & Paving	Finishing
Standard daytime NML – 57 - 61 dB(A) $L_{Aeq,15min}$ **Out of Hours P1 6pm-10pm NML – 44 - 47 dB(A) $L_{Aeq,15min}$** **Out of Hours P2 10pm-7am NML – 35dB(A) $L_{Aeq,15min}$** **Highly noise affected level: 75 dB(A)** **Situation and distance metres**					
Standard Hours	**Distance**	**Distance**	**Distance**	**Distance**	**Distance**
75 dB(A) or Greater **N, V, PC, RO**	16	32	54	35	18
Noticeable	120	240	450	280	140
Clearly Audible	120 - 40	240 - 88	450 - 140	280- 90	140 - 45
Moderately Intrusive **N, V**	40 - 12	88 - 28	140 - 45	90 - 28	45 - 14
Highly Intrusive **N, V**	12	28	45	28	14
OOHW P 1	**Distance**	**Distance**	**Distance**	**Distance**	**Distance**
Noticeable	220	440	800	500	250
Clearly Audible **N, R1, DR**	220 - 70	440 - 140	800 - 250	500 - 160	250 - 80

Work Location and Approximate Nearest receiver location to works	Typical Distance from works where Additional Mitigations would apply				
	Site Preparation	Utilities Infrastructure	Vegetation removal & Excavation Works	Drainage & Paving	Finishing
Moderately Intrusive **V, N, R1, DR**	70 – 22	140 – 45	250 - 80	160 - 50	80 - 25
Highly Intrusive **V, IB, N, R1, DR, PC, SN**	22	45	80	50	25
OOHW P 2	**Distance**	**Distance**	**Distance**	**Distance**	**Distance**
Noticeable **N**	850	1700	3300	2000	950
Clearly Audible **V, N, R2, DR**	850 - 280	1700 - 560	3300 - 1000	2000 - 640	950 - 320
Moderately Intrusive **V, IB, N, PC, SN, R2, DR**	280 – 90	560 – 180	1000 - 320	640 - 200	320 - 100
Highly Intrusive **V, IB, N,** **PC, SN, R2, DR**	90	180	320	200	100

Note 10: V = Verification, IB = Individual briefings, N = Notification, R1 = Respite Period 1, R2 = Respite Period 2, DR = Duration Respite, SN = Specific notifications, Perception = relates to level above RBL. NML = Noise Management Level, HA = Highly Affected (> 75 dB(A) - applies to residences only)

Four construction locations were assessed. Construction will progress though out the project and will move closer or further away from receptors as indicated in Figure 4-1 and will not stay in a specific location for extended durations.

4.3 Vibration Mitigation Measures

While vibration generated by the proposal is expected to comply with established vibration goals, Table 4-10 provides further guidance for triggers for additional vibration mitigation measures taken from Table C3 of the CNVG.

Table 4-10 Vibration Mitigation Measures

Construction Hours	Receiver Perception	Above VML	Additional Management Measures
Standard Hours Monday – Friday (7am-6pm) Saturday (8am-1pm)	Human Disturbance	>HVML	P, V, RO
	Building Damage	>DVML	V, AC
OOHW Period 1 Monday – Friday (6pm-10pm) Saturday (7am-8am, 1pm-10pm) Sunday/Public Holiday (8am-6pm)	Human Disturbance	>HVML	PN, V, SN, RO, RP, DR
	Building Damage	>DVML	V, AC
OOHW Period 2 Monday-Saturday (12am-7am, 10pm-12am) Sunday/Public Holiday (12am-8am, 6pm-12am)	Human Disturbance	>HVML	PN, V, SN, RO, AA, RP, DR
	Building Damage	>DVML	V, AC

Note 11 PN=Project Notification; SN=Specific Notification, Individual Briefings, or Phone Call; V=Verification of Monitoring; AA=Alternative Accommodation; DR=Duration Reduction; RO=Project Specific Respite Offer; RP=Respite Period; AC=Alternative Construction Methodology

4.4 Construction Related Traffic Noise

While construction related traffic noise is not expected to impact local noise amenity, management of construction related traffic or traffic reroutes noise should as a minimum include the following controls:

- Scheduling and routing of vehicle movements
- Speed of vehicles
- Driver behaviour and avoidance of the use of engine compression brakes
- Ensuring vehicles are adequately silenced before allowing them to access the site

Consideration must be given to the following measures where feasible and reasonable:

- temporary noise barriers
- at-receiver noise mitigation

Feasible and reasonable considerations should also include:

- time of day of the noise increase and how far above the criteria the noise is expected to be
- time of use of affected receivers
- how many decibels the noise levels are expected to increase above the existing traffic noise
- how long the mitigation will provide benefit to the receiver during the project

4.5 Operational Noise

4.5.1 Traffic Noise Model Verification

Traffic information provided by Cessnock Council was reviewed and utilized to assist in calculating traffic noise levels at nearest receptors near Wollombi Road.

The Calculation of Road Traffic Noise (CoRTN) method of traffic noise prediction was used. The CoRTN method accommodates the following factors affecting traffic noise.

- Posted Speed
- % Heavy Vehicle traffic
- Roadway Gradient
- Topographic features
- Receiver / Source distance and heights
- Intervening Ground Cover
- Reflections from buildings.

The noise model of the existing situation is checked against the measured noise levels on Wollombi Road. If the predictions of the noise model are similar to the measured levels, then there is confidence that the future scenario noise predictions will also be accurate. The CoRTN algorithm and noise modelling process was validated against the road traffic noise

monitoring data provided. The model is deemed to be verified if the average difference between the measured and calculated values of the descriptors is within +/- two dBA.

Table 4-12 summarises the modelling inputs.

Table 4-11 Modelling Inputs

Parameter	Comment
Traffic Volume	Provided by Cessnock Council
Traffic Speed	Based posted limits and provided information of 60 km/hr
Road Surface	0dB Correction for dense grade asphalt (DGA)
Source Height	0.5 metre for car exhaust 1.5 metres for car and truck engines and 3.6 metres for truck exhaust
Ground Topography	Spatial Services NSW
Ground Absorption	0.8 (can vary between 0 for hard surface to 1 for soft ground)
Receiver Heights	1.5 metre for ground level
Façade Correction	+2.5 dB(A) in accordance with CoRTN; and -1.7 dB(A) for ARRB's Australian condition correction at 1 m from façade conditions
Calculation Settings	Grid Space 20m, height above ground 1.5m

Traffic count surveys on Wollombi Road were undertaken during July 2021 at 343 Wollombi Road and between Campbell and Alexander Street on Wollombi Road. The traffic count data is summarised in Table 4-12 along with traffic composition in terms of light vehicles, heavy vehicles traffic speed.

Table 4-12 Traffic Data Used in Noise Modelling

Section	Period	Number of Vehicles	18 hour Traffic Flow	%Heavy Vehicles	Vehicle Speed
343 Wollombi Road	AADT	12,012	11,291	5%	60 km/hr

Section	Period	Number of Vehicles	18 hour Traffic Flow	%Heavy Vehicles	Vehicle Speed
Between Campbell and Alexader Street Wollombi Road	AADT	18,515	17,404	5%	60 km/hr

The model was verified with the noise data from the monitoring locations. The predicted LA10(18hr) was compared with the LA10(18hr) calculated from logging data, and a calibration factor was determined. Table 4-13 shows the measured and predicted L10(18hr) values used to calculate the calibration constants.

Table 4-13 Noise Model Verification

Descriptor	343 Wollombi Road Noise Level dB(A)	Between Campbell & Alexander Street Noise Level dB(A)
Measured $L_{A10(18hr)}$	64.8	67.3
Predicted $L_{A10(18hr)}$	65.0	67.8
Difference	-0.2	-0.5

The model is deemed to be verified if the average difference between the measured and calculated values of the descriptors is within +/- two dBA which in this instance is the case.

The CoRTN method predicts the $L_{A10(18hr)}$ statistics. To determine the other required noise parameters $L_{Aeq(15hour)}$ and $L_{Aeq(9hour)}$, correction factors are provided in Table 4-14.

Table 4-14 Assessment Correction Factors dB(A)

Descriptor	Measured L_{Aeq}	Measured $L_{A1018hr}$	Difference
NM1 $L_{Aeq(15hr)}$	62.6	64.8	-2.2
NM1 $L_{Aeq(9hr)}$	60.1	64.8	-4.7
NM3 $L_{Aeq(15hr)}$	65.0	67.3	-2.3
NM3 $L_{Aeq(9hr)}$	60.5	67.3	-6.8

The total noise source adjustment in the model to predict noise parameters, which include the model verification and the noise parameter conversion taken from Table 4-13 and Table 4-14, are shown in Table 4-15 below.

Table 4-15 Summary of Calculated Adjustments dB(A)

Descriptor	Model Verification (Table 4-13)	Assessment Correction (Table 4-14)	Difference
NM1 $L_{Aeq(15hr)}$	-0.2	-2.2	-2.4
NM1 $L_{Aeq(9hr)}$	-0.2	-4.7	-4.9
NM3 $L_{Aeq(15hr)}$	-0.5	-2.3	-2.8
NM3 $L_{Aeq(9hr)}$	-0.5	-6.8	-7.3

4.5.2 Traffic Noise Assessment

Information provided by Cessnock Council indicates that the average population growth for Bellbird/Bellbird North/Cessnock CBD/Cessnock North between 2021 and 2036 has been calculated to be 2.96% per year (rounded to 3.0%).

Based on information provided by Cessnock City Council, in the absence of traffic modelling data for “no upgrade” scenario, 3% annual growth will be applied to 2021 traffic count numbers to forecast 2026 and 2036 numbers. AADT was be estimated using ((AM Hour + PM Hour) x 5), this is consistently applied for both “upgraded” and “no upgrade” scenarios.

The adopted traffic information for the assessment is provide in Table 4-16 and Table 4-17

Table 4-16 343 Wollombi Road

Year	2026	2026	2036	2036
Scenario	4x lanes (upgraded)	2x lanes (no upgrade)	4x lanes (upgraded)	2x lanes (no upgrade)
AADT (Eastbound)	(692 + 674) x 5 = 6,830	(775+618) x 5 = 6965	(1021 + 912) x 5 = 9,665	(1041+831) x 5 = 9360
AADT (Westbound)	(503 + 934) x 5 = 7,185	(439+755) x 5 = 5970	(590 + 1195) x 5 = 8,925	(589+1015) x 5 = 8020
AM Peak (Eastbound)	692	775	1021	1041
AM Peak (Westbound)	503	439	590	589
PM Peak (Eastbound)	674	618	912	831
PM Peak (Westbound)	934	755	1195	1015
Heavy vehicle %	5%	5%	5%	5%

Table 4-17 Between Campbell and Alexader Street Wollombi Road

Year	2026	2026	2036	2036
Scenario	4x lanes (upgraded)	2x lanes (no upgrade)	4x lanes (upgraded)	2x lanes (no upgrade)
AADT (Eastbound)	(939 + 858) x 5 = 8,985	(962+834) x 5 = 8980	(1329 + 1181) x 5 = 12,550	(1292+1121) x 5 = 12065
AADT (Westbound)	(732 + 1154) x 5 = 9,430	(826+1167) x 5 = 9965	(705 + 1350) x 5 = 10,275	(1110+1568) x 5 = 13390
AM Peak (Eastbound)	939	962	1329	1292
AM Peak (Westbound)	732	826	705	1110
PM Peak (Eastbound)	858	834	1181	1121
PM Peak (Westbound)	1154	1167	1350	1568
Heavy vehicle %	5%	5%	5%	5%

As the project is a road redevelopment essentially involving the addition of lanes within the existing road corridor, projected traffic levels are similar for the build and no build option as can be seen in Table 4-16 and Table 4-17. Table 4-18 shows the predicted noise level at receiver monitoring and model verification locations located along Wollombi Road.

Table 4-18 Traffic Noise Modelling Results

Receiver	Type	Before Construction 2023		No Build 2026		After Construction 2026 Build		10 Years No Build 2036		10 Years Post Construction 2036 Build		Criteria (Day / Night)
		$L_{Aeq\ (15hr)}$	$L_{Aeq\ (9hr)}$	$L_{Aeq\ (15hr)}$	$L_{Aeq\ (9hr)}$	$L_{Aeq\ (15hr)}$	$L_{Aeq\ (9hr)}$	$L_{Aeq\ (15hr)}$	$L_{Aeq\ (9hr)}$	$L_{Aeq\ (15hr)}$	$L_{Aeq\ (9hr)}$	
R1	Residential	62.1	60.1	62.9	60.4	63.9	61.4	64.2	61.7	65.1	62.6	60/55
R3	Residential	65.0	60.5	65.1	60.6	66.2	61.7	66.1	61.6	67.1	62.6	60/55

The outcomes of noise modelling are:

- Existing traffic noise levels at R1 and R3 already exceed the RNP criteria of 60dB(A) LAeq,15h and/or 55dB(A) LAeq,9h which indicates many of the residences along the proposed Wollombi Road expansion project are already experiencing traffic noise levels that exceed the RNP criteria.

- However, the increase in noise levels between the design year 'no build' and 'build' option is not more than 1.1 dB(A) at any receiver and therefore the impact of the project is considered to be acceptable.

Further noise mitigation should be considered where design year noise levels are acute, that is greater than or equal to LAeq,15hr 65dB(A) or LAeq,9hr 60dB(A), or where noise levels exceed the RNP criteria and have increased by more than 2dB(A) as a result of the project.

While the operational results suggest no mitigation is required, it is recommended the assessment be revisited if the final design or new traffic model results are significantly different from the current design and traffic volumes which this assessment was based on.

Operational Noise model contours are provided in Appendix D.

5. Conclusion

This acoustic assessment has been undertaken to inform a Review of Environmental Factors (REF) for the Wollombi Road Upgrade.

Construction

The assessment outlined in this report indicates that construction noise management levels may be exceeded at many receivers depending on work locations and activities. However, the highly affected noise level of 75dB(A) is expected to be complied with in most scenarios. Depending on work activity and locations there is the possibility for the highly affected noise level to be exceeded. There are no anticipated vibration exceedances.

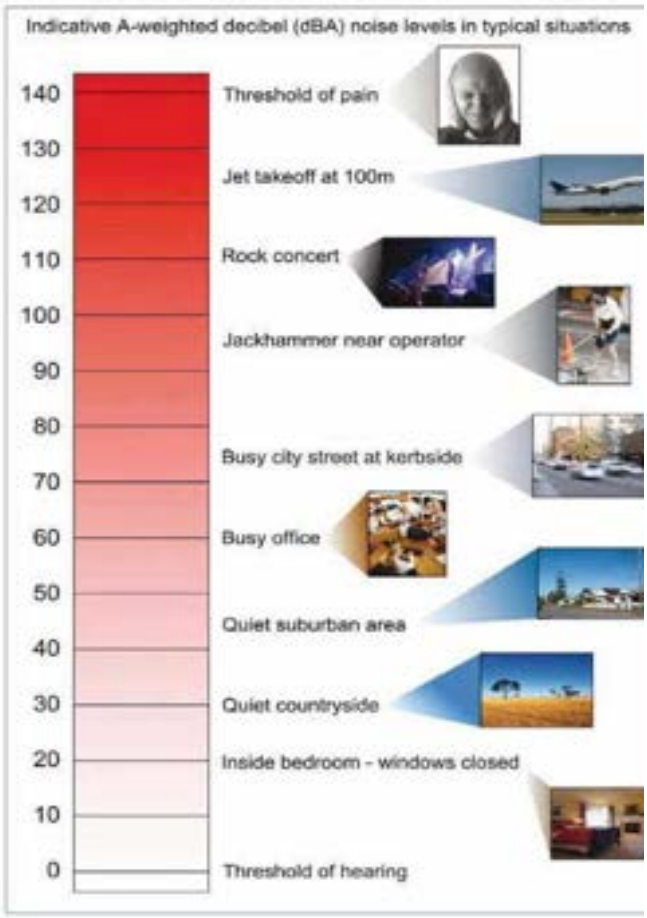
A set of standard mitigation measures for construction noise and vibration have been provided based on anticipated requirements of the proposal. It is believed construction noise can be minimised and managed to be acceptable to the local community through the implementation of a CNVMP similar to what has been recommended in this report.

Operation

The results of the assessment indicate there are receivers that already have an operational exceedances with consideration to the RNP. However, the predicted operational levels are increasing by less than 1.1dBA when comparing the build and no build situations.

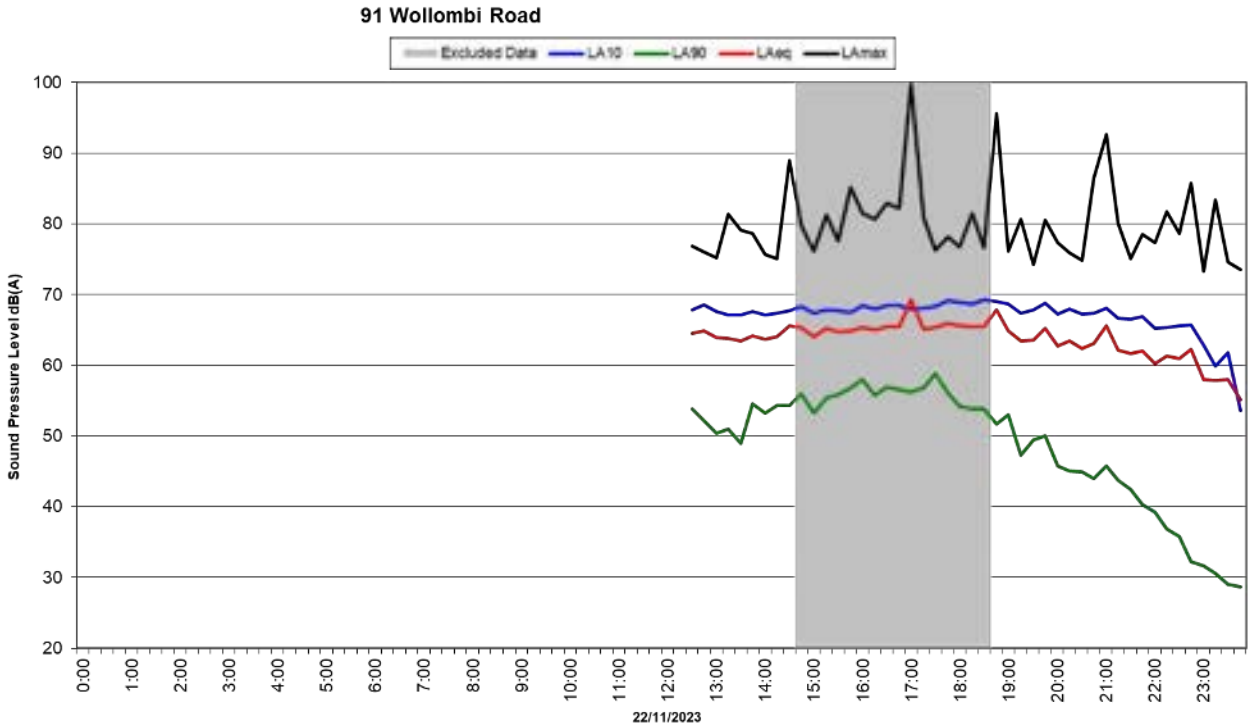
While the operational results suggest no mitigation is required, it is recommended the assessment be revisited if the final design or new traffic model results are significantly different from the current design and traffic volumes which this assessment was based on.

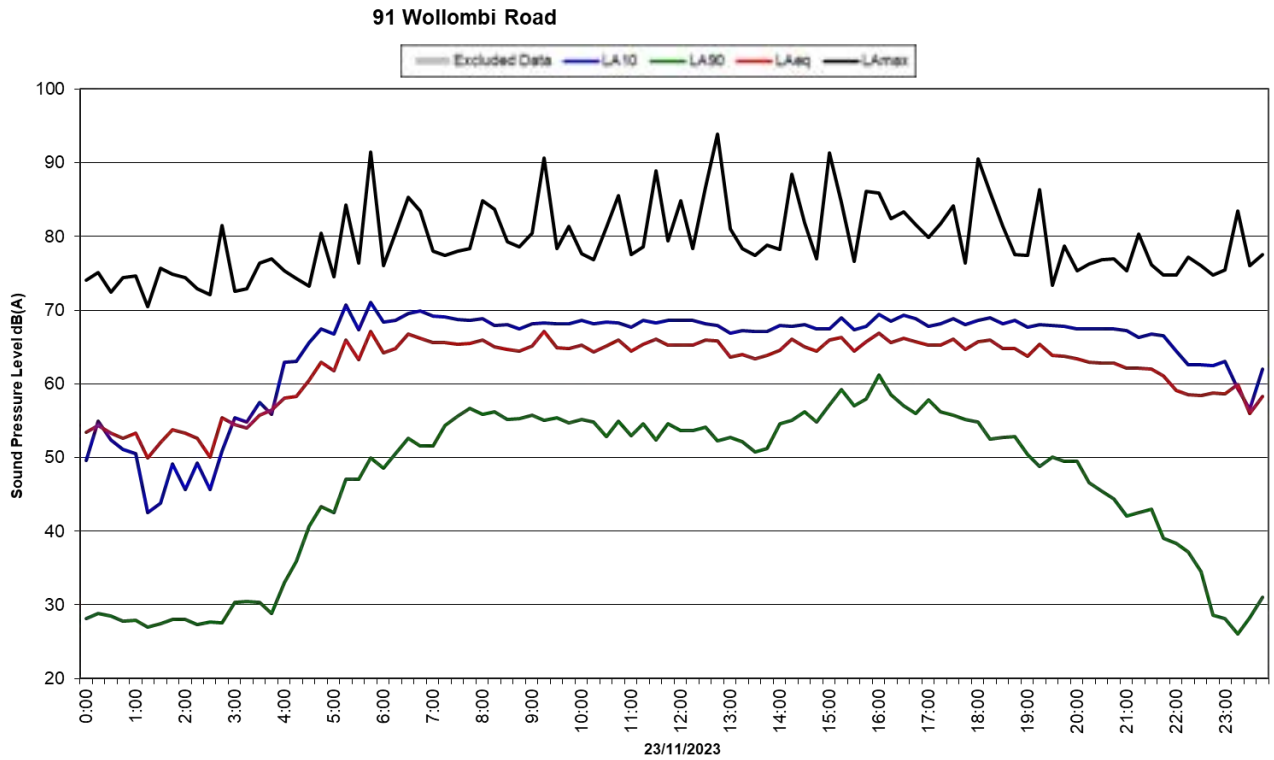
6. Appendix A: Glossary of Acoustic Terms

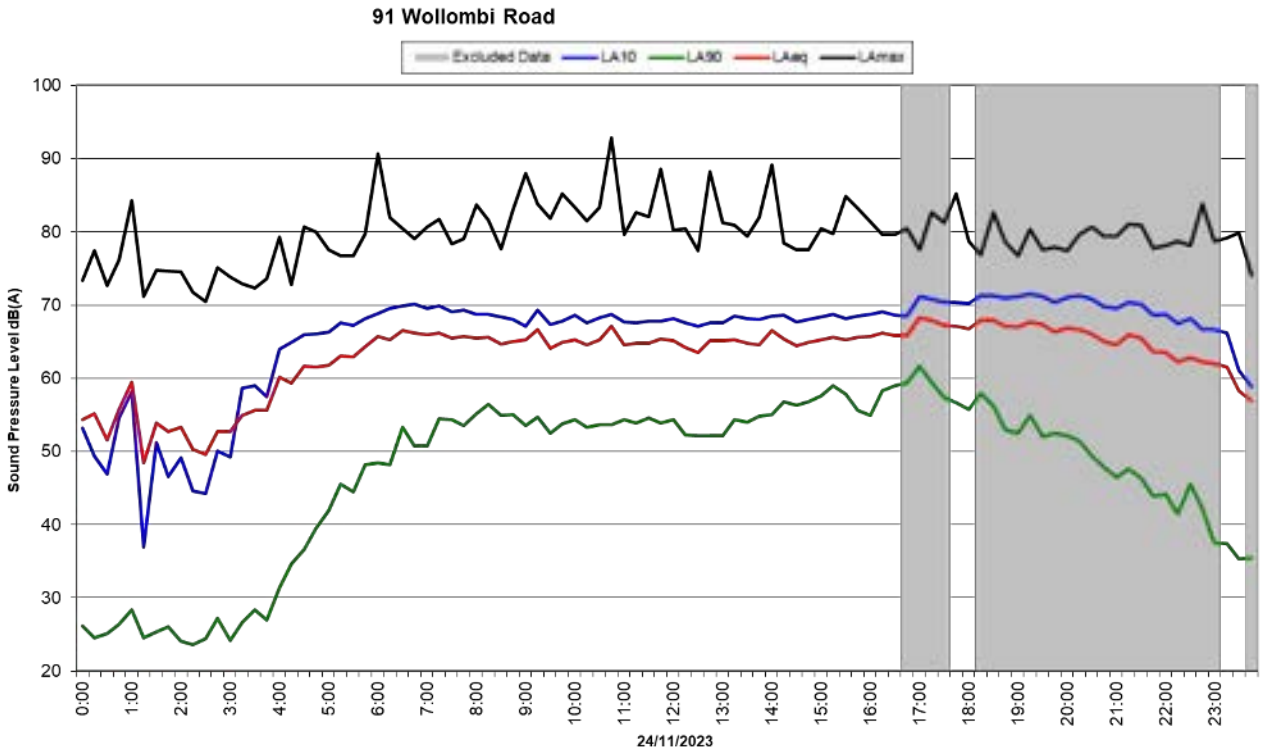
Term	Definition
dB	Decibel is the unit used for expressing the sound pressure level (SPL) or power level (SWL) in acoustics. The picture below indicates typical noise levels from common noise sources. 
dB(A)	Frequency weighting filter used to measure 'A-weighted' sound pressure levels, which conforms approximately to the human ear response, as our hearing is less sensitive at very low and very high frequencies.
$L_{Aeq(period)}$	Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.
$L_{A10(period)}$	The sound pressure level that is exceeded for 10% of the measurement period.
$L_{A90(period)}$	The sound pressure level that is exceeded for 90% of the measurement period.
L_{Amax}	The maximum sound level recorded during the measurement period.
Noise sensitive receiver	An area or place potentially affected by noise which includes:

	A residential dwelling. An educational institution, library, childcare centre or kindergarten. A hospital, surgery or other medical institution. An active (e.g. sports field, golf course) or passive (e.g. national park) recreational area. Commercial or industrial premises. A place of worship.
Rating Background Level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period.
Feasible and Reasonable (Noise Policy for Industry Definition)	**Feasible** mitigation measure is a noise mitigation measure that can be engineered and is practical to build and/or implement, given project constraints such as safety, maintenance and reliability requirements. Selecting **Reasonable** measures from those that are feasible involves judging whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the mitigation measure. To make a judgement, consider the following: Noise impacts Noise mitigation benefits Cost effectiveness of noise mitigation Community views.
Sound power level (SWL)	The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in dB(A).

7. Appendix B Noise Monitoring Charts



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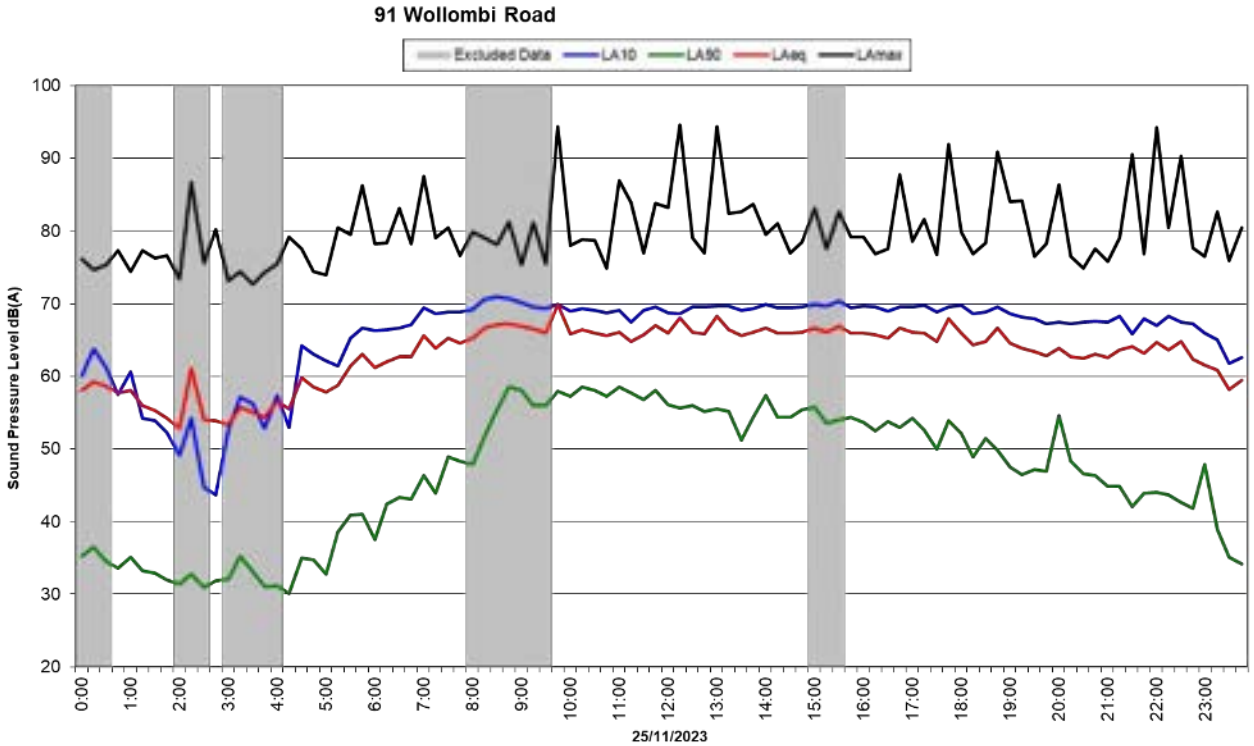
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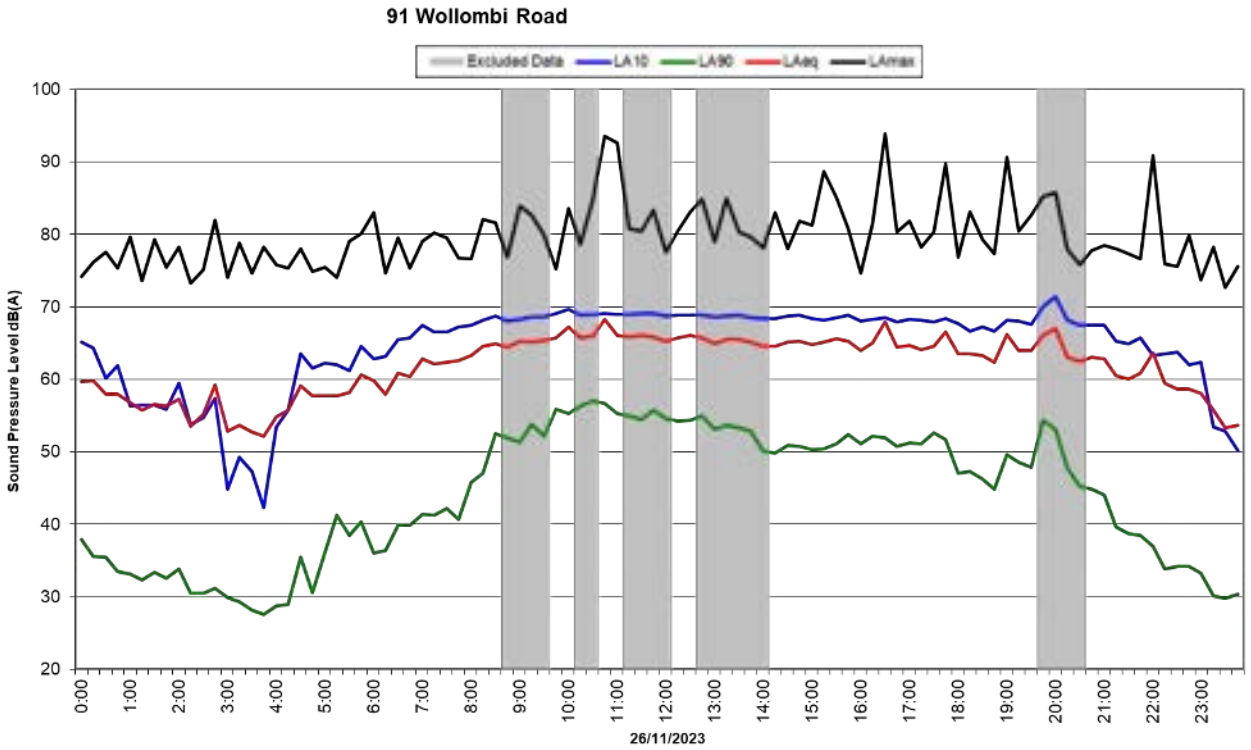
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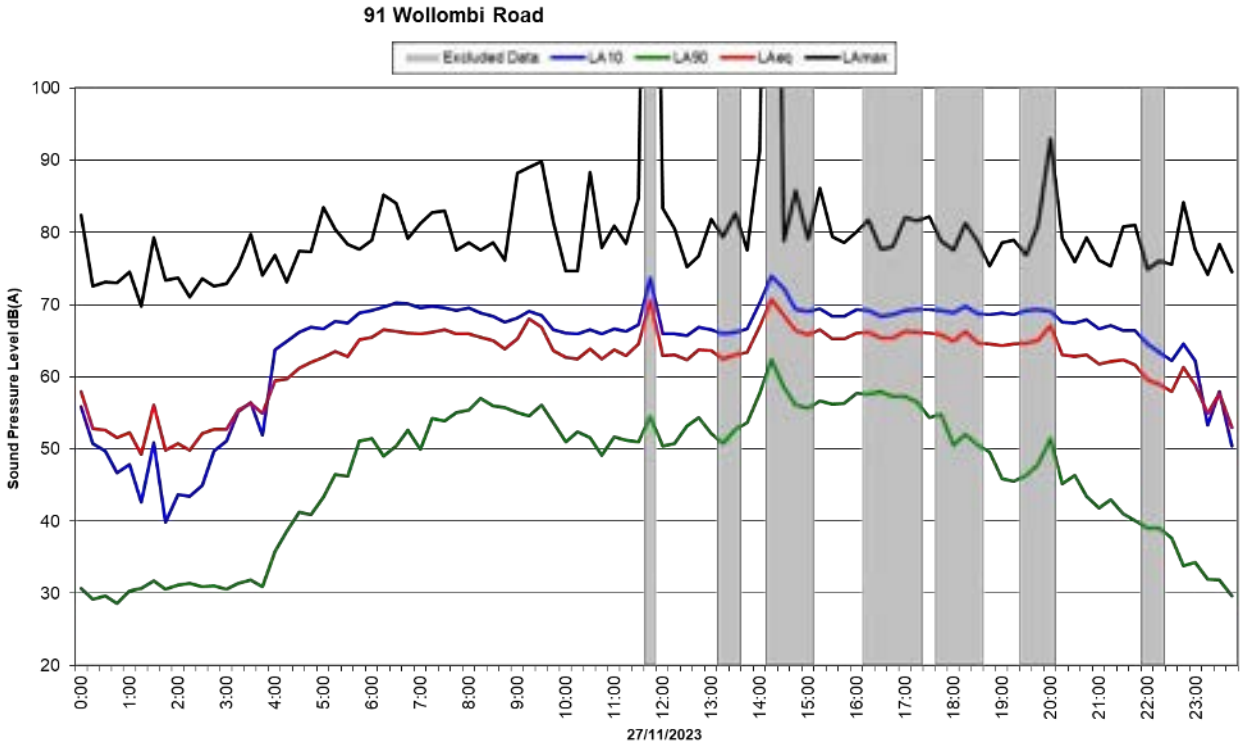
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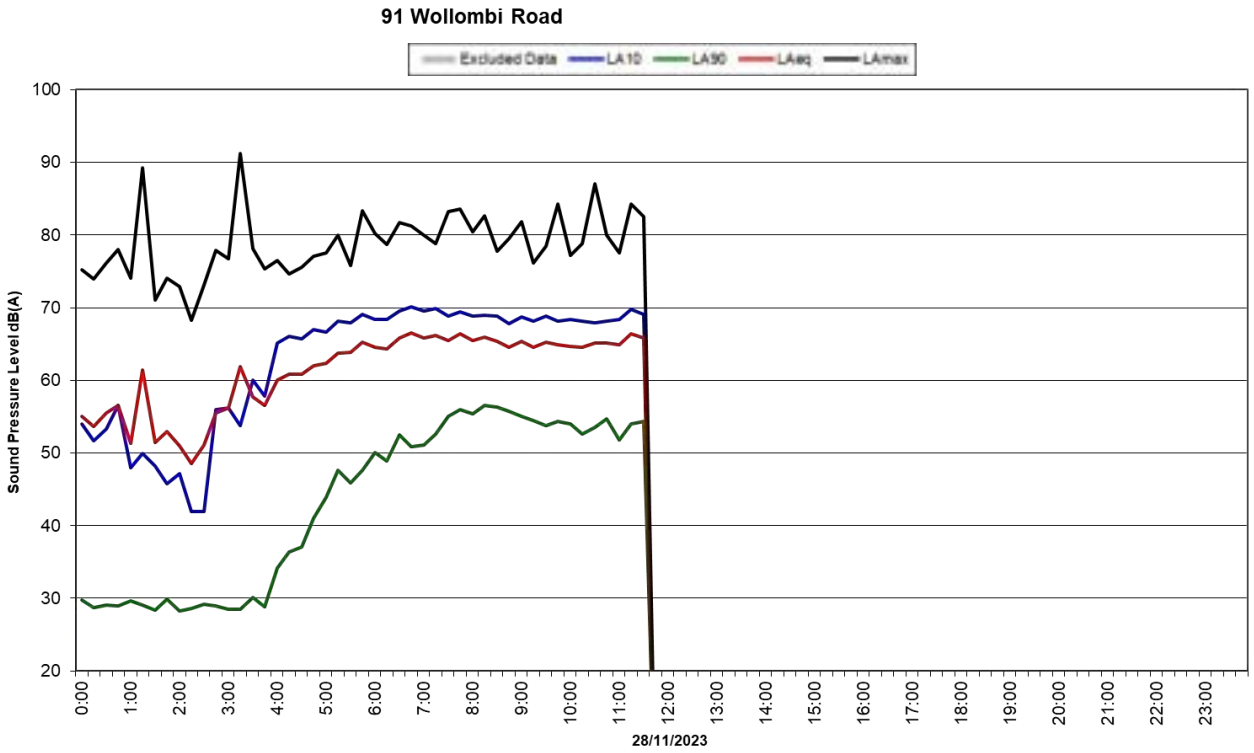
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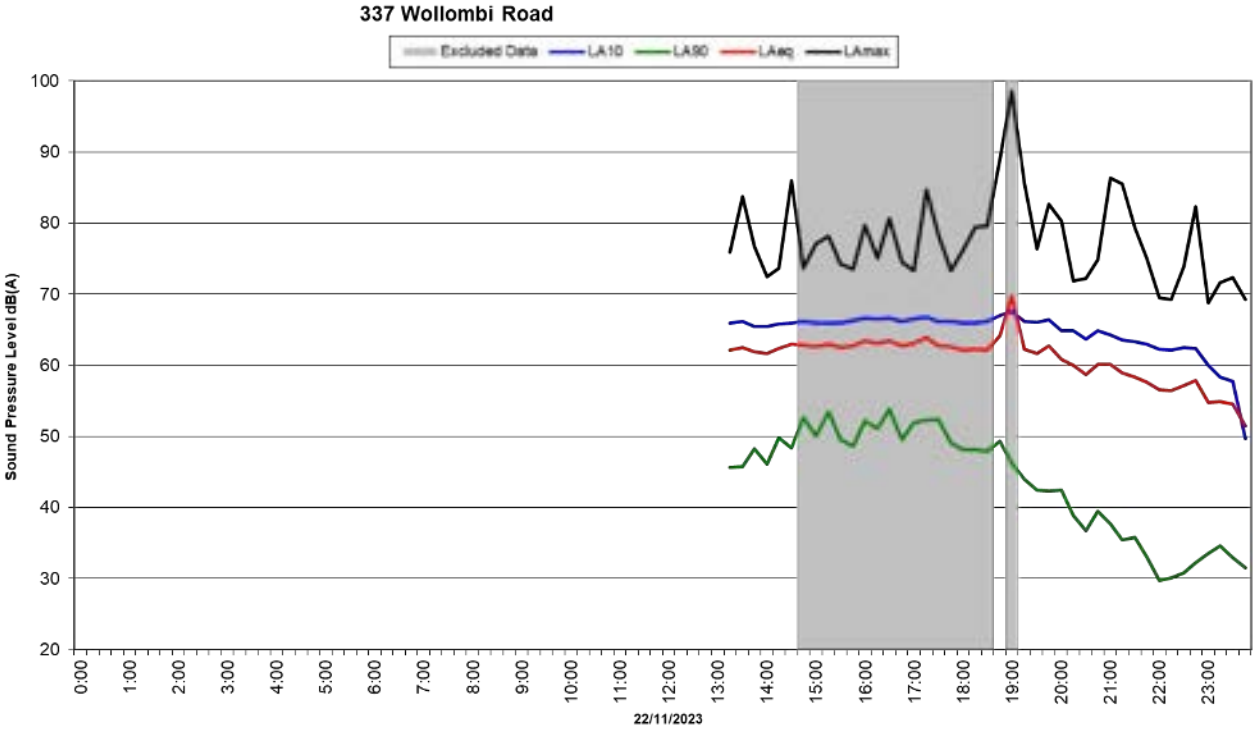
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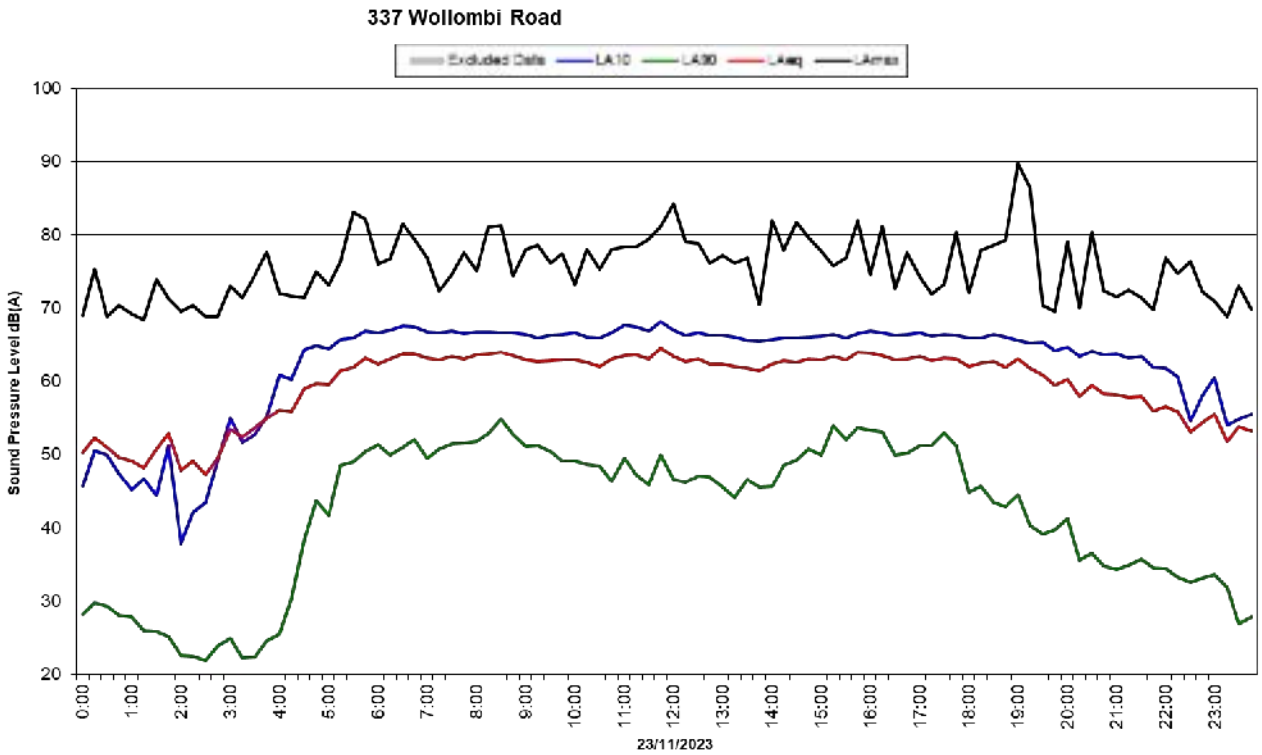
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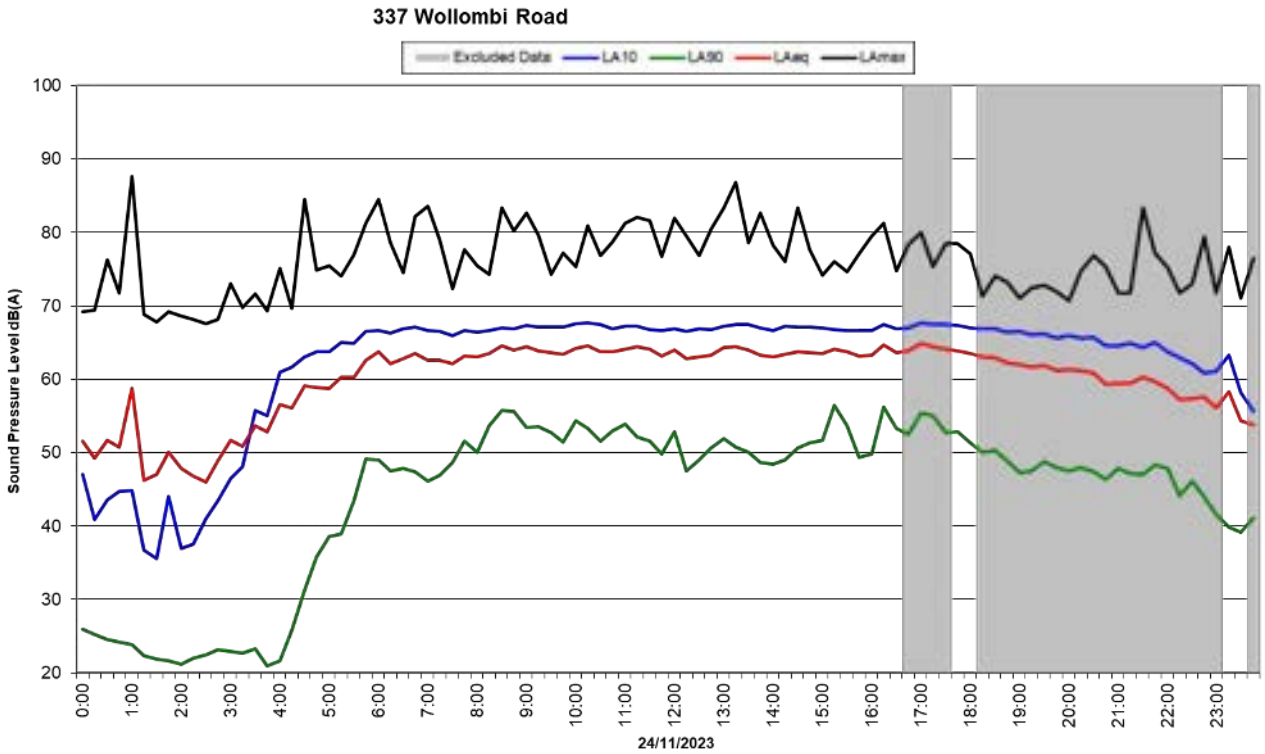
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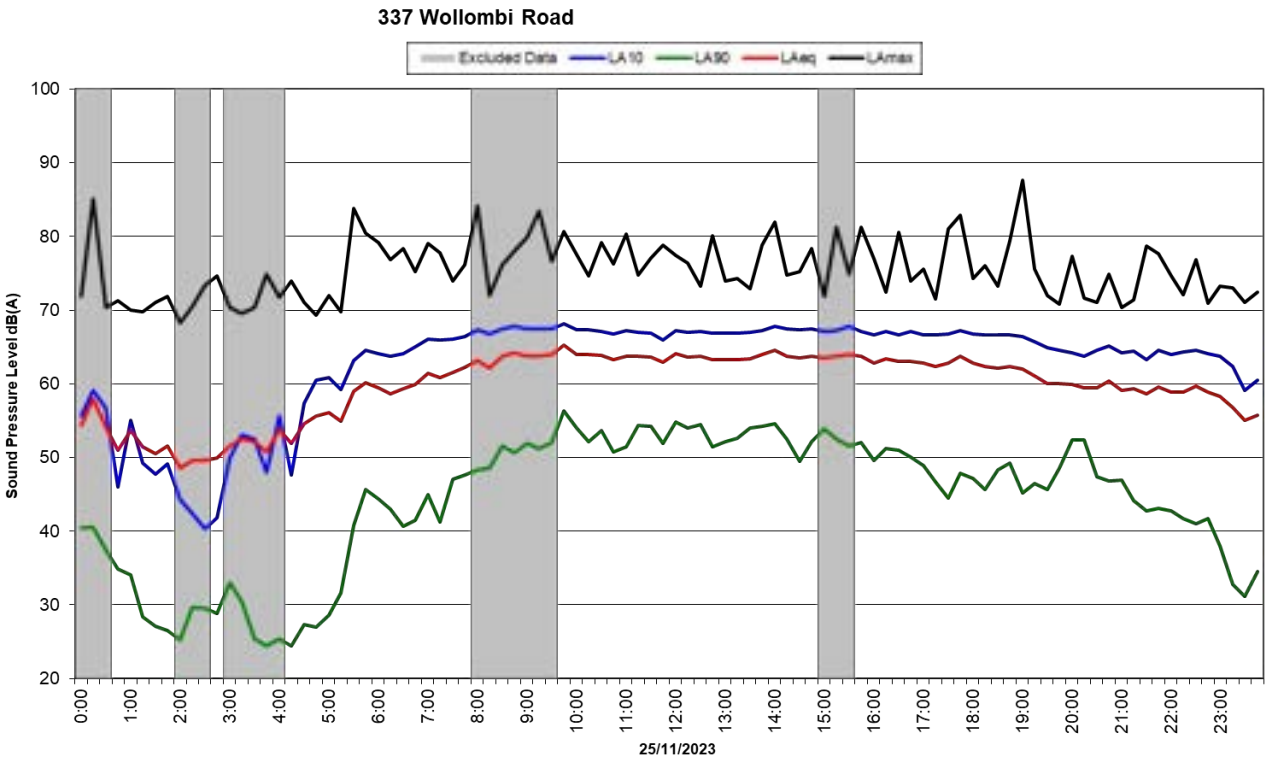
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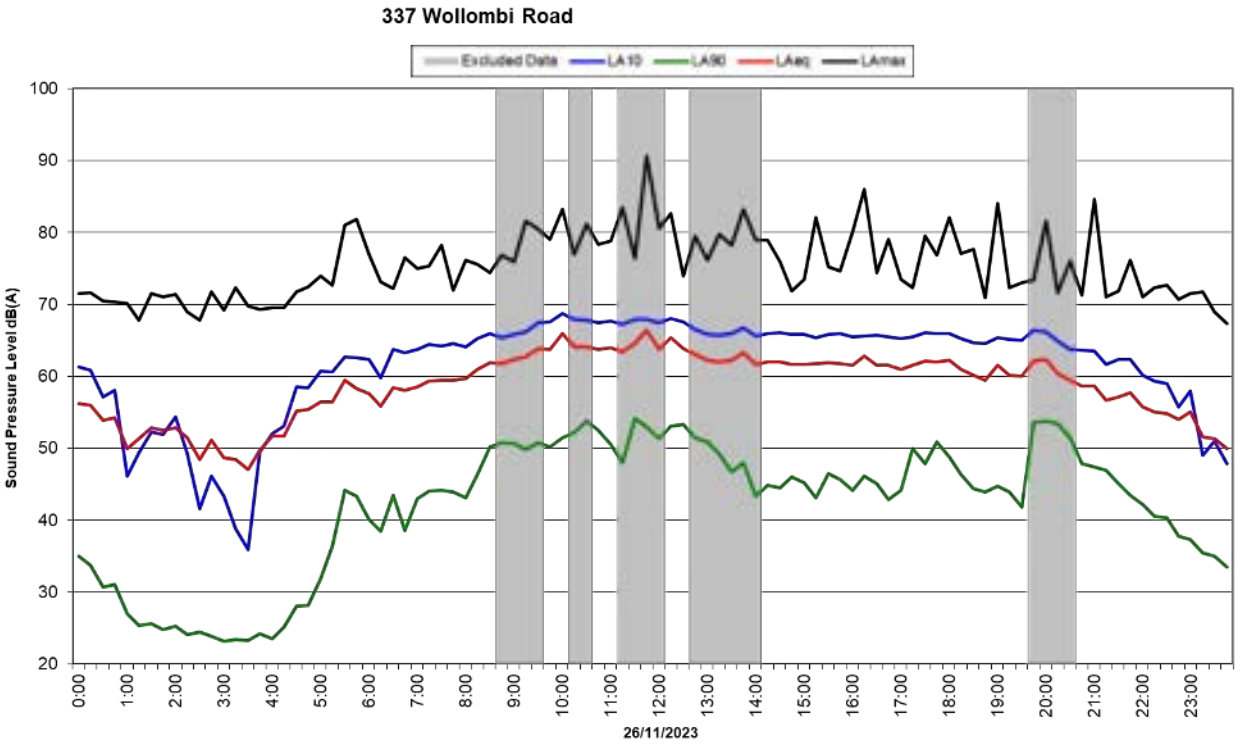
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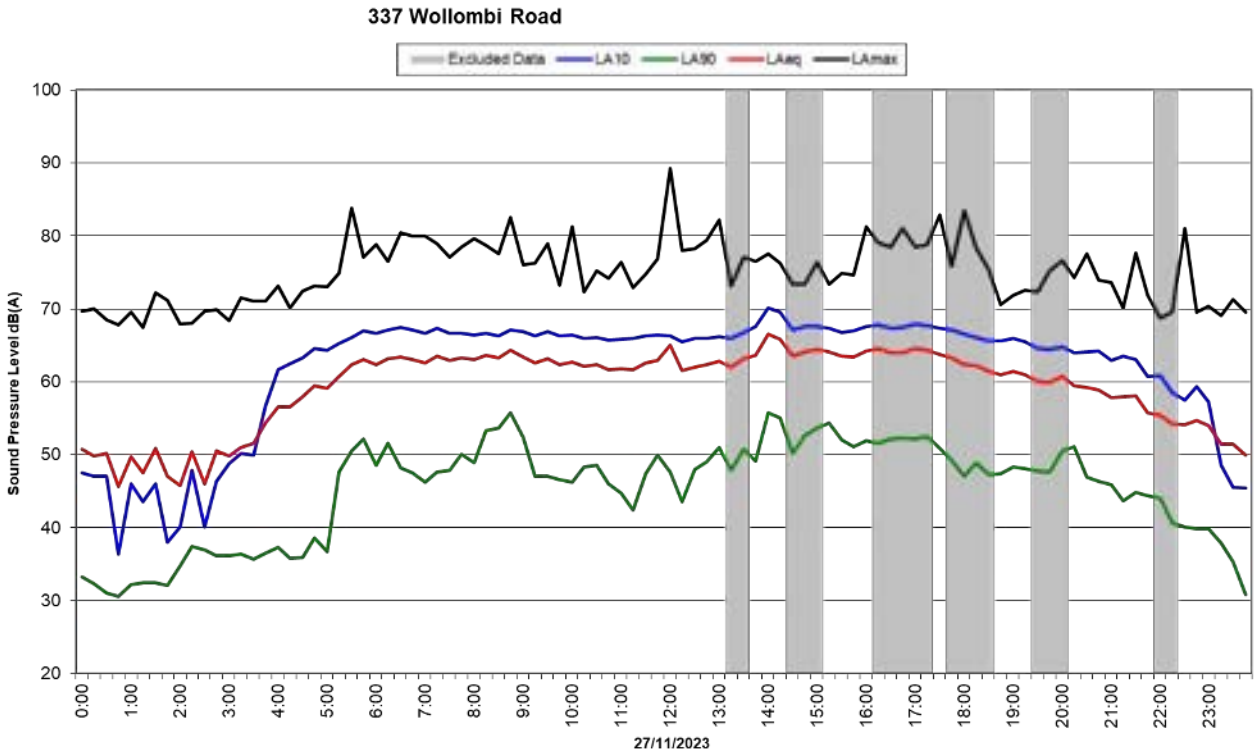
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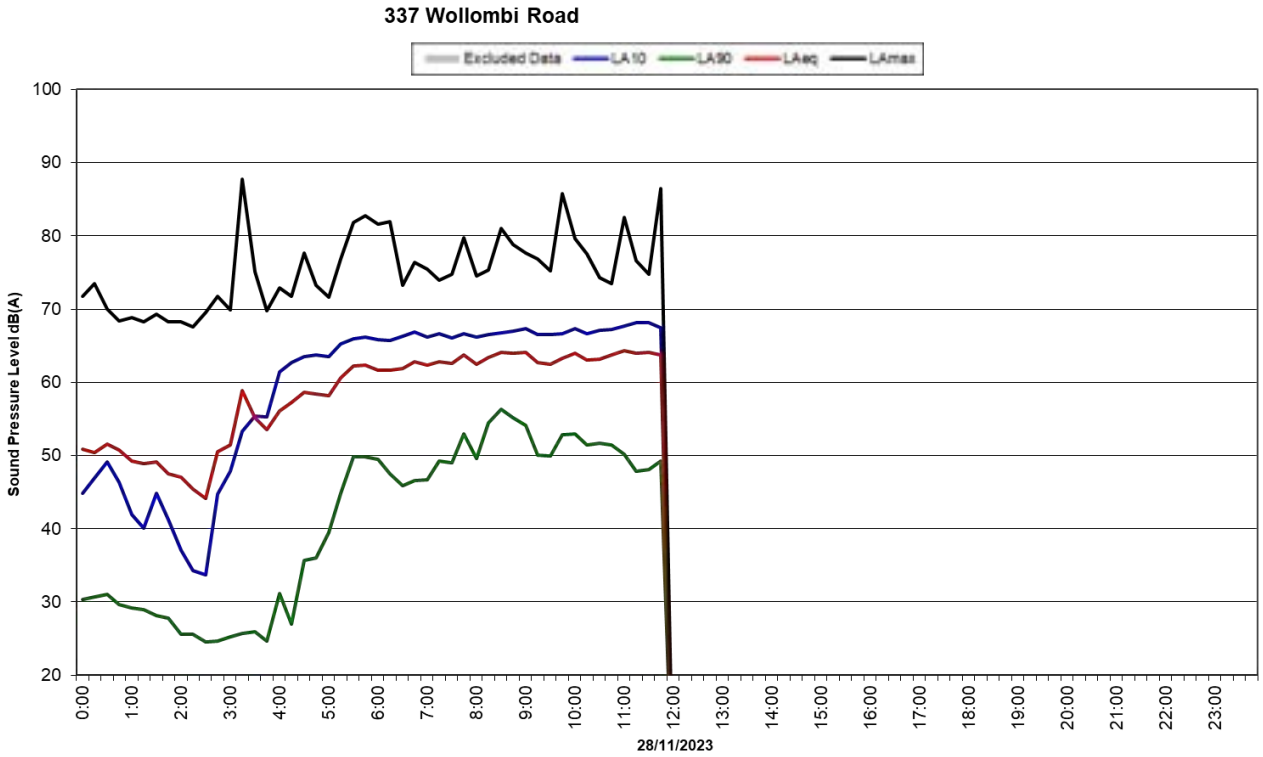
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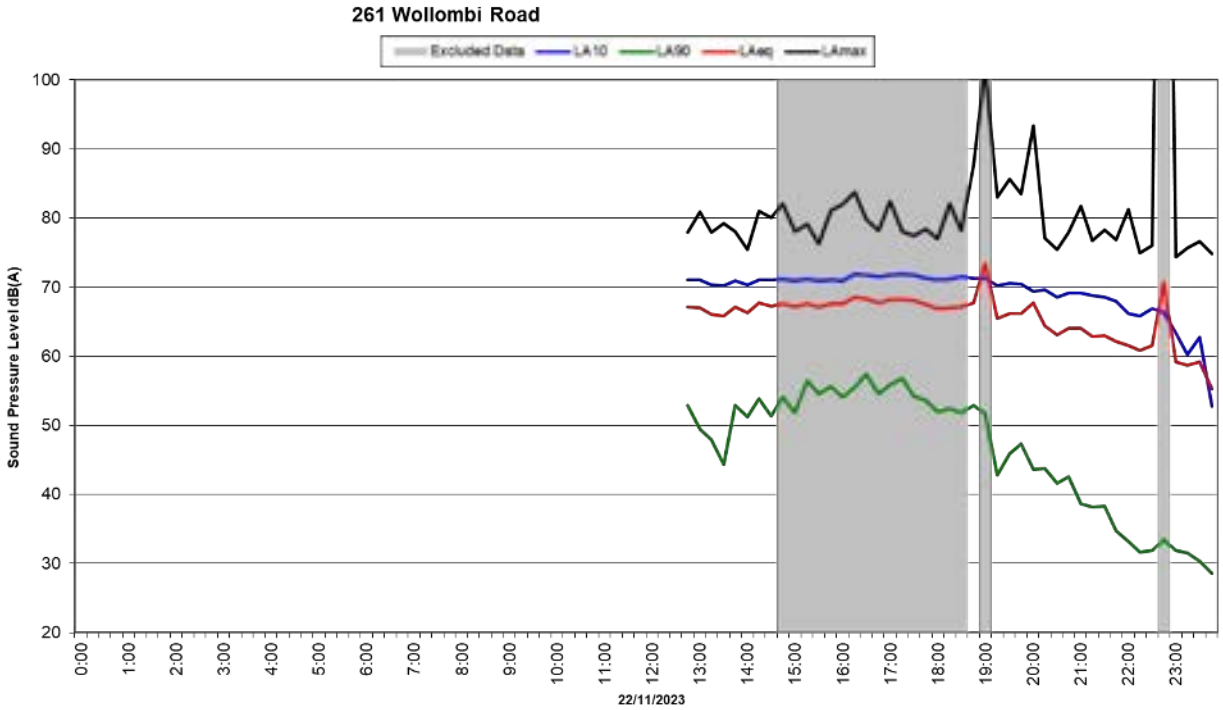
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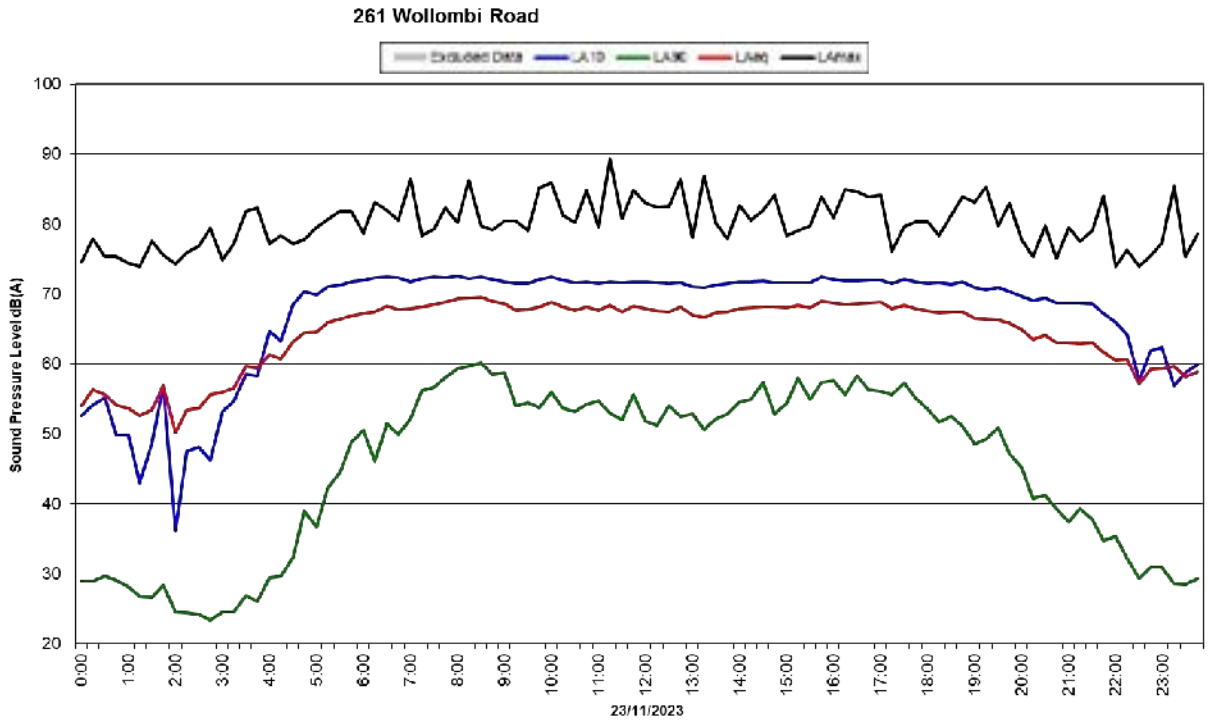
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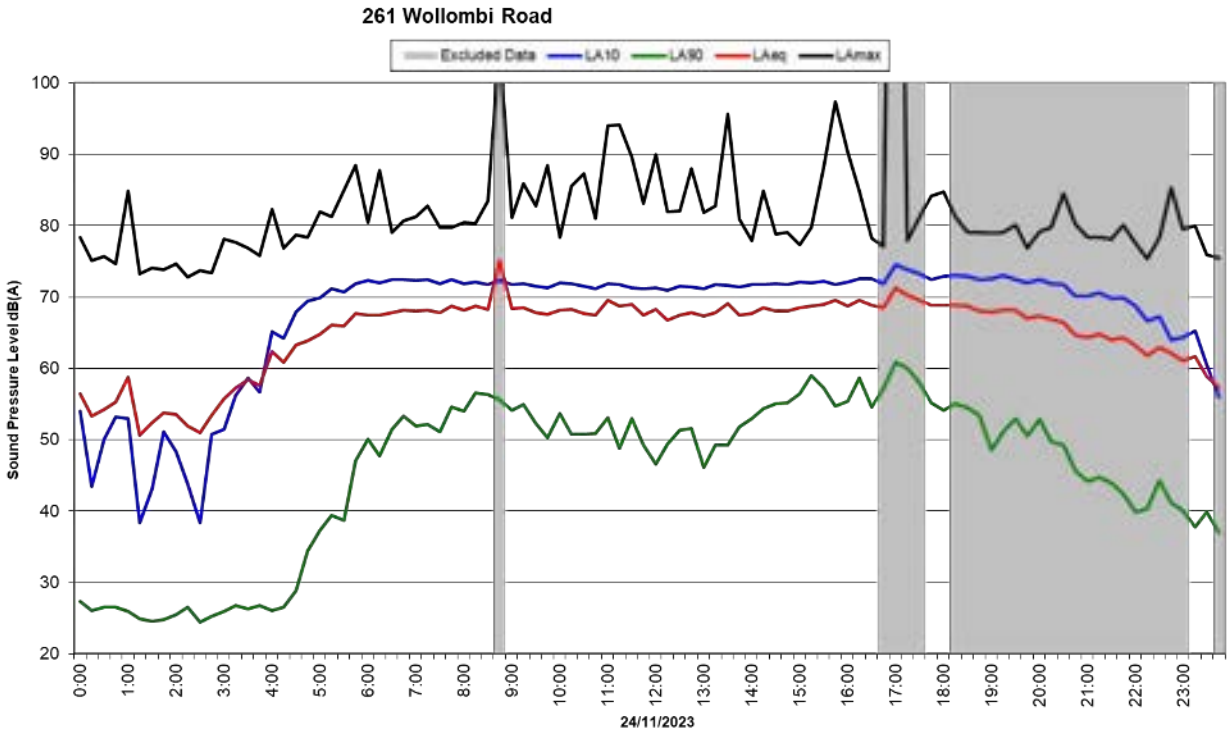
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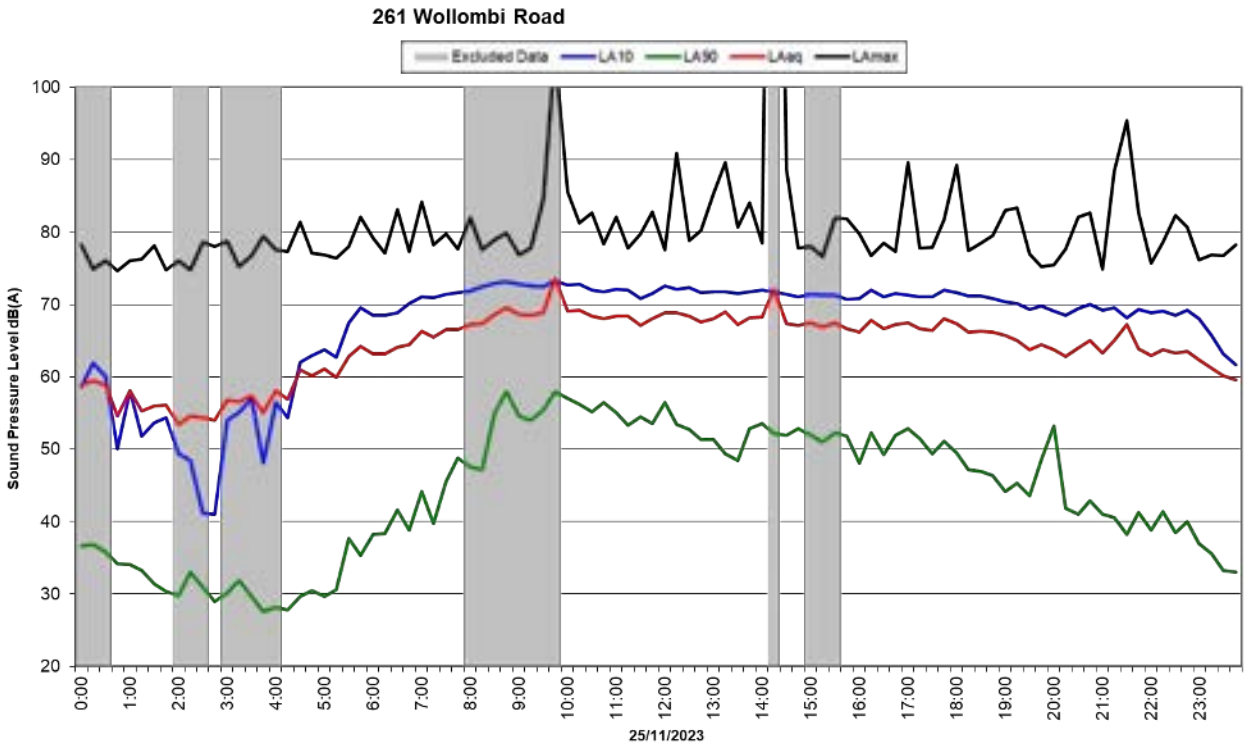
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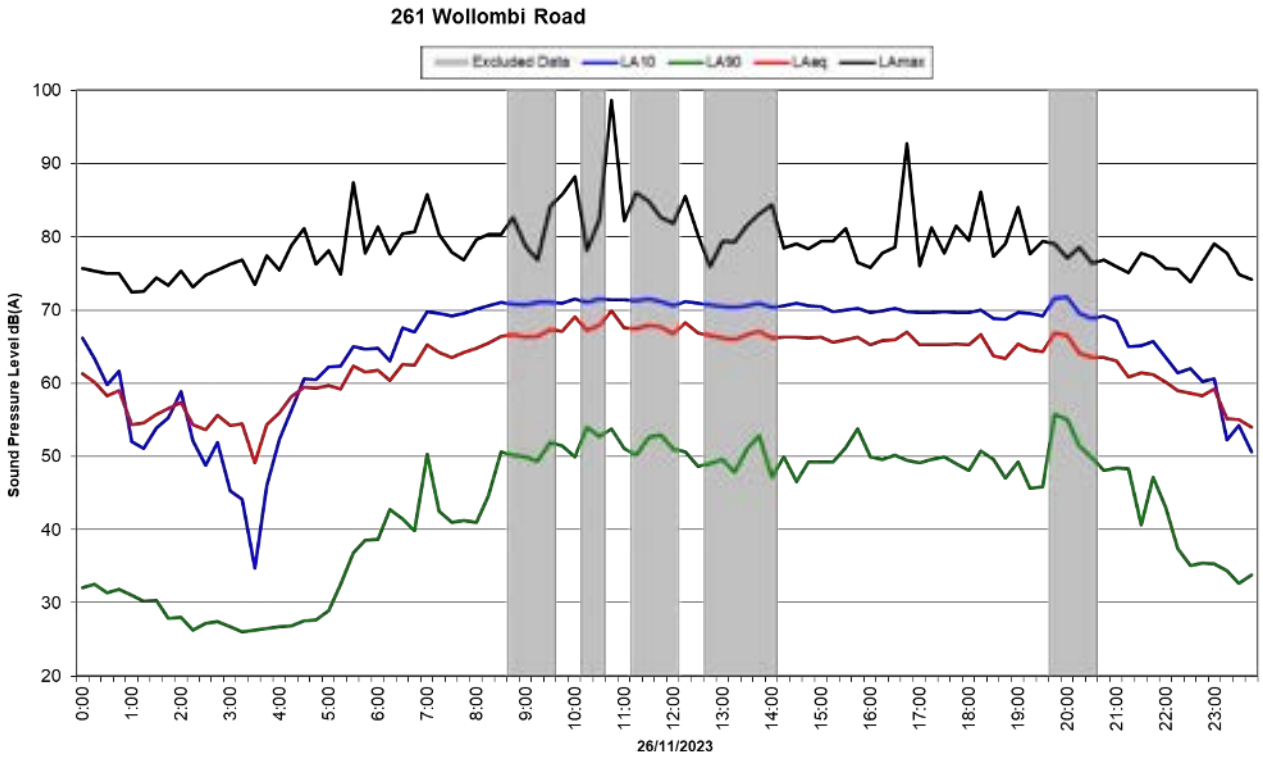
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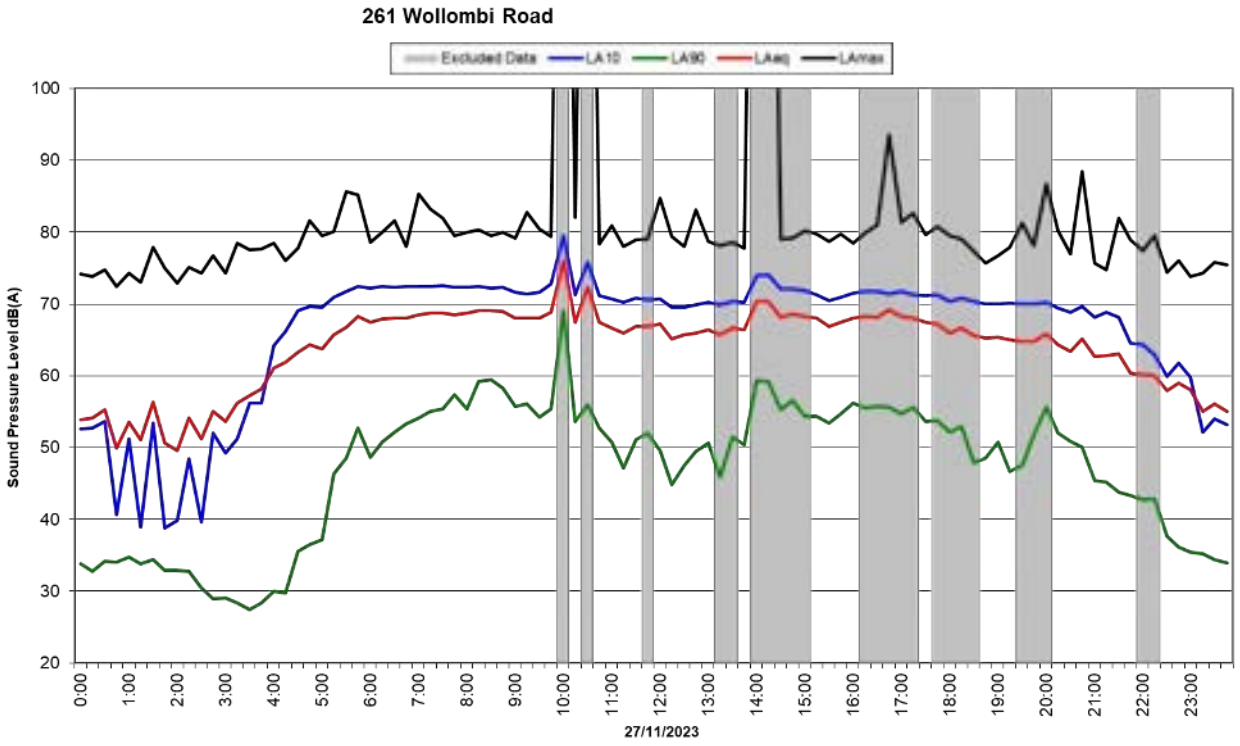
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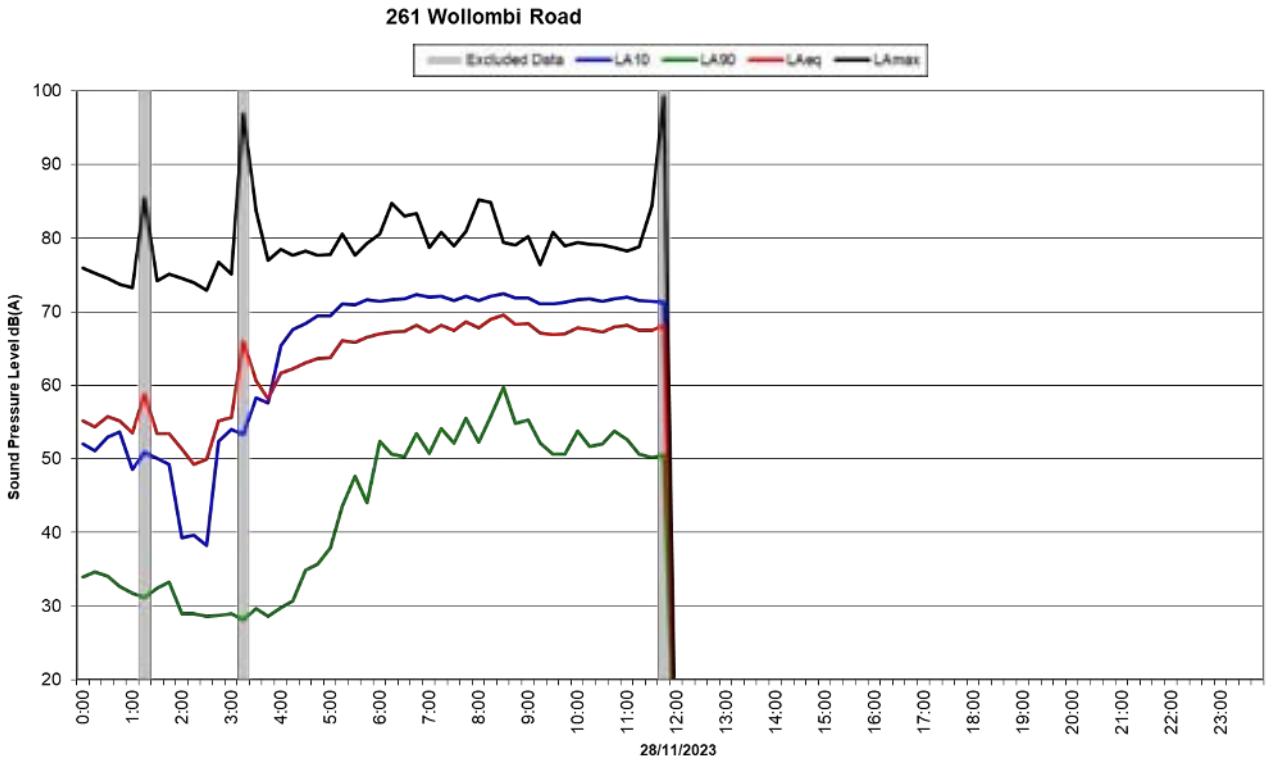
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8. Appendix C Construction Noise Modelling Results dB(A) Leq(15min)

Figure 8-1 L1 Site Prep

Figure 8-2 L2 Site Prep

Figure 8-3 L3 Site Prep

Figure 8-4 L4 Site Prep

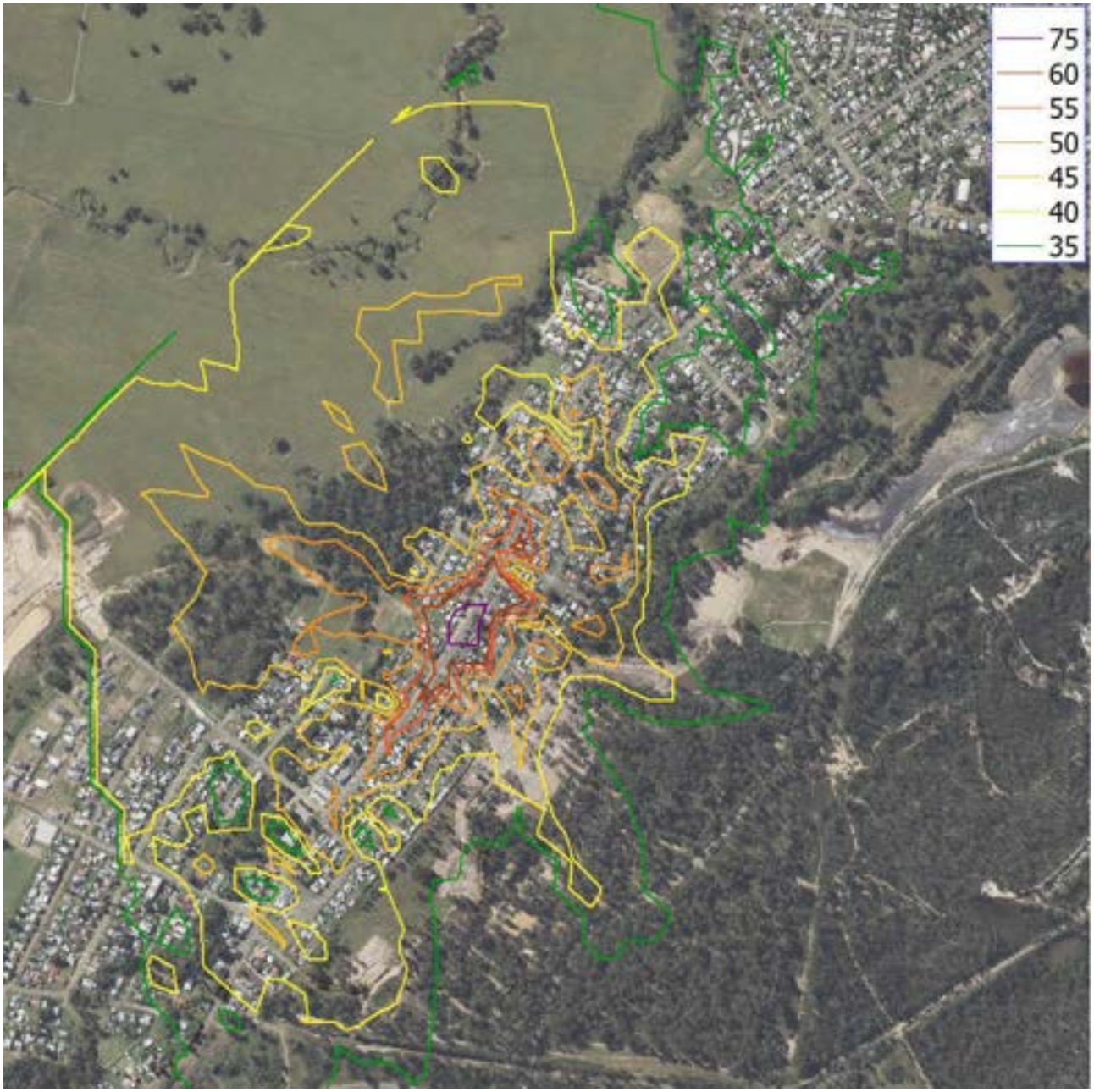


Figure 8-5 L1 Veg Removal

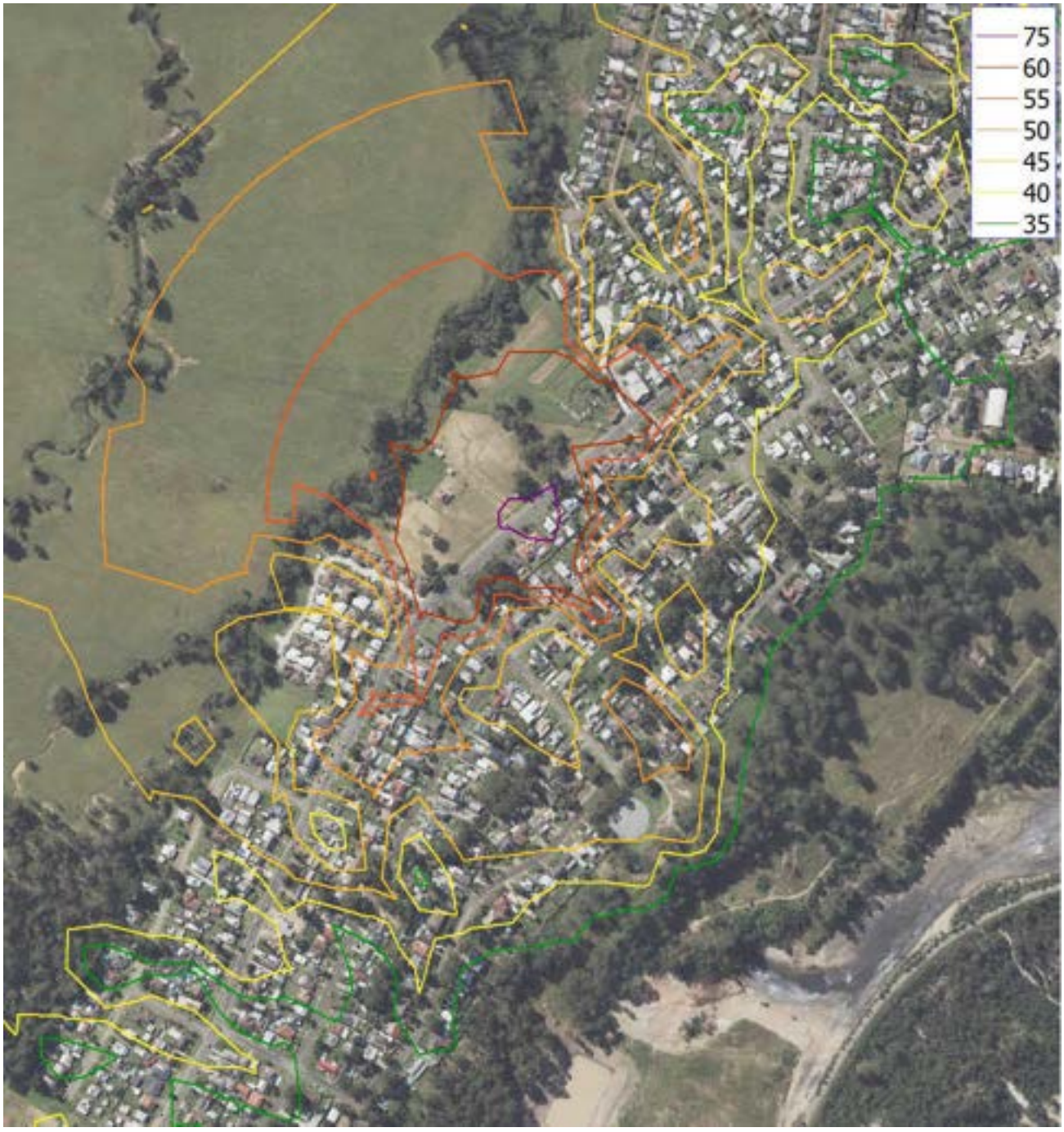


Figure 8-6 L2 Veg Removal

Figure 8-7 L3 Veg Removal

Figure 8-8 L4 Veg Removal

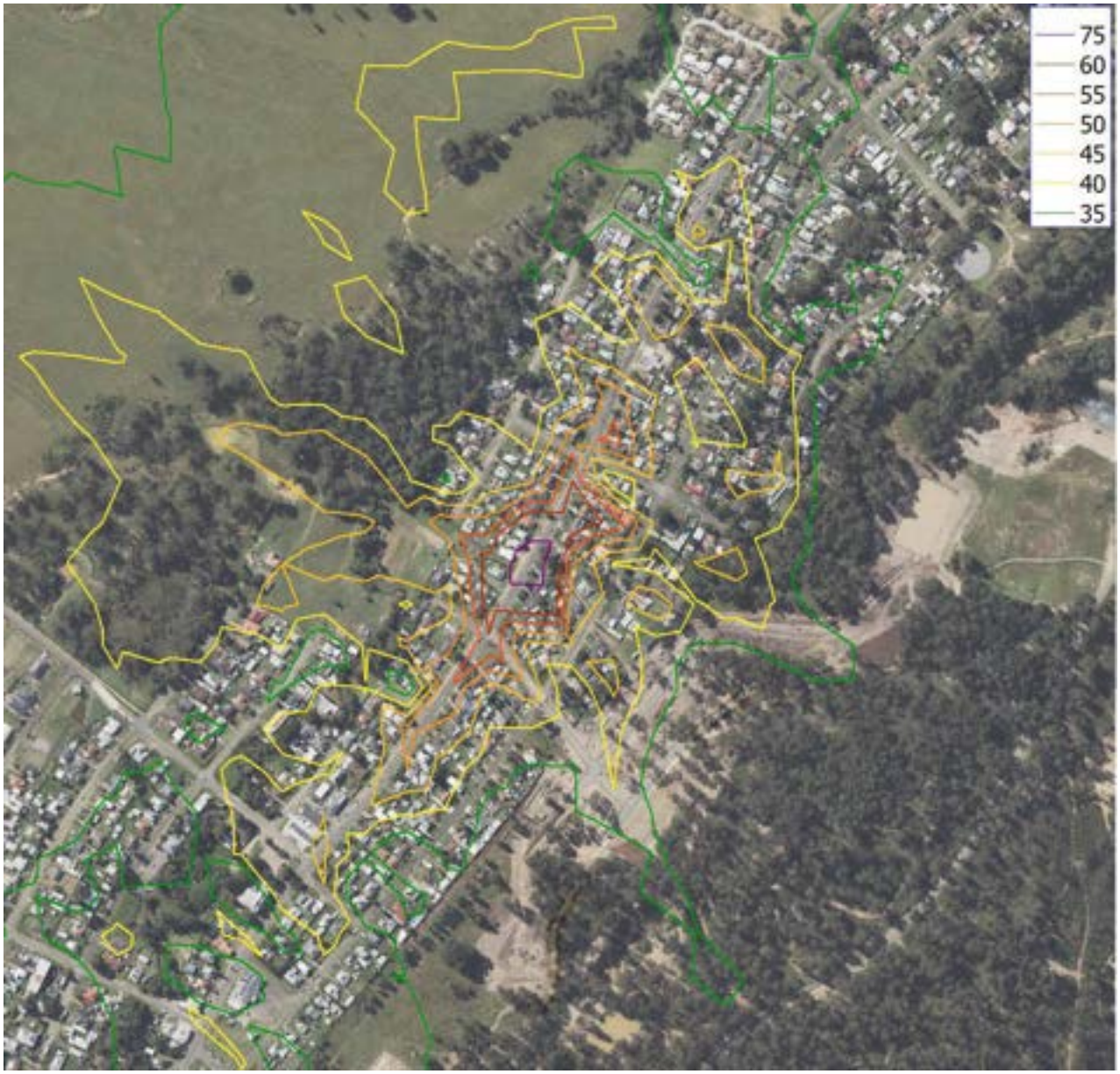


Figure 8-9 L1 Utilities

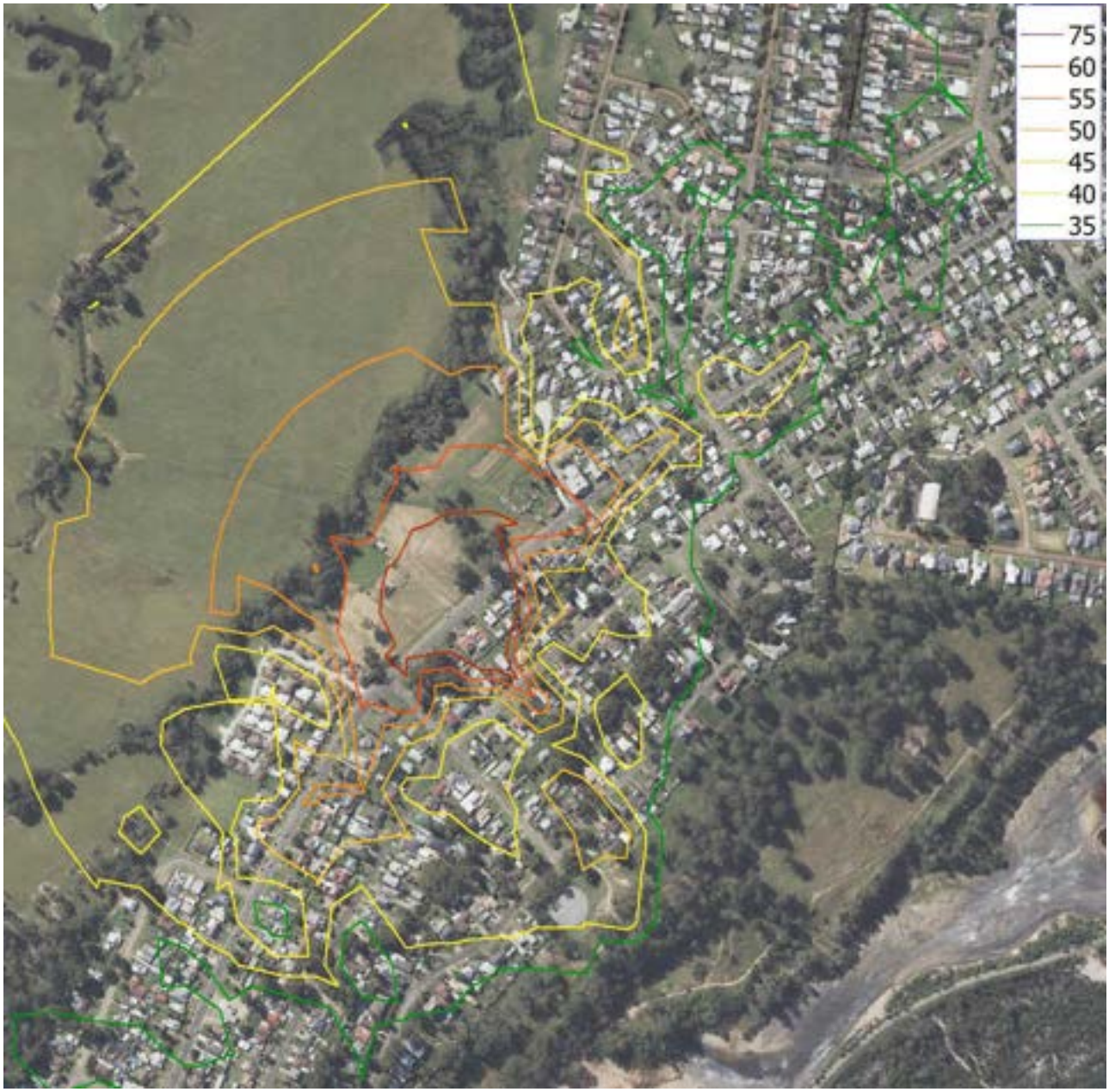


Figure 8-10 L2 Utilities

Figure 8-11 L3 Utilities

Figure 8-12 L4 Utilities

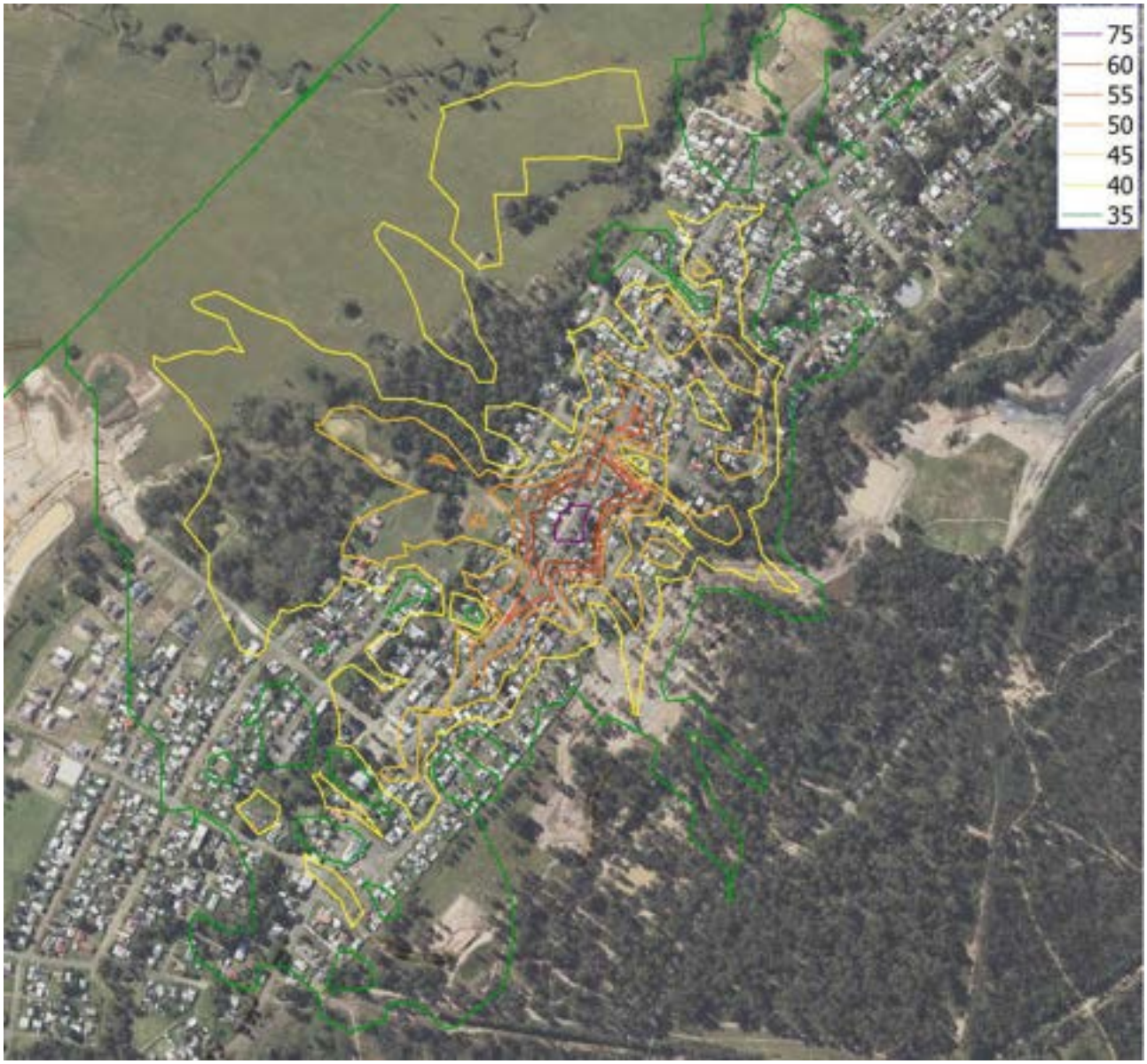


Figure 8-13 L1 Paving

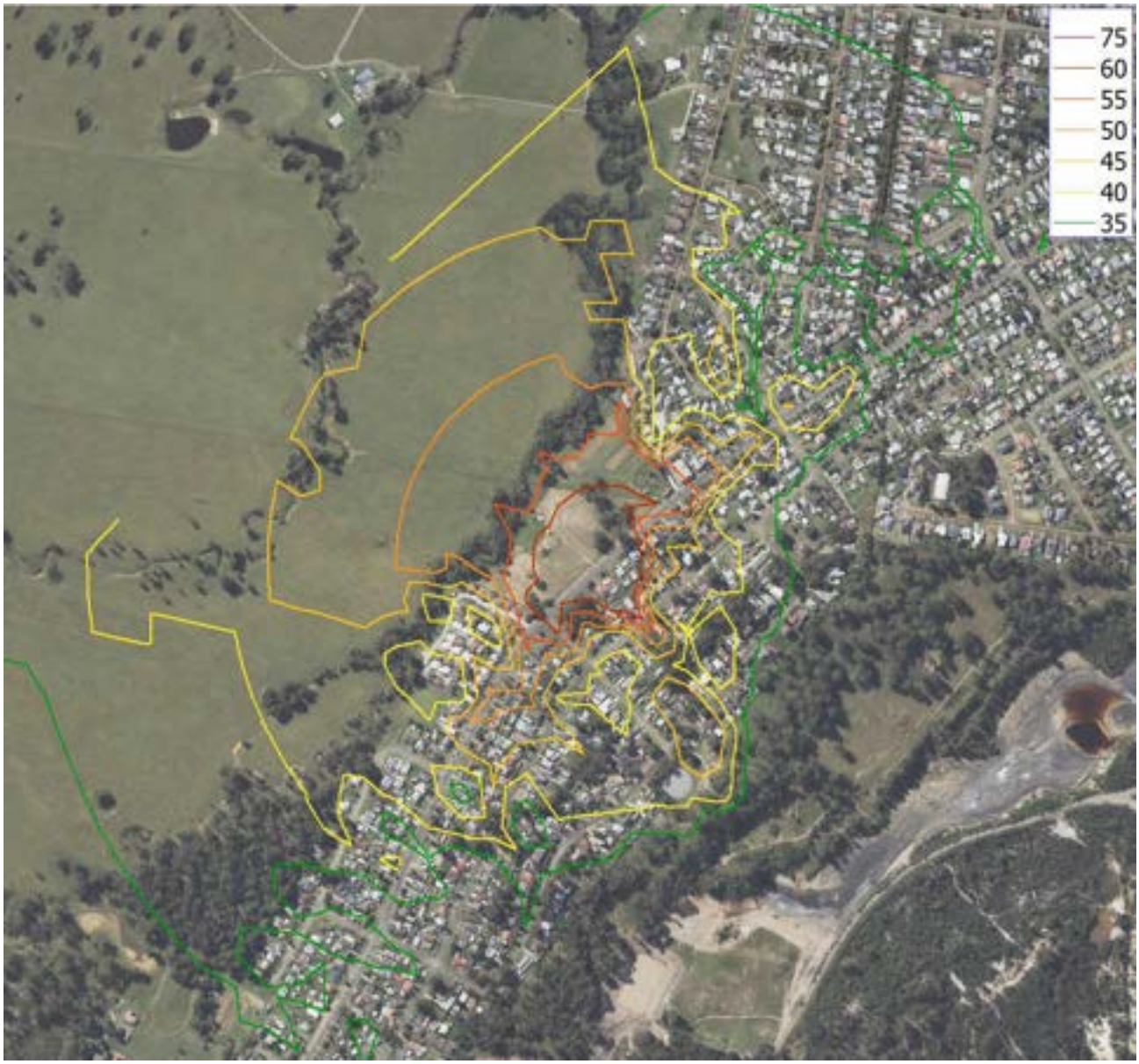


Figure 8-14 L2 Paving

Figure 8-15 L3 Paving

Figure 8-16 L4 Paving

Figure 8-17 L1 Finishes

Figure 8-18 L2 Finishes

Figure 8-19 L3 Finishes

Figure 8-20 L4 Finishes

9. Appendix D Operational Noise Results

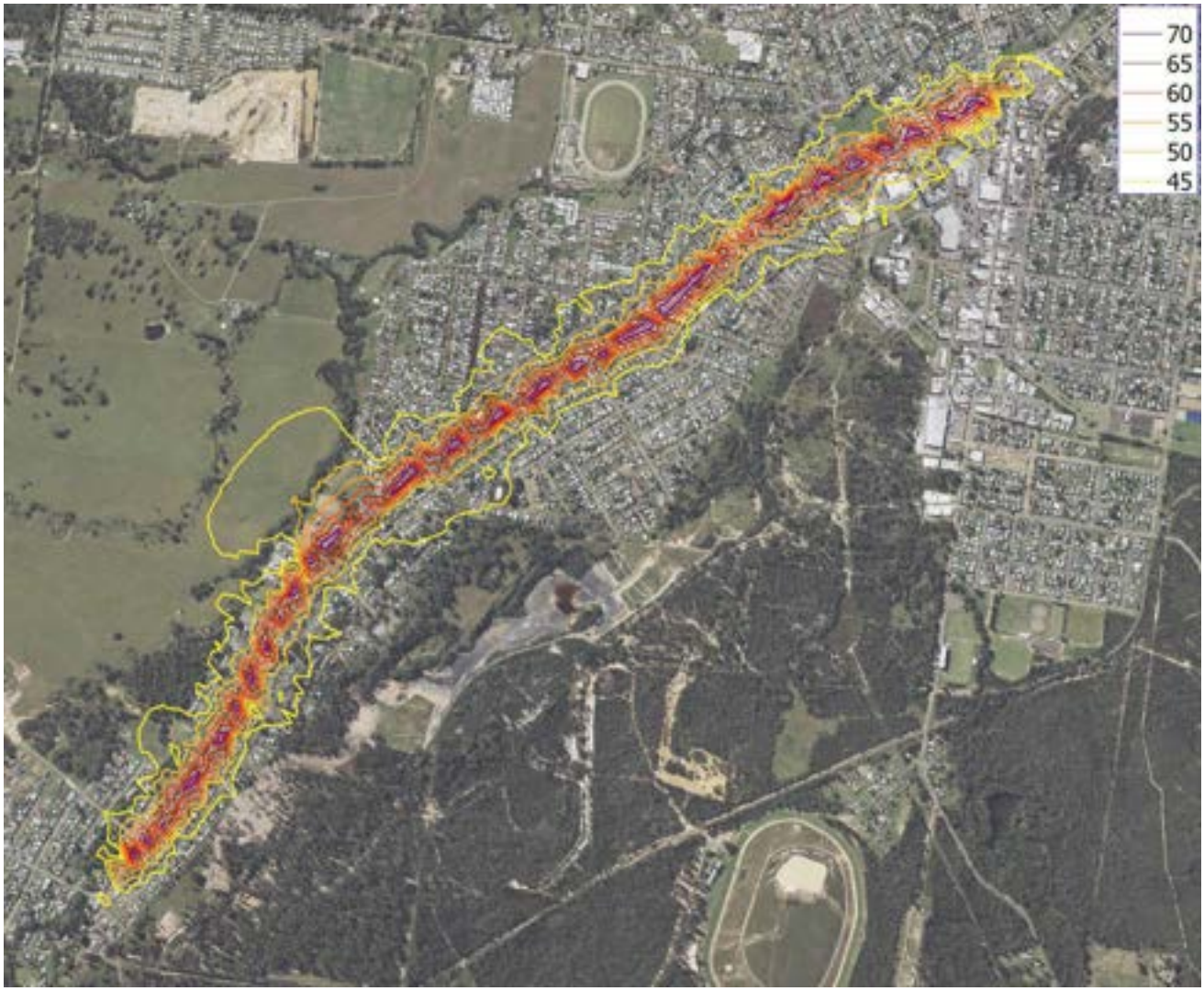


Figure 9-1 2026 Build Leq(15hr) dB(A)

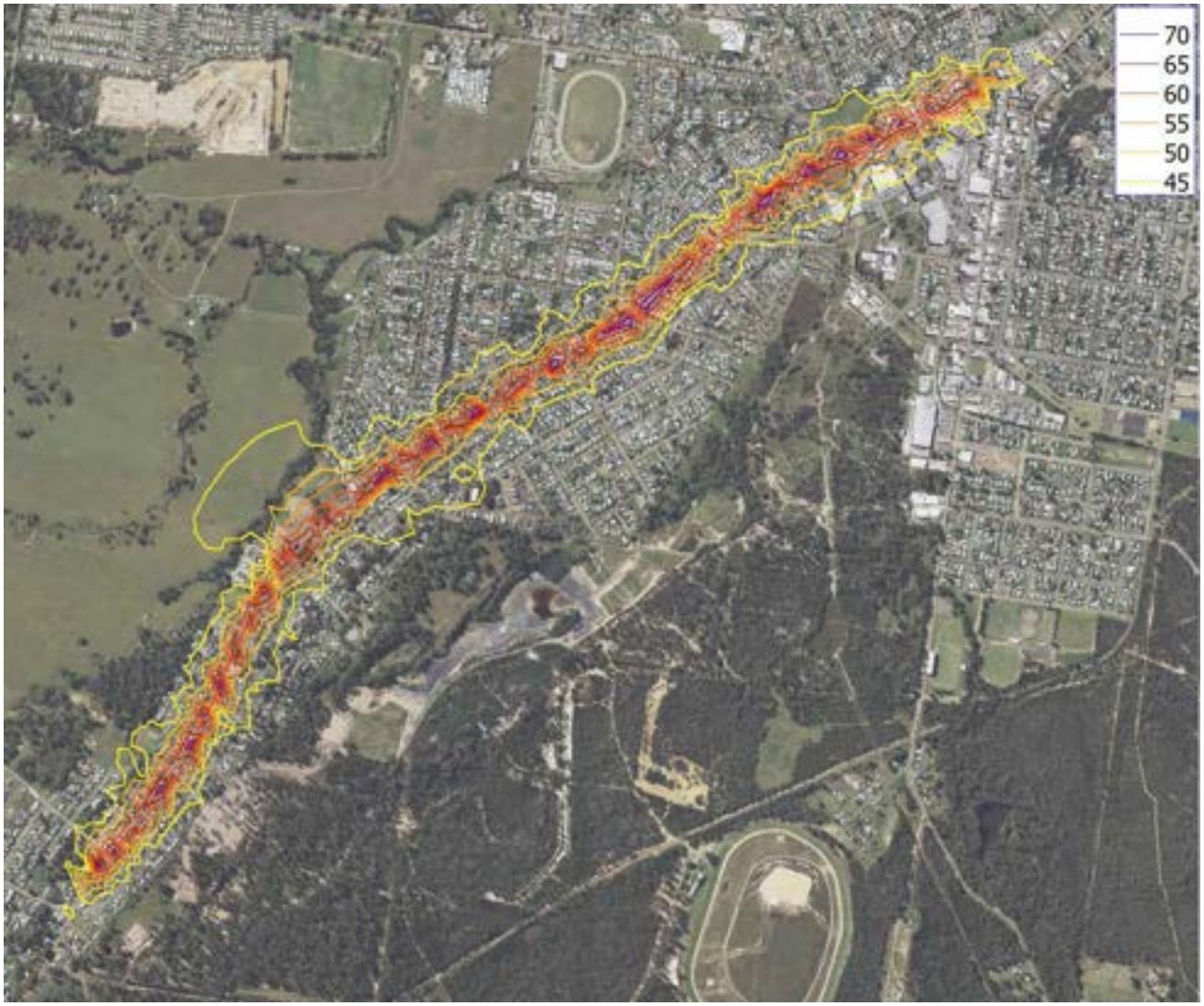


Figure 9-2 2026 No Build Leq(15hr) dB(A)

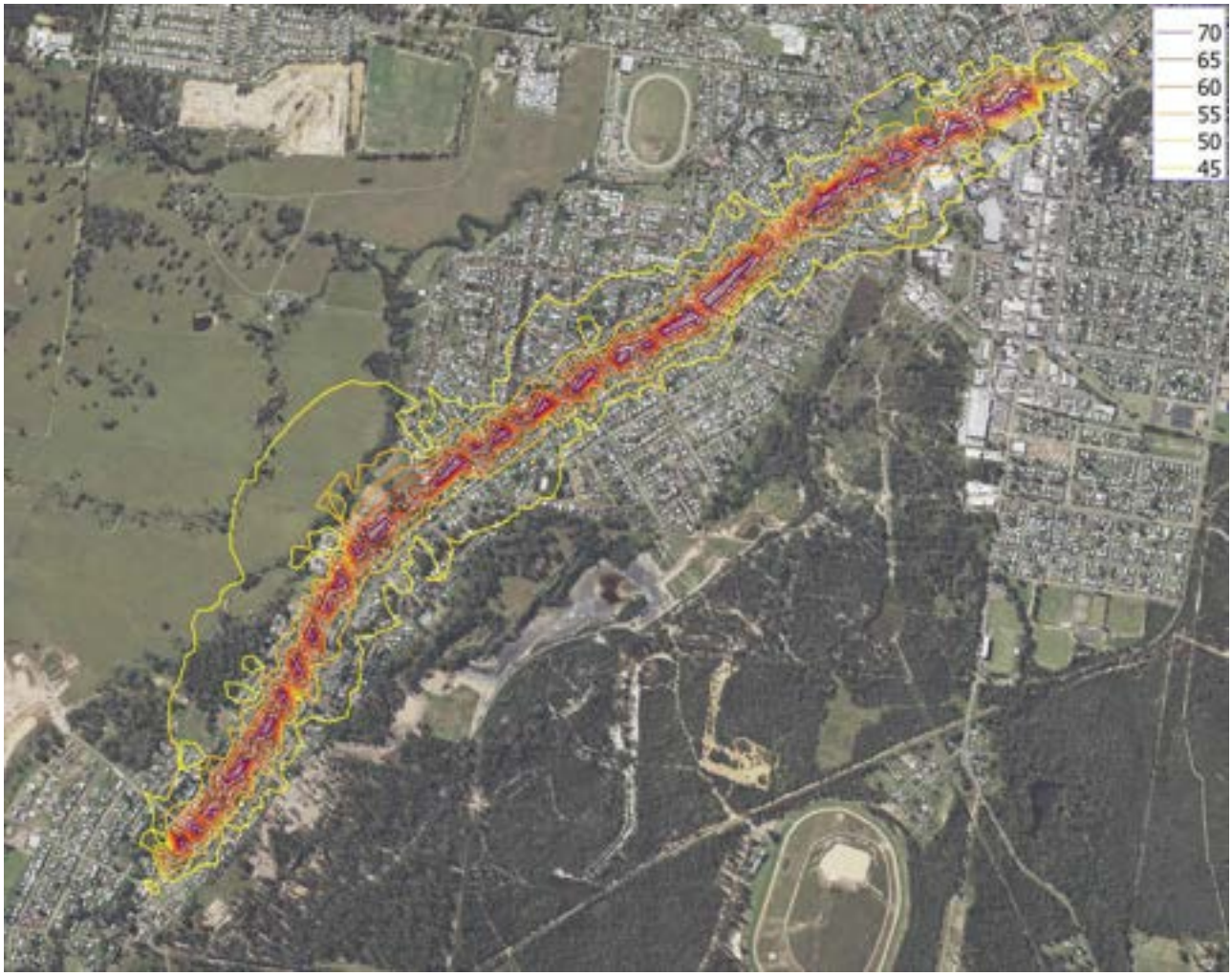


Figure 9-3 2036 Build Leq(15hr) dB(A)

Figure 9-4 2036 No Build Leq(15hr) dB(A)

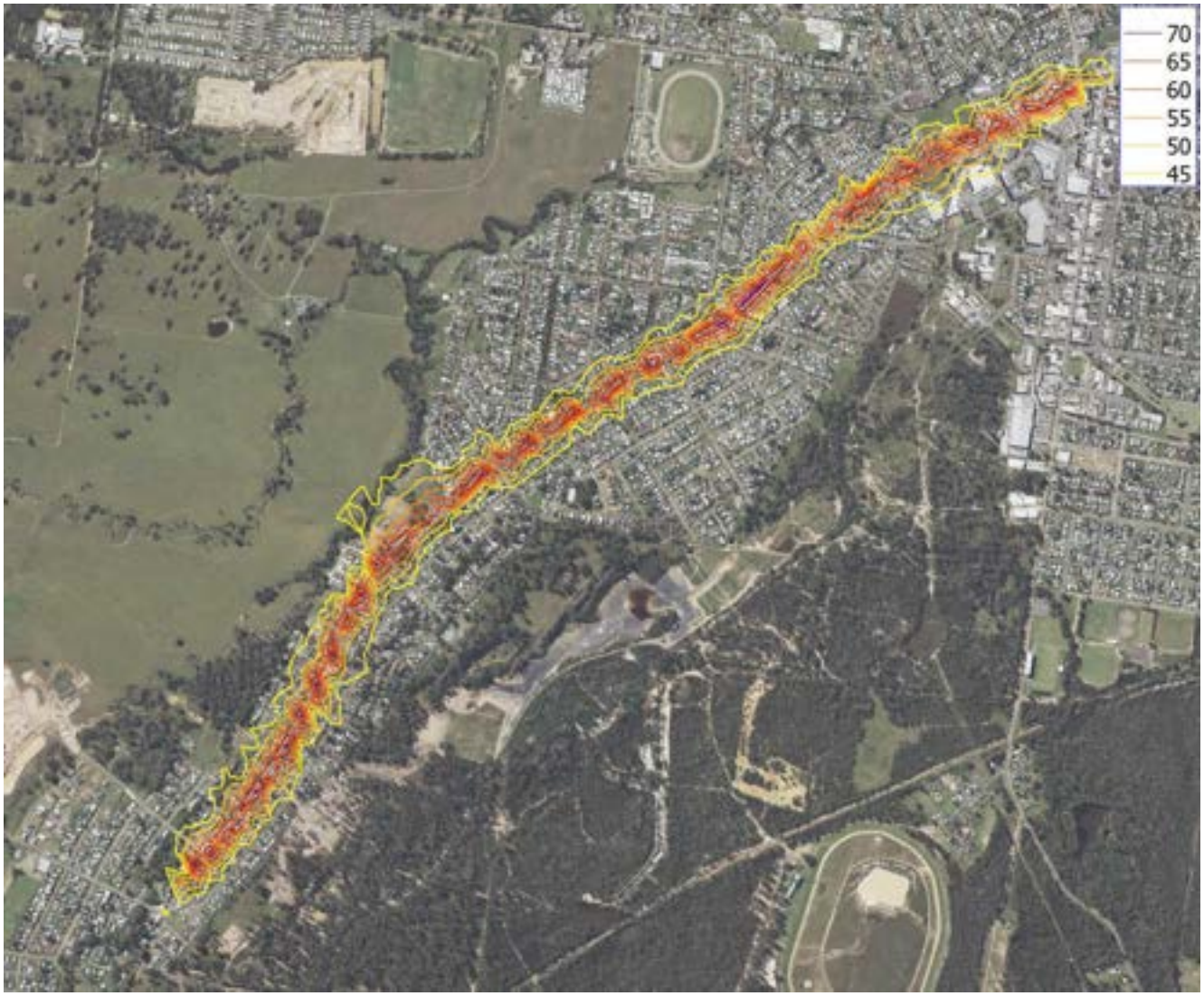


Figure 9-5 2026 Build Leq(9hr) dB(A)

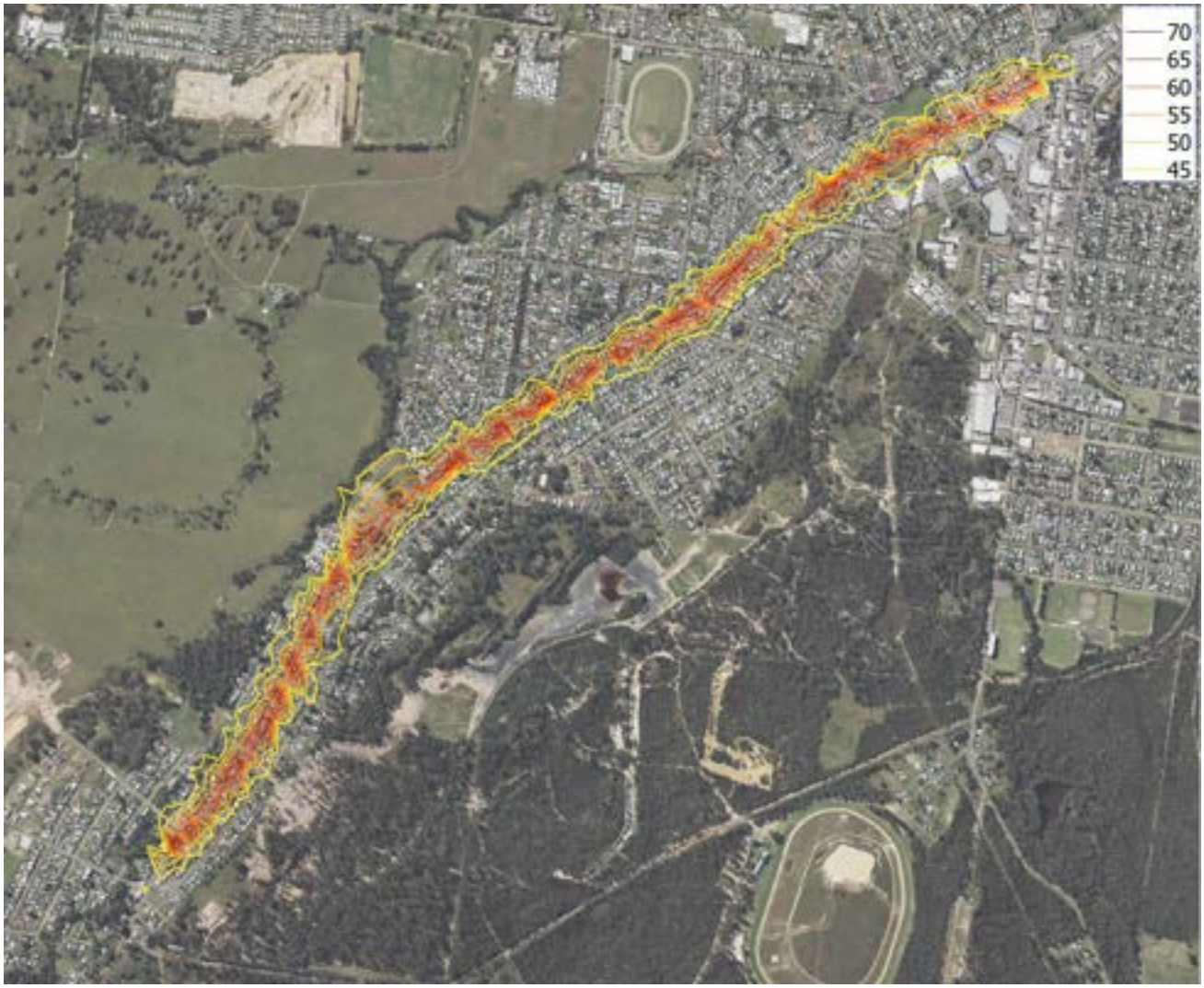


Figure 9-6 2026 No Build Leq(9hr) dB(A

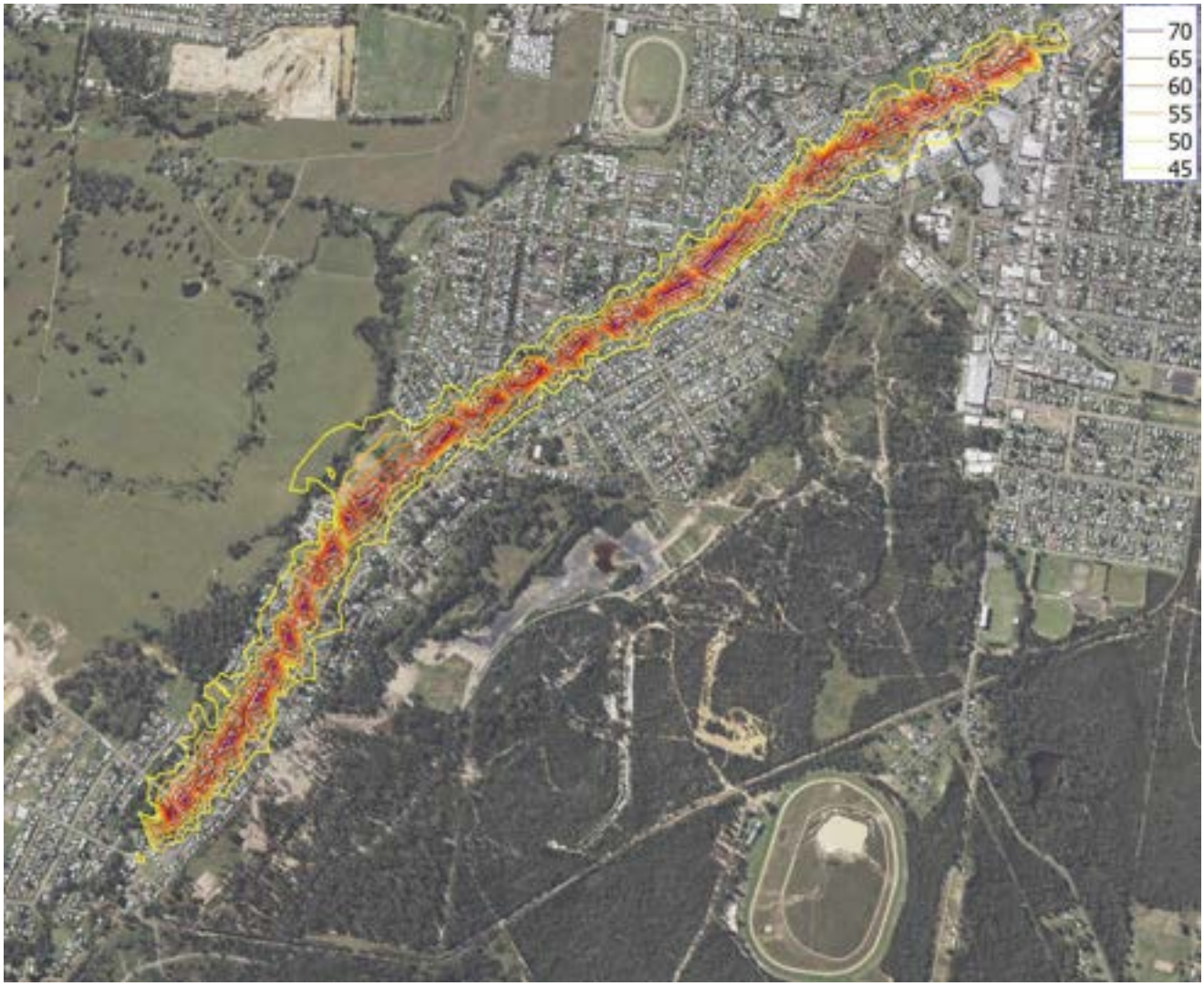


Figure 9-7 2036 Build Leq(9hr) dB(A)

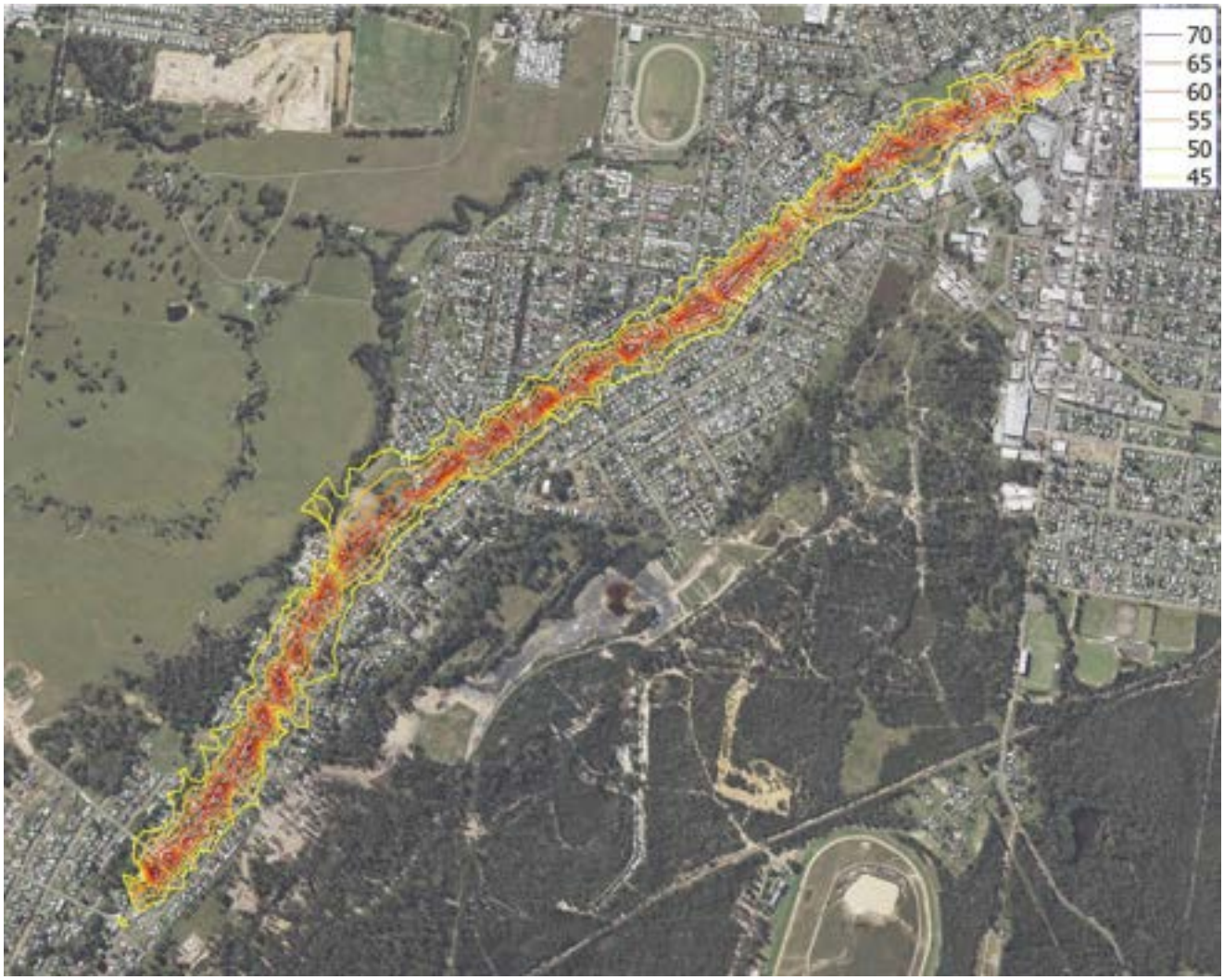


Figure 9-8 2036 No Build Leq(9hr) dB(A)

Appendix H Options Assessment

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

CESSNOCK
CITY COUNCIL

Cessnock LGA 2024

WOLLOMBI ROAD DESIGN OPTIONS REPORT

CESSNOCK CITY COUNCIL

Journey Through Time, created by local school students and artist Steven Campbell.

Acknowledgement of Country

Cessnock City Council acknowledges that within its local government area boundaries are the traditional lands of the Wonnarua people, the Awabakal people and the Darkinjung people. We acknowledge these Aboriginal peoples as the traditional custodians of the land on which our offices and operations are located, and pay our respects to Elders past and present. We also acknowledge all other Aboriginal and Torres Strait Islander people who now live within the Cessnock Local Government Area.

Contents

ABOUT THIS DOCUMENT

About this document

This document outlines the recent options assessment undertaken by Cessnock City Council for the upgrade of Wollombi Road between Abbotsford Street and Vincent Street (The WRUP). The options assessment considers a broad range of factors that lead to the recommendation of a preferred option that meets the key project objectives.

A preferred design option has been developed based on:

- Detailed site investigations undertaken between October 2023 and February 2024
- Feedback from community and stakeholder engagement
- A review of five layout options along the road alignment
  - **Option 0** - Retain the existing road, kerb and footpath.
  - **Option 1** - Retain existing road width to accommodate four travel lanes
  - **Option 2** - Road widening to provide dedicated on-street parking on both sides in addition to four travel lanes.
  - **Option 3** - Realignment of westbound travel lanes with road widening for dedicated on-street parking westbound
  - **Option 4** - Realignment of eastbound travel lanes with road widening for dedicated on-street parking eastbound
- A multi-criteria analysis considering key elements
  - Strategic (objectives, design, cost)
  - Technical (constructability, opportunity, risks)
  - Social and visual (environment, parking, private property)

The options assessment is a key component in the delivery of the Wollombi Road Upgrade Project and allows the preparation of the Review of Environmental Factors (REF) and development of the draft preliminary engineering design.

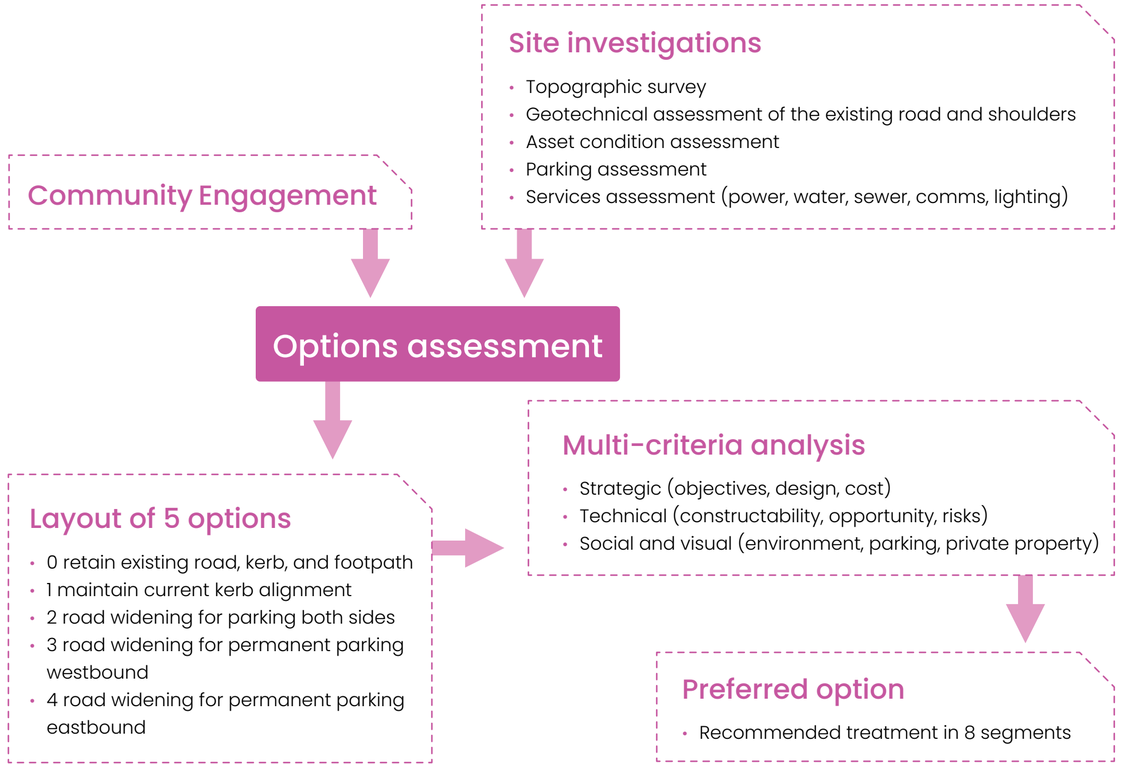
The REF is the key planning approval document and provides an opportunity for the public to provide further feedback on the design and key project impacts prior to design and project being finalised.

The draft preliminary engineering design will provide additional engineering detail to verify key assumptions, scope and cost of the preferred option.

Process

1. Establishment of WRUP
2. Site investigations
3. Options assessment to determine preferred option
4. Draft preliminary engineering design of preferred option
5. Preparation of a REF for stage 1
6. Public exhibition of the REF for stage 1
7. Finalise preliminary engineering design and value engineering
8. Detailed design

We are here



PROJECT BACKGROUND

Need for the project

Cessnock City Council has commenced the design and planning stage for the upgrade of Wollombi Road to improve capacity, safety and ease traffic congestion. The upgrade of Wollombi Road is an important part of Council's Traffic and Transport Strategy and is supported through the NSW State Governments Accelerated Infrastructure Fund.

The primary goal of the project is to allow for current and forecasted traffic growth and to ease congestion. Upgrading the road will deliver high-quality, strategic infrastructure to support the growth of the local community.

Stage 1 of the project includes a 2.9km upgrade of Wollombi Road between Abbotsford Street, Bellbird and West Avenue, and includes Early Works to build a new intersection at Bellbird North. Stage 1 is funded through a combination of funds from the NSW Accelerated Infrastructure Fund and development contributions.

Stage 2 of the project includes a 1km upgrade of Wollombi Road between West Avenue and Vincent Street, Cessnock. This stage is currently not funded, however grant funding is actively being pursued.

Community and stakeholder engagement

A program of early community and stakeholder engagement commenced in July 2023. Early engagement meant that Council could gather community feedback to inform the design and planning of the road upgrade. Through a series of community engagement activities and events, Council was also able to raise awareness about the project and the need to cater for growth in the LGA.

The following engagement activities have been undertaken so far.

- Surveys of Wollombi Road businesses (about Stage 1 and Stage 2 work)
- Resident door knock on Wollombi Road (about Stage 1 and Stage 2 work)
- Coffee with the Councillor event at Wollombi Road Providore
- Stakeholder meetings (impacted schools and local organisations)
- One information session at Cessnock Library (an additional session did not go ahead due to Covid and public health and safety precautions)
- Three pop-up information sessions at Cessnock Village Shopping Centre
- Three project newsletters distributed to the community in July, September and December 2023
- Stakeholder emails, social media posts, face to face meetings, and Facebook live Q&A sessions

A project specific contact number and email address was also established to ensure the community has direct access to the project team.

Cessnock City Council plans to hold further community engagement events and share informative communications as the project develops to ensure both impacted residents, businesses and the wider community can be kept informed and have their say.

What we heard

During the face-to-face engagement events, the Council team had over 300 conversations with members of the community and business owners. Our team spoke to 64 businesses on Wollombi Road to seek feedback on the project, and how it may impact them both during and after construction.

All feedback received during the early engagement phase of the project was captured and recorded by the project team, and has contributed towards the development of a preferred option.

Key project specific topics raised with the Council team included:

Concerns regarding loss of parking for residents and businesses

Concerns for Wollombi Road businesses and potential loss of trade

Safety concerns for road users and pedestrians

Drainage and storm water flooding in areas of the road corridor

Impacts to private properties such as access and land acquisition

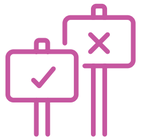
Concerns about traffic flow and congestion

Concerns about impacts upon heritage items

Concerns about tree removal

Suggestions for improvements to active transport

Noise concerns both during construction and operation of the road



Objections and support for the project

Other general topics raised with Council included:

- Requests for more detailed design information
- Support for the by-pass roads
- Feedback regarding Council's planning and development decisions

A table of the above feedback and how the project team have addressed these with the preferred option is included in Appendix A.

ASSESSMENT OF OPTIONS

Assessment methodology - How were the road design options assessed?

Five primary layout options were considered along the road alignment.

These included:

- **Option 0** - Retain the existing road, kerb and footpath. Minimal pavement work, line marking and road furniture work, install new traffic control signals (TCS).
- **Option 1** - Retain existing road width to accommodate four travel lanes
- **Option 2** - Road widening to provide dedicated on-street parking on both sides in addition to four travel lanes.
- **Option 3** - Realignment of westbound travel lanes with road widening for dedicated on-street parking westbound
- **Option 4** - Realignment of eastbound travel lanes with road widening for dedicated on-street parking eastbound

Each layout option was assessed based on the site investigation information using a multi-criteria analysis which considers strategic, technical, social and visual elements. (see table below)

The project was further broken down into eight segments that have similar layouts and constraints. Given the variable nature of the roadway no single option was suitable for the whole length of Wollombi Road..

The preferred design will therefore not be one 'end-to-end' design but instead a combination of the options applied to each segment.

Options assessment

Layout of 5 options

- 0 retain existing road, kerb, and footpath
- 1 maintain current kerb alignment
- 2 road widening for parking both sides
- 3 road widening for permanent parking westbound
- 4 road widening for permanent parking eastbound

Multi-criteria analysis

- Strategic (objectives, design, cost)
- Technical (constructability, opportunity, risks)
- Social and visual (environment, parking, private property)

Preferred option

- Recommended treatment in 8 segments

In assessing the road design options, Council has considered whether they are technically compliant to road safety and design standards, can be built within budget and meet project objectives as stated below. For each of the five road design options, consideration was given to:

Strategic Viability

- Meeting project mandatory objectives
- Meeting technical requirements
- Comparative cost

Technical Viability

- Constructability
- Project Opportunities
- Project risks

Social and visual

- Impacts to the environment
- Impacts to parking (residential)
- Impacts to parking (business)
- Impacts to private property

Key plan

Segment 1: The first 1.2 km of Wollombi Road from the western end at Cox Street/Abbotsford Street to the tie-in to Early Works at Lochinvar Street
Segment 2: 300m section between Lochinvar Street and Hosking Place
Segment 3: 600m long from Hosking Place to Hickey Street/Francis Street
Segment 4: Approximately 200 metres in length from Hickey Street/Francis Street intersection up to Chidgey Street/Michael Street intersection
Segment 5: 200 metres in length from Michael Street/Chidgey Street intersection to Ivan Street/James Street
Segment 6: 500 metres in length the James Street/Ivan Street intersection up to the end of Stage 1 works at West Avenue
Segment 7: 280 metres in length from the intersection at West Avenue up to Miller Street. This is the first segment in Stage 2 of the project
Segment 8: 640 metres in length from Miller Street up to end of Stage 2 works at Allandale Road

Proposed road layout and configuration assessment criteria

CRITERION	DESCRIPTION	ASSESSMENT OUTCOMES
STRATEGIC VIABILITY		
Meeting project mandatory objectives	Does the proposed option meet the overall mandatory project objectives and project specifications?	Yes: mandatory objectives are met and the option is viable. No: the option cannot be adopted regardless of other assessment criterions.
Meeting design technical requirements	Is the proposed option expected to meet minimum technical/ performance design requirements including: Standards and guidelines, design life, and safety?	Yes: minimum technical requirements can be achieved with/without minor non-conformances and the option is viable. No: the option cannot be adopted regardless of other assessment criterions.
Comparative cost	Does the comparable cost of the proposed option provide relative value for money? Does this option provide the opportunity to meet the project budget overall?	Factored cost score compared to the lowest cost option.
TECHNICAL VIABILITY		
Constructability	Does the option have technical complexity or impacts to major utilities, construction program and overall constructability?	Low: High likelihood of construction challenges and delays, significant coordination issues. Medium: Some challenges expected but manageable with careful investigation and planning. High: Straight forward construction conditions, minimal challenges and delays anticipated.
Project opportunities	How flexible is the proposed option in accommodating identified opportunities and future upgrade works not implemented as part of this project?	Low: Limited opportunities which are not likely to be implemented. Medium: Moderate opportunities with potential issues or drawbacks. High: Many opportunities that can likely be implemented.

CRITERION	DESCRIPTION	ASSESSMENT OUTCOMES
TECHNICAL VIABILITY		
Project risks	Likelihood of encountering unexpected changes or concessions during future design, construction, operation, and maintenance.	Low: Relatively minimal risks to project objectives, compliance or budget. Medium: Moderate risk exposure, further mitigation measures need to be undertaken. High: Significant risks with limited opportunities for elimination or mitigation.
SOCIETAL AND AESTHETICS		
Impacts to the environment	Includes tree and vegetation loss and impacts to existing heritage kerbs.	Low: Minimal disturbance of existing trees and heritage items. Medium: Some allowances required to offset impacts to existing trees and damage to heritage items. High: Significant loss of trees and/or irreversible impacts to heritage items.
Impacts to parking (residential)	Impacts to existing residential on-street and off-street parking.	Low: Existing number of on-street parking is generally retained. Medium: Existing number of on street parking is reduced by around 50%. High: Existing number of on-street parking is reduced by around 75% or more.
Impacts to parking (businesses)	Impacts to existing business on-street and off-street parking.	Low: Existing number of on-street parking is generally retained. Medium: Existing number of on street parking is reduced however parking on side streets or off-street parking are available. High: Existing number of on-street parking is reduced and there is lack of nearby parking on side streets or off-street parking.

CRITERION	DESCRIPTION	ASSESSMENT OUTCOMES
SOCIETAL AND AESTHETICS		
Impacts to private properties	Impacts to adjacent property, public and residents including property acquisition, property access and property adjustment.	Low: Minimal property adjustment works expected. Medium: Some property adjustment works are expected. High: Extensive property adjustment works are expected.

The following key project objectives also had to be considered when assessing the road design options:

Mandatory

- Additional travel lane each way at peak times
- New signalised intersections at Abbortsford Street, Mount View and Bellbird North roads
- Rectify any existing road geometry issues (levels and alignment)
- Deliverable within project budget

Priority

- Other new signalised intersections
- Retaining dedicated on-street parking
- Pavement residual performance and design life
- Shared user path between Cox Street and Campbell Street
- Underground of electrical services

ROAD DESIGN CRITERIA

Road widths

The minimum requirements to meet road design standards is listed below. This allows for buses to use Wollombi Road.

Travel lane road widths:

- Option 1: 3.5m
- Options 2, 3 and 4: 3.3m
- Turning lanes (all options): 3m
- Parking lanes width (where used): 2.5m

Intersections

For the purpose of options assessment, all intersections are consistent with the Traffic and Transport Strategy. Further traffic engineering will be undertaken in the Preliminary Engineering phase to review these in detail. Cross streets not noted are proposed to stay as they are.

Stage 1

STREET	TREATMENT
Cox Street	Left in/Left out
Abbotsford Street	New Signals proposed
New Bellbird Nth Entrance	New Signals proposed
O'Neil Street	Left in/Left out
Wangi Avenue	Left in/Left out
Desmond Street	Left in/Left out
Francis Street	New signals
Hickey Street	New signals
Michael Street	Left in/Left out
Chidgey Street	Left in/Left out
Pedestrian Crossing (at No. 94)	Relocate to permanent signals at James and Ivan
James Street	New Signals
Ivan Street	New Signals
Campbell Street	Left in / left out
Alexander Street	Upgrade Existing Signals
Hutton Street	Left in / left out
Pedestrian Crossing (at No.132)	Relocate to permanent signals at Percy and West
West Avenue	New Signals

Stage 2

STREET	TREATMENT
Mount View Road	New Signals proposed
Darwin Street	New Signals proposed
Westcott Street	New Signals proposed
Florence Street	Left in/Left out
Lyell Street	Left in/Left out
Miller Street	Left in/Left out
Helen Street	Left in/Left out
Cessnock Marketplace	Tbc Seagull treatment

SUMMARY OF KEY DESIGN FINDINGS

Summary of Key design findings

- It is not feasible to provide dedicated parking along both sides for the full length of the project due to the significant increase in cost, impact to utilities and the constraints of the road verge.
- Parking has been included along the east bound lane where possible. This is limited by the requirement for right hand turn lanes, parking restrictions at intersections and limited verge width in some locations.
- Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the traffic volume requires them.
- The shared path along Wollombi Road does not provide good value for money and creates a number of issues around cost and impacts to properties, while not providing the amenity expected of a shared path. Two alternate options are proposed outside the project area for inclusion in a broader active transport strategy.
- Signalised intersections require further review with Transport for NSW to verify layout and requirements.
- Side streets parking options at Percy St, Chidgey St, Campbell St, Hutton St to be considered separately by the Infrasturcture team.

SEGMENT 1

Segment 1 – Abbotsford/Cox to Lochinvar

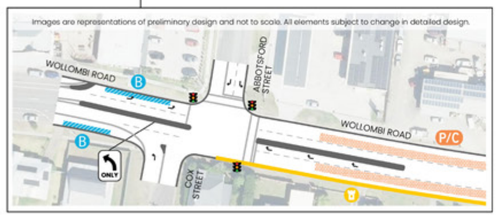
Overview

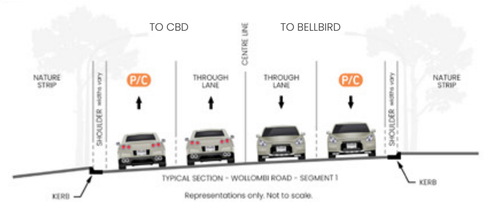
Segment 1 includes the first 1.2 km of Wollombi Road from the western end at Cox Street/ Abbotsford Street to the tie-in to Early Works at Lochinvar Street. The segment has similar road layout, poor existing kerb and gutter condition, and is mostly bounded by residential properties with a small number of businesses.

Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan





Key design issues to be addressed from site investigations

Road layout, cross section and parking	• Large difference in kerb levels on each side of the road • Steep road edges (shoulders) • Missing gutters sections • Heritage kerbs • Overland water flow to be addressed • Limit impact to driveways • Shared path width and levels on verge considered • Mostly residential • Intersection upgrade at Abbotsford St
Road construction (Pavement)	• Good to fair condition • Potential for reuse of some sections • Adjustment to levels likely to require large reconstruction sections
Utilities	• Power poles on Southern side would be impacted by road widening • Renewal of water mains (coordinate with Hunter Water Corp) • Sewer to be investigated • Gas and telecom on impacted by road widening

Preferred option and rationale

Option 1 (retain existing road width to accommodate four travel lanes) is selected as the preferred layout for the segment for the following reasons:

- Allows road levels to be adjusted and rectify drainage issues.
- Meets mandatory objectives and technical requirements.
- Provides value for money. The other options will have an unacceptable impact on cost with minor improvement to amenity.
- The existing road levels require some adjustment.
- Further road widening would impact the existing sandstone heritage kerbs. Option 1 provides minimal impact.
- Additional lane both ways to be maintained as parking. Clearway can be implemented if/when the traffic volumes require them. Possibly 10+ years.
- A limited number of businesses in this segment, most with off street parking. Localised issues to be addressed in further detail.
- Less impact on utilities and services.
- Use a single crossfall to minimise road work.

Options assessment

ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project mandatory objectives	Yes	Yes	Yes	Yes	Yes
Meeting Design technical requirements	No	Yes	Yes	Yes	Yes
Comparative cost ($) score	1	2	6	5	4
TECHNICAL VIABILITY					
Constructability	High	High	Low	Mid	Mid
Project opportunities	Low	High	High	High	High
Project risks	High	Mid	High	High	High
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Mid	High	Mid	Mid
Impacts to parking (residential)	High	High	Low	Mid	Mid
Impacts to parking (businesses)	Mid	Mid	Low	Mid	Low
Impacts to private properties	Low	Mid	High	High	High
PREFERRED OPTION					
Option 1					

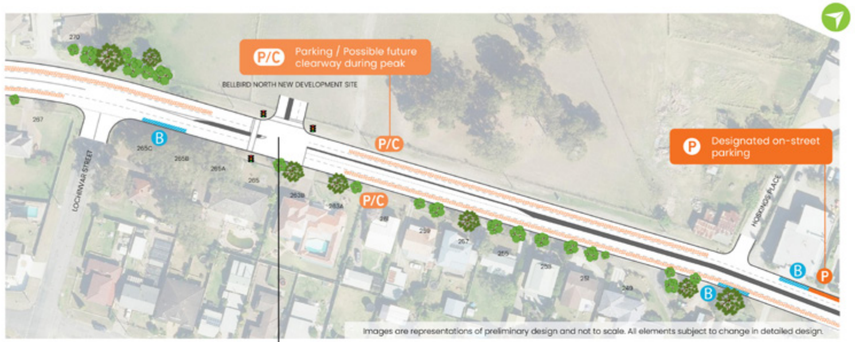
SEGMENT 2

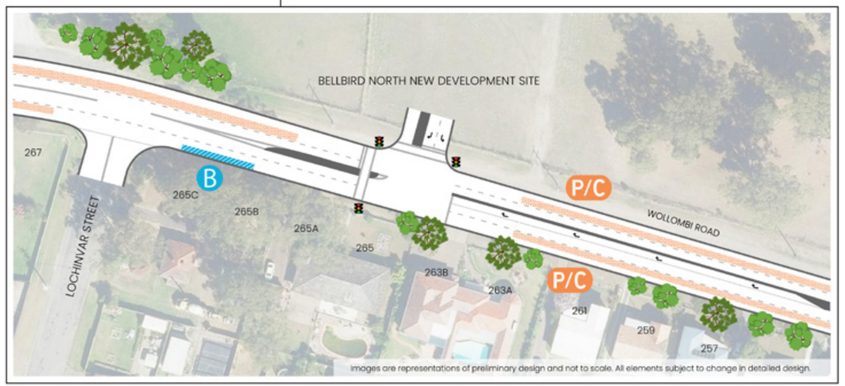
Segment 2 – Lochinvar to Hoskings (Early Works)

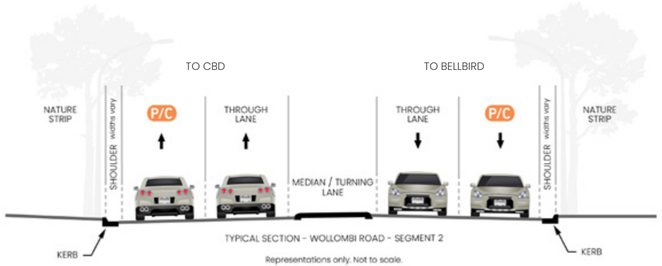
Overview

Segment 2 is a 300m section between Lochinvar Street and Hosking Place. Council has progressed this design as part of an early works package for the new access road into Bellbird North.

While an options analysis for this segment is not included in this document, the proposed design for this segment is included below.







Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan

Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Relatively narrow road section • Level differences between North and South • Missing gutters sections • Overland water flow to be addressed from Lochinvar St • Impact to driveways and business to east • Mostly residential • Steep verge on Southern side • New intersection to service Bellbird North
Road construction (Pavement)	• Reconstruction required to provide new intersection and level adjustments • Potential for some material reuse
Utilities	• Power poles on Southern side to be relocated for a wider road a • Renewal of water mains (coordinate with Hunter Water Corp) • Sewer to be adjusted • Stormwater channel opposite Lochinvar St • Gas and telecom impacted by road widening

SEGMENT 3

Segment 3 – Hoskings to Hickey

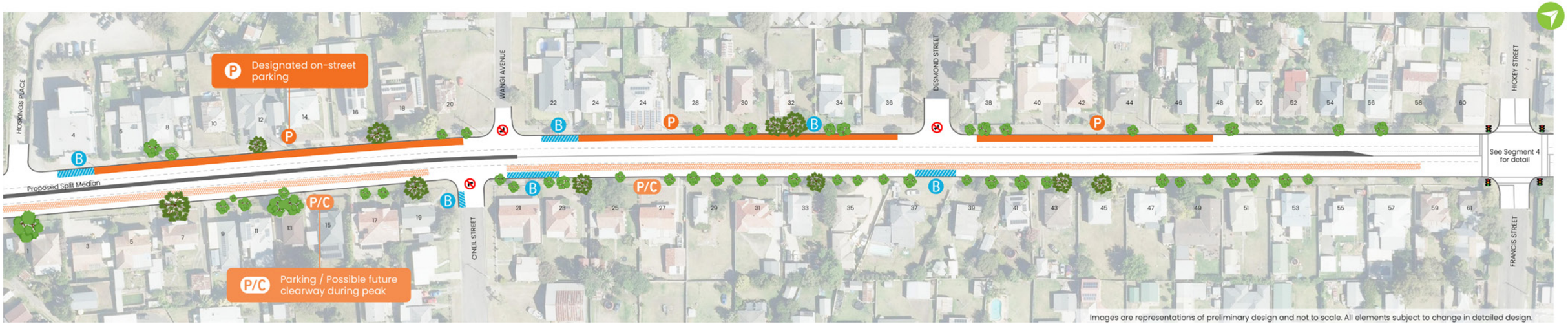
Overview

Segment 3 is 600m long from Hosking Place to Hickey Street/Francis Street.

Key plan.

Legend

- P/C Parking / Possible future clearway during peak
- B Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights



Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Large difference in kerb levels on each side of the road • Challenging levels at connection to Segment 2 • Road levels need adjusting to comply with standards • Steep road edges (shoulders) • Double height kerb on the South side • Driveway impacts to be addressed • Mostly residential with a small number of businesses • New signalised Intersection proposed at Hickey/Francis St • Increase in existing roadway with after O'Neill St • Left in / Left out controls proposed at Wangi/O'Neill/Desmond to discourage 'rat runs'
Road construction (Pavement)	• Reconstruction required to adjust levels • Road may be suitable to retain in some areas if the levels are ok • Potential for some material reuse
Utilities	• Impacts to power poles to be addressed • Renewal of water mains (coordinate with Hunter Water Corp) • Gas and telecom impacted by road widening

Preferred option and rationale

Option 4 (Realignment of eastbound travel lanes with road widening for dedicated on-street parking eatbound) is the preferred layout for the segment for the following reasons:

- Allows road levels to be adjusted to meet standards and guidelines.
- Verge on the southern side has potential to be reduced in width to allow a wider road.
- Road crossfall likely to require split levels between east and west lanes.
- Provides opportunity for parking in the eastbound direction.
- Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the traffic volumes require them.
- Minimises impact on utilities on the northern side.

Options assessment

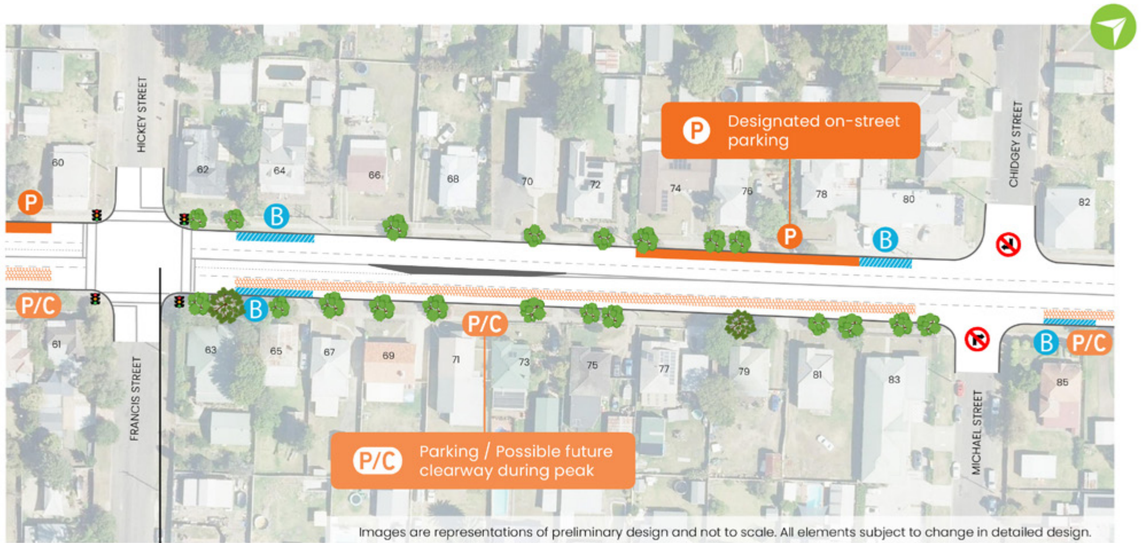
ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project mandatory objectives	Yes	Yes	Yes	Yes	Yes
Meeting standards and guidelines	No	Yes	Yes	Yes	Yes
Comparative cost ($) score	1	2	6	5	4
TECHNICAL VIABILITY					
Constructability	High	High	Low	Mid	Mid
Project opportunities	Mid	High	High	High	High
Project risks	High	Mid	High	High	High
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Low	High	Mid	Mid
Impacts to parking (residential)	High	Mid	Low	Mid	Mid
Impacts to parking (businesses)	Mid	Mid	Low	Mid	Mid
Impacts to private properties	Low	Mid	Mid	Mid	Mid
PREFERRED OPTION					
Option 4					

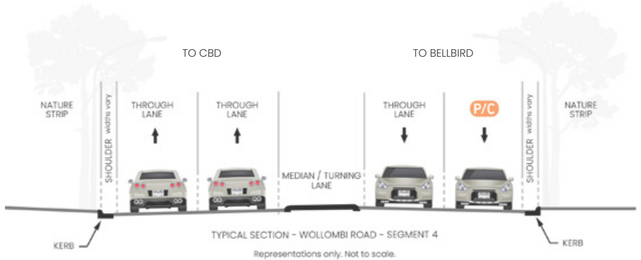
SEGMENT 4

Segment 4 – Hickey to Chidgey

Overview

Segment 4 is approximately 200 metres in length from Hickey Street/ Francis Street intersection up to Chidgey Street/Michael Street intersection.

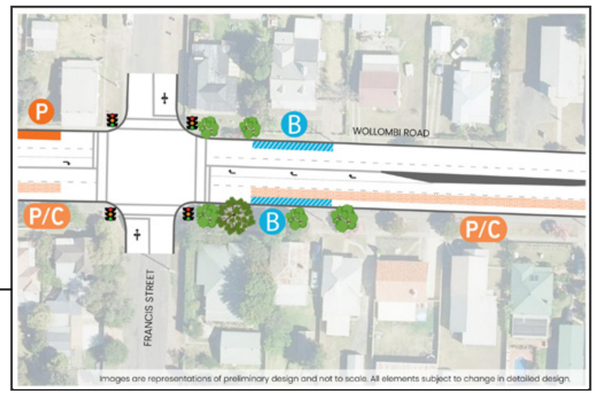




Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan



Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Road levels are generally acceptable • Kerb and gutter has standard layout and mostly good condition • Existing width allows for additional travel lanes • Additional parking lanes would require removal of verge. • Residential and a small number of businesses along this segment • New signalised intersection at Hickey/ Francis • Consider business parking opportunity
Road construction (Pavement)	• Generally good condition and structure • Suitable for retaining with minimal work
Utilities	• Road widening would have a big impact on power poles • Renewal of water mains (coordinate with Hunter Water Corp) • Gas and telecom on both sides, unlikely to be affected.

Preferred option and rationale

Option 0 (Retain existing Road, kerb and footpath. Minimal pavement work, line marking and road signs, install new traffic signals) is selected as the preferred layout for the segment for the following reasons:

- Road levels and layout are suitable to be retained.
- The existing road construction is suitable to be retained.
- Right hand turn lane limits ability to provide on-street parking in eastbound direction.
- Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the traffic volumes require them.
- Opportunity to provide additional side street parking (additional to this project).
- Road widening has a high cost with impact to utilities and construction risk.

Options assessment

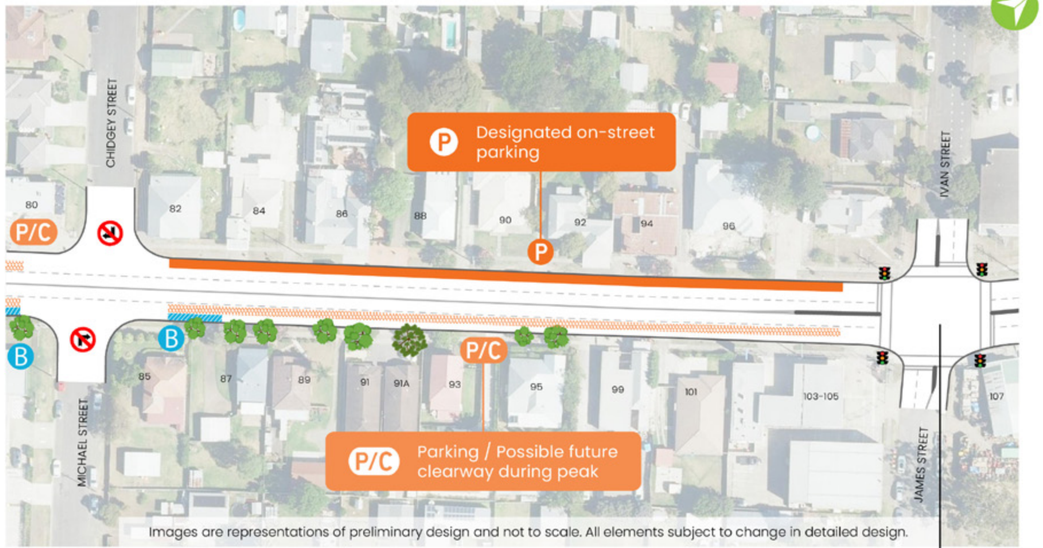
ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project objectives	Yes	Yes	Yes	Yes	Yes
Meeting standards and guidelines	Yes	Yes	Yes	Yes	Yes
Comparative cost ($) score	1	3	6	4	4
TECHNICAL VIABILITY					
Constructability	High	High	Low	Mid	Mid
Project opportunities	Mid	Mid	Mid	Mid	Mid
Project risks	Mid	Mid	High	High	High
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Low	High	Mid	Mid
Impacts to parking (residential)	High	High	Mid	High	High
Impacts to parking (businesses)	High	High	Low	Mid	Low
Impacts to private properties	Low	Low	Low	Low	Low
PREFERRED OPTION					
Option 0					

SEGMENT 5

Segment 5 – Chidgey to Ivan

Overview

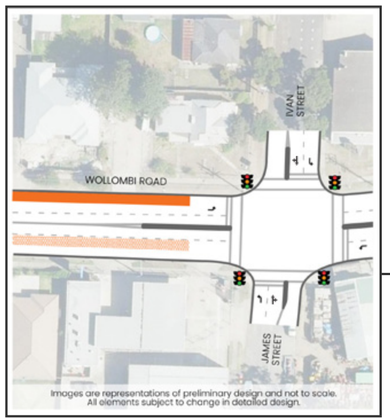
Segment 5 is 200 metres in length from Michael Street/Chidgey Street intersection to Ivan Street/James Street.



Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan



Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Road levels are generally acceptable • Kerb and gutter has standard layout and mostly good condition • Existing width allows for additional travel lanes • Additional parking lanes would require removal of verge. • Includes a commercial centre with a higher number of businesses • New signalised intersection proposed at Ivan/James • Removal of pedestrian crossing required. Not permitted with four travel lanes. • Consider business parking opportunity
Road construction (Pavement)	• Generally good condition and structure • Suitable for retaining with minimal work
Utilities	• Road widening would require moving power poles. • Renewal of water mains (coordinate with Hunter Water Corp) • Gas and telecom on both sides, levels to be considered.

Preferred option and rationale

Option 4 (Realignment of eastbound travel lanes with road widening for dedicated on-street parking eastbound) is selected as the preferred layout for the segment for the following reasons:

- Allows on-street parking for businesses on the eastbound lane.
- The higher cost and risk for additional parking lane is considered to provide value for money in this location. Needs to be reviewed in the preliminary engineering for overall project cost impacts.
- Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the traffic volumes require them.
- No width for parking on both sides without property acquisition.
- Road construction can be kept for the travel lanes. New construction will be required for the additional parking lane.
- Traffic movements at Ivan Street requires further review.

Options assessment

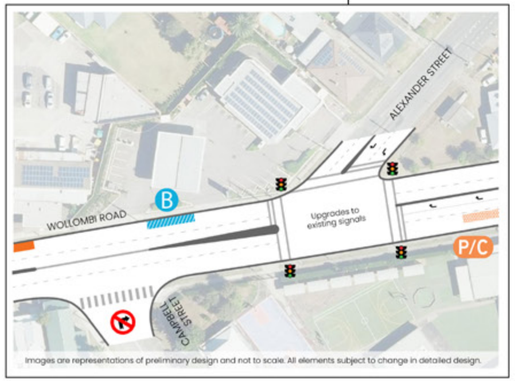
ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project objectives	Yes	Yes	Yes	Yes	Yes
Meeting standards and guidelines	Yes	Yes	No	Yes	Yes
Comparative cost ($) score	1	2	6	3	3
TECHNICAL VIABILITY					
Constructability	High	High	Low	Mid	Mid
Project opportunities	Mid	Mid	High	High	High
Project risks	High	Mid	High	High	High
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Low	High	Mid	Mid
Impacts to parking (residential)	High	High	Low	Mid	Mid
Impacts to parking (businesses)	High	High	Low	Mid	Low
Impacts to private properties	Low	Low	Low	Low	Low
PREFERRED OPTION					
Option 4					

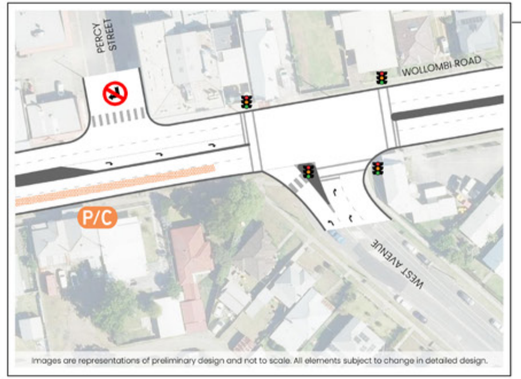
SEGMENT 6

Segment 6 – Ivan to West

Overview

Segment 6 is 500 metres in length the James Street/Ivan Street intersection up to the end of Stage 1 works at West Avenue.





Legend

- P/C — Parking / Possible future clearway during peak
- B — Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights

Key plan

Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Road layout is general acceptable • Road levels need adjusting to meet standards • Kerb in poor condition. Adjustment needed for level and to remove gutter bridges. • Business areas at both end of this segment need to be considered with Cessnock West Public School frontage • Coordination of signalised intersections at Ivan St and Alexander St • Several cross-street connections to be reviewed • New signalised intersection proposed at West Ave • Existing signalised intersection at Alexander St to be upgraded.
Road construction (Pavement)	• Road surface has failed in several locations. Note area Campbell to Alexander St. • Some areas of road construction may be retained if the levels are suitable.
Utilities	• The narrow verge means adjustment of road layout will have a high impact on utilities. • Renewal of water mains (coordinate with Hunter Water Corp) • Gas and telecom on both sides, levels to be considered.

Preferred option and rationale

Option 4 (realignment of eastbound travel lanes for dedicated on-street parking eastbound) is selected as the preferred layout for the segment for the following reasons:

- Allows road levels to be adjusted to meet standards and guidelines.
- Eastbound parking provided where possible. The intersectons, turning bays, side streets, bus zones and school limits the extent of on-street parking. Further road widening has negative impact on the verge, high cost and construction risk.
- Minimal impact on utilities.
- Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the traffic volumes require them.

Options assessment

ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project objectives	Yes	Yes	Yes	Yes	Yes
Meeting standards and guidelines	No	Yes	No	No	No
Comparative cost ($) score	1	2	6	5	4
TECHNICAL VIABILITY					
Constructability	High	High	Low	Mid	Mid
Project opportunities	High	High	High	High	High
Project risks	High	High	High	High	High
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Low	High	Mid	Mid
Impacts to parking (residential)	High	High	Mid	Mid	Mid
Impacts to parking (businesses)	Mid	Mid	Mid	Mid	Mid
Impacts to private properties	Low	ow	Low	Low	Low
PREFERRED OPTION					
Option 4					

SEGMENT 7

Segment 7 – West to Miller (STAGE 2)

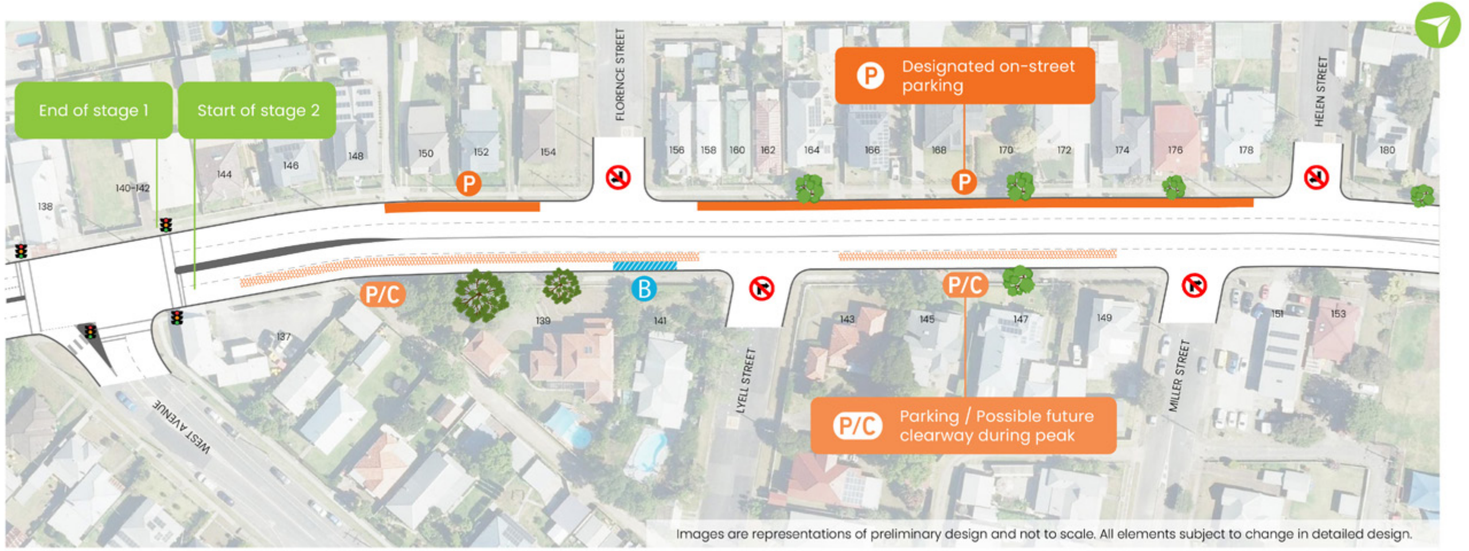
Overview

Segment 7 is 280 metres in length from the intersection at West Avenue up to Miller Street. This is the first segment in Stage 2 of the project.

Key plan

Legend

- P/C Parking / Possible future clearway during peak
- B Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights



Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Road levels are generally acceptable • Kerb and gutter has standard layout and mostly good condition • Existing width allows for additional travel lanes • Additional parking lanes would require removal of verge. • Residential and a small number of businesses along this segment • Consider business parking opportunity
Road construction (Pavement)	• Generally good condition and structure • Suitable for retaining with minimal work
Utilities	• Road widening would have a big impact on power poles • Renewal of water mains (coordinate with Hunter Water Corp) • Gas and telecom on both sides, impacted by widening.

Preferred option and rationale

Option 0 with eastbound parking lane (retain existing road, kerb and footpath. Minimal pavement work, line making and road signs) is selected as the preferred layout for the segment for the following reasons:

- Road levels and layout are suitable to be retained.
- The existing road construction is suitable to be retained.
- Existing width allows for on-street parking eastbound (beyond intersections).
- Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the traffic volumes require them.
- Road widening has a negative impact on verges, high cost, unnecessary removal of existing assets and a high impact to utilities and construction risks.

Options assessment

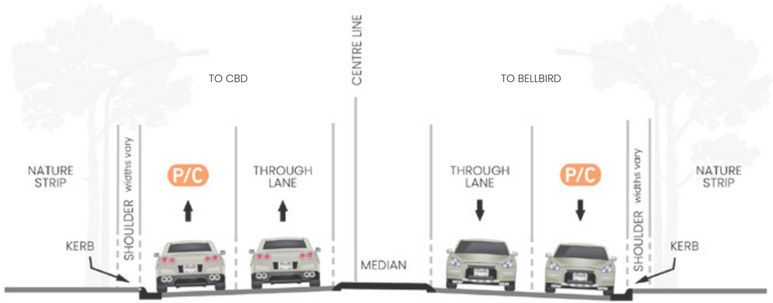
ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project objectives	Yes	Yes	Yes	Yes	Yes
Meeting standards and guidelines	Yes	Yes	Yes	Yes	Yes
Comparative cost ($) score	1	3	6	4	4
TECHNICAL VIABILITY					
Constructability	High	High	Low	Mid	Mid
Project opportunities	Mid	Mid	Mid	Mid	Mid
Project risks	Mid	Mid	High	Mid	Mid
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Low	Mid	Mid	Mid
Impacts to parking (residential)	Mid	Mid	Low	Mid	Mid
Impacts to parking (businesses)	Mid	Mid	Mid	Mid	Mid
Impacts to private properties	Low	Low	Low	Low	Low
PREFERRED OPTION					
Option 0					

SEGMENT 8

Segment 8 – Miller to Allandale (STAGE 2)

Overview

Segment 8 is 640 metres in length from Miller Street up to end of Stage 2 works at Allandale Road.



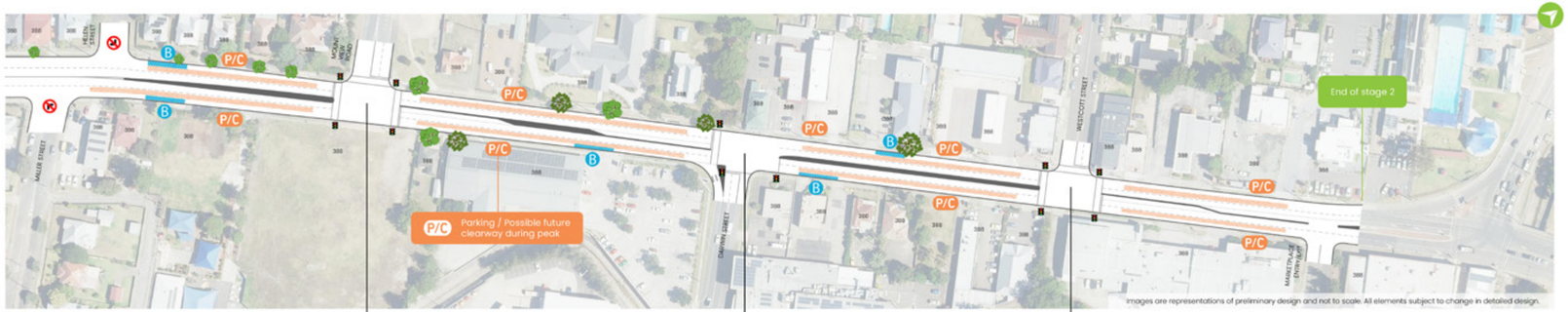
TYPICAL SECTION - WOLLOMBI ROAD - SEGMENT 8

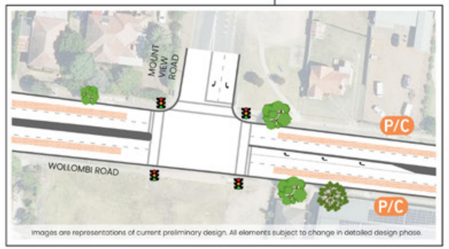
Representations only. Not to scale.

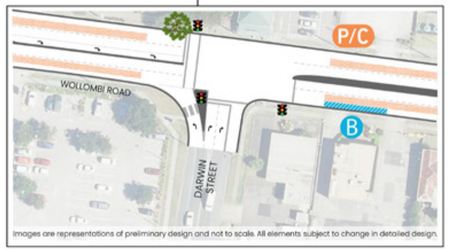
Key plan

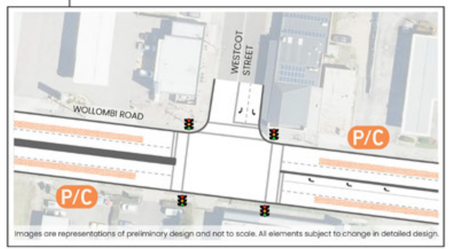
Legend

- P/C Parking / Possible future clearway during peak
- B Bus stop location
- Median strip / traffic island
- On street parking
- Right turn ban
- Heritage item
- Traffic lights









Key design issues to be addressed from site investigations

Road Layout, Cross Section and Parking	• Road layout is general acceptable • Road levels need adjusting to meet standards • Some kerb works required. Adjustment needed for levels and to remove gutter bridges. • Highly developed business area with large proportion of on-siteparking. • New signalised intersection proposed at Mount View Rd (linked to DA) • New signalised intersection proposed at Darwin St • New signalised intersection proposed at Wescott St • Impacts of pedestrian crossing removal to be addressed
Road construction (Pavement)	• Poor road structure condition between Mount View and Darwin St. • Other areas of road construction may be retained if the levels are suitable.
Utilities	• The narrow verge means adjustment of road layout will have a high impact on utilities. • Renewal of water mains (coordinate with Hunter Water Corp) • Gas and telecom on both sides, levels to be considered.

Preferred option and rationale

Option 1 (retain existing road width to accommodate four travel lanes) is preferred option for Segment 8 and provides the only technically viable option for this segment for the following reasons:

- Allows adjustment of levels and replacement of road structure where needed to meet standards and guidelines.
- The number of intersections, right turn slip lanes and verge width provides limited/no opportunity for on-street parking without property acquisitions.
- Parking maintained in kerb-side lane where possible. Clearway can be implemented if/when the traffic volumes require them.
- The majority of businesses in this area already have on-site parking for customers.
- Allows for investigation to reduce road construction work.
- Minimises impact on utilities.

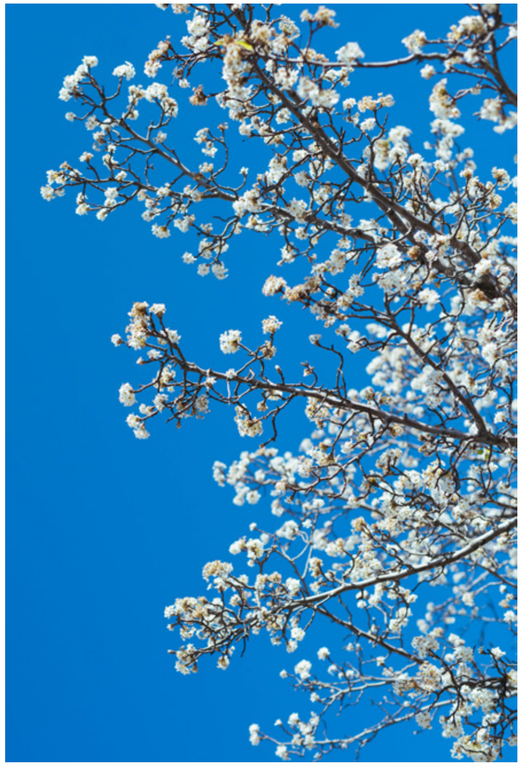
Options assessment

ASSESSMENT CRITERIA	OPTION 0 Retain existing road, kerb and footpath	OPTION 1 Retain existing configuration (horizontal)	OPTION 2 Road widening to provide dedicated on-street parking both sides	OPTION 3 Realignment of travel lanes with road widening for dedicated on-road parking westbound	OPTION 4 Realignment of travel lanes with road widening for dedicated on-street parking eastbound
STRATEGIC VIABILITY					
Meeting project objectives	Yes	Yes	-	-	-
Meeting standards and guidelines	No	Yes	-	-	-
Comparative cost ($) score	1	3	6	4	4
TECHNICAL VIABILITY					
Constructability	High	Mid	-	-	-
Project opportunities	Low	High	-	-	-
Project risks	High	High	-	-	-
SOCIETAL & AESTHETICS					
Impacts to the environment	Low	Low	-	-	-
Impacts to parking (residential)	High	High	-	-	-
Impacts to parking (businesses)	Mid	Mid	-	-	-
Impacts to private properties	Low	Low	-	-	-
PREFERRED OPTION					
Option 1					

NEXT STEPS

Next steps

- The combined preferred option will be used as the basis to develop the draft preliminary design. The preliminary design will aim to eliminate unacceptable risks and incorporate worthwhile opportunities identified during the options analysis.
- The REF will be placed on public display and will include this options assessment and the preferred option design. The REF is the planning approval document for the project and is a requirement under Part 5 of the *Environmental Planning and Assessment Act 1979*. The REF will focus on the delivery of the Stage 1 works (Abbotsford Street to West Avenue).
- Implementation of the communications and engagement strategy will run in parallel with the REF display period.
- Detailed design for Stage 1 will be undertaken in the second half of 2024, followed by procurement of Construction Works.
- The project team will continue to work with impacted property owners (residential and businesses) along Wollombi Road as the design and project progresses.



APPENDIX A

Appendix A – Addressing the community feedback

SUMMARY OF FEEDBACK	PROJECT RESPONSES

Loss of parking for residents and businesses	• The parking impacts were considered as an important part of the Options Assessment.
	• There are practical constraints that have limited the opportunity to include dedicated parking lanes. These include;
	  ◦ The width of the road layout between kerbs.
	  ◦ The width of existing verges (nature strip) where additional parking would impact pedestrian movement and safety.
	  ◦ The high cost to construct additional lanes on verge area.
	  ◦ The impact to utilities such as relocation of power poles and inground services caused by replacing the existing verge with a parking lane.
	  ◦ The impact to driveways with an increased possibility of additional works being required within property boundaries to meet levels.
	  ◦ Land acquisition was not considered for this project.
	• On-street parking has been included East-bound where possible.
	• Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the actual traffic volumes require them.
	• Segment 1 (Abbotsford to Lochinvar) additional lane both ways to be maintained as parking. Clearway can be implemented if/when the actual traffic volumes require them.
	• The final operational hours of the clearways will be subject to further design work and a review by Transport for NSW.
	• The options assessment included a review of existing off-street parking available to businesses as well as the distance to nearest side streets that can provide parking in peak times.
	• On balance the preferred option has attempted to balance the project deliverables with providing a reasonable amenity for those immediately impacted by the works.
	• Further review of detailed parking issues can be addressed with the Preliminary Engineering design and the project team will continue to work with affected residents and businesses.

Concerns for Wollombi Road businesses and potential loss of trade	• Parking for businesses has been a key consideration when assessing the road design criteria. • On-street parking has been included East-bound where possible. Westbound additional lane to be maintained as parking. Clearway can be implemented if/when the actual traffic volumes require them. • Further work is being done to investigate opportunities to offset the loss of parking with short-term parking opportunities in side streets.

SUMMARY OF FEEDBACK	PROJECT RESPONSES
Concerns for Wollombi Road businesses and potential loss of trade	• Council acknowledges that construction work can be disruptive and uncertain for business trade. Council will be proactive in seeking out business activation strategies tailored to individual businesses to help with trade throughout this period. • Council will limit the impact to individual businesses along the alignment by staging construction work. • Further information on the construction staging will be available when the design has progressed and a construction contractor is appointed. • The project team will continue to work with impacted businesses on Wollombi Road throughout the detailed design phase and throughout construction.
Safety concerns for road users and pedestrians	• The safety of our community is of utmost importance to Council and one of the key objectives of the upgrade is to improve road safety. • The installation of new and improved intersections on Wollombi Road will improve safety for pedestrians by adding additional signalised crossings, to replace the existing pedestrian crossings, which we heard are dangerous and presented a pedestrian safety risk. • Signalised intersections are the safest way to enter a main road. • Several Right-hand turn bans are proposed. These will encourage the use of signalised intersection and restrict the high-risk contact points and limit the likelihood of 'rat runs'. • Improved traffic flow on Wollombi Road will also reduce the desire for 'rats runs' placing additional traffic on backstreets. • Re-construction of the road will ensure the layout complies with the standards which improves safety. • New drainage, stormwater, kerb and gutters will ensure the water issues are managed, which is a know issue is a certain sections of Wollombi Road. • An improved road surface and removal of pot holes will make the road safer to drive on. • Lighting improvements are being considered and will further improve visibility and safety for pedestrians and drivers.
Drainage and storm water flooding in areas of the road corridor	• The options assessment included a review of levels and drainage issues. • A key part of the project will be to ensure these drainage issues are addressed and managed in accordance with Council standards. • Work has progressed in resolving the particular issues at the Lochinvar Street intersection.
Impacts to private properties such as access and land acquisition	• The options assessment included consideration of impacts to private properties. The preferred design seeks minimise any impacts which saves both inconvenience to property owners and cost for the project. • The project does include any land acquisitions. • Access will be maintained to all existing driveways on completion of the works however the introductions of new intersections and medians may mean some changes to the way the property is accessed. • Any impacts such as new intersections will be addressed directly if there are any affected residents or businesses. • There may be some driveway work within property boundaries. The project team will identify this through the detailed design phase and liaise directly with any affected property owners.

SUMMARY OF FEEDBACK	PROJECT RESPONSES
Impacts to private properties such as access and land acquisition	• There will undoubtably be some inconvenience throughout the construction phase however Council will work closely with the Contractor and property owners to ensure this is minimised and well communicated.
Concerns about traffic flow and congestion	• The project is aimed at improving traffic flow and congestion now and in the future. The key to this is the increase in travel lanes at peak times and new signalised intersection that allow people to access Wollombi Road safely. • The Cessnock LGA is experiencing rapid growth, and the upgrade of Wollombi Road is essential to accommodate current and forecasted traffic growth. • The Bellbird North Urban Release area will add an additional 10,500 into the LGA, and without the upgrade to Wollombi Road, modelling has shown there will be highly restrictive traffic queuing and delays. • Traffic modelling will be undertaken to verify the impacts of the proposed upgrades. • Modification to the proposed treatment can be made through the detailed design process if necessary.
Concerns about impacts upon heritage items	• Council are aware of the heritage items and buildings along Wollombi Road. • A Statement of Heritage Impact (SoHI) will be included in the REF. • Council has prepared a draft Conservation Strategy specifically for the Sandstone Kerbs which identifies methods for documenting, repositioning and maintaining the kerbs. • The preferred design option has the lowest impact on heritage kerbs.
Concerns about tree removal	• The project team will seek to retain street trees where possible. • Any trees that are impacted by the works will be replaced 1 for 1 with suitable trees as per Cessnock Tree Strategy 2023. • Environmental impacts were considered as part of the options assessment. • By reducing the area of road widening into the verge the impact to trees is minimised. • The proposed shared path at 2.5m wide also has an impact on trees. Alternate options for the shared path are being considered to minimise the impact to trees, driveways, utilities and overall project costs. • Tree impacts are included in the REF.

Suggestions for improvements to active transport (walking and cycling)	• Cessnock City Council is committed to planning and providing sustainable transport infrastructure that ensures safe and efficient urban development. The Cessnock LGA Traffic and Transport Strategy (CTTS) 2023 is our roadmap, outlining a long-term vision guiding transport-related decisions until 2041. The strategy identifies actions for Council, the State Government, and stakeholders to enhance and optimise our transport network for years to come. Active transport is key to achieving many of Council's ongoing key objectives.
	• A shared path on the southern side of Wollombi Road was investigated as part of the Options Assessment.
	• Issues raised with the shared path in this location were:
	  ◦ Very high number of driveways (100+) and intersections (15) creating safety risks and slower travel times.
	  ◦ Reduction in width required in several locations causing pinch points and safety risk.
	  ◦ Increased cost of construction due the wide path on sloping verge.
	  ◦ Impact to utilities.

SUMMARY OF FEEDBACK	PROJECT RESPONSES
Suggestions for improvements to active transport (walking and cycling)	• The slope of the verge in some locations introduces retaining walls and may require adjustment to driveways within private property. • Unlikely to be used by commuter cyclists. • Two alternate options have been proposed for both short and long term active transport solutions: • On-road path parallel to Wollombi Road development. • Shared path along Black Creek Park. • These are considered better solutions for active transport and will developed separately from the Wollombi Road Upgrade Project as part of a broader active transport strategy.
Noise concerns during construction and once operational	• Noise impacts from construction and operation as result of the upgrade will be assessed in the REF. • A Noise assessment is included as part of the site investigation. • While we are increasing capacity of the road to four lanes, the introduction of clearways will mean there will only be an increase in one lane of traffic eastbound and westbound during morning and afternoon peak times. We do not anticipate significant increases to operational noise. • The speed limit for Wollombi Road will remain 60km/hour.
Support for the by-pass roads	• The by-pass roads are included in the Cessnock LGA Traffic and Transport Strategy (CTTS) 2023 along with the upgrade of Wollombi Road. Both are needed to address the long term growth of Cessnock. • The CTTS outlines Council's long-term roadmap for transport-related decisions until 2041. This strategy identifies actions for Council, the State Government, and stakeholders to enhance and optimise our transport network for years to come. • The new strategy has recently been on public exhibition and will be finalised in the coming months.

CESSNOCK
CITY COUNCIL

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Appendix I Engagement Report

Wollombi Road Upgrade Project

Review of Environmental Factors (REF)

REF for Stage 1 – Abbotsford / Cox Street, Bellbird to West Avenue, Cessnock

SLR Project No.: 630.030652.00001

12 June 2024

CESSNOCK
CITY COUNCIL

Cessnock LGA 2024

WOLLOMBI ROAD

REVIEW OF ENVIRONMENTAL FACTORS & DESIGN OPTIONS

ENGAGEMENT REPORT

Journey Through Time, created by local school students and artist Steven Campbell.

Acknowledgement of Country

Cessnock City Council acknowledges that within its local government area boundaries are the traditional lands of the Wonnarua people, the Awabakal people and the Darkinjung people. We acknowledge these Aboriginal peoples as the traditional custodians of the land on which our offices and operations are located, and pay our respects to Elders past and present. We also acknowledge all other Aboriginal and Torres Strait Islander people who now live within the Cessnock Local Government Area.

Contents

SUMMARY
OF ENGAGEMENT

Summary of engagement

A range of engagement methods were used to raise awareness and seek input into the Wollombi Road upgrade Review of Environmental Factors & Design Options report. These included:

3,500+
visits to the webpage

723,331+
total reach of media coverage

4 face to face sessions

32,100
social media reach from 5 posts

articles in eNews and WRUP community newsletter

1 Facebook live Q&A session

1 Project notification

ENGAGEMENT DETAILS

Engagement background

Council placed the Review of Environmental Factors (REF) for the Wollombi Road Upgrade - Stage 1 on public exhibition from 14 March to 3 May 2024.

The REF assessed and evaluated the environmental impacts of the preferred Wollombi Road Upgrade design and included a Design Options Report that considered both Stage 1 and Stage 2.

A multi-channel community engagement campaign to support the support community awareness and feedback was undertaken during the REF exhibition period.

Engagement methods

- Together Cessnock – digital engagement webpage with FAQs
- x4 face-to-face community engagement sessions.
- Facebook Live Q&A session.
- Printed copies of the REF were available at the Administration building, Cessnock and Kurri Kurri libraries.

ENGAGEMENT
F2F

Face to Face Engagement

Cessnock – Cessnock Library

5.00 – 7.00pm

Wednesday, 27 March

Attended by 12 community members

Cessnock – Cessnock Leagues Club

6.00 – 8.00pm

Wednesday, 3 April

Attended by 12 community members

Paxton – Paxton Pub

5.00 – 7.00pm

Monday, 8 April

Attended by 8 community members

Bellbird – Bellbird Hotel

10.00am – 12.00pm

Saturday, 13 April

Attended by 15 community members

There were additional conversations regarding the Wollombi Road Upgrade REF with several other face-to-face meetings including school principals and Department of Education representatives, as well as other community sessions and pop-ups for other Council projects.

Estimated total face-to-face conversations regarding the REF during the engagement period: 55 approx.

TOGETHER CESSNOCK
WEBPAGE DATA

Together Cessnock

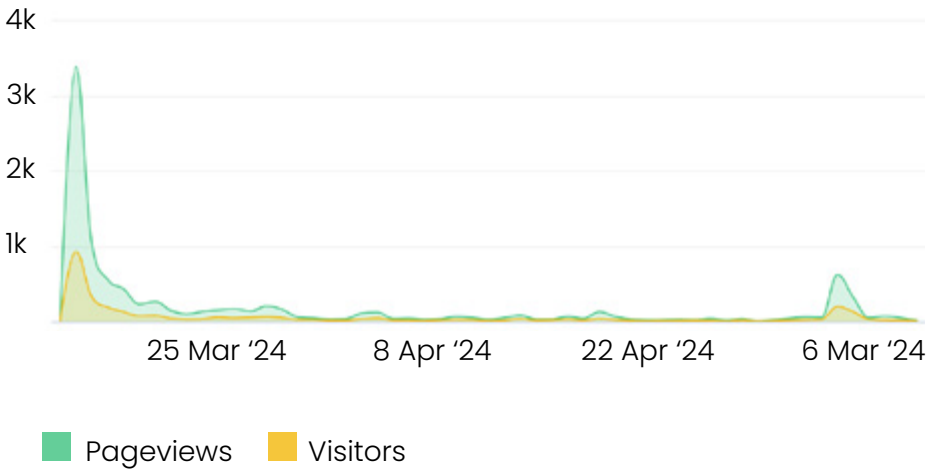
Engagement webpage data

A digital engagement webpage was developed on Council's Together Cessnock microsite to support engagement and awareness and facilitate online submissions.

The webpage received a total of 3.5k visits over the exhibition period, and generated 137 online submissions via the portal, plus a further 132 written submissions.

Visitors Summary

Together Cessnock from 14 March 2024 to 07 May 2024



REFERRAL WEBSITE	TOTAL VISITS
facebook.com	1894
www.cessnock.nsw.gov.au	562
www.google.com	70
www.bing.com	52
mhvnews.com.au	37
android-app	10
au.search.yahoo.com	2
www.miragenews.com	1
www.ecosia.org	1
duckduckgo.com	1
mail.google.com	1

Total webpage visits: 3.5K

Document Downloads: 2.43K

Total submissions: 269

ADVERTISING & PROMOTION

Advertising and Promotion

Getting the word out there

The Community Engagement team collaborated with the Media and Communications team to design and execute an integrated communication plan to raise awareness that the Wollombi Road Upgrade Project REF was on public exhibition and to encourage submissions.

The integrated communications plan incorporated promotion through traditional media, social media, and articles in eDMs and a printed newsletter distributed to the project area of 3,634 residences. The total reach of digital, print and broadcast media exceeded 720k. Social media reach exceeded 32k, including 4,000 views of a forty-minute Facebook Live Q&A.

FACEBOOK ACTIVITY

Date	Post	Reach	Engagements	Reactions	Comments	Shares
15/3/24	Stage 1 REF and Design Options Report now on Public Exhibition	13,532	236	34	39	12
3/4/24	Cessnock Leagues club Drop in session promotion	4,357	38	11	22	4
12/4/24	Bellbird Hotel Drop in session promotion	3,880	49	4	14	4
14/4/24	Digital Town Hall promotion	5,624	49	5	0	9
17/4/24	Facebook Live – post	4,684	176	21	54	9
Total		32,077	548	75	129	38

PRINT & DIGITAL MEDIA		
Date	**Publication**	**Reach**
15/3/24	Mirage News	685K
16/3/24	Newcastle Weekly	37.6K
12/4/24	Hunter River Times	731
Total		723.3K

KEY THEMES & RESPONSES

Key themes & responses

Council received **269** submissions during the public exhibition period for the Review of Environmental Factors. The summary table below is based on the comments provided by the community and have been categorised according to theme.

1. Need for four lanes

2. Bypass roads

3. Staging of the works

4. Traffic lights and traffic flow

5. Prioritising over other roadworks in the LGA

6. Cost of the Project

7. Parking

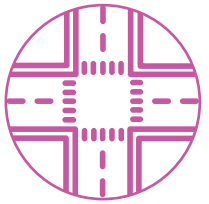
8. Impact during construction

9. Road widths

10. Footpaths and cycleways

11. Pedestrian Safety

12. Bus stops and Public Transport



13. Intersections and turning restrictions

14. Roundabouts vs traffic lights

15. Operation and timing of clearways

16. Raised concrete medians and access to properties

17. Adjacent roads and intersections

18. Environment and Heritage

19. Stormwater and Utilities

20. Other

Theme 1.

Need for four lanes

120 mentions from 269 responses

"Whilst I do agree the Wollombi road does need upgrades, i feel it's unnecessary to this scale."

"Wollombi Road now, in peak times can be congested, especially around the public school. This will only get worse as Bellbird grows."

COMMON THEME/VALUE	COUNCIL RESPONSE
There are many comments objecting to the implementation of four lanes of traffic, and comments that this will not ease congestion with current traffic volumes.	The Cessnock Local Government Area is growing quickly. The upgrade of Wollombi Road is needed to manage traffic growth and reduce congestion on our roads. Council have completed traffic modelling and strategic investigations since 2009 when the Bellbird North Urban Release Area (URA) was rezoned for residential purposes. These studies confirm the need for upgrades and the works are included in the Cessnock Traffic and Transport Strategy 2023. The need for additional travel lanes is linked to several development application approvals within the Bellbird North URA. Council is required to meet these obligations. To minimise impact to the community, Council will keep parking along Wollombi Road until traffic demand reaches a level that requires clearways at peaks times.
In questioning the design, several submissions asked whether other alternative design options were investigated.	Noting the response above, Council undertook an options analysis as part of the preliminary engineering process. This is included in the Review of Environmental Factors (REF) documentation.
There are several comments indicating that road congestion is limited to school drop off and pick-up times.	The project seeks to meet the growing traffic demand now and well into the future. The proposal to use clearways when needed will allow flexibility to adjust the road capacity to suit the demand where and when needed.

Theme 2.

Bypass roads

84 mentions from 269 responses

"The bypass needs to be done first. The problem is not here it is down at the schools. So that should be addressed first."

"A bypass to Mt View and one to South Cessnock is the most effective choice. When they open up Francis St to the new Bellbird development, the back streets will become the preferred route to town. Bypasses will address this problem as well when it arrives."

COMMON THEME/VALUE	COUNCIL RESPONSE
A large volume of submissions indicated a preference for a ring road or a bypass instead of a road upgrade or that a bypass should be completed before the proposed Wollombi Road upgrade with traffic lights. Comments included that Council identified a road bypass for Cessnock many years ago and has allowed nearby residential development to occur without ever implementing the alternative route. Comments included that a bypass is needed as residents do not always want to travel via town to travel to Ellalong, Paxton, Millfield. With further comments saying that if these vehicles are removed from Wollombi Road via a bypass there is no requirement for four lanes of traffic in this area.	Council has accepted the need for alternate routes, and these are included in the Cessnock Traffic and Transport Strategy 2023. However, even with these alternate routes in place, the Wollombi Road upgrade is still needed as part of the broader network to meet the forecasted traffic demand. The northern connection is progressing as part of the Bellbird North development. The northern connection requires the Wollombi Road works to be complete in Stage 1 as a condition of the development consent. The southern connection route has been defined but detailed investigation and land acquisition are needed before this can proceed.

"Stage 2 should be the area of an upgrade this area is congested during most of the day."

"4 lanes back to 2 at a main intersection that is already congested... will only make it worse"

Theme 3.

Staging of the works

71 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Some submissions suggest that a traffic bottleneck will be created where Stage 1 works end at West Avenue. Others proposed that Stage 2 should be the priority and questioned when the funding would be available to do these works.	The progression of the Bellbird North development and the northern alternate connection requires the Wollombi Road works to be complete in Stage 1, as a condition of the development consent (as mentioned in Theme 2). Stage 1 work is required to provide the additional travel lane capacity between Abbotsford St and West Ave and the two intersection upgrades that service the Bellbird URA. Council is aware of the importance of completing Stage 2 of the project, from West Ave to the CBD, and is actively seeking funding to allow this to be completed as soon as possible. The Preliminary Engineering work undertaken has included Stage 2 so we are ready to progress to detailed design when the funding becomes available.

"If the six set of traffic lights and two sets of pedestrian lights are added, how much longer will this trip take?"

Theme 4.

Traffic lights and traffic flow

"How do traffic lights improve traffic flow?"

134 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
There is some support for traffic lights in locations near highly trafficked areas and school areas in particular.	Traffic lights offer the safest way to access Wollombi Road for pedestrians and vehicles.
The submissions included many comments about the number of traffic lights proposed.	The number of traffic lights is based on traffic modelling and strategic investigations that support the Cessnock Traffic and Transport Strategy 2023 and previous traffic and transport strategies for the LGA.
Specific reference was made to include more traffic lights between Lochinvar and Abbotsford St as the closest signalised right hand turn into town for Bellbird Heights is Francis Street.	More signalised intersections, between Lochinvar and Abbotsford Streets, were not supported by the traffic modelling including forecasting out to 2041. Additional signalised intersections can be revisited in the future if needed.
When questioning the inclusion of traffic lights in the design, several submissions questioned how traffic lights improve traffic flow.	Traffic signals will be coordinated to optimise entry onto Wollombi Road from side streets and to prioritise and regulate traffic flow along Wollombi Road. The increased capacity provided by the additional travel lanes allow more vehicles to move through a given intersection.

[Council is] "...taking from other areas & then they won't get their work done."

"There are far too many CURRENT roads requiring attention. Fix them first"

Theme 5.

Prioritising over other roadworks in the LGA

43 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Some submissions noted that other roads need repair too, suggesting that the money would be better spread across the LGA.	Council has a program of maintenance and upgrades for existing roads as outlined in Council's Operational Plan 2023/24 and Draft Operational Plan 2024/25. The Wollombi Road upgrade is a major project and has received substantial grant funding and developer contributions that allow the upgrade to be undertaken in addition to Council's normal works program.

"Besides the State Government grant, Council will need to use the funding from other developments to fund Wollombi Rd until they receive contributions from the Bellbird developers, when those blocks are sold. How long will that will take?"

"I question where the Council funds are coming from to pay for this upgrade."

Theme 6.

Cost of the Project

60 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Several submissions raise concerns over project cost and the risk of cost increases. Some indicated that they would like to understand how the project is being funded.	Stage 1 of the project is funded by a grant from the Department of Planning, developer contributions, Hunter Water Corporation and a voluntary planning agreement. There is no cost to Council included in the current funding arrangement. Major road upgrades require a significant financial investment. The project costs are comparable to other major infrastructure projects. The funding recieved has given Cessnock City Council the opportunity to build essential infrastructure when it is needed to ensure the continued economic growth of the area.

"Please don't loose the parking for the small businesses along wollombi road. At the very least make sure it's a clearway for only the busiest times of day."

"I'm 93 years old. I use the doctor and the chemist on Wollombi Rd. Parking is a big concern for me to able to access both of these"

Theme 7.

Parking

100 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
There are comments supporting the retention of parking along Wollombi Road, with specific parking concerns raised in relation to the front of businesses including the chemist, post office and GP office.	Parking impacts were an important part of the options assessment. On-street parking has been included east-bound from Lochinvar Street where possible, including in front of the Chemist and Post Office. The westbound lane will be kept as parking until actual traffic demand requires a time limited clearway to be implemented to manage peak traffic flow. Parking west of Lochinvar Street will be kept in both directions as noted in the options assessment. A clearway for a few hours a day will only be implemented when the traffic volumes require them.
How the loss of parking out the front of businesses and changes to access will affect business was raised by business owners and residents.	As noted above parking has been considered and provided where possible within the constraints of the project. As part of a broader strategy and separate to the project, Council's Infrastructure team will consider side street parking options at locations such as Percy Street, Chidgey Street/Michael Street, Campbell Street, Hutton Street. Side street parking options will add to the parking and access options following the Wollombi Road upgrade.

"Excessive disruption during construction and traffic noise after completion of this proposal"

"Noise will be unbearable for residents and pedestrians not only during construction"

Theme 8.

Impact during construction

64 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Several submissions raised concerns over noise and traffic impacts to residents, businesses, and school students during construction.	The management of traffic throughout the construction phase is a critical part of the project. Council will work closely with the community, stakeholders, and the construction contractor to ensure suitable measures are in place to minimise impacts during construction. The contractor will prepare a detailed construction management plan that covers critical issues including traffic management, staging, noise, and communications. The plan will look to limit detours and keep a travel lane in each direction throughout the construction period as far as possible. Council will continue to provide project information and updates to the community as well as liaising with key stakeholders such as schools, bus companies, and emergency services.
In citing concerns about how the project will affect businesses along Wollombi Road due changes in the streetscape and access for foot traffic, several submissions raised the question of compensation for business owners during construction and operation.	Council plan to create a business activation strategy in consultation with local business to support ongoing operations throughout the construction period.

Theme 9.

Road widths

34 mentions from 269 responses

"Are the parking lanes width of 2.5 m adequate or safe?"

"In most areas the road widths remain the same, just resealing, line marking and new guttering."

COMMON THEME/VALUE	COUNCIL RESPONSE
Several submissions questioned the proposed design road widths. One noted "If four lanes with appropriate width are to be included in this project, significant groundwork will be needed to address uneven surfaces and camber along Wollombi Rd." There has been specific mention of this issue in Segment 3 (Hoskins Place to Hickey Street).	Council has engaged professional engineering consultants to survey the road and ensure the design follows all relevant Australian standards. Some sections will require realignment and reconstruction of the roadway levels. Other sections are suitable to remain as is. Roadway levels will be further considered in the detailed design phase.
Concerns expressed that 2.5metres is not wide enough for parking on the road when clearways are not in place. Concerns raised that disabled drivers will be unable to open car doors without stepping out into traffic.	The preliminary road designs for Wollombi Road are compliant with roadway and parking lane widths required under the applicable standards in NSW. Council has looked to provide parking where road widths allow to help residents and business.

"No cycleways, makes it dangerous to ride from bellbird into town & further."

"Where are the cycleways going to be located?"

Theme 10.

Footpaths and cycleways

37 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Several submissions cited the removal of active transport lanes.	An alternative cycleway is being investigated separate to this project as part of a broader active transport strategy for the LGA. The strategy considers using adjacent streets and developing a shared path further to the south connecting into town. Further details will be provided as this develops. As noted in the options assessment, a shared path was considered within the road corridor but is not viable.
There were some submissions that raised safety concerns for those using mobility scooters to access businesses.	Those using mobility scooters are typically considered to be pedestrians in traffic terms. Footpaths will be kept or improved and other facilities such as signalised pedestrian crossings will be added, improving access overall.

"I am writing to express my concern over the lack of pedestrian crossings along Wollombi Rd in Bellbird Heights and Bellbird."

"With our suburb quickly growing and 4 lanes of traffic planned, something extra needs to be done for pedestrians."

Theme 11.

Pedestrian Safety

51 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
The challenge of pedestrians crossing four lanes of traffic was raised in several submissions.	Signalised pedestrian crossings are the safest way for people to cross the road. The upgraded intersections will improve the safety and ability for people to cross the road as the volumes of traffic increase.
Specific reference was made suggesting more traffic lights were needed to provide pedestrian crossings between Lochinvar Street and Abbotsford Street.	Signalise pedestrian crossings are included at the Abbotsford and new Bellbird Nth intersections. The current pedestrian and traffic data suggests that further lights are not needed and would have a negative impact on traffic flow. The need for more lights and impacts on traffic flow can continue to be checked into the future.
Some submissions proposed additional zebra crossings with flashing lights at certain times.	Zebra crossings are not permitted for more than 2 travel lanes under NSW Traffic guidelines.

"Every day I see children and young people trying to navigate their way safely to, and from bus stops, often dodging traffic and running across roads."

"An extra pedestrian crossing should be installed along Wollombi Rd in Bellbird/Bellbird Heights so students catching the bus have a safe place to cross the 4 lanes."

Theme 12.

Bus stops and Public Transport

12 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
A few submissions raised concerns about the bus stops, including stops not being close enough to safe pedestrian crossings. Comments included concerns about children accessing schools by crossing four lanes of traffic, and whether school bus stops should be re-routed.	There are no plans to change or modify bus stops as part of this project. The locations shown on the schematic plans in the REF are the current bus stop locations. Bus routes and planned bus stops are controlled by Transport for NSW (TfNSW) along with the bus companies. Council will work with these organisations to see if any adjustments are needed due to the proposed works during and after construction. Signalised pedestrian crossings will continue to be the safest way for all pedestrians to cross Wollombi Road.

"I support the left in/left out options as this will encourage traffic flows especially in peak period which will continue to increase over time and with population growth to our Local Government Area."

Theme 13.

Intersections and turning restrictions

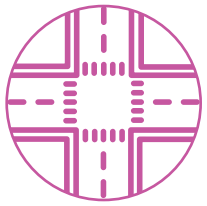
"The upgrade of intersections to include turning lanes and some traffic lights would be adequate to assist the flow of traffic."

76 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Several submissions comment on a preference for dedicated turning lanes from Wollombi Road onto James Street and Ivan Street.	The design team investigated dedicated right turn lanes in this location. The road width, alignment and levels in this location (including the proximity of existing building structures), limit the ability to create a turning lane. The limited length available before the Alexander Street intersection means even if a turn lane could be provided, the length would be inadequate to avoid congestion. The investigation therefore concluded the intersection would fail and could not be approved by TfNSW. The arrangement included in the preferred design is based on the detailed traffic modelling.
Submissions included limited support for left in and left outs at key intersections onto Wollombi Road.	Council will consider the timing of implementing the left in and left out restrictions at key intersections to best accommodate traffic flow on Wollombi Road. However, the purpose of the restrictions is to ensure the traffic flow along Wollombi Road is not affected and can be coordinated through the signalised intersections.
Several submissions expressed a desire to have U-turn lanes at traffic lights to accommodate access to businesses and private property.	U-turns will continue to be investigated in the detailed design however U-turns are not generally supported by TfNSW at intersections with traffic lights. Where U-turns are allowed, there needs to be enough width for vehicle turn paths. Wollombi Road is constricted by existing property boundaries, particularly at the new Bellbird North intersection.

"A roundabout at the intersection of Wollombi Rd, Hickey St and Francis St would help with the congestion"

"Traffic lights should remain at Abbotsford Street, Bellbird North New Development entry, West Avenue and Mt View Road, with the Roundabout remaining at Darwin Street intersection."



Theme 14.

Roundabouts vs traffic lights

52 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
There are a mixture of comments supporting roundabouts with turning lanes instead of traffic lights.	Roundabouts of a suitable size to meet the traffic demand do not fit within the Wollombi Road corridor without Council acquiring more land at the intersections. Land purchases increases cost and affects private properties. Traffic lights have advantages over roundabouts in controlling traffic flow. They can prioritise movements across multiple intersections and optimise the timing of entry onto main thoroughfares from side streets. Roundabouts do not provide the safe crossing point for pedestrians.

"I believe the council has balanced the need for the upgrade with the wishes of local residents and businesses by retaining parking where possible as well as the allowance for parking in one of the new lanes pending the introduction of clearways for peak hour travel."

"Clearways are common in many communities, and it's encouraging to see forward-thinking with identified areas for future clearways"

Theme 15.

Operation and timing of clearways

26 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
There are some comments around the operation of clearways and how residents will be able to enter properties when clearways are in place. There were a small number of submissions seeking clarification on how taxis pick up and drop passengers along Wollombi Road.	Parking will be kept until the traffic levels require a clearway to be in place. The timing of the clearways will be subject to further detailed investigation and approval. When clearways are activated, normal traffic conditions will be in place and drivers will need to drive to conditions. This will not restrict access to properties. Taxis will need to follow the road rules of NSW as they currently do. There are several options for pick up including driveways, the permanent parking spaces or nearby side streets.

"For those of us on the southside getting deliveries and having services attend will be extremely difficult due to the proposed median strip."

"Residents making right hand turns into their driveways will have travel extra distances with a split level pavement or a median strip."

Theme 16.

Raised concrete medians and access to properties

41 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Concerns over split level pavement and concrete median in Segment 2 and Segment 3 were raised citing safety risks when entering properties and businesses.	The design team considered alternatives to the split-level design. The critical design requirements that led to this proposed design include: • The need to capture and control stormwater. • Parking on the northern side of the road is not possible without a split median. • Impacts to the verge and existing utilities is reduced. • The requirement for reconstruction of driveways within private property is significantly reduced. The extent of this median will be confirmed during detailed design. All relevant road design standards will continue to be used through detailed design to ensure the safest possible outcome for road users and residents.
Comments indicate that impeding access to property through the installation of median strips would inconvenience residents but also pose potential safety hazards, particularly during emergencies when swift access is crucial. Comments include that the proposed median strip disregards the established patterns of traffic flow and fail to offer suitable alternatives for maintaining accessibility while ensuring road safety.	The location of concrete medians and chevron line marking will be finalised in the detailed design. The extent of this will be limited to essential locations to follow with safety requirements and TfNSW standards on approach to intersections. Council appreciates that the proposed upgrade will require some change to the way people access their property. The proposed design has looked to minimise this change while achieving the overall project objectives for increasing the capacity of a critical main arterial road. Council will continue to work with residents and businesses within the project area to address specific property impacts during detailed design phase.

Theme 16. cont.

Raised concrete medians and access to properties

COMMON THEME/VALUE	COUNCIL RESPONSE
Concerns over entering and exiting properties safely along Wollombi Road when four lanes are operational was raised in a number of submissions.	Wollombi Road is one of several main arterial roads within the road network serving the Cessnock LGA. The traffic demand on this road will continue to increase. The proposed measures including the additional lanes and lights are expected to provide the best opportunity to manage the traffic volumes. Access to and from existing properties will be kept.

"The introduction of traffic lights at major intersections with dedicated turning lanes as well as reducing the number of intersections that can enter or block lanes for turning will improve traffic flow."

"Back streets are not equipped for the extra traffic."

Theme 17.

Adjacent roads and intersections

27 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Several submissions raised concerns over congestion at Alfred Street near Cessnock West Public School.	Council considered the Wollombi Rd upgrade in the context of the complete Cessnock LGA road network as outlined in the Traffic and Transport Strategy. Any identified localised issue will be addressed by Council's Infrastructure team in parallel with the Wollombi Road upgrade. The Alfred Street intersection has been noted for further review.
Comments included that back streets, such as Catherine Street and Mathieson Street will be changed through extra traffic and more cars parking in the street.	As noted above the Wollombi Road upgrade considers the broader traffic network. Catherine Street and Mathieson Street are intended to capture local traffic only. It is not expected that parking demand would change on these streets. Council will continue to check and prioritise road maintenance in the streets next to Wollombi Road.

"Wollombi Rd has a lot of historic areas, significant to area history, the trees planted as well as areas of sandstone and bush rock guttering"

Theme 18.

Environment and Heritage

"Removal of any crepe Myrtle trees along Wollombi Road would be a detriment to our town."

37 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Traffic noise increases once the road is operational was raised in several submissions.	Council does not expect there to be a significant increase in traffic noise stemming from the upgrades. The REF noise report says less than 1.1dBA impact which is very minimal and requires no intervention.
A preference for using recycled materials during construction was raised.	Council will work with their construction contractor to implement smart engineering choices that will include the use of recycled material where possible.
Several submissions showed a preference for the retention of the crepe myrtle trees along Wollombi Road.	The project will prioritise retention of street trees where possible. Clashes with utilities, kerb adjustments and drainage may require the removal of some trees. Any trees that are affected by the works will be replaced with suitable trees, consistent with Council's Tree Strategy. Research through the Cessnock Library Local Studies section suggest the crepe myrtle trees were most likely planted in the early 1950's as part of Arbor Day. There was no evidence about war memorials or Bellbird Mine plantings in this location.
Several submissions highlighted that Cessnock is rich with history and cited a preference for protecting heritage items along the alignment. Comments referred to the need to protect the historical convict sandstone in several locations.	A Statement of Heritage Impact (SoHI) was prepared and included in the REF. The project will look to minimise the impact on heritage kerbs. Our intention is to document the heritage items and keep or reposition the kerbs where possible, in line with advice from a heritage consultant.

Theme 18. cont.

Environment and Heritage

COMMON THEME/VALUE	COUNCIL RESPONSE
Some suggested air pollution would be increased with the introduction of traffic lights.	Air quality impacts were assessed by the environmental consultant as part of the REF. There is not expected to be any operational air quality impacts associated with the upgrade.

"How will storm water drains be improved? With recent prolonged wet weather We have noticed increased minor road flooding."

"No where have you stated about the changes to utilities."

Theme 19.

Stormwater and Utilities

12 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
There are a few submissions raising concerns about the location of power poles and asking whether power infrastructure will remain above ground.	Details for the relocation of power poles will be confirmed in the detailed design. Power poles will only be moved when needed for changes in road geometry and services. It is not intended to underground the power as part of this project.
One submission raised concern that any changes to the road profile and drainage will affect low lying businesses and homes in major flooding events	A flooding model has been developed during preliminary design and will be carried through into detailed design to confirm that no adverse flooding risk is added by the project works.
One submission was concerned about cost to households for reconnecting utility services such as power and water.	Residents will not be charged for changes to household connections. There may be some inconvenience as these changes are made during construction. Council will work closely with the residents, contract and service providers to ensure the impacts are minimised.

Theme 20.

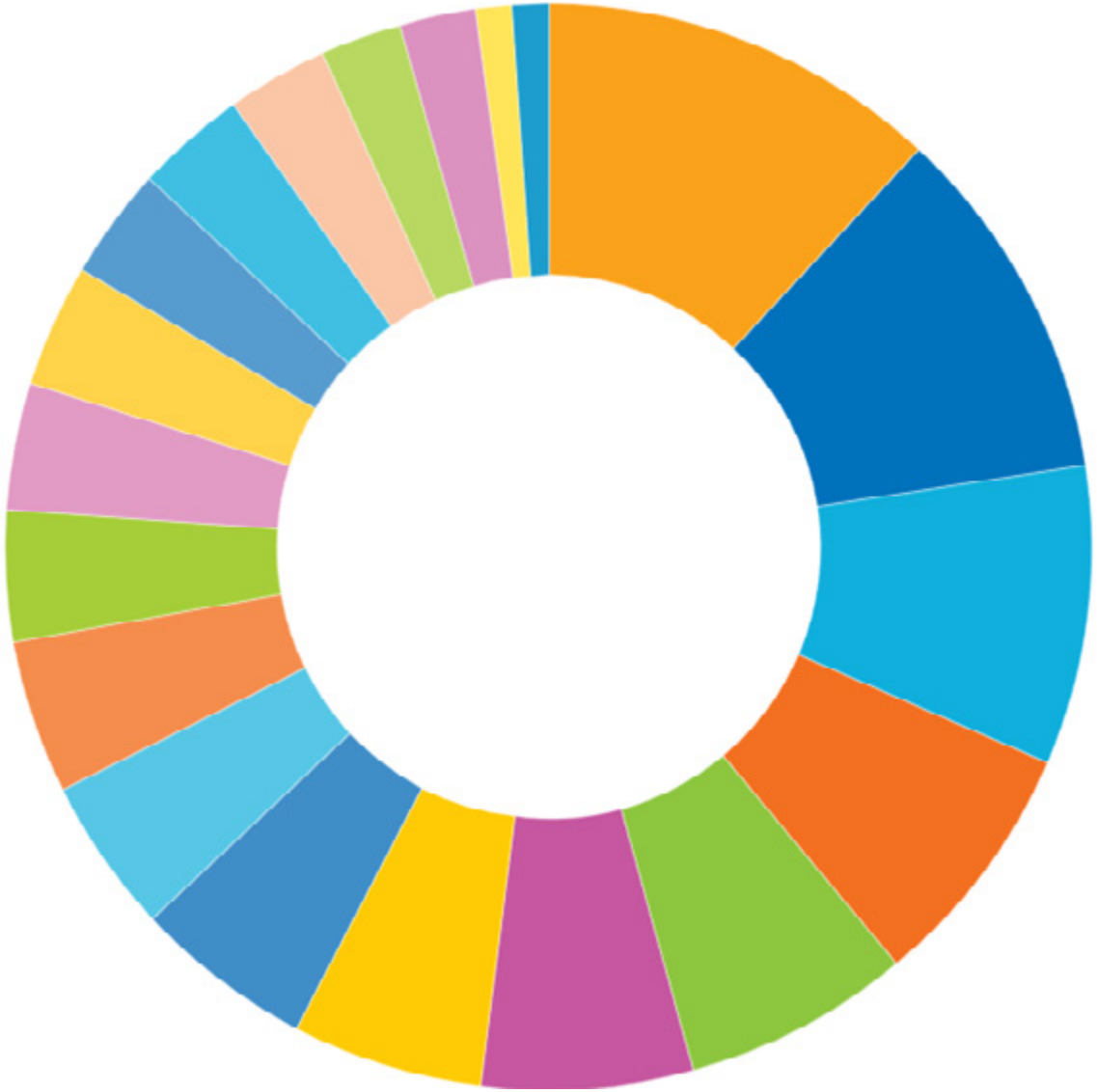
Other

44 mentions from 269 responses

COMMON THEME/VALUE	COUNCIL RESPONSE
Concern over residential property values was the focus of several residents who live on Wollombi Road.	Improving transport infrastructure is a critical component in the economic growth of Cessnock, and upgrades to main roads are to be expected in a growth region. Council is responsible for maintaining and upgrading roads to benefit the whole community, and will continue to make infrastructure and planning decisions based on what will benefit the whole LGA.
Many submissions suggested council was not asking for feedback on Segment 7 or Segment 8 (West Ave to Allandale Rd) and were concerned they may not get a chance to comment on these.	This engagement was open to feedback on any segment and Council did not place any limits on what the community could comment on. The options assessment included information on all segments. It is noted however that the REF document covers Stage 1 (Segments 1 to 6 - Abbotsford St to West Ave). Stage 2 (West Ave to Allandale Rd) will have a separate REF that will go on public display when the funding is confirmed.
Some suggested the consultation for the project had been too limited.	Council has run an extensive engagement program for this project and the Traffic and transport strategy, in line with best practice. The project email address and direct contact phone number will continue to be available to the community. **Phone:** 1800 290 991 **Email:** wollombiroadupgrade@cessnock.nsw.gov.au **Website:** www.cessnock.nsw.gov.au/wollombiroadupgrade

Key themes - mention count

Council received **269** submissions during the public exhibition period for the Review of Environmental Factors. The graph below represents the number of submissions that mention each theme.



- Traffic lights and traffic flow (134)
- Need for four lanes (120)
- Parking (100)
- Bypass roads (84)
- Intersection and turning restrictions (76)
- Staging of the works (71)
- Impact during construction (64)
- Cost of the project (60)
- Roundabouts vs traffic lights (52)
- Pedestrian safety (51)
- Other (44)
- Prioritising over other roadworks in the LGA (43)
- Raised concrete medians and access to properties (41)
- Environment and heritage (37)
- Footpaths and cycleways (37)
- Road widths and parking (34)
- Adjacent roads and intesections (27)
- Operation and timing of clearways (26)
- Stormwater and utilities (12)
- Bus stops and public transport (12)


365

FURTHER ACTIONS

Further actions

Your voice has an impact

Community consultation has led to a number of actions for the project team, along with changes and improvements to the preliminary design. Stakeholder involvement and contributions will now play a key role and help to inform the next phase as the project advances to detailed design. The team will continue to collaborate with stakeholders and community members to ensure the project delivers positive outcomes.

ACTIONS AND INVESTIGATIONS FOLLOWING FEEDBACK - PROJECT TEAM	
Segment 1 (Abbotsford Rd to Lochinvar) changed to option 0 - minimal work to achieve outcome.	Strategy for recycling/reuse excess spoil.
Concrete median reduced in length in Segment 2. Other medians to be painted unless required by TfNSW at intersections.	Further engagement with directly affected residents and businesses on detailed design.
Work with Hunter Water to minimise impact of water mains on the verge and trees.	Public release of Engagement Report.
Propose delaying the implementation of right hand turn restrictions from side streets.	

ACTIONS AND INVESTIGATIONS FOLLOWING FEEDBACK - WORKS & INFRASTRUCTURE	
Review active transport strategy.	Pursue funding for Stage 2 works.
Review and prioritise need for works to adjacent streets.	Continue to progress Link roads (Bypasses).
Side street parking options.	

CESSNOCK
CITY COUNCIL

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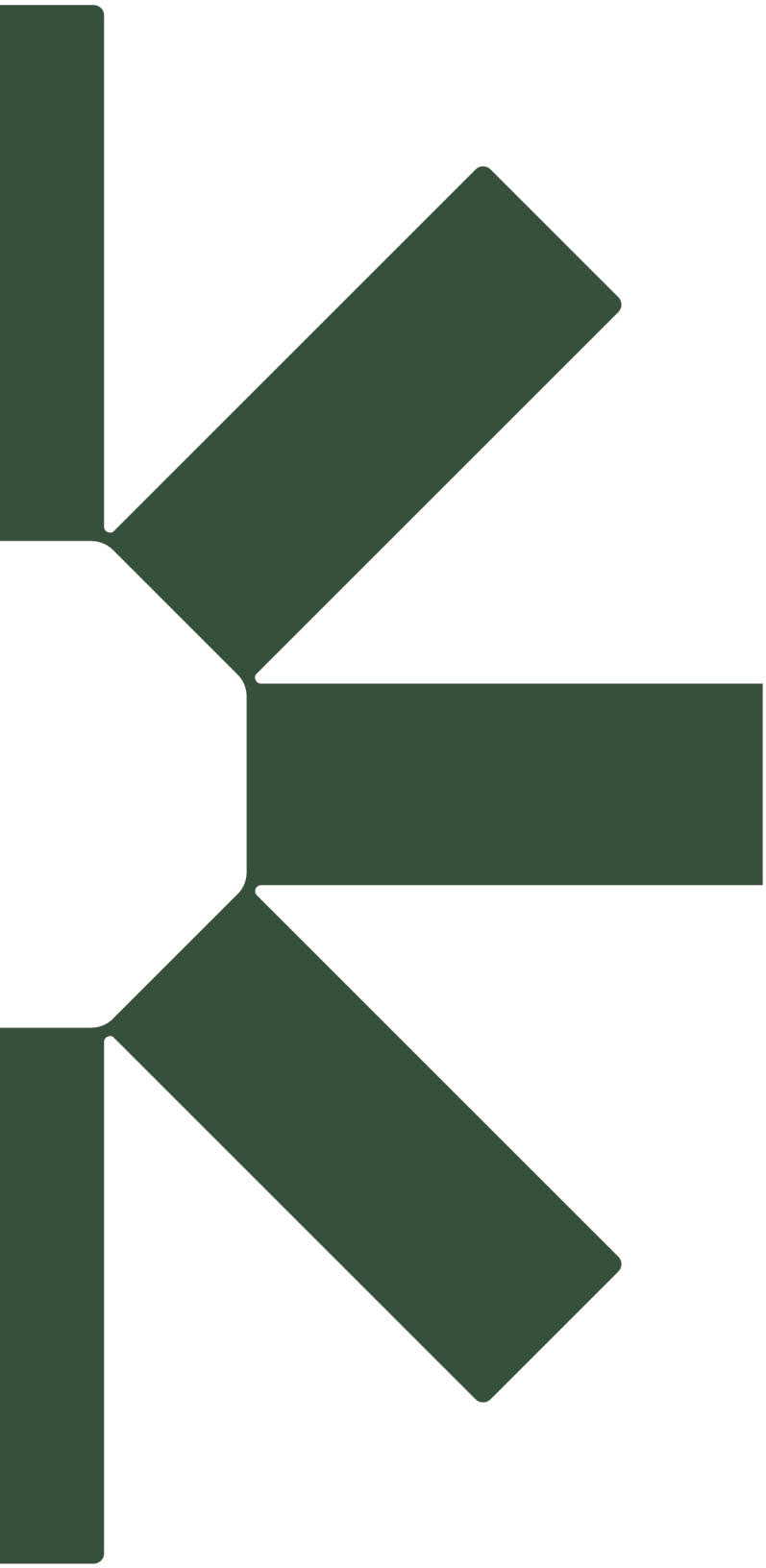

Making Sustainability Happen