

MINOR WORKS REVIEW OF ENVIRONMENTAL FACTORS

**-Cessnock City Council-
George Downes Drive
Bucketty**



PREPARED BY:



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Distribution:

**Minor Works Review of Environmental Factors
George Downes Drive
Bucketty**

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Cover Photo: View of study area

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#

1 INTRODUCTION

The purpose of the Minor Works Review of Environmental Factors (Minor Works REF) is to describe the Proposed Activity, assess the potential environmental impacts, identify environmental safeguards to mitigate potential impacts and determine whether the works can proceed. The Minor Works REF has considered the following:

- Section 5.5 and 5.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) including, clause 171 of the *EP&A Regulations, 2021*.
- *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Other relevant Federal and State legislative instruments.

The findings of the Minor Works REF would be considered when assessing:

- Whether the Proposed Activity is likely to have a significant impact on the environment and therefore the requirement for an environmental impact statement (EIS) to be prepared and approval sought from the relevant determining authority under Sections 5.7 and 5.1 of the EP&A Act.
- The significance of any impact on threatened species as defined by the BC Act (Part 7 Sections 7.2 and 7.3) and FM Act (Part 7A Section 220ZZ), (referred to in section 1.7 of the EP&A Act) and therefore the requirement for a Species Impact Statement (SIS).

The potential for the Proposed Activity to significantly impact on matters of national environmental significance (MNES) or Commonwealth land and the requirement to make a referral to the Australian Government Department of Climate Change, Energy, the Environment and Water for a decision by the Commonwealth Minister on whether assessment and approval is required under the EPBC Act.

2 THE PROPOSAL

2.1 Description

Title: George Downes Drive – Bucketty. Road widening & renewal.

Road name: George Downes Drive – Bucketty.

Closest cross road(s): Great Northern Rd/George Downes Drive. Michaeliena Point Road near eastern end of proposed works.

Chainage of works/works area: CH 0-183m Great Northern Rd. CH 0-717 George Downes Drive. See Plans Appendix 4 & Figures 1-3.

Local government area: Cessnock City LGA.

Background & description of works:

Central Coast Council were successful in obtaining \$1.72m in funding under the Safer Roads Program for safety improvements on George Downs Drive Bucketty. Further investigations identified the location as being within the Cessnock LGA, resulting in responsibility for the project being transferred to Cessnock City Council by Transport for NSW.

George Downes Drive is a Regional Road that the serves the rural communities of Central Mangrove, Mangrove Mountain, Kulnura and Bucketty. It provides connections to Wisemans Ferry Road and Great Northern Road, attracting commuters from anywhere between Gunderman and Wollombi. The route consists of a predominately curved horizontal alignment some vertical crests and with minimal shoulder width typically less than 1m. It is governed by double barrier lines and guide posts with the absence of any further delineation measures. This nominated site extends approximately 715 metres covering either

side of the intersection between George Downes Drive and Great Northern Road, the speed limit is reduced from 100km/h to 80km/h within the extent of this site due to the presence of this intersection, it features two horizontal curves and one vertical curve with one 3.5 metre travel lane in each direction and no shoulder. Within the road reserve there are embankments, non frangible vegetation and steep graded slopes off the carriageway.

There is a frequent occurrence of off carriageway crashes and head on crashes within close proximity of the intersection of George Downes Drive and Great Northern Road. The proposed treatment takes a safe systems approach in reducing the likelihood of injury should an off carriageway crashes occur.

The plan set is shown in Appendix 5.

Scope of work

To undertake road widening and safety improvements including:

- Undertake pavement widening totalling approximately 900m²;
- Cut existing embankment to permit pavement widening;
- Install 580m of w-beam & motorcycle underrun treatment, including 8 x end treatments;
- Install 14 x D4-6B Chevron Alignment Markers on new posts;
- Install 425m of BB line marking and RRPM's;
- Install 720m of E1 edge line and RRPM's.

Description of Construction Works Methodology:

The works will be performed in stages:

Pre-construction –

Project Management Plans development: plans include overarching Project Management Plan(PMP), Site Project specific WHS, CEMP, TMP in accordance with scope of works and technical criteria, design, and project conditions of approval.

Preliminary activities includes establishment site compound; installation of TC, fencing / exclusion of Heritage sites; install erosion and sediment controls etc.

Construction –

Intersection upgrade at Great Northern Road, George Downes Drive and Great North Road to provide BAR intersection treatment, widening shoulder to accommodate guard rails on the both sides including motorcycle rubrail (under run), cut table drain, batter stabilisation, minor drainage work, installation of signs and line markings. Some rock excavation is expected.

Construction Works Methodology:

- Erosion & Sediment Control.
- Stockpiles.
- Clearing vegetation/trees.
- Excavation for pavement rehabilitation/widening.
- Cutting table drains.
- Batter stabilisation.
- Minor drainage work.
- Pavement Construction/Seal.
- Installation of signs and line markings
- Revegetate disturbed areas.

This Proposal would require but not be limited to the following equipment:

- Excavators, pavement mill, rollers, truck, generator, other equipment as necessary.
- Noise & dust anticipated. Noise will be only during the work duration and the works will be completed in sections.

Objectives of works:

The objectives of this project are:

- Improve road safety for all road users including motorcycle riders safety by installing motorcycle friendly safety barriers.
- Cost effective;
- Minimise environmental impact.

Council has an ongoing program for road maintenance within the LGA, in consultation and advice from Transport for NSW (TfNSW) as this is a state road.

Figure 1: Location of site (from Lands Department). North to top of all images.

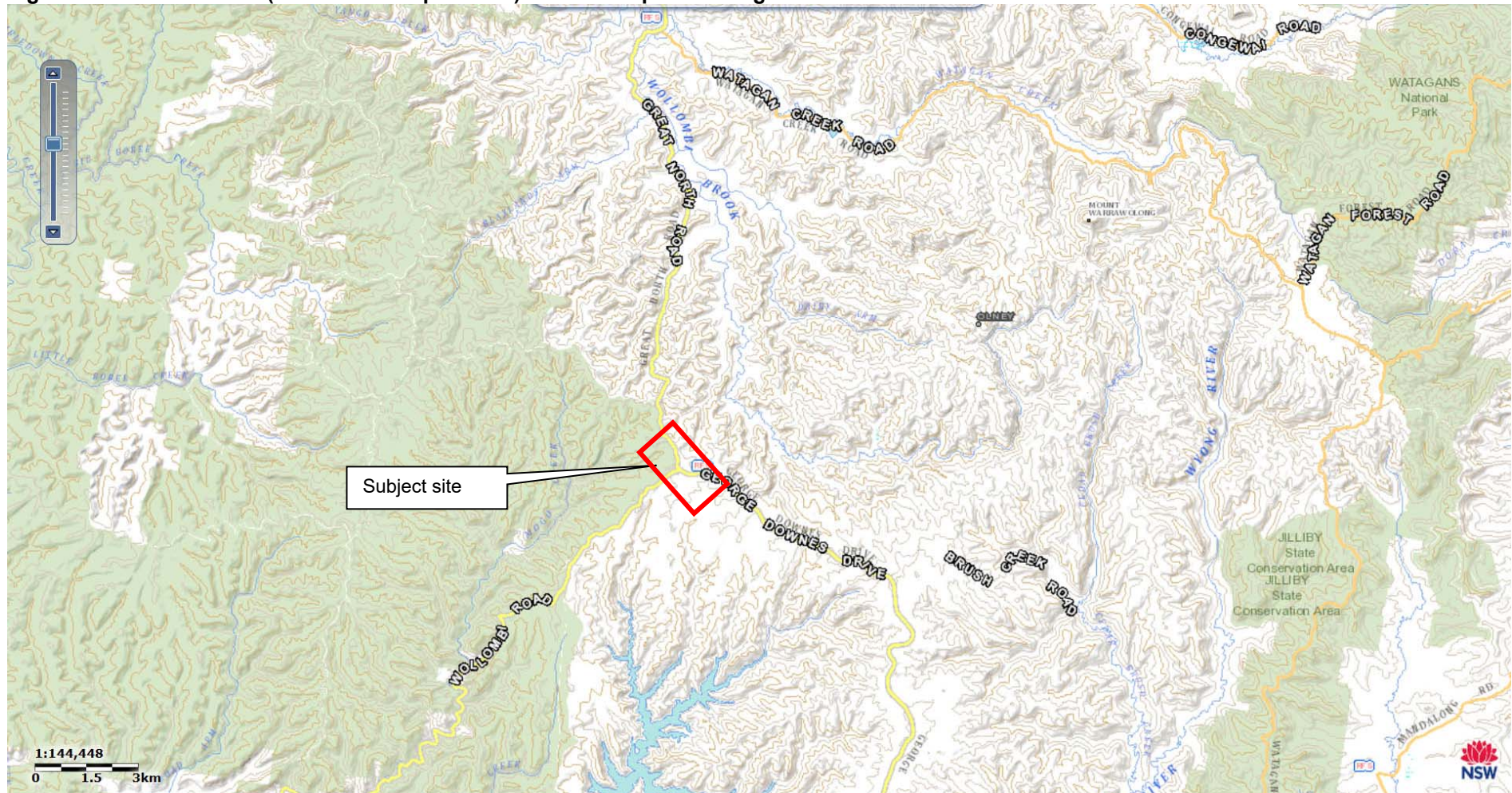


Figure 2: Topographic map of subject site (from Lands Department).

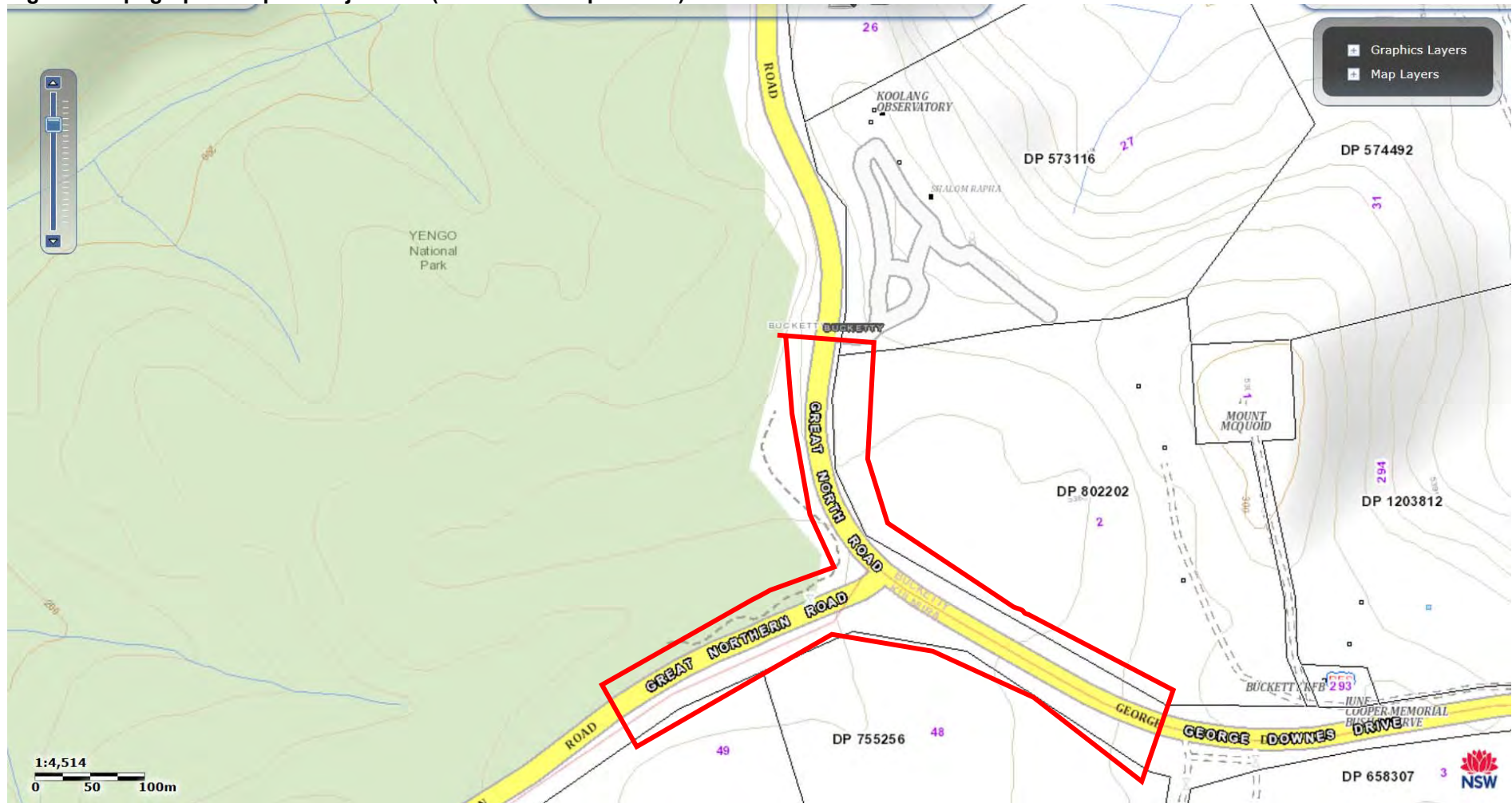


Figure 3: Aerial image view of subject site.



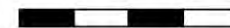
Legend

Subject site Creek

North

Imagery from nearmap, 2nd April, 2022
Projection: GDA 94/MGA zone 56

0 25 50 75 100 m



Note: Cadastre & GPS may be subject to innaccuracy



Figure 4: Heritage map (from NSW Government)

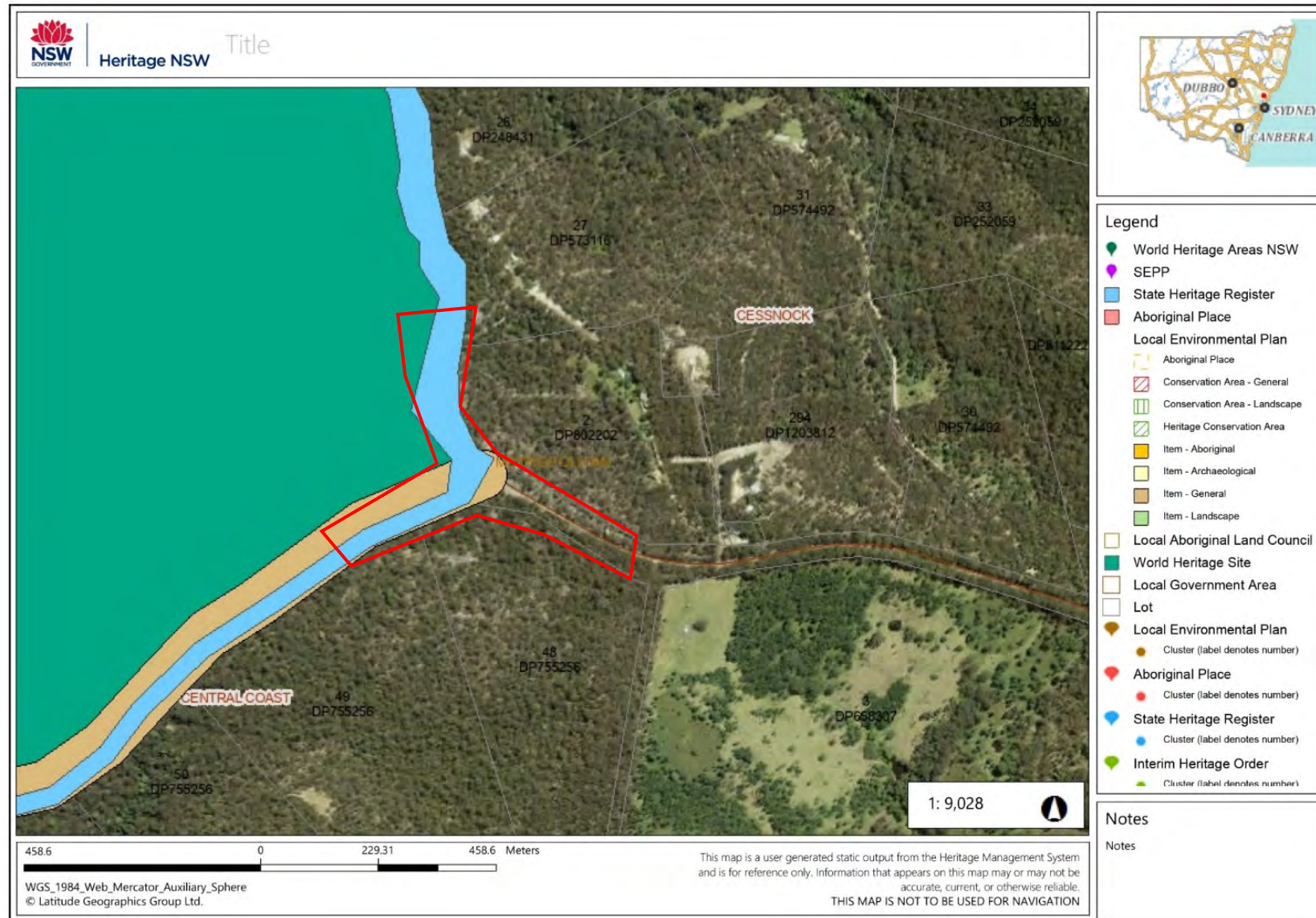


Figure 5a: Proposed compound site (from Cessnock City Council).



Figure 5b: Proposed stockpile site (from Cessnock City Council).



Legend

 Subject site  Stockpile site

North



Imagery from nearmap, 20th April, 2022
Projection: GDA 94/MGA zone 56



Note: Cadastre & GPS may be subject to innaccuracy

Ancillary facilities:

Will the proposed works require the use or installation of a compound site? A compound site location is shown in Fig 5a. All equipment to be stored there or over road shoulders. A stockpile site is proposed 1.6kms west of the subject site, along Great Northern Road. It is a cleared road shoulder, formerly used as a stockpile site, with no environmental impact proposed.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Will the proposed works require the use or installation of a stockpile site? As above.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are any other ancillary facilities required (eg temporary plants, parking areas, access tracks)? All parking alongside road way in approved parking areas.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Proposed date of commencement: The project has commenced already as the first 120m was already completed under the land-slip remediation approved REF. October 2024 to June 2025 is the estimated timeframe.

Estimated length of construction period: -10 months.

2.2 Need and options**Options considered:**

Cessnock City Council state the following options were considered:

Options considered were channelised right turn and approach re-grading on Great North Road Southern limb vs current arrangement of stop sign at intersection and extended guardrail with Motorcycle Protection Rails.

Option 1 - Do Nothing

The 'Do nothing' approach, which this option poses, was discounted and does not meet the project objectives.

Option 2 –Channelised Right Turn

Provide a Channelised right turn lane into Great Northern Road.

Option 3 –Basic Right Turn Lane

Provide a Basic right turn lane into Great Northern Road.

Option 4: No Right Turn :Lane, road widening and safety works.

Current arrangement of stop sign at intersection and extended guardrail with Motorcycle Protection Rails. Road widening, installation of safety W beams as per description of works.

Justification for the proposed option.

Options 2 & 3 were discounted as there was considered insufficient traffic usage to warrant the additional costs of providing a right turn lane into Great Northern Road.

Option 4 is considered the preferred option. It was evaluated by Cessnock City Council who decided Option 4 is the preferred option based upon:

1. Constructability;
2. Estimated Construction Cost;
3. Required maintenance;
4. Safety outcomes;
5. Environmental Considerations
6. Design life and durability.

It is justified on the following grounds:

- Achieves design brief;
- Improves safety;
- Minimises environmental impact;
- Achieves best cost to benefit outcomes.

2.3 Statutory and planning framework

State Environmental Planning Policy (Transport and Infrastructure) 2021, aims to facilitate the effective delivery of infrastructure across the State, including for the proposed road works.

Section 2.109 of the SEPP provides that development for the purposes of a road or road infrastructure facility may be undertaken by a public authority on any land permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

As the proposed works are appropriately characterised as development for the purposes of a road or road infrastructure facilities, and is to be carried out by or on behalf of Cessnock City Council, it can be assessed under Part 5 of the EP&A Act. Development consent from council is not required.

The proposal is not considered to be located on land reserved under the *National Parks and Wildlife Act 1974*. It is located adjacent to the Yengo National Park, however all proposed work is over the road reserve, or disturbed road shoulder and batters which form part of the existing road. Consultation has been undertaken with NPWS also who had no objections. The proposal does not affect land or development regulated by *Coastal Management Act 2016* (such as Coastal Wetlands or Littoral Rainforests SEPPs).

The Project Area is located partly within the curtilage of the Great North Road, between Mt Manning and Wollombi, which is listed in on the State Heritage Register (Item ID 01138). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (I217), Hawkesbury Local Environmental Plan 2012 (I0091), and Gosford Local Environmental Plan 2014 (60). In addition, the proposed works are within the vicinity of the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (Dossier 917/Place ID 105127) and the National Heritage List (Place ID 105999). Approvals have been received from DCCEEW (Heritage) for the works.

Table 1: Other relevant Commonwealth and State legislation and environmental planning instruments:

Legislation	Key Requirements	Relevance to proposal
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Under this Act, approval is required from the relevant Commonwealth Minister when a proposal is likely to cause significant impacts to items of national environmental significance or impacts on crown land.	<p>A search of the Commonwealth's Protected Matters Search Tool was undertaken and determined that the proposal is unlikely to impact on any matters of national environmental significance. There are no listed Commonwealth Endangered Ecological Communities present, but there is a World Heritage property & place (Greater Blue Mountains Area) adjacent to the site, but unaffected directly by it.</p> <p>A Biodiversity/ecological site assessment has occurred (Appendix 3) which found no significant impact over any EPBC listed threatened species, critical habitat, endangered populations or ecological communities.</p> <p>A Heritage assessment was undertaken by Heritage Now, which found "Works will be avoiding the World Heritage and National Heritage Curtilage Area, with works only occurring within the existing road corridor". No referral or impact proposed.</p> <p>Safeguards are recommended to reduce potential indirect heritage and environmental impacts.</p>
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act).	This Act regulates development within NSW. The proposal meets the definition of an 'activity' under Part 5 of this act and therefore approval is required from Cessnock City Council. Cessnock City Council is a nominated determining authority and therefore would be the determining authority for the proposal.	This MWREF addresses the requirements under this Act.
<i>Biodiversity Conservation Act, 2016</i>	<p>The BC Act establishes a new regulatory framework for assessing and offsetting biodiversity impacts on proposed developments. Where development consent is granted, the authority may impose as a condition of consent an obligation to retire a number and type of biodiversity credits determined under the new Biodiversity Assessment Method (BAM).</p> <p>Local Government and State authorities operating under Part 5 of the EP&A Act have the option to opt in to the Act. In the case of Cessnock City Council they have not opted in, and this report addresses all other biodiversity assessment requirements under the Act. The site is part mapped on the Biodiversity Values Map.</p>	<p>This MWREF addresses the requirements under this Act. A Biodiversity/ecological site assessment has occurred (Appendix 3) which found no significant impact over any threatened species, critical habitat, endangered populations or ecological communities, as no native vegetation clearing proposed.</p> <p>No Endangered Ecological Communities, and no threatened flora and fauna species listed under the BC Act were identified in the study area, however habitat is present for threatened fauna, and safeguards are recommended to reduce environmental impacts.</p>
<i>Contaminated Land Management Act 1997</i>	<p>This Act gives provisions for the management of land that is affected by contamination.</p> <p>The general object of this Act is to establish a process for investigating and (where appropriate) remediating land that the EPA considers to be</p>	<p>A database search was carried out of the NSW DPIE contaminated lands register which found no sites are registered as contaminated in this area.</p> <p>This MWREF addresses the requirements under this Act.</p>

	contaminated significantly enough to require regulation under Division 2 of Part 3.	
<i>Fisheries Management Act 1994</i>	NSW DPI is the consent authority for works within mapped Key Fish habitat area, or Mangrove/Seagrass removal. Under the FM Act 1994 a Part 7 Permit is required if proposed works are in a Key Fish habitat area, or impact upon seagrasses/mangroves/marine vegetation.	This MWREF addresses the requirements under this Act. No Fisheries Habitat creek is present, and therefore proposed works conform to the Fisheries Management Act.
<i>Heritage Act 1997</i>	A relic is defined as any item relating to European settlement that is older than 50 years. Approval is required from the Heritage Council of NSW to disturb or excavate any land where the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. Under Section 139 an excavation permit must be obtained from the NSW Heritage Office for the excavation or disturbance of a relic.	<p>Known non-indigenous heritage items are present close to and over the site & may be disturbed by the proposal.</p> <p>#</p> <p>The Act also contains stop works provisions if any relic or other heritage items are uncovered on site.</p> <p>Heritage Now undertook a survey and report and stated “<i>The Project Area is located partly within the curtilage of the Great North Road, between Mt Manning and Wollombi, which is listed in on the State Heritage Register (Item ID 01138). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (I217), Hawkesbury Local Environmental Plan 2012 (I0091), and Gosford Local Environmental Plan 2014 (60). In addition, the proposed works are within the vicinity of the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (Dossier 917/Place ID 105127) and the National Heritage List (Place ID 105999).</i></p> <p><i>The works within the State Heritage Register curtilage will require a further heritage approval (likely Section 60) from the Heritage Council of NSW. A Statement of Heritage Impact for a Section 60 application will need to be prepared which specifically addresses the Section 60 requirements, as well as the finalised road design. The Section 60 Approval will be needed before works can commence”.</i></p> <p>This approval was received, and has been included as a requirement (Table 5). Note a S65A Application- Modification of Existing Works was sought as project changed. An approval was received in 2024 from DCCEEW.</p>
<i>National Parks and Wildlife Act 1974.</i>	<p>Under the National Parks and Wildlife Act it is an offence to harm threatened species; buy, sell or possess threatened species; damage critical habitat; or damage the habitat of a threatened species without the issuing of a Section 120 licence.</p> <p>If any identified archaeological sites or remains need to be removed or destroyed, an approval will be required from the Director-General of the NPWS</p>	<p>An AHIMS search was carried out by Heritage Now which found no recorded AHIM sites within the project footprint. Site is previously disturbed/road & road shoulder/cleared.</p> <p>Heritage NOW also undertook an Aboriginal due diligence assessment and found “<i>As long as the proposed works are restricted to the Project Area, there is low risk of harm to Aboriginal objects and values as a</i></p>

	under Section 87(1) of the National Parks and Wildlife Act, 1974 prior to commencement. Under Section 90(2) of the same Act, approvals from the Director-General will be required for a 'Consent to Destroy' permit.	<i>result of the proposed works, and thus an AHIP application is not required</i> ".
<i>Native Title Act 1993</i>	<p>Native Title is how Australian law recognizes the rights and interests that Aboriginal people and Torres Strait Islanders hold in the land and waters under their traditional laws and customs.</p> <p>The objects of the Native Title Act are to:</p> <ul style="list-style-type: none"> • Provide recognition and protection of native title; • Establish ways in which future dealings affecting native title may proceed and to set standards for those dealings; • Establish a mechanism for determining claims to native title; and • Provide for, or permit, the validation of past acts invalidated because of the existence of native title. <p>Due to recent changes in NSW Crown land legislation, the <i>Crown Land Management Act 2016</i> now requires Council to comply with the Native Title Act for all acts that occur on Crown land that Council manages. This legislation also requires each Council to employ a Native Title Manager that undertakes the assessment of these acts to ensure compliance with the Native Title Act.</p> <p>Advice is required on all Crown land Council manages regardless if native title has been determined or not. An assumption is made that native title could be determined in the future and therefore compliance with the Native Title Act is required for all activities. To ensure compliance native title manager advice will need to be sought during the project process.</p>	The subject site is located over Crown Land (road reserve), managed by Transport for NSW. It is not managed by Council and is understood that a land title claim can not be lodged over crown land as it is road reserve, and is operational land in use. No further requirements under this Act.
<i>Roads Act 1993.</i>	Under this act, approval is required from the Roads and Maritime or relevant Council for development that affects a public road, Crown road, highway, main road, freeway or tollway.	As Cessnock City Council is the determining authority for the proposal as a local road, additional approval under this act is not required.
<i>Water Management Act 2000</i>	Under clause 344(1)(a), a person must not carry out a controlled activity in, on or under waterfront land otherwise than in accordance with a controlled activity approval.	Clause 39A(1) of the WMA (General) Regulation 2004 states that public authorities (other than Landcom) are exempt from Section 344 (1)(a) of the Act in relation to all controlled activities that they carry out in, on or under waterfront land. Cessnock City Council is exempt from requiring approval under the Act. No controlled activity approval is required.
<i>Biosecurity Act 2018</i>	No permits or approval required but responsibility on land owner for removal and proper disposal of Priority weeds.	Priority weeds were not found over the site. If found then they should be controlled by Council over the road reserve.
<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>	This SEPP aims to facilitate the effective delivery of infrastructure across the state, including for roads and road infrastructure facilities. Section 2.109 of the SEPP provides that development for the purposes of a road or road infrastructure facility may be undertaken by a public authority on any land.	As the proposed works are appropriately characterised as development for the purposes of a road or road infrastructure facilities, and is to be carried out by or on behalf of Cessnock City Council, it can be assessed under Part 5 of the EP&A Act. Development consent from council is not required.

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2.4 Community and agency consultation

ISEPP consultation:

Section 2.1 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* contains provisions for consultation with councils regarding development with impacts on council-related infrastructure or services. It applies to development carried out by or on behalf of a public authority. This is detailed below:

Is consultation with council required under clauses 13-15 of the Infrastructure SEPP?		
No, as Council is the proponent & consent authority for these works. All consultation carried out internally within Council. Consultation has also occurred with other adjoining Councils including Central Coast Council and Hawkesbury. The funding grant however was approved through Transport for NSW.		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the works likely to generate traffic to an extent that will strain the existing road system in a local government area?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
A temporary compound & stockpile site is proposed over an existing compound/stockpile site. This will not cause any more than a minor or inconsequential disruption to pedestrian or vehicular flow. No impact upon native vegetation, and road to remain open.		
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
The works will involve excavation of a road & batter (no adjacent footpaths present). The road, council verge and any private property surrounds will be reinstated post works.		
The works will be completed in sections and one lane will be open for traffic. Hence, road closures and detours are not anticipated. Management of traffic with e.g. Temporary traffic lights etc. will be implemented.		
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the item/area are more than minor or inconsequential?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Heritage items are present, being State & Federally listed (not local). See Section 3.5. Impacts are not anticipated.		
Is consultation with other agencies required under clause 16 of the Infrastructure SEPP?		
Are the works adjacent to a national park, nature reserve or other area reserved under the <i>National Parks and Wildlife Act 1974</i> ? Yes, adjacent to Yengo NP (Fig 1 & 2). Consultation has been undertaken with NPWS.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are the works adjacent to a declared aquatic reserve under the <i>Fisheries Management Act 1994</i> ?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the works adjacent to a declared marine park under the <i>Marine Parks Act 1997</i> ?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the works in the Sydney Harbour Foreshore Area as defined by the <i>Sydney Harbour Foreshore Authority Act 1998</i> ?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Do the works involve the installation of a fixed or floating structure in or over navigable waters?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Other agency and community consultation:

Agency consultation"

National Parks & Wildlife Service

Yengo National Park is located adjacent to the site (Fig 1 & 2). Consultation was undertaken with NPWS, who stated:

I have reviewed all the documentation sent to NPWS by yourself (in several emails) regarding the road widening project at the corner of George Downes Drive and Great North Road at Bucketty.

I believe you have covered the environmental and historic heritage issues on the site regarding Yengo National Park and there is no impact to Yengo National Park. The documents detail the proposed removal of 1 tree which is located close to the Yengo NP boundary and I believe it is within the road reserve.

Thanks for the opportunity to review the documents.

Regards, Sarah

Sarah Brookes

Ranger Dharug and Yengo National Parks, Parr State Conservation Area
World Heritage Listed Old Great North Road
Wollemi Yengo Area
Blue Mountains Branch
NSW National Parks and Wildlife Service
Dharug and Darkinjung Country

9 Walkers Ridge Road, Bucketty NSW 2250
T 02 6574 5520
M 0417 716 523

Transport for NSW

George Downes Drive & Great Northern Road are State roads, managed by Council in consultation with TfNSW.

Council has undertaken regular consultation and reporting with TfNSW.

Department of Climate Change, Energy, the Environment and Water (DCCEEW)

Cessnock City Council and Heritage Now undertook extensive consultation with DCCEEW. Approvals were gained in 2024 for the SOHI and modified SOHI.

Community consultation

Council will undertake consultation:

- Letter drop;
- Council website update;
- Social media update e.g. Facebook page;
- Weekly circular;
- Direct consultation with residents where boundary lines/driveways/fences are affected.

3 ENVIRONMENTAL ASSESSMENT

This section provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environment potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in clause 171 of the *Environmental Planning and Assessment Regulation 2021* and matters of national environmental significance under the Federal *Environment Protection and Biodiversity Conservation Act 1999* are also considered in section 5. Site-specific safeguards are provided to ameliorate the identified potential impacts.

3.1 Soil

Description of existing environment and potential impacts:

Are there any known occurrences of salinity or acid sulfate soils in the area?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the project involve the disturbance of large areas (eg >2ha) for earthworks?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
The site is located over batters, with some being steep. Safeguards to control erosion & sediment runoff will manage erosion & sediment control.		
Are there any sensitive receiving environments that are located in or nearby the likely project footprint or that would likely receive stormwater discharge from the project? Sensitive receiving environments include (but are not limited to) wetlands, state forests, national parks, nature reserves, rainforests, drinking water catchments. There are creeks and riparian zones located off site, but not near the proposed works. There may be minor impact over ecosystems from runoff/sediment whilst construction occurs, however safeguards will mitigate this impact.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is there any evidence within or nearby the likely footprint of potential contamination?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the likely project footprint in or nearby highly sloping landform? The site is located over batters, with some being steep. Safeguards to control erosion & sediment runoff will manage erosion & sediment control.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are the works likely to result in more than 2.5ha (area) of exposed soil?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

Erosion and sediment control measures are to be implemented and maintained to:

- S1. Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets.
- S2. Reduce water velocity and capture sediment on site.
- S3. Minimise the amount of material transported from site to surrounding pavement surfaces.
- S4. Divert clean water around the site (in accordance with the Landcom/Department of Housing *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book)).

- S5. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.
- S6. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised.
- S7. The maintenance of established stockpile sites during is to be in accordance with Roads and Maritime's *Stockpile Site Management Guideline (2011)*.
- S8. Disposal of spoil would be in accordance with the POEO Act 1997 Waste Classification Guidelines.
- S9. Stabilise verge, table drains, private property and disturbed batters.
- S10. Any temporary access tracks, compound or stockpile sites required for construction to be removed upon completion and allowed to regenerate/restored back to existing condition.

3.2 Waterways and water quality

Description of existing environment and potential impacts:

Are the works located within, adjacent to, or near a waterway?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
There are no creeks or riparian zones located over the work site, or within 100m of it. (Fig 4). There may be minor impact over ecosystems off site however from runoff/sediment whilst construction occurs, however safeguards will mitigate this impact.		
Is the location known to flood or be prone to water logging?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works located within or immediately adjacent to the area managed by Sydney Catchment Authority covered by <i>State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011</i> ?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Mangrove Creek drinking water dam is located to the south, managed by Central Coast Council.		
Will the proposed works be undertaken on a bridge or ferry?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the works likely to require the extraction of water from a local water course (not mains)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

- W1. There is to be no release of dirty water into drainage lines and/or waterways from the subject site.
- W2. Water quality control measures are to be used to prevent any materials (eg. concrete, grout, sediment etc) entering drain inlets or waterways.
- W3. Potable water is used for wash down.
- W4. Excess debris from cleaning and washing is removed using hand tools.
- W5. Cleaning of spray bars (or equivalent equipment) is to occur in suitable areas (e.g. not table drains) and not cause water pollution.
- W6. Vehicle wash down and/or cement truck washout is to occur in a designated bunded area.
- W7. An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and trained in its use.
- W8. If a spill occurs, the Cessnock City Council Project Manager and NSW DPE Environment Hotline (131 555) notified as soon as practicable.

3.3 Noise and vibration

Description of existing environment and potential impacts:

Are there any residential properties or other noise sensitive areas near the location of the proposed works that may be affected by the works (i.e. church, school, hospital):		
During construction?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Residential dwellings are not located within 100m of the site. It is not anticipated that possible loud noise will be generated, as jackhammers or similar equipment are proposed for use for rock excavation. General construction noise anticipated.		
During operation?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance? The works will involve excavation of a roadside (no adjacent footpaths present). The road, council verge and private property surrounds will be reinstated post works.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are the proposed works going to be undertaken only during standard working hours? Standard work hours for Cessnock City Council are 0700 to 1900 hrs Monday to Friday, 0800 to 1300 hrs Saturdays and no work Sundays and Public Holidays.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is any explosive blasting required for the proposed works?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will operation of the works alter the noise environment for sensitive receivers? This might include, but not be limited to, altering the line or level of an existing carriageway, changing traffic flow, increasing traffic speeds by more than 10km/hr or installing audio-tactile line markings.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the works result in vibration being experienced by any surrounding properties or infrastructure (during either construction or operation)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

- N1. Noise impacts are to be minimised in accordance with *DECC Interim Construction Noise Guidelines 2009, Practice Note vii in the Roads and Maritime's Environmental Noise Management Manual* and *Roads and Maritime's Environmental Fact Sheet No. 2- Noise Management and Night Works*.
- N2. Switch off machinery when it is not in use.

3.4 Air quality

Description of existing environment and potential impacts:

Are the proposed works likely to result in large areas (>2ha) of exposed soils?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will there be any dust sensitive receivers located within the vicinity of the proposed works during the construction period? Potential minor dust emissions over Heritage Convict Trail Park within Yengo National Park off Great Northern Rd adjacent to site.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is there likely to be an emission to air during construction? Minor emissions from plant exhaust, and dust, would be expected.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Are any other ancillary facilities required (eg temporary plants, parking areas, access tracks)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

All parking to be in or near compound site, or over public roads.		
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Safeguards

Safeguards to be implemented are:

- A1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust.
- A2. Works (including the spreading of lime/ spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.
- A3. Vegetation or other materials are not to be burnt on site.
- A4. Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.

3.5 Non-Aboriginal Heritage

Description of existing environment and potential impacts:

<p>Have online heritage database searches been completed?</p> <ul style="list-style-type: none"> • RTA section 170 register – No listing. • NSW Heritage database – Listed. • Commonwealth EPBC heritage list – Listed. • Australian Heritage Places Inventory – Listed. • Local Environmental Plan(s) heritage items – Listed. <p>Items of heritage are located within the project study area (Fig 4). Reports have been undertaken by Heritage Now addressing these.</p>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<p>Are there any items of non-Aboriginal heritage or heritage conservation areas located within the vicinity of the proposed works?</p> <p>Items of heritage are located within the project study area (Fig 4). The site has been assessed by Heritage Now, 2023 & 2024, who state in their report (Appendix 4):</p> <p><i>The Project Area currently overlaps with the curtilage of World, National, State and local heritage listings associated with the Great North Road; a 240 km road constructed between 1826 and 1836 by convict labour to provide an overland route from Sydney to the Hunter Valley. Furthermore, a portion of the Project Area also overlaps with the curtilage of the World Heritage listed Greater Blue Mountains Area (which is listed for its natural heritage values).</i></p> <p><i>The eastern portion of the Project Area is not heritage listed and not historic heritage has been identified in this area. The central and western portion of the Project Area is subject to multiple heritage listings, including State and local listings, as well as a small overlap with a world heritage and national listing. These listings are associated with the Blue Mountains Area as well as the Old North Road, associated with early convicts.</i></p> <p><i>The site inspection identified evidence of structures associated with the Old North Road outside the Project Area, however, it is possible that additional evidence is contained below the current road surfaces.</i></p> <p><i>Works will be avoiding the World Heritage and National Heritage Curtilage Area, with works only occurring within the existing road</i></p>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

<p>corridor.</p> <p><i>There will be road widening works within the northern portion of the Project Area and this needs to be subject to a detailed archaeological assessment as they appear to overlap with the original alignment of the Great North Road in this section.</i></p> <p><i>Currently much of the works are within the State Heritage Register curtilage will likely require a further heritage permit (likely Section 60 approval) from the Heritage Council of NSW.</i></p> <p>A SOHI & a S65A Modification Application (13th Sept 2024) has been prepared by Heritage Now (Appendix 6 & 7). This stated in summary:</p> <p><i>While the proposed works will not physically impact on elements of the Great North Road identified as having exceptional and high significance, they will have a minor adverse visual impact on the bush setting, and views of the heritage items. The proposal will impact sections of sandstone retaining wall; the stabilisation will require removal of selected trees. There will be some temporary minor visual impacts to the bush setting of the Project Area during construction activities. The proposed works are not considered likely to have a significant impact on the heritage values of the Greater Blue Mountains Area; and as such a referral under the EPBC Act is not required.</i></p> <p><i>Recommendation 1</i> <i>Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require an approval under section 65A of the Heritage Act 1977 to modify the section 60 works application. This approval is needed prior to commencement of works within the Project Area.</i></p> <p><i>Recommendation 2</i> <i>A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the Heritage Act 1977 (NSW), including:</i></p> <ul style="list-style-type: none"> <i>· The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area</i> <i>· Protocols that apply to their protection, including fencing and 'no go' areas</i> <i>· Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area.</i> <p><i>Recommendation 3</i> <i>A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP. and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.</i></p> <p><i>Recommendation 4</i> <i>To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a No Go area between the works area and Archaeological Area 1 and the stone culvert (Structure No 3), and the sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.</i></p>		
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<p><i>Recommendation 5</i> Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop at McQuoid/Bucketty during works.</p> <p><i>Recommendation 6</i> In the event that an archaeological feature or deposit that is potential relic is uncovered during pre-construction and construction works the following Unexpected Finds Procedure is to be implemented:</p> <ul style="list-style-type: none"> • Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor. • The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance. • The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing. • Heritage mitigations will be implemented appropriate to the assessed significance of the find. • If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program. 		
<p>Are works likely to occur in or near features that indicate potential archaeological remains?</p> <p>As discussed works are located near the features identified above.</p>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

The works within the State Heritage Register curtilage will require a further heritage approval (likely Section 60) from the Heritage Council of NSW. A Statement of Heritage Impact for a Section 60 application has been prepared which specifically addresses the Section 60 requirements, as well as the finalised road design. A further S65A Modification SOHI was prepared by Heritage Now in Sept 2025, which has been approved.

Recommendations from the SOHI Modification, Sept 2025 are adopted here.

- H1. Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require an approval under section 65A of the Heritage Act 1977 to modify the section 60 works application. This approval is needed prior to commencement of works within the Project Area.
- H2. A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the Heritage Act 1977 (NSW), including:
 - The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area.
 - Protocols that apply to their protection, including fencing and 'no go' areas.
 - Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area.
- H3. A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP, and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.
- H4. To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a No Go area between the works area and Archaeological Area 1 and the stone culvert (Structure No 3), and the sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.

- H5. Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop at McQuoid/Bucketty during works.
- H6. In the event that an archaeological feature or deposit that is potential relic is uncovered during pre-construction and construction works the following Unexpected Finds Procedure is to be implemented:
- Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor.
 - The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance.
 - The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing.
 - Heritage mitigations will be implemented appropriate to the assessed significance of the find.
 - If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program.

3.6 Aboriginal Heritage

Description of existing environment and potential impacts:

<p>Would the works involve disturbance in any area that has not been subject to previous ground disturbances?</p> <p>The existing road shoulder and batters are disturbed, with road excavation having occurred in the past. It is not considered natural ground.</p>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<p>Have online AHIMS search been completed?</p> <p>No recorded sites within subject site search area (refer Appendix 2).</p>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<p>Is there potential for the proposed works to impact on any items of Aboriginal heritage?</p> <p>Heritage Now, 2023 (Appendix 5) have undertaken a due diligence survey of the site and state:</p> <p><i>A small portion of the Project Area overlaps with the curtilage of The Greater Blue Mountains Area, which is a declared place on the World Heritage List and a listed place on the National Heritage List. Although it classed as a natural heritage place, the exceptional biodiversity values of this area are complemented by other values, including Indigenous cultural values.</i></p> <p><i>As long as the proposed works are restricted to the Project Area, there is low risk of harm to Aboriginal objects and values as a result of the proposed works, and thus an AHIP application is not required. Works may proceed with caution in accordance with the recommendations below.</i></p> <p>There is considered a very low potential due to previous disturbance. Safeguards if implemented will manage any unrecorded Aboriginal objects.</p>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<p>Would the works involve the removal of mature native trees?</p> <p>One – two mature trees may be removed. They have no scarring or canoe or any other Aboriginal caused features. No AHIMS site records.</p>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<p>Would the works impact on any features that may indicate any potential archaeological remains?</p>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

The road and road shoulder has been excavated in the past. It therefore has low potential for archaeological remains, being previously disturbed.		
Are the works consistent with the requirements of the <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> , Part 6 National Parks and Wildlife Act 1974, (DECCW 2010)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
The site is considered disturbed, and is consistent with the <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i>		

Safeguards to be implemented are:

- A1. All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act 1979 (NPW Act). This includes protection of Aboriginal sites (including Aboriginal objects and places), and the requirement to report the discovery of any newly identified Aboriginal sites. This may be done through an on-site induction or other suitable format. As part of this induction, it should be emphasised that works are permitted only within the Project Area as illustrated in this report, as outside this Project Area boundary, it is less disturbed and there is a high likelihood of archaeological sites..
- A2. In the unlikely event that Aboriginal, or suspected Aboriginal archaeological material is uncovered during the proposed works, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the heritage consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the NPW Act and advise on the required management and mitigation measures. Works are not to recommence in the cordoned off area until heritage clearance has been given and/or the required management and mitigation measures have been implemented. If suspected human remains are identified, work must cease immediately in the vicinity of the remains and the area must be cordoned off. The proponent must contact the local NSW Police who will make an initial assessment as to whether the remains are part of a crime scene or possible Aboriginal remains. If the remains are thought to be Aboriginal, NSW DPE must be contacted by ringing the Enviroline 131 555. An NSW DPE officer will determine if the remains are Aboriginal or not; and a management plan must be developed in consultation with the relevant Aboriginal stakeholders before works recommence.
- A3. In the unlikely event that human remains, or suspected human remains are uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the NSW Police to establish whether the area is a crime scene. If it is not a crime scene, then Heritage NSW is to be notified via the Environment Line on 131 555 and management measures are to be devised in consultation with the local Aboriginal community. Works are not to recommence in the area until the management measures have been implemented.

3.7 Biodiversity

Description of existing environment and potential impacts:

Have relevant database searches been carried out? • Office of Environment and Heritage Bionet Wildlife Atlas (which also references Commonwealth EPBC species) –refer Appendix 3.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna within the vicinity of the proposed works? Yes, threatened species are listed on the Bionet Atlas for a 100km ² local search area (Appendix 3).	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Will the proposed works require the removal of any vegetation? Impact area is around 400m ² .	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Will the proposed works affect any tree hollows or hollow logs?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are there any known areas of critical habitat, <i>Coastal Management SEPP</i> wetland area or littoral rainforest area within the vicinity of the proposed works?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the proposed works provide any additional barriers to the movement of wildlife?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the proposed works disturb any natural waterways or aquatic habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the proposed works disturb any crevices or other locations (such as on bridges and culverts) for potential bat habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will there be impact on any vegetation or land that is part of an offset or is protected under a condition of approval from a previous project?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

A Biodiversity Report was undertaken by PEAK LAND MANAGEMENT, 2023, and updated in March 2025 (Appendix 2). It found in summary:

This assessment has found that there is no significant threat or impact on any local species, population or ecological communities under the *EP&A Act 1979*, *BC Act 2016*, *Fisheries Management Act 1994*, and federal *EPBC Act 1999* legislation. The proposed works do constitute a threatening process.

The following recommendations if adopted will reduce the environmental impact:

- *Design road widening to reduce impact on remnant road side vegetation, particularly retaining larger trees and hollow bearing trees where feasible. Use of wire rope, guard rail, or similar, to allow reduced safety clearzone widths, is recommended.*
- *Overhanging branches greater than 6m in height above the road should be retained as they provide for arboreal mammal crossing/glide points, including the threatened Yellow Bellied Glider;*
- *All trees to be removed should be clearly flagged/painted with surveyors flagging tape/paint dot;*
- *Wombat burrow to be retained natural & not disturbed.*
- *No exotic grasses or other plants with weed potential should be introduced to the site.*
- *Allow creek lines and other roadside native vegetation to regenerate back to natural vegetation when works complete by removing all waste, temporary structures, etc. It should then regenerate naturally.*
- *No pollutant or other non natural substances allowed to enter creek water system.*
- *Ensure the construction and final works proposed will not dredge/disturb/block free fish passage within the unnamed creek. No filling, weirs, tracks, etc allowed within the creek bed.*
- *Ensure compound/stockpile site is located away from any trees/Endangered Ecological Communities, and not within the dripline of large trees.*
- *All batter/bare ground stabilisation/hydro mulching if used should use a local native grass seed mix using species endemic to this area such as those listed in Appendix 1 under native grasses or allow natural regeneration of native flora if to be returned back to natural vegetation;*
- *Priority weeds should be controlled/eradicated where feasible, and weeds controlled after works have been completed on an ongoing basis to prevent reinfestation in accordance with Biosecurity Act;*
- *Erect silt fencing round all site works in accordance with council erosion and sediment control policy, with in stream work carried out during dry forecast periods only.*

Safeguards

Safeguards to be implemented are:

- F1. . Design road widening to reduce impact on remnant road side vegetation, particularly retaining larger trees and hollow bearing trees where feasible. Use of wire rope, guard rail, or similar, to allow reduced safety clearzone widths, is recommended.

- F2. Overhanging branches greater than 6m in height above the road should be retained as they provide for arboreal mammal crossing/glide points, including the threatened Yellow Bellied Glider;
- F3. All trees to be removed should be clearly flagged/painted with surveyors flagging tape/paint dot;
- F4. Wombat burrow to be retained natural & not disturbed.
- F5. No exotic grasses or other plants with weed potential should be introduced to the site.
- F6. Allow creek lines and other roadside native vegetation to regenerate back to natural vegetation when works complete by removing all waste, temporary structures, etc. It should then regenerate naturally.
- F7. No pollutant or other non natural substances allowed to enter creek water system.
- F8. Ensure the construction and final works proposed will not dredge/disturb/block free fish passage within the unnamed creek. No filling, weirs, tracks, etc allowed within the creek bed.
- F9. Ensure compound/stockpile site is located away from any trees/Endangered Ecological Communities, and not within the dripline of large trees.
- F10. All batter/bare ground stabilisation/hydro mulching if used should use a local native grass seed mix using species endemic to this area such as those listed in Appendix 1 under native grasses or allow natural regeneration of native flora if to be returned back to natural vegetation;
- F11. Priority weeds should be controlled/eradicated where feasible, and weeds controlled after works have been completed on an ongoing basis to prevent reinfestation in accordance with Biosecurity Act;
- F12. Erect silt fencing round all site works in accordance with council erosion and sediment control policy, with in stream work carried out during dry forecast periods only.

3.8 Trees

Description of existing environment and potential impacts:

Do the proposed works involve pruning, trimming or removal of any tree/s?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
See Appendix 2 for area of disturbance.		
Do the trees form part of a streetscape, an avenue or roadside planting?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Have the trees been planted by a community group, landcare group or by council or is the tree a memorial or part of a memorial group eg. has a plaque?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Do the trees form part of a heritage listing or have other heritage value?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

T1: Protect all native trees adjacent to works site.

3.9 Traffic and transport

Description of existing environment and potential impacts:

Are the proposed works likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Minor traffic disruptions whilst work is undertaken. One lane will be open for traffic. Hence, road closures and detours are not anticipated. Management of traffic with e.g. Temporary traffic lights etc. will be implemented.		
Are the proposed works likely to affect any other transport nodes or transport infrastructure (eg bus stops, bus routes) in the surrounding area, or result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

1. Where possible, current traffic movements are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays.

3.10 Socio-economic

Description of existing environment and potential impacts:

Are the proposed works likely to impact on local business?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to require any property acquisition?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to alter any access for properties (either temporarily or permanently)? Access would be maintained at all times to local properties & Yengo National Park unless agreement from the property owner is obtained.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to alter any on-street parking arrangements (either temporarily or permanently)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to change pedestrian movements or pedestrian access (either temporarily or permanently)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to impact on any items or places of social value to the community (either temporarily or permanently)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

- C1. Where possible, current traffic movements are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays.
- C2. Access would be maintained at all times to local properties unless agreement from the property owner is obtained.

3.11 Landscape character and visual amenity

Description of existing environment and potential impacts:

Are the proposed works over or near an important physical or cultural element or landscape? (heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc)? The site is located adjoining Yengo National Park, and the World Heritage listed Greater Blue Mountains Area. No impact proposed, with disturbed road shoulders & batters, and works within road reserve.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Would the proposed works obstruct or intrude upon the character or views of a valued landscape or urban area. For example locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

400m2 of native vegetation to be removed, being predominately regrowth along road edges, although some larger non hollow bearing trees impacted.		
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Would the proposal involve new noise walls or visible changes to existing noise walls?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Would any new structures or features being constructed result in over shadowing to adjoining properties or areas?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

L1. Maintain visual amenity around the compound and stockpile site.

3.12 Waste

Description of existing environment and potential impacts:

Are the proposed works likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the proposed works likely to require a licence from NSW DPE?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Safeguards

Safeguards to be implemented are:

M1. Resource management hierarchy principles are to be followed:

- Avoid unnecessary resource consumption as a priority.
 - Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery).
 - Disposal is undertaken as a last resort.
- (in accordance with the *Waste Avoidance & Resource Recovery Act 2001*)

M2. Waste is not to be burnt on site.

M3. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed.

M4. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.

M5. Remove spoil from site and dispose at a licenced waste facility or premises licenced/approved to accept such material.

4.0 CONSIDERATION OF STATE AND COMMONWEALTH ENVIRONMENTAL FACTORS

4.1 Environmental planning and assessment regulation, 2021 checklist

The following factors listed in clause 171 of the *Environmental Planning and Assessment Regulation, 2021* have also been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 5.5 of the *Environmental Planning and Assessment Act 1979*.

Table 2: Compliance with Clause 171 of the EP&A Regulation 2021 and Clause 5.10(a) of the EP&A Act, 1979.

Environmental Factor	Impacts
(a) Any environmental impact on a community? The proposed works will cause positive socio economic on the community in the long-term being achieved through a safer road being provided.	Positive (+) long term
(b) Any transformation of a locality? The proposed works are not expected to have any impact and locality will look similar to existing environment.	No impact
(c) Any environmental impact on the ecosystems of a locality? The proposed works are expected to have a very low negative impact on habitat for threatened species. The implementation of the safeguards given in Section 3 of this MWREF will reduce these impacts.	Very Low negative impact
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? The proposed works will have a low negative impact on environmental quality.	Negative impact
(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present generations? The proposed works would not affect any locality, place or building of significance or other special value for present or future generations.	No impact
(f) Any impact on habitat of any protected fauna (within the meaning of the National Parks and Wildlife Act 1974)? The proposed works would impact on the habitat of protected and endangered fauna. This is based upon all safeguards given in Section 3 of this MWREF being implemented.	Low negative impact
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposed works are anticipated to have a low impact on flora & fauna. This is based upon all safeguards given in Section 3 of this MWREF being implemented.	Low negative impact
(h) Any long-term effects on the environment? The proposed works are anticipated to have a long-term effect on the environment. This is based upon all safeguards given in Section 3 of this MWREF being implemented.	Low negative impact
(i) Any degradation of the quality of the environment? No impact provided the implementation of the safeguards given in Section 3 of this MWREF occurs.	No impact.
(j) Any pollution of the environment? The proposed works would have negligible pollution impacts provided the implementation of the safeguards given in Section 3 of this MWREF occurs.	No impact.
(k) Any reduction in the range of beneficial uses of the environment?	No impact.
(m) Any environmental problems associated with the disposal of waste?	No impact

Spoil generated during the proposed works is expected be used on site, or if required disposed to a licenced waste facility or premises licenced/approved to accept such material.	
(n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? The proposed works would not significantly increase demands on resources, which are, or are likely to become, in short supply. Relatively small amounts of materials would be required for the proposed works. The safeguards listed in Section 3 of this MWREF would be implemented to minimise any impacts.	No impact
(o) Any cumulative environmental effect with other existing or likely future activities? No cumulative effect anticipated. This may be reduced provided the implementation of the safeguards given in Section 3 of this MWREF occurs.	No impact.

4.2 Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of Sustainability, Environment, Water, Population and Communities.

Table 3: Matters of National Environmental Significance assessment.

Factor	Impact
a. Any impact on a World Heritage property?	Nil
No impact anticipated over the Greater Blue Mountains World Heritage Area.	
b. Any impact on a National Heritage place?	Nil
No impact anticipated over the Greater Blue Mountains World Heritage Area.	
c. Any impact on a wetland of international importance?	Nil
d. Any impact on a listed threatened species or communities?	Very low
e. Any impacts on listed migratory species?	Very low
d. Any impact on a Commonwealth marine area?	Nil
g. Does the proposal involve a nuclear action (including uranium mining)?	Nil
h. Additionally, any impact (direct or indirect) on Commonwealth land?	Nil

5.0 SUMMARY OF SAFEGUARDS AND ENVIRONMENTAL MANAGEMENT MEASURES

This section provides a summary of the site specific environmental safeguards and management measures identified in described in section 3 and 4 of this REF. These safeguards will be implemented to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Cessnock City Council QA specifications. Any potential licence and/or approval requirements required prior to construction are also listed.

Table 4: Summary of site-specific safeguards for proposed works.

General	
<p>G1. If the scope of the works changes at any time, review under the Cessnock City Council Environmental Assessment procedures to determine any new measures to take.</p> <p>G2. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas, and existing cleared roadside verge areas. Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees.</p>	
Soil	<p>S1. Erosion and sediment control measures are to be implemented and maintained to:</p> <ul style="list-style-type: none"> • Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets. • Reduce water velocity and capture sediment on site where feasible including underwater sediment from piling where feasible. • Minimise the amount of material transported from site to surrounding aquatic ecosystems (also see safeguards under Water Quality). <p>S2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.</p> <p>S3. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised.</p> <p>S4. The maintenance of established stockpile sites during is to be in accordance with Roads and Maritime's <i>Stockpile Site Management Guideline (2011)</i>.</p> <p>S5. Disposal of spoil would be in accordance with the POEO Act 1997 & EPA Waste Classification Guidelines.</p> <p>S6. Any temporary access tracks/compound/stockpile sites required for construction to be removed upon completion and allowed to regenerate/restored back to existing condition.</p>
Waterways and water quality	<p>W1. There is to be no release of dirty water into drainage lines and/or waterways from the subject site.</p> <p>W2. Water quality control measures are to be used to prevent any materials (eg. Concrete, grout, sediment etc) entering drain inlets or waterways.</p> <p>W3. Potable water is used for wash down.</p> <p>W4. Excess debris from cleaning and washing is removed using hand tools.</p> <p>W5. Cleaning of spray bars (or equivalent equipment) is to occur in suitable areas (e.g. not table drains) and not cause water pollution.</p> <p>W6. Vehicle wash down and/or cement truck washout is to occur in a designated bunded area.</p> <p>W7. An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and trained in its use.</p> <p>W8. If a spill occurs, the Cessnock City Council Project Manager and NSW DPE Environment Hotline (131 555) notified as soon as practicable.</p>
Noise and vibration	<p>N1. Noise impacts are to be minimised in accordance with <i>DECC Interim Construction Noise Guidelines 2009, Practice Note vii in the Roads and Maritime's Environmental Noise Management Manual</i> and <i>Roads and Maritime's Environmental Fact Sheet No. 2- Noise Management and Night Works</i>.</p>

	N2. Switch off machinery when it is not in use.
Air quality	<p>A1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust.</p> <p>A2. Works (including the spreading of lime/ spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.</p> <p>A3. Vegetation or other materials are not to be burnt on site.</p> <p>A4. Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.</p>
Non-Aboriginal Heritage	<p>H1. Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require an approval under section 65A of the Heritage Act 1977 to modify the section 60 works application. This approval is needed prior to commencement of works within the Project Area.</p> <p>H2. A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the Heritage Act 1977 (NSW), including:</p> <ul style="list-style-type: none"> • The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area. • Protocols that apply to their protection, including fencing and 'no go' areas. • Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area. <p>H3. A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP. and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.</p> <p>H4. To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a No Go area between the works area and Archaeological Area 1 and the stone culvert (Structure No 3), and the sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.</p> <p>H5. Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop at McQuoid/Bucketty during works.</p> <p>H6. In the event that an archaeological feature or deposit that is potential relic is uncovered during pre-construction and construction works the following Unexpected Finds Procedure is to be implemented:</p> <ul style="list-style-type: none"> • Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor. • The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance. • The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing. • Heritage mitigations will be implemented appropriate to the assessed significance of the find. • If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program.
Aboriginal Heritage	<p>A1. All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act 1979 (NPW Act). This includes protection of Aboriginal sites (including Aboriginal objects and places), and the requirement to report the discovery of any newly identified Aboriginal sites.</p>

	<p>This may be done through an on-site induction or other suitable format. As part of this induction, it should be emphasised that works are permitted only within the Project Area as illustrated in this report, as outside this Project Area boundary, it is less disturbed and there is a high likelihood of archaeological sites.</p> <p>A2. In the unlikely event that Aboriginal, or suspected Aboriginal archaeological material is uncovered during the proposed works, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the heritage consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the NPW Act and advise on the required management and mitigation measures. Works are not to recommence in the cordoned off area until heritage clearance has been given and/or the required management and mitigation measures have been implemented. If suspected human remains are identified, work must cease immediately in the vicinity of the remains and the area must be cordoned off. The proponent must contact the local NSW Police who will make an initial assessment as to whether the remains are part of a crime scene or possible Aboriginal remains. If the remains are thought to be Aboriginal, NSW DPE must be contacted by ringing the Enviroline 131 555. An NSW DPE officer will determine if the remains are Aboriginal or not; and a management plan must be developed in consultation with the relevant Aboriginal stakeholders before works recommence.</p> <p>A3. In the unlikely event that human remains, or suspected human remains are uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the NSW Police to establish whether the area is a crime scene. If it is not a crime scene, then Heritage NSW is to be notified via the Environment Line on 131 555 and management measures are to be devised in consultation with the local Aboriginal community. Works are not to recommence in the area until the management measures have been implemented.</p>
Biodiversity	<p>F1. . Design road widening to reduce impact on remnant road side vegetation, particularly retaining larger trees and hollow bearing trees where feasible. Use of wire rope, guard rail, or similar, to allow reduced safety clearzone widths, is recommended.</p> <p>F2. Overhanging branches greater than 6m in height above the road should be retained as they provide for arboreal mammal crossing/glide points, including the threatened Yellow Bellied Glider;</p> <p>F3. All trees to be removed should be clearly flagged/painted with surveyors flagging tape/paint dot;</p> <p>F4. Wombat burrow to be retained natural & not disturbed.</p> <p>F5. No exotic grasses or other plants with weed potential should be introduced to the site.</p> <p>F6. Allow creek lines and other roadside native vegetation to regenerate back to natural vegetation when works complete by removing all waste, temporary structures, etc. It should then regenerate naturally.</p> <p>F7. No pollutant or other non natural substances allowed to enter creek water system.</p> <p>F8. Ensure the construction and final works proposed will not dredge/disturb/block free fish passage within the unnamed creek. No filling, weirs, tracks, etc allowed within the creek bed.</p> <p>F9. Ensure compound/stockpile site is located away from any trees/Endangered Ecological Communities, and not within the dripline of large trees.</p> <p>F10. All batter/bare ground stabilisation/hydro mulching if used should use a local native grass seed mix using species endemic to this area such as those listed in Appendix 1 under native grasses or allow natural regeneration of native flora if to be returned back to natural vegetation;</p> <p>F11. Priority weeds should be controlled/eradicated where feasible, and weeds controlled after works have been completed on an ongoing basis to prevent reinfestation in accordance with Biosecurity Act;</p> <p>F12. Erect silt fencing round all site works in accordance with council erosion and sediment control policy, with in stream work carried out during dry forecast periods only.</p>

Trees	T1: Protect all trees adjacent to works site.
Traffic and transport	1. Where possible, current traffic movements are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays.
Socio-economic	C1. Where possible, current traffic movements are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays. C2. Access would be maintained at all times unless agreement from the property owner is obtained.
Landscape character and visual amenity	L1. Maintain visual amenity around the compound and stockpile site.
Waste	M1. Resource management hierarchy principles are to be followed: M2. Avoid unnecessary resource consumption as a priority. M3. Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery). M4. Disposal is undertaken as a last resort. (in accordance with the <i>Waste Avoidance & Resource Recovery Act 2001</i>) M5. Waste is not to be burnt on site. M6. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed. M7. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day. M8. Remove spoil from site and dispose at a licenced waste facility or premises licenced/approved to accept such material.

5.1 Licensing and approvals

List of licences and / or approvals required for the proposed works:

Table 5: Summary of licensing and approval required.

Requirement	Timing
MWREF	Prior to commencement of works
Section 60 & S65A Modification Approval from NSW State Heritage	Approved by DCCEEW, 6.11.2024. Works may commence. Approval valid for 5yrs.

6.0 CERTIFICATION, REVIEW AND DECISION

Certification

This Minor Works Review of Environmental Factors provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposal.

Prepared by:



Ted Smith
Managing Director/Principal Ecologist and Planner
PEAK LAND MANAGEMENT PTY LTD

Date: 3rd March, 2025.

Minor Works REF reviewed by:

Sean Wardman
Project Manager
Cessnock City Council

Environment staff review

The Minor Works REF has been reviewed and considered against the requirements of sections Clause 171 of the EP&A Regulation 2021 and Clause 5.10(a) of the EP&A Act, 1979.

In considering the proposal this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in the Minor Works REF and associated information. This assessment is considered to be in accordance with the factors required to be considered under clause 171 of the *Environmental Planning and Assessment Regulation, 2021* and Section 5.5 of the *Environmental Planning and Assessment Act 1979*.

The proposal described in the Minor Works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguard and management measures proposed, this assessment has considered that these impacts are unlikely to be significant and therefore an approval for the proposal does not need to be sought under Part 5.1 of the *Environmental Planning and Assessment Act 1979*. As there is heritage impact over a listed heritage item approvals have been sought and granted from DCCEEW (Heritage).

The assessment has considered the potential impacts of the activity on critical habitat and on threatened species, populations or ecological communities or their habitats for both terrestrial and aquatic species as defined by the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*.

The REF is considered to meet all relevant requirements.

Environment staff recommendation

It is recommended that the proposal as described in this Minor Works REF proceed subject to the implementation of all safeguards identified in the Minor Works REF and compliance with all other relevant statutory approvals, licences, permits and authorisations. The Minor Works REF has examined and taken into account to the fullest extent possible all matters likely to affect the environment by reason of the activity and established that the activity is not likely to significantly affect the environment. The REF has concluded that there will be no significant impacts on matters of national environmental significance or any impacts on Commonwealth land.

The REF determination will remain current for five years until October 2028 at which time it shall lapse if works have not been physically commenced.

Noted by:

Ramesh Somai
Project Manager
Cessnock City Council

Determination

In accordance with the above recommendation and sections 111 and 112 of the *Environmental Planning and Assessment Act 1979*, I determine that Cessnock City Council may carry out the proposal.

Design Delivery Manager
Cessnock City Council

7.0 REFERENCES

Auld, BA & Medd, RW 1987, *Weeds*. Inkata Press.

Brooker, MIH and Kleineg, 2006, *Field Guide to Eucalypts – South Eastern Australia, Volume 1*. Blooming Books.

Cropper, S 1993, *Management of Endangered Plants*, CSIRO, Victoria.

Department of Environment and Conservation 2004, *Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft)*, New South Wales Department of Environment and Conservation, Hurstville, NSW

Department of Sustainability, Environment, Water, Population and Communities 2010, *EPBC Act Fact Sheet*.

Department of Sustainability, Environment, Water, Population and Communities 2012, *Interim Koala Referral Guidelines*.

Fairley, A and Moore, P 2000, *Native Plants of the Sydney District*. Kangaroo Press.

Harden, G., 1995-2002, *Flora of NSW – Volumes 1-4*. UNSW Press.

Harden, G., McDonald, B., Williams, J., 2006, *Rainforest Trees and Shrubs. A field guide to their identification*. Ligare Book Printer.

Harden, G., Nicholson, H., McDonald, B. Nicholson, N., Tame, T., Williams, J. 2014, *Rainforest Plants of Australia*. Gwen Harden Publishing and Terania Rainforest Publishing.

Lower Hunter Central Coast Regional Environmental Management Strategy, 2002. *Flora and Fauna Survey Guidelines Lower Hunter Central Coast Region 2002, Volumes 1 & 2*.

Murray, M. And Bell, S. 2001. *Flora and Fauna Guidelines for LMCC*.

NSW DPE, 2020. *NSW Guide to Surveying Threatened Plants*. State of NSW.

NSW Government, *Biodiversity Assessment Method*, 2017. Office of Environment and Heritage.

NSW Government, *Biodiversity Assessment Method Calculator User guide*, 2017. Office of Environment and Heritage.

NSW Government, *Biodiversity Assessment Method Operational Manual-Stage 1*, 2018. Office of Environment and Heritage.

NSW Government, *Biodiversity Assessment Method Operational Manual-Stage 2*, 2019. NSW Department of Planning industry and Environment.

NSW Government, *Guidance to assist a decision-maker to determine a serious and irreversible impact*, 2017. Office of Environment and Heritage.

NSW Government, Transport Roads and Maritime Services, 2016. *Construction Noise and Vibration Guideline*.

Pizzey, G 1997, *Field Guide to the birds of Australia*. Angus and Robertson.

Richardson, F.J. *Weeds of the south-east: an identification guide for Australia (2nd ed)*; 2011. Everbest Printing.

Robinson, L. 2003 (3rd ed). *A field guide to the Plants of Sydney*. Kangaroo Press.

Triggs, B. 2004. *Tracks, scats and other traces*. Oxford University Press.

Wilson, S. And Swan, G; 2008 (2nd ed). *A complete guide to reptiles of Australia*. Everbest Printing.

Departmental References

Department of Environment and Climate Change NSW 2009, Interim Construction Noise Guidelines. .
NSW Department of Environment and Climate Change, Sydney, NSW.
Department of Environment, Water, Heritage and the Arts 2009, *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*.
Environment Protection Authority 1999, *Environmental Guidelines: Assessment, Classification, and Management of Liquid and Non Liquid Wastes*. NSW EPA.
Naylor, SD, Chapman, GA, Atkinson, G, Murphy CL, Tulau MJ, Flewin TC, Milford HB, Morand DT, 1998, *Guidelines for the Use of Acid Sulphate Soil Risk Maps*, 2nd ed., Department of Land and Water Conservation, Sydney.
Roads and Maritime 2011, *Environmental Impact Assessment Guidance Note (EIA-PO5-GO2)*
Roads and Maritime 2011, *Environmental Impact Assessment Template (EIA-PO5-GO2-TO3)*.
RTA 2008, *Waste Minimisation & Management Guidelines*. RTA, NSW.
RTA 1999, *Beyond the pavement. RTA Urban regional design and practice notes*.
RTA 2011, *Stockpile Site Guideline*. RTA, NSW.
RTA 2003, *Traffic control at work sites Manual*. RTA , NSW.
RTA 2005, *Guidance for the Management of Acid Sulfate Materials*.
RTA 2006, *Contaminated Land Management Guideline*.
RTA 2008, *Environmental Noise Management Manual*.
RTA 2009, *Guidelines for Landscape and Visual Impact Assessment (EIA-NO4)*.
RTA 2009, *Roadside Management Plans - Guidelines for Authorities*.
Roads and Maritime Services Transport, 2016. *Construction Noise and Vibration Guideline*.
Roads and Maritime Services Transport, 2014. *Managing Roadsides*.

Websites

The following legal acts and legislation were accessed on multiple occasions throughout the development of the document through the Australasian Legal Information Institute (<http://www.austlii.edu.au/>):

Environment Protection and Biodiversity Conservation Act 1999
Biodiversity Conservation Act 2016 & Regulations, 2017
Fisheries Management Act 1994, & Fisheries Management Amendment Act 1997
Environmental Planning and Assessment Act (1979)
Water Management Act, 2000.
Contaminated Lands Management Act 1997.
SEPP (Infrastructure)
SEPP (Infrastructure) Consultation of Roads and Maritime Projects guidance note.
SEPP (Infrastructure)- Explanatory Note.
State Environmental Planning Policy 55
State Environmental Planning Policy (Coastal Management) 2018
State Environmental Planning Policy (Koala Habitat Protection) 2019.
National Parks and Wildlife Act 1974

Other Websites

<http://plantnet.rbgsyd.nsw.gov.au/search/simple.htm>
<http://imagery.maps.nsw.gov.au/>
Google Earth and Maps
<http://www.environment.nsw.gov.au>
<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10604>
<http://www.bionet.nsw.gov.au/>
www.deh.gov.au
<http://www.environment.gov.au/epbc/pmst/index.html>- & Protected Matters Search
<http://maps.six.nsw.gov.au/>
www.rms.nsw.gov.au
www.heritage.nsw.gov.au

APPENDIX 1: PHOTOS OF SITE

Looking east over development site, along George Downes Drive.



Looking west over development site, along George Downes Drive.



Looking west over development site, along Great North Rd



Looking west over development site, along Great North Rd



Looking east over development site, along Great North Rd from western end of works



All hollow bearing trees to be retained



Proposed tree removal for road widening (only some selected trees close to existing road)



APPENDIX 2: BIODIVERSITY ASSESSMENT REPORT, PEAK LAND MANAGEMENT, 2025

BIODIVERSITY ASSESSMENT REPORT

**-Cessnock City Council-
George Downes Drive
Bucketty**



PREPARED BY:



**JUNE 2023
UPDATED MARCH 2025**

PEAK LAND MANAGEMENT

Land management consulting services:

-Bushfire-

-Ecological-

-Environmental-

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Cover Photo: View of subject site.

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AUTHOR DETAILS

PEAK LAND MANAGEMENT is an independent company specialising in providing quality consulting services in natural resource/land management including bush fire assessment. The company is a consultant member of the NSW Ecological Association, and accredited BAM Assessor and abides by both the NSW Ecological Association & NSW DPE professional code of conduct and ethics. PEAK LAND MANAGEMENT is licenced with NSW DPE for survey and collection of threatened flora (SL 100640).

Some examples of the type of work PEAK LAND MANAGEMENT PTY LTD undertakes includes Review of Environmental Factors, Flora & Fauna Surveys/ Ecological/Biodiversity Assessments, Bushland/Vegetation Management Plans, and Bush Fire Assessment Reports.

Mr Ted Smith is the Director of **PEAK LAND MANAGEMENT PTY LTD**. Ted has a Bachelor of Science Degree with Honours majoring in Physical Geography from the University of New South Wales, and a Graduate Diploma in Design for Bushfire Prone Areas from the University of Western Sydney. He is a qualified & experienced Ecologist being a Certified Practising Ecological Consultant Ecologist (under the NSW Ecological Association -006); Certified Bushfire Practitioner (FPA Aust-17671), and accredited Biodiversity Assessment Method (BAM) Assessor with NSW DPE (BAAS 17076).

Ted Smith was the author of this work, and conducted all fieldwork.



Document History

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Biodiversity Assessment Report	2.6.23	1	Ramesh Somai, CCC
Biodiversity Assessment Report	3.3.25	2	Sean Wardman, CCC

TERMS AND ABBREVIATIONS

Abbreviation	Meaning
APZ	Asset Protection Zone
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BC Act	<i>Biodiversity Conservation Act 2016</i>
BAR	Biodiversity Assessment Report incld 5 Part Test. Prepared when under the clearing threshold, not on BV Map (or incorrectly mapped), no significant impact on any threatened species or Endangered Ecological Community or over a declared Outstanding Biodiversity Area, or a Part 5 activity where authority chooses not to opt in to BOS scheme.
BCAR	Biodiversity Certification Assessment Report
BDAR	Biodiversity Development Assessment Report
BE	Building envelope, including Asset Protection Zone, dwelling, effluent zone
BSSAR	Biodiversity Stewardship Site Assessment Report
BTA	Bushfire Threat Assessment
CEEC	Critically Endangered Ecological Community
Defendable Space	An area within the asset protection zone that provides an environment in which a person can undertake property protection after the passage of a bush fire with some level of safety.
Development site	The area of native vegetation impact from the proposed development footprint.
DCEEW	NSW Department of Climate Change, Energy, the Environment and Water.
Ecological community	An assemblage of species occupying a particular area.
Ecosystem credit species	A measurement of the value of vegetation communities, EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development.
EEC	Endangered Ecological Community
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
FDI	Fire Danger Index
Ha	Hectare
HBT	Hollow bearing habitat tree
Habitat	(a) an area periodically or occasionally occupied by a species or ecological community, and (b) the biotic and abiotic components of an area.
IPA	Inner Protection Area
Key threatening process	A threatening process listed in Schedule 4 of the <i>Biodiversity Conservation Act 2016</i> .
LEP	Local Environment Plan
LGA	Local Government Area
LLS Act	<i>Local Land Services Amendment Act 2016</i>
Native Vegetation	Native vegetation means any of the following types of plants native to New South Wales: (a) trees (including any sapling or shrub or any scrub), (b) understorey plants,

	c) groundcover (being any type of herbaceous vegetation), (d) plants occurring in a wetland.
Native Vegetation clearing	Clearing native vegetation means any one or more of the following: (a) cutting down, felling, uprooting, thinning or otherwise removing native vegetation, (b) killing, destroying, poisoning, ringbarking or burning native vegetation.
Native vegetation regulatory map	A native vegetation regulatory map prepared and published under Division 2 of the LLS Act 2016.
NRAR	Natural Resources Access Regulator (NSW Water)
OPA	Outer Protection Area
PBP 2006	Planning for Bushfire Protection 2006
PCT	Plant Community Type
Preferred Koala Feed Trees	Tree species used preferentially as forage for Koalas. In the context of SEPP (Koala Habitat Protection) around 65 tree species are listed regionally including Swamp Mahogany (<i>Eucalyptus robusta</i>), <i>Eucalyptus punctata</i> (Grey Gum), Parramatta Red Gum (<i>Eucalyptus parramattensis</i>), Scribbly Gum (<i>E.haemastoma</i>), Tallowood (<i>E. microcorys</i>), Forest Red Gum (<i>Eucalyptus tereticornis</i>), Narrow leafed Ironbark (<i>Eucalyptus crebra</i>) and Spotted Gum (<i>Corymbia maculata</i>).
Protected Animal	Any of the following that are native to Australia or that periodically or occasionally migrate to Australia (including their eggs and young): Amphibians—frogs or other members of the class amphibia. Birds—birds of any species. Mammals—mammals of any species (including aquatic or amphibious mammals but not including dingoes). Reptiles—snakes, lizards, crocodiles, tortoises, turtles or other members of the class reptilia.
Protected plant	(a) a plant that is of a threatened species, or (b) a plant that is part of a threatened ecological community, or (c) a protected plant (as listed in Schedule 6 of the BCA 2016).
RoTAP	Rare or Threatened Australian Plant
RF Act	<i>Rural Fires Act 1997</i>
RF Regulation	Rural Fires Regulation
SBDAR	Streamlined Biodiversity Development Assessment Report
Species/candidate credit species	Threatened species or components of species habitat that are identified in the Threatened Species Data Collection as requiring assessment for credit species. These species cannot be reliably predicted to use an area of land based on habitat surrogates.
STCA	Subject to Council approval
Study area	The locality including the subject land/development site and surrounding areas.
Subject site/land	The entire extent of the land holdings associated with the development. Includes vegetation and land that is not being developed, but may have indirect impacts upon it.
Threatening process	A process that threatens, or that may threaten, the survival or evolutionary development of species or ecological communities
VIS	NSW Vegetation Information System
VMP	Vegetation Management Plan

1.0 INTRODUCTION AND BACKGROUND

PEAK LAND MANAGEMENT has been engaged by Cessnock City Council to prepare a Biodiversity Assessment Report (BAR), for proposed road renewal works over George Downes Drive, Bucketty (referred to hereafter as “subject site”).

The report has been prepared in accordance with the Biodiversity Conservation Act 2016 (BC Act), which is applicable for Cessnock City Council LGA.

This report includes all ecological assessments required under the provisions of the *Environmental Planning and Assessment Act 1979*, *EP&BC Act 1999*, and *BC Act 2016*. Please note this BAR meets all requirements under the BC Act, and can be assessed by Council. It is not a Biodiversity Development Assessment Report as it is not triggered in this instance and not required under the BC Act 2016, and Cessnock City Council is not required to opt in to the scheme where there is no significant impact over any threatened species, or Endangered Ecological Community which is the case here. No referral is required with NSW Department of Climate Change, Energy, the Environment and Water (DCEEW).

1.1 SCOPE OF WORKS

A Review of Environmental Factors has been prepared for this proposal by PEAK LAND MANAGEMENT, with this report forming part of the Review of Environmental Factors. Cessnock City Council has stated the following works are required:

“Central Coast Council were successful in obtaining \$1.72m in funding under the Safer Roads Program for safety improvements on George Downs Drive Bucketty. Further investigations identified the location as being within the Cessnock LGA, resulting in responsibility for the project being transferred to Cessnock City Council by Transport for NSW.

George Downes Drive is a Regional Road that serves the rural communities of Central Mangrove, Mangrove Mountain, Kulnura and Bucketty. It provides connections to Wisemans Ferry road and Great Northern road, attracting commuters from anywhere between Gunderman and Wollombi. The route consists of a predominately curved horizontal alignment some vertical crests and with minimal shoulder width typically less than 1m. It is governed by double barrier lines and guide posts with the absence of any further delineation measures. This nominated site extends approximately 715 metres covering either side of the intersection between George Downes Drive and Great Northern Road, the speed limit is reduced from 100km/h to 80km/h within the extent of this site due to the presence of this intersection, it features two horizontal curves and one vertical curve with one 3.5 metre travel lane in each direction and no shoulder. Within the road reserve there are embankments, non frangible vegetation and steep graded slopes off the carriageway.

There is a frequent occurrence of off carriageway crashes and head on crashes within close proximity of the intersection of George Downes Drive and Great Northern Road. The proposed treatment takes a safe systems approach in reducing the likelihood of injury should an off carriageway crashes occur”.

Full concept plan set is shown within the MWREF prepared by PEAK LAND MANAGEMENT (March, 2025).

2.0 PLANNING INSTRUMENTS

2.1 FEDERAL

Environment Protection and Biodiversity Conservation Act 1999

This Act is related to actions which may have a detrimental impact on matters of National Environmental Significance (NES). This includes:

- Nationally Threatened Species (including koala) and Ecological Communities,
- Listed Migratory Species which may be relevant to this site
- Declared world heritage sites
- Ramsar Wetlands
- Nuclear actions
- Actions in a Commonwealth marine area.

For the purposes of this Act this report should be used by Council to allow an Assessment of whether the site requires approval from Department of Environment. It is an offence to carry out an action that will or is likely to have a significant impact on one of the above NES matters without first obtaining an approval from the Commonwealth Environment Minister except where an exemption in the EPBC Act applies. A Bionet database search which includes listed locally recorded federal threatened species has been produced (Appendix 3).

The site is not a Declared World Heritage Site (but does adjoin *The Greater Blue Mountains Area*) or Ramsar Wetland, has no Federal listed Endangered Ecological Communities present, and Nuclear Actions/Actions in a Commonwealth marine area are not relevant. There is some habitat present for listed EPBC threatened species, which are addressed within this report. There is no impact upon the *The Greater Blue Mountains Area* with all works inside the road reserve, or located over the road and shoulder, which are already disturbed. The proposal in the consultant's opinion conforms to the *EP&BC Act 1999* and does not need referring to Federal Department of Environment.

2.2 STATE

Environmental Planning and Assessment Act 1979

Environmental Planning and Assessment Regulation 2021

Austlii state:- “Under Section 55AA of the EP& A Act - Application of Part 7 of Biodiversity Conservation Act 2016 and Part 7A of Fisheries Management Act 1994. This Act has effect subject to the provisions of Part 7 of the Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 that relate to the operation of this Act in connection with the terrestrial and aquatic environment”.

Note. Those Acts contain additional requirements with respect to assessments, consents and approvals under this Act.

The BC Act 2016 has been addressed within this report, and relevant biodiversity sections of the EP& A Act 1979 & Environmental Planning and Assessment Regulation 2021.

Figure 2: Topographic map of subject site (from Lands Department).

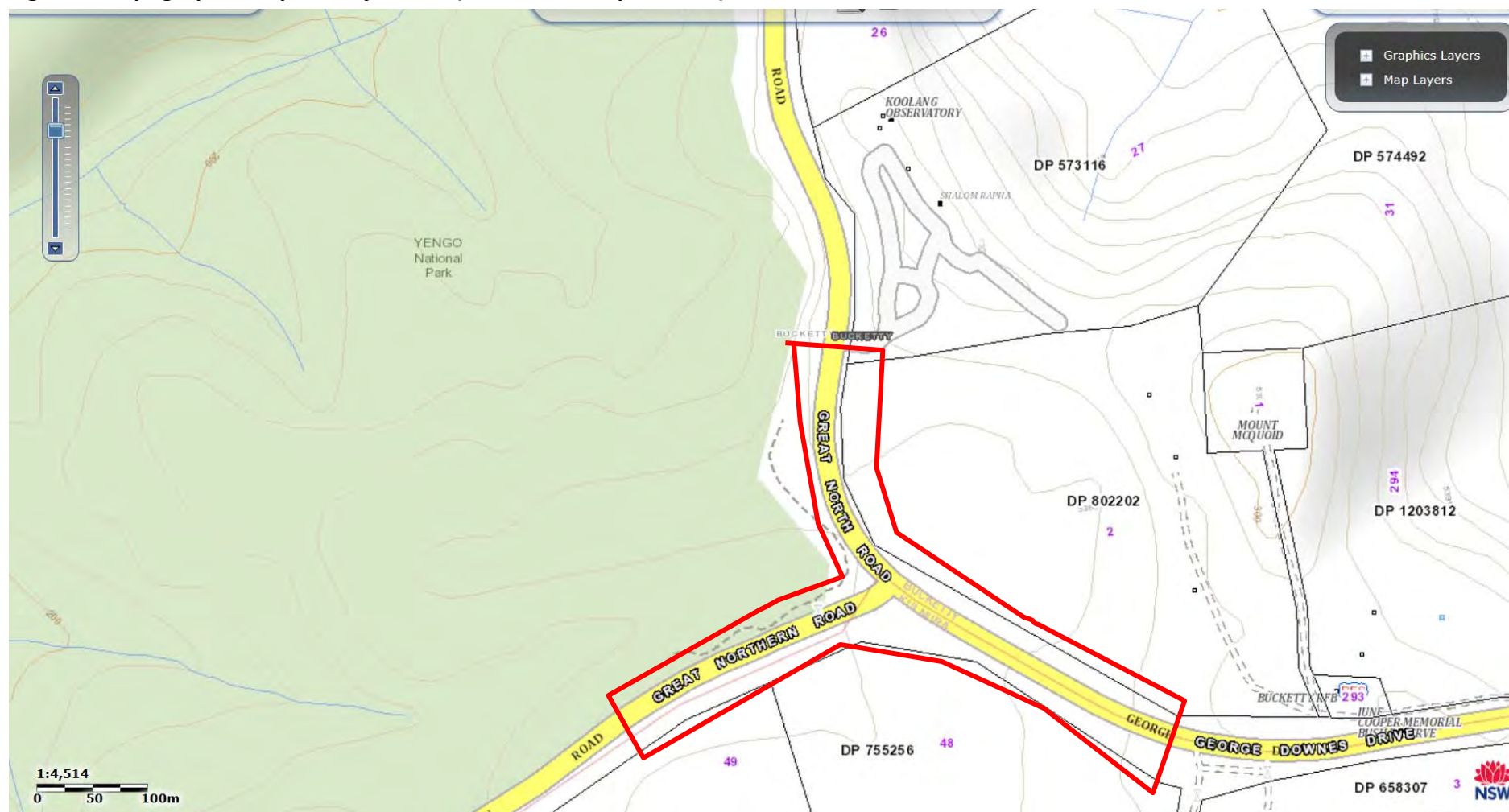


Figure 3a: Aerial image view of subject site.



Legend

- Subject site
- Creek
- Contour 10m CI

North

Imagery from nearmap, 2nd April, 2022
Projection: GDA 94/MGA zone 56

0 25 50 75 100 m



Note: Cadastre & GPS may be subject to innaccuracy

PEAK
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Figure 3b: Aerial image view of compound site.



Legend

 Subject site  Stockpile site

North

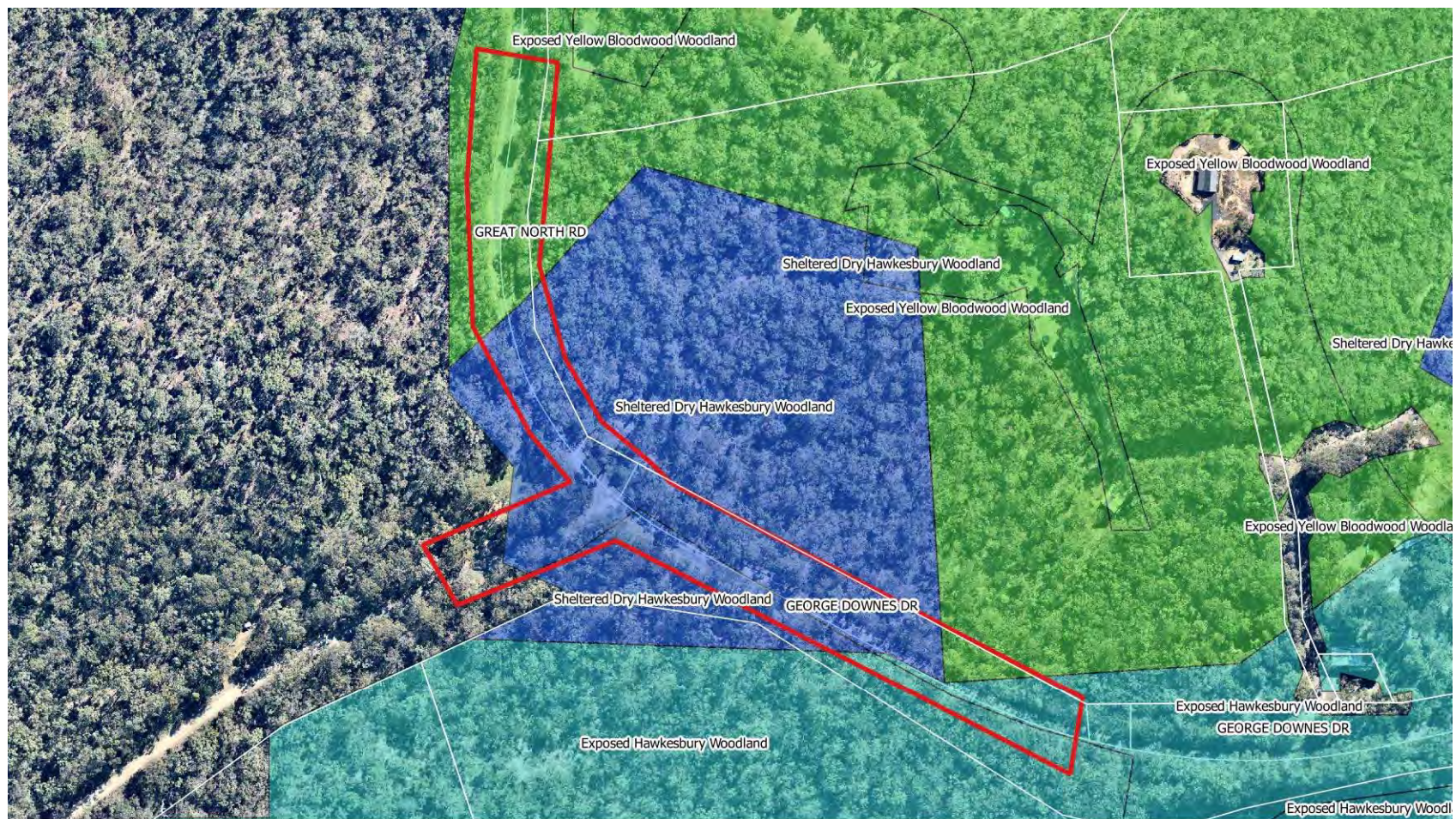


Imagery from nearmap, 20th April, 2022
Projection: GDA 94/MGA zone 56



Note: Cadastre & GPS may be subject to innaccuracy

Figure 4: LHCCREMS 2003 vegetation type mapping over site



Legend

- Subject site lhccxantnov03_mga
- Creek
- Exposed Hawkesbury Woodland
- Exposed Yellow Bloodwood Woodland
- Sheltered Dry Hawkesbury Woodland

North

Imagery from nearmap, 2nd April, 2022
Projection: GDA 94/MGA zone 56

0 25 50 75 100 m



Note: Cadastre & GPS may be subject to inaccuracy



Figure 5: NSW State vegetation type map, 2023

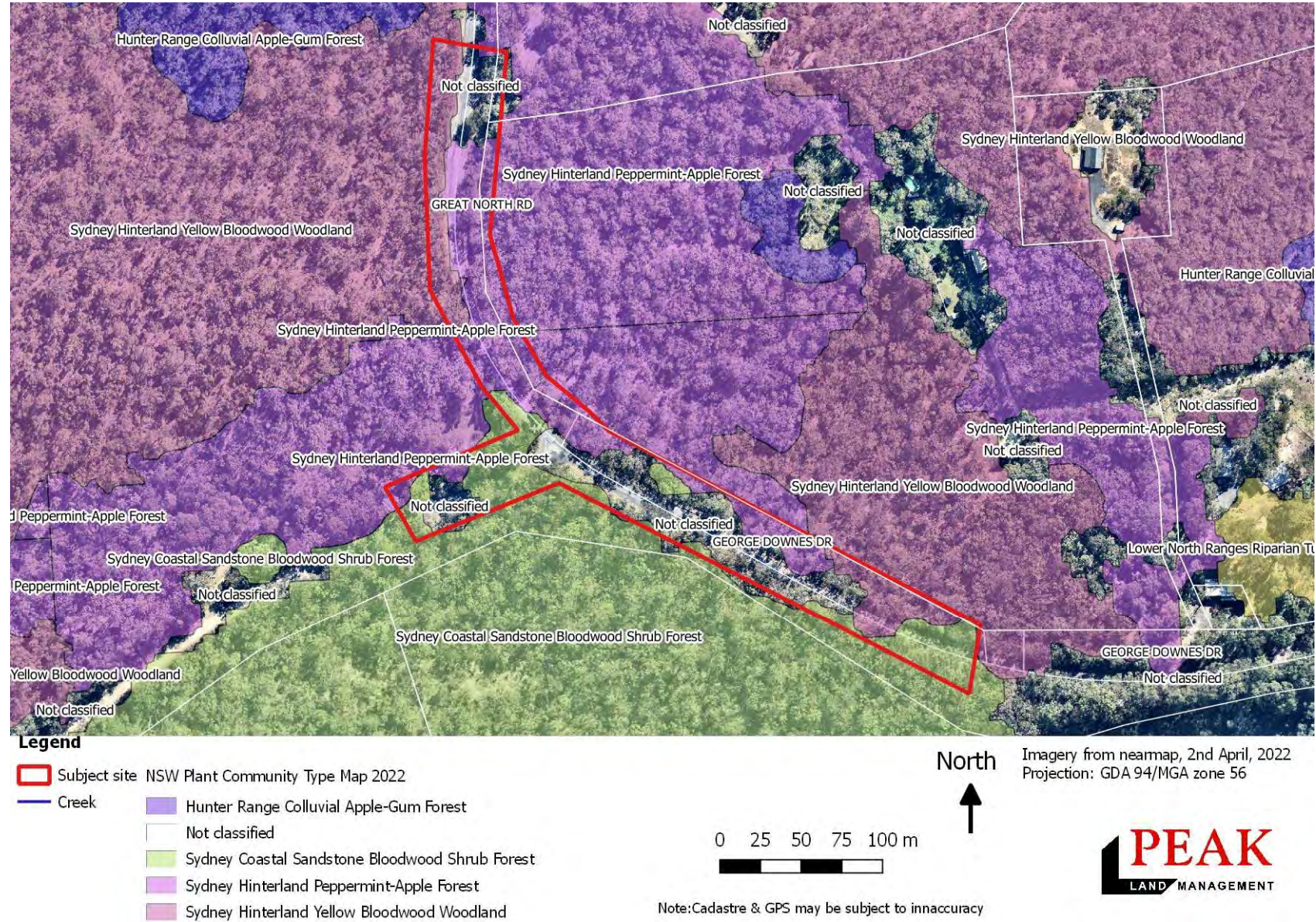


Figure 6: Hollow bearing & large significant habitat trees and threatened species & other ecological features



Legend

- Subject site
- Hollow bearing tree
- ▲ Wombat burrow active
- Creek

North

Imagery from nearmap, 2nd April, 2022
Projection: GDA 94/MGA zone 56

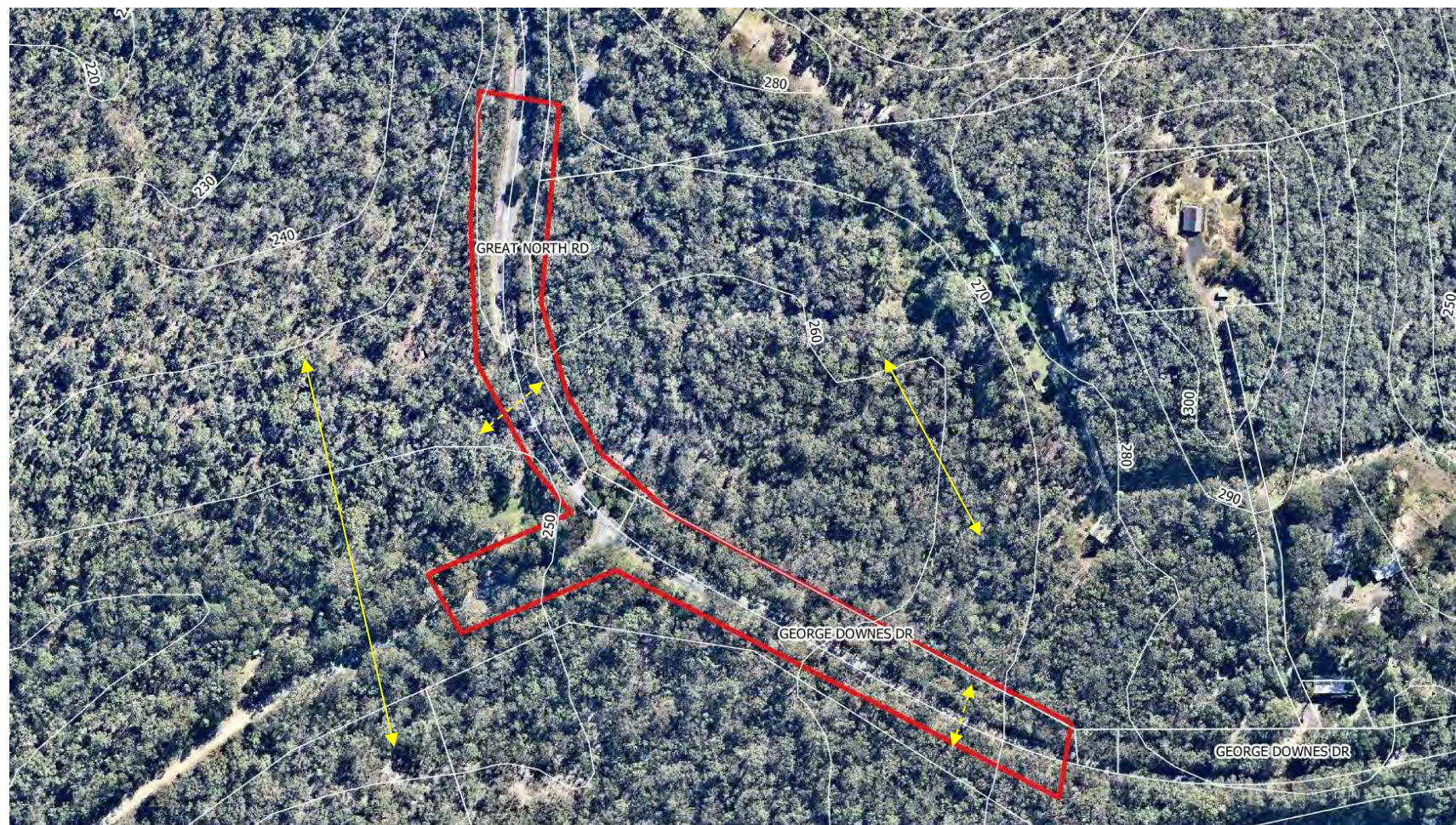
0 25 50 75 100 m



Note: Cadastre & GPS may be subject to innaccuracy



Figure 7: Wildlife connectivity over and around subject site (imagery from Lands Department)

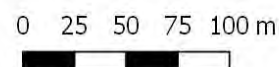


Legend

- Subject site
- Creek
- Contour 10m CI

North

Imagery from nearmap, 2nd April, 2022
Projection: GDA 94/MGA zone 56



Note: Cadastre & GPS may be subject to innaccuracy



Figure 8: Biodiversity Values Map –site not mapped



Legend

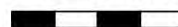
- Subject site
- Creek
- Contour 10m CI
- BVMAP_V15_web BiodiversityValues MultiPolygonZM

North



Imagery from nearmap, 2nd April, 2022
Projection: GDA 94/MGA zone 56

0 25 50 75 100 m



Note: Cadastre & GPS may be subject to innaccuracy



Biodiversity Conservation Act 2016.

The BC Act 2016 (enacted 25th Aug, 2017) repeals the Threatened Species Conservation Act 1995 (NSW), the Native Vegetation Conservation Act, Nature Conservation Trust Act 2001 (NSW) and parts of the National Parks and Wildlife Act 1974 (NSW).

The BC Act establishes a new regulatory framework for assessing and offsetting biodiversity impacts on proposed developments. Where development consent is granted, the authority may impose as a condition of consent an obligation to retire a number and type of biodiversity credits determined under the new Biodiversity Assessment Method (**BAM**).

The BC Act and supporting regulations establish a modern and integrated legislative framework for land management and conservation in NSW. The purpose of the BC Act, with reference to the assessment of development (Part 4 of the EP&A Act) or activities (Part 5 of the EP&A Act), is:

- (k) to establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity;*
- (l) to establish a scientific method for assessing the likely impacts on biodiversity values of proposed development and land use change, for calculating measures to offset those impacts and for assessing improvements in biodiversity values; and*
- (m) to establish market-based conservation mechanisms through which the biodiversity impacts of development and land use change can be offset at landscape and site scales.*

7.2 Development or activity “likely to significantly affect threatened species”

- (1) For the purposes of this Part, development or an activity is likely to significantly affect threatened species if:*
 - (a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or*
 - (b) the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
 - (c) it is carried out in a declared area of outstanding biodiversity value.*
- (2) To avoid doubt, subsection (1) (b) does not apply to development that is an activity subject to environmental impact assessment under Part 5 of the Environmental Planning and Assessment Act 1979.*

7.8 Biodiversity assessment for Part 5 activity

- (2) For the purposes of Part 5 of the Environmental Planning and Assessment Act 1979, an activity is to be regarded as an activity likely to significantly affect the environment if it is likely to significantly affect threatened species.*

Public authorities under Part 5 development have the option to opt in to the scheme, or if they choose not to they can elect to undertake a 5 Part Test only to determine if there is a significant impact upon a threatened species or Endangered Ecological Community, or Endangered Population. This is the case with this application.

The site is not mapped as Regent Honeyeater, or Swift Parrot Important Area (Fig 9), and not mapped on the Biodiversity Values Map (Fig 8), which is not relevant anyway in this case. Under the 5 Part Test (Section 7) there was found to be no significant impact on any threatened species or Endangered Ecological Community.

Fisheries Management Act 1994 (FM Act)

The objects of this Act are (from Austlii, 2015):

- (a) to conserve biological diversity of fish and marine vegetation and promote ecologically sustainable development and activities,*
- (b) to prevent the extinction and promote the recovery of threatened species, populations and ecological communities of fish and marine vegetation,*
- (c) to protect the critical habitat of those threatened species, populations and ecological communities that are endangered,*
- (d) to eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities of fish and marine vegetation,*
- (e) to ensure that the impact of any action affecting threatened species, populations and ecological communities of fish and marine vegetation is properly assessed,*
- (f) to encourage the conservation of threatened species, populations and ecological communities of fish and marine vegetation by the adoption of measures involving co-operative management.*

Schedule 4 of the Act lists aquatic species, populations, communities and critical habitat of significance. No aquatic species, populations, communities and critical habitat presently listed as threatened under the FM Act are known to occur in the investigation area, and further to this, the investigation area does not support habitat for Adams Emerald Butterfly, the only potential listed species in the study area.

There are no mapped Key Fish Habitat areas over or near the site any therefore this Act is not relevant/applicable.

Therefore this work does not require a Part 7 permit from NSW DPI (Fisheries & Aquaculture).

***Water Management Act, 2000 – Riparian Management
Water Management (General) Regulation 2018***

Controlled activities carried out in, on or under waterfront land are regulated by the Water Management Act 2000 (WM Act). The NSW Office of Water administers the WM Act and is required to assess the impact of any proposed controlled activity to ensure that no more than minimal harm will be done to waterfront land.

Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary. This means that a controlled activity approval must be obtained from the NSW Office of Water before commencing the controlled activity.

First order streams are not present over the site and streams off site are unaffected directly by the proposal. Including their 10m riparian zones.

Local Government Councils are exempt from the Water Management Act under Clause 39 (a) Part 1 of the *Water Management Act Regulations 2004*. It should be noted however that under Section 3 of the regulations council is still responsible for following the controlled activities objectives. If a detrimental activity occurs, the Office of Water can take action to ensure compliance.

The following objectives would be followed by council as described under the *Water Management Act 2000*:

(7) In relation to controlled activities:

- (a) the carrying out of controlled activities must avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, acidity, waterlogging, decline of native vegetation or, where appropriate, salinity and, where possible, land must be rehabilitated; and*
- (b) the impacts of the carrying out of controlled activities on other water users must be avoided or minimised.*

Appropriate erosion and sedimentation control principles should be followed for any works to prevent impact on creek water quality, and retention of trees where feasible.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

SEPP (Biodiversity and Conservation) 2021 incorporates the provisions of previous SEPP (Koala Habitat Protection) 2021. This SEPP is only applicable to Part 4 Development Applications and is not considered further here. Koala are nevertheless addressed within the 5 Part Test, as habitat is still present & impact proposed.

2.3 LOCAL

The relevant local government is Cessnock City Council. Environmental reporting is required on land where any development, and particularly any native vegetation removal, is proposed, which this report addresses.

2.3.1 DRAFT LOCAL ENVIRONMENTAL PLANNING INSTRUMENTS

No other draft planning instruments have been identified.

Figure 9: Mapped important area for Regent Honeyeater & Swift Parrot (from NSW DPE, 2025)

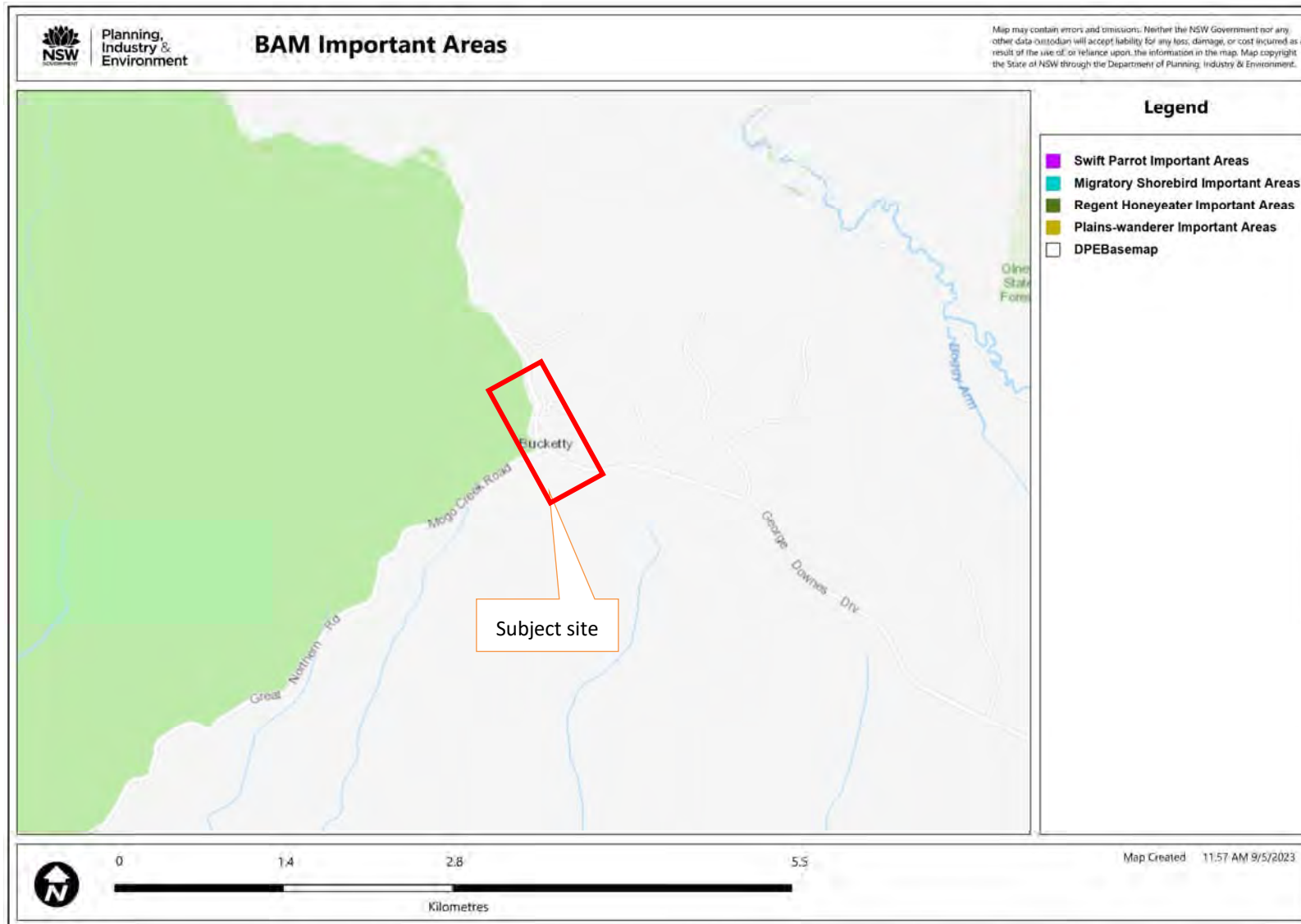


Figure 10a: Proposed impact area



Legend

- Subject site
- Impact area -394m²
- Stream
- ▲ Wombat burrow active
- Hollow bearing tree

0 25 50 75 100 m

North



Imagery from nearmap, 20th April, 2022
Projection: GDA 94/MGA zone 56

Note: Cadastre & GPS may be subject to innaccuracy



Figure 10b: Proposed impact area



Legend

- Subject site
- Impact area -394m2
- Stream
- ▲ Wombat burrow active
- Hollow bearing tree

0 20 40 60 80 m



Imagery from nearmap, 20th April, 2022
Projection: GDA 94/MGA zone 56

Note: Cadastre & GPS may be subject to innaccuracy



3.0 SITE ASSESSMENT

The subject site has a variety of disturbance processes occurring including:

- Past part clearing over and around the road site for past road construction and property access roads, ongoing road shoulder slashing, drainage line crossings, boundary fences, driveways, and other purposes.
- Weed invasion (very minor);
- Feral animals—not sighted but almost certainly predators including foxes, cats, dogs and wild dogs present;
- Other nocturnal and diurnal human disturbance of native fauna and flora from nearby residents/motor vehicles/noise/light;
- Roadside elevated nutrient and water levels, possible poorer water quality from road runoff.

3.2 CONNECTIVITY

Roadside reserve vegetation and surrounding larger areas of vegetation play a key role in providing refuge, foraging and shelter habitat for flora & fauna species, including threatened species, particularly in this part cleared landscape.

The road side vegetation is mature in parts over the site, and site is surrounded by extensive bushland, some being conserved within Yengo National Park.

Figure 8 shows a map of corridors over/adjacent to the subject site. It can be seen that the road side vegetation is part of surrounding natural landscape.

It also should be noted that tall road side larger trees provide an important launch sites for Glider in this area to safely cross aerially over the road, and culverts under the road play an important role in providing safer crossing points for fauna such as wombats (with a Wombat present in batter near culvert) quolls, reptiles and amphibians.

The proposal will not make any difference to connectivity in this area, with extensive connectivity present off site.

3.3 WATER COURSES

No water courses or tributaries are present. This site is at the head of two separate catchments. On the southern side is Mangrove Creek dam, being for human water drinking.

Suitable safeguards are recommended to prevent any silt, debris, etc entering the creek from proposed works, and keeping culverts open at all times for aquatic and terrestrial passage (both during construction, and when completed).

3.4 SOILS, GEOLOGY AND TOPOGRAPHY

Soils occur on the property as a result of parent material, geology, slope, landscape position, landuse, aspect, time, and to a lesser degree vegetation and climate. The soil landscapes have been mapped for this area by espade Eastern NSW Soil Landscape mapping /Murphy & Tille, 1993. Soil landscapes are mapped using a combination of slope, soil type, and terrain to give a broad picture of major soil groups occurring over the landscape. The soil landscape mapped over the site is:

- Sydney Town, Hawkesbury and Gynea.

Landscape—undulating to rolling rises and low hills on Hawkesbury Sandstone. Local relief 20–80 m, slopes 10–25%. Rock outcrop <25%. Broad convex crests, moderately inclined sideslopes with wide benches, localised rock outcrop on low broken scarps. Extensively cleared open-forest (dry sclerophyll forest) and eucalypt woodland.

Soils—shallow to moderately deep (30-100 cm) Yellow Earths (Gn2.24) and Earthy Sands (Uc5.11, Uc5.23) on crests and inside of benches; shallow (<20 cm) Siliceous Sands (Uc1.21) on leading edges of benches; localised Gleyed Podzolic Soils (Dg4.21) and Yellow Podzolic Soils (Dy4.11, Dy5.11, Dy5.41) on shale lenses; shallow to moderately deep (<100 cm) Siliceous Sands (Uc1.21) and Leached Sands (Uc2.21) along drainage lines.

Limitations—localised steep slopes, high soil erosion hazard, rock outcrop, shallow highly permeable soil, very low soil fertility.

There are no mapped Acid Sulphate Soils.

4.0 FLORA SURVEY RESULTS

4.1: METHODOLOGY AND LIMITATIONS

Vegetation was assessed on site by a targeted survey of all proposed impact areas and surrounds over the development site and surrounds. All transects, and any threatened species over or near to affected sites were recorded on a Garmin handheld GPS Map65 unit, generally accurate to within 6m depending on canopy cover/range. Special attention was paid to any potential threatened species. This has enabled identification and assessment of most species on the site. The survey is limited by:

- Non flowering of cryptic orchid/grass/other species at time of survey as described above making identification impossible/problematic.

To help overcome these limitations surveys are carried out where feasible during known flowering seasons, and if this cannot occur and habitat requirements are suitable for a species to be present then an additional targeted survey will be recommended if impact is expected. Any plants that were not readily identifiable in the field were sampled and analysed in the office. Potential threatened species are sent to NSW Herbarium for identification /ratification, and NSW DPE informed of locations for recording on the NSW Bionet database as per NPWS scientific licence requirements. This was not required in this instance.

4.2: RESULTS

The major flora species identified are shown in Appendix 1. The site has the following attributes:

- Predominantly disturbed road edge being gravel/soil and slashed with natural surrounds;
- Minor weedy road edge understorey, but with native trees and overstorey;
- No threatened flora species or Endangered Ecological Communities recorded over the site;
- 120 flora species were recorded on the site, comprising 101 native flora species, no threatened species, no ROTAP listed rare species, 4 weed species including 6 declared noxious weeds;
- Total impact is around 0.04Ha. The impact is not considered significant for any Endangered Ecological Community or threatened flora or fauna species.

This represents a moderate to high diversity of native plants and low weed count, reflecting the presence of natural vegetation over and surrounding site and different vegetation communities.

Note: OEH (BAM Operational Manual – Stage 1, 2018) define cleared land as:

“Cleared land is land on which the native over storey has been cleared, there is no native mid-storey, and less than 50% of the ground cover vegetation is indigenous species.”

Under this definition most of the road reserve is native, except totally cleared areas with weedy understorey >50%. Where native tree canopy is present, even if overhanging the road, it is considered native vegetation, and included within impact area.

5.0 FAUNA AND HABITAT SURVEY

5.1: METHODOLOGY AND LIMITATIONS

Several factors limit the ability of surveys such as this ecological investigation to fully determine the occurrence of all species of fauna which may utilise the subject site. Surveys undertaken over a short time period, in this case a period of one ½ day survey is unlikely to document the full inventory of fauna species which may occur in the study area.

In the case of highly mobile fauna such as birds and bats, many species may utilise the site only temporarily as a component of their larger foraging range, or may occur in the study area or locality during particular periods of the year, such as their seasonal migratory path.

For these reasons habitat assessment, on site survey, and research using Wildlife Atlas Bionet records, has been used to determine possible occurrence of threatened species.

A fauna survey was conducted during the day for birds (voice- recorded where necessary for identification, and visual by binoculars, nests), amphibians (voice, recorded where necessary for identification), mammals (visual, scats, tree scratch marks, burrows, footprints), reptiles (visual) and fish (visual). Fauna were also observed by burrows, dead animals and any other evidence of fauna occupation or presence noted. Survey included short periods with quiet times to listen to birds, reptile searches turning over logs, rocks etc occurred, and hollow bearing habitat trees were recorded, hollows examined by binoculars for possible fauna use, and mapped where present.

No aquatic dip netting, trapping, hair sampling, pit fall traps, owl or anabat call detection were used. One hollow bearing habitat tree affected by proposal. All scats were analysed. All hollow bearing habitat trees, threatened species and any other ecological fauna items of interest/features over the subject site were GPS mapped.

This reduced fauna survey effort was considered satisfactory given the good Bionet records in this area, part disturbed nature of the site, and retention of all hollow bearing habitat trees.

In addition to on site fauna survey, habitat assessment, and research using Bionet records, and other records where available have been used to determine possible occurrence of threatened species. If suitable habitat is present, and Wildlife Atlas- Bionet records occur in the local area, an assumption has been made that potential threatened fauna species listed in Appendix 1 Bionet search may occur.

Table 1: Flora & fauna survey effort

Type of survey	Survey dates	Weather conditions	Survey outline	Survey Effort
Flora transect	4 th May, 2023 10:00am-1pm	22°C, sunny, low SW wind, low humidity.	Systematic flora survey and targeted threatened species surveys over site and meander transect over surrounds.	3hrs
Diurnal fauna, birds, searches	4 th May, 2023 10:00am-1pm	22°C, sunny, low SW wind, low humidity.	Opportunistic and targeted searches for fauna, including searches for scat, tracks, hollows and nests. Listening for any amphibian calling or observations of any tadpoles or fish within/ surrounding dams/waterways (N/A this site). Targeted surveys using binoculars, auditory surveys, scats/owl pellets, and searches for feathers and nests.	3hrs
Flora & Fauna survey	21 st Feb, 2025	25°C, sunny, low wind, moderate humidity.	Stockpile site. Systematic flora survey. Opportunistic searches for fauna.	1hr

5.2: SURVEY RESULTS

Survey was undertaken as detailed in Table 3. The areas of native vegetation over the road reserve were intensively searched, with transects undertaken over areas likely to potentially support threatened species. Disturbed high weed/ slashed areas were not intensively surveyed.

A list of fauna recorded over or near the site is shown in Appendix 2.

In summary:

- Vegetation provides wildlife connectivity value, although as surrounded by native vegetation both sides of site no connectivity constraints. It was noted that Wombat are probably using culvert under road however, as an active burrow recorded in this area over road batter, and this connectivity should be maintained.
- Bionet records of Koala in this area and likely to occur. Very limited impact proposed from removal of some Koala feed trees.
- Extensive natural habitat present in surrounding lands, including Yengo National Park adjoining site.
- 2 hollow bearing habitat trees were recorded, with no hollow bearing trees proposed for removal, over the road reserve.
- Removal of around 13 trees, all being smaller regrowth trees without hollows present.
- Total impact area over native vegetation is around 0.04Ha (Fig's 12.)
- No creek lines directly affected by the proposal, with all culverts retained.
- The site offers suitable foraging habitat for many locally recorded threatened fauna species including birds, bats, mammals and reptiles, but not amphibians.
- The site has habitat present including remnant dry sclerophyll forest, hollow bearing trees, and extensive areas of bushland adjoining.

- It is considered that there will be a negligible- very low impact over a variety of threatened fauna species including microbats, mammals (incl Koala), reptiles, and birds, primarily from very limited foraging resources removal.

Due to the clearance presence of natural vegetation over land adjoining the site, roadside vegetation is of lower importance with this proposal, but does still play an important role in preserving flora & fauna habitat, and acts as a wildlife corridor linkage (ie taller trees near road) and habitat in its own right.

The site proposed to be disturbed is limited to the road, and immediate road shoulder surrounds within approximately 3-6m of the road edge (batter edges may extend further in one culvert area).

Hollow bearing trees are to be retained, which provide an important nesting/denning/roost habitat for hollow dependant fauna including micro bats, some birds and mammals in the area, including gilders.

No bats were recorded under any culverts. No bird nests observed over trees. No frogs recorded. Many more fauna species would be anticipated to occur in this area than recorded.

The road shoulders within 1-2m of the road edge were generally devoid of native vegetation, slashed, weedy, and had little conservation value. Beyond that remnant trees are present with high ecological value, and some natural understorey. The most diverse and important ecological areas include larger old growth remnant trees, riparian areas, and natural understorey areas. These areas providing foraging habitat, shelter and connectivity for terrestrial species across /or under the road.

From this assessment and Bionet Wildlife Atlas records there is potential habitat for the following species:

- Bats :-Suitable foraging habitat present. Bats can exist quite well in scattered trees/remnant patches of bushland. The removal of some trees will cause a very low impact upon bats due to loss of foraging & roosting habitat. Therefore they are tested within the 5 Part Test.
- Birds, including owls:- Suitable foraging habitat present for some birds which have been tested. No large hollows observed for owl nesting. The removal of trees & understorey will cause an impact upon birds due to foraging habitat loss. The proposed development due to the removal of vegetation, bird's mobility and large home ranges is expected to have a very low/negligible impact on birds. Therefore they are not tested within the 5 Part Test.
- Amphibians: - Suitable habitat is not present over the development site. Impact is anticipated to be negligible assuming no indirect pollution of creek water (no Bionet records in this area of any threatened frog species). Therefore they are not tested as negligible impact expected.

- Reptiles:- There is habitat for reptiles; Bionet records in this area of threatened reptile species, but negligible/very low impact anticipated. Therefore they are not tested as negligible impact expected.
- Mammals:- Habitat is present for mammals, with Koala recorded locally and likely present from time to time. The removal of some trees will cause an impact upon these mammals (see Bats above) due to loss of foraging habitat & potential connectivity loss. Therefore they are tested within the 5 Part Test.
- Fish/invertebrates: - Habitat is not present, and therefore not tested.

Table 2: Hollow bearing habitat tree/other details over development site & surrounds

Tree Species	Common name	Number –see Figure 7	Hollow details/other
<i>Eucalyptus haemastoma</i>	Scribbly Gum	1	1M, 1F
Dead		2	1F
TOTAL		No HBT's proposed for removal	

Hollow sizes:

Small (S) <15cm

Medium (M)- 15-30cm diameter

Large (L) - >30cm diameter

Fissure (F) -crack in trunk suitable for microbats

Spout (SP)

6.0 FIVE PART TEST UNDER *BC Act 2016*

A consideration of threatened species potentially occurring on this site which have been gazetted within the *BC Act 2016* was conducted by a search of the NSW DPE Atlas (100km² or greater area surrounding subject site) which is shown in Appendix 1. Each species/population/ ecological community is considered for its potential to occur upon the site and the likely level of impact as a result of the proposal. Table 5 shows likely impact for each fauna and flora species. All species regarded as having potential to be impacted upon in any more than a very low way have been subject to a 5 Part Test of Significance. Species which would obviously not occur on the site due to incorrect habitat requirements, or be impacted negligibly by any works, have not been listed below, or tested (as outlined in Sections 4 & 5 of this report).

Additionally a literature review of potentially occurring threatened species was conducted. Once each species particular habitat requirements were identified a field inspection occurred of the site to verify the likely impact. This was done by direct species observation during traverses around the site, assessment of likely habitat, and the suitability of the site for threatened species identified. It should be noted however that no trapping, hair sampling, owl /bat call playback/recording, spotlighting/night surveys occurred and therefore if suitable habitat is present, and Wildlife Atlas- Bionet records occur in the local area, an assumption has been made that they may occur, and a 5 Part Test completed if relevant.

Note: all recorded locations of threatened species are sourced from NSW DPE Bionet database. Please note that often flora & fauna records and research are not complete, and therefore these are subjective ratings only and may change over time. They are put here as guide only for regulatory authorities, and the proponent to consider.

In this case due to impact over Endangered Ecological Communities & threatened species & habitat, a Five Part Test is required.

Indirect impacts such as increased human disturbance from noise, light spill, dogs, pollution, etc is possible and taken into account within the 5 Part Test.

Table 3: Threatened flora/fauna and Endangered Ecological Community assessment of potential impact.

Species	Comments	Likely level of impact *	Legal status **
Fauna			
Koala (<i>Phascolarctos cinerus</i>)	Koalas are found in Eucalypt forests throughout eastern Australia. They occur where appropriate feed trees occur. Primary feed tree species occur on site (Scribbly Gum, Grey Gum). No scats were seen or any koalas sighted in survey traverses. Bionet records within 1km of this site. Potential habitat is present and may occur from time to time. The loss of 0.04Ha/13 trees is anticipated to have a very low impact on this species.	Very Low	V, EPBC listed-V
Grey headed flying fox (<i>Pteropus poliocephalus</i>)	Forages over a large area for nectar/fruits etc. Roosts in communal base camps, which are typically found in gullies, close to water and in vegetation with a thick canopy. As there are flowering gums and other native flora they would occur from time to time. They are a reasonably common species. The loss of 0.04Ha/13 trees is anticipated to have a low impact on these species. No camp was observed over the site.	Very Low	V,V
Microbats: Yellow-bellied Sheathtail-bat Eastern Coastal Fr tailed Bat Large-eared Pied Eastern False Pipistrelle Greater Broad-no Bat Eastern Cave Bat Little Bent-winged Large Bent-winged Bat	The microbats listed in Bionet have all been recorded within a 10km radius of site. Microbats are insectivorous, and/or feed on blossoms and nectar. They are all affected by loss of some foraging habitat. No caves affected, and no HBTs affected, therefore no breeding resources affected. All will be affected from minor loss of foraging resources, however with nearly all trees to be retained impact is very low, being mainly from indirect noise & light spill.	Very Low	V
Flora			
No threatened species were recorded over the subject site. There is a very low potential for other listed threatened flora to be present over the site as the site has been surveyed and no Bionet records of any other species in this area. Site understorey is predominantly slashed, and weedy and not suitable for these species occurrence.			Negligible
\Endangered ecological communities/	Nil		-

populations		
Threatening Processes (under both EPBC Act and BC Act)	Yes applicable- see Tables below and 7 Part Test	

Table 4: Listed relevant Key Threatening Processes (as listed under EPBC Act)

Key Threatening Processes Listings	Date of Gazette
Fire regimes that cause declines in biodiversity	21-Apr-2022
Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (<i>Manorina melanocephala</i>)	09-May-2014
Novel biota and their impact on biodiversity	26-Feb-2013
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	08-Jan-2010
Invasion of northern Australia by Gamba Grass and other introduced grasses	16-Sep-2009
Predation by exotic rats on Australian offshore islands of less than 1000 km ² (100,000 ha)	29-Mar-2006
Loss of biodiversity and ecosystem integrity following invasion by the Yellow Crazy Ant (<i>Anoplolepis gracilipes</i>) on Christmas Island, Indian Ocean	12-Apr-2005
The biological effects, including lethal toxic ingestion, caused by Cane Toads (<i>Bufo marinus</i>)	12-Apr-2005
Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris	13-Aug-2003
The reduction in the biodiversity of Australian native fauna and flora due to the red imported fire ant, <i>Solenopsis invicta</i> (fire ant)	02-Apr-2003
Infection of amphibians with chytrid fungus resulting in chytridiomycosis	23-Jul-2002
Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs	06-Aug-2001
Incidental catch (bycatch) of Sea Turtle during coastal otter-trawling operations within Australian waters north of 28 degrees South	04-Apr-2001
Land clearance	04-Apr-2001
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	04-Apr-2001
Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	04-Apr-2001

Page last updated 3rd May, 2023**Table 5: Key relevant threatening processes in NSW under Schedule 4, BC Act 2016.**

Key threatening process
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, <i>Manorina melanocephala</i> (Latham, 1802)
Alteration of habitat following subsidence due to longwall mining
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)
Anthropogenic Climate Change
Bushrock removal (as described in the final determination of the Scientific Committee to list the threatening process)
Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)

Competition and grazing by the feral European Rabbit, <i>Oryctolagus cuniculus</i> (L.)
Competition and habitat degradation by Feral Goats, <i>Capra hircus</i> Linnaeus 1758
Competition from feral honey bees, <i>Apis mellifera</i> L.
Death or injury to marine species following capture in shark control programs on ocean beaches (as described in the final determination of the Scientific Committee to list the key threatening process)
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments (as described in the final determination of the Scientific Committee to list the key threatening process)
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners
Habitat degradation and loss by Feral Horses (brumbies, wild horses), <i>Equus caballus</i> Linnaeus 1758
Herbivory and environmental degradation caused by feral deer
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition
Importation of Red Imported Fire Ants <i>Solenopsis invicta</i> Buren 1972
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis
Infection of native plants by <i>Phytophthora cinnamomi</i>
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae
Introduction of the Large Earth Bumblebee <i>Bombus terrestris</i> (L.)
Invasion and establishment of exotic vines and scramblers
Invasion and establishment of Scotch Broom (<i>Cytisus scoparius</i>)
Invasion and establishment of the Cane Toad (<i>Bufo marinus</i>)
Invasion, establishment and spread of Lantana (<i>Lantana camara</i> L. sens. lat)
Invasion of native plant communities by African Olive <i>Olea europaea</i> subsp. <i>cuspidata</i> (Wall. ex G. Don) Cif.
Invasion of native plant communities by <i>Chrysanthemoides monilifera</i>
Invasion of native plant communities by exotic perennial grasses
Invasion of the Yellow Crazy Ant, <i>Anoplolepis gracilipes</i> (Fr. Smith) into NSW
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants
Loss of hollow-bearing trees
Loss or degradation (or both) of sites used for hill-topping by butterflies
Predation and hybridisation by Feral Dogs, <i>Canis lupus familiaris</i>
Predation by <i>Gambusia holbrooki</i> Girard, 1859 (Plague Minnow or Mosquito Fish) (as described in the final determination of the Scientific Committee to list the threatening process)
Predation by the European Red Fox <i>Vulpes vulpes</i> (Linnaeus, 1758)
Predation by the Feral Cat <i>Felis catus</i> (Linnaeus, 1758)
Predation by the Ship Rat <i>Rattus rattus</i> on Lord Howe Island
Predation, habitat degradation, competition and disease transmission by Feral Pigs, <i>Sus scrofa</i> Linnaeus 1758
Removal of dead wood and dead trees

Table 6: Legal status key

Key - ** Legal status (from NSW DPE, 2023 & Biodiversity Conservation Act, 2016):	
V	Vulnerable
E1	Endangered
E2	Endangered
CE	Critically Endangered
E4	Presumed Extinct
P	Protected (National Parks and Wildlife Act, 1974)
P13	Protected Plants (National Parks and Wildlife Act, 1974)
U	Unprotected

Table 7: Likely level of impact key used by PEAK LAND MANAGEMENT

Key - Likely level of impact
This is a subjective qualitative measure used by the consultant. It is determined by the relative impact on a species (ie whether a species will be put in danger of extinction, numbers of individuals likely to be affected directly or indirectly, current status of species) and takes into account factors such as amount of clearing proposed, and surrounding amount of suitable habitat for that species.
Ratings:
Nil (plant only): Not present as site conditions (ie soil/geology, climate, elevation, etc), and on site survey, verify it was not present, and could never be naturally present.
Negligible: No impact can be discerned, but is included as there is a minor chance of that species possibly using the site (using the precautionary principle). In some cases there may also be positive impacts such as more foraging feed available from clearing some understorey and promoting native grass growth, or establishment of more vegetation.
Very Low: Individuals unlikely to be affected directly, but could be affected indirectly, and if they are in a very minor way with no major effect likely on any individual.
Low: Recognises that individuals may be present on site (either permanently or infrequently) and affected in a small way such as loss of habitat, including foraging or nesting/denning resources. Suitable surrounding habitat is available to offset direct impact, but it is acknowledged that this may place an individual under more stress, and lead to possible death of individual(s).
Moderate: Individuals will be affected, with impact likely to cause stress and possible death to a local individual or group of individuals. Loss of habitat may lead to the significant impact on a small local population, with its possible demise. Possible significant impact.
High: Will cause the death directly of local individuals, and lead to the loss of habitat for that species to re-establish permanently. Will also lead to the death of a local population/family group, and increase the chance of local/complete extinction of the species. Significant impact.

6.1 FIVE PART TEST UNDER SECT 7.3 OF THE BC ACT 2016

Under the *Biodiversity Conservation Act 2016 (Sect 7.3)*, a 5 Part Test is undertaken to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

A five part test is presented below for all species possibly affected as listed in Table 4:

a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

As examined within Table 4 all species examined are anticipated to have a negligible –low impact from the proposal, with no threatened species considered to be impacted such that a viable local population is affected.

The site proposed clearing / habitat loss is limited to around 0.04Ha. No hollow bearing trees affected, , no creeks impacted, no rock outcrops, and no fallen hollow logs on the ground over the site. Wildlife corridor connectivity is present around the site which will only be affected in a slight way. All road side larger trees to be retained.

Habitat is considered suitable for most threatened species listed within the Bionet search (Appendix 3). The removal of this habitat, particularly foraging trees will have a very low impact, from minor loss of foraging habitat. It is noted only a few trees are proposed for removal.

Corridor connectivity should be sustained where feasible (including retaining overhanging branches), to assist in sustaining local population movement of Gliders and other species movement between larger remnants of bush land, especially during natural disasters such as bush fire, or drought to allow foraging over larger areas.

Most threatened fauna species in this area occur over larger home ranges (birds/bats/owls/mammals) and although they would forage from time to time over this site it represents a small percentage of their home range. Possible indirect effects such as human disturbance, waste water runoff, pets, light spill, human disturbance, noise, etc may occur.

To reduce these indirect impacts all native vegetation/trees should be retained outside of the nominated development footprint, understorey allowed to regenerate, and other recommendations followed which are made later.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(i) No Endangered Ecological Communities are present.

The proposal is not expected to adversely affect any Endangered Ecological Community extent such that its local occurrence is at risk of local extinction.

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

The proposal is not expected to adversely any Endangered Ecological Community composition, or place it at risk of extinction locally.

c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(i) The site proposed clearing / habitat loss is limited to around 0.04Ha of remnant vegetation.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

No fragmentation anticipated, with corridor connectivity to be retained off the site.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

Whilst all habitat and ecological Communities are important, the loss of 0.04Ha of vegetation, with retention of all hollow bearing trees, is assessed as a low impact. The retention of most native vegetation over/adjacent to the site, road side trees, will assist in providing for the long term survival of species in this area.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

Not applicable.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Key threatening processes are listed on Schedule 3 of the BC Act 1995 (and now under BC Act 2016), and the federal EPBC schedule shown in Tables 6 & 7. Of direct relevance to this proposal are:

- Clearing of native vegetation/ land clearance.
- Removal of dead wood and dead trees.
- Invasion of native plant communities by exotic perennial grasses;
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants (including lantana), including aquatic plants;
- Predation, habitat degradation and competition by fox, feral cats, honey bees, pigs, rabbits, plague minnow.
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants (including lantana), including aquatic plants;

The subject site is currently, or has had in the past, many of these key threatening processes operating.

7.0 CONCLUSION AND RECOMMENDATIONS

This assessment has found that there is no significant threat or impact on any local species, population or ecological communities under the *EP&A Act 1979*, *BC Act 2016*, *Fisheries Management Act 1994*, and federal *EPBC Act 1999* legislation. The proposed works do constitute a threatening process.

The following recommendations if adopted will reduce the environmental impact:

- Design road widening to reduce impact on remnant road side vegetation, particularly retaining larger trees and hollow bearing trees where feasible. Use of wire rope, guard rail, or similar, to allow reduced safety clearzone widths, is recommended.
- Overhanging branches greater than 6m in height above the road should be retained as they provide for arboreal mammal crossing/glide points, including the threatened Yellow Bellied Glider;
- All trees to be removed should be clearly flagged/painted with surveyors flagging tape/paint dot;
- Wombat burrow to be retained natural & not disturbed.
- No exotic grasses or other plants with weed potential should be introduced to the site.
- Allow creek lines and other roadside native vegetation to regenerate back to natural vegetation when works complete by removing all waste, temporary structures, etc. It should then regenerate naturally.
- No pollutant or other non natural substances allowed to enter creek water system.
- Ensure the construction and final works proposed will not dredge/disturb/block free fish passage within the unnamed creek. No filling, weirs, tracks, etc allowed within the creek bed.
- Ensure compound/stockpile site is located away from any trees/Endangered Ecological Communities, and not within the dripline of large trees.
- All batter/bare ground stabilisation/hydro mulching if used should use a local native grass seed mix using species endemic to this area such as those listed in Appendix 1 under native grasses or allow natural regeneration of native flora if to be returned back to natural vegetation;
- Priority weeds should be controlled/eradicated where feasible, and weeds controlled after works have been completed on an ongoing basis to prevent reinfestation in accordance with Biosecurity Act;
- Erect silt fencing round all site works in accordance with council erosion and sediment control policy, with in stream work carried out during dry forecast periods only.

If these recommendations are carried out then environmental impact should be reduced.

It is the consultant's opinion that this application does not need referring to the Federal Department of Environment and Energy or NSW DCEEW.

Report prepared by:



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PEAK LAND MANAGEMENT

DISCLAIMER: Whilst every effort is made to present clear and factual information based on current scientific data, on site field survey, and guidelines, no guarantee is made that all species have been identified on the site, or that all information is presented to councils/consent authority satisfaction, or that the development will be approved as this is in the hands of the approving statutory authority. No warranty or guarantee, whether expressed or implied, is made with respect to the observations, information, findings and inclusions expressed within this report. No liability is accepted for losses, expenses or damages occurring as a result of information presented in this document.

8.0 REFERENCES

Auld, BA & Medd, RW 1987, *Weeds*. Inkata Press.

Brooker, MIH and Kleineg, 2006, *Field Guide to Eucalypts – South Eastern Australia, Volume 1*. Blooming Books.

Bureau of Meteorology, 2020. Australian Government

Cropper, S 1993, *Management of Endangered Plants*, CSIRO, Victoria.

Department of Sustainability, Environment, Water, Population and Communities 2010, *EPBC Act Fact Sheet*.

Department of Sustainability, Environment, Water, Population and Communities 2012, *Interim Koala Referral Guidelines*.

Fairley, A and Moore, P 2000, *Native Plants of the Sydney District*. Kangaroo Press.

Harden, G., 1995-2002, *Flora of NSW – Volumes 1-4*. UNSW Press.

Harden, G., McDonald, B., Williams, J., 2006, *Rainforest Trees and Shrubs. A field guide to their identification*. Ligare Book Printer.

Harden, G., Nicholson, H., McDonald, B. Nicholson, N., Tame, T., Williams, J. 2014, *Rainforest Plants of Australia*. Gwen Harden Publishing and Terania Rainforest Publishing.

Jones, C and Paris, S 1994, *Field Guide to Australian Mammals*. Steve Parish Publishing.

Lake Macquarie City Council, 2015. *Final Squirrel Glider Planning and Management Guidelines*.

Murray, M. And Bell, S. 2001. *Flora and Fauna Guidelines for Lake Macquarie City Council*.

National Parks and Wildlife Service 2002, *Vegetation Survey, Classification and Mapping for LHCCREMS*.

NSW Department of Environment and Conservation 2004, *Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft)*, New South Wales Department of Environment and Conservation, Hurstville, NSW

NSW Department of Planning, Industry & Environment. *Surveying threatened plants and their habitats*. April, 2020.

NSW Department of Planning, Industry and Environment March 2020. *Koala Habitat Protection Guideline*. Published by NSW Department of Planning, Industry and Environment.

NSW Government, *Biodiversity Assessment Method*, 2017. Office of Environment and Heritage.

NSW Government, *Biodiversity Assessment Method Calculator User guide*, 2017. Office of Environment and Heritage.

NSW Government, *Biodiversity Assessment Method Operational Manual-Stage 1*, 2018. Office of Environment and Heritage.

NSW Government, *Biodiversity Assessment Method Operational Manual-Stage 2*, 2019. Department of Planning, Industry & Environment.

NSW Government, *Guidance to assist a decision maker to determine a serious and irreversible impact*, 2017. Office of Environment and Heritage.

NSW Office of Water 2012a. *Controlled activities on waterfront land: Guidelines for riparian corridors on waterfront land*. Department of Primary Industries – Office of Water.

NSW Office of Water 2012b. *Controlled activities on waterfront land: Guidelines for watercourse crossings on waterfront land*. Department of Primary Industries – Office of Water.

Naylor, SD, Chapman, GA, Atkinson, G, Murphy CL, Tulau MJ, Flewin TC, Milford HB, Morand DT, 1998, *Guidelines for the Use of Acid Sulfate Soil Risk Maps*, 2nd ed., Department of Land and Water Conservation, Sydney.

Pizzey, G 1997, *Field Guide to the birds of Australia*. Angus and Robertson.

Richardson, F.J. *Weeds of the south-east: an identification guide for Australia* (2nd ed); 2011. Everbest Printing.

Robinson, L. 2003 (3rd ed). *Field guide to the Plants of Sydney*. Kangaroo Press.

Smith, 2005. *Significance of Squirrel Glider Habitat*.

Triggs, B. 2004. *Tracks, scats and other traces*. Oxford University Press.

Wheeler D.J.B., Jacobs S.W.L. and Whalley R.D.B. 2002 (3rd ed). *Grasses of NSW*. University of New England.

Wilson, S. And Swan, G; 2008 (2nd ed). *A complete guide to Reptiles of Australia*. Everbest Printing.

Winning, G., and Paul King, J. 2004. *A study of Squirrel Glider in a fragmented urban landscape, Newcastle, NSW*. HWR Limited.

Websites

The following legal acts and legislation were accessed through Australasian Legal Information Institute (<http://www.austlii.edu.au/>):

Environment Protection and Biodiversity Conservation Act 1999

Biodiversity Conservation Act 2016

Biodiversity Conservation Act Regulations 2017

National Parks and Wildlife Act 1974

Environmental Planning and Assessment Act (1979)

Water Management Act, 2000

State Environmental Planning Policy Koala, Coastal Management, Vegetation in Non-Rural Areas SEPP

Other Websites

The following websites have been viewed throughout the development of this report:

<http://plantnet.rbgsyd.nsw.gov.au/search/simple.htm>

<http://imagery.maps.nsw.gov.au/>

Nearmap

<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10604>

<http://www.bom.gov.au/water/groundwater/gde/map.shtml>

<http://www.bionet.nsw.gov.au/>

www.deh.gov.au

<http://www.environment.gov.au/epbc/pmst/index.html>- & Protected Matters Search

<http://www.frogsaustralia.net.au/frogs/>

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed/noxious>

http://www.ehp.qld.gov.au/wildlife/koalas/koala-ecology.html#claws_for_climbing

<http://www.environment.nsw.gov.au/determinations>

<http://www.environment.nsw.gov.au/animals/Glidingpossums.htm>

<http://weeds.dpi.nsw.gov.au/WeedDeclarations/Results>

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/254-conservation-advice>

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap>

<https://www.landmanagement.nsw.gov.au/biodiversity-offsets-scheme/>

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap>

<http://www.olg.nsw.gov.au/biodiversity-assessment-and-approvals-navigator>

<https://www.planningportal.nsw.gov.au/find-a-property>

<http://www.environment.nsw.gov.au/determinations>

OEH 2017b. NSW BioNet Vegetation Classification database

<http://www.environment.nsw.gov.au>

OEH 2017c. Ramsar Wetland mapping <http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails>

Applications – iphone

- The Michael Morcombe eGuide to the Birds of Australia, 2017. Mydigitalearth.com
- Frogs of Australia. Hoskin, C.J, Grigg, G.C., Stewart, D.A. & Macdonald, S.L. 2015. Frogs of Australia (1.0.1/4139). (Mobile application software). Retrieved from <http://www.ugmedia.com.au>.

APPENDIX 1: FLORA SURVEY RESULTS

These species found over the subject site and nearby.

Scientific Name	Common Name	Transect
Trees		
<i>Angophora bakeri</i>	Narrow leaved apple	x
<i>Angophora floribunda</i>	Rough barked apple	x
<i>Corymbia eximia</i>	Yellow Bloodwood	x
<i>Corymbia gummifera</i>	Red Bloodwood	x
<i>Eucalyptus haemastoma</i>	Scribbly Gum	x
<i>Eucalyptus piperita</i>		x
<i>Eucalyptus punctata</i>	Grey Gum	x
<i>Eucalyptus umbra</i>	Broad leaved White Mahogany	x
<i>Syncarpia glomulifera subsp. Glomulifera</i>	Turpentine	x
Sub Canopy/mid canopy		
<i>Allocasuarina torulosa</i>	Forest She Oak	x
<i>Banksia serrata</i>	Old Man Banksia	x
<i>Jacksonia scoparia</i>	Dogwood	x
Understorey: Shrubs/herbs		
<i>Acacia implexa</i>	Hickory	x
<i>Acacia linifolia</i>	White Wattle	x
<i>Acacia longifolia subsp. sophorae</i>	Coastal Wattle	x
<i>Acacia parvipinnula</i>	Silver-stemmed wattle	x
<i>Acacia oxycedrus</i>	Spike wattle	x
<i>Acacia suaveolens</i>	Sweet Wattle	x
<i>Acacia terminalis</i>	Sunshine wattle	x
<i>Acacia ulicifolia</i>	Prickly Moses	x
<i>Acacia verniciflua</i>	Varnish wattle	x
<i>Bossiaea heterophylla</i>	Variable Bossiaea	x
<i>Bossiaea obcordata</i>	Spiny Bossiaea	x
<i>Brachyloma daphnoides</i>	Daphne Heath	x
<i>Breynia oblongifolia</i>	Coffee Bush	x
<i>Conospermum longifolium subsp longifolium</i>	Long leaf Coneseeds	x
<i>Daviesia ulicifolia</i>	Gorse Bitter Pea	x
<i>Dianella caerulea var producta</i>	A Blueberry Lily	x
<i>Dianella revoluta var. revoluta</i>	Blueberry Lilly	x
<i>Dianella prunina</i>	A Blueberry Lilly	x
<i>Dillwynia floribunda var floribunda</i>	A Parrot Pea	x
<i>Dillwynia retorta</i>	A Parrot Pea	x
<i>Dillwynia sericea</i>	Showy Parrot Pea	x
<i>Exocarpos cupressiformis</i>	Cherry Ballart	x
<i>Epacris pulchella</i>		x
<i>Gonocarpus tetragynus</i>		x
<i>Goodenia heterophylla subsp. heterophylla</i>		x

<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	Grey Spider Flower	x
<i>Grevillea humilis</i> subsp. <i>humilis</i>	Linear-leaf Grevillea	x
<i>Grevillea mucronulata</i>	Green Spider Flower	x
<i>Gompholobium latifolium</i>	Broad leaf Wedge Pea	x
<i>Hakea sericea</i>	Needlebush	x
<i>Hovea linearis</i>	Narrow leaf Hovea	x
<i>Lambertia formosa</i>	Mountain Devil	x
<i>Leptospermum juniperinum</i>	Prickly Tea Tree	x
<i>Leptospermum polygafolium</i>	Lemon scented Tea Tree	x
<i>Leptospermum trinervium</i>	Flaky barked Tea tree	x
<i>Leucopogon muticus</i>	Blunt Beard Heath	x
<i>Lissanthe strigosa</i> subsp <i>subulata</i>	Peach Heath	x
<i>Lobelia purpurascens</i>		x
<i>Lomandra glauca</i>		x
<i>Lomandra obliqua</i>		x
<i>Lomandra longifolia</i>	Spiny Headed Mat Rush	x
<i>Lomatia silaifolia</i>	Crinkle Bush	x
<i>Ozothamnus diosmifolius</i>	Pill flower	x
<i>Melichrus procumbens</i>	Jam Tarts	x
<i>Patersonia sericea</i>	Blue Flag	x
<i>Persoonia levis</i>	Broad leafed geebung	x
<i>Persoonia linearis</i>	Narrow leafed geebung	x
<i>Persoonia pinifolia</i>	Pine-leaved geebung	x
<i>Petrophile pulchella</i>	Conesticks	x
<i>Phyllota phyllicoides</i>	Heath Phyllota	x
<i>Pimelea linifolia</i>	Rice Flower	x
<i>Pultenaea hispidula</i>		x
<i>Platysace linearifolia</i>	Narrow Leaf Platysace	x
<i>Polyscias sambucifolia</i>	Elderberry Panax	x
<i>Scaevola ramosissima</i>	Purple Fan-flower	x
<i>Styphelia viridis</i>	Green Five-corners	x
<i>Trema tomentosa</i>	Native Peach	x
<i>Xanthorrhoea media</i>	Grass Tree	x
Grasses		
<i>Anisopogon avenaceus</i>	Oat Speargrass	x
<i>Aristida ramosa</i>	A Threeawn Speargrass	x
<i>Aristida vagans</i>	3 Awn Grass	x
<i>Bothriochloa decipiens</i>	Red Grass	x
<i>Cymbopogon refractus</i>	Barb Wire Grass	x
<i>Cynodon dactylon</i>	Couch	x
<i>Dichelachne micrantha</i>	Shorthair Plume grass	x
<i>Echinopogon caespitosus</i> var <i>caespitosus</i>	Tufted Hedgehog grass	x
<i>Entolasia stricta</i>	Wire grass	x
<i>Eragrostis brownii</i>	Brown's Lovegrass	x
<i>Eragrostis leptostachya</i>	Paddock Lovegrass	x
<i>Imperata cylindrica</i>	Blady Grass	x
<i>Microlaena stipoides</i>	Weeping grass	x

<i>Panicum simile</i>	Two-colour Panic	x
<i>Rytidosperma</i> spp	Wallaby Grass	x
Sedges/water plants	Nil	
<i>Lepidosperma laterale</i>	Variable sword sedge	
Ferns		
<i>Adiantum aethiopicum</i>	Common Maidenhair fern	x
<i>Baloskion tetraphyllum</i> subsp. <i>meiostachyum</i>	Plume Rush	x
<i>Cheilanthes sieberi</i>	Poison Rock Fern	x
<i>Lindsaea linearis</i>	Screw Fern	x
<i>Pteridium esculentum</i>	Bracken	x
Vines and scramblers		
<i>Billardiera scandens</i>	Appleberry dumplings	x
<i>Clematis aristata</i>	Old man's beard	x
<i>Hibbertia scandens</i>		x
<i>Glycine clandestina</i>	Purple twining Pea	x
<i>Kennedia rubicunda</i>	Dusky Coral Pea	x
<i>Maekawaea rhytidophylla</i>	A Tick Tre -Foil	x
<i>Eustrephus latifolius</i>	Wombat Berry	x
<i>Hardenbergia violacea</i>	Hardenbergia	x
<i>Pandorea pandorana</i> subsp. <i>pandorana</i>	Wonga Wonga Vine	x
<i>Parsonsia straminea</i>	Monkey Vine/Rope	x
Orchids/epiphytes	Nil	
Weeds		
(P) <i>Andropogon virginicus</i>	Whisky Grass	x
<i>Bidens pilosa</i>	Cobblers Pegs	x
<i>Chloris gayana</i>	Rhodes Grass	x
<i>Chloris virgata</i>	Feathertop Rhodes Grass	x
<i>Conyza bonariensis</i>	Flax leaved Fleabane	x
<i>Coreopsis lanceolata</i>	Coreopsis	x
<i>Ehrharta erecta</i>	Panic or African Veldt grass	x
(P) <i>Eragrostis curvula</i>	African Lovegrass	x
(P) <i>Hyparrhenia hirta</i>	Coolatai Grass	x
<i>Oenothera</i> spp	Primrose	x
<i>Paspalum dilatatum</i>	Paspalum	x
(P) <i>Paspalum quadrifarium</i>	Tussock Paspalum	x
<i>Prunus</i> spp	A Fruit Tree	x
<i>Richardia brasiliensis</i>	White Eye	x
<i>Setaria</i> spp	Pigeon grass	x
<i>Sida rhombifolia</i>	Paddy's lucerne	x
<i>Sonchus oleraceus</i>	Common sowthistle	x
<i>Taraxacum officinale</i>	Dandelion	x
<i>Verbena bonariensis</i>	Purple top	x

TOTAL WEED SPECIES	19	
TOTAL NATIVE SPECIES	101	
TOTAL PLANTS:	120	
# Threatened species	Nil	
(R) ROTAP - Rare plant	Nil	
(P) Priority Weeds	4	

APPENDIX 2: FAUNA SURVEY RESULTS

COMMON NAME

The following birds were observed, or heard either on or near the subject site, including flying overhead (common bird names from Pizzey & Knight, 1997):

Brown Thornbill	Australian Raven
Eastern Rosella	Yellow Robin
Pied Butcher bird	Kookaburra
Noisy Miner	Yellow faced Honeyeater
Black Faced Cuckoo Shrike	Magpie
Willie Wagtail	Blue Wren
Crested Pigeon	

Other fauna observed, or heard from calls/scats/footprints/scratch marks were:

Wombat- burrow & scat

Threatened spps listed under EPBC Act

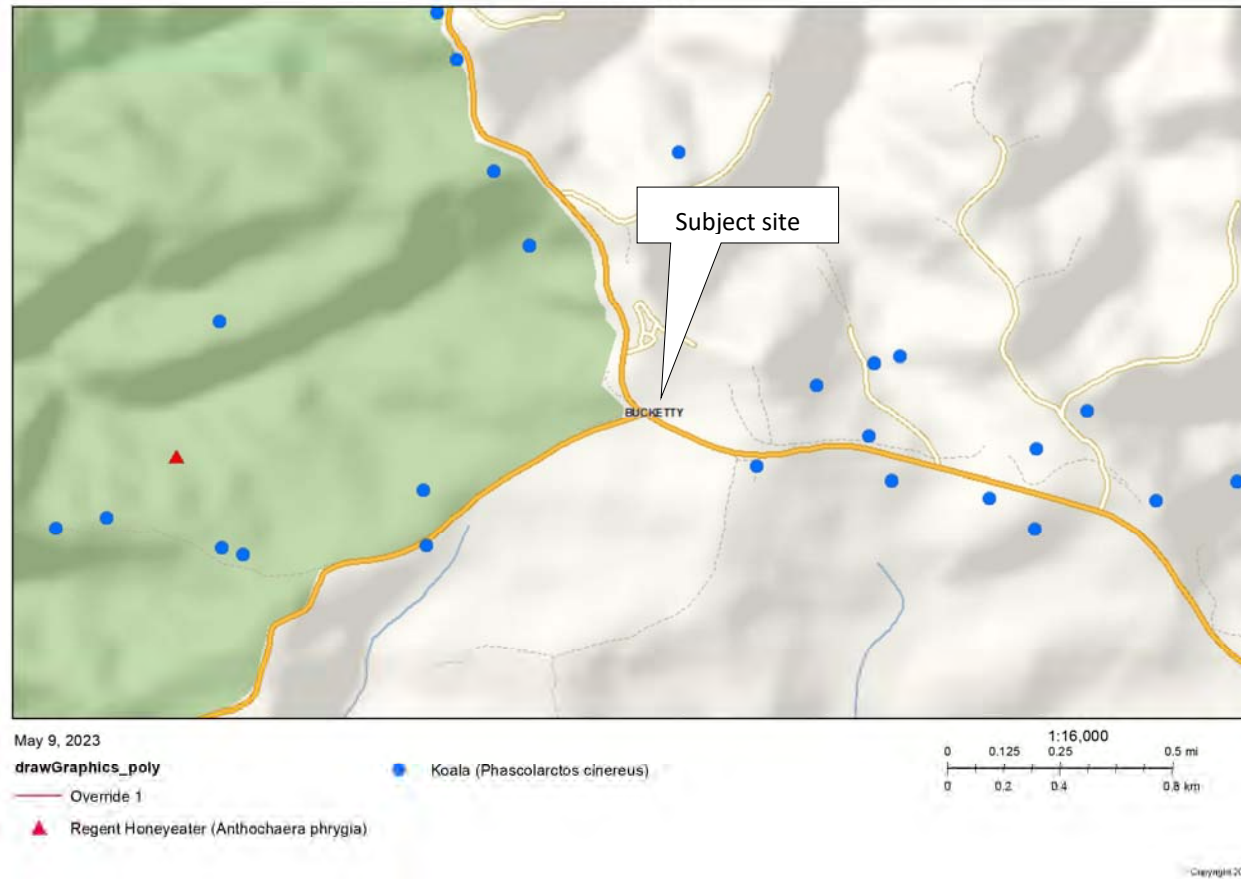
+ Threatened spps listed under BC Act

* Exotic species

APPENDIX 3: THREATENED FLORA & FAUNA SPECIES SEARCH RESULT (Over a 100 km² area – NSW BC Act & National EPBC Act Species – from NSW Bionet Wildlife Atlas).








Note: Only selected threatened species with records in this 100km² area have been shown below. Other re/unrecorded threatened species may be present.










Atlas Map






















Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Entities in selected area [North: -33.06 West: 151.09 East: 151.19 South: -33.16] returned a total of 370 records of 35 species.

Report generated on 9/05/2023 10:22 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Limnodynastidae	3042	<i>Heleioporus australiacus</i>		Giant Burrowing Frog	V,P	V	1	
Animalia	Amphibia	Hylidae	3039	<i>Litoria littlejohni</i>		Littlejohn's Tree Frog	E1,P	E	1	
Animalia	Reptilia	Varanidae	2287	<i>Varanus rosenbergi</i>		Rosenberg's Goanna	V,P		2	
Animalia	Reptilia	Elapidae	2677	<i>Hoplocephalus stephensii</i>		Stephens' Banded Snake	V,P		1	
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>		White-throated Needle-tail	P	V,C,J,K	3	
Animalia	Aves	Jacaniidae	0171	<i>Irediparra gallinacea</i>		Comb-crested Jacana	V,P		1	
Animalia	Aves	Cacatuidae	0268	<i>Callocephalon fimbriatum</i>		Gang-gang Cockatoo	V,P,3	E	42	

Animalia	Aves	Cacatuidae	0265	<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo	V,P,2	V	16	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		27	
Animalia	Aves	Psittacidae	0302	<i>Neophema pulchella</i>	Turquoise Parrot	V,P,3		20	
Animalia	Aves	Strigidae	0246	<i>Ninox connivens</i>	Barking Owl	V,P,3		4	
Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		2	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V,P		3	
Animalia	Aves	Meliphagidae	0603	<i>Anthochaera phrygia</i>	Regent Honeyeater	E4A,P	CE	27	
Animalia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P		3	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		9	

Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		53	
Animalia	Aves	Petroicidae	0380	<i>Petroica boodang</i>	Scarlet Robin	V,P		5	
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	9	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	E1,P	E	98	
Animalia	Mammalia	Petauridae	1136	<i>Petaurus australis</i>	Yellow-bellied Glider	V,P	V	1	
Animalia	Mammalia	Pseudocheiridae	1133	<i>Petauroides volans</i>	Southern Greater Glider	E1,P	E	5	
Animalia	Mammalia	Macropodidae	1215	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E1,P	V	1	
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		1	
Animalia	Mammalia	Molossidae	1329	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V,P		4	
Animalia	Mammalia	Vespertilionidae	1353	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V,P	V	7	

Animalia	Mammalia	Vespertilionidae	1372	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		1	
Animalia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		1	
Animalia	Mammalia	Vespertilionidae	1025	<i>Vespadelus trougtoni</i>	Eastern Cave Bat	V,P		4	
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		2	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		3	
Animalia	Mammalia	Muridae	1455	<i>Pseudomys novaehollandiae</i>	New Holland Mouse	P	V	10	
Plantae	Flora	Elaeocarpaceae	6205	<i>Tetratheca glandulosa</i>		V		1	
Plantae	Flora	Fabaceae (Mimosoideae)	3728	<i>Acacia bynoeana</i>	Bynoe's Wattle	E1	V	1	
Plantae	Flora	Proteaceae	5458	<i>Persoonia hirsuta</i>	Hairy Geebung	E1,P,3	E	1	

APPENDIX 4: SELECTED PHOTOS OF SUBJECT SITE

Looking east over development site, along George Downes Drive.



Looking west over development site, along George Downes Drive.



Looking west over development site, along Great Northern Rd



Looking west over development site, along Great Northern Rd



Looking east over development site, along Great Northern Rd from western end of works



All HBT's to be retained



Proposed tree removal for road widening (only some selected trees close to existing road)



Stockpile site



APPENDIX 5: FEDERAL EPBC ACT PROTECTED MATTERS SEARCH



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: 05-Mar-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

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:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar)	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	61
Listed Migratory Species:	10

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	21
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:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	2
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status
Greater Blue Mountains Area	NSW	Declared property

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status
Natural		
The Greater Blue Mountains Area	NSW	Listed place

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

Ramsar Site Name	Proximity
Hunter estuary wetlands	50 - 100km upstream from Ramsar site

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
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community may occur within 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
BIRD		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area
Erythrorhynchus radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area
FISH		
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area
FROG		
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
MAMMAL		

Scientific Name	Threatened Category	Presence Text
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area
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
Notamacropus parma Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within 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
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
PLANT		
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<u>Allocauarina glareicola</u> [21932]	Endangered	Species or species habitat may occur within area
<u>Asterolasia elegans</u> [56780]	Endangered	Species or species habitat may occur within area
<u>Cryptostylis hunteriana</u> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
<u>Cynanchum elegans</u> White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
<u>Eucalyptus glaucina</u> Slaty Red Gum [5670]	Vulnerable	Species or species habitat may occur within area
<u>Euphrasia arguta</u> [4325]	Critically Endangered	Species or species habitat may occur within area
<u>Genoplesium baueri</u> Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528]	Endangered	Species or species habitat may occur within area
<u>Haloragis exalata subsp. exalata</u> Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat may occur within area
<u>Kunzea rupestris</u> [8798]	Vulnerable	Species or species habitat may occur within area
<u>Lasiopetalum joyceae</u> [20311]	Vulnerable	Species or species habitat may occur within area
<u>Melaleuca deanei</u> Deane's Melaleuca [5818]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Micromyrtus blakelyi [6870]	Vulnerable	Species or species habitat may occur within area
Olearia cordata [6710]	Vulnerable	Species or species habitat may occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat may occur within area
Pimelea curviflora var. curviflora [4182]	Vulnerable	Species or species habitat may occur within area
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area
Rutidosis heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
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
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Zieria involucrata [3087]	Vulnerable	Species or species habitat may occur within area

REPTILE

Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Endangered	Species or species habitat likely to occur within area

Listed Migratory Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Terrestrial Species

Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area

Migratory Wetlands Species

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
--	--	--

Scientific Name	Threatened Category	Presence Text
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within 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
Transport and Regional Services - Airservices Australia	
Commonwealth Land - Airservices Australia [15890]	NSW

Listed Marine Species [\[Resource Information \]](#)

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

Scientific Name	Threatened Category	Presence Text
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna striata White-fronted Tern [799]		Migration route may occur within area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	
Yengo	National Park	NSW	

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
North East NSW RFA	New South Wales

EPBC Act Referrals

[\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Bioregional Assessments

[\[Resource Information \]](#)

SubRegion	BioRegion	Website
Hunter	Northern Sydney Basin	BA website
Sydney	Sydney Basin	BA website

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 is 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 on the contents of this report.

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 point locations and environmental data layers.

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 when time permits.

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 breeding sites; and
- 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.

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APPENDIX 3: PLANS (CESSNOCK CITY COUNCIL, SEPT 2024)


CESSNOCK CITY COUNCIL PROPOSED ROAD WIDENING

GEORGE DOWNS DRIVE, BUCKETTY

Sheet List Table		
Sheet Number	Sheet Title	Revision
01	C01 - COVER SHEET	1
02	C02 - GENERAL ARRANGEMENT PLAN	1
03	C03 - TYPICAL SECTIONS	1
04	C04 - GEORGE DOWNES DRIVE PLAN & SECTION SHEET 01 OF 03	1
05	C04 - GEORGE DOWNES DRIVE PLAN & SECTION SHEET 02 OF 03	1
06	C04 - GEORGE DOWNES DRIVE PLAN & SECTION SHEET 03 OF 03	1
07	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 01 OF 28	1
08	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 02 OF 28	1
09	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 03 OF 28	1
10	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 04 OF 28	1
11	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 05 OF 28	1
12	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 06 OF 28	1
13	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 07 OF 28	1
14	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 08 OF 28	1
15	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 09 OF 28	1
16	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 10 OF 28	1
17	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 11 OF 28	1
18	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 12 OF 28	1
19	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 13 OF 28	1
20	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 14 OF 28	1
21	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 15 OF 28	1
22	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 16 OF 28	1
23	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 17 OF 28	1
24	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 18 OF 28	1
25	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 19 OF 28	1
26	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 20 OF 28	1
27	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 21 OF 28	1
28	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 22 OF 28	1
29	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 23 OF 28	1
30	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 24 OF 28	1
31	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 25 OF 28	1
32	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 26 OF 28	1
33	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 27 OF 28	1
34	C05 - GEORGE DOWNS DRIVE CROSS SECTIONS SHEET 28 OF 28	1
35	C10 - LINEMARKING & SIGNAGE PLAN	1
36	C11 - SETOUT COORDINATES	1
37	C12 - EROSION AND SEDIMENT CONTROL PLAN	1
38	C12 - EROSION AND SEDIMENT CONTROL NOTES	1
39	C12 - EROSION AND SEDIMENT CONTROL DETAILS	1



CONSTRUCTION

 AL Civil Design COAL POINT NSW 2283 0466 253 917 www.alcivildesign.com.au	REVISION NUMBER	DATE
	1	07.02.24
	DRAWING NUMBER	C01-01
	PROJECT NUMBER	AL22116



GENERAL ARRANGEMENT PLAN
SCALE 1:1000



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6. Any errors in the correct information should be noted from the records of current activities where available. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

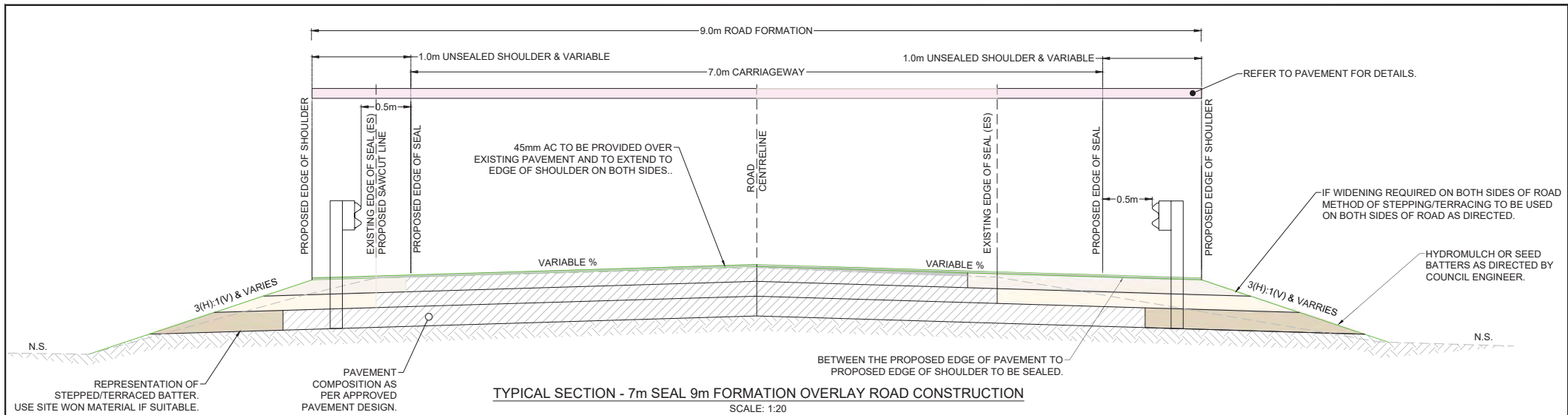
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DESIGN: M.M
DRAWN: M.M
CHECKED: M.M
DATE: 07.02.24
APPROVED: M.M

CLIENT
CESSNOCK CITY COUNCIL
PLAN: N/A
LONGITUDINAL SECTION: N/A
VERT. N/A
CROSS SECTION: N/A
HORIZ. N/A
VERT. N/A

PROJECT
PROPOSED ROAD WIDENING
GEORGE DOWNES DRIVE, BUCKETTY
DRAWING TITLE
GENERAL ARRANGEMENT PLAN
SHEET 02 OF 39 SHEETS

PROJECT No
AL22116
DWG No
C02-02
REVISION
1
CONSTRUCTION

REV	REVISION DETAILS	ISSUED BY	DATE
1	CONSTRUCTION ISSUE - AMENDED AT REQUEST OF	M.M	29.09.24
0	CONSTRUCTION ISSUE - AMENDED FOR UPDATED	M.M	17.06.24
B	AMENDED FROM A120	M.M	15.05.24
A	PRELIMINARY ISSUE	M.M	07.02.24



REPRESENTATION OF
STEPPED/TERRACED BATTER.
USE SITE WON MATERIAL IF SUITABLE.

PAVEMENT
COMPOSITION AS
PER APPROVED
PAVEMENT DESIGN.

BETWEEN THE PROPOSED EDGE OF PAVEMENT TO
PROPOSED EDGE OF SHOULDER TO BE SEALED.

TYPICAL SECTION - 7m SEAL 9m FORMATION OVERLAY ROAD CONSTRUCTION

SCALE: 1:20

ROAD PAVEMENT NOTES

1. ROAD PAVEMENT CONSTRUCTION TO BE CARRIED OUT IN ACCORDANCE WITH GEOTECHNICAL REPORT BY 5QS CONSULTING GROUP.
2. IF THE STANDARD OR REQUIREMENTS FOR WORK SHOWN ON THE DRAWINGS DIFFER FROM THAT REQUIRED BY THE GEOTECHNICAL REPORT, THE REQUIREMENTS OF THE GEOTECHNICAL REPORT WILL GENERALLY PREVAIL.

GEOTECHNICAL NOTE ON BATTER FILL

Fill with a mixture of cohesive and granular material, probably a ripped weathered rock such as a quarry overburden, and compact it to 95 % Standard compaction to AS 1289 Method 5.1.1, or equivalent RMS test method, as the embankment filling up to about 0.5 m below subgrade level. A similar material, with a minimum California bearing ratio [CBR] of 15 % and maximum plasticity index [PI] of 12 %, should be placed to subgrade level above the general embankment and be compacted to 100 % Standard (AS 1289 Method 5.1.1, or equivalent RMS test method)

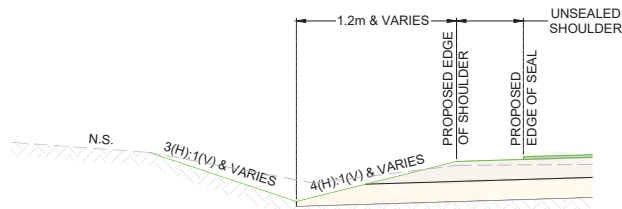
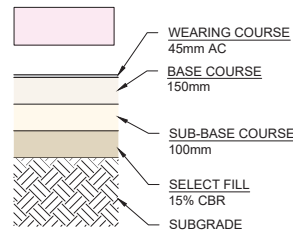


TABLE DRAIN

SCALE: 1:20

PAVEMENT TYPE WIDENING PAVEMENT CONSTRUCTION



REV	REVISION DETAILS	ISSUED BY	DATE
1	CONSTRUCTION ISSUE - AMENDED AT REQUEST OF	M.M.	29.09.24
0	CONSTRUCTION ISSUE - AMENDED FOR UPDATED	M.M.	17.06.24
B	AMENDED FOR 1:20	M.M.	15.05.24
A	PRELIMINARY ISSUE	M.M.	07.02.24

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CIVIL DESIGN
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0488 253 1917
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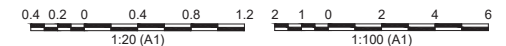
DISCLAIMER
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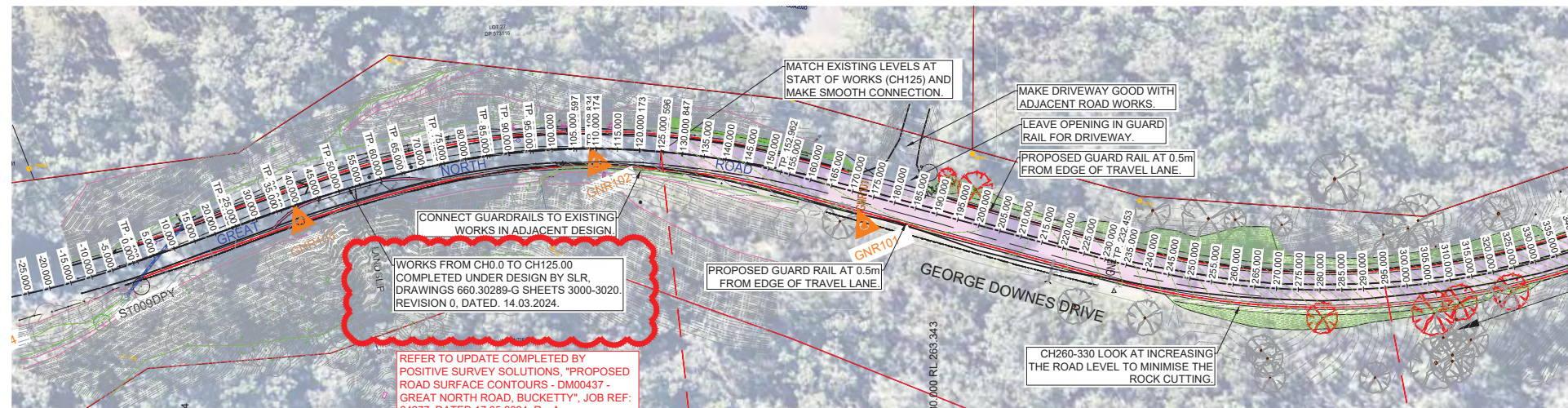
SURVEY:	CLIENT
DESIGN:	M.M.
DRAWN:	M.M.
CHECKED:	M.M.
DATE:	07.02.24
APPROVED:	M.M.

CLIENT	CESSNOCK CITY COUNCIL
PLAN:	N/A
LONGITUDINAL SECTION	HORIZ. N/A
CROSS SECTION	HORIZ. N/A

PROJECT	PROPOSED ROAD WIDENING
DWG No	C03-03
DRAWING TITLE	TYPICAL SECTIONS
SHEET	03 OF 39 SHEETS

PROJECT No	AL22116	REVISION	1
DWG No	C03-03		





FOR CONTINUATION REFER TO DRAWING C04-04

--- 29.0 --- CONTOURS - EXISTING
 --- 29.0 --- CONTOURS - PROPOSED
 [Pink Box] NEW ROAD PAVEMENT TYPE P1
 [Red Line] PROPOSED GUARD RAIL
 [Blue Line] PROPOSED STORMWATER
 [Grey Line] EXISTING STORMWATER
 [Dashed Line] EXISTING FENCE LINE
 [Tree Symbol] EXISTING TREE
 [Red Star Symbol] TREE TO BE REMOVED

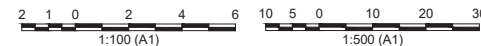
REFER TO UPDATE COMPLETED BY
POSITIVE SURVEY SOLUTIONS, "PROPOSED
ROAD SURFACE CONTOURS - DM00437 -
GREAT NORTH ROAD, BUCKETTY", JOB REF:
24277, DATED 17.05.2024, RevA

SITE PLAN
SCALE 1:500

CHAINAGE	EXISTING	DESIGN	DEPTH	SUPER RIGHT SIDE	SUPER LEFT SIDE
0.00	260.83	260.83		0.00%	0.00%
1.08	260.80	260.799	+0.00	4.05%	-7.99%
5.00	260.71	260.706	+0.00	3.37%	-8.21%
10.00	260.59	260.586	+0.00	2.39%	-5.22%
15.00	260.47	260.467	+0.00	0.87%	-3.74%
20.00	260.34	260.347	+0.00	-0.76%	-2.32%
24.183	260.25	260.248	+0.00	-1.85%	-0.80%
25.00	260.23	260.228	+0.00	-2.04%	-0.51%
30.00	260.12	260.121	+0.00	-3.29%	0.94%
35.00	260.04	260.035	+0.00	-4.52%	1.91%
36.042	260.02	260.020	+0.00	-4.79%	2.05%
40.00	259.97	259.971	+0.00	-5.82%	2.66%
45.00	259.93	259.929	+0.00	-6.83%	3.75%
50.00	259.91	259.909	+0.00	-7.34%	4.45%
52.192	259.91	259.907	+0.00	-7.40%	4.63%
53.588	259.91	259.912	+0.00	-7.44%	4.77%
55.00	259.93	259.934	+0.00	-7.44%	4.77%
60.00	259.93	259.934	+0.00	-7.65%	5.26%
65.00	259.98	259.980	+0.02	-8.09%	6.34%
66.596	259.96	259.963	+0.00	-8.04%	6.54%
70.00	260.04	260.043	+0.00	-8.04%	7.77%
75.00	260.12	260.116	+0.00	-9.47%	9.14%
75.598	260.13	260.125	+0.00	-9.56%	9.29%
80.00	260.21	260.205	+0.00	-10.44%	9.96%
85.00	260.32	260.319	+0.00	-12.38%	10.96%
85.00	260.32	260.337	+0.00	-12.66%	11.04%
85.598	260.34	260.337	+0.00	-12.66%	11.04%
90.00	260.46	260.462	+0.00	-14.88%	11.33%
90.174	260.47	260.468	+0.00	-14.96%	11.32%
95.00	260.63	260.632	+0.00	-14.75%	11.40%
95.598	260.65	260.652	+0.00	-14.61%	11.44%
100.00	260.82	260.821	+0.00	-13.61%	10.84%
105.00	261.04	261.041	+0.00	-11.73%	11.23%
105.597	261.07	261.067	+0.00	-11.39%	11.28%
110.00	261.26	261.262	+0.00	-10.22%	10.79%
115.00	261.53	261.532	+0.00	-10.39%	10.42%
115.597	261.56	261.562	+0.00	-10.40%	10.36%
120.00	261.78	261.781	+0.00	-10.99%	9.85%
125.00	262.03	262.031	+0.00	-10.77%	9.34%
129.847	262.22	262.246	+0.03	-10.37%	9.54%
130.00	262.22	262.253	+0.03	-10.35%	9.53%
135.00	262.43	262.471	+0.04	-9.67%	9.17%
140.00	262.62	262.684	+0.04	-8.77%	8.55%
145.00	262.78	262.823	+0.04	-7.96%	7.45%
150.00	262.92	262.969	+0.04	-7.59%	6.29%
152.962	262.99	263.039	+0.04	-7.02%	5.34%
155.00	263.04	263.086	+0.04	-6.63%	4.65%
160.00	263.13	263.165	+0.03	-6.40%	3.72%
165.00	263.17	263.216	+0.04	-5.54%	3.49%
170.00	263.23	263.279	+0.04	-4.85%	3.77%
175.00	263.27	263.312	+0.04	-4.72%	3.77%
180.00	263.30	263.343	+0.04	-4.52%	2.61%
185.00	263.30	263.341	+0.04	-3.83%	2.57%
190.00	263.27	263.319	+0.04	-2.89%	2.08%
195.00	263.24	263.283	+0.04	-2.77%	0.49%
200.00	263.19	263.231	+0.04	-2.42%	-0.45%
205.00	263.10	263.140	+0.04	-1.61%	-1.33%
210.00	262.99	263.037	+0.04	-0.73%	-2.10%
215.00	262.89	262.939	+0.04	-0.15%	-3.22%
220.00	262.78	262.830	+0.04	0.61%	-4.78%
225.00	262.62	262.669	+0.04	1.64%	-5.36%

ROAD No.
Ch 0.000 to Ch 295.000
H=1:500 V=1:100

GEORGE DOWNES DRIVE


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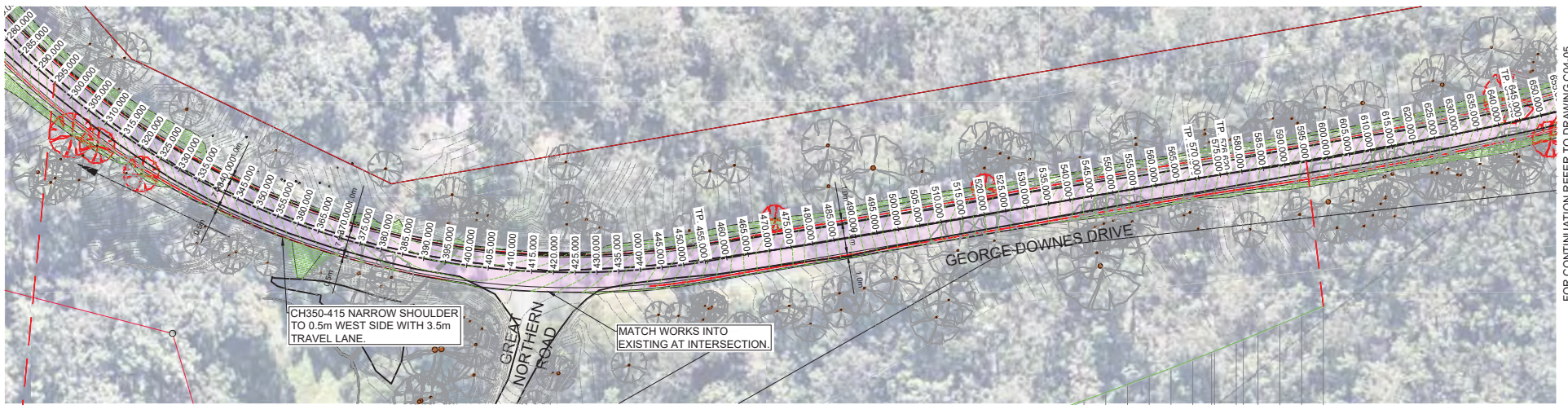
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DRAWN: M.M			
CHECKED: M.M			
DATE: 07.02.24			
APPROVED: M.M	PLAN:	LONGITUDINAL SECTION	CROSS SECTION
	N/A	HORIZ. N/A VERT. N/A	HORIZ. N/A VERT. N/A

PROJECT	PROPOSED ROAD WIDENING
DRAWING TITLE	GEORGE DOWNS DRIVE, BUCKETTY
N	GEORGE DOWNS DRIVE PLAN & SECTION SHEET 01 OF 03
	SHEET 04 OF 39 SHEETS

PROJECT No	AL22116	REVISION	1
DWG No	C04-04		
CONSTRUCTION			
			

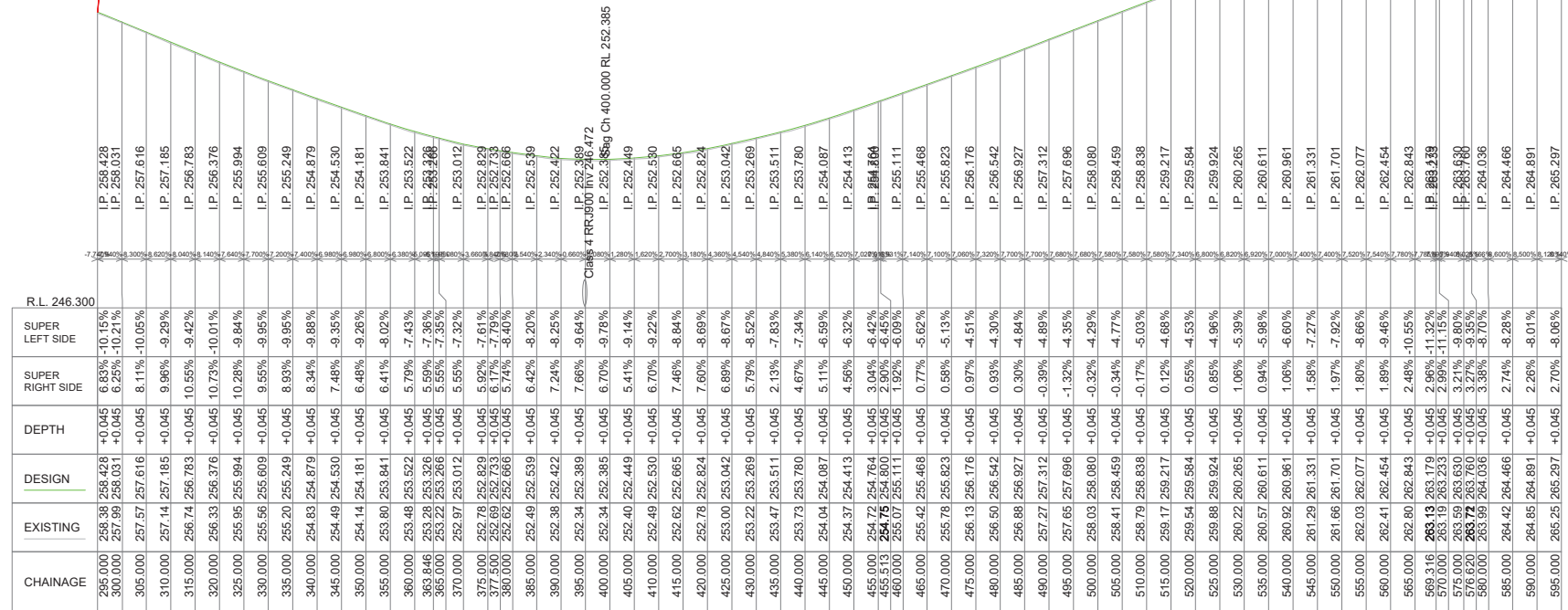


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FOR CONTINUATION REFER TO DRAWING C04-05

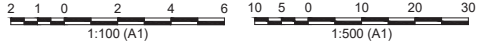
SITE PLAN
SCALE 1:500



- LEGEND
- 29.0 --- CONTOURS - EXISTING
 - 29.0 --- CONTOURS - PROPOSED
 - NEW ROAD PAVEMENT TYPE P1
 - PROPOSED GUARD RAIL
 - PROPOSED STORMWATER
 - EXISTING STORMWATER
 - EXISTING FENCE LINE
 - EXISTING TREE
 - TREE TO BE REMOVED



ROAD No.
Ch 295.000 to Ch 595.000
H=1:500 V=1:100
GEORGE DOWNES DRIVE



REV	REVISION DETAILS	ISSUED BY	DATE
1	CONSTRUCTION ISSUE - AMENDED AT REQUEST OF	M.M	29.09.24
0	CONSTRUCTION ISSUE - AMENDED FOR UPDATED	M.M	17.06.24
B	AMENDED FROM P120	M.M	15.05.24
A	PRELIMINARY ISSUE	M.M	07.02.24

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2. The Client acknowledges and agrees that the plan is prepared for the sole purpose of the client for the specific purpose of producing a design plan. This plan is strictly limited to the Purpose and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter. The plan is prepared without the assumption of a duty of care to any other person other than the Client (Third Party) and will not be relied on by any Third Party.

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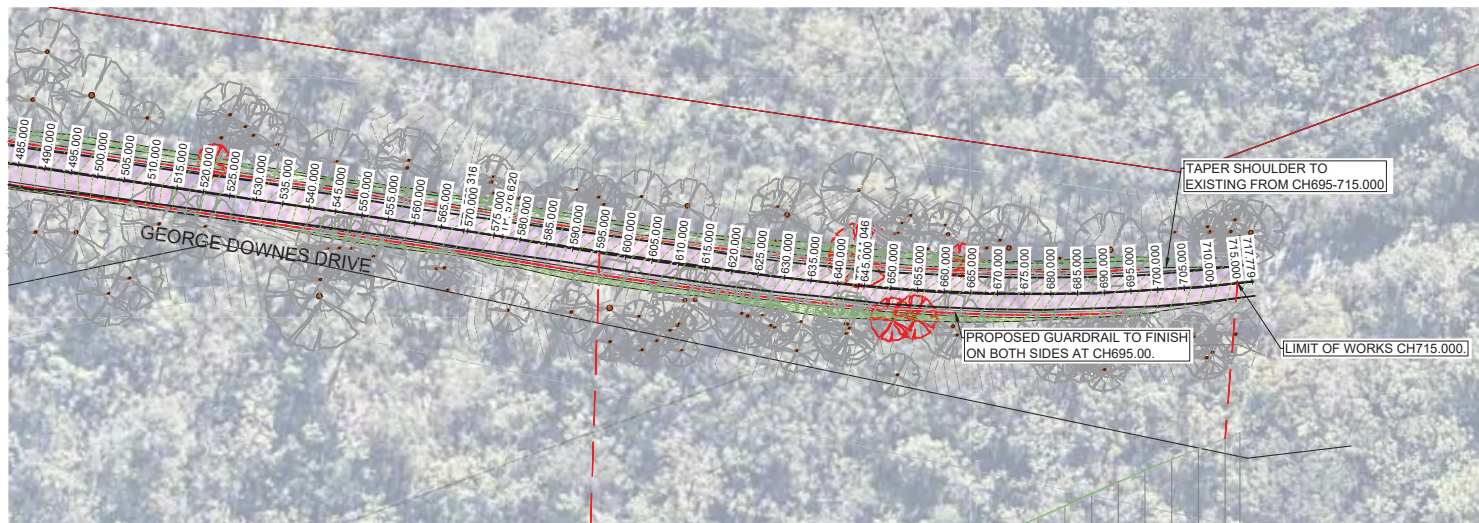
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SURVEY:	CLIENT	CLIENT
DESIGN:	M.M	
DRAWN:	M.M	
CHECKED:	M.M	
DATE:	07.02.24	
APPROVED:	M.M	
PLAN:	N/A	
LONGITUDINAL SECTION:	N/A	
CROSS SECTION:	N/A	

PROJECT	PROPOSED ROAD WIDENING
PROJECT No	AL22116
DWG No	C04-05
DRAWING TITLE	GEORGE DOWNES DRIVE PLAN & SECTION SHEET 02 OF 03
SHEET	05 OF 39 SHEETS

PROJECT No	AL22116
DWG No	C04-05
DRAWING TITLE	GEORGE DOWNES DRIVE PLAN & SECTION SHEET 02 OF 03
SHEET	05 OF 39 SHEETS



SITE PLAN
SCALE 1:500

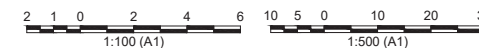
LEGEND

-
- 29.0 --- CONTOURS - EXISTING
 --- 29.0 --- CONTOURS - PROPOSED
 [Pink Box] NEW ROAD PAVEMENT TYPE P1
 [Red Line] PROPOSED GUARD RAIL
 [Blue Line] PROPOSED STORMWATER
 [Grey Line] EXISTING STORMWATER
 [Dashed Line] EXISTING FENCE LINE
 [Tree Symbol] EXISTING TREE
 [Tree Symbol] TREE TO BE REMOVED

CHAINAGE	EXISTING	DESIGN	DEPTH	SUPER RIGHT SIDE	SUPER LEFT SIDE	R.L. 259.200
595.000	265.25	265.297	+0.045	2.70%	-0.06%	I.P. 265.297
600.000	265.66	265.704	+0.045	3.14%	-7.97%	I.P. 265.704
605.000	266.06	266.108	+0.045	3.87%	-7.02%	I.P. 266.108
610.000	266.47	266.514	+0.045	4.48%	-6.44%	I.P. 266.514
615.000	266.89	266.933	+0.045	4.59%	-7.88%	I.P. 266.933
620.000	267.31	267.358	+0.045	4.65%	-9.28%	I.P. 267.358
625.000	267.76	267.801	+0.045	4.79%	-9.94%	I.P. 267.801
630.000	268.20	268.241	+0.045	4.99%	-10.61%	I.P. 268.241
635.000	268.64	268.684	+0.045	5.12%	-11.29%	I.P. 268.684
640.000	269.08	269.126	+0.045	5.24%	-11.68%	I.P. 269.126
645.046	269.45	269.495	+0.045	4.84%	-11.34%	I.P. 269.495
645.000	269.89	269.931	+0.045	4.91%	-11.25%	I.P. 269.931
650.000	269.99	270.031	+0.045	4.83%	-11.04%	I.P. 270.031
655.000	270.43	270.474	+0.045	5.16%	-11.37%	I.P. 270.474
660.000	270.87	270.919	+0.045	5.53%	-11.38%	I.P. 270.919
665.000	271.31	271.381	+0.045	5.83%	-10.28%	I.P. 271.381
670.000	271.79	271.834	+0.045	6.22%	-9.47%	I.P. 271.834
675.000	272.24	272.286	+0.045	6.31%	-10.22%	I.P. 272.286
680.000	272.69	272.733	+0.045	6.31%	-10.90%	I.P. 272.733
685.000	273.13	273.175	+0.045	6.07%	-11.29%	I.P. 273.175
690.000	273.57	273.618	+0.045	5.58%	-11.75%	I.P. 273.618
695.000	274.02	274.067	+0.045	4.63%	-11.98%	I.P. 274.067
700.000	274.46	274.503	+0.045	3.88%	-11.55%	I.P. 274.503
705.000	274.88	274.902	+0.025	3.43%	-8.52%	I.P. 274.902
710.000	275.29	275.300	+0.010	3.01%	-8.82%	I.P. 275.300
715.000	275.69	275.690	+0.003	2.98%	-8.98%	I.P. 275.690

ROAD No.
Ch 595.000 to Ch 717.779
H=1:500 V=1:100

GEORGE DOWNES DRIVE



1	CONSTRUCTION ISSUE - AMENDED AT REQUEST OF	M.M.	20.09.24		
0	CONSTRUCTION ISSUE - AMENDED FOR UPDATED SAVING EARTHWORK P/F20	M.M.	17.06.24		
B		M.M.	15.05.24		
A	PRELIMINARY ISSUE	M.M.	07.02.24		
REV	REVISION DETAILS	ISSUED BY	DATE		




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SURVEY: CLIENT	<div> <div>CLIENT</div> <div> <div>CESSNOCK CITY COUNCIL</div> </div> </div>		
DESIGN: M.M			
DRAWN: M.M			
CHECKED: M.M			
DATE: 07.02.24			
APPROVED: M.M	PLAN:	LONGITUDINAL SECTION	CROSS SECTION
	N/A	HORIZ. N/A	HORIZ. N/A
		VERT. N/A	VERT. N/A

PROJECT PROPOSED ROAD WIDENING GEORGE DOWNS DRIVE, BUCKETTY DRAWING TITLE GEORGE DOWNS DRIVE PLAN & SECTION SHEET 03 OF 03 SHEET 06 OF 39 SHEETS	PROJECT No AL22116	REVISION 1
	DWG No C04-06	
	CONSTRUCTION	
		

**APPENDIX 4: HERITAGE NOW, 22.12.22. NON ABORIGINAL
HERITAGE ASSESSMENT FOR PROPOSED ROAD UPGRADE
WORKS AT BUCKETTY.**

Project Number: HN000450-A



NON-ABORIGINAL HERITAGE ASSESSMENT— GEORGE DOWNES DRIVE BUCKETTY

FINAL 22/ 12 / 2022

REPORT TO: CESSNOCK CITY COUNCIL
PO Box 152, Cessnock NSW 2325

REPORT BY HERITAGE NOW PTY LTD
projects@heritagenow.com.au
(02) 8318 9770
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Executive Summary

Heritage Now Pty Ltd (Heritage Now) was engaged by Cessnock City Council to prepare a Heritage Assessment for road upgrade works at Bucketty.

The Project Area currently overlaps with the curtilage of World, National, State and local heritage listings associated with the Great North Road; a 240 km road constructed between 1826 and 1836 by convict labour to provide an overland route from Sydney to the Hunter Valley. Furthermore, a portion of the Project Area also overlaps with the curtilage of the World Heritage listed Greater Blue Mountains Area (which is listed for its natural heritage values).

The eastern portion of the Project Area is not heritage listed and not historic heritage has been identified in this area. The central and western portion of the Project Area is subject to multiple heritage listings, including State and local listings, as well as a small overlap with a world heritage and national listing. These listings are associated with the Blue Mountains Area as well as the Old North Road, associated with early convicts.

The site inspection identified evidence of structures associated with the Old North Road outside the Project Area, however, it is possible that additional evidence is contained below the current road surfaces.

Works will be avoiding the World Heritage and National Heritage Curtilage Area, with works only occurring within the existing road corridor.

There will be road widening works within the northern portion of the Project Area and this needs to be subject to a detailed archaeological assessment as they appear to overlap with the original alignment of the Great North Road in this section.

Currently much of the works are within the State Heritage Register curtilage will likely require a further heritage permit (likely Section 60 approval) from the Heritage Council of NSW.

The following recommendations are made in respect to the works:

Recommendation 1

The works within the State Heritage Register curtilage will require a further heritage approval (likely Section 60) from the Heritage Council of NSW. A Statement of Heritage Impact for a Section 60 application will need to be prepared which specifically addresses the Section 60 requirements, as well as the finalised road design. The Section 60 Approval will be needed before works can commence.

Recommendation 2

Works to be conducted within the locally listed area will require notification to Council prior to the commencement of works.

Recommendation 3

The features associated with the Great North Road are to be surveyed in by a qualified surveyor and their locations marked on all site plans and marked as no-go zones.

Recommendation 4

The south-eastern portion of the Project Area along George Downes Drive (south of the intersection with Great North Road) is the preferred location for additional set down and laydown areas as they are not heritage listed and have no identified heritage sensitivity.

Recommendation 5

All project personnel are to be made aware of the multiple heritage listings within the Project Area including areas of World Heritage and State significance.

Acronyms, Terms and Definitions

Acronym/Term	Definition
CHL	Commonwealth Heritage List
DCDB	Digital Cadastral Database (NSW)
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
LEP	Local Environmental Plan
LGA	Local Government Area
OEH	Office of Environment and Heritage, NSW
m	Metric metres
NHL	National Heritage List
SHI	State Heritage Inventory
SHR	State Heritage Register
SIX Maps	Spatial Information Exchange (NSW government portal holding a range of spatial and property data)
SoHI	Statement of Heritage Impact
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHL	World Heritage List

Version Control

Version	Revision Description	Reviewed by	Date	Approved by	Date Approved
1	Draft Report	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	8/9/2022	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	8/9/2022
2	Final	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	22/12/2022	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	22/12/2022

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1 Introduction

Heritage Now Pty Ltd (Heritage Now) was engaged by Cessnock City Council to prepare a Statement of Heritage Impact for proposed road upgrade works at Bucketty.

1.1 Project Area

The Project Area is located at the intersection of George Downes Drive, the Great North Road and the Great Northern Road, Bucketty, approximately 37 km south-west of the city of Cessnock. It comprises approximately 2.5 hectares where road upgrade works are proposed (Figure 1).

The Project Area lies in the Parishes of Hay, Rugby, and Lockyer, County of Northumberland, at the junction of three local government areas: Cessnock City Council; Hawkesbury City Council, and Central Coast Council (Figure 2).



Figure 1. The Project Area. (Source: Six Maps with Heritage Now additions)

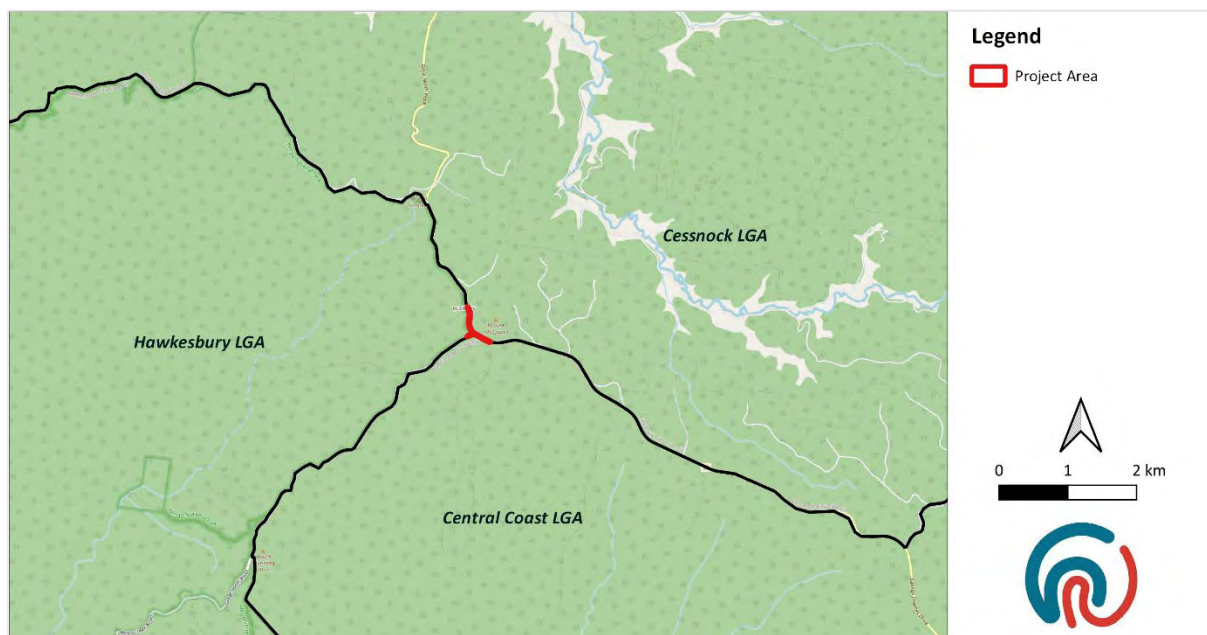


Figure 2. The Project Area in a regional context. (Source: OpenStreetMap with DCDB and Heritage Now additions)

1.2 Overview of Project Proposal

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive, Bucketty, at the intersection with the Great Northern Road. This length of road has been the site of numerous road accidents, and the upgrade is intended to ensure a safer journey for drivers and motorcyclists exploring the region. The works will include:

- road widening at the intersection with Great North Road and along George Downes Drive to accommodate guard rail
- installation of guardrail with motorcycle under run on both sides of George Downes Drive
- associated signs and line markings

1.3 Methodology

This document was prepared in accordance with relevant Heritage NSW guidelines, including, but not limited to:

- Assessing Heritage Significance¹
- Statements of Heritage Impact²

1.4 Previous Studies

This report draws upon the following previous studies:

- Lavelle, Siobhan, Grace Karskens, and RTA Technology. "Stage 1 Conservation Plan for the Great North Road." The Convict Trail Project, 1999 (the 1999 CMP).

¹ NSW Heritage Office, *Assessing Heritage Significance* (Sydney: NSW Heritage Office, 2001).

² Heritage Office and Department of Urban Affairs and Planning, "Statements of Heritage Impact," 2002.

- McBean & Crisp Pty Ltd. "Report on Great North Road between Mt. Manning Turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects." The National Trust of Australia (NSW), 1983.

1.5 Authorship

This report was produced by the Heritage Now team. The report was written by Sarah Mané (Heritage Consultant) and Lara Tooby (Senior Heritage Consultant), with input from Joven Sanchez (Heritage Officer), and Kira Paznikov (Heritage Officer). Technical input and quality review was provided by Ngaire Richards, Principal Heritage Consultant at Heritage Now.

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2 Legislative Context and Heritage Listings

This section provides a brief overview of the relevant legislation and heritage listings pertaining to the Project Area at the time of writing the report. The legislative overview was provided solely as contextual information for the proponent and does not constitute legal advice.

2.1 Legislative Context

2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a legal framework providing for the protection and management of aspects of the environment that are matters of national environmental significance. Protected matters covered by the EPBC Act include:

- World heritage areas on the World Heritage List (WHL), including natural and cultural sites which have outstanding universal value.
- Heritage places on the National Heritage List (NHL), including natural, historic or Indigenous places of outstanding national heritage value to the nation.
- Heritage places on the Commonwealth Heritage List (CHL), including places of significant heritage value on Commonwealth land and waters, or that are owned or managed by the Australian government.

Should a proposed action have the potential for a significant impact on a protected matter, a referral to the Australian government may be made to determine whether formal assessment and approval is required under the EPBC Act.

The Project Area is partly within the Greater Blue Mountains Area, which is a declared property on the World Heritage List and listed place on the National Heritage List (Table 1). A map of the Greater Blue Mountains Area is provided in Figure 3, and the location with respect to the Project Area is shown in Figure 4.

Table 1 WHL and NHL places

Place Name	Primary Address	Class	List	Significance	Property ID / Place ID
Greater Blue Mountains Area	Great Western Hwy, Katoomba, NSW, Australia	Natural	World Heritage List	Outstanding Universal Value	917
			National Heritage List	National	105999

The statement of Outstanding Universal Value for The Greater Blue Mountains Area identifies that the exceptional biodiversity (natural) values of this area are complemented by other values, including Indigenous and post-European-settlement cultural values.

2.1.2 Heritage Act 1977 (NSW)

The *Heritage Act 1977* (Heritage Act) seeks to protect promote the conservation of items of environmental heritage, which are defined as “those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance.”

Part 3A of the Heritage Act establishes the State Heritage Register (SHR), which is kept by the Heritage Council of NSW and provides for the identification and listing of items of State heritage significance. Part 8, Section 170 of the Act requires government agencies and State-owned corporations to keep a Heritage and Conservation Register (also known as a Section 170 Register) of their heritage assets.

The Project Area is located partly within the curtilage of the Great North Road, which is listed as an item on the SHR (Table 2). A plan of the SHR curtilage of the road is provided in Figure 5, and the location with respect to the Project Area is shown in Figure 6.

There are no heritage items within the Project Area listed on a Section 170 Register.

Table 2 SHR items

Item Name	Location	Local Government Area	Type	Significance	SHR ID
Great North Road, Between Mt Manning and Wollombi	between WOLLOMBI NSW 2325	Hawkesbury	Built	State	01789

Historical archaeological resources are protected under the relics provisions of the Act. A ‘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.

An excavation permit (issued under s 140 and 141 of the Act) is required prior to disturbance or excavation of any land likely to contain relics. An exception from the need for an excavation permit may apply under s 139(4), for the following activities undertaken in accordance with relevant Heritage NSW guidelines:

- minor works involving limited impact to relics of local heritage significance³,
- archaeological monitoring of relics of local heritage significance⁴, or
- archaeological test excavation of relics of local heritage significance⁵.

To carry out works within the curtilage of an SHR item, a heritage approval (issued under s 60 and 63 of the Act) must be obtained, unless the proposal involves minor works that will have no impact on

³ Heritage NSW, “Relics of Local Heritage Significance: A Guide for Minor Works with Limited Impact,” 2022.

⁴ Heritage NSW, “Relics of Local Heritage Significance: A Guide to Archaeological Monitoring,” 2022.

⁵ Heritage NSW, “Relics of Local Heritage Significance: A Guide for Archaeological Test Excavation,” 2022.

the heritage significance of the item and meets the criteria for an exemption granted under s 57 of the *Heritage Act 1977*.

If a relic is discovered or located, s 146 of the Heritage Act requires the Heritage Council of NSW to be notified.

2.1.3 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides triggers for undertaking environmental and heritage assessments as part of the wider land-use planning framework. Part 4 details how authorities are to determine development applications, as well as identifying whether projects require an Environmental Impact Statement. Part 9 outlines the implementation and enforcement of the EP&A Act.

The EP&A Act also allows for the making of State environmental planning policies (SEPPs) that deal with matters of State or Regional planning significance, and local environmental plans (LEPs) for the purpose of planning within a local government area.

Heritage items (which can include buildings, works, places, relics, trees, objects or archaeological sites) and heritage conservation areas (including associated fabric, settings and views) are identified in the environmental heritage schedule attached to a SEPP or LEP. These items may be of local, state, or national significance.

Local Environmental Plans

Standard heritage conservation provisions for LEPs are set out in section 5.10 of the Standard Instrument—Principal Local Environmental Plan (2006 EPI 155a). Development consent is required for demolishing, moving or altering a heritage item; or disturbing or excavating an archaeological site, while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed.

The consent authority must consider the effect of the proposed development on the significance of a heritage item or heritage conservation area. Further, before granting consent for either development on an archaeological site or demolition of a State heritage item, the Heritage Council of NSW must be notified and any response taken into consideration.

The Project Area is within the Cessnock, Hawkesbury, and Central Coast (formerly Gosford and Wyong) Local Government Areas. The relevant LEPs are:

- Cessnock Local Environmental Plan 2011
- Hawkesbury Local Environmental Plan 2012
- Gosford Local Environmental Plan 2014

Three heritage items listed on the LEPs are located partly within the Project Area (Table 3). The partially overlapping listings all relate to sections of the Great North Road and are of State significance. The location of the heritage items with respect to the Project Area is shown in Figure 7.

Table 3 LEP items

Listing Instrument	Item Name	Primary Address	Item Type	Significance	Item No.
Cessnock LEP 2011	Great North Road (between Mount Manning and Wollombi)	Paynes Crossing Road WOLLOMBI NSW 2325	Complex - Group	State	I217
Hawkesbury LEP 2012	Old Great North Road	Old Great North Road between Devine's Hill and Mount Manning ST ALBANS NSW 2775	Complex - Group	State	I0091
Gosford LEP 2014	Roadworks	The Great North Road (between Hawkesbury River, Devine's Hill, Mount Manning and Kulnura)	Complex - Group	State	60

2.2 Summary of Heritage Listings

Heritage items are registered on lists according to their level of significance: national, state, local, and in rare cases they may world heritage (places that are of outstanding universal value to humanity).

All statutory heritage registers were searched, and results summarised in Table 4. Table 5 contains a summary of the heritage listings within and near the Project Area.

Table 4. Heritage listing search results for the Project Area

Listing	Result
World Heritage List	1
National Heritage List	1
State Heritage Register	1
Section 170 Registers	0
Local Environmental Plans – Environmental Heritage Schedules	3

Table 5. Heritage listings within the Project Area.

Item Name	Listing Instrument	Item No.	Significance
The Greater Blue Mountains Area	WHL	917	Outstanding Universal Value
	NHL	105999	National
Great North Road, Between Mt Manning and Wollombi	SHR	01789	State
Great North Road (between Mount Manning and Wollombi)	Cessnock LEP	I217	State

Item Name	Listing Instrument	Item No.	Significance
Roadworks	Gosford LEP	60	State
Old Great North Road	Hawkesbury LEP	I0091	State

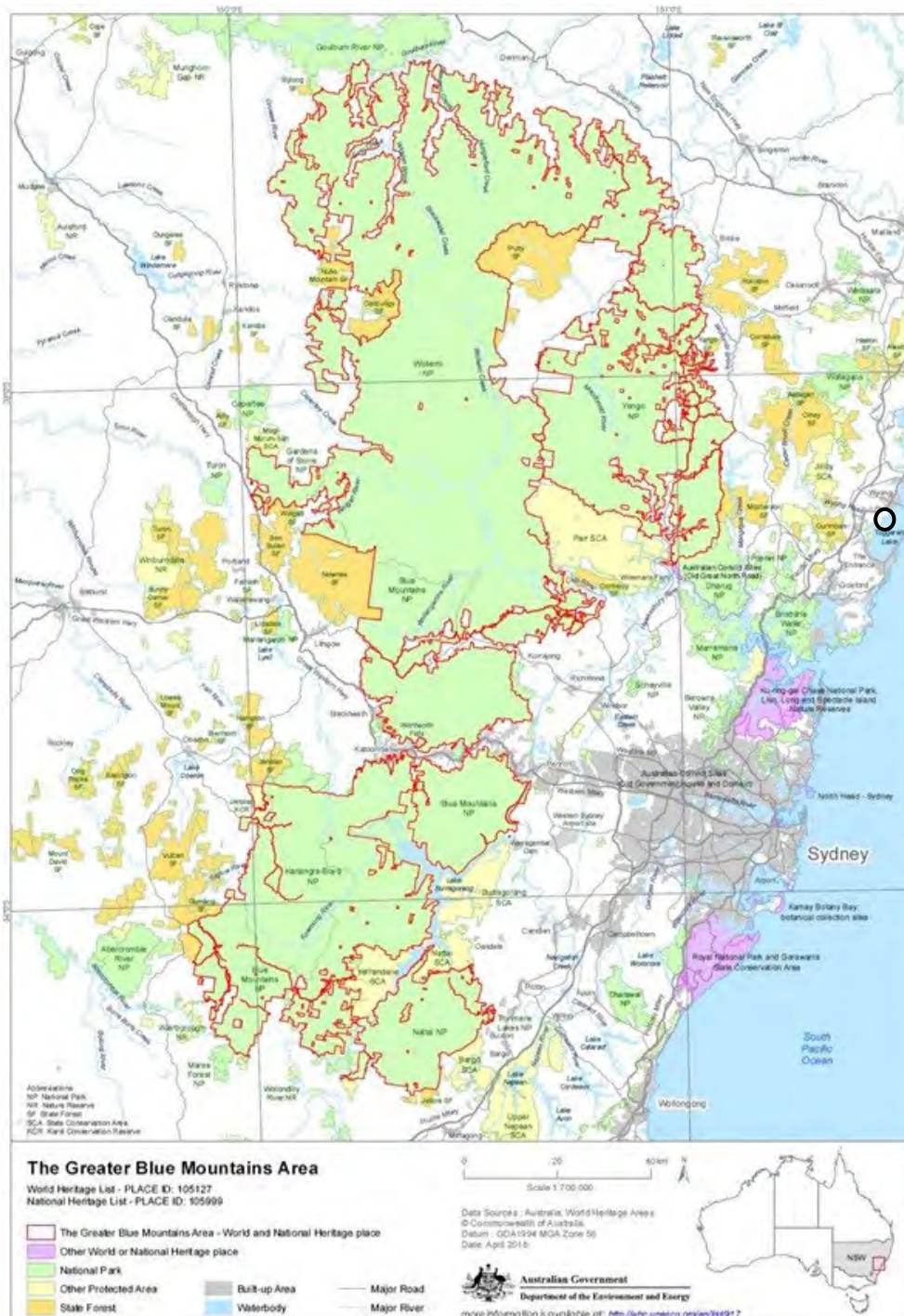


Figure 3 The Greater Blue Mountains Area (Source: Department of the Environment and Energy, April 2018). The approximate location of the Project Area is circled in black.



Figure 4 World and National Heritage and the Project Area (Source: Six Maps with DCCEEW, 2020 and Heritage Now additions).

Heritage Council of New South Wales



State Heritage Register

Gazettal Date: 2 June 2009

0 1 2 4 6 8 Kilometres

Scale: 1:110,000

Produced by: Naomi Nelson

Legend

- Locality
- SHR Curtilage
- LGAs
- Suburbs
- Major Roads
- Major Rivers
- State Forest
- NPWS Reserves

Figure 5 SHR curtilage of the Great North Road, Between Mt Manning and Wollombi (Source: State Heritage Inventory). The approximate location of the Project Area at Bucketty is circled in black.



Figure 6 The Great North Road, Between Mt Manning and Wollombi in the vicinity of the Project Area (Source: Six Maps with DPC, 2022 and Heritage Now additions).

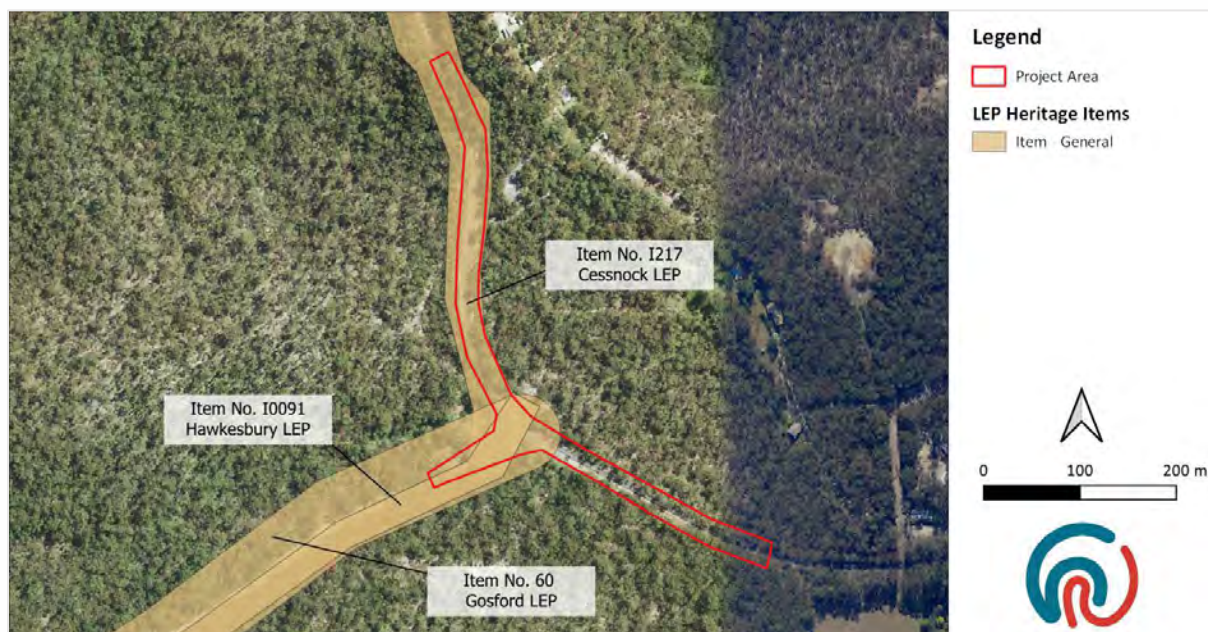


Figure 7. LEP heritage items in the vicinity of the Project Area. (Source: SIX Maps aerial with EPI additions)

3 Historic Context

This section of the report provides a general overview of events relevant to understanding the historical development of the Project Area. It relies largely on historical research on the Great North Road contained in the following documents:

- Lavelle, Siobhan, Grace Karskens, and RTA Technology. "Stage 1 Conservation Plan for the Great North Road." The Convict Trail Project, 1999.
- Karskens, Grace. "The Construction of the Great North Road, NSW, 1826 - 1836." *Transactions of the Institution of Engineers - Multi-Disciplinary* Vol GE9, no. 2 (October 1985): 27–60.

3.1 Development of the Great North Road

The Project Area is located at the intersection of George Downes Drive and the Great North Road. The Great North Road was built between 1826 and 1836 to provide an overland route from Sydney to the Hunter Valley. It was constructed using convict labour under the supervision of colonial engineers. Parts of the road are still in use today, although it is unclear how much of the former road alignment is intact beneath modern road surfaces.⁶

In the early days of the colony, sailing ship was the only means of transport between Sydney and Newcastle. As the colony grew, the need for suitable agistment for cattle and agriculture encouraged attempts to identify an overland route from the Hawkesbury to the Hunter River, where fertile pastures were known to be available. This was supported by the Governor at the time, Ralph Darling, who sought to provide the colony with such a permanent, comprehensive road system⁷.

Early road routes between Sydney and Newcastle had been identified by English settler John Howe, who travelled from the Hawkesbury to the Hunter River in 1819, and again in 1820 (along the route which is now known as the Bulga Road),⁸ and by convict John MacDonald in c1827 (along the route known as MacDonald's Line)⁹, both of them enlisting the help of local Aboriginal people to navigate through the terrain.¹⁰ Meanwhile, in 1823 Major Morriset identified a route between Newcastle and the Hawkesbury River. However, Assistant Surveyor Heneage Finch surveyed a new, shorter course (the original route of the Great North Road) in 1825, with many settlers at that time following Finchs Line to places such as Murrays Run, Wollombi, Paynes Crossing and Millfield.¹¹

In 1826, wealthy settlers in the Hunter Valley petitioned Governor Darling for a 'proper' road from Sydney to Newcastle via Wisemans Ferry,¹² and construction began later that year at Castle Hill

⁶ "Bucketty to Mt Manning," The Convict Trail Project, accessed June 14, 2022, <https://www.convicttrail.com.au/4-bucketty-to-mt-manning.html>.

⁷ Grace Karskens, "The Construction of the Great North Road, NSW, 1826 - 1836," *Transactions of the Institution of Engineers - Multi-Disciplinary* Vol GE9, no. 2 (October 1985): 28.

⁸ Nancy Gray, "Howe, John (1774–1852)," in *Australian Dictionary of Biography* (Canberra: National Centre of Biography, Australian National University, 1966), <https://adb.anu.edu.au/biography/howe-john-2205>.

⁹ The Convict Trail Project, "John MacDonald," The Convict Trail Project- Caring for the Great North Road, accessed August 5, 2022, <https://www.convicttrail.com.au/john-macdonald.html>.

¹⁰ P. Budde, *The Bucketty Book*, 2022, <https://paulbuddehistory.com/bucketty/>.

¹¹ Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

¹² Paul Budde, *The Bucketty Book*.

North¹³. From 1827, construction works at Wisemans Ferry were undertaken in a quick, cheap manner that produced roadworks of small scale and low standard, under the supervision of Royal Veterans Lieutenant Jonathan Warner. However, in mid-1828 Lieutenant Percy Simpson became the Assistant Surveyor-General and took over from Warner. Under Simpson's supervision, the 700 convicts, mostly operating in chain gangs, constructed a high-quality road over steep rocky valleys between Wisemans Ferry and Mt Manning,¹⁴ using new road-building techniques developed by Telford and MacAdam. Telford's technique involved solid foundations, using a large rock base with decreasing rock sizes, so that the pavement would bear the weight of traffic; while MacAdam's technique produced cheaper roads, as natural bedrock was used for the pavement to carry the traffic, which also kept the road dry.¹⁵

Simpson also surveyed a route from Wisemans Ferry to the Hunter River via the Central Coast, where he had a land grant in Cooranbong. Although this route had better supplies of fresh water and animal feed, and needed less rock blasting and construction work than the route surveyed by Finch via Bucketty and Wollombi, the Surveyor General Major-General Sir Thomas Mitchell decided to use Finch's route instead (probably owing to the wealth and influence of the Hunter Valley settlers as opposed to those on the Central Coast). Mitchell spent three weeks surveying the area in 1829, and Mitchells Camp Point Road (off George Downes Drive, approximately 6km south east of the Project Area) goes to Hungry Flat, where Mitchell and his party had a picnic during their inspection of the Great North Road.¹⁶

In 1830, Finch became supervisor of the roadworks north of Mt Manning, overseeing construction of most of the road in the Bucketty area. Similar construction techniques were used to the southern section of the road, including cutting the natural surface down to the level of the road and/or filling the natural surface to the required height. Both cutting and filling were required on very steep slopes, such as at Devine's Hill, Mt Baxter, Mt McQuoid, Mt Simpson and Mt Finch. The operations usually occurred simultaneously, with the material from the cutting forming the embankment on the other side. Blasting with gunpowder and quarrying the stone was required in areas with great volumes of rock, such as Wisemans Ferry, Devine's Hill, Mt Simpson and Mt Finch. In areas with lesser volumes, the convicts would hand-cut the rock with chisels or rock picks to produce a vertical face up to c.1.5m high. Hollows were filled, and steep slopes embanked by construction of masonry retaining walls, again simultaneously – the embankment was kept filled to the height of the retaining wall. Hand carts and bullock-drawn wagons were used to transport the fill material.¹⁷ The retaining walls were dry-laid without mortar, and the face of the wall was usually battered by either inclining the beds slightly so that the face sloped and gradually making the beds horizontal towards the top; or by cutting each of the outer stones with a sloped face using pointed, blunt, broad or flat-edged chisels or gads, or a hammer or axe.¹⁸

The road surface was constructed from broken stone and gravel, or the natural bedrock. Side drains lined the entire road on both sides over flat land; where the road was built up on a slope, the drain

¹³ Karskens, "The Construction of the Great North Road, NSW, 1826 - 1836," 29.

¹⁴ Karskens, 29–31.

¹⁵ Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

¹⁶ Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

¹⁷ Karskens, "The Construction of the Great North Road, NSW, 1826 - 1836," 32–36.

¹⁸ Karskens, 45.

occurred only on the uphill side. Excavated from earth or cut from rock, the drains were square or rounded, with many bearing chisel and pick marks, and some including low walls or edging of 1-2 courses of stone on the alignment side.¹⁹

Stone culverts were placed perpendicular to the road alignment or at intervals obliquely across it, depending on the gradient. Stone box culverts produced under Simpson and Finch's oversight usually comprised evenly shaped stone blocks/slabs or "flags" up to 1m² making up the inlet/outlet and lintels, and large stone blocks forming the four sides of the lining.²⁰

After a dispute about Finch being stationed with the gangs on his property at Laguna, he was dismissed from his post in 1831. He was succeeded by L V Dulhunty (from 1831-1834) and Peter Ogilvie (from 1835-1836), but with Governor Darling recalled in 1832, momentum for the road building waned, and instead a steamboat service started to operate between Sydney and Newcastle. Settlers tended to travel overland via more direct or hospitable roads such as Maroota Ridge Road, St Albans Road and Peats Ferry Road. Further, regulations for convict labour changed; and in 1836 Ogilvie was left with only two gangs, each with ten men, under his oversight. Consequently, that year the Great North Road was essentially abandoned, probably unfinished, resulting in the preservation of many original aspects of the road construction.²¹

3.2 History of the Project Area

The Project Area is situated on the boundary of three different parishes – the Parish of Hay, the Parish of Lockyer and the Parish of Rugby, County of Northumberland. The parish boundaries roughly follow the alignment of the Great North Road and George Downes Drive.

The No. 29 Road Party convict gang constructed the Great North Road at Mt McQuoid from April-December 1830. The only spring adjacent to the Great North Road route was located in an area marked by a previous surveyor for future settlement, which later acquired the name of Dennis's Dog Kennel (this name was first recorded by Mitchell during his survey of the area in 1829). There are indications that this area was used as a stockade for the convict road gang. The perennial deep spring here is the only supply of fresh water in the vicinity, and may be the original Bucketty spring of the Darkinjung Aboriginal people.²² It was here that a village reserve was planned near the 28th milepost from Wiseman's Ferry.²³ The reserve is shown on William Baker's 1843 map of the County of Northumberland on the Great North[ern] Road, although no road or track is shown on the alignment of the current route of George Downes Drive (Figure 8). One newspaper article from 1844 refers to this location as a mid-way spot on the line of road between Hawkesbury and the Wollombi, with "good grass and excellent water", but no accommodations built.²⁴ It is still used for water collection by the Bucketty Fire Brigade. However, Dennis's Dog Kennel had its 'reserve' status

¹⁹ Karskens, 41–43.

²⁰ Karskens, 43–44.

²¹ Karskens, 32.

²² Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

²³ William Baker, *Map of the County of Northumberland : Dedicated by Permission to Sir T.L. Mitchell, Knight, Surveyor General of New South Wales* (King Street, East Sydney: Hibernian Printing Office, 1843).

²⁴ "NEWS FROM THE INTERIOR.," *Sydney Morning Herald*, March 27, 1844, <http://nla.gov.au/nla.news-article12415169>.

revoked on 11 May 1889,²⁵ at which time a Travelling Stock Route along the Great North Road was reserved from sale and lease (Figure 9).²⁶

Some of the early European landowners in the immediate area were James Sternbeck, James Knight, and Francis Nichols (Figure 10). The land to the north of George Downes Drive was owned by the McKay family (Figure 12), and was later sold to Lem Nichols.²⁷ Around 1870, the Sternbecks sold the small Bucketty Arm valley to the Knight family; an article in the *Maitland Mercury* on 17 December 1870 mentions one member of the family who lived there:

*On Tuesday last, James Knight, junr., of Bucketty, (about 17 miles from Wollombi), was charged at the court-house with stealing a bullock, one of a mob of fat cattle driven by B. Tierney about a week since. From the evidence it appears that the hide and beef was found at Knight's residence. He was fully committed for trial. It is rather singular that Knight was one of the principal witnesses against Craft, who was convicted at Maitland about twelve months since on a charge of cattle-stealing.*²⁸

The Knights are believed to be the first and only settlers to build a house at Bucketty (to the north of George Downes Drive) before the subdivision of 1972; the Post Office Directory of 1875-1877 lists John Knight as the only resident in the locality. Apart from this house, the Knights might also have built a hut in the Bucketty Paddocks, an area of approximately 400 acres which included Mt McQuoid. Tom and Ben Knight grew wheat in the paddocks, which was transported by bullocks to Mangrove Mountain. There were also 'gallows' in the paddock, from which to suspend slaughtered cattle in preparation for cutting.²⁹

Apart from these agricultural pursuits, the area to the north east of the Project Area was predominantly used for pasture. Settlers used the Bucketty Arm valley to drive cattle to Mangrove Mountain and on to Wisemans Ferry, with the Sternbecks driving 8 head of cattle every month along this route.³⁰ This may be the origin of this section of the road between Wollombi and Mangrove (including the Kulnura road, between Bucketty and Kulnura), the alignment of which is shown on the 1888 parish map (Figure 9), although it would have been an unsealed track at that time.

In 1928, the Old Great North Road, between Windsor Road at McGraths Hill and the Great Northern Highway at Whittingham, was declared a Main Road (Main Road No. 181).³¹ The Kulnura road (now George Downes Drive) was improved in 1941, as a "gravel pavement constructed to 50 m.p.h. standard" (Figure 11).³² However, newspaper articles indicate 2 ½ miles of the road between

²⁵ Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

²⁶ "RESERVES FROM SALE FOR TRAVELLING STOCK AND CAMPING.," *Government Gazette of the State of New South Wales*, October 12, 1901, <http://nla.gov.au/nla.news-article226387851>.

²⁷ Paul Budde, *The Bucketty Book*, accessed August 17, 2022, <https://paulbuddehistory.com/bucketty/farmers-and-city-slickers>.

²⁸ "WOLLOMBI.," *Maitland Mercury and Hunter River General Advertiser*, December 17, 1870, <http://nla.gov.au/nla.news-article18750479>.

²⁹ Paul Budde, *The Bucketty Book*, accessed August 17, 2022, <https://paulbuddehistory.com/bucketty/farmers-and-city-slickers>.

³⁰ Paul Budde, *The Bucketty Book*, accessed August 17, 2022, <https://paulbuddehistory.com/bucketty/farmers-and-city-slickers>.

³¹ "MAIN ROADS ACT, 1924-1927.," *Government Gazette of the State of New South Wales*, August 17, 1928, 3817, <http://nla.gov.au/nla.news-article219952359>.

³² "Another New Road," *Farmer and Settler*, August 28, 1941, <http://nla.gov.au/nla.news-article117178706>.

Bucketty and Kulnura remained uncompleted into the late 1940s.³³ Although “for the most part trafficable”, it was not considered a good dry weather road and became dangerous and almost impassable when wet.³⁴

By December 1960, further improvements to the Kulnura road had been made including deviation, widening, and sealing.³⁵ The section the east of the intersection was straightened, realigned through lands resumed from adjacent properties to the north.³⁶ In 1961, this road was named George Downes Drive, after Cr George Downes, a Kulnura landholder and former President of Gosford Shire Council, who had lobbied for the road improvements.³⁷ In 1967, it was proclaimed a main road (Main Road No. 590).³⁸

In 1969, large scale road stabilisation works were carried out between Bucketty and Wollombi.³⁹ An analysis of historical aerial imagery indicates the Great North Road in the north of the Project Area was realigned between 1966-1971 (possibly as part of the stabilisation works) (Figure 13), bypassing the abandoned loop of the Great North Road to the west (cf. Figure 10 and Figure 11). The intersection of George Downes Drive, the Great North Road and the Great Northern Road was also rebuilt around this time,⁴⁰ configured to the current arrangement (Figure 14).

³³ “Kulnura Road Again Discussed,” *Singleton Argus*, May 14, 1948, <http://nla.gov.au/nla.news-article84607720>.

³⁴ “M.R.B. Engineers’ Hint About Kulnura Road,” *Singleton Argus*, May 23, 1949, <http://nla.gov.au/nla.news-article82578048>.

³⁵ “NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS,” *Government Gazette of the State of New South Wales*, December 9, 1960, <http://nla.gov.au/nla.news-article220319143>.

³⁶ “NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS.”

³⁷ “SHIRE OF GOSFORD.—NAMING OF ROAD BETWEEN,” *Government Gazette of the State of New South Wales*, December 22, 1961, <http://nla.gov.au/nla.news-article220288191>; “Councillor George Downes Elected New President Of Gosford Shire,” *Gosford Times and Wyong District Advocate*, December 20, 1949; Paul Budde, “The Convict Era,” *Paul Budde History, Philosophy, Culture* (blog), 2022, <https://paulbuddehistory.com/bucketty/the-convict-era/>.

³⁸ *Parish of Hay, County of Northumberland (Sheet 1, Edition 7)*, 1955, 1955, <https://hlrv.nswlrs.com.au/>.

³⁹ Stedinger Associates, “Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application” (Cessnock City Council, April 2010), 17.

⁴⁰ Stedinger Associates, 17.



Figure 8 Detail from Baker's 1843 Map of the County of Northumberland (Source: NLA MAP RaA 8 Plate 2). The village reserve at Dennis's Dog Kennel is shaded brown.

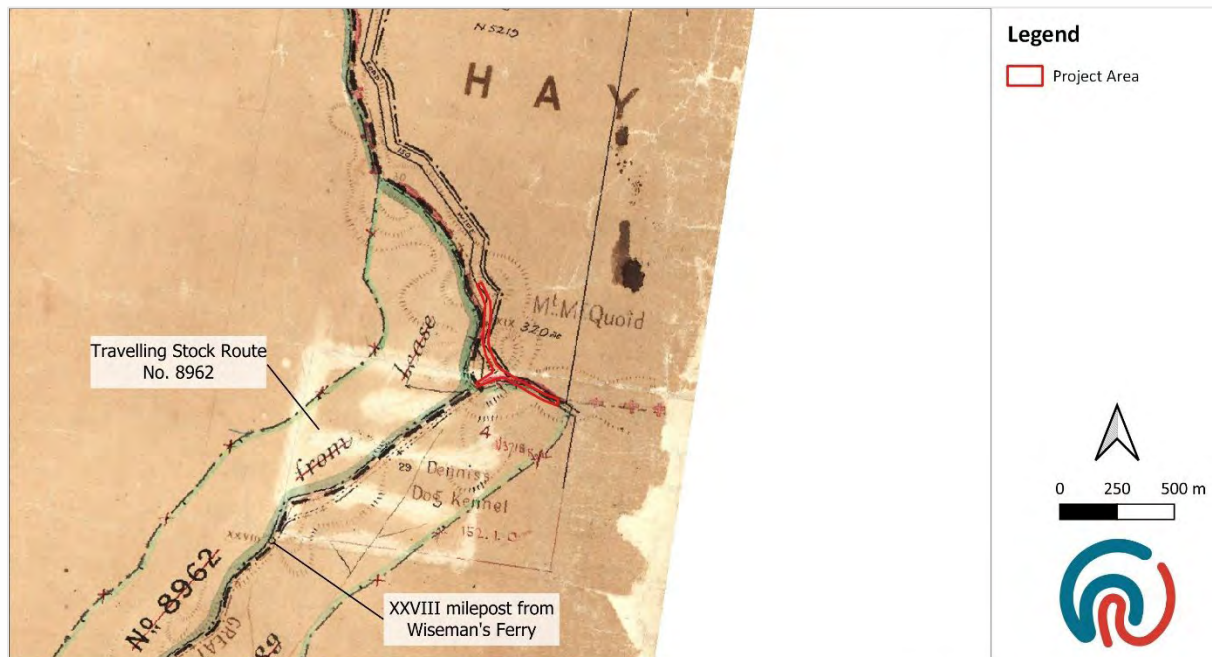


Figure 9. Detail from 1888 map of the Parish of Lockyer. (Source: Historic Land Records Viewer 14018401.jp2)



Figure 10. Detail from 1920 map of the Parish of Rugby. (Source: Historic Land Records Viewer 10867701.jp2)



Figure 11. Detail from 1943 map of the Parish of Rugby, showing proposed realignment of the Kulnura road to the east of the intersection with the Great Northern Road (Main Road 181) (Source: Historic Land Records Viewer 10866801.jp2)



Figure 12 Detail from 1955 map of the Parish of Hay. (Source: Historic Land Records Viewer 10884901.jp2)



Figure 13. The Project Area in 1966. (Source: NSW Government Historical Imagery 1442_03_147.jp2)



Figure 14. The Project Area in 1976. (Source: NSW Government Historical Imagery 2403_16_029.jp2)

3.3 Historical Archaeological Potential

A limited number of investigations that relate to this section of the Great North Road have previously been undertaken, and are summarised below. They provide an indication of the nature and extent of structural elements and potential archaeological remains relating to the early road that may be expected within the Project Area.

3.3.1 Previous Reports

McBean & Crisp Pty Ltd. “Report on Great North Road between Mt. Manning Turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects.” The National Trust of Australia (NSW), 1983.

This report identified early road structures(and groups of structural elements) associated with the Great North Road between Mount Manning and Paynes Crossing. This report identified typical conservation issues for these structures, assessed potential damage likely to arise from road upgrade programs, and made recommendations for restoration and preservation of the road surface.⁴¹

Early road structures identified at the Bucketty turnoff (George Downes Drive intersection), to the west of the current Project Area, include: a wing-walled stone and sandstone masonry box culvert, macadam type road pavement and table drain, an ashlar masonry retaining wall, bedrock road pavement with an associated rock-cut side drain, macadam type road pavement with stone culvert, and rock-cut centre drain.⁴² A summary of these structures is provided in Table 6 below with the

⁴¹ McBean & Crisp Pty Ltd, “Report on Great North Road between Mt. Manning Turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects” (The National Trust of Australia (NSW), 1983), 2.

⁴² McBean & Crisp Pty Ltd, 5–11.

structure numbers given in the report. Their location in relation the Project Area illustrated in Figure 15.

Table 6 Summary of structural elements of the Old Great North Road identified in the vicinity of the Project Area

Structure No.	Structure	Distance from intersection
2a	Culvert	-
2b	Road pavement 1	
2c	Retaining wall	
2d	Cutting and rock drain	
2e	Road pavement 2	
3	Stone culvert	200m north
4	Centre drain	550m north

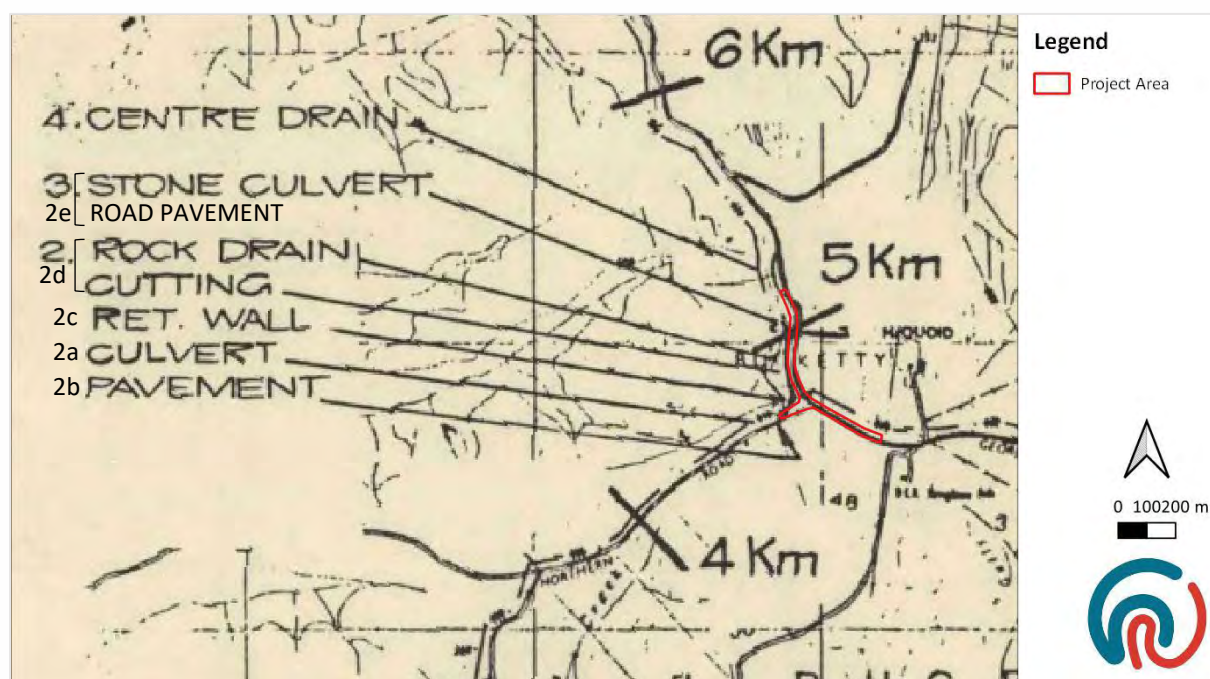


Figure 15 Structural elements of the Old Great North Road identified near the Bucketty turnoff (Source: McBean & Crisp Pty Ltd 1983, Drawing No. 2, with Heritage Now annotations)

Elizabeth A. Roberts. "Bucketty Culvert Reconstruction Report." The Convict Trail Project, 2004.

The Bucketty Culvert, identified in the figure above as 'Culvert' (Structure No. 2a), is located to the west of the current Project Area. It is described as a stone culvert, with retaining walls extending approximately 20 meters on either side. However, the sides of the culvert had collapsed and most of the facing stone removed. Due to its poor condition, the original form of the culvert was unclear, and a partial reconstruction was undertaken based on an interpretation of the remains of the structure as a recessed culvert.⁴³ During the works, the original surface of the Old Great North Road was found above the culvert, approximately 30 cm below the current ground surface.⁴⁴ This surface

⁴³ Elizabeth A. Roberts, "Bucketty Culvert Reconstruction Report" (Convict Trail Project Inc., 2004), 2–3.

⁴⁴ Roberts, 11.

was not present above the wall on the southern side of the culvert, and it was suggested that it may have been graded off in this area.⁴⁵

Lavelle, Siobhan, Grace Karskens, and RTA Technology. "Stage 1 Conservation Plan for the Great North Road." The Convict Trail Project, 1999.

The 1999 CMP covers the entire 240km length of the Great North Road, and includes an overview of its physical condition, considers management issues, and provides policies and recommendations to assist with management of the item.⁴⁶ The road is divided into eight separate inventory sections based on changes in its nature and character, which are then further divided into precincts, and individual items. The Project Area is within the section from Mount Manning Junction to Wollombi (Section 4.0.0), in the vicinity of the abandoned loop at Mount McQuoid/Bucketty Precinct (4.2.0), which is described as follows:

*"The abandoned loop at Mt. McQuoid/Bucketty comprises a section about 400 metres long which was cut off by the reconstruction of the nearby intersection immediately east of the earlier alignment. This short section includes a diverse range of features which illustrate the nature of the road construction utilised on the Great North Road. At the southern end is a stone culvert flanked by the remains of wing walls. The culvert was reconstructed in 2003. Immediately north of the culvert is a macadam type pavement of compacted broken stone about 7m wide. About 75m north of the wing-wall culvert is an extensive ashlar masonry retaining wall. The wall curves to cross a gully where a former bridge was located. The span of the bridge has now been infilled with a large diameter concrete pipe surrounded by cement mortared stone blocks probably deriving from nearby structures such as the wing-walled culvert. North of the former bridge the road alignment rises up to a rock cutting with the road pavement cut into the bedrock, and an associated rock-cut side drain. This then changes to a macadam type pavement. There is also a well-preserved sandstone masonry box-culvert within this northern pavement/road section of the Mt. McQuoid precinct."*⁴⁷

Section 5.9 discusses issues arising from physical condition, in particular, roads in use. These road sections still in use generally remain in good condition. Most sections of in-use road are sealed, and it is unclear whether older pavements survive below the modern wearing surfaces. Unsealed precincts. The threat to these sections is inappropriate and unsympathetic modern maintenance, with an example given of the damage caused by ill-informed use of grading equipment.

An additional threat to these sections is the context of operational issues relating to road safety, upgrading, widening or any other relevant aspect of the normal use and maintenance of the in-use Road. Road improvements to Old Northern Road at Maroota have altered the character of this section. Piecemeal widening of the Road corridor, with its obvious consequential impacts on individual items, is undesirable in heritage terms. The general location of much of the present Road alignment and its surviving Colonial-era structures relate to, and demonstrate, the early ancestry and historic importance of the road. In any event, proposals which impact on these older Precincts

⁴⁵ Roberts, 9.

⁴⁶ Siobhan Lavelle, Grace Karskens, and RTA Technology, "Stage 1 Conservation Plan for the Great North Road" (The Convict Trail Project, 1999).

⁴⁷ "Great North Road, Between Mt Manning and Wollombi", entry number 01789 in the New South Wales State Heritage Register published by the State of New South Wales and Office of Environment and Heritage 2018, accessed June 14, 2022, <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5060554>

require full and appropriate Heritage Impact Assessment. Where upgrading might be required, a better option for the longer term future of the Road would be the selection of a separate replacement carriageway if and when the road is to be upgraded in the future (rather than the widening on either or both sides of the present road formation). In other cases, where there is no peak traffic requirement, if necessary, the Road should be restricted to light traffic only, in order to preserve its existing historic character. ⁴⁸

3.4 Views and Setting

While no specific significant views or vistas are identified in the 1999 CMP, it is noted that Section 4.0.0 of the road (among others) tends to present the Road in a modern context, as an “in use main road”. However, it passes through relatively undeveloped rural areas and may be found in an overall setting approximating that envisaged at the time of its construction.

⁴⁸ Lavelle, Karskens, and RTA Technology, “Stage 1 Conservation Plan for the Great North Road,” 48.

4 Site Visit and Physical Assessment

The site was inspected by Sarah Mané, Heritage Consultant at Heritage Now, on Friday 22 July 2022.

The inspection was a visual study only, to determine which parts of the road are associated with the original construction and which parts have been modified or realigned, or are later additions if possible; as well as to understand the potential impact of the proposed works on the heritage listed items.

The proposed road widening and safety improvement works are generally located within the road reserve associated with the current alignment of George Downes Drive and the Great North Road. The road reserve is surrounded by bushland, and is bounded by Yengo National Park to the west, large rural blocks to the north-east, and the Mangrove Dam water catchment to the south-east.

The public roads within the Project Area are sealed with asphalt, and typically incorporate a narrow gravel or grassed verge which has been cleared of vegetation (Plate 1, Plate 2 and Plate 3). The roads have no formal curbing; infall drainage is typical on sections of the road built across the slope, directing surface water towards table drains running parallel to the road (Plate 1).

The current road has been constructed at an elevated position on the western side of the T-intersection (Plate 4). A curved historic sandstone block retaining wall (Plate 5 and Plate 6) and original 1830s surface of convict constructed road were identified to the south-west of the Project Area, west of Great Northern Road and south of Great North Road (comprising the abandoned Bucketty loop as described in Section 2 of this report) (Figure 16). Immediately adjoining this is Yengo National Park (Plate 8).

Approximately 300m along the Great North Road from the intersection with the Great Northern Road, the original convict roadway meets the current alignment of road (Plate 9). Although previously disturbed by roadworks, it is unclear whether older road surfaces survive below the modern wearing surfaces (Figure 16). Pick-cut sandstone was identified on the eastern side of Great North Road (Plate 10).

A large landslip that had been cordoned off was also noted further along this road (Plate 11).



Figure 16. Visible extent historical alignment of the Great North Road, as well as likely components that have been covered by the road. (Source: SIX Maps with Heritage Now additions)

4.1 Views and Setting

The road is located within Eucalyptus forest and has a natural setting. The gentle curves and undulating roadway, as well as the unformed shoulders provide a distinctly country road character to the area. The view from the road to the surrounding landscape are mainly constrained by the natural vegetation, although there are some views along the road.

The Great Northern Road, at the intersection with George Downes Drive is at a low-lying point in the landscape, with limited visibility to the north-west in the direction of Mt Simpson, due to a curve up and around to the north-west as it ascends the Hunter Range (Plate 1).

Evidence of the early road construction is not easily visible from the Project Area and is mainly obscured by vegetation and differences in levels between the current road and the surrounding area (Plate 4).

4.2 Summary

The eastern portion of the Project Area is not heritage listed and no historic heritage has been identified in this area. The central and western portion of the Project Area is subject to multiple heritage listings, including State and local listings, as well as a small overlap with a world heritage and national listing. These listings are associated with the Blue Mountains Area as well as the Old North Road, associated with early convicts.

The site inspection identified evidence of structures associated with the Old North Road outside the Project Area, however, it is possible that additional evidence is contained below the current road surfaces.

5 Significance Assessment

5.1 World Heritage List Criteria

To be inscribed on the World Heritage List, a property must be of Outstanding Universal Value and satisfy one or more of the cultural or natural heritage selection criteria.

5.1.1 The Greater Blue Mountains Area

The following brief synthesis from the official statement of Outstanding Universal Value for the Greater Blue Mountains Area is reproduced from the UNESCO World Heritage Listing:

The Greater Blue Mountains Area (GBMA) is a deeply incised sandstone tableland that encompasses 1.03 million hectares of eucalypt-dominated landscape just inland from Sydney, Australia's largest city, in south-eastern Australia. Spread across eight adjacent conservation reserves, it constitutes one of the largest and most intact tracts of protected bushland in Australia. It also supports an exceptional representation of the taxonomic, physiognomic and ecological diversity that eucalypts have developed: an outstanding illustration of the evolution of plant life. A number of rare and endemic taxa, including relict flora such as the Wollemi pine, also occur here. Ongoing research continues to reveal the rich scientific value of the area as more species are discovered.

The geology and geomorphology of the property, which includes 300 metre cliffs, slot canyons and waterfalls, provides the physical conditions and visual backdrop to support these outstanding biological values. The property includes large areas of accessible wilderness in close proximity to 4.5 million people.

5.2 NSW Assessment Criteria

The meaning of cultural significance is defined in the Burra Charter as: *aesthetic, historic, scientific, social or spiritual value for past, present or future generations*.⁴⁹ These values are evaluated using specific criteria adopted by the NSW Heritage Council, to assess whether an item is of State or local heritage significance in New South Wales.⁵⁰ The criteria are as follows:

Criterion a) 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);

Criterion b) An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

⁴⁹ Australia ICOMOS, "The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013," 2013, 2.

⁵⁰ NSW Heritage Office, *Assessing Heritage Significance*, 9.

Criterion (d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

Criterion (e) 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);

Criterion (f) 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);

Criterion (g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments, or a class of the local area's cultural or natural places; or cultural or natural environments.

5.2.1 The Great North Road

The Great North Road has been subject to several assessments in the past. The section between Mt Manning and Wollombi is currently listed on the State Heritage Register. Parts of this road are also listed as heritage items with State significance on the Cessnock LEP, Hawkesbury LEP, and Gosford LEP.

The following summary statement of significance is reproduced from the NSW State Heritage Inventory listing:

The Great North Road is an item of national heritage significance. It meets all State Heritage Register criteria and does so at a number of levels. Historically, the Great North Road is of state significance as the first made road north of the Hawkesbury. It was constructed by convict gangs between 1826 and 1836. The road has historic associations with several notable colonial figures including Governor Darling and Surveyor-General Thomas Mitchell. The Great North Road is also evidence of the development of the colony at Sydney and of the policies during this period of using convict gangs to construct major public works.

The Great North Road constitutes a material record of convict labour. Many surviving structures and precincts bespeak the quality of work achieved by convict artisans. Some precincts of the road remain in relatively unspoilt areas, evocative of the frontier environment of the 1830s. Other sections remain in use as a transport corridor and have thus carried European traffic continuously since the 1830s.

The section of the Great north Road between Mount Manning and Wollombi contains a variety of features that provide tangible physical evidence of convict road engineering and construction. The section also contains a number of individually significant structures, including unique examples of culvert and flume construction as well as cuttings, side drains and pavements. Parts of this section of the road remain in use. It presents excellent interpretive opportunities.

6 Impact Assessment and Mitigation

This section provides an overview of significance, impact assessment and mitigation. The impact assessment includes the consideration of enhancement and detrimental impact to heritage item/s, as well as alternatives according to Heritage NSW's guideline *Statements of Heritage Impact*.

6.1 The Proposal

The client is proposing to upgrade the intersection, widen the roads (to accommodate the guard rails) and install better safety signage and road markings. The purpose of the proposed works is to address safety concerns on a length of road that has been the site of numerous road accidents.

Works will include:

- road widening at the intersection with Great North Road and along George Downes Drive to accommodate guard rail
- install guardrail with motorcycle under run on both sides of George Downes Drive
- associated signs and line markings.

The following assessment of heritage impact has been prepared based upon a review of the Civil Works Details Proposed Road Works – George Downs Drive and Great Northern Road, Bucketty – design dated 5/9/2022, provided by Cessnock City Council.

6.2 Significance Overview

The Great North Road with its association with early road building and convict labour is State significant, although it has also been nominated for inclusion on the National Heritage List, but national significance status has not been confirmed. The inspection of the Project Area identified structures associated with the Great North Road, which has also been identified as the Bucketty precinct⁵¹ of which visible components have been outlined in Figure 16, as well as potential buried components. While the Project Area overlaps with the World Heritage Listing, this overlap is only 13 metres into the Project Area.

6.3 Impact Assessment

The eastern portion of the Project Area is not heritage listed and no historic heritage has been identified in this area. The central and western portion of the Project Area is subject to multiple heritage listings, including State and local listings, as well as a small overlap with a world heritage and national listing. These listings are associated with the Blue Mountains Area as well as the Old North Road, associated with early convicts.

The site inspection identified evidence of structures associated with the Old North Road outside the Project Area, however, it is possible that additional evidence is contained below the current road surfaces.

Works will be avoiding the World Heritage and National Heritage Curtilage Area, with works only occurring within the existing road corridor.

⁵¹ Lavelle, Karskens, and RTA Technology, "Stage 1 Conservation Plan for the Great North Road."

There will be road widening works within the northern portion of the Project Area and this needs to be subject to a detailed archaeological assessment as they appear to overlap with the original alignment of the Great North Road in this section.

Currently much of the works are within the State Heritage Register curtilage will likely require a further heritage permit (likely Section 60 approval) from the Heritage Council of NSW (Figure 17). A Statement of Heritage Impact for a Section 60 application will need to be prepared which specifically addresses the Section 60 requirements, as well as the finalised road design. The Section 60 Approval will be needed before works can commence.

The south-eastern portion of the Project Area outside the State Heritage Register Area along George Downes Drive (south of the intersection with Great North Road) is the preferred location for additional set down and laydown areas as they are not heritage listed and have no identified heritage sensitivity (Figure 17).

The features associated with the Great North Road are to be surveyed in by a qualified surveyor and their locations marked on all site plans and marked as no-go zones.

All project personnel are to be made aware of the multiple heritage listings within the Project Area including areas of World Heritage and State significance.

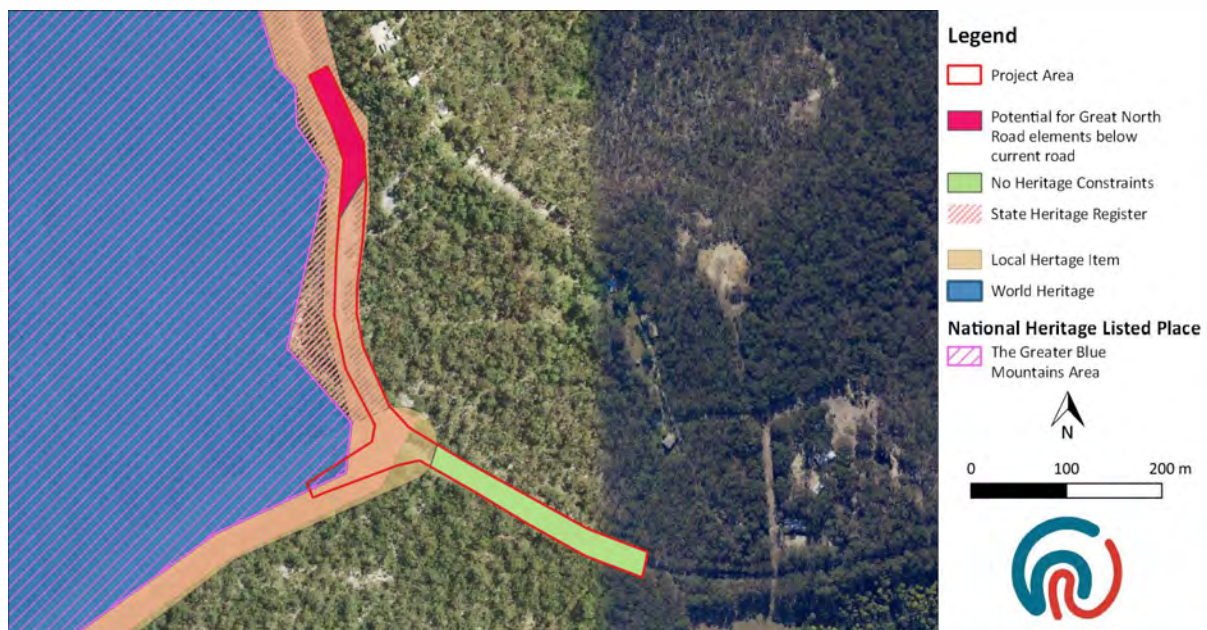


Figure 17 Mapping of constraints (note works will avoid the World Heritage area)

7 Conclusions and Recommendations

The eastern portion of the Project Area is not heritage listed and no historic heritage has been identified in this area. The central and western portion of the Project Area is subject to multiple heritage listings, including State and local listings, as well as a small overlap with a world heritage and national listing. These listings are associated with the Blue Mountains Area as well as the Old North Road, associated with early convicts.

The site inspection identified evidence of structures associated with the Old North Road outside the Project Area, however, it is possible that additional evidence is contained below the current road surfaces.

Works will be avoiding the World Heritage and National Heritage Curtilage Area, with works only occurring within the existing road corridor.

There will be road widening works within the northern portion of the Project Area and this needs to be subject to a detailed archaeological assessment as they appear to overlap with the original alignment of the Great North Road in this section.

Currently much of the works are within the State Heritage Register curtilage will likely require a further heritage permit (likely Section 60 approval) from the Heritage Council of NSW.

The following recommendations are made:

Recommendation 1

The works within the State Heritage Register curtilage will require a further heritage approval (likely Section 60) from the Heritage Council of NSW. A Statement of Heritage Impact for a Section 60 application will need to be prepared which specifically addresses the Section 60 requirements, as well as the finalised road design. The Section 60 Approval will be needed before works can commence.

Recommendation 2

Works to be conducted within the locally listed area will require notification to Council prior to the commencement of works.

Recommendation 3

The features associated with the Great North Road are to be surveyed in by a qualified surveyor and their locations marked on all site plans and marked as no-go zones.

Recommendation 4

The south-eastern portion of the Project Area along George Downes Drive (south of the intersection with Great North Road) is the preferred location for additional set down and laydown areas as they are not heritage listed and have no identified heritage sensitivity.

Recommendation 5

All project personnel are to be made aware of the multiple heritage listings within the Project Area including areas of World Heritage and State significance.

8 References

- Farmer and Settler. "Another New Road." August 28, 1941. <http://nla.gov.au/nla.news-article117178706>.
- Australia ICOMOS. "The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013," 2013.
- Baker, William. "Map of the County of Northumberland : Dedicated by Permission to Sir T.L. Mitchell, Knight, Surveyor General of New South Wales." King Street, East Sydney: Hibernian Printing Office, 1843.
- The Convict Trail Project. "Bucketty to Mt Manning." Accessed June 14, 2022. <https://www.convicttrail.com.au/4-bucketty-to-mt-manning.html>.
- Budde, P. *The Bucketty Book*, 2022. <https://paulbuddehistory.com/bucketty/>.
- Budde, Paul. "The Convict Era." *Paul Budde History, Philosophy, Culture* (blog), 2022. <https://paulbuddehistory.com/bucketty/the-convict-era/>.
- Buddle, Paul. *The Bucketty Book*. Accessed June 14, 2022. <https://paulbuddehistory.com/bucketty/>.
- Gosford Times and Wyong District Advocate. "Councillor George Downes Elected New President Of Gosford Shire," December 20, 1949.
- Gray, Nancy. "Howe, John (1774–1852)." In *Australian Dictionary of Biography*. Canberra: National Centre of Biography, Australian National University, 1966. <https://adb.anu.edu.au/biography/howe-john-2205>.
- Heritage NSW. "Relics of Local Heritage Significance: A Guide for Archaeological Test Excavation," 2022.
- . "Relics of Local Heritage Significance: A Guide for Minor Works with Limited Impact," 2022.
- . "Relics of Local Heritage Significance: A Guide to Archaeological Monitoring," 2022.
- Heritage Office and Department of Urban Affairs and Planning. "Statements of Heritage Impact," 2002.
- Karskens, Grace. "The Construction of the Great North Road, NSW, 1826 - 1836." *Transactions of the Institution of Engineers - Multi-Disciplinary* Vol GE9, no. 2 (October 1985): 27–60.
- Singleton Argus. "Kulnura Road Again Discussed." May 14, 1948. <http://nla.gov.au/nla.news-article84607720>.
- Lavelle, Siobhan, Grace Karskens, and RTA Technology. "Stage 1 Conservation Plan for the Great North Road." The Convict Trail Project, 1999.
- Government Gazette of the State of New South Wales. "MAIN ROADS ACT, 1924-1927." August 17, 1928. <http://nla.gov.au/nla.news-article219952359>.
- McBean & Crisp Pty Ltd. "Report on Great North Road between Mt. Manning Turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects." The National Trust of Australia (NSW), 1983.
- Singleton Argus. "M.R.B. Engineers' Hint About Kulnura Road." May 23, 1949. <http://nla.gov.au/nla.news-article82578048>.
- Sydney Morning Herald. "NEWS FROM THE INTERIOR." March 27, 1844. <http://nla.gov.au/nla.news-article12415169>.
- Government Gazette of the State of New South Wales. "NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS." December 9, 1960. <http://nla.gov.au/nla.news-article220319143>.
- NSW Heritage Office. *Assessing Heritage Significance*. Sydney: NSW Heritage Office, 2001.
- "Parish of Hay, County of Northumberland (Sheet 1, Edition 7)." 1955. <https://hlrv.nswlrs.com.au/>.
- Government Gazette of the State of New South Wales. "RESERVES FROM SALE FOR TRAVELLING STOCK AND CAMPING." October 12, 1901. <http://nla.gov.au/nla.news-article226387851>.
- Roberts, Elizabeth A. "Bucketty Culvert Reconstruction Report." Convict Trail Project Inc., 2004.
- Government Gazette of the State of New South Wales. "SHIRE OF GOSFORD.—NAMING OF ROAD BETWEEN." December 22, 1961. <http://nla.gov.au/nla.news-article220288191>.
- Stedinger Associates. "Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application." Cessnock City Council, April 2010.
- The Convict Trail Project. "John MacDonald." The Convict Trail Project- Caring for the Great North Road. Accessed August 5, 2022. <https://www.convicttrail.com.au/john-macdonald.html>.
- Maitland Mercury and Hunter River General Advertiser. "WOLLOMBI." December 17, 1870. <http://nla.gov.au/nla.news-article18750479>.

9 Plates



Plate 1. View west from George Downes Drive towards the intersection in the Project Area (Source: Heritage Now 2022)



Plate 2. View from the intersection to the south-west along the Great Northern Road (Source: Heritage Now 2022)



Plate 3. View south-east from Great North Road to the intersection (Source: Heritage Now 2022)



Plate 4. View east towards intersection within Project Area showing elevated alignment of current road (Source: Heritage Now 2022)



Plate 5. General view of masonry retaining wall in Bucketty precinct (outside of Project Area) (Source: Heritage Now 2022)



Plate 6. Detailed view of historic convict wall (outside of Project Area) (Source: Heritage Now 2022)



Plate 7. Former road alignment with road pavement cut into bedrock, and associated rock-cut drain (outside of Project Area) (Source: Heritage Now 2022)



Plate 8. Bucketty precinct of the Convict Trail adjacent to Yengo National Park (Source: Heritage Now 2022)



Plate 9. Point where old road meets existing road (Source: Heritage Now 2022)



Plate 10. Pick marks on sandstone cutting within northern portion of Project Area (Source: Heritage Now 2022)



Plate 11. Landslip in north-western portion of Project Area (Source: Heritage Now 2022)

**APPENDIX 5: HERITAGE NOW, 22.12.22. ABORIGINAL HERITAGE
DUE DILIGENCE ASSESSMENT FOR PROPOSED ROAD UPGRADE
WORKS AT BUCKETTY.**

Project Number: HN000450-B



ABORIGINAL HERITAGE DUE DILIGENCE ASSESSMENT REPORT – GEORGE DOWNES DRIVE BUCKETTY

FINAL 22/ 12 / 2022

REPORT TO: CESSNOCK CITY COUNCIL
PO Box 152, Cessnock NSW 2325

REPORT BY HERITAGE NOW PTY LTD
projects@heritagenow.com.au
(02) 8318 9770
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Executive Summary

Heritage Now (Pty Ltd) was engaged by Cessnock City Council to provide an Aboriginal Heritage Due Diligence Assessment for proposed road upgrade works at Bucketty. This assessment included a review and analysis of background information, and a site inspection, undertaken by Lara Tooby and Sarah Mané of Heritage Now, and Kyle Howie of Awabakal & Guri-Ngai (Pty Ltd), on 22 July 2022.

A small portion of the Project Area overlaps with the curtilage of The Greater Blue Mountains Area, which is a declared place on the World Heritage List and a listed place on the National Heritage List. Although it classed as a natural heritage place, the exceptional biodiversity values of this area are complemented by other values, including Indigenous cultural values.

As long as the proposed works are restricted to the Project Area, there is low risk of harm to Aboriginal objects and values as a result of the proposed works, and thus an AHIP application is not required. Works may proceed with caution in accordance with the recommendations below.

Recommendation 1

All on-site personnel are to be made aware of their obligations under the *National Parks and Wildlife Act 1979* (NPW Act). This includes protection of Aboriginal sites (including Aboriginal objects and places), and the requirement to report the discovery of any newly identified Aboriginal sites. This may be done through an on-site induction or other suitable format. As part of this induction, it should be emphasised that works are permitted only within the Project Area as illustrated in this report, as outside this Project Area boundary, it is less disturbed and there is a high likelihood of archaeological sites.

Recommendation 2

In the unlikely event that Aboriginal, or suspected Aboriginal archaeological material is uncovered during the proposed works, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the heritage consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the NPW Act and advise on the required management and mitigation measures. Works are not to recommence in the cordoned off area until heritage clearance has been given and/or the required management and mitigation measures have been implemented.

Recommendation 3

In the unlikely event that human remains, or suspected human remains are uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the NSW Police to establish whether the area is a crime scene. If it is not a crime scene, then Heritage NSW is to be notified via the Environment Line on 131 555 and management measures are to be devised in consultation with the local Aboriginal community. Works are not to recommence in the area until the management measures have been implemented.

Acronyms and Definitions

Acronym/Term	Definition
Aboriginal object	Aboriginal object means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains (as per NPW Act).
Aboriginal place	An area of land that “is or was of special significance with respect to Aboriginal culture”, and is declared to be an Aboriginal place under Section 84 of the NPW Act.
AHIMS	Aboriginal Heritage Information Management System (contains records for Aboriginal sites in NSW)
AHIP	Aboriginal Heritage Impact Permit (as per NPW Act)
CHL	Commonwealth Heritage List
DCCEEW	Australian Government Department of Climate Change, Energy, the Environment and Water
DCDB	NSW Digital Cadastral Database
DECCW	Department of Environment, Climate Change and Water (became the Office of Environment and Heritage in 2011, now Heritage NSW).
DPC	Department of Premier and Cabinet
DTDB	NSW Digital Topographic Database (NSW)
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
Holocene	Geological epoch (period) typically defined as the time period that commenced approximately 11,700 years ago and is the current period of geological time. This period is generally warmer and wetter than the preceding Pleistocene period.
OEH	Office of Environment and Heritage (now Heritage NSW)
NHL	National Heritage List
Non-perennial	In terms of watercourses and water bodies, it means an area which contains water for several months of each year, or only contains water intermittently (Geoscience Australia 2012).
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
PAD	Potential Archaeological Deposit
Perennial	In terms of watercourses and water bodies, it means an area which contains

Acronym/Term	Definition
	water for the whole year, except during unusually dry periods (Geoscience Australia 2012).
Pleistocene	Geological epoch (period) is typically defined as the time period that commenced approximately 2.6 million years ago and lasted until approximately 11,700 years ago. This period spans the world's recent period of repeated glaciations. The late Pleistocene, in which humans began occupying Australia, is generally colder and dryer than the Holocene.
SIX Maps	Spatial Information Exchange (NSW government portal holding a range of spatial and property data)
WHL	World Heritage List

Version Control

Version	Revision Description	Reviewed by	Date	Approved by	Date Approved
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1 Introduction

Heritage Now Pty Ltd (Heritage Now) was engaged by Cessnock City Council to undertake an Aboriginal Heritage Due Diligence Assessment for proposed road upgrade works at Bucketty.

The aim of the Due Diligence Assessment was to assess the likelihood of Aboriginal objects being harmed by the proposed activity, whether further investigation is warranted, and whether the activity required an Aboriginal Heritage Impact Permit (AHIP) application (DECCW 2010, 2).

1.1 Project Area

The Project Area is located at the intersection of George Downes Drive, Great North Road and Great Northern Road, Bucketty, approximately 37 km south-west of the town of Cessnock in the Lower Hunter Valley. It comprises approximately 2.5 hectares where roadworks are proposed (Figure 1).

A portion of the Project Area is located within the Greater Blue Mountains Area, which is a declared property on the World Heritage List, and a listed place on the National Heritage List. It also includes part of the historical alignment of the Great North Road, between Mt Manning and Wollombi, which is listed on the State Heritage Register.¹

The Project Area is at the junction of three Local Government Areas: Cessnock City Council; Hawkesbury City Council, and Central Coast Council (Figure 2). It is within Metro Local Aboriginal Land Council boundaries.



Figure 1. The Project Area. (Source: Six Maps with Heritage Now additions)

¹ This report considers the impacts of the proposal on Aboriginal heritage only. Historical heritage is addressed in the following report: 'Statement of Heritage Impact – George Downes Drive, Bucketty' (Heritage Now 2022).



Figure 2. The Project Area in a regional context. (Source: OpenStreetMap with DCDB and Heritage Now additions)

1.2 Overview of Project Proposal

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive, Bucketty, at the intersection with Great Northern Road. This length of road has been the site of numerous road accidents, and the upgrade is intended to ensure a safer journey for drivers and motorcyclists exploring the region. The works will include:

- Road widening at the intersection with Great North Road and along George Downes Drive to accommodate guard rail
- Installation of guardrail with motorcycle under run on both sides of George Downes Drive
- Associated signs and line markings

The concept design for the proposed works is shown in Figure 3, this report also covers the civil works design.

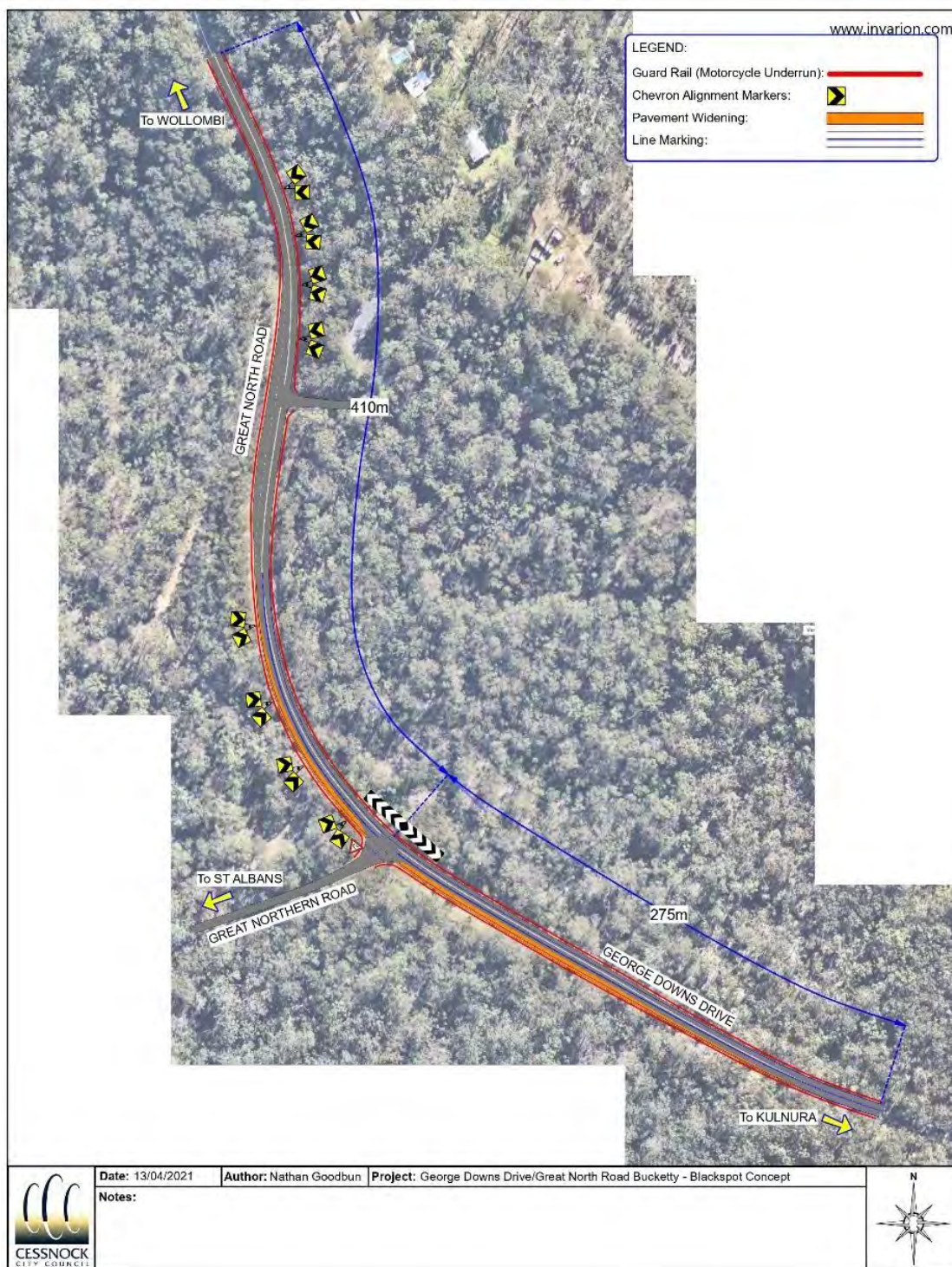


Figure 3. George Downs Drive/Great North Road Bucketty – Blackspot Concept design. (Source: Cessnock City Council, 13/4/2021)

1.3 Methodology

This assessment was prepared in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010b).

The five steps of the due diligence process, and where they are outlined within this report, are shown in Table 1.

Table 1. Steps in the DECCW 2010 Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, and corresponding report section.

Aboriginal Due Diligence Requirements	Report Section
Step 1— Project Proposal. Assess whether the activity will disturb the ground surface.	Section 1.2 and 6.1
Step 2a—Heritage Context. Search the Aboriginal Heritage Information Management System (AHIMS) database (and other relevant sources of information) to check whether any Aboriginal sites have been recorded in the area, or whether or not Aboriginal objects are likely to be in the present area.	Section 4
Step 2b—Environmental Context. Consider whether Aboriginal objects are likely to be in the area of the proposed activity based on landscape features, and whether the land is disturbed.	Section 3
Step 3—Impact Assessment. Assess whether you can avoid harm to the object or disturbance of the landscape feature.	Section 6.2
Step 4—Visual Inspection. Undertake desktop assessment and visual inspection.	Section 5 (and throughout report)
Step 5—Conclusions and Recommendations. Specify whether further investigations and a formal impact assessment (AHIP) is required.	Section 6.3 and 7

1.4 Authorship and Acknowledgements

This report was produced by the Heritage Now team. The report was written by Sarah Mané (Heritage Consultant) and Lara Tooby (Senior Heritage Consultant), with input from Joven Sanchez (Heritage Officer), and Kira Paznikov (Heritage Officer). Technical input and quality review was provided by Ngaire Richards, Principal Heritage Consultant at Heritage Now.

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2 Legislative Context

This section provides an outline of the Acts, Regulations and guidelines under which this assessment was undertaken at the time of reporting. It is for information purposes only and should not be taken as legal advice.

2.1 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a legal framework providing for the protection and management of aspects of the environment that are matters of national environmental significance. Protected matters covered by the EPBC Act include:

- World heritage areas on the World Heritage List (WHL), including natural and cultural sites which have outstanding universal value.
- Heritage places on the National Heritage List (NHL), including natural, historic or Indigenous places of outstanding national heritage value to the nation.
- Heritage places on the Commonwealth Heritage List (CHL), including places of significant heritage value on Commonwealth land and waters, or that are owned or managed by the Australian government.

Should a proposed action have the potential for a significant impact on a protected matter, a referral to the Australian government may be made to determine whether formal assessment and approval is required under the EPBC Act.

The Project Area is partly within The Greater Blue Mountains Area, which is a declared property on the World Heritage List (Place ID: 105127), and a listed place on the National Heritage List (Place ID: 105999) (Figure 4 and Figure 5).

The statement of Outstanding Universal Value for The Greater Blue Mountains Area identifies that the exceptional biodiversity values of this area are complemented by other values, including indigenous and post-European-settlement cultural values.

2.2 Native Title Act 1993 (Cth)

The *Native Title Act 1993* recognises and protects the native title rights and interests of Aboriginal people and Torres Strait Islanders. The Act established the National Native Title Tribunal as an independent body to administer native title claims. It also authorises the making and registration of Indigenous Land Use Agreements about the use and management of land or waters.

A search of the National Native Title Tribunal registers of native title information was undertaken on 29 July 2022. There are no relevant entries for the Project Area on the Register of Native Title Claims, National Native Title Register, or Register of Indigenous Land Use Agreements.

2.3 National Parks and Wildlife Act 1974 (NSW)

The National Parks and Wildlife Act 1974 (NPW Act) contains the provisions for protecting Aboriginal objects and Aboriginal places in NSW. Aboriginal objects are protected regardless of whether they

are in their original context (location) or not, and it is an offence to harm an Aboriginal object regardless of whether you know it is an Aboriginal object or not.

The definition of harm includes destroying, defacing, damaging or moving an object from the land on which it had been situated. Penalties range from \$80,000–\$800,000 for individuals and \$330,000–\$1,650,000 for corporations, and may also include imprisonment.

Under Section 87, there are certain defences to the offence of harm. These include that harm was carried out under an Aboriginal Heritage Impact Permit (AHIP); that due diligence was exercised to determine if an action would harm an Aboriginal object; or that an activity was prescribed by the National Parks and Wildlife Regulation as being low impact.

Under Section 89A, an Aboriginal object must be reported to Heritage NSW within a reasonable timeframe unless they have previously been recorded and submitted to the Aboriginal Heritage Information Management System (AHIMS).

2.3.1 National Parks and Wildlife Regulation 2019

This Regulation provides a framework for exercising due diligence and outlines codes of practice in respect to Aboriginal objects (Section 57), as well as defences for carrying out certain low-impact activities (Section 58). The Regulation also outlines requirements for Aboriginal consultation (Section 60), particularly in relation to an AHIP. Under the Regulation, the following codes of practice are recognised, amongst others:

Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010b),

NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects (NSW Minerals Council 2010), and

Operational Guidelines for Aboriginal Cultural Heritage Management - a Due Diligence Code of Practice (Forestry Corporation of NSW 2021)

Aboriginal Land Rights Act 1983 (NSW)

This Act provides land rights to Aboriginal people through Local Aboriginal Land Councils. It details a process for claiming unused Crown Land in NSW and for enabling land use. It also allows for agreements to permit traditional hunting, fishing and gathering. The Office of the Registrar, *Aboriginal Land Rights Act 1983* (NSW) (ORALRA), registers land claims and maintains the Register of Aboriginal Land Claims and Register of Aboriginal Owners.

A search of the Land Claim Registers indicates that there are no Aboriginal land claims in the Project Area.

2.4 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides triggers for undertaking environmental and heritage assessments as part of the wider land-use planning framework. Part 4 details how authorities are to determine development applications, as well as identifying whether projects require an Environmental Impact Statement. Part 9 outlines the implementation and enforcement of the EP&A Act.

The EP&A Act also allows for the making of State environmental planning policies (SEPPs) that deal with matters of State or Regional planning significance, and local environmental plans (LEPs) for the purpose of planning within a local government area.

Heritage items (which can include buildings, works, places, relics, trees, objects or archaeological sites) and heritage conservation areas (including associated fabric, settings and views) are identified in the environmental heritage schedule attached to a SEPP or LEP. These items may be of local, State, or National significance.

2.4.1 Local Environmental Plans

Standard provisions for LEPs are set out in the Standard Instrument—Principal Local Environmental Plan (2006 EPI 155a) and require development consent to disturb, excavate, erect a building or subdivide land on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance. The consent authority must consider the effect of a proposal on the heritage significance of an Aboriginal place of heritage significance and any Aboriginal object likely to be located there; and notify the local Aboriginal communities about the proposal.

The Project Area is within the Cessnock, Hawkesbury, and Central Coast (formerly Gosford and Wyong) local government areas. The relevant LEPs are:

- Cessnock Local Environmental Plan 2011
- Hawkesbury Local Environmental Plan 2012
- Gosford Local Environmental Plan 2014

There are no Aboriginal objects and Aboriginal places of heritage significance in the Project Area listed on the environmental heritage schedules of these LEPs.

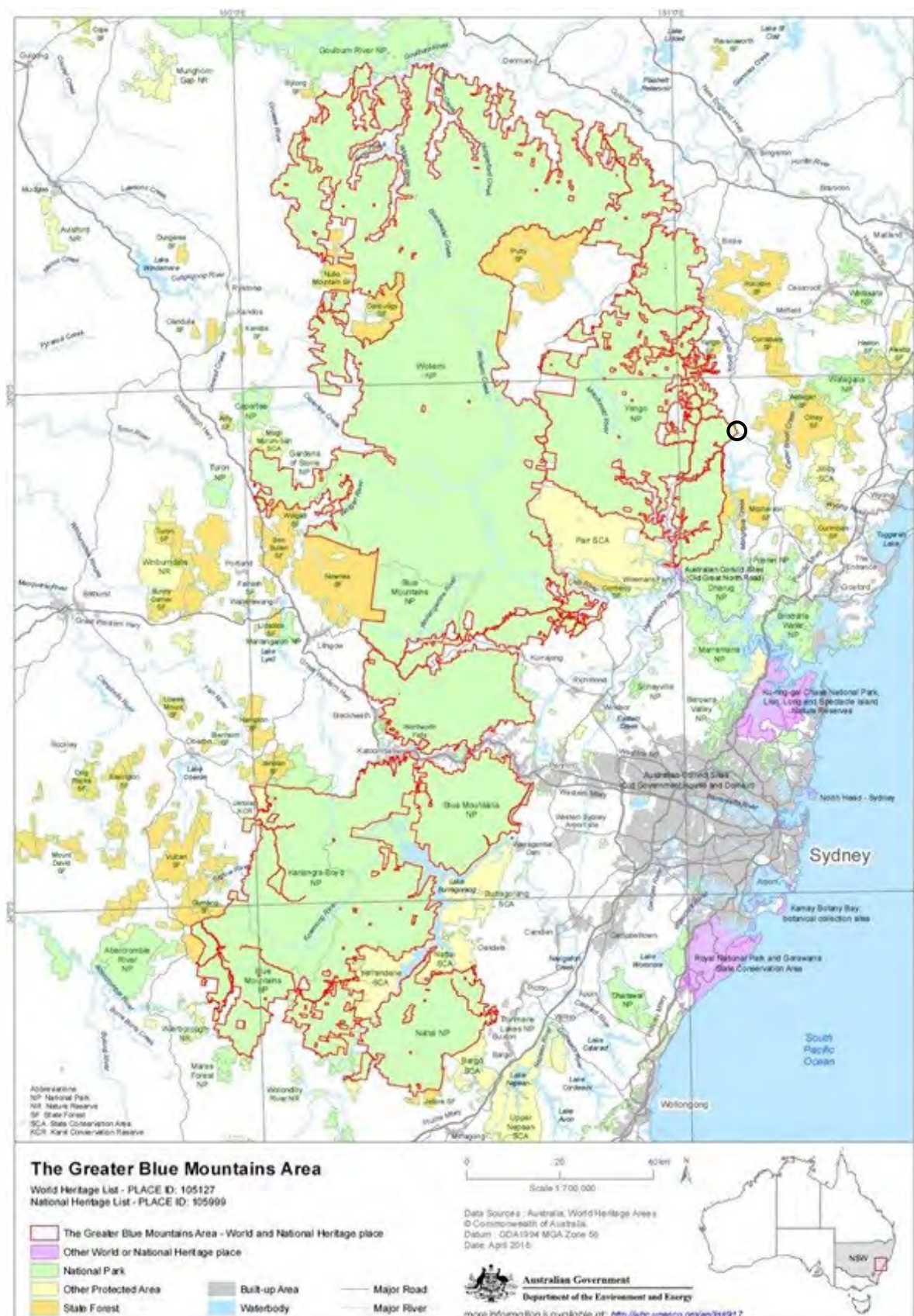


Figure 4. The Greater Blue Mountains Area (Source: Department of the Environment and Energy, April 2018). The approximate location of the Project Area is circled in black.



Figure 5. The Greater Blue Mountains Area in the vicinity of the Project Area (Source: Six Maps with DCCEEW, 2020 and Heritage Now additions).

3 Environmental Context

This section provides the environmental context for the assessment of past Aboriginal occupation in the Project Area, focusing on whether there were any landscape features that were likely to indicate the presence of Aboriginal objects (DECCW 2010c, 10).

3.1 Bioregions

Bioregions are part of a landscape-based classification system developed for conservation planning and management. They are large, geographically distinct regions defined by common attributes including climate, lithology, geology, landforms and vegetation (Thackway and Cresswell 1995, ix). Bioregions are further divided into more localised and homogenous geomorphological units known as subregions (Morgan 2001, 5; Department of Planning, Industry and Environment 2022).

The Project Area is within the Yengo subregion of the Sydney Basin bioregion. This subregion is characterised by a benched sandstone plateau (the Hornsby Plateau) with steep slopes and incised narrow valleys; and a few volcanic necks and basalt caps. Typical soils on the plateau consist of shallow quartz sands, with some areas of deep yellow earth and patches of podsol development on benches (NSW National Parks and Wildlife Service 2003, 192).

Within the Sydney Basin, there is a strong correlation between subregions and the relative distribution of different types of Aboriginal sites. In the Yengo subregion (with sandstone geology), the archaeological record is dominated by art and grinding grooves associated with rock shelters (Brown 2010, 13; Ridges 2010, 17,69); and to a lesser extent rock platforms (Attenbrow 2003, 20–21). The distribution of artefact (lithic) sites and potential archaeological deposits in this subregion is more complex (Brown 2010, 13). Comparatively few have been recorded in open contexts, and it remains unclear where specifically they are likely to occur in the landscape (Attenbrow 2004, 105). Those that have been recorded generally contain artefacts in low densities across relatively large areas (for example, see Attenbrow 2004, 94).

3.2 Geology and Soils

The Project Area is located on the upper slopes of rugged steep to rolling hills, formed on Triassic Hawkesbury Sandstone. The Hawkesbury Sandstone formation consists of medium to very-coarse grained quartz sandstone, minor laminated mudstone and siltstone lenses. Geological mapping indicates an ungrouped igneous unit of basalt/teschenite is located approximately 100m to the south east (Och et al. 2015). The most common stone artefact materials known to be used by Aboriginal people of the Hunter Valley include silcrete, indurated mudstone/ tuff (IMT), fine grained silicious (FGS), chert and quartz. Fine grained basalt can also be used for ground-edge artefacts. Quartz and basalt may occur naturally in this area. Furthermore, sandstone rock shelves in this region could provide natural exposures suitable for grinding axes and other stone artefacts, or for use as surfaces for art. Sandstone overhangs could also have been used as shelters by Aboriginal people in the past.

The Project Area is located across three classes of soil landscapes: GyMEA, Hawkesbury, and Sydney Town. :

- The GyMEA soil landscape occurs across the majority of the Project Area. On side slopes, rock outcrop may cover 25% of the ground surface, with up to 20cm of loose coarse sandy loam overlying parent material of sandstone bedrock (DPIE 2020a).
- The Hawkesbury soil landscape occurs along the north-western edge of the Project Area. These soils are discontinuous, with often >50% of the surface covered by sandstone rock outcrop, although soils in joint lines may be >100cm deep. On side slopes and benches such as in the Project Area, there is usually 10-30cm of loose, coarse quartz sand overlying bedrock (DPIE 2020b).
- The Sydney Town soil landscape occurs in the eastern most portion of the Project Area, consists of 30cm of loose brown loamy sand (A₁ horizon), overlying up to 150cm of earthy bright brown sandy clay loam (A₂ horizon). Occasionally, up to 50cm of grey massive mottled sandy clay loam occurs at depth above sandstone bedrock (B Horizon/bedrock) (DPIE 2020b).

All three soil landscapes can be severely affected by sheet erosion following storms and bushfires. Soil coverage is variable across the Project Area, but where present is generally shallow. Within the current road corridor soil deposits are likely to have been heavily impacted by activities associated with road formation and maintenance.

The extent of these landscapes is mapped in Figure 6.

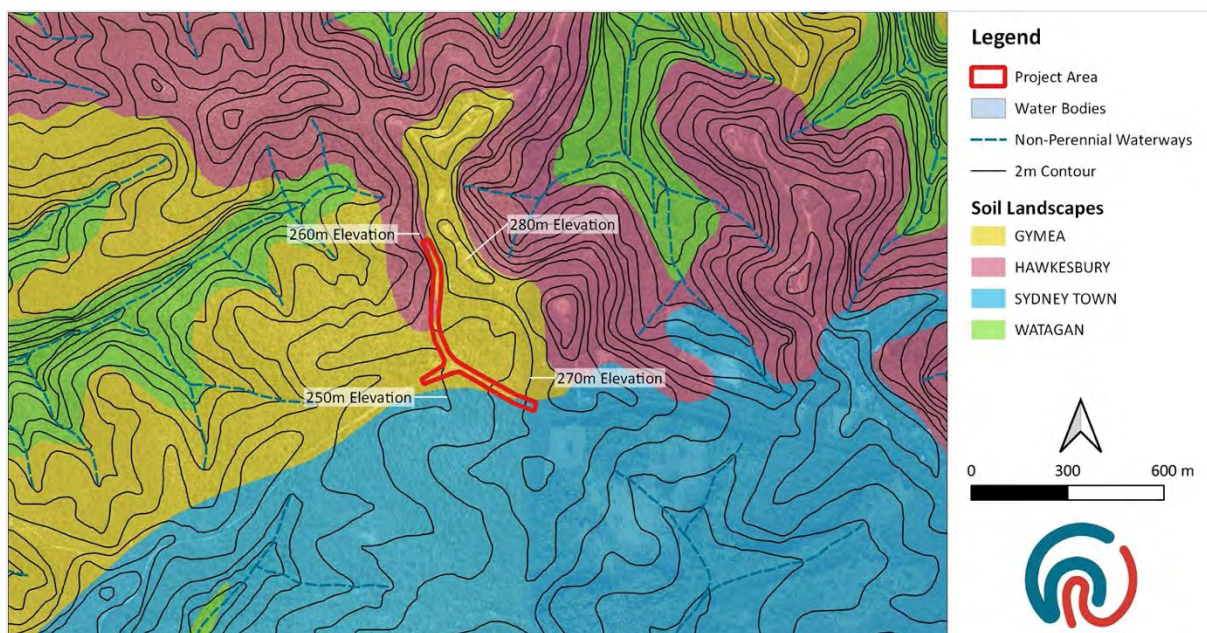


Figure 6. Soil landscapes of the Project Area and surrounding region. (Source: Soil Landscapes based on DPIE 2020 overlying SIX Maps Aerial, with DTDB and Heritage Now additions)

3.3 Landforms, Topography and Hydrology

The Project Area is situated in a landscape of undulating to rolling crests and slopes. A 300m high peak, known as Mount McQuoid, is situated just 250m north east of the Project Area. Many colonial roads followed traditional Aboriginal pathways and travelling routes, so it is possible that the Great North Road followed this pattern of building over known routes, especially along ridgelines ("The Convict Trail: History" n.d.).

Access to freshwater is known as a primary consideration for Aboriginal people when selecting camp site locations. Studies from the Hunter Valley (Kuskie and Kamminga 2000; Kuskie 2015) demonstrate that areas within 300m of wetlands and fresh water are considered to have been preferred locations for camping and focused occupation (i.e., repeated visits, visits of longer duration). Conversely, areas further than 300m from wetlands and/or water sources were outside the primary or secondary resource zones, and are predicted to have had low to very-low intensity use for hunting and/or gathering during the course of the normal daily round, or for transitory movement. The sensitivity of waterways for Aboriginal campsites is also reflected in the Due Diligence Code of Practice, which considers areas within 200m of water archaeologically sensitive (DECCW 2010a).

The nearest watercourse to the Project Area is an unnamed, first-order stream 200m north-west. The nearest perennial stream is Wollombi Brook, approximately 2.5km east. Wollombi Brook was a known travel route for Aboriginal people in the past, between the coast, the upper Hunter Valley and important ceremonial areas in the Yengo mountains (Brayshaw 1987, 41).

Historical records also indicate there was a natural mountain spring approximately 200 m south-west of the Project Area. It was purported to have been used by convicts stationed at a stockade known as “Dennis’s Dog Kennel” during the construction of the Great North Road (Budde 2022a).

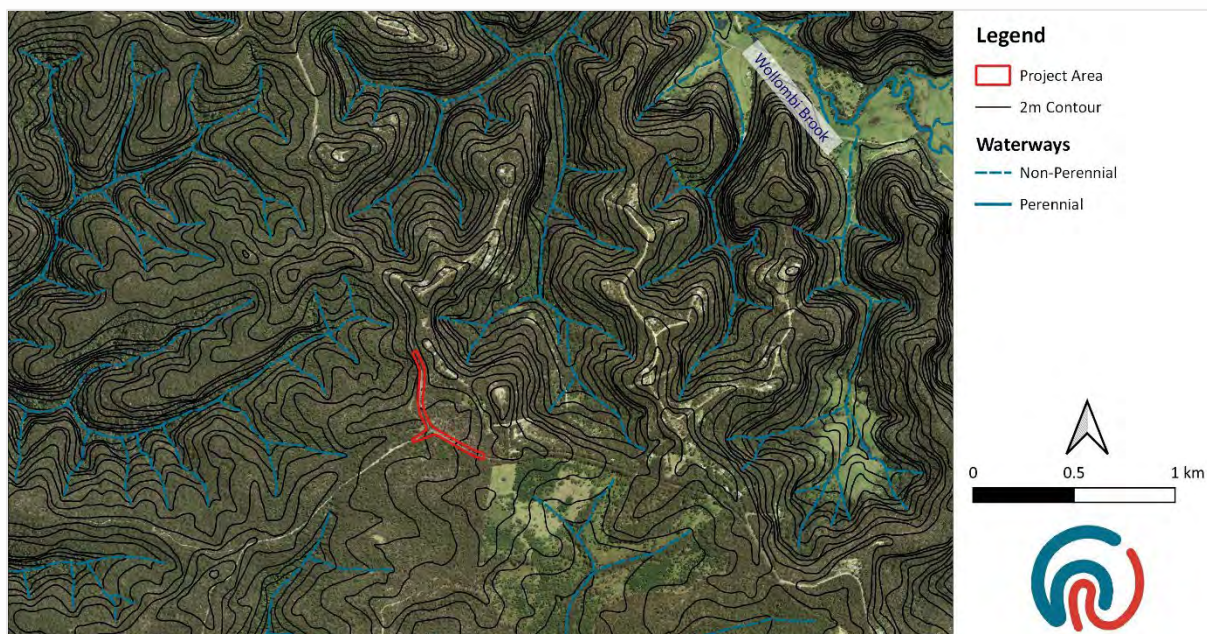


Figure 7. Waterways around the Project Area. (Source: SIX Maps aeriels with DTDB and Heritage Now additions)

3.4 Flora and Fauna

This section is intended to give a general overview of the flora and fauna that may have been used by Aboriginal people in the past. The information is supplied for understanding the past Aboriginal use of the landscape and is not intended for ecological assessment purposes.

Past Aboriginal people are likely to have encountered vegetation similar to the Hunter-Macleay Dry Sclerophyll in the Project Area (Keith 2004). These forests consist of dry open eucalypt forest to 30m tall, with a mixed sclerophyll and mesophyll shrub stratum and semi-continuous grassy groundcover. Common tree types include spotted gum, narrow-leaved ironbark, grey box, grey gum, grey ironbark

turpentine. Common shrubs including silver-stemmed wattle and forest oak are present as tall shrubs or small trees. Smaller shrubs include coffee bush, gorse bitter pea, peach heath, large mock-olive, narrow-leaved geebung, and muttonwood. Forbs includes yellow burr-daisy, slender tick-trefoil, kidney weed, white root, poison rock fern, barbed wire grass, wiry panic, weeping grass and kangaroo grass.

This vegetation community would have provided a variety of foods and raw materials for Aboriginal occupation in the area. The fruits of plants such as the geebung and coffee bush produce edible fruits and the timbers of eucalypts could be used to create tools, vessels and canoes (Brayshaw 1987). The gum (kino) of the spotted gum could be used as a pigment, and when mixed in a drinking solution could assist with bladder infections. The nectar of the spotted gum flowers could be used as a sweetener (Caton and Hardwick 2018, 249). The narrow-leaved geebung has edible fruit as well as seeds. The juice and flesh of unripe fruit were used for treating burns, scratches and rashes. The ripe fruit on the ground also attracted possums, bandicoots and wallabies (Caton and Hardwick 2018, 267). The cooked leaves of the poison rock fern could be used to treat parasitic infections and intestinal worms, and the leaves could also be made into a poultice for treating eczema and ringworm (Caton and Hardwick 2018, 311).

Common fauna in the area may have included wallabies, echidna, wombats, possums, gliders, reptiles, and birds. These faunae could have provided a source of food and their hides could have been used as a resource to make clothing.

3.5 Land Use

Land is disturbed if it has been the subject of human activity that has changed the land's surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure, roads, trails and tracks, vegetation clearance, construction of buildings, structures, utilities, and other impacts involving earthworks (DECCW 2010b, 18).

Historical records indicate the Great North Road was constructed between 1826-1836, and involved disturbance from activities such as cutting vegetation when clearing new ground, road formation (excavating the line) and formation of the road surface (described variously as 'breaking stone', 'picking gravel', 'shovelling gravel' and 'raking the road') (Karskens 1985). A parish map dating to 1920 (Figure 8) and historical aerial imagery from 1966 and 1977 (Figure 9 and Figure 10) indicate changes in the road alignment at this intersection during the 20th century. Based on this background information, the Project Area is considered to be disturbed land, making intact archaeological deposits considered unlikely. The degree of disturbance was further assessed during the visual inspection (Section 5).



Figure 8. 1920 parish map, Parish of Rugby, showing the Project Area. (Source: HLRV Historical Parish Maps)



Figure 9. The Project Area in 1966. (Source: NSW Government Historical Imagery 1442_03_147.jp2)



Figure 10. The Project Area in 1977. (Source: NSW Government Historical Imagery 2315_02_015.jp2)

3.6 Synthesis

The Project Area consists of upper slopes of rugged steep to rolling hills formed on top of Hawkesbury Sandstone. The soil landscapes in this area are highly susceptible to sheet erosion, and impacts from past land use, including road construction and realignment suggest that intact topsoil with potential to contain archaeological deposit are unlikely to be present.

4 Heritage Context

This section outlines the Aboriginal heritage context of the Project Area. It includes a general outline of Aboriginal occupation in Australia and the region, an analysis of search results from the Aboriginal Heritage Information Management System (AHIMS), as well as relevant heritage studies.

4.1 Historical Records

This region is recognised as being the traditional country of the Darkinjung people. Boundaries between neighbouring groups were often defined by waterways or mountains. Economic, social, and religious links between various groups were also noted by some early European observers. Wollombi Brook, the McDonald River and the Boree Track were all noted as travel routes for Aboriginal people from the Upper Hunter to the Central Coast (Brayshaw 1987, 41). Lancelot Threlkeld, a missionary, noted Awabakal people traveling into the mountains to the west of Lake Macquarie in the 1830s for trade and ceremonial activities.

Two notable ceremonial sites in the Hunter Valley are Mount Yengo and the Baiame Cave (located 27km and 48km from the Project Area respectively). Mount Yengo is a natural feature of spiritual and ceremonial importance to the Wonnarua, Awabakal, Worimi and Darkinjung Aboriginal communities, and is known to have been visited by all of these groups for trade relations and ceremonial activities. The site was gazetted as an Aboriginal Place in 2008, and is located within Yengo National Park (adjacent to the Project Area), which is one of eight conservation reserves that make up the Greater Blue Mountains World Heritage Area. The site represents the place where Baiame, the ancestral creator, jumped back to the spirit world. The cultural and spiritual significance of this area is also reflected in the large collection of rock art sites in the surrounding landscape (Jones 2009).

Baiame Cave in Milbrodale, near Singleton, is a rare and unique pigment art site depicting the creator, Baiame. It is a place of special cultural, social, and spiritual significance, and demonstrates the importance of ancestral beings, creation stories and Dreaming sites. However, there are no known specific historic records of Aboriginal people associated with the Project Area.

It has been proposed that the name 'Bucketty' is possibly an anglicised word of an Aboriginal term, meaning 'mountain springs', as there are reportedly a large number of natural springs in the area (Budde 2022b).

4.2 Archaeological Background

Australia and New Guinea were connected as a single continental landmass called Sahul and have been occupied by humans for at least 65,000 years (Clarkson et al. 2017). Eastern NSW has been occupied from at least 50,000 years ago (Williams et al. 2017). The earliest archaeological evidence of occupation in the Hunter region are radiocarbon dates obtained from charcoal at a site in Fal Brook, north of Singleton (60 km north of Project Area). The artefacts within the deposit were dated to the Pleistocene, approximately 34,590 years before present (BP) (Margrit Koettig 1987). However, most of the archaeology in the Hunter region is younger and has been dated to the Holocene (in the last 10,000 years). Deposits from a rock-shelter in Mangrove Creek in the Central Coast region (21 km south of Project Area) were dated to approximately 11,000 years before present (Attenbrow 2003, 20).

There are many types of evidence of past Aboriginal occupation which form the archaeological record of a region. Places which show evidence of Aboriginal occupation of an area in the past are described as archaeological sites. These sites contain numerous site features, as defined in Table 2. Some archaeological sites contain more than one of these features.

Table 2. Aboriginal site feature descriptions (as per OEH 2012, unless otherwise referenced)

Site Features	OEH 2012 Description
Aboriginal Ceremony and Dreaming	Previously referred to as mythological sites these are spiritual/story places where no physical evidence of previous use of the place may occur, e.g., natural unmodified landscape features, ceremonial or spiritual areas, men's/women's sites, dreaming (creation) tracks, marriage places etc.
Aboriginal Resource and Gathering	Related to everyday activities such as food gathering, hunting, or collection and manufacture of materials and goods for use or trade.
Art	Art is found in shelters, overhangs and across rock formations. Techniques include painting, drawing, scratching, carving engraving, pitting, conjoining, abrading and the use of a range of binding agents and the use of natural pigments obtained from clays, charcoal and plants.
Artefact	Objects such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell demonstrating evidence of use of the area by Aboriginal people.
Burial	A traditional or contemporary (post-contact) burial of an Aboriginal person, which may occur outside designated cemeteries and may not be marked, e.g., in caves, marked by stone cairns, in sand areas, along creek banks etc.
Ceremonial Ring	Raised earth ring(s) associated with ceremony.
Conflict	Previously referred to as massacre sites where confrontations occurred between (1) Aboriginal and non-Aboriginal people, or (2) between different Aboriginal groups.
Earth Mound	A mounded deposit of round to oval shape containing baked clay lumps, ash, charcoal and, usually, black or dark grey sediment. The deposit may be compacted or loose and ashy. Mounds may contain various economic remains such as mussel shell and bone as well as stone artefacts. Occasionally they contain burials.
Fish Trap	A modified area on watercourses where fish were trapped for short-term storage and gathering.
Grinding Groove	A groove in a rock surface resulting from manufacture of stone tools such as ground edge hatchets and spears, may also include rounded depressions resulting from grinding of seeds and grains.
Habitation Structure	Structures constructed by Aboriginal people for short or long-term shelter. More temporary structures are commonly preserved away from the NSW coastline, may include historic camps of contemporary significance. Smaller structures may make use of natural materials such as branches, logs and bark sheets or manufactured materials such as corrugated iron to form shelters. Archaeological remains of a former structure such as chimney/fireplace, raised earth building platform, excavated pits, rubble mounds etc.
Hearth	Cultural deposit sometimes marked by hearth stones, usually also contains charcoal and may also contain heat treated stone fragments.
Modified Tree	Trees which show the marks of modification as a result of cutting of bark from the trunk for use in the production of shields, canoes, boomerangs, burials

Site Features	OEHS 2012 Description
	shrouds, for medicinal purposes, foot holds etc, or alternately intentional carving of the heartwood of the tree to form a permanent marker to indicate ceremonial use/significance of a nearby area. Again these carvings may also act as territorial or burial markers.
Non-Human Bone and Organic Material	Objects which can be found within cultural deposits as components of an Aboriginal site such as fish or mammal bones, ochres, cached objects which may otherwise have broken down such as resin, twine, dilly bags, nets etc.
Ochre Quarry	A source of ochre used for ceremonial occasions, burials, trade and artwork.
Potential Archaeological Deposit (PAD)	An area where sub-surface stone artefacts and/or other cultural materials are likely to occur (DECCW 2010a, 38).
Shell	An accumulation or deposit of shellfish from beach, estuarine, lacustrine or riverine species resulting from Aboriginal gathering and consumption. Usually found in deposits previously referred to as shell middens. Must be found in association with other objects like stone tools, fish bones, charcoal, fireplaces/hearths, and burials. Will vary greatly in size and components.
Stone Arrangement	Human produced arrangements of stone usually associated with ceremonial activities, or used as markers for territorial limits or to mark/protect burials.
Stone Quarry	Usually, a source of good quality stone which is quarried and used for the production of stone tools.
Waterhole	A source of fresh water for Aboriginal groups which may have traditional ceremonial or dreaming significance and/or may also be used to the present day as a rich resource gathering area (e.g., waterbirds, eels, clays, reeds etc).

Most details of known Aboriginal archaeology in the region are contained in the Aboriginal Heritage Information Management System (AHIMS), which is discussed below.

4.3 Aboriginal Heritage Information Management System (AHIMS)

Aboriginal sites recorded in NSW are registered with geographic co-ordinates in the Aboriginal Heritage Information Management System (AHIMS) and are protected under the *National Parks and Wildlife Act 1974*. Information in AHIMS can provide information on Aboriginal site patterning as well as showing if Aboriginal sites occur in the Project Area.

The Aboriginal Heritage Information Management System was searched on the 10th of June 2022 from Lat, Long -33.139444, 151.095352 to Lat, Long -33.080058, 151.176061 (Attachment 1). The search produced a result of 85 sites (Figure 11)

While stone artefacts (including isolated finds and artefact scatters) often dominate the archaeological record because they are preserved well in comparison to other materials such as bone implements, clothing, ornamentation, medicinal supplies, woven goods, and wooden weapons used by Aboriginal people, over 50% of the total number of sites within this region are art sites associated with rock shelters, consistent with the Ceremonial and Dreaming importance of the area. Grinding grooves are also common, consistent with the quality and abundance of creek lines and quality sandstone outcrops. Smaller quantities of stone artefacts, shell (middens), PADs and a combination of these site features have also been recorded in the region (Table 3). No sites have

been previously registered within the Project Area. All the sites identified in the search are valid, usually meaning they have not been subject to an AHIP.

Table 3. AHIMS sites in the vicinity of the Project Area summarised by context and site features.

Context	Site Features	Count	Per cent of Total
Closed (shelter) site	Art	46	54.12%
	Artefact/s	6	7.06%
	Artefact/s + Art	4	4.71%
	PAD	1	1.18%
	Artefact/s + Midden	1	1.18%
	Art + Grinding Groove	1	1.18%
	Artefact/s + Art + Grinding Groove	1	1.18%
Open site	Axe Grinding Groove	16	18.82%
	Art	5	5.88%
	Art + Grinding Groove	3	3.53%
	Artefact/s	1	1.18%
Total		85	100.00%

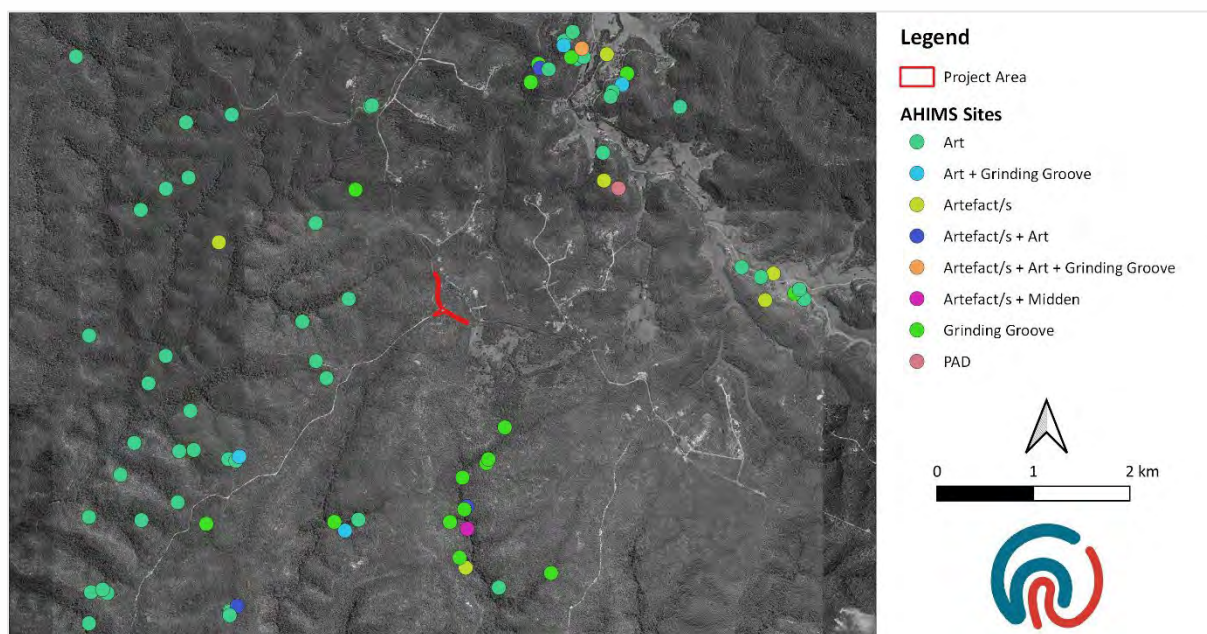


Figure 11. AHIMS Search Results. (Source: SIX Maps aerial with Heritage Now and AHIMS additions)

4.4 Heritage Report Summaries

Heritage reports relevant to the Project Area have been summarised in this section to provide an understanding of the previous assessments that have been undertaken and the implications for Aboriginal site patterning.

Koettig & Hughes, 1983, Archaeological Survey, Upper Wollombi Brook

The study area for this report included 310 hectares of sandstone terrain in the Upper Wollombi Brook and Hungry Creek headwaters, and involved archaeological survey of land for a proposed residential development. The study area is approximately 1.8km north-east of the current Project Area.

The survey focused on rock shelters, sandstone surfaces and creek lines. A total of 17 archaeological sites were located in the survey, including shelter sites with art and/or deposit and/or grinding grooves; grinding grooves; one small rock engraving; and one open site with stone artefacts. The open campsite was located on an eroded creek bank, and contained 5 artefacts. It was considered likely that other sites on the valley floor had been buried by alluvial deposits or destroyed by flooding or farming activities. Shelter sites were clustered in the northern part of the study area on either side of Wollombi Brook. The artefacts identified in shelters were generally non-diagnostic in form and were made from a variety of materials included indurated mudstone, silcrete and quartz.

The main technique employed at the art sites was the application of dry pigment (primarily charcoal) to the sandstone surface, although other methods and pigments were noted. The range of motifs included anthropomorph, macropod, wombat, echidna, emu, shield, hand, axe, club and stick, with two figures dating from the contact period (an outline of a horse with a bit in its mouth; and a man with ball and chain on his leg). (M. Koettig and Hughes 1983, 11). This contact- period art appears to relate to the construction of the Great North Road by convict labour.

The distribution and character of archaeological sites in the Hungry Creek study area was considered similar to that of the wider region.

Needham, W.J., 1980, Survey of Aboriginal Sites, Wollombi Brook

This report covers the Wollombi Brook and its tributaries, from its headwaters in the Murrays Run/Bucketty area to its junction with the Hunter River, and was prepared in response to a proposed dam at Payne's Crossing. The survey aimed to identify sites primarily within the valleys, and the ridges overlooking the valleys along the length of Wollombi Creek

There were over 70 sites identified within the study area. The majority of the sites identified were art associated with rock shelters (paintings in charcoal and/or ochre, and engravings), however other site types included burials, ceremonial grounds, "rubbed grooves" (i.e. grinding grooves), occupation deposits in shelters, an artefact scatter on a creek flat, a potential midden deposit beside a lagoon, and a bora ground. A note at the end of the report identifies a further 13 sites, primarily art in shelters (paintings), with further sites with definite evidence of occupation "too numerous to mention" (Needham 1980, 11). Of those sites identified, most were on the ridges overlooking the valleys, while 30 sites were on or close to the valley floor. Only two sites were located at creek level (in Bulga, approximately 35km north of the current Project Area).

4.5 Synthesis

A search of the AHIMS database indicates that art sites (including pigmented and engraved) and grinding grooves are prolific in this region. These sites predominantly occur on sandstone formations, in association with outcrops, rock shelves and rock shelters. Stone artefacts may also remain preserved in locations where topsoils have not been disturbed, as well as in rock shelter deposits.

5 Site Inspection

The Project Area was surveyed by Lara Tooby and Sarah Mané of Heritage Now, and Kyle Howie of Awabakal & Guri-Ngai, on 22 July 2022.

George Downes Drive is surfaced with asphalt within the Project Area. It follows the lower slopes of a ridgeline and (in the north of the Project Area) through a sandstone cutting. Though George Downes Drive becomes the Great North Road north of the intersection with the Great Northern Road, the historical road alignment does not meet the current road until 300m north of the intersection as indicated by signage (Plate 1).

On George Downes Drives, areas with visible topsoils contained abundant quartz pebbles (Plate 2), and probe tests indicates these soils were shallow (30cm or less). However, on the Great North Road in the north of the Project Area, deeper soils appear near where a severe landslip has recently occurred overlooking a steep slope (Plate 3), perhaps accumulating in a joint line between sandstone bedrock.

The road shoulder varies in length. Near the sandstone cutting associated with the Great North Road, it is less than a metre in width (Plate 4). However, south of the intersection with George Downes Drive (Plate 5), the shoulder is very wide (>5m), cleared of vegetation and is covered in imported gravel (Plate 6).

The portion of the Project Area within the curtilage of the Greater Blue Mountains Area intersects with the current alignment of the Great North Road. This section of the road is sealed with asphalt, and is surrounded by bushland on both sides. An informal parking area is located on the north western side of the road, near an access point to the Bucketty Wall Walking Track (also known as the Bucketty Convict Walk) in Yengo National Park, which forms part of the Great North Road Convict Trail (Plate 7).

No artefacts or archaeological features were visible in the Project Area. Furthermore, the visual inspection confirmed the entire Project Area is heavily disturbed, reducing the potential for intact archaeological deposits to be present.

5.1 Community Consultation

Kyle Howie of Awabakal & Guri-Ngai described the areas as being part of the indistinct boundary between different groups; Aboriginal groups from the uplands, and coastal groups. He confirmed that although the surrounding area has high sensitivity due to the presence of sandstone outcrops which are associated with grinding grooves and rock art, no sensitive outcrops were identified within the Project Area.

5.2 Summary

No PADs or Aboriginal objects were identified during the visual inspection. The lack of cultural materials was due to the land being heavily disturbed and stripped of intact topsoils through formation of the Great North Road, the Great Northern Road, and George Downes Drive.

6 Impact Assessment

This section assesses the potential impact of the proposed works in relation to Aboriginal heritage values in the Project Area.

6.1 Proposed Works

Proposed works include upgrading the intersection to make it safer for drivers and motorcyclists, by installing guard rails, road widening (to accommodate the guard rail), and installing signs and line markings.

6.2 Impact Assessment and Mitigation

The proposed works are confined to the current road and shoulder. Although the western part of Project Area is partially within The Greater Blue Mountains Area, based on an analysis of the concept design, no works are currently proposed within this area. It is recommended that the Project Area be refined to avoid the curtilage of The Greater Blue Mountains Area.

As confirmed by the visual inspection, Aboriginal objects or PADs are unlikely to be preserved in the Project Area as a result of past disturbance from the formation and realignment of the roads. In contrast, the land adjacent to the road reserve, associated with Yengo National Park and surrounds, is a highly sensitive landscape in terms of Aboriginal sites and cultural heritage values. Kyle Howie of Awabakal & Guri-Ngai noted that the surrounding landscape outside the Project Area likely contains an abundance of cultural heritage sites, including grinding grooves and rock engravings. No works, including vehicle and plant movement, laydown areas and site facilities should be located outside of the boundaries of the Project Area without prior assessment.

As long as works are contained within the boundary of the Project Area, there is low risk of harm to Aboriginal objects and values, and thus an AHIP application is not required. Works may proceed with caution in accordance with the concept design and the below mitigation measures.

The Project team and all on-site personnel are to be made aware of their obligations under the *National Parks and Wildlife Act 1974* (NSW). This includes protection of Aboriginal sites and the reporting of any new Aboriginal, or suspected Aboriginal, heritage sites. This may be done through an on-site induction or other suitable format. As part of this induction, it should be emphasised the proximity of the works to The Greater Blue Mountains Area, and the Aboriginal cultural heritage sensitivity of the surrounding landscape. Works can proceed with caution within the Project Area as illustrated in this report, as outside this Project Area boundary, it is less disturbed and there is a greater-chance of archaeological sites.

In the unlikely event that Aboriginal or suspected Aboriginal archaeological material is uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The Project Manager is to contact the heritage consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the *National Parks and Wildlife Act* and advise on the required management and mitigation measures. Works are not to re-commence in the cordoned off

area until heritage clearance is given and/or the required management and mitigation measures have been implemented.

In the very unlikely event that human remains, or suspected human remains are uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact NSW Police to establish whether the area is a crime scene. If it is not a crime scene, then Heritage NSW is to be notified via the Environment Line on 131 555 and management measures are to be devised in consultation with the local Aboriginal community. Works are not to recommence in the area until the management measures have been implemented.

7 Conclusions and Recommendations

The proposed works are confined to the current road and shoulder. Although the western part of Project Area is partially within The Greater Blue Mountains Area, based on an analysis of the concept design, no works are currently proposed within this area.

As long as the proposed works are restricted to the Project Area, there is low risk of harm to Aboriginal objects and values as a result of the proposed works, and thus an AHIP application is not required. Works may proceed with caution in accordance with the recommendations below.

Recommendation 1

All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act. This includes protection of Aboriginal sites and the reporting of any new Aboriginal, or suspected Aboriginal heritage sites. This may be done through an on-site induction or other suitable format. As part of this induction, it should be emphasised that works are permitted only within the Project Area as illustrated in this report, as outside this Project Area boundary, it is less disturbed and there is a high likelihood of archaeological sites.

Recommendation 2

In the unlikely event that Aboriginal, or suspected Aboriginal archaeological material is uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the heritage consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the *National Parks and Wildlife Act 1974* and advise on the required management and mitigation measures. Works are not to recommence in the cordoned off area until heritage clearance has been given and/or the required management and mitigation measures have been implemented.

Recommendation 3

In the unlikely event that human remains, or suspected human remains are uncovered during the development, then works in that area are to stop and the area is to be cordoned off. The project manager is to contact the NSW Police to establish whether the area is a crime scene. If it is not a crime scene, then Heritage NSW is to be notified via the Environment Line on 131 555 and management measures are to be devised in consultation with the local Aboriginal community. Works are not to recommence in the area until the management measures have been implemented.

8 References

- Attenbrow, Val. 2003. "Habitation and Land Use Patterns in the Upper Mangrove Creek Catchment, New South Wales Central Coast, Australia." *Australian Archaeology*, no. 57: 20–31.
- . 2004. *What's Changing: Population Size or Land Use Patterns?: The Archaeology of Upper Mangrove Creek, Sydney Basin*. Terra Australis 21. Canberra: Pandanus Books, Research School of Pacific and Asian Studies, the Australian National University.
- Brayshaw, Helen. 1987. *Aborigines of the Hunter Valley*. Scone, NSW: Scone and Upper Hunter Historical Society.
- Brown, O.J.F. 2010. "Aboriginal Cultural Heritage and Mapping: Aspects of Cultural Boundaries, Sub-Bioregions and Site Distribution in the Sydney Basin." *Archaeological Heritage* 2: 9–16.
- Budde, P. 2022a. *The Bucketty Book*. <https://paulbuddehistory.com/bucketty/>.
- Budde, P. 2022b. "The Bucketty Book: Darkinjung." Paul Budde History, Philosophy, Culture. 2022. <https://paulbuddehistory.com/bucketty/the-darkinjung/>.
- Caton, J M, and R J Hardwick. 2018. *Field Guide to Useful Native Plants from Temperate Australia*. Harbour Publishing House.
- Clarkson, C, Z Jacobs, B Marwick, R Fullagar, L Wallis, M Smith, R.G Roberts, et al. 2017. "Human Occupation of Northern Australia by 65,000 Years Ago." *Nature* 547 (7663): 306–10.
- DECCW. 2010a. *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. Department of Environment, Climate Change and Water.
- . 2010b. "Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales." Sydney, NSW: Department of Environment, Climate Change and Water.
- Department of Planning, Industry and Environment. 2022. "Bioregional and Subregional Framework." January 20, 2022. <http://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/bioregions/bioregional-and-subregional-framework>.
- DPIE. 2020a. "Soil Landscapes of Central and Eastern NSW: Gympie." Soil Landscape gy. Sydney, NSW: Department of Planning, Industry and Environment. www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9130gy.pdf.
- . 2020b. "Soil Landscapes of Central and Eastern NSW: Sydney Town." Soil Landscape st. Sydney, NSW: Department of Planning, Industry and Environment. <https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9131aw.pdf>.
- Forestry Corporation of NSW. 2021. "Operational Guidelines for Aboriginal Cultural Heritage Management - a Due Diligence Code of Practice."
- Geoscience Australia. 2012. "Appendix L - Glossary." Topographic Data And Map Specifications. c\=AU;o\=Australian Government\ou\=Geoscience Australia. January 20, 2012. https://www.ga.gov.au/mapspecs/topographic/v6/appendix_l.html.
- Jones, Garry. 2009. "Yengo Country: A Source of Cultural & Spiritual Awakening."
- Karskens, Grace. 1985. "The Construction of the Great North Road, NSW, 1826 - 1836." *Transactions of the Institution of Engineers - Multi-Disciplinary* GE9 (2): 27–60.
- Keith, David Andrew. 2004. *Ocean Shores to Desert Dunes : The Native Vegetation of New South Wales and the ACT*. Hurstville, N.S.W.: Dept. of Environment and Conservation (NSW).
- Koettig, M., and P.J. Hughes. 1983. "An Archaeological Survey of the Proposed Hungry Creek Rural/Residential Subdivision, Upper Wollombi Brook, NSW." Archaeological Survey Report 512. Canberra, ACT: Report to John Cameron, Dungeness Pastoral Company, Murarys Run Via Laguna, NSW.
- Koettig, Margrit. 1987. "Monitoring Excavations at Three Locations along the Singleton to Glennies Creek Pipeline Route, Hunter Valley, NSW. Unpublished Report to Public Works Department, NSW."

- Kuskie, Peter. 2015. "Waterford County Eastern Sector (Part Lot 812 DP 1171131, Part Lot 7270 DP 1187087, Lot 1 DP1020710 and Lot 43 DP 1009594, Chisholm, Lower Hunter Valley, New South Wales: Aboriginal Cultural Heritage Assessment." Aboriginal Cultural Heritage Assessment 103380. Hughes, ACT: Report to Waterford County Pty Ltd.
- Kuskie, Peter, and Jo Kamminga. 2000. "Salvage of Aboriginal Archaeological Sites in Relation to the F3 Freeway near Lenaghans Drive, Black Hill, New South Wales. Volume C: Lithic Item Databases." Lithic Item Databases 98019. Hughes, ACT: Report to Roads and Traffic Authority NSW.
- Morgan, G. 2001. "Delineation and Description of the Eastern Environmental Subregions (Provinces) in New South Wales Study." 2001.
<http://www.environment.nsw.gov.au/bioregions/SydneyBasin-Subregions.htm>.
- NSW Minerals Council. 2010. "NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects." NSW Minerals Council Ltd.
- NSW National Parks and Wildlife Service. 2003. *The Bioregions of New South Wales: Their Biodiversity, Conservation and History*. Hurstville: NSW National Parks and Wildlife Service.
- Och, D.J., D.C. Jones, R.E. Uren, and K.S. Hughes. 2015. "Gosford-Lake Macquarie Special 1:100,000." Sydney, NSW: Geological Survey of New South Wales.
- OEH. 2012. "Guide to Completing the AHIMS Site Recording Form." Sydney: Office of Environment and Heritage.
- Ridges, Mal. 2010. "Aboriginal Sites Decision Support Tool (ASDST): Statewide Product Outline and Technical Summary." ASDST product version 7. Sydney: Department of Environment, Climate Change and Water.
- Thackway, R., and I.D. Cresswell, eds. 1995. *An Interim Biogeographic Regionalisation for Australia: A Framework for Establishing the National System of Reserves, Version 4.0*. 4.0. Canberra: Australian Nature Conservation Agency.
- "The Convict Trail: History." n.d. The Convict Trail Project - Caring for the Great North Road. Accessed July 28, 2022. <https://www.convicttrail.com.au/history.html>.
- Williams, AN, A Burrow, PS Toms, O Brown, M Richards, and T Bryant. 2017. "The Cranebrook Terrace Revisited: Recent Excavations of an Early Holocene Alluvial Deposit on the Banks of the Nepean River, NSW, and Their Implications for Future Work in the Region." *Australian Archaeology* 83 (3): 100–109.

9 Plates



Plate 1. View north, where the convict road joins with George Downes Drive, become Great North Road. (Source: Heritage Now 2022)



Plate 2. View south-east along George Downes Drive, showing topsoils with quartz pebble inclusions. (Source: Heritage Now 2022)



Plate 3. View north at severe landslip affecting the northern portion of the Project Area. (Source: Heritage Now 2022)



Plate 4. View south in northern portion of Project Area, showing narrow road shoulder. (Source: Heritage Now 2022)



Plate 5. View East at the intersection of the Great Northern Road and George Downes Drive. (Source: Heritage Now 2022).



Plate 6. View south-east, just south of intersection, showing wide road shoulder covered in gravel. (Source: Heritage Now 2022)



Plate 7. View west towards informal parking to view remnants of the Great North Road Convict Trail. (Source: Heritage Now 2022)

Attachment 1 AHIMS Search

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : HN450-B

Client Service ID : 690567

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-3-3737	MOGO CK CHAREM SWA	GDA	56	322378	6334713	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov							
45-3-1471	HC 17 Hungry Creek	AGD	56	326940	6337340	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	512
	<u>Contact</u>	<u>Recorders</u>	ASRSYS							
45-3-3062	Bucketty;Mangrove Catchment;	AGD	56	324930	6332500	Open site	Valid	Grinding Groove : -, Art (Pigment or Engraved) : -	Axe Grinding Groove,Rock Engraving	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff							
45-3-0919	MT SIMPSON; MURRAYS RUN 3	GDA	56	327448	6337581	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	W Needham,Ms.Collette Douchkov							
45-3-1460	HC 2	AGD	56	327770	6336050	Closed site	Valid	Potential Archaeological Deposit (PAD) : -	Shelter with PAD	512
	<u>Contact</u>	<u>Recorders</u>	Margrit Koettig							
45-3-1215	AXE HEAD SHELTER; BUCKETTY GULLY	GDA	56	326289	6332305	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	ASRSYS,Ms.Collette Douchkov							
45-3-1210	TI-TREE SHELTER; BUCKETTY GULLY	GDA	56	326303	6332939	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	ASRSYS,Ms.Collette Douchkov							
45-3-1214	Not 92;Bucketty Gully;	AGD	56	326400	6333200	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<u>Contact</u>	<u>Recorders</u>	ASRSYS							
45-3-3717	MOGO CK RED ROO SWA	GDA	56	323429	6333933	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov							
45-3-3782	MOGO CK SNAKEGULLY SWA	GDA	56	323384	6336923	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov							
45-3-3706	MOGO CK DARKOCHRE SWA	GDA	56	322847	6333600	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov							
45-3-0274	Mt McQuoid;Murray's Run;	AGD	56	329380	6335166	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	ASRSYS							
45-3-3712	MOGO CK MOGOGROOVES	GDA	56	325144	6336225	Open site	Valid	Grinding Groove : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov							

Report generated by AHIMS Web Service on 10/06/2022 for Trishia Palconit for the following area at Lat, Long From : -33.139444, 151.095352 - Lat, Long To : -33.080058, 151.176061.

Number of Aboriginal sites and Aboriginal objects found is 85

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : HN450-B

Client Service ID : 690567

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-3-3725	MOGO CK WHITE EEL SWA	GDA	56	322376	6332831	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
			Permits							
45-3-1465	HC 10 Hungry Creek	AGD	56	327860	6337240	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	512
	Contact	Recorders	ASRSYS							
			Permits							
45-3-1209	First of the Day;Bucketty Gully;	AGD	56	326150	6333050	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	Recorders	ASRSYS							
			Permits							
45-3-3116	MT MANNING B	GDA	56	323838	6331862	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	Contact	Recorders	Warren Bluff,Ms.Collette Douchkov							
			Permits							
45-3-0255	MT SIMPSON; HUNGRY CK 15	GDA	56	327150	6337474	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Moore,Ms.Collette Douchkov							
			Permits							
45-3-3076	Mangrove Catchment Area;?	AGD	56	323490	6332570	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	Contact	Recorders	Warren Bluff							
			Permits							
45-3-1213	Wombat Creek;Bucketty Gully;	AGD	56	326420	6333240	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	Recorders	ASRSYS							
			Permits							
45-3-0265	MT SIMPSON; HUNGRY CK 6	GDA	56	327513	6337601	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	
	Contact	Recorders	Margrit Koettig,Ms.Collette Douchkov							
			Permits							
45-3-3707	MOGO CK EUROPEAN SWA	GDA	56	325073	6335092	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
			Permits							
45-3-3792	MANGROVE CK CHALKY SWA	GDA	56	325174	6332803	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
			Permits							
45-3-3824	MOGO CK ARTHOLLOW SWA	GDA	56	322241	6337605	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
			Permits							
45-3-3709	MOGO CK FAMILY SWA	GDA	56	324592	6334857	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
			Permits							
45-3-2112	Mount Simpson 04	AGD	56	325190	6336900	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	Contact	Recorders	Warren Bluff							
			Permits							
45-3-2326	Axe Head Grooves;Upper Mangrove Creek Catchment (UMC.136);	AGD	56	326120	6332220	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : HN450-B

Client Service ID : 690567

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-1764	Kalongba;	AGD	56	329700	6334900	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3789	MOGO CK RUFTX ENG	GDA	56	324734	6334448	Open site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3723	MOGO CK UPSIDE EMU SWA	GDA	56	324730	6335880	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3115	MT MANNING A	GDA	56	323843	6331851	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-2162	MOGO CK A	GDA	56	323824	6333431	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-0273	Murray's Run;Mt McQuoid;	AGD	56	329380	6335166	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-1340	MURRAYS RUN 2	GDA	56	327513	6337601	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3722	MOGO CK TURTLEPLACE SWA	GDA	56	322994	6334218	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3708	MOGO CK FADED SWA	GDA	56	322567	6332042	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-1469	HC 14 HUNGRY CREEK	GDA	56	327061	6337486	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	512
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-1762	Kalongba;	AGD	56	329250	6335130	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3623	MOGO CREEK NE SHELTER WITH WINDOW & WHITE OCRE ART	GDA	56	323174	6334501	Closed site	Valid	Art (Pigment or Engraved) : 4		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
45-3-3783	MOGO CK WHITE TRAX SWA	GDA	56	323175	6336235	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-3-3787	MOGO CK MT SIMPSON FAINT SWA	GDA	56	323410	6336350	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-3718	MOGO CK RIDGEROO SWA	GDA	56	323464	6333526	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-2876	Mogo Ck;	AGD	56	323620	6335490	Closed site	Valid	Artefact : -	Shelter with Deposit	1333
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-0272	Mt McQuoid;Murray's Run;	AGD	56	329294	6334890	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1462	HC 4	AGD	56	327620	6336130	Closed site	Valid	Artefact : -	Shelter with Deposit	512
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1459	HC 1 Hungry Creek	AGD	56	327650	6337440	Open site	Valid	Artefact : -	Open Camp Site	512
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1463	HC 8	AGD	56	327280	6337410	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	512
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-3795	WOLLOMBI BROOK HANNS SWA	GDA	56	327400	6337861	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-3720	MOGO CK COLLAPSED SWA	GDA	56	322702	6333270	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1174	BIRD TRACKS SHELTER; MT MANNING	GDA	56	323915	6331908	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-2149	MOGO CREEK; 2	GDA	56	323903	6333414	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1175	LIZARDS LEAP; BUCKETTY GULLY	GDA	56	326633	6332099	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1461	HC 3	AGD	56	327610	6336420	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	512
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							
45-3-1199	Doggy Rock;Bucketty Gully;	AGD	56	327070	6332060	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<u>Contact</u>	<u>Recorders</u>	<u>Permits</u>							

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : HN450-B

Client Service ID : 690567

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-3-3797	WOLLOMBI BROOK SPIKE SWA	GDA	56	327309	6337767	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
45-3-1468	HC13 HUNGRY CREEK	GDA	56	327912	6337316	Closed site	Valid	Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art	512
	Contact	Recorders	ASRSYS,Ms.Collette Douchkov							
45-3-1212	CARAMEL WAVE SHELTER; BUCKETTY GULLY	GDA	56	326305	6332708	Closed site	Valid	Artefact : -, Shell : -	Shelter with Deposit	
	Contact	Recorders	Val Attenbrow,Ms.Collette Douchkov							
45-3-1761	Kalongba;	AGD	56	329600	6334960	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	Recorders	Warren Bluff							
45-3-1766	Kalongba;	AGD	56	329650	6335000	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Warren Bluff							
45-3-3719	MOGO CK RIDGEWOMAN SWA	GDA	56	323314	6333513	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
45-3-0918	MOUNT SIMPSON 03	GDA	56	327150	6337474	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	512,594
	Contact	Recorders	W Needham,Ms.Collette Douchkov							
45-3-3063	Bucketty;Mangrove Catchment;	AGD	56	324820	6332590	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	Contact	Recorders	Warren Bluff							
45-3-2143	MOGO CREEK; 1	GDA	56	322397	6332052	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	Contact	Recorders	Warren Bluff,Ms.Collette Douchkov							
45-3-3732	MOGO CK WEATHERED SWA	GDA	56	322518	6332079	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Collette Douchkov							
45-3-2161	MOGO CK; 3	GDA	56	324843	6334270	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	Contact	Recorders	Warren Bluff,Ms.Collette Douchkov							
45-3-2265	MURRAYS RUN	GDA	56	327400	6337861	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	Contact	Recorders	Warren Bluff,Ms.Collette Douchkov							
45-3-1467	HUNGRY CREEK; HC12	GDA	56	327814	6337240	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	512
	Contact	Recorders	ASRSYS,Ms.Collette Douchkov							
45-3-1211	Waterfall A.G.G.	AGD	56	326170	6332720	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	

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Extensive search - Site list report

Your Ref/PO Number : HN450-B

Client Service ID : 690567

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	Val Attenbrow					<u>Permits</u>		
45-3-3776	MOGO CK FINEFIGURE SWA	GDA	56	322914	6336015	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov					<u>Permits</u>		
45-3-3736	MOGO CK CHARCOALMARK SWA	GDA	56	323298	6332984	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov					<u>Permits</u>		
45-3-3781	MOGO CK SMALOCHR SWA	GDA	56	323859	6337003	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov					<u>Permits</u>		
45-3-2036	Bucketty Creek;	AGD	56	326020	6332590	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
45-3-3714	MOGO CK OVOID SWA	GDA	56	322376	6331729	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov					<u>Permits</u>		
45-3-2256	Murrays Run;	AGD	56	326860	6337150	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
45-3-1470	HC 16 HUNGRY CREEK	GDA	56	327307	6337721	Open site	Valid	Grinding Groove : -, Art (Pigment or Engraved) : -	Axe Grinding Groove,Rock Engraving	512
	<u>Contact</u>	<u>Recorders</u>	ASRSYS,Ms.Collette Douchkov					<u>Permits</u>		
45-3-3288	Mt Simpson Charcoal Drawing	AGD	56	325210	6336910	Open site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u> T Russell	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
45-3-1466	HC11; HUNGRY CREEK	GDA	56	327793	6337190	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	512
	<u>Contact</u>	<u>Recorders</u>	ASRSYS,Ms.Collette Douchkov					<u>Permits</u>		
45-3-1464	HC9	GDA	56	328514	6337084	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	512
	<u>Contact</u>	<u>Recorders</u>	ASRSYS,Ms.Collette Douchkov					<u>Permits</u>		
45-3-1763	Kalongba;	AGD	56	329050	6335230	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
45-3-3716	MOGO CK RED EEL SWA	GDA	56	322921	6332798	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.Collette Douchkov					<u>Permits</u>		
45-3-2158	POPREEN	GDA	56	323938	6333457	Open site	Valid	Grinding Groove : -, Art (Pigment or Engraved) : -	Axe Grinding Groove,Rock Engraving	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff,Ms.Collette Douchkov					<u>Permits</u>		

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Extensive search - Site list report

Your Ref/PO Number : HN450-B

Client Service ID : 690567

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status **</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
45-3-3114	MT MANNING 2	GDA	56	323837	6331812	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff,Ms.Collette Douchkov							
45-3-0266	MOUNT SIMPSON 02	GDA	56	327150	6337474	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Moore,Ms.Collette Douchkov							
45-3-1939	Bucketty Grinding Grooves;UMC 123;Mangrove Creek;	AGD	56	326590	6333570	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<u>Contact</u>	<u>Recorders</u>	Val Attenbrow,Ms.Tessa Corkill							
45-3-0267	Mt Simpson Hungry Ck 7 M/R1	AGD	56	327390	6337500	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art,Shelter with Deposit	512
	<u>Contact</u>	<u>Recorders</u>	Moore							

**** 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

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**APPENDIX 6: HERITAGE NOW, 12.10.23. STATEMENT OF HERITAGE
IMPACT FOR S60 APPLICATION -GEORGE DOWNES DRIVE,
BUCKETTY. ROAD SAFETY IMPROVEMENTS.**

Project Number: HN000450-A



STATEMENT OF HERITAGE IMPACT FOR S60 APPLICATION – GEORGE DOWNES DRIVE, BUCKETTY ROAD SAFETY IMPROVEMENTS

FINAL 12 / 10 / 2023

REPORT TO: CESSNOCK CITY COUNCIL
PO Box 152, Cessnock NSW 2325

REPORT BY HERITAGE NOW PTY LTD
projects@heritagenow.com.au
0460 744 466
www.heritagenow.com.au

Cover Page

Name of the heritage item:	Great North Road, Between Mt Manning and Wollombi (Roadworks; Old Great North Road)
State Heritage Register / LEP heritage schedule item number and name:	SHR No. 01789 Cessnock LEP 2021 # I217 Gosford LEP 2014 #60 Hawkesbury LEP 2012 #I0091
Address and location:	Hawkesbury LGA Cessnock LGA Central Coast LGA
Statement of heritage impact for:	George Downs Drive, Bucketty Road Safety Improvements
Prepared by:	Ngaire Richards, BAI(Hons) M.ICOMOS Principal Heritage Consultant Heritage Now Pty Ltd Address: 1/48 Kalaroo Road Redhead NSW 2290 Phone: 0484 108 851 Email: ngaire@heritagenow.com.au
Prepared for:	Ramesh Somai, Design Engineer, Cessnock City Council
Date:	11 October 2023
Issue:	3 – Final (Updated)

Executive Summary

Heritage Now Pty Ltd (Heritage Now) has been engaged by Cessnock City Council to prepare a Statement of Heritage Impact for proposed road upgrade works at George Downes Drive, Bucketty.

The Project Area is located partly within the curtilage of the Great North Road, between Mt Manning and Wollombi, which is listed in on the State Heritage Register (Item ID 01138). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (I217), Hawkesbury Local Environmental Plan 2012 (I0091), and Gosford Local Environmental Plan 2014 (60). In addition, the proposed works are partly within the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (Dossier 917/Place ID 105127) and the National Heritage List (Place ID 105999).

The Great North Road was the first public road connecting the Cumberland Plain with the Hunter Valley. The road upgrade works are adjacent to an abandoned loop of the Great North Road at Mount McQuoid/Bucketty, which formed part of the original line of road (constructed 1830-1831) and is where a group of some of the main surviving convict-built structural elements of the road are located. Both the abandoned loop and the current alignment of the Great North Road form part of the SHR listing.

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive at the intersection with the Great Northern Road. The works will enable the current alignment of this section of the Great North Road to continue as an in-use transport corridor. Overall, the safety aspects of the proposal will enhance the protection of the heritage item by reducing the likelihood of off carriageway crashes.

The current alignment of the Great North Road has been subject to some disturbance from grading during road works and realignment of the intersection in the 1960s; however, the following early road structures/structural elements and areas of historical archaeological potential have been identified within the Project Area:

- **Archaeological Area 1** has moderate potential for historical archaeological remains consisting of the former road surface and culvert cover (fill deposits) where the original 1830 alignment of the Great North Road intersects with the current alignment of the Great Northern Road (CH 0-CH 80).
- **Archaeological Area 2** has moderate potential for historical archaeological remains consisting of the former road surface along the original 1830 alignment of the Great North Road, to the west of the current alignment of the Great North Road (CH 100-CH140).
- **Early road structure – Culvert (Structure No 2a)** – Within Archaeological Area 1 below the Great Northern Road (CH 0-CH 40)
- **Early road structure – Culvert (Structure No 3)** – To the west of the current alignment of the Great North Road (CH 220), within the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.
- **Early road structure – Cutting with pick marks** – Adjacent to the current alignment of the Great North Road (CH 100).

No direct physical impacts on the fabric of early road structures/structural elements of the Great North Road identified as having exceptional and high significance - Culvert (Structure No 2a), Culvert

(Structure No 3) and the cutting with pick marks - are anticipated. Archaeological Area 2 is outside the limit of work and no subsurface impacts are proposed.

However, the proposed road upgrade works may result in partial impact to former road surface and culvert cover Archaeological Area 1, relating to the convict construction of the Great North Road. The proposed works in this area consist of shoulder work only, with cut and fill up to 50cm in depth. The potential archaeological remains in Archaeological Area 1 may contribute further to an understanding of the historical development and construction of the road, and complement the written and archaeological records in regard to early-19th century road building and road use.

The proposed works will also have a minor adverse visual impact on the bush setting, and views to, from and between the abandoned loop and current alignment of the Great North Road. The proposal will impact sections of batter (side slopes) adjacent to the intersection; the batter stabilisation work will require removal of selected trees, and revegetation of batter surface. There will be also be some temporary minor visual impacts to the setting of the Project Area during construction activities. The proposed works are not considered likely to have a significant impact on the natural heritage values of the Greater Blue Mountains Area; and as such a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) is not required.

The works are to be carried out following the recommendations below.

Recommendation 1

Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require a Section 60 approval from the Heritage Council of NSW. This approval is needed prior to commencement of works within the Project Area.

Recommendation 2

A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the *Heritage Act 1977* (NSW), including:

- The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area
- Protocols that apply to their protection, including fencing and 'no go' areas
- Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area

Recommendation 3

A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP. and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.

Recommendation 4

Archaeological monitoring is to be conducted in Archaeological Area 1. This is to be carried out by a qualified archaeologist to ensure that there is no physical impact to the fabric of the sandstone culvert (Structure No. 2a), to verify the depth and extent of the early road surface and culvert cover

associated with the convict construction of the Great North Road, and ensure any remains are identified and appropriately recorded prior to their removal.

Recommendation 5

To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a 'no go' area between the works area and the culverts (Structure No 2a and Structure No 3), sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.

Recommendation 6

Consideration should be given to selecting appropriate native tree species, in addition to grass seeding, for long-term vegetative batter surface stabilisation near the intersection, to provide visual screening between the current alignment of the Great North Road and the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.

Recommendation 7

Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop of the Great North Road during works.

Recommendation 8

In the event that an archaeological feature or deposit that is a potential relic is uncovered during pre- construction or construction works the following Unexpected Finds Procedure is to be implemented:

- Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor.
- The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance.
- The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing.
- Heritage mitigations will be implemented appropriate to the assessed significance of the find.
- If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program.

Acronyms, Terms and Definitions

Acronym/Term	Definition
CHL	Commonwealth Heritage List
DCDB	Digital Cadastral Database (NSW)
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
LEP	Local Environmental Plan
LGA	Local Government Area
OEH	Office of Environment and Heritage, NSW
m	Metric metres
NHL	National Heritage List
SHI	State Heritage Inventory
SHR	State Heritage Register
SIX Maps	Spatial Information Exchange (NSW government portal holding a range of spatial and property data)
SoHI	Statement of Heritage Impact
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHL	World Heritage List

Version Control

Version	Revision Description	Reviewed by	Date	Approved by	Date Approved
1	Draft Report	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	7/8/2023	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	7/8/2023
2	Final Report	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	11/8/2023	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	11/8/2023
3	Final (Updated)	Ngaire Richards, Principal Heritage Consultant, Heritage Now	12/10/2023	Ngaire Richards, Principal Heritage Consultant, Heritage Now	12/10/2023

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1 Introduction

Heritage Now Pty Ltd (Heritage Now) has been engaged by Cessnock City Council to prepare a Statement of Heritage Impact for proposed road upgrade works at George Downes Drive, Bucketty.

The proposed works are partly within the curtilage of the Great North Road between Mt Manning and Wollombi, which is listed on the State Heritage Register (Item #01789). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (#1217), Hawkesbury Local Environmental Plan 2012 (#10091), and Gosford Local Environmental Plan 2014 (#60). In addition, the proposed works are partly within the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (#917) and the National Heritage List (#105999).

The Great North Road was the first public road connecting the Cumberland Plain with the Hunter Valley. The road upgrade works are adjacent to an abandoned loop of the Great North Road at Mount McQuoid/Bucketty, which formed part of the original line of road (constructed 1830-1831) and is where a group of some of the main surviving convict-built structural elements of the road are located. Both the abandoned loop and the current alignment of the Great North Road form part of the SHR listing.

1.1 Project Area

The Project Area is located at the intersection of George Downes Drive, and the Great North Road / Great Northern Road, Bucketty, approximately 37 km south-west of the city of Cessnock. It comprises approximately 685m of existing road where upgrade works are proposed (Figure 1).

The Project Area is within the Parishes of Hay, Rugby, and Lockyer, County of Northumberland, on the boundary of the Cessnock, Hawkesbury, and Central Coast local government areas (Figure 2).

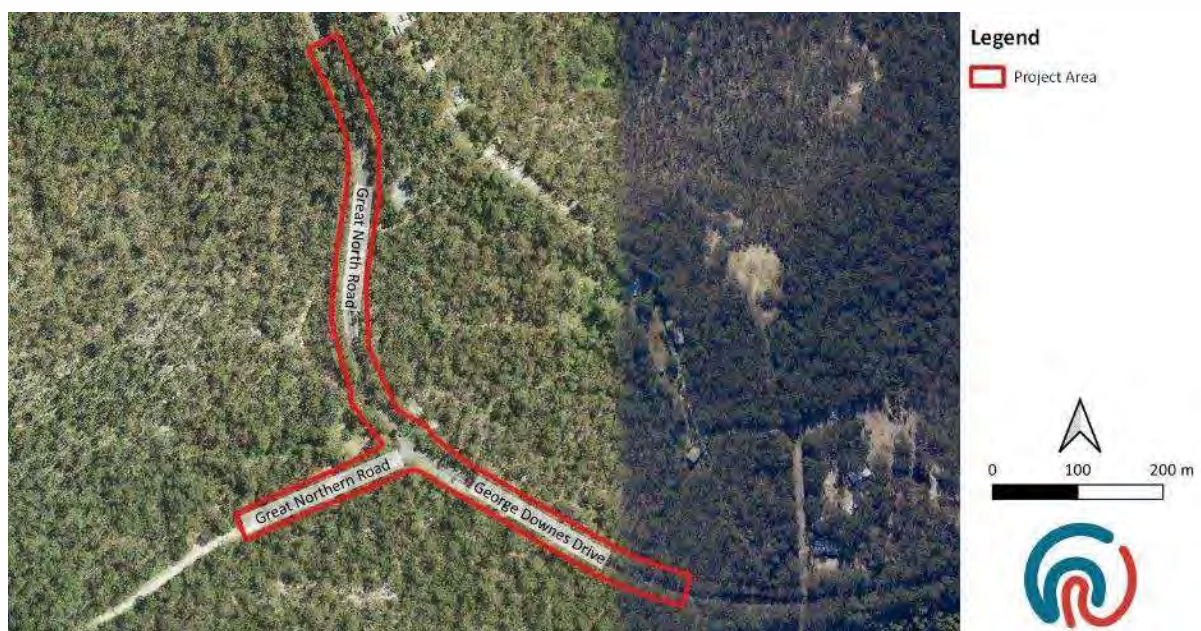


Figure 1. The Project Area. (Source: Six Maps with Heritage Now additions)

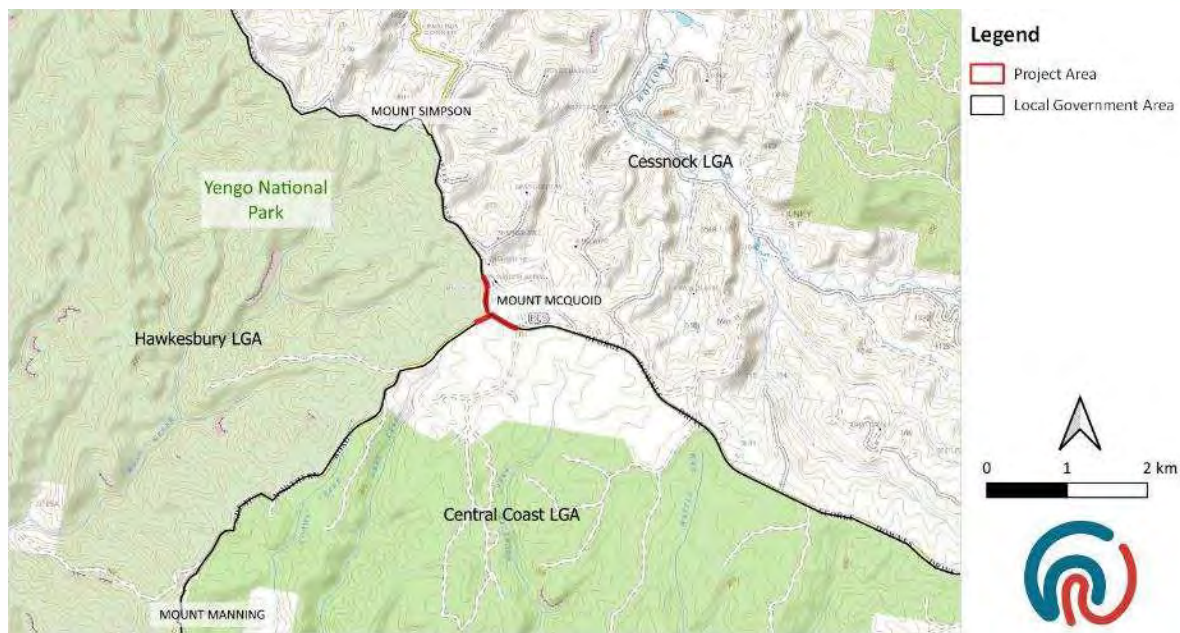


Figure 2. The Project Area in a regional context. (Source: Six Maps and PSMA Australia Limited with Heritage Now additions)

1.2 Overview of Project Proposal

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive, Bucketty, at the intersection with the Great Northern Road. This length of road has been the site of numerous road accidents, and the upgrade is intended to ensure a safer journey for drivers and motorcyclists exploring the region. The works will include:

- Road widening to accommodate guardrail with motorcycle rub rail on George Downs Drive and Great North Road
- Intersection upgrade to accommodate basic right turn (BAR intersection) treatment
- Regrading and widening of Great Northern Road to improve site distance
- Minor drainage work – pipe extension and headwall etc.
- Batter stabilisation work – jute mesh and grass seeding
- 40 mm asphalt concrete resealing of full width of road pavement
- Associated signs and line marking

1.3 Methodology

This document was prepared in accordance with relevant Heritage NSW guidelines, including, but not limited to:

- Assessing Heritage Significance¹
- Statements of Heritage Impact²

¹ NSW Heritage Office, *Assessing heritage significance*, NSW Heritage Office, Sydney, 2001.

² Heritage Office & Department of Urban Affairs and Planning, *Statements of Heritage Impact*, 2002.

- Assessing Significance for Historical Archaeological Sites and 'Relics'³

1.4 Previous Studies

The Project Area has been included in a number of previous studies. The primary conservation and management documents relevant to the proposal are:

- Lavelle S, Karskens G, and RTA Technology (1999) *Stage 1 Conservation Plan for the Great North Road*, The Convict Trail Project (the 1999 CMP).
- McBean & Crisp Pty Ltd (1983) *Report on Great North Road between Mt. Manning turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects*, The National Trust of Australia (NSW).

1.5 Authorship

This report was produced by the Heritage Now team. The report was written by Ngaire Richards (Principal Heritage Consultant) and Jenna Weston (Senior Heritage Consultant), with input from Joven Sanchez (Heritage Officer) and Kira Paznikov (Heritage Officer). Technical input and quality review was provided by Tessa Boer-Mah (Principal Heritage Consultant).

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1.6 Limitations

This report considers the impacts of the proposal on built heritage and historical archaeology only. Aboriginal archaeology is addressed in the following report:

- Heritage Now Pty Ltd. 2022. "Aboriginal Heritage Due Diligence Assessment Report - George Downes Drive Bucketty." Cessnock City Council.

The historic context of the Project Area has been summarised in Section 3. It provides a general overview of key events in the historical development of the Great North Road and the Project Area in order to inform the assessment, but it is not intended as an exhaustive history.

Where available, previously established assessments of significance and conservation policies have been used to assess the impact of the proposed works on the heritage significance of the Project Area.

³ Heritage Branch, NSW Department of Planning, Assessing Significance for Historical Archaeological Sites and 'Relics', Heritage Branch, NSW Department of Planning, Parramatta, N.S.W., 2009.

2 Legislative Context and Heritage Listings

This section provides a brief overview of the relevant legislation and heritage listings pertaining to the Project Area at the time of writing the report. The legislative overview was provided solely as contextual information for the proponent and does not constitute legal advice.

2.1 Legislative Context

2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a legal framework providing for the protection and management of aspects of the environment that are matters of national environmental significance. Protected matters covered by the EPBC Act include:

- World heritage areas on the World Heritage List (WHL), including natural and cultural sites which have outstanding universal value.
- Heritage places on the National Heritage List (NHL), including natural, historic or Indigenous places of outstanding national heritage value to the nation.
- Heritage places on the Commonwealth Heritage List (CHL), including places of significant heritage value on Commonwealth land and waters, or that are owned or managed by the Australian government.

Should a proposed action have the potential for a significant impact on a protected matter, a referral to the Australian government may be made to determine whether formal assessment and approval is required under the EPBC Act.

The Project Area is partly within the Greater Blue Mountains Area, which is a declared property on the World Heritage List and a listed place on the National Heritage List (Table 1).

Table 1. WHL and NHL places

Place Name	Primary Address	Class	List	Significance	Property ID / Place ID
Greater Blue Mountains Area	Great Western Hwy, Katoomba, NSW, Australia	Natural	World Heritage List	Outstanding Universal Value	917
			National Heritage List	National	105999

2.1.2 Heritage Act 1977 (NSW)

The Heritage Act 1977 (Heritage Act) seeks to protect promote the conservation of items of environmental heritage, which are defined as “those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance.”

Part 3A of the Heritage Act establishes the State Heritage Register (SHR), which is kept by the Heritage Council of NSW and provides for the identification and listing of items of State heritage

significance. Part 8, Section 170 of the Act requires government agencies and State-owned corporations to keep a Heritage and Conservation Register (also known as a Section 170 Register) of their heritage assets.

The Project Area is located partly within the curtilage of the Great North Road, Between Mt Manning and Wollombi, which is listed as an item on the SHR (Table 2).

Table 2. SHR items

Item Name	Location	Local Government Area	Type	Significance	SHR ID
Great North Road, Between Mt Manning and Wollombi	between WOLLOMBI NSW 2325	Hawkesbury	Built	State	01789

There are no heritage items within the Project Area listed on a Section 170 Register.

Historical archaeological resources are protected under the relics provisions of the Act. A '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.*

If a relic is discovered or located, s 146 of the Heritage Act requires the Heritage Council of NSW to be notified.

To carry out works within the curtilage of an SHR item, a s 60 approval (issued under s 63 of the Act) must be obtained, unless the proposal involves minor works that will have no impact on the heritage significance of the item and meets the criteria for an exemption granted under s 57 of the Heritage Act 1977.

2.1.3 Environmental Planning and Assessment Act 1979 (NSW)

The Environmental Planning and Assessment Act 1979 (EP&A Act) provides triggers for undertaking environmental and heritage assessments as part of the wider land-use planning framework. Part 4 details how authorities are to determine development applications, as well as identifying whether projects require an Environmental Impact Statement. Part 9 outlines the implementation and enforcement of the EP&A Act.

The EP&A Act also allows for the making of State environmental planning policies (SEPPs) that deal with matters of State or Regional planning significance, and local environmental plans (LEPs) for the purpose of planning within a local government area.

Heritage items (which can include buildings, works, places, relics, trees, objects or archaeological sites) and heritage conservation areas (including associated fabric, settings and views) are identified

in the environmental heritage schedule attached to a SEPP or LEP. These items may be of local, state, or national significance.

State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) sets out planning rules and controls for infrastructure. The aims of the TISEPP include identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development).

Division 17 Subdivision 1 deals with roads and road infrastructure facilities, and the following section is applicable to the proposed installation of safety barriers and bollards:

2.113 Exempt development

(1) Development for any of the following purposes is exempt development if it is carried out by or on behalf of a public authority or the Minister responsible for Crown roads (within the meaning of the Roads Act 1993) in connection with a road or road infrastructure facilities and complies with section 2.20—

(a) erection, installation, maintenance, reconstruction or replacement of any of the following, and any associated landscaping works—

(i) security fencing with a height above ground level (existing) of not more than 3.2m,

(ii) safety barriers or systems, including Jersey barriers,

To be exempt development, it is a general requirement that the proposed works must have “no more than minimal impact” on the heritage significance of a State or local heritage item or a heritage conservation area (Section 2.20, Clause (2)(e)).

If the development is likely to have impacts on local heritage in a way that is “is more than minor or inconsequential”, Section 2.11 of the TISEPP requires consultation with the relevant local council(s):

(2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies unless the authority or the person has—

(a) had an assessment of the impact prepared, and

(b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and

(c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.

Local Environmental Plans

Standard heritage conservation provisions for LEPs are set out in section 5.10 of the Standard Instrument—Principal Local Environmental Plan (2006 EPI 155a). Development consent is required for demolishing, moving or altering a heritage item; or disturbing or excavating an archaeological site, while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. The consent authority must consider the effect of the proposed development on the heritage significance of a heritage item or heritage conservation area..

The Project Area is within the Cessnock, Hawkesbury, and Central Coast (formerly Gosford and Wyong) Local Government Areas. The relevant LEPs are:

- Cessnock Local Environmental Plan 2011
- Hawkesbury Local Environmental Plan 2012
- Gosford Local Environmental Plan 2014

Three heritage items listed on the LEPs are located partly within the Project Area (Table 3). The partially overlapping listings all relate to sections of the Great North Road within the relevant local government area. The location of the heritage items with respect to the Project Area is shown in Figure 20.

Table 3. LEP items

Listing Instrument	Item Name	Primary Address	Item Type	Significance	Item No.
Cessnock LEP 2011	Great North Road (between Mount Manning and Wollombi)	Paynes Crossing Road WOLLOMBI NSW 2325	Complex Group	State	I217
Gosford LEP 2014	Roadworks	The Great North Road (between Hawkesbury River, Devine's Hill, Mount Manning and Kulnura)	Complex Group	State	60
Hawkesbury LEP 2012	Old Great North Road	Old Great North Road between Devine's Hill and Mount Manning ST ALBANS NSW 2775	Complex Group	State	I0091

2.2 Summary of Heritage Listings

Heritage items are registered on lists according to their level of significance: national, state, local, and in rare cases they may world heritage (places that are of outstanding universal value to humanity). The results of a search of statutory heritage registers are summarised in Table 4.

Table 4. Statutory heritage listings.

Listing type	Item name and document details	Listing number
Local heritage item	Great North Road (between Mount Manning and Wollombi) Cessnock Local Environmental Plan 2021	I217

Local heritage item	Roadworks Gosford Local Environmental Plan 2014	60
Local heritage item	Old Great North Road Hawkesbury Local Environmental Plan 2012	I0091
State Heritage Register	Great North Road, Between Mt Manning and Wollombi	SHR No. 01789
National Heritage List	The Greater Blue Mountains Area	Place ID. 105999
World Heritage List	The Greater Blue Mountains Area	Dossier 917/ Place ID. 105127

3 Historic Context

This section of the report provides a general overview of events relevant to understanding the historical development of the Project Area. It relies largely on historical research on the Great North Road provided in the following document:

- Karskens, Grace. “The Construction of the Great North Road, NSW, 1826 - 1836.” *Transactions of the Institution of Engineers - Multi-Disciplinary* Vol GE9, no. 2 (October 1985): 27–60.

This information is supplemented by the historical notes from the SHR listing for the Great North Road, between Mt Manning and Wollombi, and other sources as noted.

3.1 The Great North Road

The Project Area is located at the intersection of George Downes Drive and the Great North Road. The Great North Road was built between 1826 and 1836 to provide an overland route from Sydney to the Hunter Valley. It was constructed using convict labour under the supervision of colonial engineers.⁴

In the early days of the colony, sailing ship was the only means of transport between Sydney and Newcastle. As the colony grew, the need for suitable agistment for cattle and agricultural land encouraged attempts to identify an overland route from the Hawkesbury to the Hunter River, where fertile pastures were known to be available. This was supported by the Governor at the time, Ralph Darling, who sought to provide the colony with a permanent, comprehensive road system.⁵

Early routes between Sydney and Newcastle had been identified by English settler John Howe, who travelled from the Hawkesbury to the Hunter River in 1819, and again in 1820 (along the route which is now known as the Bulga Road)⁶, and by convict John MacDonald in c1827 (along the route known as MacDonald’s Line)⁷, both of them enlisting the help of local Aboriginal people to navigate through the terrain.⁸ Meanwhile, in 1823 Major James Thomas Morriset (the military commandant of Newcastle) identified an inland route between Newcastle and the Hawkesbury River. However, Assistant Surveyor Heneage Finch surveyed a new, shorter course via the Wollombi valley to Maitland and Newcastle (which would become the original route of the Great North Road) in 1825, with many settlers at that time following Finchs Line to places such as Murrays Run, Wollombi, Paynes Crossing and Millfield.^{9 10}

⁴ Bucketty to Mt Manning, The Convict Trail Project, n.d., viewed 14 June 2022, <<https://www.convicttrail.com.au/4-bucketty-to-mt-manning.html>>.

⁵ Grace Karskens, ‘The Construction of the Great North Road, NSW, 1826 - 1836’, *Transactions of the Institution of Engineers - Multi-disciplinary*, vol. GE9, no. 2, 1985, pp. 27–60, p. 28.

⁶ Nancy Gray, ‘Howe, John (1774–1852)’, in *Australian Dictionary of Biography*, National Centre of Biography, Australian National University, Canberra, 1966, viewed 5 August 2022, <<https://adb.anu.edu.au/biography/howe-john-2205>>.

⁷ The Convict Trail Project, *John MacDonald*, The Convict Trail Project- Caring for the Great North Road, n.d., viewed 5 August 2022, <<https://www.convicttrail.com.au/john-macdonald.html>>.

⁸ Paul Budde, *The Bucketty Book*, 2022, viewed 14 June 2022, <<https://paulbuddehistory.com/bucketty/>>.

⁹ Grace Karskens, “‘The Grandest Improvement in the Country’ An Historical and Archaeological Study of the Great North Road, N.S.W., 1825-1836”, MA thesis, University of Sydney, 1985, p. 27.

¹⁰ Budde, *The Bucketty Book*.

In 1826, wealthy settlers in the Hunter Valley petitioned Governor Darling for a ‘proper’ road from Sydney to Newcastle via Wisemans Ferry,¹¹ and construction began later that year at Castle Hill North.¹² From 1827, construction works at Wisemans Ferry were undertaken in a quick, cheap manner that produced roadworks of small scale and low standard, under the supervision of Royal Veteran Lieutenant Jonathan Warner. In mid-1828, Lieutenant Percy Simpson became the Assistant Surveyor-General and took over from Warner. Under Simpson’s supervision, 700 convicts, mostly operating in chain gangs, constructed a high-quality road over steep rocky valleys between Wisemans Ferry and Mt Manning¹³, using new road-building techniques developed by Telford and MacAdam. Telford’s technique involved solid foundations, using a large rock base with decreasing rock sizes, so that the pavement would bear the weight of traffic; while MacAdam’s technique produced cheaper roads, as natural bedrock was used for the pavement to carry the traffic, which also kept the road dry.¹⁴

Simpson also surveyed a route from Wisemans Ferry to the Hunter River via the Central Coast, where he had a land grant in Cooranbong. Although this route had better supplies of fresh water and animal feed, and needed less rock blasting and construction work than the route surveyed by Finch via Bucketty and Wollombi, the Surveyor General Major-General Sir Thomas Mitchell decided to use Finch’s route instead (probably owing to the wealth and influence of the Hunter Valley settlers as opposed to those on the Central Coast). Mitchell spent three weeks surveying the area in 1829, and Mitchell’s Camp Point Road (off George Downes Drive, approximately 6km south east of the Project Area) goes to Hungry Flat, where Mitchell and his party had a picnic during their inspection of the Great North Road.¹⁵

In 1830, Finch became supervisor of the roadworks north of Mt Manning, overseeing construction of most of the road in the Bucketty area. Similar construction techniques were used to the southern section of the road, including cutting the natural surface down to the level of the road and/or filling the natural surface to the required height. Both cutting and filling were required on very steep slopes, such as at Devine’s Hill, Mt Baxter, Mt McQuoid, Mt Simpson and Mt Finch. The operations usually occurred simultaneously, with the material from the cutting forming the embankment on the other side. Blasting with gunpowder and quarrying the stone was required in areas with great volumes of rock, such as Wisemans Ferry, Devine’s Hill, Mt Simpson and Mt Finch. In areas with lesser volumes, the convicts would hand-cut the rock with chisels or rock picks to produce a vertical face up to c.1.5m high. Hollows were filled, and steep slopes embanked by construction of masonry retaining walls, again simultaneously – the embankment was filled to the height of the retaining wall. Hand carts and bullock-drawn wagons were used to transport the fill material.¹⁶ The retaining walls were dry-laid without mortar, and the face of the wall was usually battered by either inclining the beds slightly so that the face sloped and gradually making the beds horizontal towards the top; or by cutting each of the outer stones with a sloped face using pointed, blunt, broad or flat-edged chisels or gads, or a hammer or axe.¹⁷

¹¹ Budde, *The Bucketty Book*.

¹² Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, p. 29.

¹³ Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, pp. 29–31.

¹⁴ Budde, *The Bucketty Book*.

¹⁵ Budde, *The Bucketty Book*.

¹⁶ Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, pp. 32–36.

¹⁷ Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, p. 45.

The road surface was constructed from broken stone and gravel, or the natural bedrock. Side drains lined the entire road on both sides over flat land; where the road was built up on a slope, the drain occurred only on the uphill side. Excavated from earth or cut from rock, the drains were square or rounded, with many bearing chisel and pick marks, and some including low walls or edging of 1-2 courses of stone on the alignment side.¹⁸

Stone culverts were placed perpendicular to the road alignment or at intervals obliquely across it, depending on the gradient. Stone box culverts produced under Simpson and Finch's oversight usually comprised evenly shaped stone blocks/slabs or "flags" up to 1m² making up the inlet/outlet and lintels, and large stone blocks forming the four sides of the lining.¹⁹

After a dispute about Finch being stationed with the gangs on his property at Laguna, he was dismissed from his post in 1831. He was succeeded by Lawrence V. Dulhunty (from 1831-1834) and Peter Ogilvie (from 1835-1836), but with Governor Darling recalled in 1832, momentum for the road building waned, and instead a steamboat service started to operate between Sydney and Newcastle. Settlers tended to travel overland via more direct or hospitable roads such as Maroota Ridge Road, St Albans Road and Peats Ferry Road. Further, regulations for convict labour changed; and in 1836 Ogilvie was left with only two gangs, each with ten men, under his oversight. Consequently, that year the Great North Road was essentially abandoned, probably unfinished, resulting in the preservation of many original aspects of the road construction.²⁰

3.2 Development of the Project Area

The Project Area is situated on the boundary of three different parishes – the Parish of Hay, the Parish of Lockyer and the Parish of Rugby, County of Northumberland. The parish boundaries roughly follow the alignment of the Great North Road and George Downes Drive.

The No. 29 Road Party convict gang constructed the Great North Road at Mt McQuoid from April to December 1830. The only spring adjacent to the route was located in an area marked for future settlement, which later acquired the name of Dennis's Dog Kennel (this name was first recorded by Mitchell during his survey of the area in 1829). There are indications that this area was used as a stockade for the convict road gang,²¹ as the perennial deep spring was the only source of fresh water in the vicinity.²² It was here that a village reserve was planned near the 28th milepost from Wiseman's Ferry.²³ The reserve is shown on William Baker's 1843 map of the County of Northumberland on the Great North[ern] Road, although no east-west road or track is shown on the alignment of the current route of George Downes Drive (Figure 3). One newspaper article from 1844 refers to this location as a mid-way spot on the line of road between Hawkesbury and the Wollombi, with "good grass and excellent water", but no accommodations built.²⁴ It is still used for water

¹⁸ Karskens, 'The construction of the Great North Road, NSW, 1826 - 1836', pp. 41–43.

¹⁹ Karskens, 'The construction of the Great North Road, NSW, 1826 - 1836', pp. 43–44.

²⁰ Karskens, 'The construction of the Great North Road, NSW, 1826 - 1836', p. 32.

²¹ Richelle Spry, 'These Wooden Walls: Government Convict Accommodation and the Expansion of Settlement in New South Wales 1788 to 1857', BA (Hons) thesis, University of Sydney, 2006, p. 115.

²² Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

²³ William Baker, 'Map of the County of Northumberland : dedicated by permission to Sir T.L. Mitchell, Knight, Surveyor General of New South Wales', Hibernian Printing Office, King Street, East Sydney, 1843.

²⁴ *Sydney Morning Herald*, 'NEWS FROM THE INTERIOR.', New South Wales, 27 March 1844, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article12415169>>.

collection by the Bucketty Fire Brigade. However, the village reserve at Dennis's Dog Kennel was revoked on 11 May 1889,²⁵ at which time a Travelling Stock Route along the Great North Road was reserved from sale and lease (Figure 4).²⁶

As a result of the rugged nature of the area, and general lack of standing water, much of the early 19th century settlement and land use was restricted to the valleys. While some parts of the area with grazing potential were cleared, much was used for rough cattle grazing.²⁷ Some of the early European landowners in the immediate area were James Sternbeck, James Knight, and Francis Nichols (Figure 5). The land to the north of George Downes Drive was owned by the McKay family (Figure 7), and was later sold to Lem Nichols.²⁸ Around 1870, the Sternbecks sold the small Bucketty Arm valley to the Knight family; an article in the Maitland Mercury on 17 December 1870 mentions one member of the family who lived there:

*On Tuesday last, James Knight, junr., of Buckety, [sic] (about 17 miles from Wollombi), was charged at the court-house with stealing a bullock, one of a mob of fat cattle driven by B. Tierney about a week since. From the evidence it appears that the hide and beef was found at Knight's residence. He was fully committed for trial. It is rather singular that Knight was one of the principal witnesses against Craft, who was convicted at Maitland about twelve months since on a charge of cattle-stealing.*²⁹

The Knights are believed to be the first and only settlers to build a house at Bucketty (to the north of George Downes Drive) before the subdivision of 1972; the Post Office Directory of 1875-1877 lists John Knight as the only resident in the locality. Apart from this house, the Knights might also have built a hut in the Bucketty Paddocks, an area of approximately 400 acres which included Mt McQuoid. Tom and Ben Knight grew wheat in the paddocks, which was transported by bullocks to Mangrove Mountain. There were also 'gallows' in the paddock, where slaughtered cattle were suspended in preparation for cutting.³⁰

Settlers used the Bucketty Arm valley to drive cattle to Mangrove Mountain and on to Wisemans Ferry, with the Sternbecks driving eight head of cattle every month along this route.³¹ This may be the origin of this section of the road between Wollombi and Mangrove (including the Kulnura road, between Bucketty and Kulnura), the alignment of which is shown on the 1888 parish map of Lockyer (Figure 4), although it would have been an unsealed track at that time. On the same map, what is assumed to be the original line of the Great North Road following the ridgelines is shown with a thick dashed line, indicating it is an in-use public road. An alternative alignment is shown to the west, consisting of a road reserve of variable width adjacent to what is now the intersection, encompassing the convict-built structural elements of the road in this area. The solid outline of the

²⁵ Budde, *The Bucketty Book*.

²⁶ *Government Gazette of the State of New South Wales*, 'RESERVES FROM SALE FOR TRAVELLING STOCK AND CAMPING.', Sydney, New South Wales, 12 October 1901, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article226387851>>.

²⁷ NSW National Parks and Wildlife Service, Department of Environment and Climate Change, *Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area: Plan of Management*, DECCW, 2009, pp. 32, 38.

²⁸ Paul Budde, 'Farmers and City Slickers', *Paul Budde History, Philosophy, Culture*, 2022, viewed 17 August 2022, <<https://paulbuddehistory.com/bucketty/farmers-and-city-slickers/>>.

²⁹ *Maitland Mercury and Hunter River General Advertiser*, 'WOLLOMBI.', New South Wales, 17 December 1870, viewed 18 August 2022, <<http://nla.gov.au/nla.news-article18750479>>.

³⁰ Budde, 'Farmers and City Slickers'.

³¹ Budde, 'Farmers and City Slickers'.

road reserve suggests that at this point in time it may have been unformed (that is, legally established but not formally constructed).

The 1920 parish map of Rugby shows the alternative alignment as a thick dashed line indicating that by this time it has been declared a public road (Figure 6). In 1928, the Old Great North Road, between Windsor Road at McGraths Hill and the Great Northern Highway at Whittingham was declared a Main Road (Main Road No. 181).³²

The Kulnura road (now George Downes Drive) was improved in 1941, as a “gravel pavement constructed to 50 m.p.h. [miles per hour] standard”.³³ However, newspaper articles indicate 2 ½ miles of the road between Bucketty and Kulnura remained uncompleted into the late 1940s.³⁴ Although “for the most part trafficable”, it was not considered a good dry weather road and became dangerous and almost impassable when wet.³⁵

By 1960, further improvements to the Kulnura road had been made including deviation, widening, and sealing.³⁶ The section in the east of the Project Area, including the intersection, was straightened, realigned through land resumed from adjacent properties.³⁷ It was opened and made public in December 1960. In 1961, this road was named George Downes Drive, after Cr George Downes, a Kulnura landholder and former President of Gosford Shire Council, who had lobbied for the road improvements.³⁸ In 1967, it was proclaimed a main road (Main Road No. 590) (Figure 7).

The area to the north west of the Project Area is Crown land, which is characterised by eucalypt forest. In 1917, approximately 11,500 acres was dedicated as Lockyer State Forest No. 521. The dedication was revoked in 1922, and shortly afterwards the Government Gazette provided official notification that the Crown lands within the former State Forest boundaries were not available for settlement.³⁹ In 1949, 15,270 acres was temporarily reserved from sale as a timber reserve (Reserve

³² *Government Gazette of the State of New South Wales*, ‘MAIN ROADS ACT, 1924-1927.’, Sydney, New South Wales, 17 August 1928, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article219952359>>, p. 3817.

³³ *Farmer and Settler*, ‘Another New Road’, Sydney, New South Wales, 28 August 1941, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article117178706>>.

³⁴ *Singleton Argus*, ‘Kulnura Road Again Discussed’, New South Wales, 14 May 1948, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article84607720>>.

³⁵ *Singleton Argus*, ‘M.R.B. Engineers’ Hint About Kulnura Road’, New South Wales, 23 May 1949, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article82578048>>.

³⁶ *Government Gazette of the State of New South Wales*, ‘NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS’, Sydney, New South Wales, 9 December 1960, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220319143>>.

³⁷ *Government Gazette of the State of New South Wales*, ‘NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS’.

³⁸ Paul Budde, ‘The convict era’, Paul Budde History, Philosophy, Culture, 2022, viewed 12 August 2022, <<https://paulbuddehistory.com/bucketty/the-convict-era/>>; Gosford Times and Wyong District Advocate, ‘Councillor George Downes Elected New President Of Gosford Shire’, 20 December 1949, p. 1; *Government Gazette of the State of New South Wales*, ‘SHIRE OF GOSFORD.—NAMING OF ROAD BETWEEN’, Sydney, New South Wales, 22 December 1961, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220288191>>.

³⁹ *Government Gazette of the State of New South Wales*, ‘PROCLAMATION’, 20 July 1917, p. 3611; *Government Gazette of the State of New South Wales*, ‘REVOCATION OF DEDICATIONS—FORESTRY ACT, 1916.’, 13 October 1922, pp. 5560–5562; *Government Gazette of the State of New South Wales*, ‘CROWN LANDS NOT AVAILABLE FOR SETTLEMENT UNTIL FURTHER NOTIFICATION.’, 20 October 1922, p. 5714.

No. 62,291), revoked in 1992.⁴⁰ Yengo National Park was dedicated in March 1998, and is one of eight protected areas that form part of the 1.03 million-hectare Greater Blue Mountains Area. The Greater Blue Mountains Area was inscribed on the World Heritage List in 2000 for its natural values, including its rich Eucalypt diversity.⁴¹

An analysis of historical aerial imagery indicates the Great North Road in the north of the Project Area was realigned sometime between 1966-1971, possibly as part of the large-scale road stabilisation works carried out between Bucketty and Wollombi in 1969⁴² (Figure 8). The works bypassed the former alignment of the Great North Road, creating an abandoned loop to the west at McQuoid/Bucketty (cf. Figure 5 and Figure 6). The intersection of George Downes Drive, the Great North Road and the Great Northern Road was rebuilt around this time,⁴³ configured to the current arrangement (Figure 9).

⁴⁰ *Government Gazette of the State of New South Wales*, 'RESERVES FROM SALE FOR TIMBER.', 14 October 1949, p. 3043; *Government Gazette of the State of New South Wales*, 'REVOCATION OF A TIMBER RESERVE', 23 October 1992, p. 7859.

⁴¹ NSW National Parks and Wildlife Service, *Greater Blue Mountains World Heritage Area*, NSW National Parks, 2023, viewed 12 July 2023, <<https://www.nationalparks.nsw.gov.au/conservation-and-heritage/greater-blue-mountains>>; NSW National Parks and Wildlife Service, Department of Environment and Climate Change, *Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area*, p. 5.

⁴² Stedinger Associates, *Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, Cessnock City Council, April 2010, p. 17.

⁴³ Stedinger Associates, *Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, p. 17.

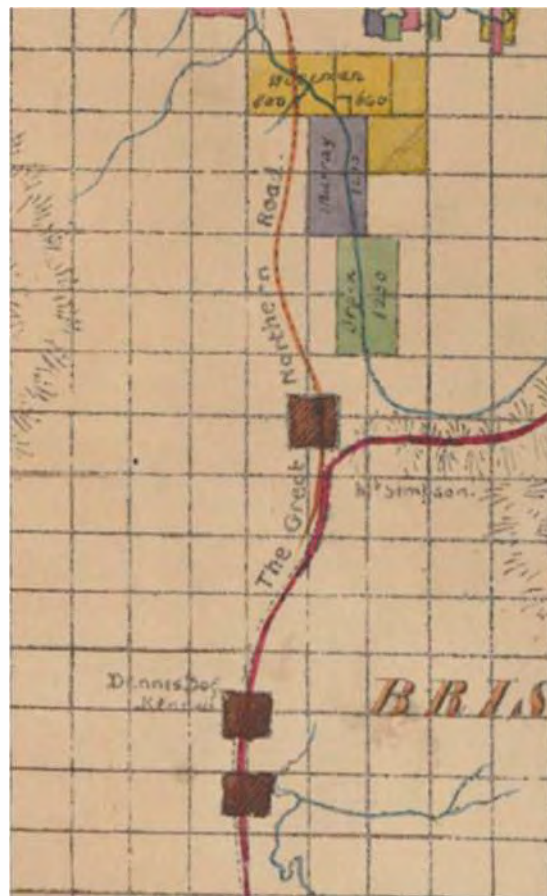


Figure 3. Detail from Baker's 1843 Map of the County of Northumberland (Source: NLA MAP RaA 8 Plate 2). The village reserve at Dennis's Dog Kennel is shaded brown.

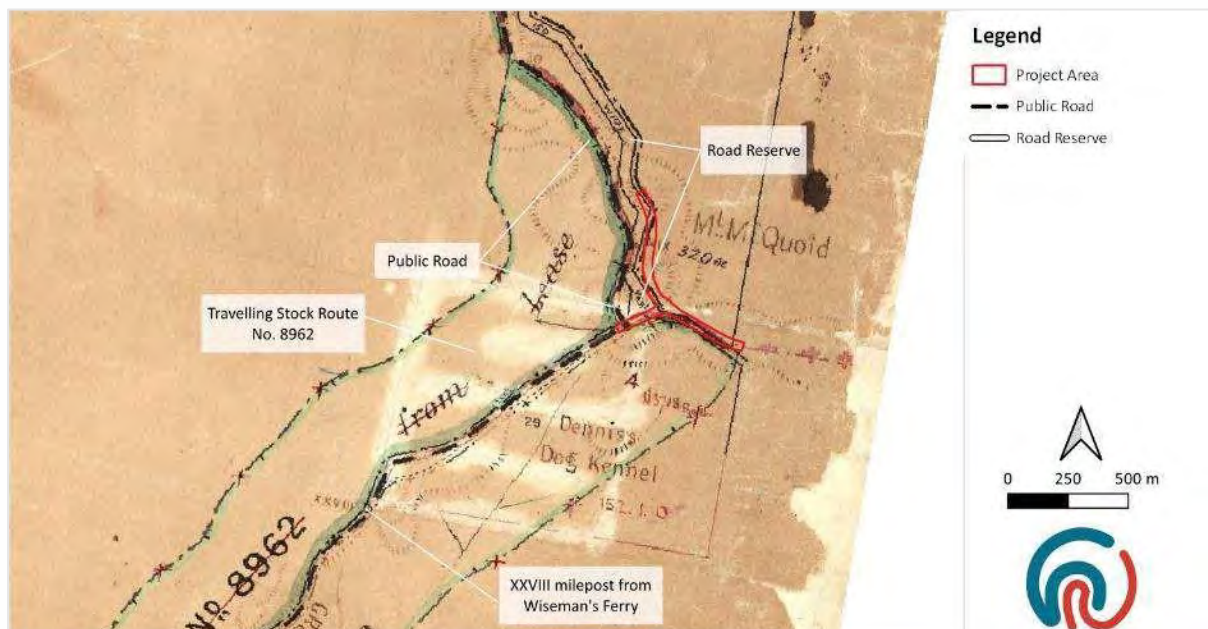


Figure 4. Detail from 1888 map of the Parish of Lockyer showing the public road following the ridgeline near Mt McQuoid, and road reserve to the east. (Source: Historic Land Records Viewer 14018401.jp2)

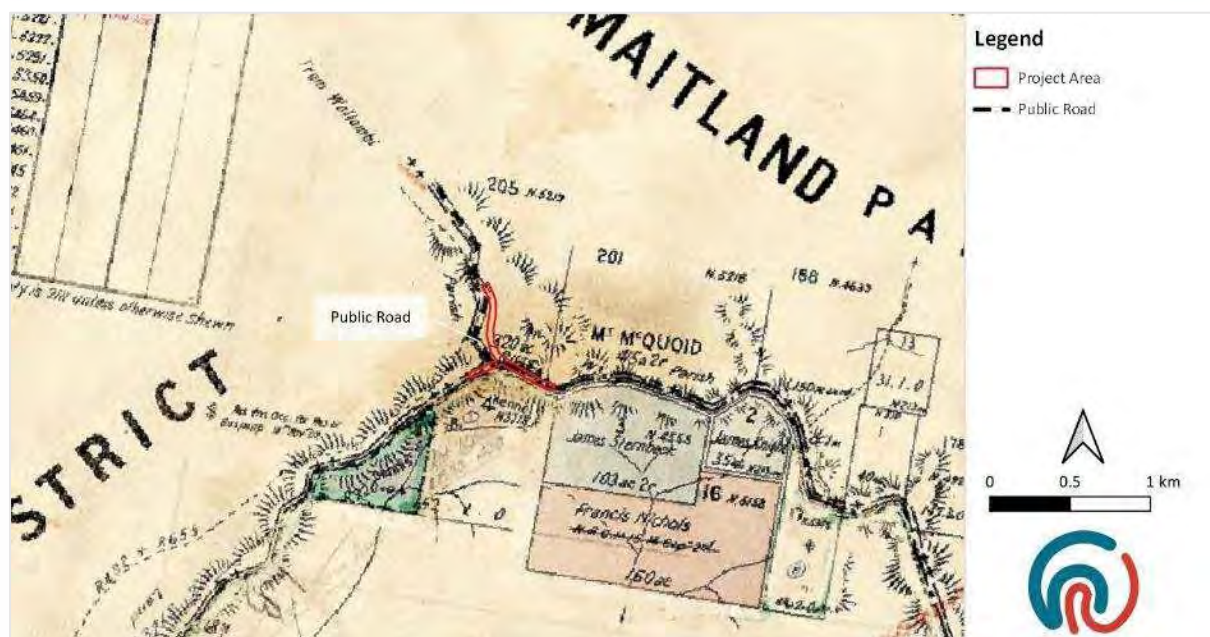


Figure 5. Detail from 1920 map of the Parish of Rugby. (Source: Historic Land Records Viewer 10867701.jp2)

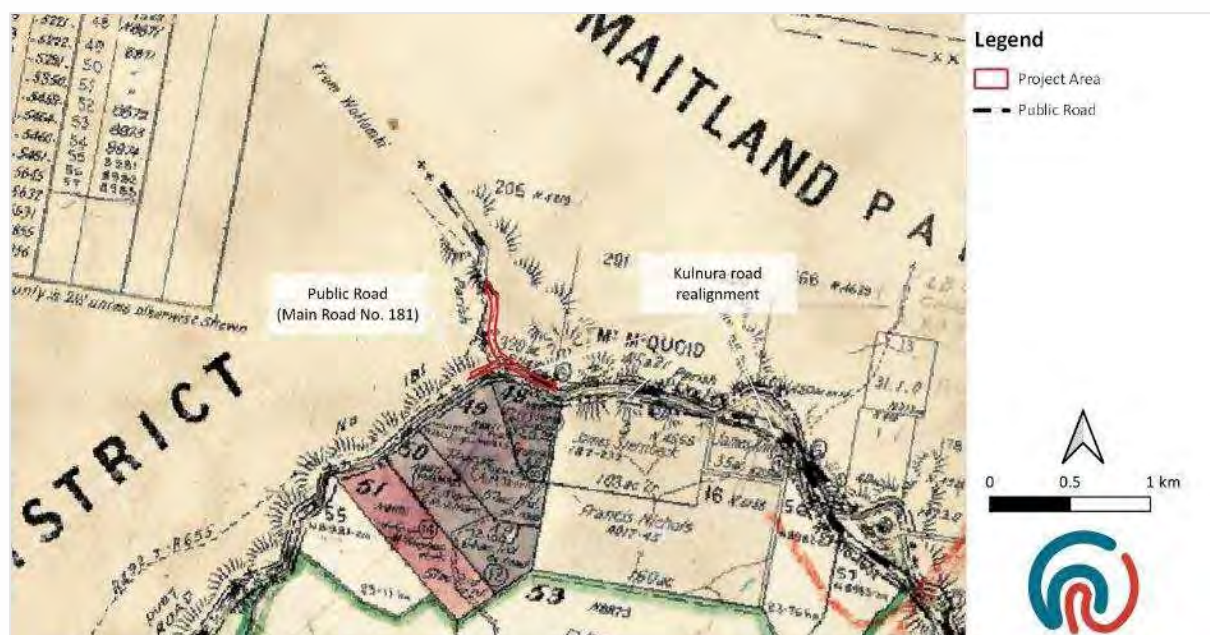


Figure 6. Detail from 1943 map of the Parish of Rugby, showing the proposed realignment of the Kulnura road to the east of the intersection with the Great Northern Road (Main Road No. 181) (Source: Historic Land Records Viewer 10866801.jp2)

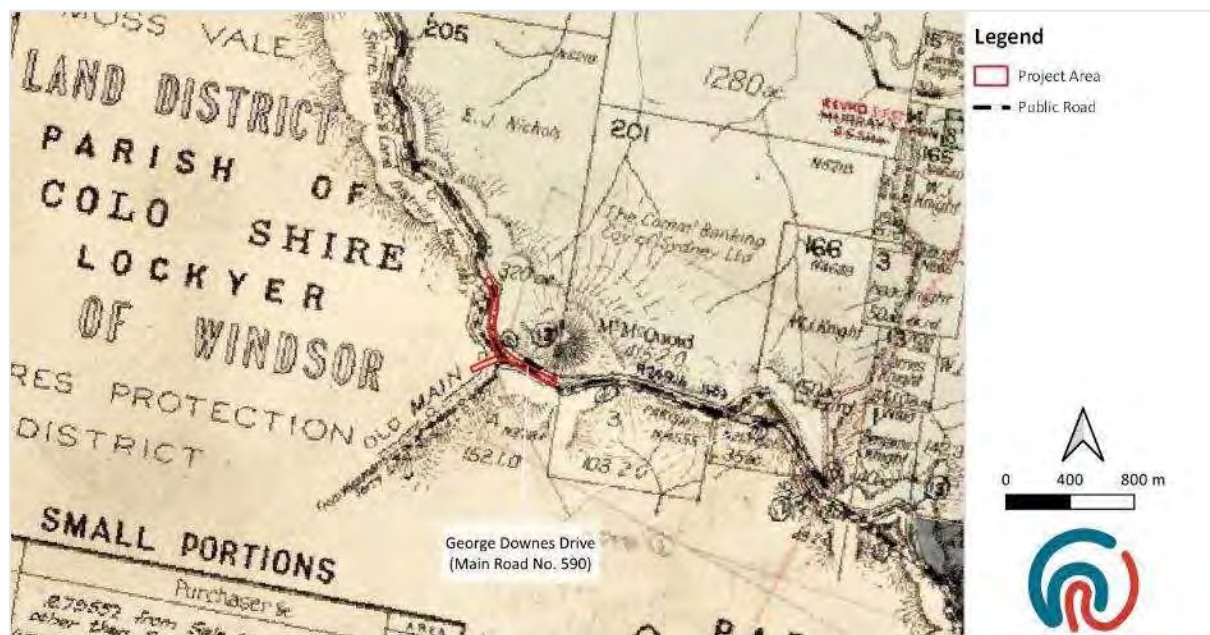


Figure 7. Detail from 1955 map of the Parish of Hay. (Source: Historic Land Records Viewer 10884901.jp2)



Figure 8. The Project Area in 1966. (Source: NSW Government Historical Imagery 1442_03_147.jp2)

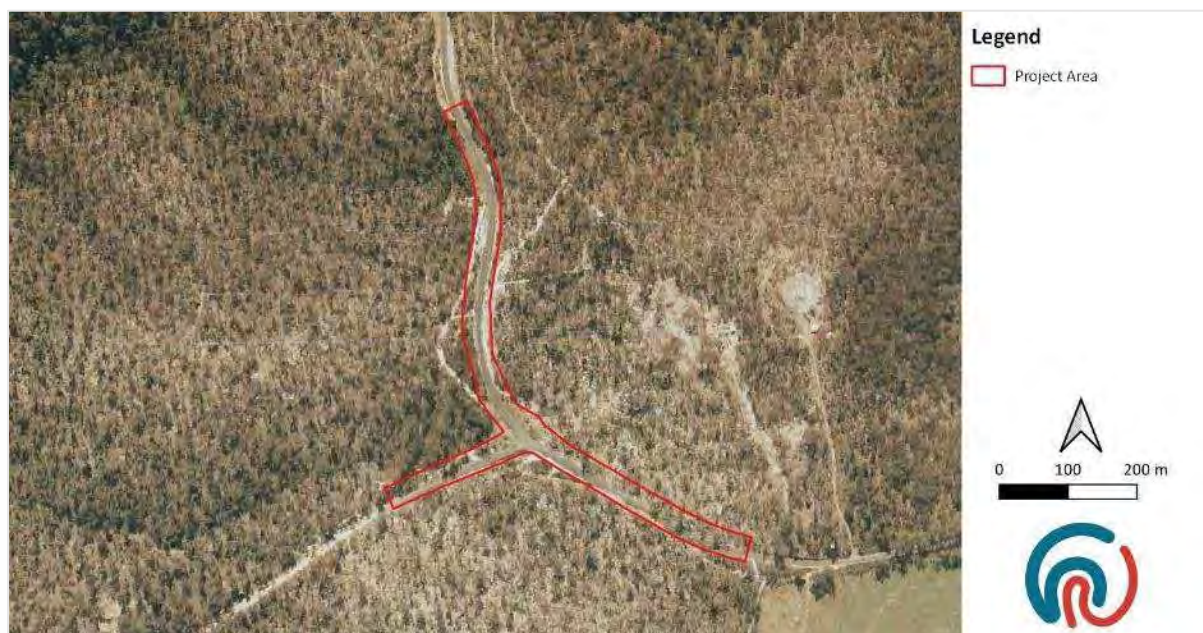


Figure 9. The Project Area in 1976. (Source: NSW Government Historical Imagery 2403_16_029.jp2)

3.3 Chronological Summary

The following timeline provides a summary of the key dates and events relating to the historical development of the Project Area (Table 5).

Table 5. Timeline

Phase of Development	Date	Event
Phase 1: European exploration and early settlement (1819-1825)	1819-1823	<ul style="list-style-type: none"> • Identification of route from the Hawkesbury to the Hunter River by John Howe (the Bulga Road) • Identification of route from the Hawkesbury to the Hunter River by John MacDonald (MacDonald's Line) • Identification of inland route from Newcastle to the Hawkesbury by Major James Thomas Morisset
	1825	<ul style="list-style-type: none"> • Assistant Surveyor Heneage Finch surveys a route to Maitland and Newcastle via the Wollombi valley (Finchs Line)
	c1825	<ul style="list-style-type: none"> • European settlers follow Finchs Line to places such as Murrays Run, Wollombi, Paynes Crossing and Millfield
Phase 2: Construction of the Great North Road (1826-1928)	1826	<ul style="list-style-type: none"> • Settlers in the Hunter Valley petition Governor Darling for a 'proper' road from Sydney to Newcastle • Construction of the original route of the Great North Road, following Finchs Line, begins at Castle Hill North
	1829	<ul style="list-style-type: none"> • Surveyor General Major Thomas Mitchell and party inspect line of Great North Road
	1830	<ul style="list-style-type: none"> • Assistant Surveyor Heneage Finch appointed supervisor of the roadworks north of Mt Manning to the Hunter Valley
	1831	<ul style="list-style-type: none"> • Finch dismissed from post as Assistant Surveyor, succeeded by Lawrence V. Dulhunty

	1830-1831	<ul style="list-style-type: none"> The Great North Road in the vicinity of Mt McQuoid constructed by No.29 Road Party Dennis's Dog Kennel (south of Project Area) is location of a stockade for the convict road party
	1832	<ul style="list-style-type: none"> Steamboat service commences operation between Sydney and Newcastle Governor Darling recalled and momentum for road building wanes
	1836	<ul style="list-style-type: none"> Construction of Great North Road essentially abandoned
	1888	<ul style="list-style-type: none"> Alignment of the Kulnura road shown on parish map of Lockyer
	1889	<ul style="list-style-type: none"> Village reserve at Dennis's Dog Kennel revoked Travelling Stock Route No. 8962 along the Great North Road reserved from sale and lease
	1920	<ul style="list-style-type: none"> Great North Road shown as public road on parish map of Rugby
	1928	<ul style="list-style-type: none"> Great North Road declared Main Road No. 181
Phase 3: Later road works and improvements (1929-present)	1941	<ul style="list-style-type: none"> The Kulnura road improved, gravel pavement constructed
	Late 1940s	<ul style="list-style-type: none"> 2 ½ miles of the Kulnura road between Bucketty and Kulnura remain uncompleted
	1960	<ul style="list-style-type: none"> Improvements made to the Kulnura road and intersection (deviation, widening, sealing) The Kulnura road opened and made public
	1961	<ul style="list-style-type: none"> The Kulnura road named George Downes Drive
	1967	<ul style="list-style-type: none"> George Downes Drive proclaimed Main Road No. 590
	1969	<ul style="list-style-type: none"> Large-scale stabilisation works on Great North Road between Bucketty and Wollombi
	c1969	<ul style="list-style-type: none"> Intersection of George Downes Drive/Great North Road and the Great Northern Road realigned
	1988	<ul style="list-style-type: none"> Yengo National Park dedicated
	2000	<ul style="list-style-type: none"> The Greater Blue Mountains Area inscribed on World Heritage List
	2009	<ul style="list-style-type: none"> Great North Road, Between Mt Manning and Wollombi listed on State Heritage Register

The approximate alignments of the Great North Road and George Downes Drive (the Kulnura road) over time in relation to the Project Area are shown in Figure 10. Note that early historical maps contain some positional errors and inaccuracies, and the location of the road alignments shown is indicative only.



Figure 10. Approximate location of historical road alignments in relation to the Project Area (Source: Six Maps and Google, CNES / Airbus, Maxar Technologies, with Heritage Now additions).

4 Heritage Context

4.1 Previous Reports

A number of investigations that relate to this section of the Great North Road have previously been undertaken, and are summarised below. They provide an indication of the nature and extent of previously recorded structural elements and potential subsurface remains relating to the early road that may be expected within the Project Area.

McBean & Crisp Pty Ltd. "Report on Great North Road between Mt. Manning Turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects." The National Trust of Australia (NSW), 1983.

This report identified early road structures (and groups of structural elements) associated with the Great North Road between Mount Manning and Paynes Crossing. This report identified typical conservation issues for these structures, assessed potential damage likely to arise from road upgrade programs, and made recommendations for restoration and preservation of the road surface.⁴⁴

A summary of early road structures identified in the vicinity of the George Downes Drive intersection is provided in Table 6 below, with the structure numbers given in the report and brief description.

Their approximate location in relation the Project Area illustrated in Figure 10.

Table 6. Summary of structural elements of the Old Great North Road identified in the vicinity of the Project Area

Structure No.	Structure	Description
2a	Culvert	Stone culvert with flanking stone wing walls extending approximately 10 m on each side. The culvert opening is 4 courses high. The flanking wing walls are 10 courses (approximately 2.5m) high on the south side. On the north side the wall was probably of similar height but it had completely collapsed.
2b	Road pavement 1	A road pavement 6-7 metres wide, laid in "macadam" fashion using sandstone. On the east side is a table drain which is a part of the drainage for the old road and the adjacent new construction [Great Northern Road realignment c1969].
2c	Retaining wall	Approximately 75 m north of the culvert the road alignment turns from a north-easterly direction to a northerly direction, and at the turn crosses a creek draining the slopes of Mount McQuoid. The run off is currently carried in a circular concrete pipe which replaced the original structure (possibly either a stone culvert or timber bridge). The wing walls appear to terminate in abutments with ashlar constructed corners. The wall is 10 courses (approximately 2.2 m) high at the abutments and extends for approximately 20 m each side. The upstream end is covered by the new road [c1969 realignment].

⁴⁴ McBean & Crisp Pty Ltd, Report on Great North Road between Mt. Manning turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects, The National Trust of Australia (NSW), 1983, p. 2.

2d	Cutting and rock drain	Beginning at the north end of the stone retaining wall, the original road alignment continues in a northerly direction rising up to a rock cutting. The whole of the pavement width is cut into rock, to a depth of approximately 1 m on the high side and zero (no fill) on the low side, forming a sheet rock base for the road. The latter extends for a distance of approximately 100 m. The surface is formed with a cross fall into the hill where a gutter has been formed by cutting into the rock. The face of the cutting in the uphill embankment is marked with irregular, sloping pick marks extending up the embankment for approximately 1/3 of its height.
2e	Road pavement 2	The road alignment continues, isolated from the adjacent new alignment [Great North Road realignment c1969], for a distance of 350 m from the intersection where the new alignment passes over the old. The road in this section is approximately 7m wide. The pavement surface is a "macadam" type with sandstone aggregate up to 100 mm in size grading down to 10 mm and finer.
3	Stone culvert	Within the section of road pavement referred to above - 'Road pavement 2' (Structure No 2e) is a stone culvert with internal dimensions of 550 wide, 460 high upstream and 550 high downstream.

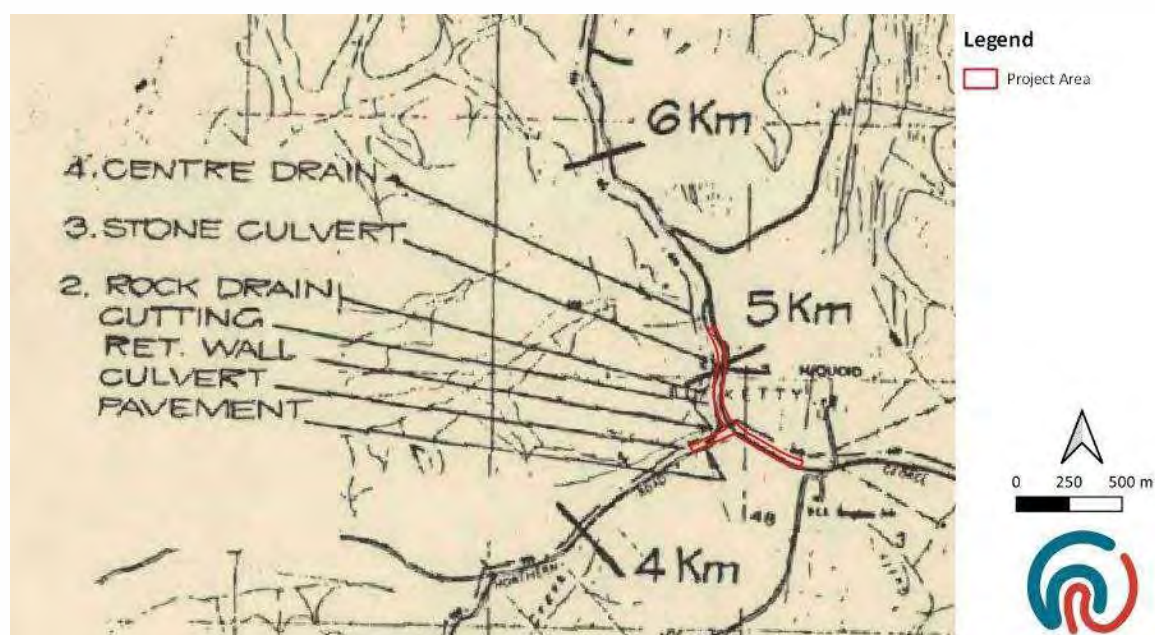


Figure 11. Structural elements of the Old Great North Road identified near the Bucketty turnoff (Source: McBean & Crisp Pty Ltd 1983, Drawing No. 2, with Heritage Now annotations)

Lavelle, Siobhan, Grace Karskens, and RTA Technology. "Stage 1 Conservation Plan for the Great North Road." The Convict Trail Project, 1999.

The 1999 CMP covers the entire 240km length of the Great North Road, and includes an overview of its physical condition, considers management issues, and provides policies and recommendations to

assist with management of the item.⁴⁵ The road is divided into eight separate inventory sections based on changes in its nature and character, which are then further divided into precincts, and individual items. The Project Area is within the section from Mount Manning Junction to Wollombi (Section 4.0.0), in the vicinity of the abandoned loop at Mount McQuoid/Bucketty (Precinct 4.2.0), which was constructed during 1830 and 1831 by No.29 Road Party, and is described as follows:

“The abandoned loop at Mt. McQuoid/Bucketty comprises a section about 400 metres long which was cut off by the reconstruction of the nearby intersection immediately east of the earlier alignment. This short section includes a diverse range of features which illustrate the nature of the road construction utilised on the Great North Road. At the southern end is a stone culvert flanked by the remains of wing walls. The culvert was reconstructed in 2003. Immediately north of the culvert is a macadam type pavement of compacted broken stone about 7m wide. About 75m north of the wing-wall culvert is an extensive ashlar masonry retaining wall. The wall curves to cross a gully where a former bridge was located. The span of the bridge has now been infilled with a large diameter concrete pipe surrounded by cement mortared stone blocks probably deriving from nearby structures such as the wing-walled culvert. North of the former bridge the road alignment rises up to a rock cutting with the road pavement cut into the bedrock, and an associated rock-cut side drain. This then changes to a macadam type pavement. There is also a well-preserved sandstone masonry box-culvert within this northern pavement/road section of the Mt. McQuoid precinct.”

Both the abandoned loop and the current alignment of the Great Northern Road/Great North Road are identified in the 1999 CMP as part of the line of the Great North Road, and are included in the SHR listing of the Great North Road, between Mt Manning and Wollombi.

The current alignment was considered to have historic significance as it is associated with the ongoing use of the road, with later improvements reflecting changing traffic and road safety requirements:

In several areas the Great North Road, although lacking in any obvious historic character, remains in use as an essential transport link and itself has immense symbolic significance as the latest successor to the historically important earlier road formations which have carried European traffic since the 1820s and 1830s. ... The improvements such as widening, reconstruction and deviation which are evident on those sections remaining in use for modern traffic also reflect a long and constant process of road redevelopment and improvement in response to constantly increasing traffic and modern road engineering requirements.⁴⁶

While no specific significant views or vistas were identified in the 1999 CMP, it was noted that the Mount Manning Junction to Wollombi section of the road (among others) tends to present the road in a modern context, as an “in use” road. However, it passes through relatively undeveloped rural areas and may be found in an overall setting approximating that envisaged at the time of its construction.⁴⁷ Road sections in use were described as generally remaining in good condition. Most

⁴⁵ Siobhan Lavelle, Grace Karskens, & RTA Technology, *Stage 1 Conservation Plan for the Great North Road, The Convict Trail Project*, 1999.

⁴⁶ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 28.

⁴⁷ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 22.

in-use sections of road were sealed; however, it was noted that it was unclear if older pavements survived below modern surfaces.⁴⁸

Elizabeth A. Roberts. “Bucketty Culvert Reconstruction Report.” The Convict Trail Project, 2004.

The Bucketty culvert, identified in the figure above as ‘Culvert’ (Structure No. 2a), is within the current Project Area, approximately 75m west of the intersection. It is described as a stone culvert, with retaining walls extending approximately 20 meters on either side. However, the sides of the culvert had collapsed and most of the facing stone removed. Due to its poor condition, the original form of the culvert was unclear, and a partial reconstruction was undertaken based on an interpretation of the remains of the structure as a recessed culvert.⁴⁹ A layer interpreted as the original surface of the Great North Road was found above the culvert, at approximately 30 cm below the ground surface at the time of works.⁵⁰ This surface was not present above the retaining wall on the south[western] side of the culvert, and it was suggested that it may have been graded off in this area.⁵¹



Figure 12. Before (left) and after (right) photographs of the excavation above the culvert. (Source: Roberts, *Bucketty Culvert Reconstruction Report*, p. 11). Interpretation and labelling of deposits is based on general descriptions provided in the report.

⁴⁸ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 48.

⁴⁹ Elizabeth A. Roberts, *Bucketty Culvert Reconstruction Report*, Heritage NSW H06129-BUCK, Convict Trail Project Inc., 2004, pp. 2–3.

⁵⁰ Roberts, *Bucketty Culvert Reconstruction Report*, p. 11.

⁵¹ Roberts, *Bucketty Culvert Reconstruction Report*, p. 9.

Stedinger Associates. “Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application.”, Cessnock City Council, 2010.

In 2010, Stedinger Associates prepared a heritage assessment for proposed repair works to a 140m section of the Great North Road, between Mt Manning and Wollombi at Ramsay’s Leap, near Laguna (approximately 3.0km north of the current Project Area). Surviving historic structures and features identified along the original alignment of the Great North Road included a stone retaining wall, culvert, flume, side drain, road pavement, a road cutting with jumper marks, carved initials, a carved arrow and a water trough.⁵² This section of the Great North Road was not considered to have historical archaeological potential due to impacts from erosion and the steepness of the adjacent slope. The heritage value of the site was embodied “in the fabric of the retaining wall itself, its associated features, the backfill behind the wall and the road that it supports”, and the research potential to reveal information about convict road construction.⁵³

⁵² Stedinger Associates, *Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, p. 29.

⁵³ Stedinger Associates, *Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, p. 42.

5 Physical Analysis

A site inspection was undertaken by Sarah Mané (Heritage Consultant at Heritage Now) on 22 July 2022, with a supplementary visit by Ngaire Richards (Principal Heritage Consultant) and Jenna Weston (Senior Heritage Consultant) undertaken on 8 November 2022.

The inspection was a visual study only, to determine (if possible) which parts of the Project Area are associated with the original convict construction of the Great North Road, and which sections are later in date or have been modified or realigned; as well as to assist in assessment of the heritage context of the Project Area.

5.1 The Great North Road

The proposed road widening and safety improvement works are located on Crown land within the road reserve associated with the current alignment of George Downes Drive and the Great North Road / Great Northern Road. The road reserve is surrounded by bushland, consisting of regrowth with a weedy understorey along the edge of the road. It is bounded by Yengo National Park to the north-west, large rural blocks to the east, and the Mangrove Dam water catchment to the south-west.

The current roads within the Project Area (Great Northern Road / Great North Road / George Downes Drive) are sealed with asphalt, and typically incorporate a narrow gravel or grassed verge which has been cleared of vegetation (Plate 1-Plate 3). The roads have no formal curbing; sections of the Great North Road and George Downes Drive that are built across the slope have infall drainage directing surface water towards table drains running parallel to the roadway.

The Project Area is adjacent to the abandoned loop of the Great North Road at Mount McQuoid/Bucketty. This area is also known as the Bucketty precinct, and it contains a series of convict-built historic structures associated with a 400 m long bypassed section of the road (described in more detail in Section 4.1 of this report). These structures include a stone culvert with partially reconstructed wing walls which runs under the current Great Northern Road (Plate 4), 1830s road alignment approximately 6-7m wide and table drain (Plate 5), sandstone masonry retaining wall infilled with concrete pipe (Plate 6-Plate 7), sandstone cutting with road pavement cut into bedrock and rock-cut side drain (Plate 8), 1830s road alignment approximately 7m wide (Plate 9), and sandstone masonry box culvert which runs under the 1830s road alignment (Plate 10-Plate 11). The original pavements of the 1830s road alignment in this precinct, previously recorded as 'macadam' type pavements, were covered by sandy sediment and leaf litter at the time of the site inspections.

A range of wayfinding and interpretive signage has been installed within the Bucketty precinct, with the majority located near the start of the Bucketty Wall Walking Track off the Great Northern Road; including Yengo National Park entry and tourist signposting (Plate 12), as well as an interpretation pole for Great North Road (Plate 13-Plate 14), and a boulder monument with plaque describing the road construction (Plate 15-Plate 16) placed by the Convict Trail project. An additional interpretive sign (Plate 17) and a sandstone memorial bench (Plate 18) are also located within the precinct in the vicinity of the reconstructed stone culvert.

A plaque on the bench is embossed:

*PHIL'S BENCH
THIS SEAT MADE FROM CONVICT HEWN STONE
IS IN MEMORY OF
PHILLIP LAWRENCE
1953-2003
SENIOR OVERSEER OF THE ST HELENS CORRECTIONAL
CENTRE MOBILE OUTREACH PROGRAM (M.O.P.)
IN APPRECIATION OF HIS CONTRIBUTION TO THE
CONVICT TRAIL PROJECT*

The former road alignment diverges from the current road in the vicinity of the stone culvert that runs under the Great Northern Road, approximately 180m south-west of the intersection (Plate 20); and meets the Great North Road approximately 300m north of the intersection (Plate 21-Plate 22). A previously unrecorded sandstone cutting, with pick marks near the base, was identified on the eastern side of the Great North Road near where the 1830 alignment and current road intersect (Plate 23-Plate 24).

On the south-west approach to the intersection, the Great Northern Road has a gently inclined uphill slope with a vertical curve, resulting in a considerable difference in elevation between the current road embankment, and much of the bypassed abandoned loop to the west (Plate 19).

5.1.1 Views and Setting

The Project Area has a natural setting, with the current road passing large rural blocks as well as open forest within Yengo National Park. The gentle curves and slopes, and unsealed shoulders within the Project Area give the road a distinctly rural character.

To the north west of the intersection, the Great North Road/George Downes Drive traverses the slopes of Mt McQuoid and the Hunter Range, with the road positioned along, or just below, ridgelines. Views along the roads, and from the road to the surrounding landscape, are restricted due to a combination of topography, and closely bordering vegetation within and adjacent to the road reserve. Vegetation within the road reserve is characterised by native trees with weedy understorey. It generally comprises smaller regrowth after clearing for past road construction and disturbance from ongoing shoulder slashing along the road edge.

To the south west of the intersection, the Great Northern Road is carried on a fill embankment with battered slopes. There is little visual linkage between the current alignment of the road and the Bucketty precinct, mainly due to differences in elevation between the embankment and abandoned loop, and screening from native vegetation regrowth along road edges. Road users are afforded a transient view of the top of the northern wing wall of the stone culvert within the Bucketty precinct (Plate 20).

6 Historical Archaeological Potential

The potential of the Project Area to contain archaeological evidence of previous phases of historical occupation is evaluated below. The assessment identifies the probable extent, nature, integrity and preservation of potential historical archaeological resources at the site.

6.1 Evaluation of Potential

The Project Area has been subject to a number of phases of development relating to the Great North Road, Great Northern Road, and George Downes Drive that are likely to have an impact on the survival of archaeological evidence associated with the construction and early use of the roads:

- Phase 1: European exploration and early settlement (1819-1825)
- Phase 2: Construction of the Great North Road and the Kulnura Road (George Downes Drive) (1826-1928)
- Phase 3: Later road works and improvements (1929-present)

The most substantial modifications are associated with 20th century road works and improvements. The alignment of the current roads and arrangement of the intersection, and much of the physical fabric of in-use roads within the Project Area, date from the deviation of the Kulnura road (George Downes Drive) in 1960, and reconstruction and realignment of the Great North Road/Great Northern Road in c1969. However, the majority of the convict-built early road structures/structural elements in the Bucketty precinct were bypassed by the realignment of the Great North Road, and remain a largely intact group which illustrate the nature of the original road construction. Both the current road alignment and bypassed abandoned loop form part of the SHR listing for the Great North Road, between Mt Manning and Wollombi.

Potential archaeological resources within the Project Area therefore consist primarily of structural elements associated with the Great North Road, including early road surfaces, retaining walls, stone culverts, fill deposits, cuttings and embankments, and drains. While these elements may be considered 'works' rather than relics, surviving road fabric has the potential to reveal information about early convict road construction, and is protected under the Part 3A State Heritage Register provisions of the Act.

In the western part of the Project Area, a sandstone culvert (Structure No 2a) passes under the Great Northern Road. Although the overlying deposits were not recorded in detail during the reconstruction of the culvert in 2004, observations in the report suggest that the original road surface and culvert cover (backfill materials) may partially survive beneath the modern road; however, the precise depth or extent of the remains is unable to be determined from the available records.

In the northern part of the Project Area, a large landslip (approximately 380m north of the intersection), has been cordoned off (Plate 25). The landslip has exposed a cross-section of the road, which is constructed of two layers of asphalt laid on sandstone bedrock (Plate 26), suggesting that the earlier road pavement is unlikely to be preserved intact below the modern road surface in this area. However, it may survive to the west of the Great North Road beneath the verge, along the original 1830s alignment – possibly as a continuation of Road pavement 2 (Structure No 2e).

Evidence of the original road in this part of the Project Area can be seen in a sandstone cutting with pick marks, identified to the east of the Great North Road during the site inspections for this assessment.

Although isolated artefacts are known to have been collected from various road precincts and sites in the past,⁵⁴ given what is known regarding road construction techniques and the results of previous investigations which have not identified any artefacts in backfill deposits,⁵⁵ it is considered there is limited potential within the Project Area for isolated artefacts to be present. Any relics associated with the engineering and the construction of the Great North Road, would most likely be found in the vicinity of the northern and western parts of the Project Area, where the current road intersects with the original 1830s alignment. Given the expected levels of disturbance from activities related to the c.1969 reconstruction and realignment, including grading, widening, sealing the road with asphalt, and associated drainage works, the potential for relics within the Project Area is generally assessed as low.

6.2 Summary of Historical Archaeological Potential

Early road structures and areas of historical archaeological potential within the Project Area have been identified based on a review of the historical context of the Project Area, previous reports, information obtained from historical maps and plans, and general observations made during the site inspections undertaken in July and November 2022.

Potential remains have been assessed according to their intactness (or likelihood of survival) as follows:

- Extant – remains associated with an early road structure or activity are known to survive
- High – potential archaeological remains associated with an early road structure or activity are likely to survive, and are likely to be intact and legible
- Moderate – potential archaeological remains associated with an early road structure or activity may survive, but are likely to have been subject to disturbance from later phases of development
- Low – potential archaeological remains associated with an early road structure or activity are unlikely to survive

Table 7. Summary of archaeological potential

Phase	Location in relation to the Project Area	Early road structures / Potential Archaeological Remains	Intactness or likelihood of survival
2 (1826-1928)	Great Northern Road CH 0-CH 40	Culvert (Structure No 2a)	Extant
2 (1826-1928)	Great Northern Road CH 0-CH 80	Former road surface Culvert cover (fill deposits) (Archaeological Area 1)	Moderate

⁵⁴ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 53.

⁵⁵ Roberts, *Bucketty Culvert Reconstruction Report*; see also Stedinger Associates, *Excavation Report on the Reconstruction of the Retaining Wall at Chainage 1617. Old Great North Road, Dharug National Park, N.S.W.*, National Parks and Wildlife Service Central Coast Hunter Region, July 2002, pp. 13, 26.

2 (1826-1928)	Great North Road CH 100	Cutting with pick marks	Extant
2 (1826-1928)	Great North Road CH 100-CH140	Former road surface (Archaeological Area 2)	Moderate
2 (1826-1928)	Great North Road CH 220	Culvert (Structure No 3)	Extant
1 (1819-1825) 2 (1826-1928) 3 (1928-present)	Across Project Area	Isolated artefacts	Low

A map of the location of early road structures and areas of archaeological potential in relation to the Project Area is provided in Figure 13 below, with detailed maps of the western and northern parts of the Project Area where the current road intersects with the original 1830s alignment in Figure 14 and Figure 15, respectively.



Figure 13. Location of early road structures/structural elements and areas of archaeological potential (Source: SIX Maps aerial, with Heritage Now annotations).



Figure 14. Map of Archaeological Area 1 with moderate potential – Great Northern Road detail (Source Six Maps and Google, CNES / Airbus, Maxar Technologies, with Heritage Now additions)

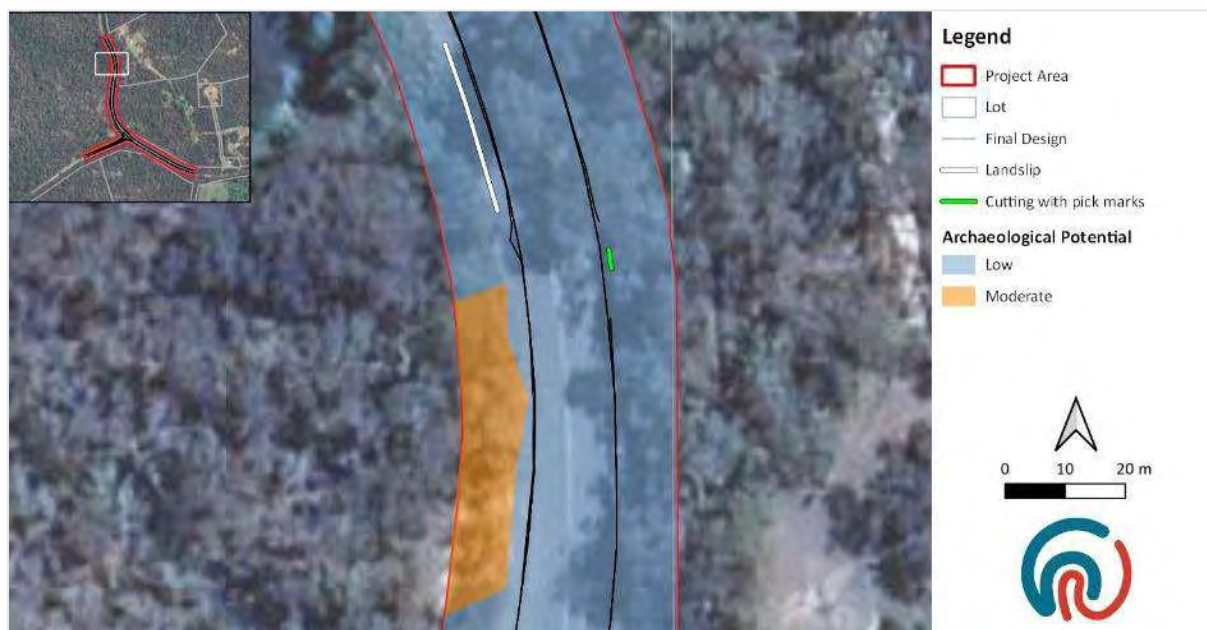


Figure 15. Map of Archaeological Area 2 with moderate potential - Great North Road detail (Source Six Maps and Google, CNES / Airbus, Maxar Technologies, with Heritage Now additions)

7 Significance Assessment

7.1 World Heritage List Criteria

To be inscribed on the World Heritage List, a property must be of Outstanding Universal Value and satisfy one or more of the ten cultural or natural heritage selection criteria. The Greater Blue Mountains Area was inscribed in the World Heritage List on the basis of its outstanding natural values under criteria (ix) and (x):

- (ix) (to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.⁵⁶

7.1.1 Statement of Outstanding Universal Value for the Greater Blue Mountains Area

The following brief synthesis from the official statement of Outstanding Universal Value for the Greater Blue Mountains Area is reproduced from the UNESCO World Heritage Listing:

The Greater Blue Mountains Area (GBMA) is a deeply incised sandstone tableland that encompasses 1.03 million hectares of eucalypt-dominated landscape just inland from Sydney, Australia's largest city, in south-eastern Australia. Spread across eight adjacent conservation reserves, it constitutes one of the largest and most intact tracts of protected bushland in Australia. It also supports an exceptional representation of the taxonomic, physiognomic and ecological diversity that eucalypts have developed: an outstanding illustration of the evolution of plant life. A number of rare and endemic taxa, including relict flora such as the Wollemi pine, also occur here. Ongoing research continues to reveal the rich scientific value of the area as more species are discovered.

The geology and geomorphology of the property, which includes 300 metre cliffs, slot canyons and waterfalls, provides the physical conditions and visual backdrop to support these outstanding biological values. The property includes large areas of accessible wilderness in close proximity to 4.5 million people.

7.2 National Heritage List Criteria

As the Greater Blue Mountains Area satisfies criteria (ix) and (x) for inclusion on the World Heritage List, it is also deemed to meet the following National Heritage criteria against which the heritage values of a place are assessed:

⁵⁶ UNESCO World Heritage Centre, *The Criteria for Selection*, UNESCO World Heritage Convention, UNESCO World Heritage Centre, 2023, viewed 9 March 2023, <<https://whc.unesco.org/en/criteria/>>.

- (a) the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history
- (b) the place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history
- (c) the place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history
- (d) the place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of:
 - (i) a class of Australia's natural or cultural places; or
 - (ii) a class of Australia's natural or cultural environments;

7.2.1 Summary Statement of Significance for the Greater Blue Mountains Area

The following Summary Statement of Significance for the Greater Blue Mountains Area is reproduced from the Australian Heritage Database:

The Greater Blue Mountains Area was inscribed on the World Heritage List at the 24th Session of the World Heritage Committee, held in Cairns from 27 November to 2 December 2000.

It is an area of breathtaking views, rugged tablelands, sheer cliffs, deep, inaccessible valleys and swamps teeming with life. The unique plants and animals that live in this outstanding natural place relate an extraordinary story of Australia's antiquity, its diversity of life and its superlative beauty. This is the story of the evolution of Australia's unique eucalypt vegetation and its associated communities, plants and animals.

The Greater Blue Mountains Area consists of 1.03 million hectares of mostly forested landscape on a sandstone plateau 60 to 180 kilometres inland from central Sydney, New South Wales. The property includes vast expanses of wilderness and is equivalent in area to almost one third of Belgium, or twice the size of Brunei.

The property, which includes eight protected areas in two blocks separated by a transportation and urban development corridor, is made up of seven outstanding national parks as well as the famous Jenolan Caves Karst Conservation Reserve. These are the Blue Mountains, Wollemi, Yengo, Nattai, Kanangra-Boyd, Gardens of Stone and Thirlmere Lakes National Parks.

The area does not contain mountains in the conventional sense but is described as a deeply incised sandstone plateau rising from less than 100 metres above sea level to 1 300 metres at the highest point. There are basalt outcrops on the higher ridges. This plateau is thought to have enabled the survival of a rich diversity of plant and animal life by providing a refuge from climatic changes during recent geological history. It is particularly noted for its wide and balanced representation of eucalypt habitats from wet and dry sclerophyll, mallee heathlands, as well as localised swamps, wetlands, and grassland. Ninety-one species of eucalypts (thirteen percent of the global total)

occur in the Greater Blue Mountains Area. Twelve of these are believed to occur only in the Sydney sandstone region.

The property has been described as a natural laboratory for studying the evolution of the eucalypts. The largest area of high diversity of eucalypts on the continent is located in south-east Australia. The Greater Blue Mountains Area includes much of this eucalypt diversity.

As well as supporting such a significant proportion of the world's eucalypt species, the property provides examples of the range of structural adaptations of the eucalypts to Australian environments. These vary from tall forests at the margins of rainforest in the deep valleys, through open forests and woodlands, to shrublands of stunted mallees on the exposed tablelands.

In addition to its outstanding eucalypts, the Greater Blue Mountains Area also contains ancient, relict species of global significance. The most famous of these is the recently-discovered Wollemi pine, a "living fossil" dating back to the age of the dinosaurs. Thought to have been extinct for millions of years, the few surviving trees of this ancient species are known only from three small populations located in remote, inaccessible gorges within the nominated property. The Wollemi pine is one of the World's rarest species.

More than 400 different kinds of animals live within the rugged gorges and tablelands of the Greater Blue Mountains Area. These include threatened or rare species of conservation significance, such as the spotted-tailed quoll, the koala, the yellow-bellied glider and the long-nosed potoroo as well as rare reptiles including the green & golden bell frog and the Blue Mountains water skink.

A map of the Greater Blue Mountains Area is provided in Figure 16, and the location with respect to the Project Area is shown in Figure 17.

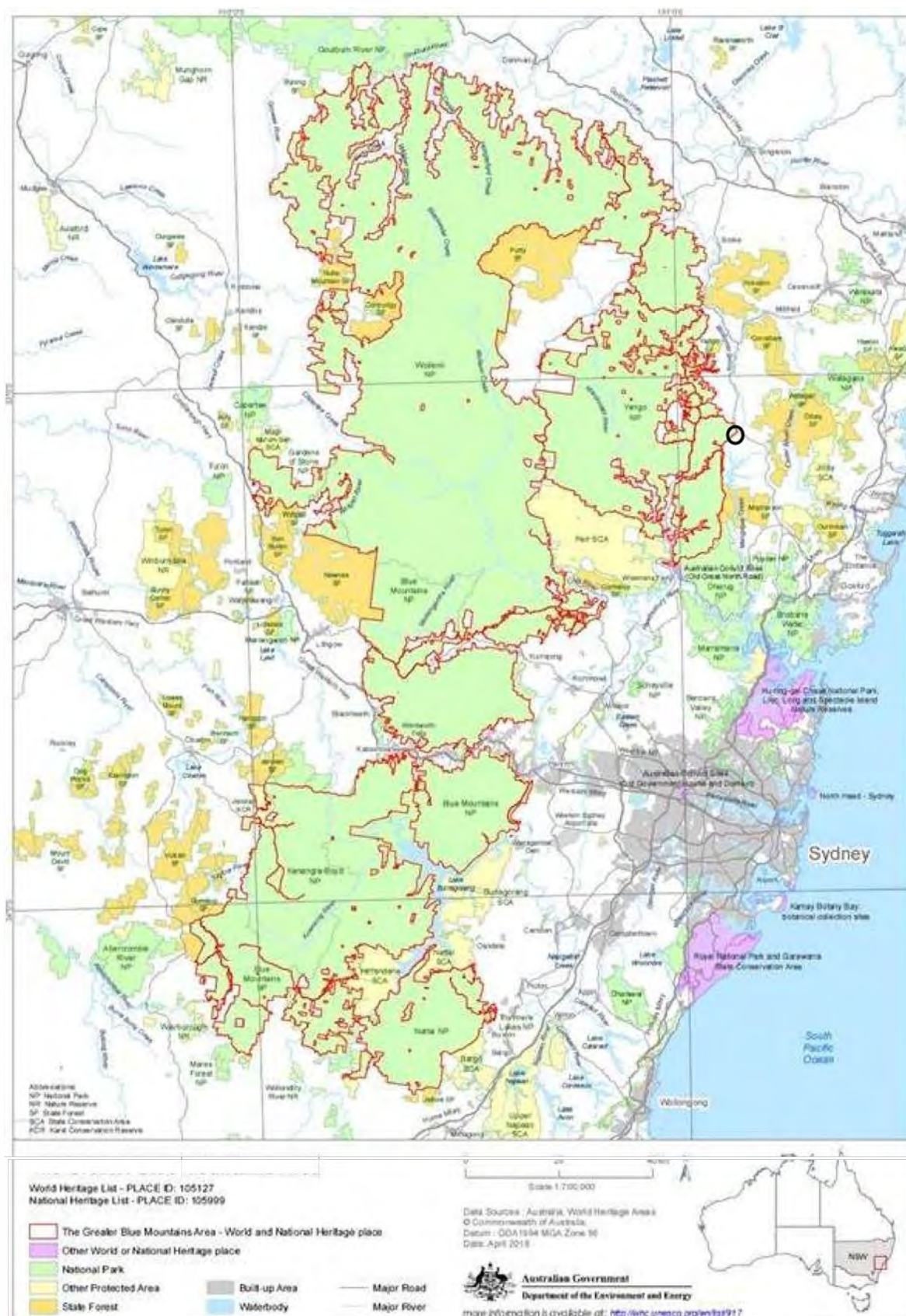


Figure 16. The Greater Blue Mountains Area (Source: Department of the Environment and Energy, April 2018). The approximate location of the Project Area is circled in black.



Figure 17. The Greater Blue Mountains Area in relation to the Project Area (Source: Six Maps and DCCEE, 2020 with Heritage Now additions).

7.3 NSW Heritage Council Criteria

The meaning of cultural significance is defined in the Burra Charter as: aesthetic, historic, scientific, social or spiritual value for past, present or future generations.⁵⁷ These values are evaluated using specific criteria adopted by the NSW Heritage Council, to assess whether an item is of State or local heritage significance in New South Wales.⁵⁸ The criteria are as follows:

Criterion a) 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);

Criterion b) An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

Criterion (d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

Criterion (e) 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);

Criterion (f) 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);

⁵⁷ Australia ICOMOS, The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013, p. 2.

⁵⁸ NSW Heritage Office, Assessing heritage significance, p. 9.

Criterion (g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments, or a class of the local area's cultural or natural places; or cultural or natural environments.

7.3.1 Summary Statement of Significance for The Great North Road, between Mt Manning and Wollombi

The Great North Road has been subject to several assessments of significance in the past. The section between Mt Manning and Wollombi is listed on the State Heritage Register. Parts of this section of the road are also listed as heritage items with State significance on the Cessnock LEP, Hawkesbury LEP, and Gosford LEP.

The following summary statement of significance is reproduced from the NSW State Heritage Inventory SHR listing (#01789):

The Great North Road is an item of national heritage significance. It meets all State Heritage Register criteria and does so at a number of levels. Historically, the Great North Road is of state significance as the first made road north of the Hawkesbury. It was constructed by convict gangs between 1826 and 1836. The road has historic associations with several notable colonial figures including Governor Darling and Surveyor-General Thomas Mitchell. The Great North Road is also evidence of the development of the colony at Sydney and of the policies during this period of using convict gangs to construct major public works.

The Great North Road constitutes a material record of convict labour. Many surviving structures and precincts bespeak the quality of work achieved by convict artisans. Some precincts of the road remain in relatively unspoilt areas, evocative of the frontier environment of the 1830s. Other sections remain in use as a transport corridor and have thus carried European traffic continuously since the 1830s.

The section of the Great North Road between Mount Manning and Wollombi contains a variety of features that provide tangible physical evidence of convict road engineering and construction. The section also contains a number of individually significant structures, including unique examples of culvert and flume construction as well as cuttings, side drains and pavements. Parts of this section of the road remain in use. It presents excellent interpretive opportunities.

A plan of the curtilage of the road is provided in Figure 18, and the location with respect to the Project Area is shown in Figure 19. However, the SHR listing notes that there is an expanded heritage curtilage with respect to adjacent items and workings outside the road reserve, including early road structures (and structural elements) associated with the abandoned loop of the Great North Road at Mount McQuoid/Bucketty:

The recommended curtilage for the listing, generally comprises the existing road reserve, as illustrated in the curtilage plan. In cases where adjacent associated items or workings lie partially or wholly outside the road reserve, the listing curtilage will extend to include them. Such items and workings may include: the quarry site and ramp at St Alban's Road, the stone culverts and bridge of the abandoned section at Bucketty, Ramsay's Leap retaining wall and flume near Mount Simpson, the stone

culvert at Fernance's Crossing, the stone arched culvert and retaining wall at Murray's Farm and Thompson's Bridge.



Figure 18. SHR curtilage of the Great North Road, Between Mt Manning and Wollombi (Source: State Heritage Inventory). The approximate location of the Project Area at Bucketty is circled in red.



Figure 19. The Great North Road, Between Mt Manning and Wollombi in the vicinity of the Project Area (Source: Six Maps with DPC, 2022 and Heritage Now additions). Note: the SHR listing includes the stone culverts and bridge of the abandoned section at Bucketty, which extend beyond the curtilage shown.

7.3.2 Grading of Significance

The historic structures/structural elements within the vicinity of the Project Area have been graded to assess their relative contribution to the significance of the Great North Road, between Mt Manning and Wollombi as follows:

- Exceptional - Rare or outstanding element directly contributing to an item's local or State significance.
- High - High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.
- Moderate - Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.
- Little - Alterations detract from significance. Difficult to interpret.
- Intrusive - Damaging to the item's significance.⁵⁹

Table 8. Gradings of significance.

Structure No.	Structure	Grading of Significance	Comment
2a	Culvert	High	Stabilisation and reconstruction of the culvert outlet and retaining walls was undertaken in 2003 after collapse.
2b	Road pavement 1	Exceptional	Intact

⁵⁹ NSW Heritage Office, Assessing heritage significance, p. 11.

2c	Retaining wall	High	Span of former bridge infilled with large diameter concrete pipe (pre-1983, date unknown). Some restoration of missing masonry in the abutments/wing walls was undertaken after theft of sandstone blocks in 1990.
2d	Cutting and rock drain	Exceptional	Intact
2e	Road pavement 2	Exceptional	Intact
3	Stone culvert	Exceptional	Intact
-	Sandstone cutting with pick marks	High	Intact
-	Great Northern Road/Great North Road current alignment	Moderate	Deviation, widening, sealing of the intersection was undertaken in 1960, and reconstruction and realignment of the Great North Road in c1969. Significance of the current alignment is symbolic rather than embodied in the fabric, and lies in the ongoing use of the road as a transport link, as the successor to the historically important 1830s road formation.

The following summary statement of significance is reproduced from the SHI listing for the Great North Road (between Mount Manning and Wollombi) (Cessnock LEP 2011 #I217):

The Great North Road is an item of National heritage significance. It has values under all relevant heritage assessment criteria, including historical, aesthetic, scientific and social significance as expressed by the ICOMOS Burra Charter, and under the SHI criteria. The Road also fulfils numerous assessments as expressed by the Australian Heritage Commission. Whilst many heritage items will fulfill more than one value, the immense significance of the Great North Road is reflected in its possession of these multiple values at a number of levels.

Historically the Great North Road was the first made road north of the Hawkesbury, constructed by convict gangs between 1826 and 1836. The road has historical associations with several notable colonial figures including Governor Darling and Surveyor General Sir Thomas Mitchell. The road is also tangible evidence of the development of the colony at Sydney, and of policies which saw convict gangs used to construct major public works during this period.

The Great North Road also provides a direct material record of convict labour. Many surviving structures and precincts indicate the quality of work achieved by convict artisans. Many precincts of the road also remain in relatively unspoilt settings which are evocative of the environment on the 'frontier' in the 1830s.

Other parts of the historical Great North Road (even if renamed) remain in use as an essential transport corridor and have carried European traffic continuously since the 1830s. Stage1 Conservation Plan for the Great North Road Siobhan Lavelle, Dr Grace Karskens and RTA technology for the Convict Trail Project 1999 page 34

The improvements which are evident in this section reflects a long and constant process of road redevelopment and improvement in response to constantly increasing traffic and modern road engineering requirements. This 19th century graffiti and possible pick dressing shows how the current road still follows the line of the original road and remains in use as an essential transport link with the new surface and levels as the latest successor to the historically important earlier road formations which have carried European traffic since the 1820s and 1830s.

The following summary statement of significance is reproduced from the Central Coast Heritage Inventory for the Great North Road (Old) (listed as 'Roadworks' on Gosford LEP 2012 #60):

Early land route connecting Sydney and Hunter, with excellent examples of roadwork using natural materials and convict labour.⁶⁰

The following summary statement of significance is reproduced from the SHI listing for the Old Great North Road (Hawkesbury LEP 2012 #I0091):

The Old Great North Road is a signifier of the outlooks of early colonial society. Its magnificent structures were powerful, tangible symbols of the colony's perceived place and role in the course of empire, unmistakable evidence that the civilised state was being attained and a triumph over a rugged and inhospitable landscape. It is associated with several notable figures in colonial administration, surveying and engineering including Governor Darling, Surveyor General Thomas Mitchell and Percy Simpson, one of Australia's earliest scientific road engineers (Karskens 1991: 12).

The Old Great North Road physically demonstrates the work patterns, skills and organisation of convict work gangs. This evidence is unavailable in documentary sources and has been essential in changing our views of work gangs. It has technological value in that it demonstrates the standards and practice of road engineering in the colony during the 'Great Roads' period of the late 1820s and 1830s (Karskens 1991: 12).

⁶⁰ Beryl Strom, Central Coast Heritage Inventory Set 2: Built Environment. Category: Historic Sites and Buildings, Gosford City Council, 1998.



Figure 20. LEP heritage items in the vicinity of the Project Area. (Source: SIX Maps aerial with EPI additions)

7.3.3 Assessment of Archaeological Significance

Archaeological significance refers to the heritage significance of known and potential archaeological resources, features or deposits. The assessment of historical archaeological significance has been prepared in accordance with the NSW Heritage Council criteria and the guideline Assessing Significance for Historical Archaeological Sites and 'Relics'⁶¹, which clarifies how these criteria may be applied to historical archaeological sites.

Archaeological Research Potential (Criterion E)

The archaeological evidence relating to convict road engineering and construction of the Great North Road in the vicinity of the Project Area comprises early road structures and structural elements associated with the abandoned loop of the Great North Road at Mount McQuoid/Bucketty (including culverts, retaining walls, drains, and pavements), which are largely intact and significant at a State level. Any other subsurface archaeological resources that may still survive along the Great North Road, where the original 1830 alignment intersects with the current road, would be supplementary to this group of well-preserved features. This evidence would contribute further to an understanding of on the historical development and construction of the road, and complement the written and archaeological records in regard to early-19th century road building and road use.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet this criterion.

Associations with individuals, events or groups of historical importance (Criterion A, B & D)

Surviving early road structures and structural elements of the Great North Road are physical evidence of the earliest road constructed north of the Hawkesbury River. They are associated with

⁶¹ Heritage Branch, NSW Department of Planning, Assessing Significance for Historical Archaeological Sites and 'Relics'.

the construction of the road in 1830 using convict labour from the No. 29 Road Party, under the supervision of Assistant Surveyor Heneage Finch.

Other potential archaeological remains such as isolated artefacts are unlikely to satisfy this criterion, unless they can be identified as specific objects used for surveying or road construction, or items that could be associated with the convict road party involved in these activities.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet these criteria.

Aesthetic or technical significance (Criterion C)

If present, surviving former road surfaces and fill deposits below the current road could supplement existing knowledge of early-19th century road engineering and construction techniques. However, the considerable level of disturbance from the 1960s road works and improvements has reduced the potential for remains demonstrating technical achievement relating to the convict road engineering and construction of the Great North Road to survive within the Project Area. Depending on the level of intactness, such remains are likely to provide limited evidence of technical achievement. Other potential archaeological remains such as isolated artefacts do not meet this criterion.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet this criterion.

Ability to demonstrate the past through archaeological remains (Criterion A, C, F & G)

This criterion primarily depends on the nature and level of intactness of potential archaeological remains within the Project Area. Such remains could supplement what is already known from early road structures/structural elements associated with the abandoned loop, as well as other sections of the Great North Road. Well preserved and legible archaeological remains associated with the 1830 alignment of the Great North Road would be a rare surviving example of early-19th century convict-built roads in NSW.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet these criteria.

Summary Statement of Archaeological Significance

The significance of the Project Area is vested primarily in the early road structures and structural elements associated with the abandoned loop of the Great North Road at Mount McQuoid/Bucketty, constructed using convict labour from the No. 29 Road Party under the supervision of Assistant Surveyor Heneage Finch in 1830-31. Remains known to be intact within the Project Area include a culvert below the Great Northern Road (Structure No. 2a) at CH 0-CH 40, and sandstone cutting with pick marks adjacent to the Great North Road/George Downes Drive at CH 100.

Other subsurface archaeological resources that may survive within the Project Area are likely to consist of former road surfaces and fill deposits below the current road surface and verge of the Great Northern Road / Great North Road, where the original 1830 alignment intersects with the current road. This evidence could be used to supplement what is already known of early-19th century road engineering and construction techniques. However, these resources are likely to have been subject to some disturbance from later phases of road improvements and would have limited

research potential to yield new or further substantial information on the historical development and construction of the road.

8 Proposed Works

8.1 Background

Central Coast Council were successful in obtaining \$1.72m in funding under the Safer Roads Program for safety improvements on George Downs Drive, Bucketty. Further investigations identified the location as being within the Cessnock LGA, resulting in responsibility for the project being transferred to Cessnock City Council by Transport for NSW.

George Downes Drive is classified as a regional road that serves the rural communities of Central Mangrove, Mangrove Mountain, Kulnura and Bucketty. It provides connections to Wisemans Ferry Road and the Great Northern Road, attracting commuters from anywhere between Gunderman and Wollombi. The route consists of a predominately curved horizontal alignment with some vertical crests and with minimal shoulder width (typically less than 1m). It is governed by double barrier lines and guide posts with the absence of any further delineation measures.

The Project Area extends for approximately 715 metres, covering either side of the intersection between George Downes Drive and the Great Northern Road. The speed limit is reduced from 100km/h to 80km/h within the Project Area due to the presence of the intersection. The road features two horizontal curves and one vertical curve with one 3.5 metre travel lane in each direction and no shoulder. Within the road reserve there are embankments, non frangible vegetation and steep graded slopes off the carriageway.

There is a frequent occurrence of off carriageway crashes and head on crashes within close proximity to the intersection of George Downes Drive and Great Northern Road. The proposed treatment takes a safe systems approach in reducing the likelihood of injury should off carriageway crashes occur.⁶²

8.2 Considerations of Alternatives

Cessnock City Council considered the following options in regard to the road widening and safety improvement works:

1. Do Nothing
2. Channelised Right Turn
3. Basic Right Turn Lane⁶³

Option 1 – Do Nothing

Option 1 involves the 'do nothing' approach. The 'do nothing' approach was discounted as it would not meet the objectives of the safety upgrades.

This approach would not result in any impacts to heritage values; however, the road and intersection would still require ongoing maintenance and repair to continue as an in-use transport corridor.

⁶² Peak Land Management, Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty, Cessnock City Council, June 2023, pp. 6–7.

⁶³ Peak Land Management, Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty, p. 13.

Option 2 - Channelised Right Turn

Option 2 involves provision of a Channelised right turn lane into Great Northern Road. A Channelised right turn lane would require establishment of an additional, separate turn lane on the Great North Road at the intersection with George Downes Drive.

Option 2 was discounted as it was considered there was insufficient traffic usage to warrant the additional costs of this option.

Option 3 - Basic Right Turn Lane (the Proposal)

Option 3 involves provision of a Basic right turn lane into Great Northern Road. A Basic right turn lane would require a shared through and right-turn lane with minor widening of the shoulder of the Great North Road at the intersection with George Downes Drive.

Option 3 was evaluated by Cessnock City Council as the preferred option based upon:

1. Constructability;
2. Estimated construction cost;
3. Required maintenance;
4. Safety outcomes;
5. Environmental considerations
6. Design life and durability.

8.3 The Proposal

8.3.1 Scope of Work

The road widening and safety improvement works program will involve:

- Pavement widening to accommodate guardrail with motorcycle rub rail on George Downs Drive and Great North Road
- Intersection upgrade to accommodate basic right turn (BAR intersection) treatment
- Regrading and widening of Great Northern Road to improve sight distance
- Minor drainage work – pipe extension and headwall etc.
- Batter stabilisation and revegetation of disturbed areas – jute mesh and grass seeding
- 40 mm asphalt concrete resealing of full width of road pavement
- Associated signs and line marking

The estimated length of the construction period is 3 months.

8.3.2 Construction Works Methodology

The construction works methodology in Table 9 below has been summarised from the Draft Minor Works Review of Environmental Factors.⁶⁴

⁶⁴ Peak Land Management, Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty, p. 7.

Table 9. Description of Construction Works Methodology

Stage	Works Description
Pre-construction	<p>Development of Project Management Plans in accordance with scope of works and technical criteria, design, and project conditions of approval:</p> <ul style="list-style-type: none"> • Overarching Project Management Plan (PMP) • Site specific Workplace Health and Safety (WHS) plan • Construction Environmental Management Plan (CEMP) • Traffic Management Plan <p>(TMP) Preliminary activities include:</p> <ul style="list-style-type: none"> • Establishment of site compound • Installation of traffic control • Fencing/exclusion of heritage sites • Installation of erosion and sediment controls etc.
Construction	<p>Construction Works Methodology:</p> <ul style="list-style-type: none"> • Erosion & sediment control • Stockpiles • Clearing vegetation/trees • Excavation for pavement rehabilitation/widening • Cutting table drains • Batter stabilization • Minor drainage work • Pavement construction/seal • Installation of signs and line markings • Revegetate disturbed areas

The following heritage impact assessment has been prepared based upon a review of the Civil Works Details Proposed Road Work – George Downes Drive and Great Northern Road, Bucketty, final design by Daly Smith, provided by Cessnock City Council (Table 10). The full set of final design drawings are attached in Appendix A.

Table 10. Drawing Schedule - Civil Works Details Proposed Road Work

Drawing No	Title	Revision	Date
1	Cover Sheet & Drawing Schedule	C	5/09/2022
2	Construction Notes	C	5/09/2022
3	Overall Site Plan	C	5/09/2022
4	Great Northern Road Site Plan - 01	C	5/09/2022
5	Great Northern Road Site Plan - 02	C	5/09/2022
6	George Downes Drive Site Plan - 01	C	5/09/2022
7	George Downes Drive Site Plan - 02	C	5/09/2022
8	George Downes Drive Site Plan - 03	C	5/09/2022
9	George Downes Drive Site Plan - 04	C	5/09/2022
10	George Downes Drive Site Plan - 05	C	5/09/2022
11	George Downes Drive Site Plan - 06	C	5/09/2022
12	George Downes Drive Site Plan - 07	C	5/09/2022
13	George Downes Drive Site Plan - 08	C	5/09/2022
14	Typical Sections & Details Sheet 01	C	5/09/2022
15	Typical Sections & Details Sheet 02	C	5/09/2022

Drawing No	Title	Revision	Date
16	Great Northern Road Long Section Profile	C	5/09/2022
17	George Downes Drive Long Section Profile 01	C	5/09/2022
18	George Downes Drive Long Section Profile 02	C	5/09/2022
19	George Downes Drive Long Section Profile 03	C	5/09/2022
20	George Downes Drive Long Section Profile 04	C	5/09/2022
21	George Downes Drive Long Section Profile 05	C	5/09/2022
22	GDD-GNR Intersection Plan	C	5/09/2022
23	GDD-GNR Intersection Kerb Return Profiles 01	C	5/09/2022
24	GDD-GNR Intersection Kerb Return Profiles 02	C	5/09/2022
25	George Downes Drive Cross Sections - 01	C	5/09/2022
26	George Downes Drive Cross Sections - 02	C	5/09/2022
27	George Downes Drive Cross Sections - 03	C	5/09/2022
28	George Downes Drive Cross Sections - 04	C	5/09/2022
29	George Downes Drive Cross Sections - 05	C	5/09/2022
30	George Downes Drive Cross Sections - 06	C	5/09/2022
31	George Downes Drive Cross Sections - 07	C	5/09/2022
32	George Downes Drive Cross Sections - 08	C	5/09/2022
33	George Downes Drive Cross Sections - 09	C	5/09/2022
34	George Downes Drive Cross Sections - 10	C	5/09/2022
35	George Downes Drive Cross Sections - 11	C	5/09/2022
36	George Downes Drive Cross Sections - 12	C	5/09/2022
37	George Downes Drive Cross Sections - 13	C	5/09/2022
38	Great Northern Road Cross Sections - 01	C	5/09/2022
39	Great Northern Road Cross Sections - 02	C	5/09/2022
40	Great Northern Road Cross Sections - 03	C	5/09/2022
41	Linemarking & Signposting Plan - 01	C	5/09/2022
42	Linemarking & Signposting Plan - 02	C	5/09/2022
43	Linemarking & Signposting Plan - 03	C	5/09/2022
44	George Downes Drive Cut and Fill Plan 01	C	5/09/2022
45	George Downes Drive Cut and Fill Plan 02	C	5/09/2022
46	George Downes Drive Cut and Fill Plan 03	C	5/09/2022
47	George Downes Drive Cut and Fill Plan 04	C	5/09/2022
48	Great Northern Road Cut and Fill Plan	C	5/09/2022

9 Heritage Impact Assessment

The following section provides an assessment of the impact of the road widening and safety improvement works on the heritage significance of the Great North Road, between Mt Manning and Wollombi, and addresses matters for consideration in accordance with the Guidelines for preparing a statement of heritage impact⁶⁵. Measures to avoid, minimise and mitigate any adverse impacts on heritage significance of the item are identified.

There are 16 matters for consideration as part of the impact assessment, they have been addressed as applicable in the following sections of the report (Table 11).

Table 11. Matters for consideration and section of report in which they are addressed

Matters for Consideration	Section in report
Fabric and spatial arrangements	Section 9.1.1
Setting, views and vistas	Section 9.1.2
Landscape	Section 9.1.3
Use	Section 9.1.4
Demolition	Section 9.1.5
Curtilage	Section 9.1.6
Movable heritage	Section 9.1.7
Aboriginal cultural heritage	Section 9.1.8
Historical archaeology	Section 9.1.9
Natural heritage	Section 9.1.10
Conservation areas	Section 9.1.11
Cumulative impacts	Section 9.1.12
Conservation Management Plan	Section 9.1.13
Other heritage items in the vicinity	Section 9.1.14
Commonwealth/National heritage significance	Section 9.1.15
World Heritage significance	Section 9.1.16

The assessment of the degree of heritage impact in this report is based on the following definitions in the Heritage NSW Material Threshold Policy⁶⁶:

- Total loss of significance - Major adverse impacts to the extent where the place would no longer meet the criteria for listing on the SHR.

⁶⁵ Department of Planning and Environment, Guidelines for preparing a statement of heritage impact, Environment and Heritage, Department of Planning and Environment, Parramatta, 2023.

⁶⁶ Heritage NSW, Material Threshold Policy, 2020.

- Major adverse impact - Major (that is, more than minor or moderate) adverse impacts to heritage significance.
- Moderate adverse impact - Moderate adverse impacts to heritage significance.
- Minor adverse impact - Minor adverse impacts to heritage significance.
- Little to no impact - An alteration to heritage significance that is so minor that it is considered negligible.
- Positive impact - Alterations that enhance the ability to demonstrate the State heritage significance of an SHR listed place.

9.1 Matters for Consideration

9.1.1 Fabric and Spatial Arrangements

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Pavement widening	<ul style="list-style-type: none"> Great North Road / George Downs Drive (CH0.0 – CH420.0) Great Northern Road (CH0.0 – CH180.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Minor earthworks (cut/fill) to allow the existing embankment to be finished at the appropriate levels for the construction of road pavement and shoulders. Widening of pavement of the current (in use) line of road, with new pavement and shoulder construction confined to the road reserve and batter slope. The proposal will not physically affect identified early road structures/ structural elements (elements with high or exceptional significance), or areas of archaeological potential. The removal of selected trees within 6m of the edge of the Great North Road to enable widening will have a minor adverse visual impact on the bush setting of the Great North Road. 	Minor adverse	<ul style="list-style-type: none"> The location of early road structures/ structural elements in the vicinity of the Project Area should be indicated on the construction plans. To prevent disturbance to any significant fabric, appropriate protection measures such as temporary fencing should be put in place prior to commencement of works. Heritage induction for on-site personnel prior to commencement of construction works.
New guardrail and motorcycle rub rail	<ul style="list-style-type: none"> Great North Road / George Downs Drive (CH30.0 - CH690.0) Great Northern Road (CH 157.0- CH 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Removal of existing guardrail where the offset is less than 1 m from the edge of road pavement. Introduction of new fabric within the road reserve from replacement or installation of new guardrail with motorcycle rub rail. 	Minor adverse	<ul style="list-style-type: none"> A photographic archival recording of the Project Area should be undertaken to document the changes to the Great North Road before and after the proposed works, to add to the documentation of

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
	180.0)	<ul style="list-style-type: none"> The proposal will not physically affect identified early road structures/ structural elements (elements with high or exceptional significance), or areas of archaeological potential. The introduction of new fabric will result in a minor adverse visual impact within the current (in use) road corridor. 		the history of the road.
Intersection upgrade to accommodate basic right turn (BAR intersection) treatment	<ul style="list-style-type: none"> Great North Road / George Downs Drive (CH 395.0-CH44.05) Great Northern Road (CH 40.0-183.955) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Widening of the intersection with 3.5m lane plus 0.3m widening on curve. Transition from 0.5m shoulder to 2m shoulder for proposed guardrail barrier. These works would result in modifications to the spatial arrangement of the intersection within the SHR curtilage. The proposal will not physically affect identified early road structures/ structural elements (elements with high or exceptional significance), or areas of archaeological potential. 	Minor adverse	<ul style="list-style-type: none"> A photographic archival recording of the Project Area should be undertaken to document the changes to the Great North Road before and after the proposed works.

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Regrading and widening of Great Northern Road to improve sight distance	<ul style="list-style-type: none"> Great Northern Road (CH 0.0-183.955) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Earthworks (cut and fill) in area with moderate archaeological potential (Archaeological Area 1) (CH 100- CH140) ranging in depth from -0.5 to 0.5 m from existing surface level. Shoulder work only in the area where the culvert (Structure No 2a) passes under the Great Northern Road (CH 0-CH 40), with excavation up to -0.50 from existing surface level to have minimum road pavement thickness of 260mm. No direct impacts to the fabric of the culvert (Structure No 2a) below the Great Northern Road is anticipated. The precise depth or extent of the former road surface and culvert cover within Archaeological Area 1 is uncertain, and the works may result in partial impact to historical archaeological remains associated with the convict construction of the Great North Road. 	Minor adverse	<ul style="list-style-type: none"> Construction works to be undertaken in a manner that does not impact on significant fabric of Culvert (Structure 2a). Earthworks in Archaeological Area 1 to be monitored and recorded by qualified archaeologist. During regrading and widening, if any potential archaeological relics are uncovered, work is to stop, and unexpected finds procedure to be followed.
Minor drainage work	<ul style="list-style-type: none"> Extension of culvert - George Downs Drive intersection (CH 400.0 - CH410.0) Grouted rock/diversion of overland flow 	<p>The proposal would involve:</p> <p>Extension of the culvert under the intersection by 2m at the upstream (north east) end through removal of the existing headwall, extension of pipe, and installation of new headwall.</p> <ul style="list-style-type: none"> The culvert under the intersection is consists of non- significant fabric and does not contribute to the heritage significance of the Great North Road. The extension of the culvert will have little to no 	Little to no	<ul style="list-style-type: none"> Use of modern materials for the culvert extension is considered acceptable.

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
	<ul style="list-style-type: none"> – Great North Road (CH355.0 – CH340.0) 	impact on significance on the current road alignment.		
40 mm asphalt concrete resealing of full width of road pavement	<ul style="list-style-type: none"> • Great North Road / George Downs Drive (CH0.0 – CH717.468) • Great Northern Road (CH0.0 – Ch180.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> • Direct physical impact on non-significant fabric arising from 30mm asphalt overlay with no milling of existing overlay OR 60mm asphalt overlay with 25mm milling of existing overlay. 	Little to no	<ul style="list-style-type: none"> • The proposed works are limited to the current road pavement. • The asphalt concrete resealing uses like for like overlay material and is a minor maintenance activity that will have no impact on the heritage significance of the road.
Establishment of site compound and temporary stockpile sites	<ul style="list-style-type: none"> • George Downes Drive (CH 365.0 – CH 385.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> • Installation of temporary site infrastructure to support the road widening and safety improvement works. • These areas are to be located at George Downes Drive south in Central Coast Council LGA (to the south west of the intersection, outside the SHR curtilage), within private property at 5319 Great North Road, Bucketty (Lot 27 DP573116) subject to negotiation with the property owner, or Cessnock City Council's temporary stockpile site along the Great North Road, Laguna, which has previously been used for such purposes. • The temporary set down and laydown areas will not physically impact any known early road structures/structural elements or archaeological features. 	Little to no	<ul style="list-style-type: none"> • Site compound and temporary stockpile sites are to be located outside the SHR curtilage (Figure 21). • The temporary site infrastructure will remain in place for the duration of the proposed works, with an estimated construction period of 3 months. • All introduced structures and stockpiles are to be removed at the completion of works.



Figure 21. Proposed stockpile sites

9.1.2 Setting, Views and Vistas

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Batter stabilisation and revegetation of disturbed areas	<ul style="list-style-type: none"> Great North Road (CH 365.0 – CH 385.0) Great Northern Road (CH 120.0 – CH 180.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Excavated and filled batter areas. Batter spill width shown in cut and fill plans. Batter slope stabilisation Tree removal Direct physical impact on non-significant fabric arising from removal of trees and vegetation within 5m of the edge of the current alignment of the Great North Road at the intersection for stabilisation of batter slopes and culvert extension. The trees proposed for removal are not identified as elements of the heritage item, although they contribute to the bush setting of the Great North Road and provide visual screening along the current alignment of the road. Removal of the trees will have a minor adverse visual impact on the setting of the Great North Road and views and to and from the Bucketty precinct. 	Minor adverse	<ul style="list-style-type: none"> The proposed 2:1 batter slope will match the existing profile; no change in batter geometry is anticipated. Some of the visual impact of the proposal will lessen over time following the establishment of vegetation on batter surface. In addition to grass seeding, consideration should be given to selecting appropriate native tree species for long-term vegetative batter surface stabilisation to provide visual screening between the current alignment of the Great North Road and the Bucketty precinct.

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Associated signs and line marking	<ul style="list-style-type: none"> Great North Road / George Downs Drive Great North Road (CH 365.0 – CH 385.0) Great Northern Road (CH 145.0 – Ch 180.0) 	<ul style="list-style-type: none"> The installation of signage will have a minor adverse visual impact. No direct physical impacts to the sandstone cutting with pick marks are anticipated (Figure 13, Figure 15, Figure 22. The works will enable the current alignment to continue as an in-use section of the Great North Road. 	Minor adverse	<p>All proposed signs and line marking shall be implemented in accordance with the following Australian Standards:</p> <ul style="list-style-type: none"> AS1742 Manual of Uniform Traffic Control Device AS1743-2001 Road signs-Specifications.

9.1.3 Landscape

Not applicable to this proposal.

9.1.4 Use

No change in use is proposed.

9.1.5 Demolition

Not applicable to this proposal.

9.1.6 Curtilage

Not applicable to this proposal.

9.1.7 Moveable Heritage

Not applicable to this proposal.

9.1.8 Aboriginal Cultural Heritage

Not applicable to this proposal. Potential Aboriginal heritage impacts are addressed in the following report: Heritage Now Pty Ltd. 2022. "Aboriginal Heritage Due Diligence Assessment Report - George Downes Drive Bucketty." Cessnock City Council. No Aboriginal sites or potential archaeological deposits will be affected by the proposal.

9.1.9 Historical Archaeology

Two areas with moderate potential for historical archaeological remains have been identified within the Project Area, where the original 1830 alignment of the Great North Road intersects with the current road:

- Archaeological Area 1 with potential for former road surface and culvert cover (fill deposits) associated with extant culvert (Structure 2a), on the Great Northern Road (CH 0-CH 40) (Figure 22), and
- Archaeological Area 2 with potential for former road surface associated with Road pavement 2 (Structure No 2e) (Figure 13) on the Great North Road (CH 100-CH140) (Figure 23).

Archaeological Area 1 - The depth, extent and intactness of the former road surface and fill deposits associated with the culvert (Structure 2a), is currently unknown. A previous report on the reconstruction of the culvert suggests archaeological remains may survive commencing at a depth of approximately 30cm below the ground surface; however, it is anticipated these remains will have been subject to some disturbance by grading from later road works. In this area, the proposed construction works consist of shoulder work only, with cut and fill proposed up to 50cm in depth (resulting in minimum road pavement thickness of 260mm on completion) (Figure 22). Given the relative depths, no direct impacts to the fabric of the culvert are anticipated; however, there is some potential for the shoulder work to encounter the surviving road fabric relating to the convict construction of the Great North Road.

While the former road surface and culvert cover may be considered ‘works’ rather than relics under the definition of the Heritage Act, archaeological monitoring of the earthworks in Archaeological Area 1 would ensure that significant fabric of the culvert is not physically impacted and any surviving archaeological remains relating to the convict construction of the Great North Road are identified, and recorded.

Archaeological Area 2 - The area of moderate archaeological potential for the former road surface of the original 1830 line of the Great North Road, associated with Road pavement 2 (Structure No 2e), is outside the limit of works and no subsurface impacts are proposed.



Figure 22. Archaeological Area 1 - Culvert location and associated area of moderate archaeological potential overlaid on cut and fill plan.

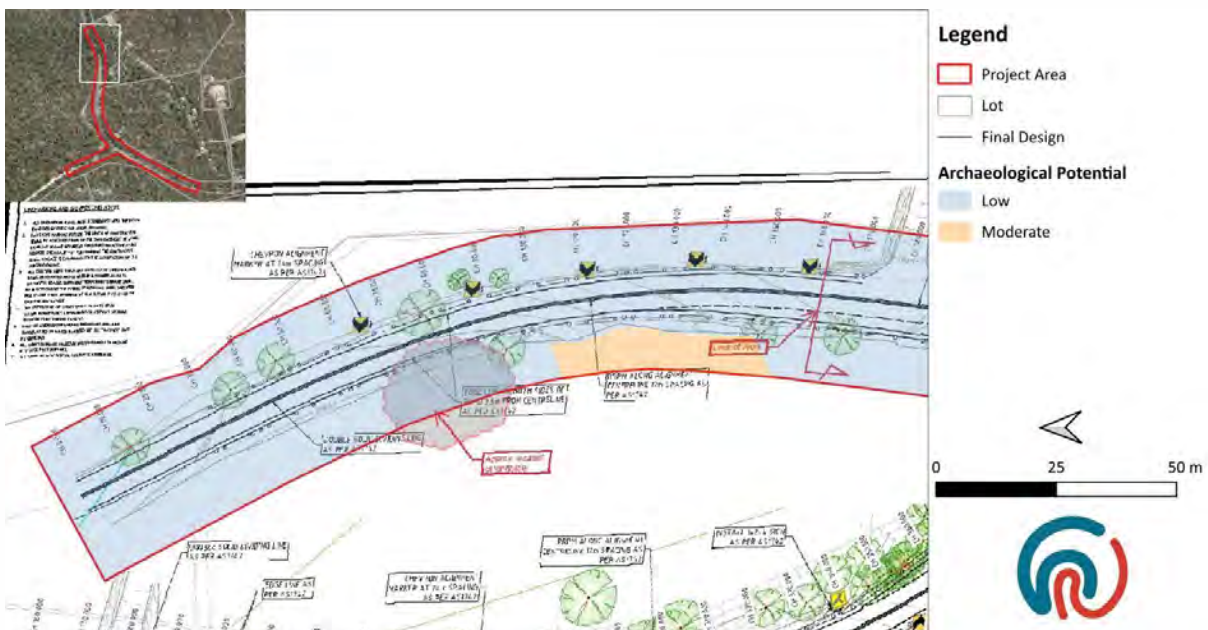


Figure 23. Archaeological Area 2 - Area of moderate archaeological potential overlaid on linemarking and signposting plan.

9.1.10 Natural Heritage

The Greater Blue Mountains Area

World Heritage Properties and National Heritage Places are considered to be matters of national environmental significance. Actions that are likely to have a significant impact on a matter of national environmental significance must be referred to the Australian Government Environment Minister for a decision on whether assessment and approval is required under the EPBC Act.

An action is considered likely to have a significant impact on the World Heritage values of a declared World Heritage property, or National Heritage values of a National Heritage place, if there is a real chance or possibility that it will cause:

- one or more of the values or to be lost
- one or more of the values to be degraded or damaged, or
- one or more of the values to be notably altered, modified, obscured or diminished⁶⁷

The Greater Blue Mountains Area is inscribed on the World Heritage List and listed on the National Heritage List for its natural values. The biodiversity assessment report prepared for the Review of Environmental Factors has identified that the proposed works are not considered likely to have a significant impact on the natural heritage values of the Greater Blue Mountains Area; and as such do not require a referral under the EPBC Act.⁶⁸ The report is attached in Appendix 2.

9.1.11 Conservation Areas

Not applicable to this proposal.

9.1.12 Cumulative Impacts

The proposal is not part of a broader scope of works; however, previous road safety works on the section of the Great North Road between Mt Manning and Wollombi include a reconstruction upgrade at Lemming Corner, Laguna; and repair and safety works at Ramsay's Leap, near Mt Simpson, Bucketty. Cumulatively, these works will improve road safety conditions on the Great North Road generally, and incidentally enhance protection of the heritage item by reducing the incidence and severity of off carriageway crashes and head on crashes.

9.1.13 The Conservation Management Plan

A Conservation Management Plan (Stage 1) for the entire length of the Great North Road was prepared in 1999 for the Convict Trail Project by Siobhan Lavelle, in association with Dr Grace Karskens and RTA Technology. The CMP has not been endorsed by the Heritage Council of NSW.

The proposed works are assessed against relevant general conservation policies provided in the 1999 CMP (Table 12).

⁶⁷ Department of the Environment, Matters of National Environmental Significance: Significant Impact Guidelines 1.1, 2013, pp. 16–22.

⁶⁸ Peak Land Management, Biodiversity Assessment Report George Downes Drive Bucketty, Cessnock City Council, June 2023, p. 10.

Table 12. Consistency with conservation management plan policies.

Policy no.	CMP Policy	Consistency assessment
6.1 General Principles	Any major work on individual structures or precincts should be preceded by appropriate documentation and recording. This should include photographs, plans and descriptions incorporating analysis using appropriate professional input as required.	The proposal is consistent with this policy. Recommendations for photographic archival recording of the Project Area prior to and following the proposed works are included in this report.
6.3 Fabric and setting	Wherever possible, original fabric should be retained, preserved and maintained.	The proposal is consistent with this policy. Recommendations to protect early road structures/structural elements in the vicinity of the Project Area during the proposed works are included in this report.
	Wherever possible, displaced original fabric should be restored.	Not applicable to this proposal. The proposed works will have no physical impacts on elements of Exceptional and High significance.
	Replacement fabric should be of the same design, form, and finish as existing fabric.	The proposal is in alignment with this policy. The proposed works will have no physical impacts on elements of Exceptional and High significance.
	New work should be of a form, scale and finish which respects existing elements, but should be discernible on close inspection as new work.	The proposal is consistent with this policy. Materials proposed for resurfacing and widening the current road will match existing fabric. No change in batter geometry is anticipated.
6.3.2 Landscape/ Setting	The significant attributes of the landscape and setting of the Great North Road should be conserved wherever possible. Settings should not be modified by the addition of new features which dominate or detract from the character of the road.	The proposal is consistent with this policy. The proposed works will have a minor visual impact on the bush setting of the road, through removal of trees to enable pavement widening and intersection works. A recommendation to select native tree species for long-term batter surface stabilisation is included in this report to replace screening vegetation in batter areas and visually integrate road infrastructure into the surrounding landscape.

Policy no.	CMP Policy	Consistency assessment
6.3.3 Vegetation	Where vegetation is a significant attribute of a road Precinct, this should be conserved. Examples are the numerous "bush" settings of several road precincts which evoke the nature of the pioneer period. Whilst vegetation affecting structures should be periodically removed, these precincts should not be over-maintained.	The proposal is consistent with this policy. The proposed works will have a minor visual impact on the bush setting of the road, through removal of trees to enable pavement widening and intersection works. A recommendation to select native tree species for long-term batter surface stabilisation is included in this report to replace screening vegetation in batter areas and visually integrate road infrastructure into the surrounding landscape.
6.4 Curtilage	Development on adjacent sites, especially the commercial, or semi-commercial development of adjoining freehold land, has the potential to severely alter parts of the significant setting(s) of the Road, and should be assessed accordingly.	Not applicable to this proposal.
6.5 Appropriate Uses	Where the Great North Road continues in use as a transport corridor this may be seen as a continuation of its traditional role. It is necessary to ensure however that continued use does not result in the loss of significant attributes of the Road.	The proposal is consistent with this policy and will allow the road to continue to function as an in-use transport corridor. Identification of heritage impacts of the proposal has been undertaken, and the proposed works will have no physical impacts on elements of Exceptional and High significance.
6.6 New Works	New works must be compatible with the character and style of the earlier fabric and with its surrounding context. If possible, new works should also be designed to be reversible in the future (eg if the missing fabric is later found or recovered and can therefore be reinstated). Although unsound fabric might need replacement, applying 'minimum intervention', the emphasis should generally be on stabilisation, in preference to dismantling and repair or reconstruction. Supplementation of fabric (eg propping) may also be sufficient.	The proposal is consistent with this policy. Materials proposed for resurfacing and widening the current road will match existing fabric. No change in batter geometry is anticipated. The proposed works will have no physical impacts on elements of Exceptional and High significance.
6.6.1 Introduced Material	Any introduced materials should be documented (by means of photographs, reports, etc) and should be identifiable as new.	The proposal is consistent with this policy. A recommendation for archival photographic recording of the Project Area prior to and following the proposed

Policy no.	CMP Policy	Consistency assessment
		works is included in this report.
6.7 Interpretation	An interpretive program should be devised and implemented recognising available archival and site evidence. It should also recognise lost fabric and layout.	Existing interpretation in the Bucketty precinct is consistent with this policy and is considered adequate. Additional interpretation is not proposed as part of the scope of work.
6.8 Signage	Signs used on Great North Road precincts should be designed as a system; conform to a high standard of professional design; be of good quality materials; be durable and vandal resistant; and respect the significance of the place by enhancing it rather than obscuring or detracting from it. Signage may encompass different purposes, including information signs, user education (interpretive signs), destination or next stop (route marker) signs.	The proposal is consistent with this policy. New road signs are to comply with Australian Standards. The signs will have a minor visual impact within the current road corridor, but their location will not obscure or detract from significant elements of the old Great North Road in the Bucketty precinct.
6.9 Control of Physical Intervention in the Fabric	In carrying out physical work on the damaged structures within precincts of the Great North Road, the following principles must be applied: <ul style="list-style-type: none"> All conservation work (including maintenance) carried out on significant monuments should be according to the advice and direction of recognised heritage conservation specialists; 	Not applicable to this proposal. The proposed works do not involve conservation work on significant structures.
	Work on significant structures should be carried out using appropriate professional skills (including qualified trade skills) with adequate direction and supervision maintained at all stages of the work;	
	<ul style="list-style-type: none"> Existing fabric should be recorded prior to disturbance by new works; 	The proposal is consistent with this policy. A recommendation for archival photographic recording of the Project Area prior to and following the proposed works is included in this report.
	<ul style="list-style-type: none"> Wherever possible original fabric should be retained and preserved, thereby maintaining the integrity / authenticity of the original structure; 	The proposal is consistent with this policy. Recommendations to protect early road structures/structural elements in the vicinity of the Project Area during the proposed works are included in this report.
	Wherever possible displaced fabric should be reinstated to its original	Not applicable to this proposal.

Policy no.	CMP Policy	Consistency assessment
	location, where this is known, thereby restoring both original fabric and form;	
	<ul style="list-style-type: none"> Careful regard should be paid to the landscape and setting of individual structures and to the historic, physical and visual relationships of individual structures within surviving road precincts; 	The proposal is consistent with this policy. Recommendations to mitigate the effects of the proposal on the setting of the Great North Road and visual relationship between the current alignment of the road and the abandoned loop at McQuoid/Bucketty are included in this report.
	<ul style="list-style-type: none"> Reconstruction, using new fabric, should be limited to works which are essential, in order to allow preservation and restoration of existing fabric. 	Not applicable to this proposal.
6.9.1 Archaeology	Where physical intervention may reveal or disturb 'relics' within the meaning of the NSW Heritage Act, appropriate Permits must be obtained and professional archaeological supervision will be required. In some instances, for example where the Road is within or adjacent to National Parks, Aboriginal sites may be affected. If so, separate Permits or consents may be required under the NSW National Parks and Wildlife Act.	<p>The proposal is consistent with this policy. Archaeological impacts of the proposed works are assessed in this report, and monitoring by a suitably qualified archaeologist is recommended in areas with potential historical archaeological remains.</p> <p>Potential Aboriginal heritage impacts are addressed in the following report: Heritage Now Pty Ltd. 2022. "Aboriginal Heritage Due Diligence Assessment Report - George Downes Drive Bucketty." Cessnock City Council. No Aboriginal sites will be affected by the proposal.</p>
6.9.2 Artefacts	Numerous isolated artefacts and portable relics are known to have been collected from road Precincts and sites in past years. Any relics removed, should be professionally catalogued and protected. Appropriate storage arrangements are also required.	The proposal is consistent with this policy. The potential for isolated artefacts across the Project Area is considered low. An unexpected finds procedure is provided to manage any relics identified during the proposed works.

9.1.14 Other Heritage Items in the Vicinity

Not applicable to this proposal.

9.1.15 Commonwealth/National Heritage Significance

Not applicable to this proposal.

The Greater Blue Mountains Area is inscribed on the National Heritage List for its natural values and is considered in the biodiversity assessment report prepared for the REF (see Appendix 2).

9.1.16 World Heritage Significance

Not applicable to this proposal.

The Greater Blue Mountains Area is inscribed on the World Heritage List for its natural values, and is considered and is considered in the biodiversity assessment report prepared for the REF (see Appendix 2).

10 Summary and Recommendations

The Project Area is located partly within the curtilage of the Great North Road, between Mt Manning and Wollombi, which is listed in on the State Heritage Register (Item ID 01138). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (I217), Hawkesbury Local Environmental Plan 2012 (I0091), and Gosford Local Environmental Plan 2014 (60). In addition, the proposed works are partly within the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (Dossier 917/Place ID 105127) and the National Heritage List (Place ID 105999).

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive at the intersection with the Great Northern Road. The works will enable the current alignment of this section of the Great North Road to continue as an in-use transport corridor. Overall, the safety aspects of the proposal will enhance the protection of the heritage item by reducing the likelihood of off carriageway crashes.

The current alignment of the Great North Road has been subject to some disturbance from grading during road works and realignment of the intersection in the 1960s; however, the following early road structures/structural elements and areas of historical archaeological potential have been identified within the Project Area:

- **Archaeological Area 1** has moderate potential for historical archaeological remains consisting of the former road surface and culvert cover (fill deposits) where the original 1830 alignment of the Great North Road intersects with the current alignment of the Great Northern Road (CH 0-CH 80).
- **Archaeological Area 2** has moderate potential for historical archaeological remains consisting of the former road surface along the original 1830 alignment of the Great North Road, to the west of the current alignment of the Great North Road (CH 100-CH140).
- **Early road structure – Culvert (Structure No 2a)** – Within Archaeological Area 1 below the Great Northern Road (CH 0-CH 40)
- **Early road structure – Culvert (Structure No 3)** – To the west of the current alignment of the Great North Road (CH 220), within the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.
- **Early road structure – Cutting with pick marks** – Adjacent to the current alignment of the Great North Road (CH 100).

No direct physical impacts on the fabric of early road structures/structural elements of the Great North Road identified as having exceptional and high significance - Culvert (Structure No 2a), Culvert (Structure No 3) and the cutting with pick marks - are anticipated. Archaeological Area 2 is outside the limit of work and no subsurface impacts are proposed.

However, the proposed road upgrade works may result in partial impact to former road surface and culvert cover in Archaeological Area 1, relating to the convict construction of the Great North Road. The proposed works in this area consist of shoulder work only, with cut and fill up to 50cm in depth. The potential archaeological remains in Archaeological Area 1 may contribute further to an understanding of the historical development and construction of the road, and complement the written and archaeological records in regard to early-19th century road building and road use.

The proposed works will also have a minor adverse visual impact on the bush setting, and views to, from and between the abandoned loop and current alignment of the Great North Road. The proposal will impact sections of batter (side slopes) adjacent to the intersection; the batter stabilisation work will require removal of selected trees, and revegetation of batter surface. There will be some temporary minor visual impacts to the bush setting of the Project Area during construction activities. The proposed works are not considered likely to have a significant impact on the natural heritage values of the Greater Blue Mountains Area; and as such a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) is not required.

The works are to be carried out following the recommendations below.

Recommendation 1

Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require a Section 60 approval from the Heritage Council of NSW. This approval is needed prior to commencement of works within the Project Area.

Recommendation 2

A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the Heritage Act 1977 (NSW), including:

- The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area
- Protocols that apply to their protection, including fencing and 'no go' areas
- Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area

Recommendation 3

A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP, and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.

Recommendation 4

Archaeological monitoring is to be conducted in Archaeological Area 1. This is to be carried out by a qualified archaeologist to ensure that there is no physical impact to the fabric of the sandstone culvert (Structure No. 2a), to verify the depth and extent of the early road surface and culvert cover associated with the convict construction of the Great North Road, and ensure any remains are identified and appropriately recorded prior to their removal.

Recommendation 5

To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a 'no go' area between the works area and the culverts (Structure No 2a and Structure No 3), sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.

Recommendation 6

Consideration should be given to selecting appropriate native tree species, in addition to grass seeding, for long-term vegetative batter surface stabilisation near the intersection, to provide visual screening between the current alignment of the Great North Road and the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.

Recommendation 7

Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop at McQuoid/Bucketty during works.

Recommendation 8

In the event that an archaeological feature or deposit that is potential relic is uncovered during pre-construction or construction works the following Unexpected Finds Procedure is to be implemented:

- Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor.
- The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance.
- The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing.
- Heritage mitigations will be implemented appropriate to the assessed significance of the find.
- If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program.

11 References

Australia ICOMOS 2013, The Burra Charter: *The Australia ICOMOS Charter for Places of Cultural Significance*.

Baker, W 1843, 'Map of the County of Northumberland : dedicated by permission to Sir T.L. Mitchell, Knight, Surveyor General of New South Wales', Hibernian Printing Office, King Street, East Sydney.

Bucketty to Mt Manning n.d., The Convict Trail Project, viewed 14 June 2022, <<https://www.convicttrail.com.au/4-bucketty-to-mt-manning.html>>.

Budde, P 2022, 'Farmers and City Slickers', *Paul Budde History, Philosophy, Culture*, viewed 17 August 2022, <<https://paulbuddehistory.com/bucketty/farmers-and-city-slickers/>>.

— 2022, *The Bucketty Book*, viewed 14 June 2022, <<https://paulbuddehistory.com/bucketty/>>.

— 2022, 'The convict era', *Paul Budde History, Philosophy, Culture*, viewed 12 August 2022, <<https://paulbuddehistory.com/bucketty/the-convict-era/>>.

Department of Planning and Environment 2023, *Guidelines for preparing a statement of heritage impact*, Environment and Heritage, Department of Planning and Environment, Parramatta.

Department of the Environment 2013, *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*.

Farmer and Settler 1941, 'Another New Road', 28 August, Sydney, New South Wales, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article117178706>>.

Gosford Times and Wyong District Advocate 1949, 'Councillor George Downes Elected New President Of Gosford Shire', 20 December, p. 1.

Government Gazette of the State of New South Wales 1901, 'RESERVES FROM SALE FOR TRAVELLING STOCK AND CAMPING.', 12 October, Sydney, New South Wales, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article226387851>>.

— 1917, 'PROCLAMATION', 20 July, p. 3611.

— 1922, 'CROWN LANDS NOT AVAILABLE FOR SETTLEMENT UNTIL FURTHER NOTIFICATION.', 20 October, p. 5714.

— 1922, 'REVOCATION OF DEDICATIONS—FORESTRY ACT, 1916.', 13 October, pp. 5560–5562.

— 1928, 'MAIN ROADS ACT, 1924-1927.', 17 August, Sydney, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article219952359>>.

— 1949, 'RESERVES FROM SALE FOR TIMBER.', 14 October, p. 3043.

— 1960, 'NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS', 9 December, Sydney, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220319143>>.

— 1961, 'SHIRE OF GOSFORD.—NAMING OF ROAD BETWEEN', 22 December, Sydney, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220288191>>.

— 1992, 'REVOCATION OF A TIMBER RESERVE', 23 October, p. 7859.

Gray, N 1966, 'Howe, John (1774–1852)', in *Australian Dictionary of Biography*, National Centre of Biography, Australian National University, Canberra, viewed 5 August 2022, <<https://adb.anu.edu.au/biography/howe-john-2205>>.

Heritage Branch, NSW Department of Planning 2009, *Assessing Significance for Historical Archaeological Sites and 'Relics'*, Heritage Branch, NSW Department of Planning, Parramatta, N.S.W.

Heritage NSW 2020, *Material Threshold Policy*.

Heritage Office & Department of Urban Affairs and Planning 2002, *Statements of Heritage Impact*.

Karskens, G 1985, 'The construction of the Great North Road, NSW, 1826 - 1836', *Transactions of the Institution of Engineers - Multi-disciplinary*, vol. GE9, no. 2, pp. 27–60.

— 1985, "'The Grandest Improvement in the Country" An Historical and Archaeological Study of the Great North Road, N.S.W., 1825-1836', MA thesis, University of Sydney.

Lavelle, S, Karskens, G, & RTA Technology 1999, *Stage 1 Conservation Plan for the Great North Road, The Convict Trail Project*.

Maitland Mercury and Hunter River General Advertiser 1870, 'WOLLOMBI.', 17 December, New South Wales, viewed 18 August 2022, <<http://nla.gov.au/nla.news-article18750479>>.

McBean & Crisp Pty Ltd 1983, *Report on Great North Road between Mt. Manning turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects*, The National Trust of Australia (NSW).

NSW Heritage Office 2001, *Assessing heritage significance*, NSW Heritage Office, Sydney.

NSW National Parks and Wildlife Service 2023, *Greater Blue Mountains World Heritage Area*, NSW National Parks, viewed 12 July 2023, <<https://www.nationalparks.nsw.gov.au/conservation-and-heritage/greater-blue-mountains>>.

NSW National Parks and Wildlife Service, Department of Environment and Climate Change 2009, *Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area: Plan of Management*, DECCW.

Peak Land Management 2023, *Biodiversity Assessment Report George Downes Drive Bucketty*, June, Cessnock City Council.

— 2023, *Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty*, June, Cessnock City Council.

Roberts, EA 2004, *Bucketty Culvert Reconstruction Report*, Heritage NSW H06129-BUCK, Convict Trail Project Inc.

Singleton Argus 1948, 'Kulnura Road Again Discussed', 14 May, New South Wales, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article84607720>>.

— 1949, 'M.R.B. Engineers' Hint About Kulnura Road', 23 May, New South Wales, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article82578048>>.

Spry, R 2006, 'These Wooden Walls: Government Convict Accommodation and the Expansion of Settlement in New South Wales 1788 to 1857', BA (Hons) thesis, University of Sydney.

Stedinger Associates 2002, *Excavation Report on the Reconstruction of the Retaining Wall at Chainage 1617. Old Great North Road, Dharug National Park, N.S.W.*, July, National Parks and Wildlife Service Central Coast Hunter Region.

— 2010, *Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, April, Cessnock City Council.

Strom, B 1998, *Central Coast Heritage Inventory Set 2: Built Environment. Category: Historic Sites and Buildings*, Gosford City Council.

Sydney Morning Herald 1844, 'NEWS FROM THE INTERIOR.', 27 March, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article12415169>>.

The Convict Trail Project n.d., *John MacDonald*, The Convict Trail Project- Caring for the Great North Road, viewed 5 August 2022, <<https://www.convicttrail.com.au/john-macdonald.html>>.

UNESCO World Heritage Centre 2023, *The Criteria for Selection*, UNESCO World Heritage Convention, UNESCO World Heritage Centre, viewed 9 March 2023, <<https://whc.unesco.org/en/criteria/>>.

12Plates



Plate 1. View west from George Downes Drive towards the intersection with the Great Northern Road (Source: Heritage Now 2022)



Plate 2. View from the intersection to the south-west along the Great Northern Road (Source: Heritage Now 2022)



Plate 3. View south-east from Great North Road to George Downes Drive and the intersection with the Great Northern Road (Source: Heritage Now 2022)



Plate 4. Sandstone masonry culvert with reconstructed wing walls, view south (Source: Heritage Now 2022). Note the culvert runs below the current road.



Plate 5. Original 1830 alignment of Great North Road [Road pavement 1] and table drain (adjacent to the Project Area), view west (Source: Heritage Now 2022).



Plate 6. Retaining wall and curved wing walls, view north-east (outside of Project Area). (Source: Heritage Now 2022)



Plate 7. General view of downstream end of retaining wall, view southwest (outside of Project Area) (Source: Heritage Now 2022)



Plate 8. Former road alignment through sandstone cutting and associated rock-cut drain, view north-west (outside of Project Area). (Source: Heritage Now 2022)



Plate 9. Original 1830 alignment of Great North Road (c.7m wide) [Road pavement 2], view north-east (outside of Project Area). (Source: Heritage Now 2022)



Plate 10. Sandstone box culvert upstream entry above 1830 alignment of Great North Road, view west (outside of Project Area). (Source: Heritage Now 2022)



Plate 11. Sandstone box culvert downstream discharge below 1830 alignment of Great North Road, view east (outside of Project Area). (Source: Heritage Now 2023)



Plate 12. Bucketty precinct of the Convict Trail (Great North Road) adjacent to Yengo National Park (Source: Heritage Now 2022)



Plate 13. Way finder in the Bucketty precinct with interpretive signage for the Great North Road. (Heritage Now 2022)

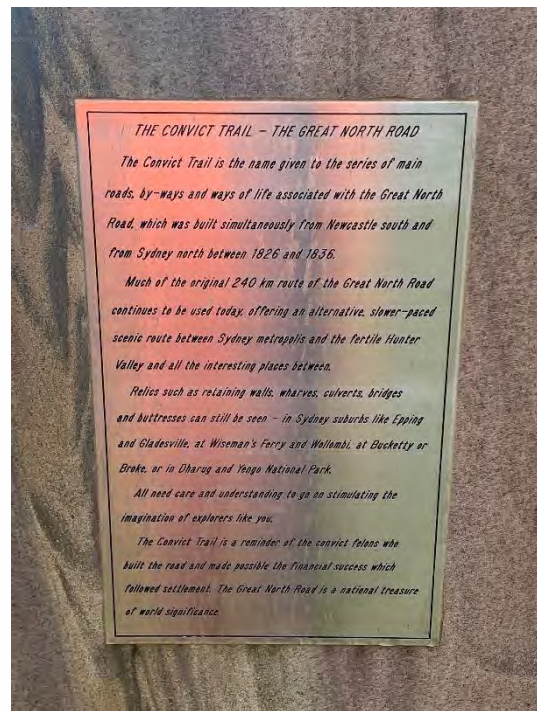


Plate 14. Interpretive signage for the Great North Road (detail). (Heritage Now 2022)



Plate 15. Boulder monument with inset plaque. (Heritage Now 2022)



Plate 16. Inset interpretive plaque describing the "Convict built stone wall, and pavement and drainage of original road" (detail). (Heritage Now 2022)



Plate 17. Interpretive signage for culvert reconstruction. (Heritage Now 2023)



Plate 18. Sandstone memorial bench. (Heritage Now 2023)



Plate 19. View east from the abandoned loop towards the intersection of the Great North Road and George Downes Drive showing difference in elevation between the current road and 1830-1831 alignment. (Source: Heritage Now 2022)



Plate 20. Point where original 1830 alignment of the Great North Road diverges from the current road at the stone culvert in the west of the Project Area, view south (Source: Heritage Now 2022).



Plate 21. Point where original 1830 alignment of the Great North Road intersects with the current road in the north of the Project Area, view south-east (Source: Heritage Now 2022)



Plate 22. Point where original 1830 alignment of the Great North Road intersects with the current road in the north of the Project Area, view east (Source: Heritage Now 2023)



Plate 23. Sandstone cutting with pick marks within northern portion of Project Area. (Source: Heritage Now 2022)



Plate 24. Pick marks on sandstone cutting within northern portion of Project Area (detail) (Source: Heritage Now 2022)



Plate 25. Landslip in north-western portion of Project Area. (Source: Heritage Now 2022)



Plate 26. Section of pavement construction exposed by the landslide. (Source: Heritage Now 2022)

Appendix 1 Civil Works Details Proposed Road Work – George Downs Drive and Great Northern Road, Bucketty –Revision C

Appendix 2 Peak Land Management
(2023) *Biodiversity Assessment Report*
George Downes Drive Bucketty, Cessnock
City Council.

Appendix 3 Work Method Statement – Archaeological Monitoring of proposed road upgrade works at George Downes Drive, Bucketty

Work Method Statement – Archaeological Monitoring of proposed road upgrade works at George Downes Drive, Bucketty

Approach

Based on the above assessment, archaeological monitoring is proposed as a precautionary measure. It applies to:

- **Archaeological Area 1** has moderate potential for historical archaeological remains consisting of the former road surface and culvert cover (fill deposits) where the original 1830 alignment of the Great North Road intersects with the current alignment of the Great Northern Road (CH 0-CH 80).
- **Early road structure – Culvert (Structure No 2a)** – Within Archaeological Area 1 below the Great Northern Road (CH 0-CH 40)

Monitoring for Archaeological Area 1 is proposed for the purpose of identifying the early road surface and culvert cover (fill deposits) associated with the convict construction of the Great North Road, and ensure they are appropriately recorded prior to their removal. Monitoring would also ensure that there is no physical impact to the fabric of the sandstone culvert (Structure 2a).

While these elements may be considered ‘works’ rather than relics, and the potential archaeological impacts from the proposed shoulder construction are limited, surviving road fabric has the potential to reveal information about early convict road construction, and the results of the monitoring will add to the body of research from previous investigations and will inform future assessments.

Research Framework

Archaeological investigation of the site should consider physical evidence of its historical development and occupation within a broad thematic context. Historic themes relevant to the historical archaeological resources of the site, and associated phases of occupation, have been identified below (Table 13). The themes are based on a thematic framework which enables the identification and comparison of places that are linked to a particular theme at a national, state or local level.

Table 13. Historic themes relating to the Project Area.

National Theme	NSW Theme	Local Theme	Phase of Occupation
2 Peopling Australia	Convict	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788-1850)	Phase 2: Construction of the Great North Road (1826-1928)

National Theme	NSW Theme	Local Theme	Phase of Occupation
3 Developing local, regional and national economies	Exploration	Activities associated with making places previously unknown to a cultural group known to them.	Phase 1: European exploration and early settlement (1819-1825)
	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	Phase 2: Construction of the Great North Road (1826-1928) Phase 3: Later road works and improvements (1929-present)

Research Questions

Given the limited extent of the proposed works and expected nature of archaeological remains within the Project Area, the following general research questions may be addressed through the archaeological investigation:

- What was identified at the site, what kinds of features and deposits?
- When were these features or deposits created?
- What site formation processes have occurred?
- What happened at the site?
- How does this site compare to others?

Methodology

The following excavation methodology would apply:

1. The nominated archaeologist will be present to undertake the monitoring of construction works on the Great Northern Road for the nominated areas.
2. Overburden and modern fills will be progressively removed via a series of shallow scrapes with a mechanical excavator (5 tonne or 7.5 tonne) using a flat mud bucket. This process would continue until the maximum depth of impact is reached (up to 50cm below surface). A toothed bucket would be used to break up hard surfaces or loosen compacted modern fills.
3. Where *in situ* archaeological features or deposits are exposed, mechanical excavation will cease and exposed archaeological remains will be cleaned by hand and recorded.
4. Site recording during monitoring will include:
 - Archaeological features and deposits identified on section drawings and scaled plans (as necessary).
 - Sequentially numbered context recording forms to document the features and deposits, including phase information.
 - Photographs of all archaeological features and phases of work with scale and north arrow. Details of the photographs will be documented in a photo register.

- Stratigraphic relationships will be recorded using a Harris Matrix, if applicable
 - Artefacts contained within topsoil or disturbed modern fills would be collected and bagged.
5. The nominated archaeologist will sign off that the archaeological monitoring of the area is completed when the maximum depth of impact is reached.
 6. Should archaeological relics be identified during the works that were not identified or considered in this assessment, excavation would cease, and Heritage NSW (as delegate of the Heritage Council of NSW) notified in accordance with s146 of the Heritage Act, and to discuss the find and any requirements for further approvals prior to works resuming.

Personnel

The proposed works would be supervised by a suitably qualified archaeologist in accordance with the 'Heritage Council of NSW Criteria for assessing Excavation Directors' (2019). The nominated Excavation Director for the works would be Ms Ngaire Richards.

Post excavation

Following completion of the monitoring program, a final report will be prepared. It would contain a description of the works undertaken and outlining the results of the archaeological monitoring. The report will be submitted to the Heritage NSW for their records.

**APPENDIX 7: HERITAGE NOW, 12.10.23. STATEMENT OF
HERITAGE IMPACT FOR S65A APPLICATION -GEORGE
DOWNES DRIVE, BUCKETTY. ROAD SAFETY IMPROVEMENTS.**

Project Number: HN000450-A



STATEMENT OF HERITAGE IMPACT FOR S60 APPLICATION – GEORGE DOWNES DRIVE, BUCKETTY ROAD SAFETY IMPROVEMENTS

FINAL 12 / 10 / 2023

REPORT TO: CESSNOCK CITY COUNCIL
PO Box 152, Cessnock NSW 2325

REPORT BY HERITAGE NOW PTY LTD
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Cover Page

Name of the heritage item:	Great North Road, Between Mt Manning and Wollombi (Roadworks; Old Great North Road)
State Heritage Register / LEP heritage schedule item number and name:	SHR No. 01789 Cessnock LEP 2021 # I217 Gosford LEP 2014 #60 Hawkesbury LEP 2012 #I0091
Address and location:	Hawkesbury LGA Cessnock LGA Central Coast LGA
Statement of heritage impact for:	George Downs Drive, Bucketty Road Safety Improvements
Prepared by:	Ngaire Richards, BAI(Hons) M.ICOMOS Principal Heritage Consultant Heritage Now Pty Ltd Address: 1/48 Kalaroo Road Redhead NSW 2290 Phone: 0484 108 851 Email: ngaire@heritagenow.com.au
Prepared for:	Ramesh Somai, Design Engineer, Cessnock City Council
Date:	11 October 2023
Issue:	3 – Final (Updated)

Executive Summary

Heritage Now Pty Ltd (Heritage Now) has been engaged by Cessnock City Council to prepare a Statement of Heritage Impact for proposed road upgrade works at George Downes Drive, Bucketty.

The Project Area is located partly within the curtilage of the Great North Road, between Mt Manning and Wollombi, which is listed in on the State Heritage Register (Item ID 01138). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (I217), Hawkesbury Local Environmental Plan 2012 (I0091), and Gosford Local Environmental Plan 2014 (60). In addition, the proposed works are partly within the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (Dossier 917/Place ID 105127) and the National Heritage List (Place ID 105999).

The Great North Road was the first public road connecting the Cumberland Plain with the Hunter Valley. The road upgrade works are adjacent to an abandoned loop of the Great North Road at Mount McQuoid/Bucketty, which formed part of the original line of road (constructed 1830-1831) and is where a group of some of the main surviving convict-built structural elements of the road are located. Both the abandoned loop and the current alignment of the Great North Road form part of the SHR listing.

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive at the intersection with the Great Northern Road. The works will enable the current alignment of this section of the Great North Road to continue as an in-use transport corridor. Overall, the safety aspects of the proposal will enhance the protection of the heritage item by reducing the likelihood of off carriageway crashes.

The current alignment of the Great North Road has been subject to some disturbance from grading during road works and realignment of the intersection in the 1960s; however, the following early road structures/structural elements and areas of historical archaeological potential have been identified within the Project Area:

- **Archaeological Area 1** has moderate potential for historical archaeological remains consisting of the former road surface and culvert cover (fill deposits) where the original 1830 alignment of the Great North Road intersects with the current alignment of the Great Northern Road (CH 0-CH 80).
- **Archaeological Area 2** has moderate potential for historical archaeological remains consisting of the former road surface along the original 1830 alignment of the Great North Road, to the west of the current alignment of the Great North Road (CH 100-CH140).
- **Early road structure – Culvert (Structure No 2a)** – Within Archaeological Area 1 below the Great Northern Road (CH 0-CH 40)
- **Early road structure – Culvert (Structure No 3)** – To the west of the current alignment of the Great North Road (CH 220), within the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.
- **Early road structure – Cutting with pick marks** – Adjacent to the current alignment of the Great North Road (CH 100).

No direct physical impacts on the fabric of early road structures/structural elements of the Great North Road identified as having exceptional and high significance - Culvert (Structure No 2a), Culvert

(Structure No 3) and the cutting with pick marks - are anticipated. Archaeological Area 2 is outside the limit of work and no subsurface impacts are proposed.

However, the proposed road upgrade works may result in partial impact to former road surface and culvert cover Archaeological Area 1, relating to the convict construction of the Great North Road. The proposed works in this area consist of shoulder work only, with cut and fill up to 50cm in depth. The potential archaeological remains in Archaeological Area 1 may contribute further to an understanding of the historical development and construction of the road, and complement the written and archaeological records in regard to early-19th century road building and road use.

The proposed works will also have a minor adverse visual impact on the bush setting, and views to, from and between the abandoned loop and current alignment of the Great North Road. The proposal will impact sections of batter (side slopes) adjacent to the intersection; the batter stabilisation work will require removal of selected trees, and revegetation of batter surface. There will be also be some temporary minor visual impacts to the setting of the Project Area during construction activities. The proposed works are not considered likely to have a significant impact on the natural heritage values of the Greater Blue Mountains Area; and as such a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) is not required.

The works are to be carried out following the recommendations below.

Recommendation 1

Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require a Section 60 approval from the Heritage Council of NSW. This approval is needed prior to commencement of works within the Project Area.

Recommendation 2

A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the *Heritage Act 1977* (NSW), including:

- The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area
- Protocols that apply to their protection, including fencing and 'no go' areas
- Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area

Recommendation 3

A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP. and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.

Recommendation 4

Archaeological monitoring is to be conducted in Archaeological Area 1. This is to be carried out by a qualified archaeologist to ensure that there is no physical impact to the fabric of the sandstone culvert (Structure No. 2a), to verify the depth and extent of the early road surface and culvert cover

associated with the convict construction of the Great North Road, and ensure any remains are identified and appropriately recorded prior to their removal.

Recommendation 5

To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a 'no go' area between the works area and the culverts (Structure No 2a and Structure No 3), sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.

Recommendation 6

Consideration should be given to selecting appropriate native tree species, in addition to grass seeding, for long-term vegetative batter surface stabilisation near the intersection, to provide visual screening between the current alignment of the Great North Road and the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.

Recommendation 7

Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop of the Great North Road during works.

Recommendation 8

In the event that an archaeological feature or deposit that is a potential relic is uncovered during pre- construction or construction works the following Unexpected Finds Procedure is to be implemented:

- Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor.
- The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance.
- The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing.
- Heritage mitigations will be implemented appropriate to the assessed significance of the find.
- If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program.

Acronyms, Terms and Definitions

Acronym/Term	Definition
CHL	Commonwealth Heritage List
DCDB	Digital Cadastral Database (NSW)
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
LEP	Local Environmental Plan
LGA	Local Government Area
OEH	Office of Environment and Heritage, NSW
m	Metric metres
NHL	National Heritage List
SHI	State Heritage Inventory
SHR	State Heritage Register
SIX Maps	Spatial Information Exchange (NSW government portal holding a range of spatial and property data)
SoHI	Statement of Heritage Impact
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHL	World Heritage List

Version Control

Version	Revision Description	Reviewed by	Date	Approved by	Date Approved
1	Draft Report	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	7/8/2023	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	7/8/2023
2	Final Report	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	11/8/2023	Tessa Boer-Mah, Principal Heritage Consultant, Heritage Now	11/8/2023
3	Final (Updated)	Ngaire Richards, Principal Heritage Consultant, Heritage Now	12/10/2023	Ngaire Richards, Principal Heritage Consultant, Heritage Now	12/10/2023

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1 Introduction

Heritage Now Pty Ltd (Heritage Now) has been engaged by Cessnock City Council to prepare a Statement of Heritage Impact for proposed road upgrade works at George Downes Drive, Bucketty.

The proposed works are partly within the curtilage of the Great North Road between Mt Manning and Wollombi, which is listed on the State Heritage Register (Item #01789). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (#1217), Hawkesbury Local Environmental Plan 2012 (#10091), and Gosford Local Environmental Plan 2014 (#60). In addition, the proposed works are partly within the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (#917) and the National Heritage List (#105999).

The Great North Road was the first public road connecting the Cumberland Plain with the Hunter Valley. The road upgrade works are adjacent to an abandoned loop of the Great North Road at Mount McQuoid/Bucketty, which formed part of the original line of road (constructed 1830-1831) and is where a group of some of the main surviving convict-built structural elements of the road are located. Both the abandoned loop and the current alignment of the Great North Road form part of the SHR listing.

1.1 Project Area

The Project Area is located at the intersection of George Downes Drive, and the Great North Road / Great Northern Road, Bucketty, approximately 37 km south-west of the city of Cessnock. It comprises approximately 685m of existing road where upgrade works are proposed (Figure 1).

The Project Area is within the Parishes of Hay, Rugby, and Lockyer, County of Northumberland, on the boundary of the Cessnock, Hawkesbury, and Central Coast local government areas (Figure 2).



Figure 1. The Project Area. (Source: Six Maps with Heritage Now additions)



Figure 2. The Project Area in a regional context. (Source: Six Maps and PSMA Australia Limited with Heritage Now additions)

1.2 Overview of Project Proposal

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive, Bucketty, at the intersection with the Great Northern Road. This length of road has been the site of numerous road accidents, and the upgrade is intended to ensure a safer journey for drivers and motorcyclists exploring the region. The works will include:

- Road widening to accommodate guardrail with motorcycle rub rail on George Downs Drive and Great North Road
- Intersection upgrade to accommodate basic right turn (BAR intersection) treatment
- Regrading and widening of Great Northern Road to improve site distance
- Minor drainage work – pipe extension and headwall etc.
- Batter stabilisation work – jute mesh and grass seeding
- 40 mm asphalt concrete resealing of full width of road pavement
- Associated signs and line marking

1.3 Methodology

This document was prepared in accordance with relevant Heritage NSW guidelines, including, but not limited to:

- Assessing Heritage Significance¹
- Statements of Heritage Impact²

¹ NSW Heritage Office, *Assessing heritage significance*, NSW Heritage Office, Sydney, 2001.

² Heritage Office & Department of Urban Affairs and Planning, *Statements of Heritage Impact*, 2002.

- Assessing Significance for Historical Archaeological Sites and 'Relics'³

1.4 Previous Studies

The Project Area has been included in a number of previous studies. The primary conservation and management documents relevant to the proposal are:

- Lavelle S, Karskens G, and RTA Technology (1999) *Stage 1 Conservation Plan for the Great North Road*, The Convict Trail Project (the 1999 CMP).
- McBean & Crisp Pty Ltd (1983) *Report on Great North Road between Mt. Manning turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects*, The National Trust of Australia (NSW).

1.5 Authorship

This report was produced by the Heritage Now team. The report was written by Ngaire Richards (Principal Heritage Consultant) and Jenna Weston (Senior Heritage Consultant), with input from Joven Sanchez (Heritage Officer) and Kira Paznikov (Heritage Officer). Technical input and quality review was provided by Tessa Boer-Mah (Principal Heritage Consultant).

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1.6 Limitations

This report considers the impacts of the proposal on built heritage and historical archaeology only. Aboriginal archaeology is addressed in the following report:

- Heritage Now Pty Ltd. 2022. "Aboriginal Heritage Due Diligence Assessment Report - George Downes Drive Bucketty." Cessnock City Council.

The historic context of the Project Area has been summarised in Section 3. It provides a general overview of key events in the historical development of the Great North Road and the Project Area in order to inform the assessment, but it is not intended as an exhaustive history.

Where available, previously established assessments of significance and conservation policies have been used to assess the impact of the proposed works on the heritage significance of the Project Area.

³ Heritage Branch, NSW Department of Planning, Assessing Significance for Historical Archaeological Sites and 'Relics', Heritage Branch, NSW Department of Planning, Parramatta, N.S.W., 2009.

2 Legislative Context and Heritage Listings

This section provides a brief overview of the relevant legislation and heritage listings pertaining to the Project Area at the time of writing the report. The legislative overview was provided solely as contextual information for the proponent and does not constitute legal advice.

2.1 Legislative Context

2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes a legal framework providing for the protection and management of aspects of the environment that are matters of national environmental significance. Protected matters covered by the EPBC Act include:

- World heritage areas on the World Heritage List (WHL), including natural and cultural sites which have outstanding universal value.
- Heritage places on the National Heritage List (NHL), including natural, historic or Indigenous places of outstanding national heritage value to the nation.
- Heritage places on the Commonwealth Heritage List (CHL), including places of significant heritage value on Commonwealth land and waters, or that are owned or managed by the Australian government.

Should a proposed action have the potential for a significant impact on a protected matter, a referral to the Australian government may be made to determine whether formal assessment and approval is required under the EPBC Act.

The Project Area is partly within the Greater Blue Mountains Area, which is a declared property on the World Heritage List and a listed place on the National Heritage List (Table 1).

Table 1. WHL and NHL places

Place Name	Primary Address	Class	List	Significance	Property ID / Place ID
Greater Blue Mountains Area	Great Western Hwy, Katoomba, NSW, Australia	Natural	World Heritage List	Outstanding Universal Value	917
			National Heritage List	National	105999

2.1.2 Heritage Act 1977 (NSW)

The Heritage Act 1977 (Heritage Act) seeks to protect promote the conservation of items of environmental heritage, which are defined as “those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance.”

Part 3A of the Heritage Act establishes the State Heritage Register (SHR), which is kept by the Heritage Council of NSW and provides for the identification and listing of items of State heritage

significance. Part 8, Section 170 of the Act requires government agencies and State-owned corporations to keep a Heritage and Conservation Register (also known as a Section 170 Register) of their heritage assets.

The Project Area is located partly within the curtilage of the Great North Road, Between Mt Manning and Wollombi, which is listed as an item on the SHR (Table 2).

Table 2. SHR items

Item Name	Location	Local Government Area	Type	Significance	SHR ID
Great North Road, Between Mt Manning and Wollombi	between WOLLOMBI NSW 2325	Hawkesbury	Built	State	01789

There are no heritage items within the Project Area listed on a Section 170 Register.

Historical archaeological resources are protected under the relics provisions of the Act. A '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.*

If a relic is discovered or located, s 146 of the Heritage Act requires the Heritage Council of NSW to be notified.

To carry out works within the curtilage of an SHR item, a s 60 approval (issued under s 63 of the Act) must be obtained, unless the proposal involves minor works that will have no impact on the heritage significance of the item and meets the criteria for an exemption granted under s 57 of the Heritage Act 1977.

2.1.3 Environmental Planning and Assessment Act 1979 (NSW)

The Environmental Planning and Assessment Act 1979 (EP&A Act) provides triggers for undertaking environmental and heritage assessments as part of the wider land-use planning framework. Part 4 details how authorities are to determine development applications, as well as identifying whether projects require an Environmental Impact Statement. Part 9 outlines the implementation and enforcement of the EP&A Act.

The EP&A Act also allows for the making of State environmental planning policies (SEPPs) that deal with matters of State or Regional planning significance, and local environmental plans (LEPs) for the purpose of planning within a local government area.

Heritage items (which can include buildings, works, places, relics, trees, objects or archaeological sites) and heritage conservation areas (including associated fabric, settings and views) are identified

in the environmental heritage schedule attached to a SEPP or LEP. These items may be of local, state, or national significance.

State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) sets out planning rules and controls for infrastructure. The aims of the TISEPP include identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development).

Division 17 Subdivision 1 deals with roads and road infrastructure facilities, and the following section is applicable to the proposed installation of safety barriers and bollards:

2.113 Exempt development

(1) Development for any of the following purposes is exempt development if it is carried out by or on behalf of a public authority or the Minister responsible for Crown roads (within the meaning of the Roads Act 1993) in connection with a road or road infrastructure facilities and complies with section 2.20—

(a) erection, installation, maintenance, reconstruction or replacement of any of the following, and any associated landscaping works—

(i) security fencing with a height above ground level (existing) of not more than 3.2m,

(ii) safety barriers or systems, including Jersey barriers,

To be exempt development, it is a general requirement that the proposed works must have “no more than minimal impact” on the heritage significance of a State or local heritage item or a heritage conservation area (Section 2.20, Clause (2)(e)).

If the development is likely to have impacts on local heritage in a way that is “is more than minor or inconsequential”, Section 2.11 of the TISEPP requires consultation with the relevant local council(s):

(2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies unless the authority or the person has—

(a) had an assessment of the impact prepared, and

(b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and

(c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.

Local Environmental Plans

Standard heritage conservation provisions for LEPs are set out in section 5.10 of the Standard Instrument—Principal Local Environmental Plan (2006 EPI 155a). Development consent is required for demolishing, moving or altering a heritage item; or disturbing or excavating an archaeological site, while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. The consent authority must consider the effect of the proposed development on the heritage significance of a heritage item or heritage conservation area..

The Project Area is within the Cessnock, Hawkesbury, and Central Coast (formerly Gosford and Wyong) Local Government Areas. The relevant LEPs are:

- Cessnock Local Environmental Plan 2011
- Hawkesbury Local Environmental Plan 2012
- Gosford Local Environmental Plan 2014

Three heritage items listed on the LEPs are located partly within the Project Area (Table 3). The partially overlapping listings all relate to sections of the Great North Road within the relevant local government area. The location of the heritage items with respect to the Project Area is shown in Figure 20.

Table 3. LEP items

Listing Instrument	Item Name	Primary Address	Item Type	Significance	Item No.
Cessnock LEP 2011	Great North Road (between Mount Manning and Wollombi)	Paynes Crossing Road WOLLOMBI NSW 2325	Complex Group	State	I217
Gosford LEP 2014	Roadworks	The Great North Road (between Hawkesbury River, Devine's Hill, Mount Manning and Kulnura)	Complex Group	State	60
Hawkesbury LEP 2012	Old Great North Road	Old Great North Road between Devine's Hill and Mount Manning ST ALBANS NSW 2775	Complex Group	State	I0091

2.2 Summary of Heritage Listings

Heritage items are registered on lists according to their level of significance: national, state, local, and in rare cases they may world heritage (places that are of outstanding universal value to humanity). The results of a search of statutory heritage registers are summarised in Table 4.

Table 4. Statutory heritage listings.

Listing type	Item name and document details	Listing number
Local heritage item	Great North Road (between Mount Manning and Wollombi) Cessnock Local Environmental Plan 2021	I217

Local heritage item	Roadworks Gosford Local Environmental Plan 2014	60
Local heritage item	Old Great North Road Hawkesbury Local Environmental Plan 2012	I0091
State Heritage Register	Great North Road, Between Mt Manning and Wollombi	SHR No. 01789
National Heritage List	The Greater Blue Mountains Area	Place ID. 105999
World Heritage List	The Greater Blue Mountains Area	Dossier 917/ Place ID. 105127

3 Historic Context

This section of the report provides a general overview of events relevant to understanding the historical development of the Project Area. It relies largely on historical research on the Great North Road provided in the following document:

- Karskens, Grace. “The Construction of the Great North Road, NSW, 1826 - 1836.” *Transactions of the Institution of Engineers - Multi-Disciplinary* Vol GE9, no. 2 (October 1985): 27–60.

This information is supplemented by the historical notes from the SHR listing for the Great North Road, between Mt Manning and Wollombi, and other sources as noted.

3.1 The Great North Road

The Project Area is located at the intersection of George Downes Drive and the Great North Road. The Great North Road was built between 1826 and 1836 to provide an overland route from Sydney to the Hunter Valley. It was constructed using convict labour under the supervision of colonial engineers.⁴

In the early days of the colony, sailing ship was the only means of transport between Sydney and Newcastle. As the colony grew, the need for suitable agistment for cattle and agricultural land encouraged attempts to identify an overland route from the Hawkesbury to the Hunter River, where fertile pastures were known to be available. This was supported by the Governor at the time, Ralph Darling, who sought to provide the colony with a permanent, comprehensive road system.⁵

Early routes between Sydney and Newcastle had been identified by English settler John Howe, who travelled from the Hawkesbury to the Hunter River in 1819, and again in 1820 (along the route which is now known as the Bulga Road)⁶, and by convict John MacDonald in c1827 (along the route known as MacDonald’s Line)⁷, both of them enlisting the help of local Aboriginal people to navigate through the terrain.⁸ Meanwhile, in 1823 Major James Thomas Morriset (the military commandant of Newcastle) identified an inland route between Newcastle and the Hawkesbury River. However, Assistant Surveyor Heneage Finch surveyed a new, shorter course via the Wollombi valley to Maitland and Newcastle (which would become the original route of the Great North Road) in 1825, with many settlers at that time following Finchs Line to places such as Murrays Run, Wollombi, Paynes Crossing and Millfield.^{9 10}

⁴ Bucketty to Mt Manning, The Convict Trail Project, n.d., viewed 14 June 2022, <<https://www.convicttrail.com.au/4-bucketty-to-mt-manning.html>>.

⁵ Grace Karskens, ‘The Construction of the Great North Road, NSW, 1826 - 1836’, *Transactions of the Institution of Engineers - Multi-disciplinary*, vol. GE9, no. 2, 1985, pp. 27–60, p. 28.

⁶ Nancy Gray, ‘Howe, John (1774–1852)’, in *Australian Dictionary of Biography*, National Centre of Biography, Australian National University, Canberra, 1966, viewed 5 August 2022, <<https://adb.anu.edu.au/biography/howe-john-2205>>.

⁷ The Convict Trail Project, *John MacDonald*, The Convict Trail Project- Caring for the Great North Road, n.d., viewed 5 August 2022, <<https://www.convicttrail.com.au/john-macdonald.html>>.

⁸ Paul Budde, *The Bucketty Book*, 2022, viewed 14 June 2022, <<https://paulbuddehistory.com/bucketty/>>.

⁹ Grace Karskens, “‘The Grandest Improvement in the Country’ An Historical and Archaeological Study of the Great North Road, N.S.W., 1825-1836”, MA thesis, University of Sydney, 1985, p. 27.

¹⁰ Budde, *The Bucketty Book*.

In 1826, wealthy settlers in the Hunter Valley petitioned Governor Darling for a ‘proper’ road from Sydney to Newcastle via Wisemans Ferry,¹¹ and construction began later that year at Castle Hill North.¹² From 1827, construction works at Wisemans Ferry were undertaken in a quick, cheap manner that produced roadworks of small scale and low standard, under the supervision of Royal Veteran Lieutenant Jonathan Warner. In mid-1828, Lieutenant Percy Simpson became the Assistant Surveyor-General and took over from Warner. Under Simpson’s supervision, 700 convicts, mostly operating in chain gangs, constructed a high-quality road over steep rocky valleys between Wisemans Ferry and Mt Manning¹³, using new road-building techniques developed by Telford and MacAdam. Telford’s technique involved solid foundations, using a large rock base with decreasing rock sizes, so that the pavement would bear the weight of traffic; while MacAdam’s technique produced cheaper roads, as natural bedrock was used for the pavement to carry the traffic, which also kept the road dry.¹⁴

Simpson also surveyed a route from Wisemans Ferry to the Hunter River via the Central Coast, where he had a land grant in Cooranbong. Although this route had better supplies of fresh water and animal feed, and needed less rock blasting and construction work than the route surveyed by Finch via Bucketty and Wollombi, the Surveyor General Major-General Sir Thomas Mitchell decided to use Finch’s route instead (probably owing to the wealth and influence of the Hunter Valley settlers as opposed to those on the Central Coast). Mitchell spent three weeks surveying the area in 1829, and Mitchell’s Camp Point Road (off George Downes Drive, approximately 6km south east of the Project Area) goes to Hungry Flat, where Mitchell and his party had a picnic during their inspection of the Great North Road.¹⁵

In 1830, Finch became supervisor of the roadworks north of Mt Manning, overseeing construction of most of the road in the Bucketty area. Similar construction techniques were used to the southern section of the road, including cutting the natural surface down to the level of the road and/or filling the natural surface to the required height. Both cutting and filling were required on very steep slopes, such as at Devine’s Hill, Mt Baxter, Mt McQuoid, Mt Simpson and Mt Finch. The operations usually occurred simultaneously, with the material from the cutting forming the embankment on the other side. Blasting with gunpowder and quarrying the stone was required in areas with great volumes of rock, such as Wisemans Ferry, Devine’s Hill, Mt Simpson and Mt Finch. In areas with lesser volumes, the convicts would hand-cut the rock with chisels or rock picks to produce a vertical face up to c.1.5m high. Hollows were filled, and steep slopes embanked by construction of masonry retaining walls, again simultaneously – the embankment was filled to the height of the retaining wall. Hand carts and bullock-drawn wagons were used to transport the fill material.¹⁶ The retaining walls were dry-laid without mortar, and the face of the wall was usually battered by either inclining the beds slightly so that the face sloped and gradually making the beds horizontal towards the top; or by cutting each of the outer stones with a sloped face using pointed, blunt, broad or flat-edged chisels or gads, or a hammer or axe.¹⁷

¹¹ Budde, *The Bucketty Book*.

¹² Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, p. 29.

¹³ Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, pp. 29–31.

¹⁴ Budde, *The Bucketty Book*.

¹⁵ Budde, *The Bucketty Book*.

¹⁶ Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, pp. 32–36.

¹⁷ Karskens, ‘The construction of the Great North Road, NSW, 1826 - 1836’, p. 45.

The road surface was constructed from broken stone and gravel, or the natural bedrock. Side drains lined the entire road on both sides over flat land; where the road was built up on a slope, the drain occurred only on the uphill side. Excavated from earth or cut from rock, the drains were square or rounded, with many bearing chisel and pick marks, and some including low walls or edging of 1-2 courses of stone on the alignment side.¹⁸

Stone culverts were placed perpendicular to the road alignment or at intervals obliquely across it, depending on the gradient. Stone box culverts produced under Simpson and Finch's oversight usually comprised evenly shaped stone blocks/slabs or "flags" up to 1m² making up the inlet/outlet and lintels, and large stone blocks forming the four sides of the lining.¹⁹

After a dispute about Finch being stationed with the gangs on his property at Laguna, he was dismissed from his post in 1831. He was succeeded by Lawrence V. Dulhunty (from 1831-1834) and Peter Ogilvie (from 1835-1836), but with Governor Darling recalled in 1832, momentum for the road building waned, and instead a steamboat service started to operate between Sydney and Newcastle. Settlers tended to travel overland via more direct or hospitable roads such as Maroota Ridge Road, St Albans Road and Peats Ferry Road. Further, regulations for convict labour changed; and in 1836 Ogilvie was left with only two gangs, each with ten men, under his oversight. Consequently, that year the Great North Road was essentially abandoned, probably unfinished, resulting in the preservation of many original aspects of the road construction.²⁰

3.2 Development of the Project Area

The Project Area is situated on the boundary of three different parishes – the Parish of Hay, the Parish of Lockyer and the Parish of Rugby, County of Northumberland. The parish boundaries roughly follow the alignment of the Great North Road and George Downes Drive.

The No. 29 Road Party convict gang constructed the Great North Road at Mt McQuoid from April to December 1830. The only spring adjacent to the route was located in an area marked for future settlement, which later acquired the name of Dennis's Dog Kennel (this name was first recorded by Mitchell during his survey of the area in 1829). There are indications that this area was used as a stockade for the convict road gang,²¹ as the perennial deep spring was the only source of fresh water in the vicinity.²² It was here that a village reserve was planned near the 28th milepost from Wiseman's Ferry.²³ The reserve is shown on William Baker's 1843 map of the County of Northumberland on the Great North[ern] Road, although no east-west road or track is shown on the alignment of the current route of George Downes Drive (Figure 3). One newspaper article from 1844 refers to this location as a mid-way spot on the line of road between Hawkesbury and the Wollombi, with "good grass and excellent water", but no accommodations built.²⁴ It is still used for water

¹⁸ Karskens, 'The construction of the Great North Road, NSW, 1826 - 1836', pp. 41–43.

¹⁹ Karskens, 'The construction of the Great North Road, NSW, 1826 - 1836', pp. 43–44.

²⁰ Karskens, 'The construction of the Great North Road, NSW, 1826 - 1836', p. 32.

²¹ Richelle Spry, 'These Wooden Walls: Government Convict Accommodation and the Expansion of Settlement in New South Wales 1788 to 1857', BA (Hons) thesis, University of Sydney, 2006, p. 115.

²² Paul Budde, *The Bucketty Book*, accessed August 16, 2022, <https://paulbuddehistory.com/bucketty/the-convict-era>.

²³ William Baker, 'Map of the County of Northumberland : dedicated by permission to Sir T.L. Mitchell, Knight, Surveyor General of New South Wales', Hibernian Printing Office, King Street, East Sydney, 1843.

²⁴ *Sydney Morning Herald*, 'NEWS FROM THE INTERIOR.', New South Wales, 27 March 1844, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article12415169>>.

collection by the Bucketty Fire Brigade. However, the village reserve at Dennis's Dog Kennel was revoked on 11 May 1889,²⁵ at which time a Travelling Stock Route along the Great North Road was reserved from sale and lease (Figure 4).²⁶

As a result of the rugged nature of the area, and general lack of standing water, much of the early 19th century settlement and land use was restricted to the valleys. While some parts of the area with grazing potential were cleared, much was used for rough cattle grazing.²⁷ Some of the early European landowners in the immediate area were James Sternbeck, James Knight, and Francis Nichols (Figure 5). The land to the north of George Downes Drive was owned by the McKay family (Figure 7), and was later sold to Lem Nichols.²⁸ Around 1870, the Sternbecks sold the small Bucketty Arm valley to the Knight family; an article in the Maitland Mercury on 17 December 1870 mentions one member of the family who lived there:

*On Tuesday last, James Knight, junr., of Buckety, [sic] (about 17 miles from Wollombi), was charged at the court-house with stealing a bullock, one of a mob of fat cattle driven by B. Tierney about a week since. From the evidence it appears that the hide and beef was found at Knight's residence. He was fully committed for trial. It is rather singular that Knight was one of the principal witnesses against Craft, who was convicted at Maitland about twelve months since on a charge of cattle-stealing.*²⁹

The Knights are believed to be the first and only settlers to build a house at Bucketty (to the north of George Downes Drive) before the subdivision of 1972; the Post Office Directory of 1875-1877 lists John Knight as the only resident in the locality. Apart from this house, the Knights might also have built a hut in the Bucketty Paddocks, an area of approximately 400 acres which included Mt McQuoid. Tom and Ben Knight grew wheat in the paddocks, which was transported by bullocks to Mangrove Mountain. There were also 'gallows' in the paddock, where slaughtered cattle were suspended in preparation for cutting.³⁰

Settlers used the Bucketty Arm valley to drive cattle to Mangrove Mountain and on to Wisemans Ferry, with the Sternbecks driving eight head of cattle every month along this route.³¹ This may be the origin of this section of the road between Wollombi and Mangrove (including the Kulnura road, between Bucketty and Kulnura), the alignment of which is shown on the 1888 parish map of Lockyer (Figure 4), although it would have been an unsealed track at that time. On the same map, what is assumed to be the original line of the Great North Road following the ridgelines is shown with a thick dashed line, indicating it is an in-use public road. An alternative alignment is shown to the west, consisting of a road reserve of variable width adjacent to what is now the intersection, encompassing the convict-built structural elements of the road in this area. The solid outline of the

²⁵ Budde, *The Bucketty Book*.

²⁶ *Government Gazette of the State of New South Wales*, 'RESERVES FROM SALE FOR TRAVELLING STOCK AND CAMPING.', Sydney, New South Wales, 12 October 1901, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article226387851>>.

²⁷ NSW National Parks and Wildlife Service, Department of Environment and Climate Change, *Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area: Plan of Management*, DECCW, 2009, pp. 32, 38.

²⁸ Paul Budde, 'Farmers and City Slickers', *Paul Budde History, Philosophy, Culture*, 2022, viewed 17 August 2022, <<https://paulbuddehistory.com/bucketty/farmers-and-city-slickers/>>.

²⁹ *Maitland Mercury and Hunter River General Advertiser*, 'WOLLOMBI.', New South Wales, 17 December 1870, viewed 18 August 2022, <<http://nla.gov.au/nla.news-article18750479>>.

³⁰ Budde, 'Farmers and City Slickers'.

³¹ Budde, 'Farmers and City Slickers'.

road reserve suggests that at this point in time it may have been unformed (that is, legally established but not formally constructed).

The 1920 parish map of Rugby shows the alternative alignment as a thick dashed line indicating that by this time it has been declared a public road (Figure 6). In 1928, the Old Great North Road, between Windsor Road at McGraths Hill and the Great Northern Highway at Whittingham was declared a Main Road (Main Road No. 181).³²

The Kulnura road (now George Downes Drive) was improved in 1941, as a “gravel pavement constructed to 50 m.p.h. [miles per hour] standard”.³³ However, newspaper articles indicate 2 ½ miles of the road between Bucketty and Kulnura remained uncompleted into the late 1940s.³⁴ Although “for the most part trafficable”, it was not considered a good dry weather road and became dangerous and almost impassable when wet.³⁵

By 1960, further improvements to the Kulnura road had been made including deviation, widening, and sealing.³⁶ The section in the east of the Project Area, including the intersection, was straightened, realigned through land resumed from adjacent properties.³⁷ It was opened and made public in December 1960. In 1961, this road was named George Downes Drive, after Cr George Downes, a Kulnura landholder and former President of Gosford Shire Council, who had lobbied for the road improvements.³⁸ In 1967, it was proclaimed a main road (Main Road No. 590) (Figure 7).

The area to the north west of the Project Area is Crown land, which is characterised by eucalypt forest. In 1917, approximately 11,500 acres was dedicated as Lockyer State Forest No. 521. The dedication was revoked in 1922, and shortly afterwards the Government Gazette provided official notification that the Crown lands within the former State Forest boundaries were not available for settlement.³⁹ In 1949, 15,270 acres was temporarily reserved from sale as a timber reserve (Reserve

³² *Government Gazette of the State of New South Wales*, ‘MAIN ROADS ACT, 1924-1927.’, Sydney, New South Wales, 17 August 1928, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article219952359>>, p. 3817.

³³ *Farmer and Settler*, ‘Another New Road’, Sydney, New South Wales, 28 August 1941, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article117178706>>.

³⁴ *Singleton Argus*, ‘Kulnura Road Again Discussed’, New South Wales, 14 May 1948, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article84607720>>.

³⁵ *Singleton Argus*, ‘M.R.B. Engineers’ Hint About Kulnura Road’, New South Wales, 23 May 1949, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article82578048>>.

³⁶ *Government Gazette of the State of New South Wales*, ‘NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS’, Sydney, New South Wales, 9 December 1960, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220319143>>.

³⁷ *Government Gazette of the State of New South Wales*, ‘NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS’.

³⁸ Paul Budde, ‘The convict era’, Paul Budde History, Philosophy, Culture, 2022, viewed 12 August 2022, <<https://paulbuddehistory.com/bucketty/the-convict-era/>>; Gosford Times and Wyong District Advocate, ‘Councillor George Downes Elected New President Of Gosford Shire’, 20 December 1949, p. 1; *Government Gazette of the State of New South Wales*, ‘SHIRE OF GOSFORD.—NAMING OF ROAD BETWEEN’, Sydney, New South Wales, 22 December 1961, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220288191>>.

³⁹ *Government Gazette of the State of New South Wales*, ‘PROCLAMATION’, 20 July 1917, p. 3611; *Government Gazette of the State of New South Wales*, ‘REVOCATION OF DEDICATIONS—FORESTRY ACT, 1916.’, 13 October 1922, pp. 5560–5562; *Government Gazette of the State of New South Wales*, ‘CROWN LANDS NOT AVAILABLE FOR SETTLEMENT UNTIL FURTHER NOTIFICATION.’, 20 October 1922, p. 5714.

No. 62,291), revoked in 1992.⁴⁰ Yengo National Park was dedicated in March 1998, and is one of eight protected areas that form part of the 1.03 million-hectare Greater Blue Mountains Area. The Greater Blue Mountains Area was inscribed on the World Heritage List in 2000 for its natural values, including its rich Eucalypt diversity.⁴¹

An analysis of historical aerial imagery indicates the Great North Road in the north of the Project Area was realigned sometime between 1966-1971, possibly as part of the large-scale road stabilisation works carried out between Bucketty and Wollombi in 1969⁴² (Figure 8). The works bypassed the former alignment of the Great North Road, creating an abandoned loop to the west at McQuoid/Bucketty (cf. Figure 5 and Figure 6). The intersection of George Downes Drive, the Great North Road and the Great Northern Road was rebuilt around this time,⁴³ configured to the current arrangement (Figure 9).

⁴⁰ *Government Gazette of the State of New South Wales*, 'RESERVES FROM SALE FOR TIMBER.', 14 October 1949, p. 3043; *Government Gazette of the State of New South Wales*, 'REVOCATION OF A TIMBER RESERVE', 23 October 1992, p. 7859.

⁴¹ NSW National Parks and Wildlife Service, *Greater Blue Mountains World Heritage Area*, NSW National Parks, 2023, viewed 12 July 2023, <<https://www.nationalparks.nsw.gov.au/conservation-and-heritage/greater-blue-mountains>>; NSW National Parks and Wildlife Service, Department of Environment and Climate Change, *Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area*, p. 5.

⁴² Stedinger Associates, *Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, Cessnock City Council, April 2010, p. 17.

⁴³ Stedinger Associates, *Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, p. 17.

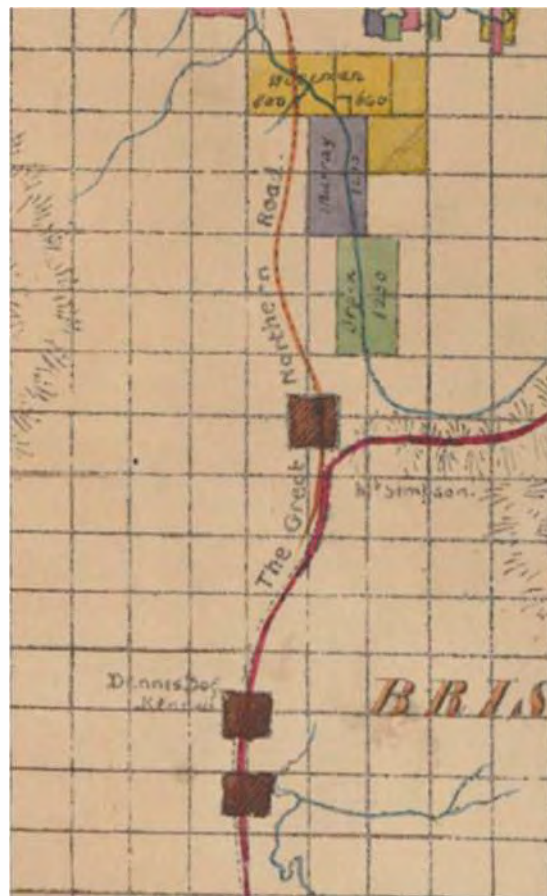


Figure 3. Detail from Baker's 1843 Map of the County of Northumberland (Source: NLA MAP RaA 8 Plate 2). The village reserve at Dennis's Dog Kennel is shaded brown.

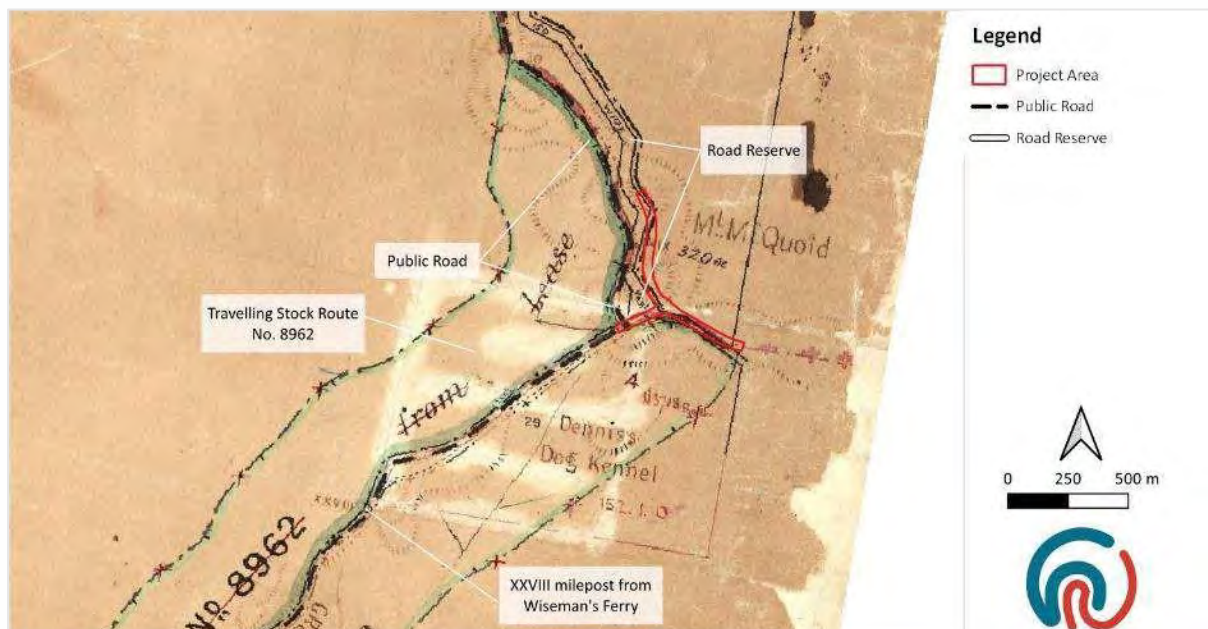


Figure 4. Detail from 1888 map of the Parish of Lockyer showing the public road following the ridgeline near Mt McQuoid, and road reserve to the east. (Source: Historic Land Records Viewer 14018401.jp2)

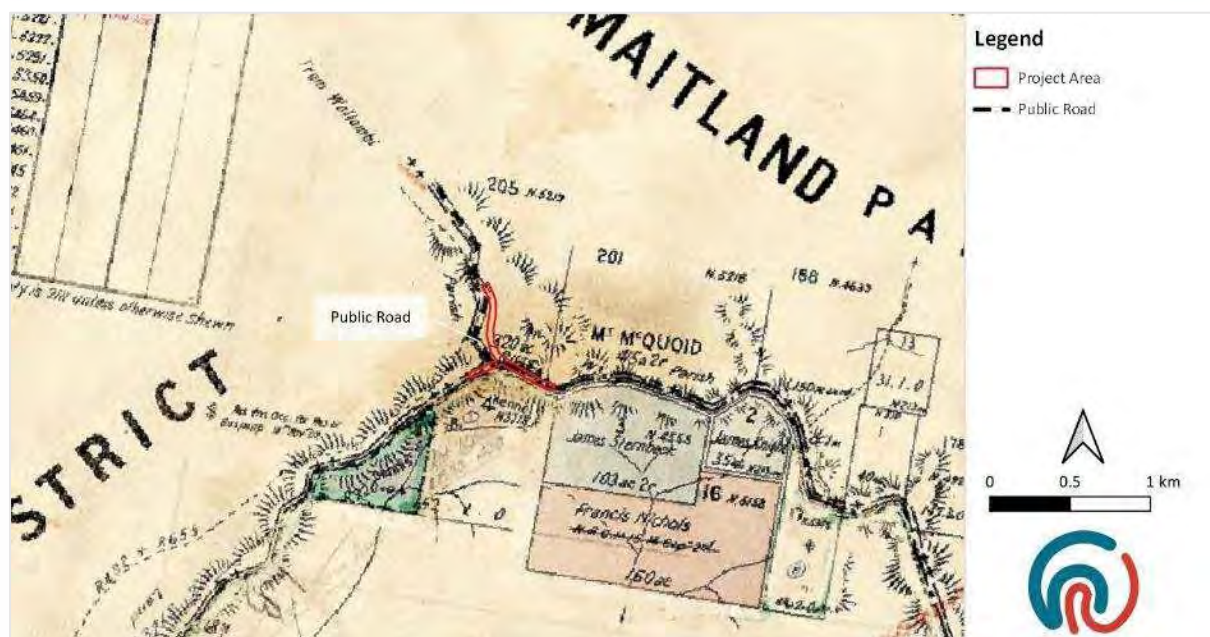


Figure 5. Detail from 1920 map of the Parish of Rugby. (Source: Historic Land Records Viewer 10867701.jp2)

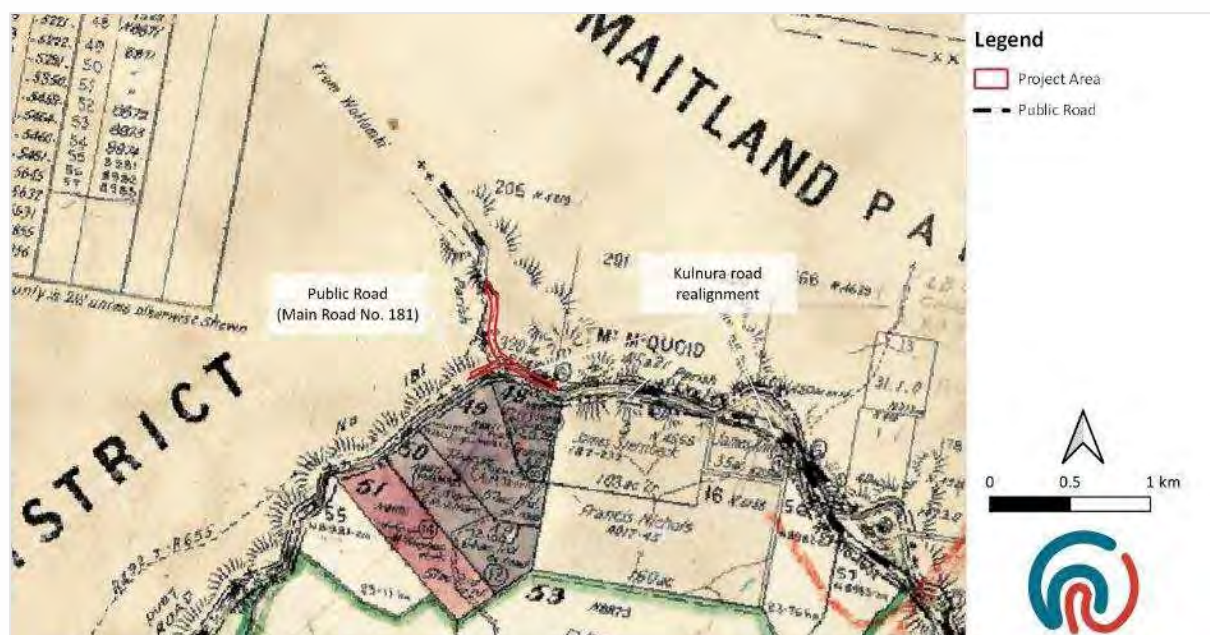


Figure 6. Detail from 1943 map of the Parish of Rugby, showing the proposed realignment of the Kulnura road to the east of the intersection with the Great Northern Road (Main Road No. 181) (Source: Historic Land Records Viewer 10866801.jp2)

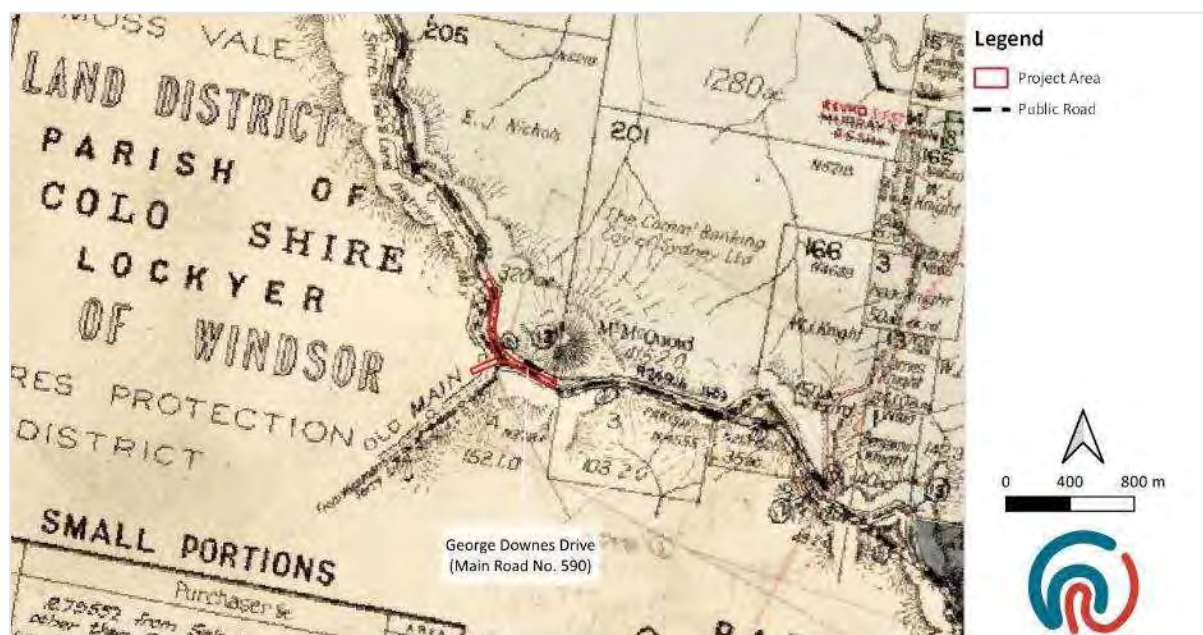


Figure 7. Detail from 1955 map of the Parish of Hay. (Source: Historic Land Records Viewer 10884901.jp2)



Figure 8. The Project Area in 1966. (Source: NSW Government Historical Imagery 1442_03_147.jp2)

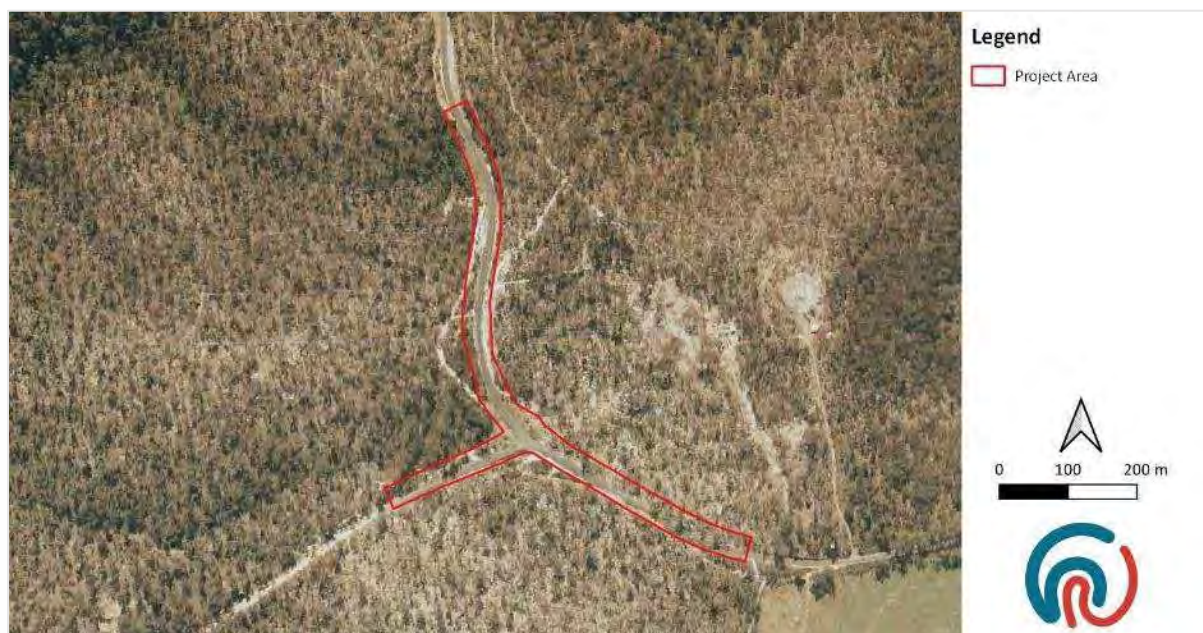


Figure 9. The Project Area in 1976. (Source: NSW Government Historical Imagery 2403_16_029.jp2)

3.3 Chronological Summary

The following timeline provides a summary of the key dates and events relating to the historical development of the Project Area (Table 5).

Table 5. Timeline

Phase of Development	Date	Event
Phase 1: European exploration and early settlement (1819-1825)	1819-1823	<ul style="list-style-type: none"> Identification of route from the Hawkesbury to the Hunter River by John Howe (the Bulga Road) Identification of route from the Hawkesbury to the Hunter River by John MacDonald (MacDonald's Line) Identification of inland route from Newcastle to the Hawkesbury by Major James Thomas Morisset
	1825	<ul style="list-style-type: none"> Assistant Surveyor Heneage Finch surveys a route to Maitland and Newcastle via the Wollombi valley (Finchs Line)
	c1825	<ul style="list-style-type: none"> European settlers follow Finchs Line to places such as Murrays Run, Wollombi, Paynes Crossing and Millfield
Phase 2: Construction of the Great North Road (1826-1928)	1826	<ul style="list-style-type: none"> Settlers in the Hunter Valley petition Governor Darling for a 'proper' road from Sydney to Newcastle Construction of the original route of the Great North Road, following Finchs Line, begins at Castle Hill North
	1829	<ul style="list-style-type: none"> Surveyor General Major Thomas Mitchell and party inspect line of Great North Road
	1830	<ul style="list-style-type: none"> Assistant Surveyor Heneage Finch appointed supervisor of the roadworks north of Mt Manning to the Hunter Valley
	1831	<ul style="list-style-type: none"> Finch dismissed from post as Assistant Surveyor, succeeded by Lawrence V. Dulhunty

	1830-1831	<ul style="list-style-type: none"> The Great North Road in the vicinity of Mt McQuoid constructed by No.29 Road Party Dennis's Dog Kennel (south of Project Area) is location of a stockade for the convict road party
	1832	<ul style="list-style-type: none"> Steamboat service commences operation between Sydney and Newcastle Governor Darling recalled and momentum for road building wanes
	1836	<ul style="list-style-type: none"> Construction of Great North Road essentially abandoned
	1888	<ul style="list-style-type: none"> Alignment of the Kulnura road shown on parish map of Lockyer
	1889	<ul style="list-style-type: none"> Village reserve at Dennis's Dog Kennel revoked Travelling Stock Route No. 8962 along the Great North Road reserved from sale and lease
	1920	<ul style="list-style-type: none"> Great North Road shown as public road on parish map of Rugby
	1928	<ul style="list-style-type: none"> Great North Road declared Main Road No. 181
Phase 3: Later road works and improvements (1929-present)	1941	<ul style="list-style-type: none"> The Kulnura road improved, gravel pavement constructed
	Late 1940s	<ul style="list-style-type: none"> 2 ½ miles of the Kulnura road between Bucketty and Kulnura remain uncompleted
	1960	<ul style="list-style-type: none"> Improvements made to the Kulnura road and intersection (deviation, widening, sealing) The Kulnura road opened and made public
	1961	<ul style="list-style-type: none"> The Kulnura road named George Downes Drive
	1967	<ul style="list-style-type: none"> George Downes Drive proclaimed Main Road No. 590
	1969	<ul style="list-style-type: none"> Large-scale stabilisation works on Great North Road between Bucketty and Wollombi
	c1969	<ul style="list-style-type: none"> Intersection of George Downes Drive/Great North Road and the Great Northern Road realigned
	1988	<ul style="list-style-type: none"> Yengo National Park dedicated
	2000	<ul style="list-style-type: none"> The Greater Blue Mountains Area inscribed on World Heritage List
	2009	<ul style="list-style-type: none"> Great North Road, Between Mt Manning and Wollombi listed on State Heritage Register

The approximate alignments of the Great North Road and George Downes Drive (the Kulnura road) over time in relation to the Project Area are shown in Figure 10. Note that early historical maps contain some positional errors and inaccuracies, and the location of the road alignments shown is indicative only.



Figure 10. Approximate location of historical road alignments in relation to the Project Area (Source: Six Maps and Google, CNES / Airbus, Maxar Technologies, with Heritage Now additions).

4 Heritage Context

4.1 Previous Reports

A number of investigations that relate to this section of the Great North Road have previously been undertaken, and are summarised below. They provide an indication of the nature and extent of previously recorded structural elements and potential subsurface remains relating to the early road that may be expected within the Project Area.

McBean & Crisp Pty Ltd. "Report on Great North Road between Mt. Manning Turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects." The National Trust of Australia (NSW), 1983.

This report identified early road structures (and groups of structural elements) associated with the Great North Road between Mount Manning and Paynes Crossing. This report identified typical conservation issues for these structures, assessed potential damage likely to arise from road upgrade programs, and made recommendations for restoration and preservation of the road surface.⁴⁴

A summary of early road structures identified in the vicinity of the George Downes Drive intersection is provided in Table 6 below, with the structure numbers given in the report and brief description.

Their approximate location in relation the Project Area illustrated in Figure 10.

Table 6. Summary of structural elements of the Old Great North Road identified in the vicinity of the Project Area

Structure No.	Structure	Description
2a	Culvert	Stone culvert with flanking stone wing walls extending approximately 10 m on each side. The culvert opening is 4 courses high. The flanking wing walls are 10 courses (approximately 2.5m) high on the south side. On the north side the wall was probably of similar height but it had completely collapsed.
2b	Road pavement 1	A road pavement 6-7 metres wide, laid in "macadam" fashion using sandstone. On the east side is a table drain which is a part of the drainage for the old road and the adjacent new construction [Great Northern Road realignment c1969].
2c	Retaining wall	Approximately 75 m north of the culvert the road alignment turns from a north-easterly direction to a northerly direction, and at the turn crosses a creek draining the slopes of Mount McQuoid. The run off is currently carried in a circular concrete pipe which replaced the original structure (possibly either a stone culvert or timber bridge). The wing walls appear to terminate in abutments with ashlar constructed corners. The wall is 10 courses (approximately 2.2 m) high at the abutments and extends for approximately 20 m each side. The upstream end is covered by the new road [c1969 realignment].

⁴⁴ McBean & Crisp Pty Ltd, Report on Great North Road between Mt. Manning turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects, The National Trust of Australia (NSW), 1983, p. 2.

2d	Cutting and rock drain	Beginning at the north end of the stone retaining wall, the original road alignment continues in a northerly direction rising up to a rock cutting. The whole of the pavement width is cut into rock, to a depth of approximately 1 m on the high side and zero (no fill) on the low side, forming a sheet rock base for the road. The latter extends for a distance of approximately 100 m. The surface is formed with a cross fall into the hill where a gutter has been formed by cutting into the rock. The face of the cutting in the uphill embankment is marked with irregular, sloping pick marks extending up the embankment for approximately 1/3 of its height.
2e	Road pavement 2	The road alignment continues, isolated from the adjacent new alignment [Great North Road realignment c1969], for a distance of 350 m from the intersection where the new alignment passes over the old. The road in this section is approximately 7m wide. The pavement surface is a "macadam" type with sandstone aggregate up to 100 mm in size grading down to 10 mm and finer.
3	Stone culvert	Within the section of road pavement referred to above - 'Road pavement 2' (Structure No 2e) is a stone culvert with internal dimensions of 550 wide, 460 high upstream and 550 high downstream.

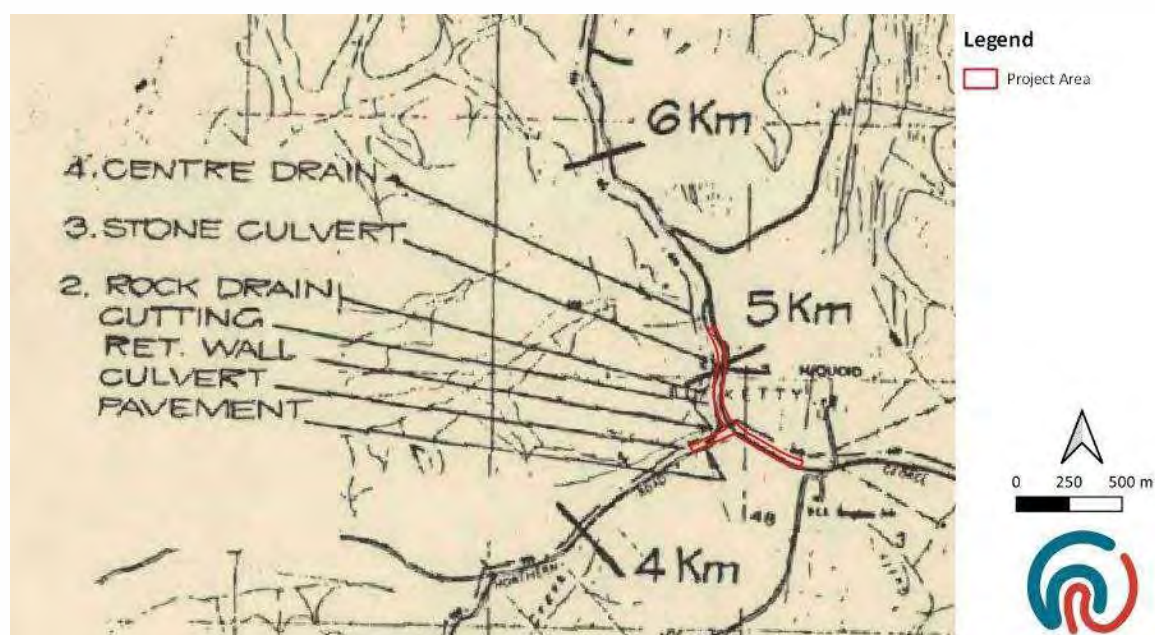


Figure 11. Structural elements of the Old Great North Road identified near the Bucketty turnoff (Source: McBean & Crisp Pty Ltd 1983, Drawing No. 2, with Heritage Now annotations)

Lavelle, Siobhan, Grace Karskens, and RTA Technology. "Stage 1 Conservation Plan for the Great North Road." The Convict Trail Project, 1999.

The 1999 CMP covers the entire 240km length of the Great North Road, and includes an overview of its physical condition, considers management issues, and provides policies and recommendations to

assist with management of the item.⁴⁵ The road is divided into eight separate inventory sections based on changes in its nature and character, which are then further divided into precincts, and individual items. The Project Area is within the section from Mount Manning Junction to Wollombi (Section 4.0.0), in the vicinity of the abandoned loop at Mount McQuoid/Bucketty (Precinct 4.2.0), which was constructed during 1830 and 1831 by No.29 Road Party, and is described as follows:

“The abandoned loop at Mt. McQuoid/Bucketty comprises a section about 400 metres long which was cut off by the reconstruction of the nearby intersection immediately east of the earlier alignment. This short section includes a diverse range of features which illustrate the nature of the road construction utilised on the Great North Road. At the southern end is a stone culvert flanked by the remains of wing walls. The culvert was reconstructed in 2003. Immediately north of the culvert is a macadam type pavement of compacted broken stone about 7m wide. About 75m north of the wing-wall culvert is an extensive ashlar masonry retaining wall. The wall curves to cross a gully where a former bridge was located. The span of the bridge has now been infilled with a large diameter concrete pipe surrounded by cement mortared stone blocks probably deriving from nearby structures such as the wing-walled culvert. North of the former bridge the road alignment rises up to a rock cutting with the road pavement cut into the bedrock, and an associated rock-cut side drain. This then changes to a macadam type pavement. There is also a well-preserved sandstone masonry box-culvert within this northern pavement/road section of the Mt. McQuoid precinct.”

Both the abandoned loop and the current alignment of the Great Northern Road/Great North Road are identified in the 1999 CMP as part of the line of the Great North Road, and are included in the SHR listing of the Great North Road, between Mt Manning and Wollombi.

The current alignment was considered to have historic significance as it is associated with the ongoing use of the road, with later improvements reflecting changing traffic and road safety requirements:

In several areas the Great North Road, although lacking in any obvious historic character, remains in use as an essential transport link and itself has immense symbolic significance as the latest successor to the historically important earlier road formations which have carried European traffic since the 1820s and 1830s. ... The improvements such as widening, reconstruction and deviation which are evident on those sections remaining in use for modern traffic also reflect a long and constant process of road redevelopment and improvement in response to constantly increasing traffic and modern road engineering requirements.⁴⁶

While no specific significant views or vistas were identified in the 1999 CMP, it was noted that the Mount Manning Junction to Wollombi section of the road (among others) tends to present the road in a modern context, as an “in use” road. However, it passes through relatively undeveloped rural areas and may be found in an overall setting approximating that envisaged at the time of its construction.⁴⁷ Road sections in use were described as generally remaining in good condition. Most

⁴⁵ Siobhan Lavelle, Grace Karskens, & RTA Technology, *Stage 1 Conservation Plan for the Great North Road, The Convict Trail Project*, 1999.

⁴⁶ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 28.

⁴⁷ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 22.

in-use sections of road were sealed; however, it was noted that it was unclear if older pavements survived below modern surfaces.⁴⁸

Elizabeth A. Roberts. “Bucketty Culvert Reconstruction Report.” The Convict Trail Project, 2004.

The Bucketty culvert, identified in the figure above as ‘Culvert’ (Structure No. 2a), is within the current Project Area, approximately 75m west of the intersection. It is described as a stone culvert, with retaining walls extending approximately 20 meters on either side. However, the sides of the culvert had collapsed and most of the facing stone removed. Due to its poor condition, the original form of the culvert was unclear, and a partial reconstruction was undertaken based on an interpretation of the remains of the structure as a recessed culvert.⁴⁹ A layer interpreted as the original surface of the Great North Road was found above the culvert, at approximately 30 cm below the ground surface at the time of works.⁵⁰ This surface was not present above the retaining wall on the south[western] side of the culvert, and it was suggested that it may have been graded off in this area.⁵¹



Figure 12. Before (left) and after (right) photographs of the excavation above the culvert. (Source: Roberts, *Bucketty Culvert Reconstruction Report*, p. 11). Interpretation and labelling of deposits is based on general descriptions provided in the report.

⁴⁸ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 48.

⁴⁹ Elizabeth A. Roberts, *Bucketty Culvert Reconstruction Report*, Heritage NSW H06129-BUCK, Convict Trail Project Inc., 2004, pp. 2–3.

⁵⁰ Roberts, *Bucketty Culvert Reconstruction Report*, p. 11.

⁵¹ Roberts, *Bucketty Culvert Reconstruction Report*, p. 9.

Stedinger Associates. “Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application.”, Cessnock City Council, 2010.

In 2010, Stedinger Associates prepared a heritage assessment for proposed repair works to a 140m section of the Great North Road, between Mt Manning and Wollombi at Ramsay’s Leap, near Laguna (approximately 3.0km north of the current Project Area). Surviving historic structures and features identified along the original alignment of the Great North Road included a stone retaining wall, culvert, flume, side drain, road pavement, a road cutting with jumper marks, carved initials, a carved arrow and a water trough.⁵² This section of the Great North Road was not considered to have historical archaeological potential due to impacts from erosion and the steepness of the adjacent slope. The heritage value of the site was embodied “in the fabric of the retaining wall itself, its associated features, the backfill behind the wall and the road that it supports”, and the research potential to reveal information about convict road construction.⁵³

⁵² Stedinger Associates, *Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, p. 29.

⁵³ Stedinger Associates, *Repair and Safety Works at Ramsay’s Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, p. 42.

5 Physical Analysis

A site inspection was undertaken by Sarah Mané (Heritage Consultant at Heritage Now) on 22 July 2022, with a supplementary visit by Ngaire Richards (Principal Heritage Consultant) and Jenna Weston (Senior Heritage Consultant) undertaken on 8 November 2022.

The inspection was a visual study only, to determine (if possible) which parts of the Project Area are associated with the original convict construction of the Great North Road, and which sections are later in date or have been modified or realigned; as well as to assist in assessment of the heritage context of the Project Area.

5.1 The Great North Road

The proposed road widening and safety improvement works are located on Crown land within the road reserve associated with the current alignment of George Downes Drive and the Great North Road / Great Northern Road. The road reserve is surrounded by bushland, consisting of regrowth with a weedy understorey along the edge of the road. It is bounded by Yengo National Park to the north-west, large rural blocks to the east, and the Mangrove Dam water catchment to the south-west.

The current roads within the Project Area (Great Northern Road / Great North Road / George Downes Drive) are sealed with asphalt, and typically incorporate a narrow gravel or grassed verge which has been cleared of vegetation (Plate 1-Plate 3). The roads have no formal curbing; sections of the Great North Road and George Downes Drive that are built across the slope have infall drainage directing surface water towards table drains running parallel to the roadway.

The Project Area is adjacent to the abandoned loop of the Great North Road at Mount McQuoid/Bucketty. This area is also known as the Bucketty precinct, and it contains a series of convict-built historic structures associated with a 400 m long bypassed section of the road (described in more detail in Section 4.1 of this report). These structures include a stone culvert with partially reconstructed wing walls which runs under the current Great Northern Road (Plate 4), 1830s road alignment approximately 6-7m wide and table drain (Plate 5), sandstone masonry retaining wall infilled with concrete pipe (Plate 6-Plate 7), sandstone cutting with road pavement cut into bedrock and rock-cut side drain (Plate 8), 1830s road alignment approximately 7m wide (Plate 9), and sandstone masonry box culvert which runs under the 1830s road alignment (Plate 10-Plate 11). The original pavements of the 1830s road alignment in this precinct, previously recorded as 'macadam' type pavements, were covered by sandy sediment and leaf litter at the time of the site inspections.

A range of wayfinding and interpretive signage has been installed within the Bucketty precinct, with the majority located near the start of the Bucketty Wall Walking Track off the Great Northern Road; including Yengo National Park entry and tourist signposting (Plate 12), as well as an interpretation pole for Great North Road (Plate 13-Plate 14), and a boulder monument with plaque describing the road construction (Plate 15-Plate 16) placed by the Convict Trail project. An additional interpretive sign (Plate 17) and a sandstone memorial bench (Plate 18) are also located within the precinct in the vicinity of the reconstructed stone culvert.

A plaque on the bench is embossed:

*PHIL'S BENCH
THIS SEAT MADE FROM CONVICT HEWN STONE
IS IN MEMORY OF
PHILLIP LAWRENCE
1953-2003
SENIOR OVERSEER OF THE ST HELENS CORRECTIONAL
CENTRE MOBILE OUTREACH PROGRAM (M.O.P.)
IN APPRECIATION OF HIS CONTRIBUTION TO THE
CONVICT TRAIL PROJECT*

The former road alignment diverges from the current road in the vicinity of the stone culvert that runs under the Great Northern Road, approximately 180m south-west of the intersection (Plate 20); and meets the Great North Road approximately 300m north of the intersection (Plate 21-Plate 22). A previously unrecorded sandstone cutting, with pick marks near the base, was identified on the eastern side of the Great North Road near where the 1830 alignment and current road intersect (Plate 23-Plate 24).

On the south-west approach to the intersection, the Great Northern Road has a gently inclined uphill slope with a vertical curve, resulting in a considerable difference in elevation between the current road embankment, and much of the bypassed abandoned loop to the west (Plate 19).

5.1.1 Views and Setting

The Project Area has a natural setting, with the current road passing large rural blocks as well as open forest within Yengo National Park. The gentle curves and slopes, and unsealed shoulders within the Project Area give the road a distinctly rural character.

To the north west of the intersection, the Great North Road/George Downes Drive traverses the slopes of Mt McQuoid and the Hunter Range, with the road positioned along, or just below, ridgelines. Views along the roads, and from the road to the surrounding landscape, are restricted due to a combination of topography, and closely bordering vegetation within and adjacent to the road reserve. Vegetation within the road reserve is characterised by native trees with weedy understorey. It generally comprises smaller regrowth after clearing for past road construction and disturbance from ongoing shoulder slashing along the road edge.

To the south west of the intersection, the Great Northern Road is carried on a fill embankment with battered slopes. There is little visual linkage between the current alignment of the road and the Bucketty precinct, mainly due to differences in elevation between the embankment and abandoned loop, and screening from native vegetation regrowth along road edges. Road users are afforded a transient view of the top of the northern wing wall of the stone culvert within the Bucketty precinct (Plate 20).

6 Historical Archaeological Potential

The potential of the Project Area to contain archaeological evidence of previous phases of historical occupation is evaluated below. The assessment identifies the probable extent, nature, integrity and preservation of potential historical archaeological resources at the site.

6.1 Evaluation of Potential

The Project Area has been subject to a number of phases of development relating to the Great North Road, Great Northern Road, and George Downes Drive that are likely to have an impact on the survival of archaeological evidence associated with the construction and early use of the roads:

- Phase 1: European exploration and early settlement (1819-1825)
- Phase 2: Construction of the Great North Road and the Kulnura Road (George Downes Drive) (1826-1928)
- Phase 3: Later road works and improvements (1929-present)

The most substantial modifications are associated with 20th century road works and improvements. The alignment of the current roads and arrangement of the intersection, and much of the physical fabric of in-use roads within the Project Area, date from the deviation of the Kulnura road (George Downes Drive) in 1960, and reconstruction and realignment of the Great North Road/Great Northern Road in c1969. However, the majority of the convict-built early road structures/structural elements in the Bucketty precinct were bypassed by the realignment of the Great North Road, and remain a largely intact group which illustrate the nature of the original road construction. Both the current road alignment and bypassed abandoned loop form part of the SHR listing for the Great North Road, between Mt Manning and Wollombi.

Potential archaeological resources within the Project Area therefore consist primarily of structural elements associated with the Great North Road, including early road surfaces, retaining walls, stone culverts, fill deposits, cuttings and embankments, and drains. While these elements may be considered 'works' rather than relics, surviving road fabric has the potential to reveal information about early convict road construction, and is protected under the Part 3A State Heritage Register provisions of the Act.

In the western part of the Project Area, a sandstone culvert (Structure No 2a) passes under the Great Northern Road. Although the overlying deposits were not recorded in detail during the reconstruction of the culvert in 2004, observations in the report suggest that the original road surface and culvert cover (backfill materials) may partially survive beneath the modern road; however, the precise depth or extent of the remains is unable to be determined from the available records.

In the northern part of the Project Area, a large landslip (approximately 380m north of the intersection), has been cordoned off (Plate 25). The landslip has exposed a cross-section of the road, which is constructed of two layers of asphalt laid on sandstone bedrock (Plate 26), suggesting that the earlier road pavement is unlikely to be preserved intact below the modern road surface in this area. However, it may survive to the west of the Great North Road beneath the verge, along the original 1830s alignment – possibly as a continuation of Road pavement 2 (Structure No 2e).

Evidence of the original road in this part of the Project Area can be seen in a sandstone cutting with pick marks, identified to the east of the Great North Road during the site inspections for this assessment.

Although isolated artefacts are known to have been collected from various road precincts and sites in the past,⁵⁴ given what is known regarding road construction techniques and the results of previous investigations which have not identified any artefacts in backfill deposits,⁵⁵ it is considered there is limited potential within the Project Area for isolated artefacts to be present. Any relics associated with the engineering and the construction of the Great North Road, would most likely be found in the vicinity of the northern and western parts of the Project Area, where the current road intersects with the original 1830s alignment. Given the expected levels of disturbance from activities related to the c.1969 reconstruction and realignment, including grading, widening, sealing the road with asphalt, and associated drainage works, the potential for relics within the Project Area is generally assessed as low.

6.2 Summary of Historical Archaeological Potential

Early road structures and areas of historical archaeological potential within the Project Area have been identified based on a review of the historical context of the Project Area, previous reports, information obtained from historical maps and plans, and general observations made during the site inspections undertaken in July and November 2022.

Potential remains have been assessed according to their intactness (or likelihood of survival) as follows:

- Extant – remains associated with an early road structure or activity are known to survive
- High – potential archaeological remains associated with an early road structure or activity are likely to survive, and are likely to be intact and legible
- Moderate – potential archaeological remains associated with an early road structure or activity may survive, but are likely to have been subject to disturbance from later phases of development
- Low – potential archaeological remains associated with an early road structure or activity are unlikely to survive

Table 7. Summary of archaeological potential

Phase	Location in relation to the Project Area	Early road structures / Potential Archaeological Remains	Intactness or likelihood of survival
2 (1826-1928)	Great Northern Road CH 0-CH 40	Culvert (Structure No 2a)	Extant
2 (1826-1928)	Great Northern Road CH 0-CH 80	Former road surface Culvert cover (fill deposits) (Archaeological Area 1)	Moderate

⁵⁴ Lavelle et al., *Stage 1 Conservation Plan for the Great North Road*, p. 53.

⁵⁵ Roberts, *Bucketty Culvert Reconstruction Report*; see also Stedinger Associates, *Excavation Report on the Reconstruction of the Retaining Wall at Chainage 1617. Old Great North Road, Dharug National Park, N.S.W.*, National Parks and Wildlife Service Central Coast Hunter Region, July 2002, pp. 13, 26.

2 (1826-1928)	Great North Road CH 100	Cutting with pick marks	Extant
2 (1826-1928)	Great North Road CH 100-CH140	Former road surface (Archaeological Area 2)	Moderate
2 (1826-1928)	Great North Road CH 220	Culvert (Structure No 3)	Extant
1 (1819-1825) 2 (1826-1928) 3 (1928-present)	Across Project Area	Isolated artefacts	Low

A map of the location of early road structures and areas of archaeological potential in relation to the Project Area is provided in Figure 13 below, with detailed maps of the western and northern parts of the Project Area where the current road intersects with the original 1830s alignment in Figure 14 and Figure 15, respectively.



Figure 13. Location of early road structures/structural elements and areas of archaeological potential (Source: SIX Maps aerial, with Heritage Now annotations).



Figure 14. Map of Archaeological Area 1 with moderate potential – Great Northern Road detail (Source Six Maps and Google, CNES / Airbus, Maxar Technologies, with Heritage Now additions)

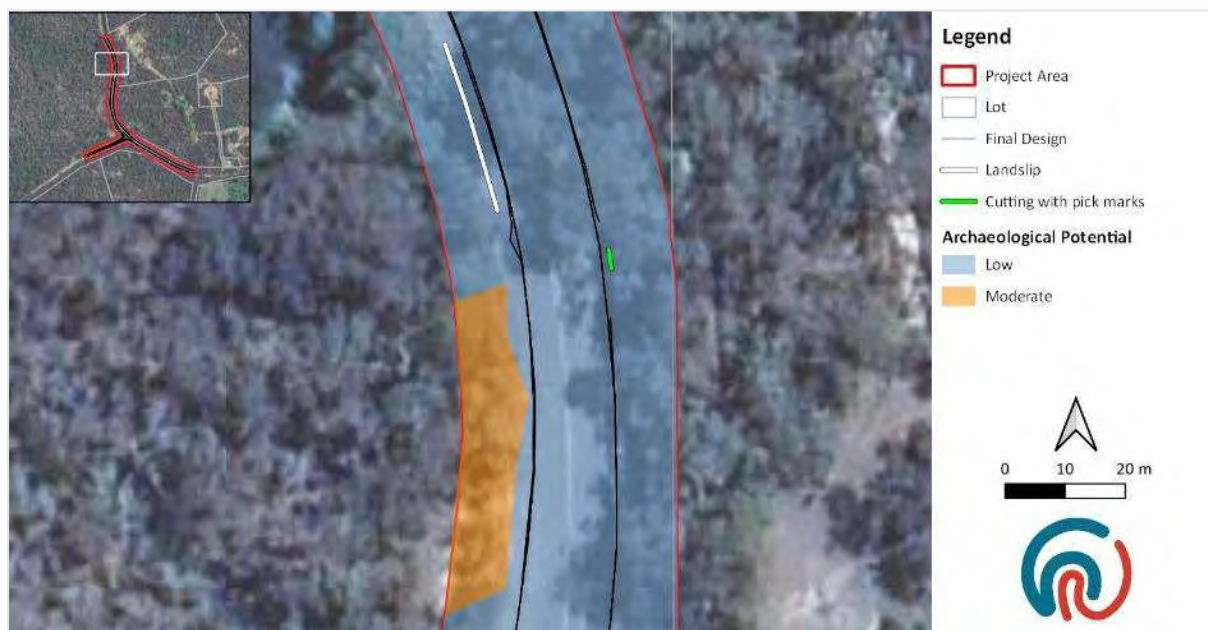


Figure 15. Map of Archaeological Area 2 with moderate potential - Great North Road detail (Source Six Maps and Google, CNES / Airbus, Maxar Technologies, with Heritage Now additions)

7 Significance Assessment

7.1 World Heritage List Criteria

To be inscribed on the World Heritage List, a property must be of Outstanding Universal Value and satisfy one or more of the ten cultural or natural heritage selection criteria. The Greater Blue Mountains Area was inscribed in the World Heritage List on the basis of its outstanding natural values under criteria (ix) and (x):

- (ix) (to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.⁵⁶

7.1.1 Statement of Outstanding Universal Value for the Greater Blue Mountains Area

The following brief synthesis from the official statement of Outstanding Universal Value for the Greater Blue Mountains Area is reproduced from the UNESCO World Heritage Listing:

The Greater Blue Mountains Area (GBMA) is a deeply incised sandstone tableland that encompasses 1.03 million hectares of eucalypt-dominated landscape just inland from Sydney, Australia's largest city, in south-eastern Australia. Spread across eight adjacent conservation reserves, it constitutes one of the largest and most intact tracts of protected bushland in Australia. It also supports an exceptional representation of the taxonomic, physiognomic and ecological diversity that eucalypts have developed: an outstanding illustration of the evolution of plant life. A number of rare and endemic taxa, including relict flora such as the Wollemi pine, also occur here. Ongoing research continues to reveal the rich scientific value of the area as more species are discovered.

The geology and geomorphology of the property, which includes 300 metre cliffs, slot canyons and waterfalls, provides the physical conditions and visual backdrop to support these outstanding biological values. The property includes large areas of accessible wilderness in close proximity to 4.5 million people.

7.2 National Heritage List Criteria

As the Greater Blue Mountains Area satisfies criteria (ix) and (x) for inclusion on the World Heritage List, it is also deemed to meet the following National Heritage criteria against which the heritage values of a place are assessed:

⁵⁶ UNESCO World Heritage Centre, *The Criteria for Selection*, UNESCO World Heritage Convention, UNESCO World Heritage Centre, 2023, viewed 9 March 2023, <<https://whc.unesco.org/en/criteria/>>.

- (a) the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history
- (b) the place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history
- (c) the place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history
- (d) the place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of:
 - (i) a class of Australia's natural or cultural places; or
 - (ii) a class of Australia's natural or cultural environments;

7.2.1 Summary Statement of Significance for the Greater Blue Mountains Area

The following Summary Statement of Significance for the Greater Blue Mountains Area is reproduced from the Australian Heritage Database:

The Greater Blue Mountains Area was inscribed on the World Heritage List at the 24th Session of the World Heritage Committee, held in Cairns from 27 November to 2 December 2000.

It is an area of breathtaking views, rugged tablelands, sheer cliffs, deep, inaccessible valleys and swamps teeming with life. The unique plants and animals that live in this outstanding natural place relate an extraordinary story of Australia's antiquity, its diversity of life and its superlative beauty. This is the story of the evolution of Australia's unique eucalypt vegetation and its associated communities, plants and animals.

The Greater Blue Mountains Area consists of 1.03 million hectares of mostly forested landscape on a sandstone plateau 60 to 180 kilometres inland from central Sydney, New South Wales. The property includes vast expanses of wilderness and is equivalent in area to almost one third of Belgium, or twice the size of Brunei.

The property, which includes eight protected areas in two blocks separated by a transportation and urban development corridor, is made up of seven outstanding national parks as well as the famous Jenolan Caves Karst Conservation Reserve. These are the Blue Mountains, Wollemi, Yengo, Nattai, Kanangra-Boyd, Gardens of Stone and Thirlmere Lakes National Parks.

The area does not contain mountains in the conventional sense but is described as a deeply incised sandstone plateau rising from less than 100 metres above sea level to 1 300 metres at the highest point. There are basalt outcrops on the higher ridges. This plateau is thought to have enabled the survival of a rich diversity of plant and animal life by providing a refuge from climatic changes during recent geological history. It is particularly noted for its wide and balanced representation of eucalypt habitats from wet and dry sclerophyll, mallee heathlands, as well as localised swamps, wetlands, and grassland. Ninety-one species of eucalypts (thirteen percent of the global total)

occur in the Greater Blue Mountains Area. Twelve of these are believed to occur only in the Sydney sandstone region.

The property has been described as a natural laboratory for studying the evolution of the eucalypts. The largest area of high diversity of eucalypts on the continent is located in south-east Australia. The Greater Blue Mountains Area includes much of this eucalypt diversity.

As well as supporting such a significant proportion of the world's eucalypt species, the property provides examples of the range of structural adaptations of the eucalypts to Australian environments. These vary from tall forests at the margins of rainforest in the deep valleys, through open forests and woodlands, to shrublands of stunted mallees on the exposed tablelands.

In addition to its outstanding eucalypts, the Greater Blue Mountains Area also contains ancient, relict species of global significance. The most famous of these is the recently-discovered Wollemi pine, a "living fossil" dating back to the age of the dinosaurs. Thought to have been extinct for millions of years, the few surviving trees of this ancient species are known only from three small populations located in remote, inaccessible gorges within the nominated property. The Wollemi pine is one of the World's rarest species.

More than 400 different kinds of animals live within the rugged gorges and tablelands of the Greater Blue Mountains Area. These include threatened or rare species of conservation significance, such as the spotted-tailed quoll, the koala, the yellow-bellied glider and the long-nosed potoroo as well as rare reptiles including the green & golden bell frog and the Blue Mountains water skink.

A map of the Greater Blue Mountains Area is provided in Figure 16, and the location with respect to the Project Area is shown in Figure 17.

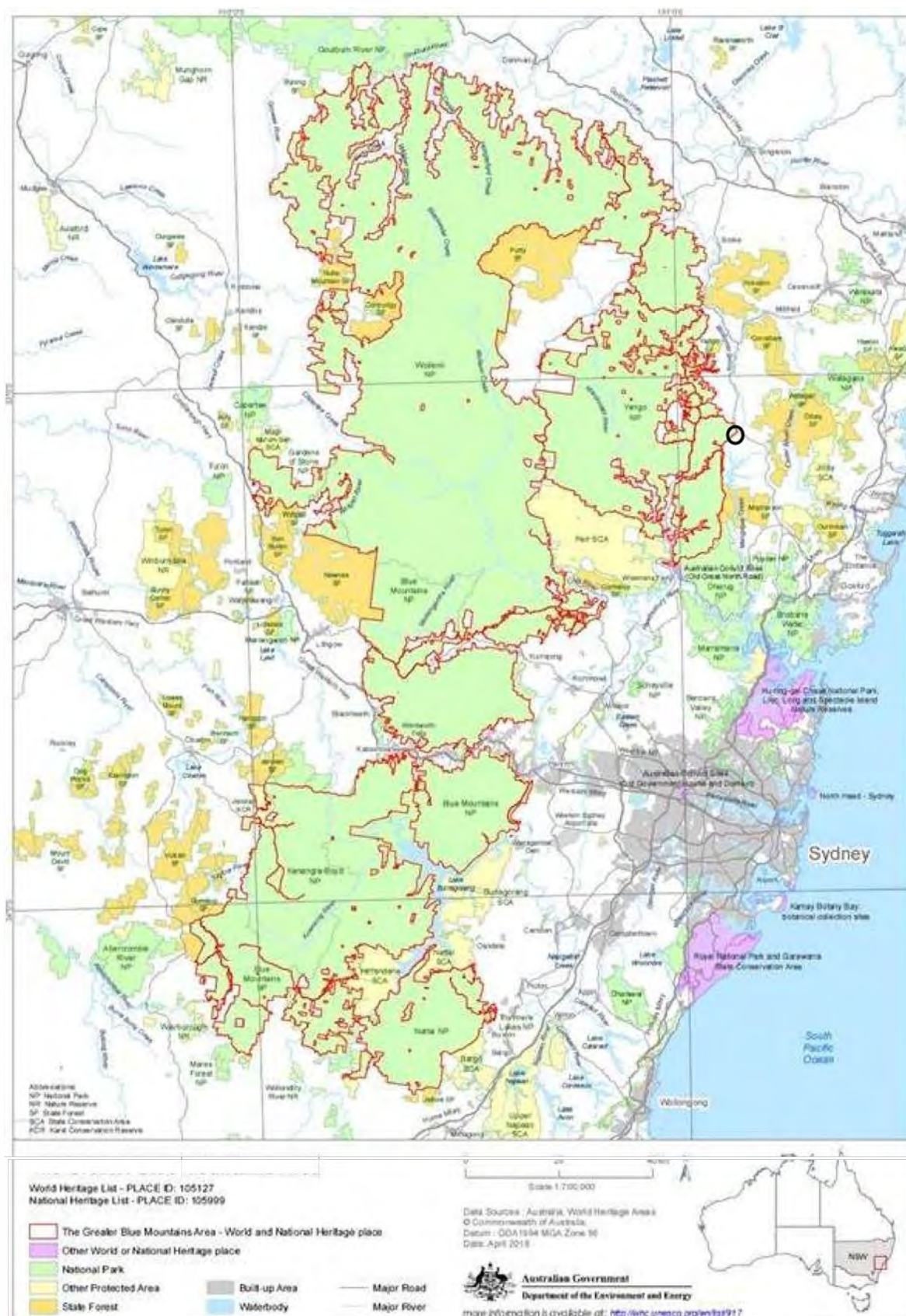


Figure 16. The Greater Blue Mountains Area (Source: Department of the Environment and Energy, April 2018). The approximate location of the Project Area is circled in black.



Figure 17. The Greater Blue Mountains Area in relation to the Project Area (Source: Six Maps and DCCEE, 2020 with Heritage Now additions).

7.3 NSW Heritage Council Criteria

The meaning of cultural significance is defined in the Burra Charter as: aesthetic, historic, scientific, social or spiritual value for past, present or future generations.⁵⁷ These values are evaluated using specific criteria adopted by the NSW Heritage Council, to assess whether an item is of State or local heritage significance in New South Wales.⁵⁸ The criteria are as follows:

Criterion a) 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);

Criterion b) An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

Criterion (d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;

Criterion (e) 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);

Criterion (f) 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);

⁵⁷ Australia ICOMOS, The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013, p. 2.

⁵⁸ NSW Heritage Office, Assessing heritage significance, p. 9.

Criterion (g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments, or a class of the local area's cultural or natural places; or cultural or natural environments.

7.3.1 Summary Statement of Significance for The Great North Road, between Mt Manning and Wollombi

The Great North Road has been subject to several assessments of significance in the past. The section between Mt Manning and Wollombi is listed on the State Heritage Register. Parts of this section of the road are also listed as heritage items with State significance on the Cessnock LEP, Hawkesbury LEP, and Gosford LEP.

The following summary statement of significance is reproduced from the NSW State Heritage Inventory SHR listing (#01789):

The Great North Road is an item of national heritage significance. It meets all State Heritage Register criteria and does so at a number of levels. Historically, the Great North Road is of state significance as the first made road north of the Hawkesbury. It was constructed by convict gangs between 1826 and 1836. The road has historic associations with several notable colonial figures including Governor Darling and Surveyor-General Thomas Mitchell. The Great North Road is also evidence of the development of the colony at Sydney and of the policies during this period of using convict gangs to construct major public works.

The Great North Road constitutes a material record of convict labour. Many surviving structures and precincts bespeak the quality of work achieved by convict artisans. Some precincts of the road remain in relatively unspoilt areas, evocative of the frontier environment of the 1830s. Other sections remain in use as a transport corridor and have thus carried European traffic continuously since the 1830s.

The section of the Great North Road between Mount Manning and Wollombi contains a variety of features that provide tangible physical evidence of convict road engineering and construction. The section also contains a number of individually significant structures, including unique examples of culvert and flume construction as well as cuttings, side drains and pavements. Parts of this section of the road remain in use. It presents excellent interpretive opportunities.

A plan of the curtilage of the road is provided in Figure 18, and the location with respect to the Project Area is shown in Figure 19. However, the SHR listing notes that there is an expanded heritage curtilage with respect to adjacent items and workings outside the road reserve, including early road structures (and structural elements) associated with the abandoned loop of the Great North Road at Mount McQuoid/Bucketty:

The recommended curtilage for the listing, generally comprises the existing road reserve, as illustrated in the curtilage plan. In cases where adjacent associated items or workings lie partially or wholly outside the road reserve, the listing curtilage will extend to include them. Such items and workings may include: the quarry site and ramp at St Alban's Road, the stone culverts and bridge of the abandoned section at Bucketty, Ramsay's Leap retaining wall and flume near Mount Simpson, the stone

culvert at Fernance's Crossing, the stone arched culvert and retaining wall at Murray's Farm and Thompson's Bridge.



Figure 18. SHR curtilage of the Great North Road, Between Mt Manning and Wollombi (Source: State Heritage Inventory). The approximate location of the Project Area at Bucketty is circled in red.



Figure 19. The Great North Road, Between Mt Manning and Wollombi in the vicinity of the Project Area (Source: Six Maps with DPC, 2022 and Heritage Now additions). Note: the SHR listing includes the stone culverts and bridge of the abandoned section at Bucketty, which extend beyond the curtilage shown.

7.3.2 Grading of Significance

The historic structures/structural elements within the vicinity of the Project Area have been graded to assess their relative contribution to the significance of the Great North Road, between Mt Manning and Wollombi as follows:

- Exceptional - Rare or outstanding element directly contributing to an item's local or State significance.
- High - High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.
- Moderate - Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.
- Little - Alterations detract from significance. Difficult to interpret.
- Intrusive - Damaging to the item's significance.⁵⁹

Table 8. Gradings of significance.

Structure No.	Structure	Grading of Significance	Comment
2a	Culvert	High	Stabilisation and reconstruction of the culvert outlet and retaining walls was undertaken in 2003 after collapse.
2b	Road pavement 1	Exceptional	Intact

⁵⁹ NSW Heritage Office, Assessing heritage significance, p. 11.

2c	Retaining wall	High	Span of former bridge infilled with large diameter concrete pipe (pre-1983, date unknown). Some restoration of missing masonry in the abutments/wing walls was undertaken after theft of sandstone blocks in 1990.
2d	Cutting and rock drain	Exceptional	Intact
2e	Road pavement 2	Exceptional	Intact
3	Stone culvert	Exceptional	Intact
-	Sandstone cutting with pick marks	High	Intact
-	Great Northern Road/Great North Road current alignment	Moderate	Deviation, widening, sealing of the intersection was undertaken in 1960, and reconstruction and realignment of the Great North Road in c1969. Significance of the current alignment is symbolic rather than embodied in the fabric, and lies in the ongoing use of the road as a transport link, as the successor to the historically important 1830s road formation.

The following summary statement of significance is reproduced from the SHI listing for the Great North Road (between Mount Manning and Wollombi) (Cessnock LEP 2011 #I217):

The Great North Road is an item of National heritage significance. It has values under all relevant heritage assessment criteria, including historical, aesthetic, scientific and social significance as expressed by the ICOMOS Burra Charter, and under the SHI criteria. The Road also fulfils numerous assessments as expressed by the Australian Heritage Commission. Whilst many heritage items will fulfill more than one value, the immense significance of the Great North Road is reflected in its possession of these multiple values at a number of levels.

Historically the Great North Road was the first made road north of the Hawkesbury, constructed by convict gangs between 1826 and 1836. The road has historical associations with several notable colonial figures including Governor Darling and Surveyor General Sir Thomas Mitchell. The road is also tangible evidence of the development of the colony at Sydney, and of policies which saw convict gangs used to construct major public works during this period.

The Great North Road also provides a direct material record of convict labour. Many surviving structures and precincts indicate the quality of work achieved by convict artisans. Many precincts of the road also remain in relatively unspoilt settings which are evocative of the environment on the 'frontier' in the 1830s.

Other parts of the historical Great North Road (even if renamed) remain in use as an essential transport corridor and have carried European traffic continuously since the 1830s. Stage1 Conservation Plan for the Great North Road Siobhan Lavelle, Dr Grace Karskens and RTA technology for the Convict Trail Project 1999 page 34

The improvements which are evident in this section reflects a long and constant process of road redevelopment and improvement in response to constantly increasing traffic and modern road engineering requirements. This 19th century graffiti and possible pick dressing shows how the current road still follows the line of the original road and remains in use as an essential transport link with the new surface and levels as the latest successor to the historically important earlier road formations which have carried European traffic since the 1820s and 1830s.

The following summary statement of significance is reproduced from the Central Coast Heritage Inventory for the Great North Road (Old) (listed as 'Roadworks' on Gosford LEP 2012 #60):

Early land route connecting Sydney and Hunter, with excellent examples of roadwork using natural materials and convict labour.⁶⁰

The following summary statement of significance is reproduced from the SHI listing for the Old Great North Road (Hawkesbury LEP 2012 #I0091):

The Old Great North Road is a signifier of the outlooks of early colonial society. Its magnificent structures were powerful, tangible symbols of the colony's perceived place and role in the course of empire, unmistakable evidence that the civilised state was being attained and a triumph over a rugged and inhospitable landscape. It is associated with several notable figures in colonial administration, surveying and engineering including Governor Darling, Surveyor General Thomas Mitchell and Percy Simpson, one of Australia's earliest scientific road engineers (Karskens 1991: 12).

The Old Great North Road physically demonstrates the work patterns, skills and organisation of convict work gangs. This evidence is unavailable in documentary sources and has been essential in changing our views of work gangs. It has technological value in that it demonstrates the standards and practice of road engineering in the colony during the 'Great Roads' period of the late 1820s and 1830s (Karskens 1991: 12).

⁶⁰ Beryl Strom, Central Coast Heritage Inventory Set 2: Built Environment. Category: Historic Sites and Buildings, Gosford City Council, 1998.



Figure 20. LEP heritage items in the vicinity of the Project Area. (Source: SIX Maps aerial with EPI additions)

7.3.3 Assessment of Archaeological Significance

Archaeological significance refers to the heritage significance of known and potential archaeological resources, features or deposits. The assessment of historical archaeological significance has been prepared in accordance with the NSW Heritage Council criteria and the guideline Assessing Significance for Historical Archaeological Sites and 'Relics'⁶¹, which clarifies how these criteria may be applied to historical archaeological sites.

Archaeological Research Potential (Criterion E)

The archaeological evidence relating to convict road engineering and construction of the Great North Road in the vicinity of the Project Area comprises early road structures and structural elements associated with the abandoned loop of the Great North Road at Mount McQuoid/Bucketty (including culverts, retaining walls, drains, and pavements), which are largely intact and significant at a State level. Any other subsurface archaeological resources that may still survive along the Great North Road, where the original 1830 alignment intersects with the current road, would be supplementary to this group of well-preserved features. This evidence would contribute further to an understanding of on the historical development and construction of the road, and complement the written and archaeological records in regard to early-19th century road building and road use.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet this criterion.

Associations with individuals, events or groups of historical importance (Criterion A, B & D)

Surviving early road structures and structural elements of the Great North Road are physical evidence of the earliest road constructed north of the Hawkesbury River. They are associated with

⁶¹ Heritage Branch, NSW Department of Planning, Assessing Significance for Historical Archaeological Sites and 'Relics'.

the construction of the road in 1830 using convict labour from the No. 29 Road Party, under the supervision of Assistant Surveyor Heneage Finch.

Other potential archaeological remains such as isolated artefacts are unlikely to satisfy this criterion, unless they can be identified as specific objects used for surveying or road construction, or items that could be associated with the convict road party involved in these activities.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet these criteria.

Aesthetic or technical significance (Criterion C)

If present, surviving former road surfaces and fill deposits below the current road could supplement existing knowledge of early-19th century road engineering and construction techniques. However, the considerable level of disturbance from the 1960s road works and improvements has reduced the potential for remains demonstrating technical achievement relating to the convict road engineering and construction of the Great North Road to survive within the Project Area. Depending on the level of intactness, such remains are likely to provide limited evidence of technical achievement. Other potential archaeological remains such as isolated artefacts do not meet this criterion.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet this criterion.

Ability to demonstrate the past through archaeological remains (Criterion A, C, F & G)

This criterion primarily depends on the nature and level of intactness of potential archaeological remains within the Project Area. Such remains could supplement what is already known from early road structures/structural elements associated with the abandoned loop, as well as other sections of the Great North Road. Well preserved and legible archaeological remains associated with the 1830 alignment of the Great North Road would be a rare surviving example of early-19th century convict-built roads in NSW.

The current road alignment (1960 alignment of George Downes Drive and c1969 alignment of Great North Road / Great Northern Road) does not meet these criteria.

Summary Statement of Archaeological Significance

The significance of the Project Area is vested primarily in the early road structures and structural elements associated with the abandoned loop of the Great North Road at Mount McQuoid/Bucketty, constructed using convict labour from the No. 29 Road Party under the supervision of Assistant Surveyor Heneage Finch in 1830-31. Remains known to be intact within the Project Area include a culvert below the Great Northern Road (Structure No. 2a) at CH 0-CH 40, and sandstone cutting with pick marks adjacent to the Great North Road/George Downes Drive at CH 100.

Other subsurface archaeological resources that may survive within the Project Area are likely to consist of former road surfaces and fill deposits below the current road surface and verge of the Great Northern Road / Great North Road, where the original 1830 alignment intersects with the current road. This evidence could be used to supplement what is already known of early-19th century road engineering and construction techniques. However, these resources are likely to have been subject to some disturbance from later phases of road improvements and would have limited

research potential to yield new or further substantial information on the historical development and construction of the road.

8 Proposed Works

8.1 Background

Central Coast Council were successful in obtaining \$1.72m in funding under the Safer Roads Program for safety improvements on George Downs Drive, Bucketty. Further investigations identified the location as being within the Cessnock LGA, resulting in responsibility for the project being transferred to Cessnock City Council by Transport for NSW.

George Downes Drive is classified as a regional road that serves the rural communities of Central Mangrove, Mangrove Mountain, Kulnura and Bucketty. It provides connections to Wisemans Ferry Road and the Great Northern Road, attracting commuters from anywhere between Gunderman and Wollombi. The route consists of a predominately curved horizontal alignment with some vertical crests and with minimal shoulder width (typically less than 1m). It is governed by double barrier lines and guide posts with the absence of any further delineation measures.

The Project Area extends for approximately 715 metres, covering either side of the intersection between George Downes Drive and the Great Northern Road. The speed limit is reduced from 100km/h to 80km/h within the Project Area due to the presence of the intersection. The road features two horizontal curves and one vertical curve with one 3.5 metre travel lane in each direction and no shoulder. Within the road reserve there are embankments, non frangible vegetation and steep graded slopes off the carriageway.

There is a frequent occurrence of off carriageway crashes and head on crashes within close proximity to the intersection of George Downes Drive and Great Northern Road. The proposed treatment takes a safe systems approach in reducing the likelihood of injury should off carriageway crashes occur.⁶²

8.2 Considerations of Alternatives

Cessnock City Council considered the following options in regard to the road widening and safety improvement works:

1. Do Nothing
2. Channelised Right Turn
3. Basic Right Turn Lane⁶³

Option 1 – Do Nothing

Option 1 involves the 'do nothing' approach. The 'do nothing' approach was discounted as it would not meet the objectives of the safety upgrades.

This approach would not result in any impacts to heritage values; however, the road and intersection would still require ongoing maintenance and repair to continue as an in-use transport corridor.

⁶² Peak Land Management, Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty, Cessnock City Council, June 2023, pp. 6–7.

⁶³ Peak Land Management, Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty, p. 13.

Option 2 - Channelised Right Turn

Option 2 involves provision of a Channelised right turn lane into Great Northern Road. A Channelised right turn lane would require establishment of an additional, separate turn lane on the Great North Road at the intersection with George Downes Drive.

Option 2 was discounted as it was considered there was insufficient traffic usage to warrant the additional costs of this option.

Option 3 - Basic Right Turn Lane (the Proposal)

Option 3 involves provision of a Basic right turn lane into Great Northern Road. A Basic right turn lane would require a shared through and right-turn lane with minor widening of the shoulder of the Great North Road at the intersection with George Downes Drive.

Option 3 was evaluated by Cessnock City Council as the preferred option based upon:

1. Constructability;
2. Estimated construction cost;
3. Required maintenance;
4. Safety outcomes;
5. Environmental considerations
6. Design life and durability.

8.3 The Proposal

8.3.1 Scope of Work

The road widening and safety improvement works program will involve:

- Pavement widening to accommodate guardrail with motorcycle rub rail on George Downs Drive and Great North Road
- Intersection upgrade to accommodate basic right turn (BAR intersection) treatment
- Regrading and widening of Great Northern Road to improve sight distance
- Minor drainage work – pipe extension and headwall etc.
- Batter stabilisation and revegetation of disturbed areas – jute mesh and grass seeding
- 40 mm asphalt concrete resealing of full width of road pavement
- Associated signs and line marking

The estimated length of the construction period is 3 months.

8.3.2 Construction Works Methodology

The construction works methodology in Table 9 below has been summarised from the Draft Minor Works Review of Environmental Factors.⁶⁴

⁶⁴ Peak Land Management, Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty, p. 7.

Table 9. Description of Construction Works Methodology

Stage	Works Description
Pre-construction	<p>Development of Project Management Plans in accordance with scope of works and technical criteria, design, and project conditions of approval:</p> <ul style="list-style-type: none"> • Overarching Project Management Plan (PMP) • Site specific Workplace Health and Safety (WHS) plan • Construction Environmental Management Plan (CEMP) • Traffic Management Plan <p>(TMP) Preliminary activities include:</p> <ul style="list-style-type: none"> • Establishment of site compound • Installation of traffic control • Fencing/exclusion of heritage sites • Installation of erosion and sediment controls etc.
Construction	<p>Construction Works Methodology:</p> <ul style="list-style-type: none"> • Erosion & sediment control • Stockpiles • Clearing vegetation/trees • Excavation for pavement rehabilitation/widening • Cutting table drains • Batter stabilization • Minor drainage work • Pavement construction/seal • Installation of signs and line markings • Revegetate disturbed areas

The following heritage impact assessment has been prepared based upon a review of the Civil Works Details Proposed Road Work – George Downes Drive and Great Northern Road, Bucketty, final design by Daly Smith, provided by Cessnock City Council (Table 10). The full set of final design drawings are attached in Appendix A.

Table 10. Drawing Schedule - Civil Works Details Proposed Road Work

Drawing No	Title	Revision	Date
1	Cover Sheet & Drawing Schedule	C	5/09/2022
2	Construction Notes	C	5/09/2022
3	Overall Site Plan	C	5/09/2022
4	Great Northern Road Site Plan - 01	C	5/09/2022
5	Great Northern Road Site Plan - 02	C	5/09/2022
6	George Downes Drive Site Plan - 01	C	5/09/2022
7	George Downes Drive Site Plan - 02	C	5/09/2022
8	George Downes Drive Site Plan - 03	C	5/09/2022
9	George Downes Drive Site Plan - 04	C	5/09/2022
10	George Downes Drive Site Plan - 05	C	5/09/2022
11	George Downes Drive Site Plan - 06	C	5/09/2022
12	George Downes Drive Site Plan - 07	C	5/09/2022
13	George Downes Drive Site Plan - 08	C	5/09/2022
14	Typical Sections & Details Sheet 01	C	5/09/2022
15	Typical Sections & Details Sheet 02	C	5/09/2022

Drawing No	Title	Revision	Date
16	Great Northern Road Long Section Profile	C	5/09/2022
17	George Downes Drive Long Section Profile 01	C	5/09/2022
18	George Downes Drive Long Section Profile 02	C	5/09/2022
19	George Downes Drive Long Section Profile 03	C	5/09/2022
20	George Downes Drive Long Section Profile 04	C	5/09/2022
21	George Downes Drive Long Section Profile 05	C	5/09/2022
22	GDD-GNR Intersection Plan	C	5/09/2022
23	GDD-GNR Intersection Kerb Return Profiles 01	C	5/09/2022
24	GDD-GNR Intersection Kerb Return Profiles 02	C	5/09/2022
25	George Downes Drive Cross Sections - 01	C	5/09/2022
26	George Downes Drive Cross Sections - 02	C	5/09/2022
27	George Downes Drive Cross Sections - 03	C	5/09/2022
28	George Downes Drive Cross Sections - 04	C	5/09/2022
29	George Downes Drive Cross Sections - 05	C	5/09/2022
30	George Downes Drive Cross Sections - 06	C	5/09/2022
31	George Downes Drive Cross Sections - 07	C	5/09/2022
32	George Downes Drive Cross Sections - 08	C	5/09/2022
33	George Downes Drive Cross Sections - 09	C	5/09/2022
34	George Downes Drive Cross Sections - 10	C	5/09/2022
35	George Downes Drive Cross Sections - 11	C	5/09/2022
36	George Downes Drive Cross Sections - 12	C	5/09/2022
37	George Downes Drive Cross Sections - 13	C	5/09/2022
38	Great Northern Road Cross Sections - 01	C	5/09/2022
39	Great Northern Road Cross Sections - 02	C	5/09/2022
40	Great Northern Road Cross Sections - 03	C	5/09/2022
41	Linemarking & Signposting Plan - 01	C	5/09/2022
42	Linemarking & Signposting Plan - 02	C	5/09/2022
43	Linemarking & Signposting Plan - 03	C	5/09/2022
44	George Downes Drive Cut and Fill Plan 01	C	5/09/2022
45	George Downes Drive Cut and Fill Plan 02	C	5/09/2022
46	George Downes Drive Cut and Fill Plan 03	C	5/09/2022
47	George Downes Drive Cut and Fill Plan 04	C	5/09/2022
48	Great Northern Road Cut and Fill Plan	C	5/09/2022

9 Heritage Impact Assessment

The following section provides an assessment of the impact of the road widening and safety improvement works on the heritage significance of the Great North Road, between Mt Manning and Wollombi, and addresses matters for consideration in accordance with the Guidelines for preparing a statement of heritage impact⁶⁵. Measures to avoid, minimise and mitigate any adverse impacts on heritage significance of the item are identified.

There are 16 matters for consideration as part of the impact assessment, they have been addressed as applicable in the following sections of the report (Table 11).

Table 11. Matters for consideration and section of report in which they are addressed

Matters for Consideration	Section in report
Fabric and spatial arrangements	Section 9.1.1
Setting, views and vistas	Section 9.1.2
Landscape	Section 9.1.3
Use	Section 9.1.4
Demolition	Section 9.1.5
Curtilage	Section 9.1.6
Movable heritage	Section 9.1.7
Aboriginal cultural heritage	Section 9.1.8
Historical archaeology	Section 9.1.9
Natural heritage	Section 9.1.10
Conservation areas	Section 9.1.11
Cumulative impacts	Section 9.1.12
Conservation Management Plan	Section 9.1.13
Other heritage items in the vicinity	Section 9.1.14
Commonwealth/National heritage significance	Section 9.1.15
World Heritage significance	Section 9.1.16

The assessment of the degree of heritage impact in this report is based on the following definitions in the Heritage NSW Material Threshold Policy⁶⁶:

- Total loss of significance - Major adverse impacts to the extent where the place would no longer meet the criteria for listing on the SHR.

⁶⁵ Department of Planning and Environment, Guidelines for preparing a statement of heritage impact, Environment and Heritage, Department of Planning and Environment, Parramatta, 2023.

⁶⁶ Heritage NSW, Material Threshold Policy, 2020.

- Major adverse impact - Major (that is, more than minor or moderate) adverse impacts to heritage significance.
- Moderate adverse impact - Moderate adverse impacts to heritage significance.
- Minor adverse impact - Minor adverse impacts to heritage significance.
- Little to no impact - An alteration to heritage significance that is so minor that it is considered negligible.
- Positive impact - Alterations that enhance the ability to demonstrate the State heritage significance of an SHR listed place.

9.1 Matters for Consideration

9.1.1 Fabric and Spatial Arrangements

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Pavement widening	<ul style="list-style-type: none"> Great North Road / George Downs Drive (CH0.0 – CH420.0) Great Northern Road (CH0.0 – CH180.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Minor earthworks (cut/fill) to allow the existing embankment to be finished at the appropriate levels for the construction of road pavement and shoulders. Widening of pavement of the current (in use) line of road, with new pavement and shoulder construction confined to the road reserve and batter slope. The proposal will not physically affect identified early road structures/ structural elements (elements with high or exceptional significance), or areas of archaeological potential. The removal of selected trees within 6m of the edge of the Great North Road to enable widening will have a minor adverse visual impact on the bush setting of the Great North Road. 	Minor adverse	<ul style="list-style-type: none"> The location of early road structures/ structural elements in the vicinity of the Project Area should be indicated on the construction plans. To prevent disturbance to any significant fabric, appropriate protection measures such as temporary fencing should be put in place prior to commencement of works. Heritage induction for on-site personnel prior to commencement of construction works.
New guardrail and motorcycle rub rail	<ul style="list-style-type: none"> Great North Road / George Downs Drive (CH30.0 - CH690.0) Great Northern Road (CH 157.0- CH 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Removal of existing guardrail where the offset is less than 1 m from the edge of road pavement. Introduction of new fabric within the road reserve from replacement or installation of new guardrail with motorcycle rub rail. 	Minor adverse	<ul style="list-style-type: none"> A photographic archival recording of the Project Area should be undertaken to document the changes to the Great North Road before and after the proposed works, to add to the documentation of

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
	180.0)	<ul style="list-style-type: none"> The proposal will not physically affect identified early road structures/ structural elements (elements with high or exceptional significance), or areas of archaeological potential. The introduction of new fabric will result in a minor adverse visual impact within the current (in use) road corridor. 		the history of the road.
Intersection upgrade to accommodate basic right turn (BAR intersection) treatment	<ul style="list-style-type: none"> Great North Road / George Downs Drive (CH 395.0-CH44.05) Great Northern Road (CH 40.0-183.955) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Widening of the intersection with 3.5m lane plus 0.3m widening on curve. Transition from 0.5m shoulder to 2m shoulder for proposed guardrail barrier. These works would result in modifications to the spatial arrangement of the intersection within the SHR curtilage. The proposal will not physically affect identified early road structures/ structural elements (elements with high or exceptional significance), or areas of archaeological potential. 	Minor adverse	<ul style="list-style-type: none"> A photographic archival recording of the Project Area should be undertaken to document the changes to the Great North Road before and after the proposed works.

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Regrading and widening of Great Northern Road to improve sight distance	<ul style="list-style-type: none"> Great Northern Road (CH 0.0-183.955) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Earthworks (cut and fill) in area with moderate archaeological potential (Archaeological Area 1) (CH 100- CH140) ranging in depth from -0.5 to 0.5 m from existing surface level. Shoulder work only in the area where the culvert (Structure No 2a) passes under the Great Northern Road (CH 0-CH 40), with excavation up to -0.50 from existing surface level to have minimum road pavement thickness of 260mm. No direct impacts to the fabric of the culvert (Structure No 2a) below the Great Northern Road is anticipated. The precise depth or extent of the former road surface and culvert cover within Archaeological Area 1 is uncertain, and the works may result in partial impact to historical archaeological remains associated with the convict construction of the Great North Road. 	Minor adverse	<ul style="list-style-type: none"> Construction works to be undertaken in a manner that does not impact on significant fabric of Culvert (Structure 2a). Earthworks in Archaeological Area 1 to be monitored and recorded by qualified archaeologist. During regrading and widening, if any potential archaeological relics are uncovered, work is to stop, and unexpected finds procedure to be followed.
Minor drainage work	<ul style="list-style-type: none"> Extension of culvert - George Downs Drive intersection (CH 400.0 - CH410.0) Grouted rock/ diversion of overland flow 	<p>The proposal would involve:</p> <p>Extension of the culvert under the intersection by 2m at the upstream (north east) end through removal of the existing headwall, extension of pipe, and installation of new headwall.</p> <ul style="list-style-type: none"> The culvert under the intersection is consists of non- significant fabric and does not contribute to the heritage significance of the Great North Road. The extension of the culvert will have little to no 	Little to no	<ul style="list-style-type: none"> Use of modern materials for the culvert extension is considered acceptable.

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
	<ul style="list-style-type: none"> – Great North Road (CH355.0 – CH340.0) 	impact on significance on the current road alignment.		
40 mm asphalt concrete resealing of full width of road pavement	<ul style="list-style-type: none"> • Great North Road / George Downs Drive (CH0.0 – CH717.468) • Great Northern Road (CH0.0 – Ch180.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> • Direct physical impact on non-significant fabric arising from 30mm asphalt overlay with no milling of existing overlay OR 60mm asphalt overlay with 25mm milling of existing overlay. 	Little to no	<ul style="list-style-type: none"> • The proposed works are limited to the current road pavement. • The asphalt concrete resealing uses like for like overlay material and is a minor maintenance activity that will have no impact on the heritage significance of the road.
Establishment of site compound and temporary stockpile sites	<ul style="list-style-type: none"> • George Downes Drive (CH 365.0 – CH 385.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> • Installation of temporary site infrastructure to support the road widening and safety improvement works. • These areas are to be located at George Downes Drive south in Central Coast Council LGA (to the south west of the intersection, outside the SHR curtilage), within private property at 5319 Great North Road, Bucketty (Lot 27 DP573116) subject to negotiation with the property owner, or Cessnock City Council's temporary stockpile site along the Great North Road, Laguna, which has previously been used for such purposes. • The temporary set down and laydown areas will not physically impact any known early road structures/structural elements or archaeological features. 	Little to no	<ul style="list-style-type: none"> • Site compound and temporary stockpile sites are to be located outside the SHR curtilage (Figure 21). • The temporary site infrastructure will remain in place for the duration of the proposed works, with an estimated construction period of 3 months. • All introduced structures and stockpiles are to be removed at the completion of works.



Figure 21. Proposed stockpile sites

9.1.2 Setting, Views and Vistas

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Batter stabilisation and revegetation of disturbed areas	<ul style="list-style-type: none"> Great North Road (CH 365.0 – CH 385.0) Great Northern Road (CH 120.0 – CH 180.0) 	<p>The proposal would involve:</p> <ul style="list-style-type: none"> Excavated and filled batter areas. Batter spill width shown in cut and fill plans. Batter slope stabilisation Tree removal Direct physical impact on non-significant fabric arising from removal of trees and vegetation within 5m of the edge of the current alignment of the Great North Road at the intersection for stabilisation of batter slopes and culvert extension. The trees proposed for removal are not identified as elements of the heritage item, although they contribute to the bush setting of the Great North Road and provide visual screening along the current alignment of the road. Removal of the trees will have a minor adverse visual impact on the setting of the Great North Road and views and to and from the Bucketty precinct. 	Minor adverse	<ul style="list-style-type: none"> The proposed 2:1 batter slope will match the existing profile; no change in batter geometry is anticipated. Some of the visual impact of the proposal will lessen over time following the establishment of vegetation on batter surface. In addition to grass seeding, consideration should be given to selecting appropriate native tree species for long-term vegetative batter surface stabilisation to provide visual screening between the current alignment of the Great North Road and the Bucketty precinct.

Proposed Works	Location	Type of Impact	Degree of Impact	Mitigation Measures
Associated signs and line marking	<ul style="list-style-type: none"> Great North Road / George Downs Drive Great North Road (CH 365.0 – CH 385.0) Great Northern Road (CH 145.0 – Ch 180.0) 	<ul style="list-style-type: none"> The installation of signage will have a minor adverse visual impact. No direct physical impacts to the sandstone cutting with pick marks are anticipated (Figure 13, Figure 15, Figure 22. The works will enable the current alignment to continue as an in-use section of the Great North Road. 	Minor adverse	<p>All proposed signs and line marking shall be implemented in accordance with the following Australian Standards:</p> <ul style="list-style-type: none"> AS1742 Manual of Uniform Traffic Control Device AS1743-2001 Road signs-Specifications.

9.1.3 Landscape

Not applicable to this proposal.

9.1.4 Use

No change in use is proposed.

9.1.5 Demolition

Not applicable to this proposal.

9.1.6 Curtilage

Not applicable to this proposal.

9.1.7 Moveable Heritage

Not applicable to this proposal.

9.1.8 Aboriginal Cultural Heritage

Not applicable to this proposal. Potential Aboriginal heritage impacts are addressed in the following report: Heritage Now Pty Ltd. 2022. "Aboriginal Heritage Due Diligence Assessment Report - George Downes Drive Bucketty." Cessnock City Council. No Aboriginal sites or potential archaeological deposits will be affected by the proposal.

9.1.9 Historical Archaeology

Two areas with moderate potential for historical archaeological remains have been identified within the Project Area, where the original 1830 alignment of the Great North Road intersects with the current road:

- Archaeological Area 1 with potential for former road surface and culvert cover (fill deposits) associated with extant culvert (Structure 2a), on the Great Northern Road (CH 0-CH 40) (Figure 22), and
- Archaeological Area 2 with potential for former road surface associated with Road pavement 2 (Structure No 2e) (Figure 13) on the Great North Road (CH 100-CH140) (Figure 23).

Archaeological Area 1 - The depth, extent and intactness of the former road surface and fill deposits associated with the culvert (Structure 2a), is currently unknown. A previous report on the reconstruction of the culvert suggests archaeological remains may survive commencing at a depth of approximately 30cm below the ground surface; however, it is anticipated these remains will have been subject to some disturbance by grading from later road works. In this area, the proposed construction works consist of shoulder work only, with cut and fill proposed up to 50cm in depth (resulting in minimum road pavement thickness of 260mm on completion) (Figure 22). Given the relative depths, no direct impacts to the fabric of the culvert are anticipated; however, there is some potential for the shoulder work to encounter the surviving road fabric relating to the convict construction of the Great North Road.

While the former road surface and culvert cover may be considered ‘works’ rather than relics under the definition of the Heritage Act, archaeological monitoring of the earthworks in Archaeological Area 1 would ensure that significant fabric of the culvert is not physically impacted and any surviving archaeological remains relating to the convict construction of the Great North Road are identified, and recorded.

Archaeological Area 2 - The area of moderate archaeological potential for the former road surface of the original 1830 line of the Great North Road, associated with Road pavement 2 (Structure No 2e), is outside the limit of works and no subsurface impacts are proposed.



Figure 22. Archaeological Area 1 - Culvert location and associated area of moderate archaeological potential overlaid on cut and fill plan.

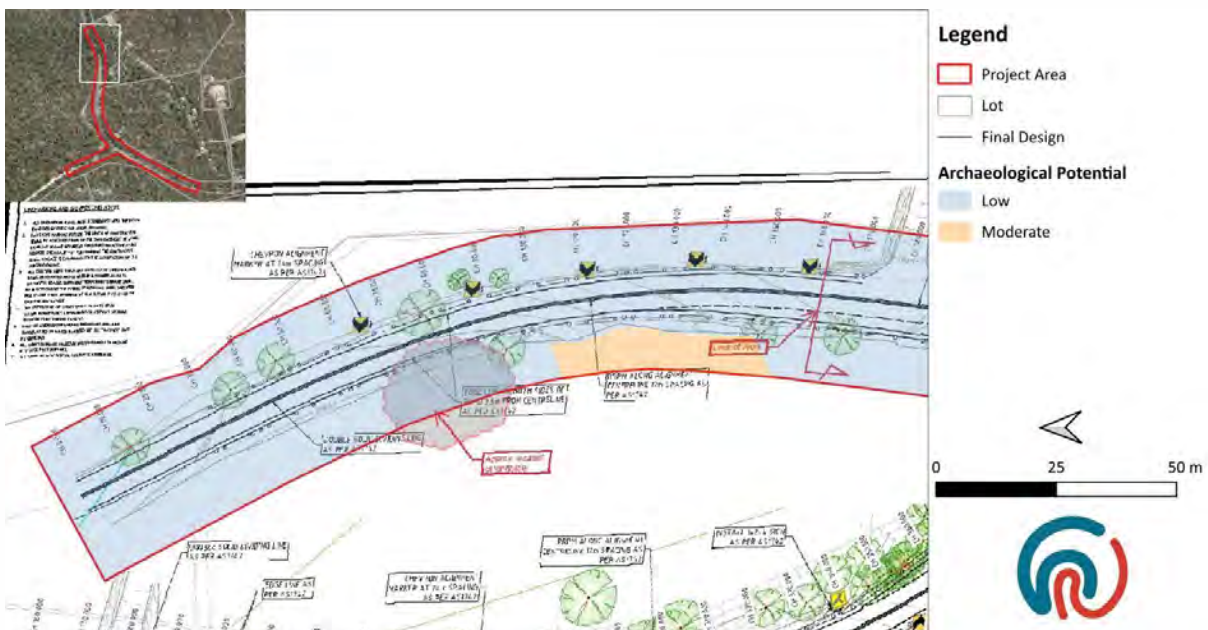


Figure 23. Archaeological Area 2 - Area of moderate archaeological potential overlaid on linemarking and signposting plan.

9.1.10 Natural Heritage

The Greater Blue Mountains Area

World Heritage Properties and National Heritage Places are considered to be matters of national environmental significance. Actions that are likely to have a significant impact on a matter of national environmental significance must be referred to the Australian Government Environment Minister for a decision on whether assessment and approval is required under the EPBC Act.

An action is considered likely to have a significant impact on the World Heritage values of a declared World Heritage property, or National Heritage values of a National Heritage place, if there is a real chance or possibility that it will cause:

- one or more of the values or to be lost
- one or more of the values to be degraded or damaged, or
- one or more of the values to be notably altered, modified, obscured or diminished⁶⁷

The Greater Blue Mountains Area is inscribed on the World Heritage List and listed on the National Heritage List for its natural values. The biodiversity assessment report prepared for the Review of Environmental Factors has identified that the proposed works are not considered likely to have a significant impact on the natural heritage values of the Greater Blue Mountains Area; and as such do not require a referral under the EPBC Act.⁶⁸ The report is attached in Appendix 2.

9.1.11 Conservation Areas

Not applicable to this proposal.

9.1.12 Cumulative Impacts

The proposal is not part of a broader scope of works; however, previous road safety works on the section of the Great North Road between Mt Manning and Wollombi include a reconstruction upgrade at Lemming Corner, Laguna; and repair and safety works at Ramsay's Leap, near Mt Simpson, Bucketty. Cumulatively, these works will improve road safety conditions on the Great North Road generally, and incidentally enhance protection of the heritage item by reducing the incidence and severity of off carriageway crashes and head on crashes.

9.1.13 The Conservation Management Plan

A Conservation Management Plan (Stage 1) for the entire length of the Great North Road was prepared in 1999 for the Convict Trail Project by Siobhan Lavelle, in association with Dr Grace Karskens and RTA Technology. The CMP has not been endorsed by the Heritage Council of NSW.

The proposed works are assessed against relevant general conservation policies provided in the 1999 CMP (Table 12).

⁶⁷ Department of the Environment, Matters of National Environmental Significance: Significant Impact Guidelines 1.1, 2013, pp. 16–22.

⁶⁸ Peak Land Management, Biodiversity Assessment Report George Downes Drive Bucketty, Cessnock City Council, June 2023, p. 10.

Table 12. Consistency with conservation management plan policies.

Policy no.	CMP Policy	Consistency assessment
6.1 General Principles	Any major work on individual structures or precincts should be preceded by appropriate documentation and recording. This should include photographs, plans and descriptions incorporating analysis using appropriate professional input as required.	The proposal is consistent with this policy. Recommendations for photographic archival recording of the Project Area prior to and following the proposed works are included in this report.
6.3 Fabric and setting	Wherever possible, original fabric should be retained, preserved and maintained.	The proposal is consistent with this policy. Recommendations to protect early road structures/structural elements in the vicinity of the Project Area during the proposed works are included in this report.
	Wherever possible, displaced original fabric should be restored.	Not applicable to this proposal. The proposed works will have no physical impacts on elements of Exceptional and High significance.
	Replacement fabric should be of the same design, form, and finish as existing fabric.	The proposal is in alignment with this policy. The proposed works will have no physical impacts on elements of Exceptional and High significance.
	New work should be of a form, scale and finish which respects existing elements, but should be discernible on close inspection as new work.	The proposal is consistent with this policy. Materials proposed for resurfacing and widening the current road will match existing fabric. No change in batter geometry is anticipated.
6.3.2 Landscape/ Setting	The significant attributes of the landscape and setting of the Great North Road should be conserved wherever possible. Settings should not be modified by the addition of new features which dominate or detract from the character of the road.	The proposal is consistent with this policy. The proposed works will have a minor visual impact on the bush setting of the road, through removal of trees to enable pavement widening and intersection works. A recommendation to select native tree species for long-term batter surface stabilisation is included in this report to replace screening vegetation in batter areas and visually integrate road infrastructure into the surrounding landscape.

Policy no.	CMP Policy	Consistency assessment
6.3.3 Vegetation	Where vegetation is a significant attribute of a road Precinct, this should be conserved. Examples are the numerous "bush" settings of several road precincts which evoke the nature of the pioneer period. Whilst vegetation affecting structures should be periodically removed, these precincts should not be over-maintained.	The proposal is consistent with this policy. The proposed works will have a minor visual impact on the bush setting of the road, through removal of trees to enable pavement widening and intersection works. A recommendation to select native tree species for long-term batter surface stabilisation is included in this report to replace screening vegetation in batter areas and visually integrate road infrastructure into the surrounding landscape.
6.4 Curtilage	Development on adjacent sites, especially the commercial, or semi-commercial development of adjoining freehold land, has the potential to severely alter parts of the significant setting(s) of the Road, and should be assessed accordingly.	Not applicable to this proposal.
6.5 Appropriate Uses	Where the Great North Road continues in use as a transport corridor this may be seen as a continuation of its traditional role. It is necessary to ensure however that continued use does not result in the loss of significant attributes of the Road.	The proposal is consistent with this policy and will allow the road to continue to function as an in-use transport corridor. Identification of heritage impacts of the proposal has been undertaken, and the proposed works will have no physical impacts on elements of Exceptional and High significance.
6.6 New Works	New works must be compatible with the character and style of the earlier fabric and with its surrounding context. If possible, new works should also be designed to be reversible in the future (eg if the missing fabric is later found or recovered and can therefore be reinstated). Although unsound fabric might need replacement, applying 'minimum intervention', the emphasis should generally be on stabilisation, in preference to dismantling and repair or reconstruction. Supplementation of fabric (eg propping) may also be sufficient.	The proposal is consistent with this policy. Materials proposed for resurfacing and widening the current road will match existing fabric. No change in batter geometry is anticipated. The proposed works will have no physical impacts on elements of Exceptional and High significance.
6.6.1 Introduced Material	Any introduced materials should be documented (by means of photographs, reports, etc) and should be identifiable as new.	The proposal is consistent with this policy. A recommendation for archival photographic recording of the Project Area prior to and following the proposed

Policy no.	CMP Policy	Consistency assessment
		works is included in this report.
6.7 Interpretation	An interpretive program should be devised and implemented recognising available archival and site evidence. It should also recognise lost fabric and layout.	Existing interpretation in the Bucketty precinct is consistent with this policy and is considered adequate. Additional interpretation is not proposed as part of the scope of work.
6.8 Signage	Signs used on Great North Road precincts should be designed as a system; conform to a high standard of professional design; be of good quality materials; be durable and vandal resistant; and respect the significance of the place by enhancing it rather than obscuring or detracting from it. Signage may encompass different purposes, including information signs, user education (interpretive signs), destination or next stop (route marker) signs.	The proposal is consistent with this policy. New road signs are to comply with Australian Standards. The signs will have a minor visual impact within the current road corridor, but their location will not obscure or detract from significant elements of the old Great North Road in the Bucketty precinct.
6.9 Control of Physical Intervention in the Fabric	In carrying out physical work on the damaged structures within precincts of the Great North Road, the following principles must be applied: <ul style="list-style-type: none"> All conservation work (including maintenance) carried out on significant monuments should be according to the advice and direction of recognised heritage conservation specialists; 	Not applicable to this proposal. The proposed works do not involve conservation work on significant structures.
	Work on significant structures should be carried out using appropriate professional skills (including qualified trade skills) with adequate direction and supervision maintained at all stages of the work;	
	<ul style="list-style-type: none"> Existing fabric should be recorded prior to disturbance by new works; 	The proposal is consistent with this policy. A recommendation for archival photographic recording of the Project Area prior to and following the proposed works is included in this report.
	<ul style="list-style-type: none"> Wherever possible original fabric should be retained and preserved, thereby maintaining the integrity / authenticity of the original structure; 	The proposal is consistent with this policy. Recommendations to protect early road structures/structural elements in the vicinity of the Project Area during the proposed works are included in this report.
	Wherever possible displaced fabric should be reinstated to its original	Not applicable to this proposal.

Policy no.	CMP Policy	Consistency assessment
	location, where this is known, thereby restoring both original fabric and form;	
	<ul style="list-style-type: none"> Careful regard should be paid to the landscape and setting of individual structures and to the historic, physical and visual relationships of individual structures within surviving road precincts; 	The proposal is consistent with this policy. Recommendations to mitigate the effects of the proposal on the setting of the Great North Road and visual relationship between the current alignment of the road and the abandoned loop at McQuoid/Bucketty are included in this report.
	<ul style="list-style-type: none"> Reconstruction, using new fabric, should be limited to works which are essential, in order to allow preservation and restoration of existing fabric. 	Not applicable to this proposal.
6.9.1 Archaeology	Where physical intervention may reveal or disturb 'relics' within the meaning of the NSW Heritage Act, appropriate Permits must be obtained and professional archaeological supervision will be required. In some instances, for example where the Road is within or adjacent to National Parks, Aboriginal sites may be affected. If so, separate Permits or consents may be required under the NSW National Parks and Wildlife Act.	<p>The proposal is consistent with this policy. Archaeological impacts of the proposed works are assessed in this report, and monitoring by a suitably qualified archaeologist is recommended in areas with potential historical archaeological remains.</p> <p>Potential Aboriginal heritage impacts are addressed in the following report: Heritage Now Pty Ltd. 2022. "Aboriginal Heritage Due Diligence Assessment Report - George Downes Drive Bucketty." Cessnock City Council. No Aboriginal sites will be affected by the proposal.</p>
6.9.2 Artefacts	Numerous isolated artefacts and portable relics are known to have been collected from road Precincts and sites in past years. Any relics removed, should be professionally catalogued and protected. Appropriate storage arrangements are also required.	The proposal is consistent with this policy. The potential for isolated artefacts across the Project Area is considered low. An unexpected finds procedure is provided to manage any relics identified during the proposed works.

9.1.14 Other Heritage Items in the Vicinity

Not applicable to this proposal.

9.1.15 Commonwealth/National Heritage Significance

Not applicable to this proposal.

The Greater Blue Mountains Area is inscribed on the National Heritage List for its natural values and is considered in the biodiversity assessment report prepared for the REF (see Appendix 2).

9.1.16 World Heritage Significance

Not applicable to this proposal.

The Greater Blue Mountains Area is inscribed on the World Heritage List for its natural values, and is considered and is considered in the biodiversity assessment report prepared for the REF (see Appendix 2).

10 Summary and Recommendations

The Project Area is located partly within the curtilage of the Great North Road, between Mt Manning and Wollombi, which is listed in on the State Heritage Register (Item ID 01138). Parts of this section of the Great North Road are also listed variously on the Cessnock Local Environmental Plan 2011 (I217), Hawkesbury Local Environmental Plan 2012 (I0091), and Gosford Local Environmental Plan 2014 (60). In addition, the proposed works are partly within the Greater Blue Mountains Area, which is listed as a natural place on the World Heritage List (Dossier 917/Place ID 105127) and the National Heritage List (Place ID 105999).

The proposed works include road widening and safety improvement works along a 685m section of George Downes Drive at the intersection with the Great Northern Road. The works will enable the current alignment of this section of the Great North Road to continue as an in-use transport corridor. Overall, the safety aspects of the proposal will enhance the protection of the heritage item by reducing the likelihood of off carriageway crashes.

The current alignment of the Great North Road has been subject to some disturbance from grading during road works and realignment of the intersection in the 1960s; however, the following early road structures/structural elements and areas of historical archaeological potential have been identified within the Project Area:

- **Archaeological Area 1** has moderate potential for historical archaeological remains consisting of the former road surface and culvert cover (fill deposits) where the original 1830 alignment of the Great North Road intersects with the current alignment of the Great Northern Road (CH 0-CH 80).
- **Archaeological Area 2** has moderate potential for historical archaeological remains consisting of the former road surface along the original 1830 alignment of the Great North Road, to the west of the current alignment of the Great North Road (CH 100-CH140).
- **Early road structure – Culvert (Structure No 2a)** – Within Archaeological Area 1 below the Great Northern Road (CH 0-CH 40)
- **Early road structure – Culvert (Structure No 3)** – To the west of the current alignment of the Great North Road (CH 220), within the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.
- **Early road structure – Cutting with pick marks** – Adjacent to the current alignment of the Great North Road (CH 100).

No direct physical impacts on the fabric of early road structures/structural elements of the Great North Road identified as having exceptional and high significance - Culvert (Structure No 2a), Culvert (Structure No 3) and the cutting with pick marks - are anticipated. Archaeological Area 2 is outside the limit of work and no subsurface impacts are proposed.

However, the proposed road upgrade works may result in partial impact to former road surface and culvert cover in Archaeological Area 1, relating to the convict construction of the Great North Road. The proposed works in this area consist of shoulder work only, with cut and fill up to 50cm in depth. The potential archaeological remains in Archaeological Area 1 may contribute further to an understanding of the historical development and construction of the road, and complement the written and archaeological records in regard to early-19th century road building and road use.

The proposed works will also have a minor adverse visual impact on the bush setting, and views to, from and between the abandoned loop and current alignment of the Great North Road. The proposal will impact sections of batter (side slopes) adjacent to the intersection; the batter stabilisation work will require removal of selected trees, and revegetation of batter surface. There will be some temporary minor visual impacts to the bush setting of the Project Area during construction activities. The proposed works are not considered likely to have a significant impact on the natural heritage values of the Greater Blue Mountains Area; and as such a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) is not required.

The works are to be carried out following the recommendations below.

Recommendation 1

Works within the State Heritage Register curtilage of the Great North Road, between Mt Manning and Wollombi will require a Section 60 approval from the Heritage Council of NSW. This approval is needed prior to commencement of works within the Project Area.

Recommendation 2

A heritage induction should be included in the general site induction prior to commencement of works, so that all on-site personnel are aware of their obligations under the Heritage Act 1977 (NSW), including:

- The heritage significance of the Great North Road, and early road structures (and structural elements) that are located within and in the vicinity of the Project Area
- Protocols that apply to their protection, including fencing and 'no go' areas
- Unexpected finds procedure, and requirement to notify the Heritage Council of New South Wales of the discovery of any relics within the Project Area

Recommendation 3

A photographic archival recording of the Project Area, in accordance with the conservation policies of the 1999 CMP, and Heritage Office guidelines for 'Photographic Recording of Heritage Items Using Film or Digital Capture' (2006), should be undertaken to record the Great North Road before and after the proposed works, to add to the documentation of the history of the road.

Recommendation 4

Archaeological monitoring is to be conducted in Archaeological Area 1. This is to be carried out by a qualified archaeologist to ensure that there is no physical impact to the fabric of the sandstone culvert (Structure No. 2a), to verify the depth and extent of the early road surface and culvert cover associated with the convict construction of the Great North Road, and ensure any remains are identified and appropriately recorded prior to their removal.

Recommendation 5

To ensure that significant early road structures are not inadvertently impacted during construction, temporary fencing or hi vis flagging should be erected to designate a 'no go' area between the works area and the culverts (Structure No 2a and Structure No 3), sandstone cutting with pick marks. The flagging should be maintained for the duration of works in this area.

Recommendation 6

Consideration should be given to selecting appropriate native tree species, in addition to grass seeding, for long-term vegetative batter surface stabilisation near the intersection, to provide visual screening between the current alignment of the Great North Road and the abandoned loop of the Great North Road at Mount McQuoid/Bucketty.

Recommendation 7

Where possible, vehicles should keep to current roads. There should be no vehicle or plant access to Yengo National Park or the abandoned loop at McQuoid/Bucketty during works.

Recommendation 8

In the event that an archaeological feature or deposit that is potential relic is uncovered during pre-construction or construction works the following Unexpected Finds Procedure is to be implemented:

- Stop any excavation or ground disturbance in the vicinity of the find, and immediately notify the Site Supervisor.
- The Site Supervisor is to record the details of the location, take photos of the find and ensure that the area is adequately protected from further disturbance.
- The Site Supervisor is to coordinate with an archaeologist, to examine the find and determine its significance. Note this may require liaison with Heritage NSW; including notification about the discovery of relics in accordance with Section 146 of the Heritage Act. Further approvals may be required prior to the works recommencing.
- Heritage mitigations will be implemented appropriate to the assessed significance of the find.
- If the archaeologist advises that the find is not a relic, works may recommence in accordance with the construction program.

11 References

Australia ICOMOS 2013, The Burra Charter: *The Australia ICOMOS Charter for Places of Cultural Significance*.

Baker, W 1843, 'Map of the County of Northumberland : dedicated by permission to Sir T.L. Mitchell, Knight, Surveyor General of New South Wales', Hibernian Printing Office, King Street, East Sydney.

Bucketty to Mt Manning n.d., The Convict Trail Project, viewed 14 June 2022, <<https://www.convicttrail.com.au/4-bucketty-to-mt-manning.html>>.

Budde, P 2022, 'Farmers and City Slickers', *Paul Budde History, Philosophy, Culture*, viewed 17 August 2022, <<https://paulbuddehistory.com/bucketty/farmers-and-city-slickers/>>.

— 2022, *The Bucketty Book*, viewed 14 June 2022, <<https://paulbuddehistory.com/bucketty/>>.

— 2022, 'The convict era', *Paul Budde History, Philosophy, Culture*, viewed 12 August 2022, <<https://paulbuddehistory.com/bucketty/the-convict-era/>>.

Department of Planning and Environment 2023, *Guidelines for preparing a statement of heritage impact*, Environment and Heritage, Department of Planning and Environment, Parramatta.

Department of the Environment 2013, *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*.

Farmer and Settler 1941, 'Another New Road', 28 August, Sydney, New South Wales, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article117178706>>.

Gosford Times and Wyong District Advocate 1949, 'Councillor George Downes Elected New President Of Gosford Shire', 20 December, p. 1.

Government Gazette of the State of New South Wales 1901, 'RESERVES FROM SALE FOR TRAVELLING STOCK AND CAMPING.', 12 October, Sydney, New South Wales, viewed 17 August 2022, <<http://nla.gov.au/nla.news-article226387851>>.

— 1917, 'PROCLAMATION', 20 July, p. 3611.

— 1922, 'CROWN LANDS NOT AVAILABLE FOR SETTLEMENT UNTIL FURTHER NOTIFICATION.', 20 October, p. 5714.

— 1922, 'REVOCATION OF DEDICATIONS—FORESTRY ACT, 1916.', 13 October, pp. 5560–5562.

— 1928, 'MAIN ROADS ACT, 1924-1927.', 17 August, Sydney, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article219952359>>.

— 1949, 'RESERVES FROM SALE FOR TIMBER.', 14 October, p. 3043.

— 1960, 'NOTIFICATION UNDER THE PUBLIC ROADS ACT, 1902, OF RESUMPTION AND DEDICATION OF LANDS FOR ROADS, OF DECLARATION OF ROADS TO BE PUBLIC ROADS AND OF CLOSING OF ROADS', 9 December, Sydney, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220319143>>.

— 1961, 'SHIRE OF GOSFORD.—NAMING OF ROAD BETWEEN', 22 December, Sydney, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article220288191>>.

— 1992, 'REVOCATION OF A TIMBER RESERVE', 23 October, p. 7859.

Gray, N 1966, 'Howe, John (1774–1852)', in *Australian Dictionary of Biography*, National Centre of Biography, Australian National University, Canberra, viewed 5 August 2022, <<https://adb.anu.edu.au/biography/howe-john-2205>>.

Heritage Branch, NSW Department of Planning 2009, *Assessing Significance for Historical Archaeological Sites and 'Relics'*, Heritage Branch, NSW Department of Planning, Parramatta, N.S.W.

Heritage NSW 2020, *Material Threshold Policy*.

Heritage Office & Department of Urban Affairs and Planning 2002, *Statements of Heritage Impact*.

Karskens, G 1985, 'The construction of the Great North Road, NSW, 1826 - 1836', *Transactions of the Institution of Engineers - Multi-disciplinary*, vol. GE9, no. 2, pp. 27–60.

— 1985, "'The Grandest Improvement in the Country" An Historical and Archaeological Study of the Great North Road, N.S.W., 1825-1836', MA thesis, University of Sydney.

Lavelle, S, Karskens, G, & RTA Technology 1999, *Stage 1 Conservation Plan for the Great North Road, The Convict Trail Project*.

Maitland Mercury and Hunter River General Advertiser 1870, 'WOLLOMBI.', 17 December, New South Wales, viewed 18 August 2022, <<http://nla.gov.au/nla.news-article18750479>>.

McBean & Crisp Pty Ltd 1983, *Report on Great North Road between Mt. Manning turnoff and Paynes Crossing, N.S.W. Structural and Civil Engineering Aspects*, The National Trust of Australia (NSW).

NSW Heritage Office 2001, *Assessing heritage significance*, NSW Heritage Office, Sydney.

NSW National Parks and Wildlife Service 2023, *Greater Blue Mountains World Heritage Area*, NSW National Parks, viewed 12 July 2023, <<https://www.nationalparks.nsw.gov.au/conservation-and-heritage/greater-blue-mountains>>.

NSW National Parks and Wildlife Service, Department of Environment and Climate Change 2009, *Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area: Plan of Management*, DECCW.

Peak Land Management 2023, *Biodiversity Assessment Report George Downes Drive Bucketty*, June, Cessnock City Council.

— 2023, *Draft Minor Works Review of Environmental Factors - Cessnock City Council - George Downes Drive Bucketty*, June, Cessnock City Council.

Roberts, EA 2004, *Bucketty Culvert Reconstruction Report*, Heritage NSW H06129-BUCK, Convict Trail Project Inc.

Singleton Argus 1948, 'Kulnura Road Again Discussed', 14 May, New South Wales, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article84607720>>.

— 1949, 'M.R.B. Engineers' Hint About Kulnura Road', 23 May, New South Wales, viewed 30 August 2022, <<http://nla.gov.au/nla.news-article82578048>>.

Spry, R 2006, 'These Wooden Walls: Government Convict Accommodation and the Expansion of Settlement in New South Wales 1788 to 1857', BA (Hons) thesis, University of Sydney.

Stedinger Associates 2002, *Excavation Report on the Reconstruction of the Retaining Wall at Chainage 1617. Old Great North Road, Dharug National Park, N.S.W.*, July, National Parks and Wildlife Service Central Coast Hunter Region.

— 2010, *Repair and Safety Works at Ramsay's Leap, near Mt Simpson, Bucketty. A Heritage Assessment, Statement of Heritage Impact and Exemption Application*, April, Cessnock City Council.

Strom, B 1998, *Central Coast Heritage Inventory Set 2: Built Environment. Category: Historic Sites and Buildings*, Gosford City Council.

Sydney Morning Herald 1844, 'NEWS FROM THE INTERIOR.', 27 March, New South Wales, viewed 12 August 2022, <<http://nla.gov.au/nla.news-article12415169>>.

The Convict Trail Project n.d., *John MacDonald*, The Convict Trail Project- Caring for the Great North Road, viewed 5 August 2022, <<https://www.convicttrail.com.au/john-macdonald.html>>.

UNESCO World Heritage Centre 2023, *The Criteria for Selection*, UNESCO World Heritage Convention, UNESCO World Heritage Centre, viewed 9 March 2023, <<https://whc.unesco.org/en/criteria/>>.

12Plates



Plate 1. View west from George Downes Drive towards the intersection with the Great Northern Road (Source: Heritage Now 2022)



Plate 2. View from the intersection to the south-west along the Great Northern Road (Source: Heritage Now 2022)



Plate 3. View south-east from Great North Road to George Downes Drive and the intersection with the Great Northern Road (Source: Heritage Now 2022)



Plate 4. Sandstone masonry culvert with reconstructed wing walls, view south (Source: Heritage Now 2022). Note the culvert runs below the current road.



Plate 5. Original 1830 alignment of Great North Road [Road pavement 1] and table drain (adjacent to the Project Area), view west (Source: Heritage Now 2022).



Plate 6. Retaining wall and curved wing walls, view north-east (outside of Project Area). (Source: Heritage Now 2022)



Plate 7. General view of downstream end of retaining wall, view southwest (outside of Project Area) (Source: Heritage Now 2022)



Plate 8. Former road alignment through sandstone cutting and associated rock-cut drain, view north-west (outside of Project Area). (Source: Heritage Now 2022)



Plate 9. Original 1830 alignment of Great North Road (c.7m wide) [Road pavement 2], view north-east (outside of Project Area). (Source: Heritage Now 2022)



Plate 10. Sandstone box culvert upstream entry above 1830 alignment of Great North Road, view west (outside of Project Area). (Source: Heritage Now 2022)



Plate 11. Sandstone box culvert downstream discharge below 1830 alignment of Great North Road, view east (outside of Project Area). (Source: Heritage Now 2023)



Plate 12. Bucketty precinct of the Convict Trail (Great North Road) adjacent to Yengo National Park (Source: Heritage Now 2022)



Plate 13. Way finder in the Bucketty precinct with interpretive signage for the Great North Road. (Heritage Now 2022)

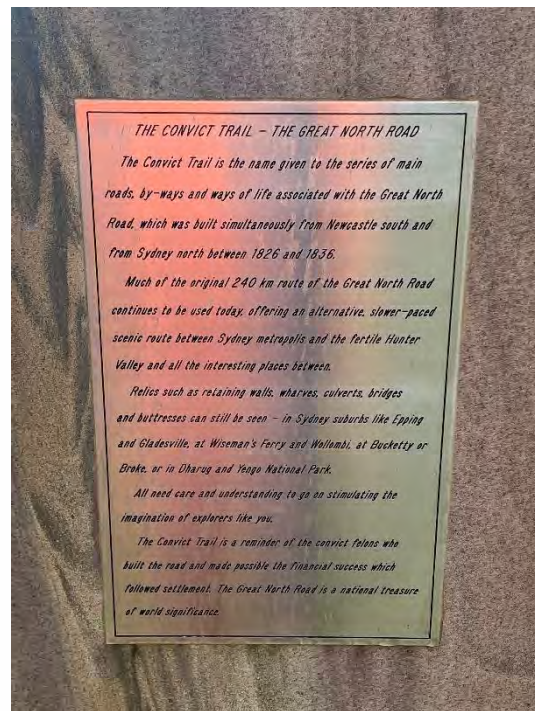


Plate 14. Interpretive signage for the Great North Road (detail). (Heritage Now 2022)



Plate 15. Boulder monument with inset plaque. (Heritage Now 2022)



Plate 16. Inset interpretive plaque describing the "Convict built stone wall, and pavement and drainage of original road" (detail). (Heritage Now 2022)



Plate 17. Interpretive signage for culvert reconstruction. (Heritage Now 2023)



Plate 18. Sandstone memorial bench. (Heritage Now 2023)



Plate 19. View east from the abandoned loop towards the intersection of the Great North Road and George Downes Drive showing difference in elevation between the current road and 1830-1831 alignment. (Source: Heritage Now 2022)



Plate 20. Point where original 1830 alignment of the Great North Road diverges from the current road at the stone culvert in the west of the Project Area, view south (Source: Heritage Now 2022).



Plate 21. Point where original 1830 alignment of the Great North Road intersects with the current road in the north of the Project Area, view south-east (Source: Heritage Now 2022)



Plate 22. Point where original 1830 alignment of the Great North Road intersects with the current road in the north of the Project Area, view east (Source: Heritage Now 2023)



Plate 23. Sandstone cutting with pick marks within northern portion of Project Area. (Source: Heritage Now 2022)



Plate 24. Pick marks on sandstone cutting within northern portion of Project Area (detail) (Source: Heritage Now 2022)



Plate 25. Landslip in north-western portion of Project Area. (Source: Heritage Now 2022)



Plate 26. Section of pavement construction exposed by the landslide. (Source: Heritage Now 2022)

Appendix 1 Civil Works Details Proposed Road Work – George Downs Drive and Great Northern Road, Bucketty –Revision C

Appendix 2 Peak Land Management
(2023) *Biodiversity Assessment Report*
George Downes Drive Bucketty, Cessnock
City Council.

Appendix 3 Work Method Statement – Archaeological Monitoring of proposed road upgrade works at George Downes Drive, Bucketty

Work Method Statement – Archaeological Monitoring of proposed road upgrade works at George Downes Drive, Bucketty

Approach

Based on the above assessment, archaeological monitoring is proposed as a precautionary measure. It applies to:

- **Archaeological Area 1** has moderate potential for historical archaeological remains consisting of the former road surface and culvert cover (fill deposits) where the original 1830 alignment of the Great North Road intersects with the current alignment of the Great Northern Road (CH 0-CH 80).
- **Early road structure – Culvert (Structure No 2a)** – Within Archaeological Area 1 below the Great Northern Road (CH 0-CH 40)

Monitoring for Archaeological Area 1 is proposed for the purpose of identifying the early road surface and culvert cover (fill deposits) associated with the convict construction of the Great North Road, and ensure they are appropriately recorded prior to their removal. Monitoring would also ensure that there is no physical impact to the fabric of the sandstone culvert (Structure 2a).

While these elements may be considered ‘works’ rather than relics, and the potential archaeological impacts from the proposed shoulder construction are limited, surviving road fabric has the potential to reveal information about early convict road construction, and the results of the monitoring will add to the body of research from previous investigations and will inform future assessments.

Research Framework

Archaeological investigation of the site should consider physical evidence of its historical development and occupation within a broad thematic context. Historic themes relevant to the historical archaeological resources of the site, and associated phases of occupation, have been identified below (Table 13). The themes are based on a thematic framework which enables the identification and comparison of places that are linked to a particular theme at a national, state or local level.

Table 13. Historic themes relating to the Project Area.

National Theme	NSW Theme	Local Theme	Phase of Occupation
2 Peopling Australia	Convict	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788-1850)	Phase 2: Construction of the Great North Road (1826-1928)

National Theme	NSW Theme	Local Theme	Phase of Occupation
3 Developing local, regional and national economies	Exploration	Activities associated with making places previously unknown to a cultural group known to them.	Phase 1: European exploration and early settlement (1819-1825)
	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	Phase 2: Construction of the Great North Road (1826-1928) Phase 3: Later road works and improvements (1929-present)

Research Questions

Given the limited extent of the proposed works and expected nature of archaeological remains within the Project Area, the following general research questions may be addressed through the archaeological investigation:

- What was identified at the site, what kinds of features and deposits?
- When were these features or deposits created?
- What site formation processes have occurred?
- What happened at the site?
- How does this site compare to others?

Methodology

The following excavation methodology would apply:

1. The nominated archaeologist will be present to undertake the monitoring of construction works on the Great Northern Road for the nominated areas.
2. Overburden and modern fills will be progressively removed via a series of shallow scrapes with a mechanical excavator (5 tonne or 7.5 tonne) using a flat mud bucket. This process would continue until the maximum depth of impact is reached (up to 50cm below surface). A toothed bucket would be used to break up hard surfaces or loosen compacted modern fills.
3. Where *in situ* archaeological features or deposits are exposed, mechanical excavation will cease and exposed archaeological remains will be cleaned by hand and recorded.
4. Site recording during monitoring will include:
 - Archaeological features and deposits identified on section drawings and scaled plans (as necessary).
 - Sequentially numbered context recording forms to document the features and deposits, including phase information.
 - Photographs of all archaeological features and phases of work with scale and north arrow. Details of the photographs will be documented in a photo register.

- Stratigraphic relationships will be recorded using a Harris Matrix, if applicable
 - Artefacts contained within topsoil or disturbed modern fills would be collected and bagged.
5. The nominated archaeologist will sign off that the archaeological monitoring of the area is completed when the maximum depth of impact is reached.
 6. Should archaeological relics be identified during the works that were not identified or considered in this assessment, excavation would cease, and Heritage NSW (as delegate of the Heritage Council of NSW) notified in accordance with s146 of the Heritage Act, and to discuss the find and any requirements for further approvals prior to works resuming.

Personnel

The proposed works would be supervised by a suitably qualified archaeologist in accordance with the 'Heritage Council of NSW Criteria for assessing Excavation Directors' (2019). The nominated Excavation Director for the works would be Ms Ngaire Richards.

Post excavation

Following completion of the monitoring program, a final report will be prepared. It would contain a description of the works undertaken and outlining the results of the archaeological monitoring. The report will be submitted to the Heritage NSW for their records.