

Dunheved Road Upgrade

Addendum Review of Environmental Factors



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Penrith City Council

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Prepared by:
Stantec

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Dunheved Road Upgrade

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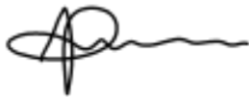


Dunheved Road Upgrade

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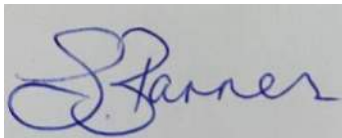


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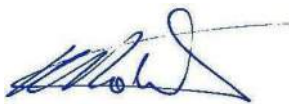
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1 Introduction

1.1 Project background

Stantec Australia Pty Ltd (Stantec) was engaged by Penrith City Council (Council) to prepare a review of environmental factors (REF) for the Dunheved Road Upgrade in June 2023 (referred to as the 'Project').

Council is upgrading Dunheved Road, between Richmond Road and the Christie Street/Werrington Road roundabout. The project will include a new medium separated four lane carriageway and shared user path along sections of the 4.2 kilometre (km) stretch of road. The Project includes upgrades to the drainage network at Orleton Place and Rugby Street to the south of Dunheved Road and the addition of three new roundabouts at intersections along Dunheved Road.

The Project will involve widening the Dunheved Road corridor to provide two additional through lanes across the entire alignment. The proposed upgrade will also include turn lane, bus lane, roundabout, bridges and intersection treatments.

Key features of the road upgrade include the following:

- Dunheved Road will be upgraded to a dual carriageway, with 7 metre (m) wide carriageways in both eastbound and westbound directions.
- A 'future-proofed' intersection that will tie-in to Richmond Road and consider the integration with the Transport for NSW (Transport) bus lane proposal.
- A 3m wide shared path is proposed along the southern edge of Dunheved Road, from Richmond Road to Werrington Road. A 1.5m wide footpath is also provided along the northern edge of Dunheved Road for the majority of the length of the project.
- Improvement of the existing intersections at:
 - Dunheved Road / Richmond Road
 - Dunheved Road / Trinity Drive
 - Dunheved Road / Tasman Street
 - Dunheved Road / Greenbank Drive
 - Dunheved Road / Francis Street
 - Dunheved Road / Lavin Crescent
 - Dunheved Road / Shopping Centre Access
 - Dunheved Road / Henry Lawson Avenue
 - Dunheved Road / John Oxley Drive
 - Dunheved Road / John Batman Avenue
 - Dunheved Road / Werrington Road
- Two new bridges:
 - A new road bridge over Werrington Creek
 - A new shared path bridge over Werrington Creek.
- Three new concrete mountable roundabouts at:



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1 Introduction

- Tasman Street / Eton Road
 - Henry Lawson Avenue/ Madigan Drive
 - John Batman Avenue/ Ovens Drive.
- An upgrade of the Orleton Place and Rugby Street drainage network (behind Lavin Crescent).

The existing bridge over Werrington Creek will be retained and be used during construction to maintain traffic flow and then will be used for one way traffic once the other bridges are completed. Both bridges will be single span super-T structures.

Where required, safety barriers will be implemented, including beside steep batters, retaining walls, culvert headwalls, and on the bridge approaches. Additional bus stops, and lighting will also be considered as part of the later design phase.

The project is currently in the tender phase.

1.2 Proposed modification

Council is proposing to undertake modification works to the Project. Key features of the proposed modification are outlined in Table 1-1.

Table 1-1 Summary of Proposed Modifications

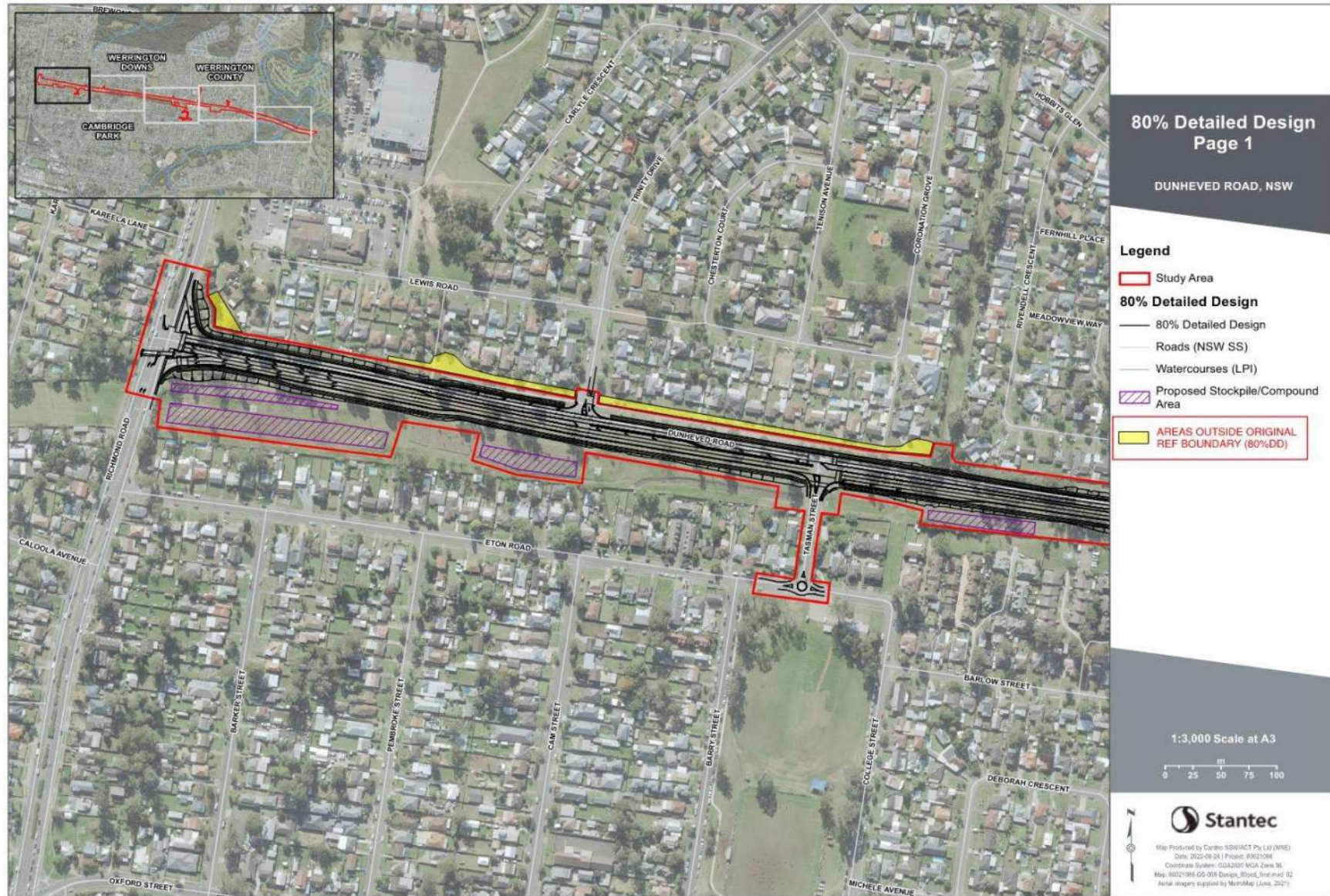
ID	Scope of works
1	Provision of a noise barrier outside the original boundary
2	Addition of footpaths outside the original boundary
3	Addition of landscaped areas outside of the original boundary
4	Addition of access track outside the original boundary
5	Addition of stormwater drainage pits and pipes outside the original boundary
6	Addition of high voltage and transmission lines outside the original boundary
7	Addition of driveway outside the original boundary
8	Addition of scour protection outside the original boundary

The locations of the proposed design modifications are shown on Figure 1-1. Chapter 3 describes the proposed modifications in more detail. The Project REF study area (Stantec, 2023) adopted for the environmental assessment is also shown on Figure 1-1.



Dunheved Road Upgrade

1 Introduction



Dunheved Road Upgrade

1 Introduction



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1 Introduction



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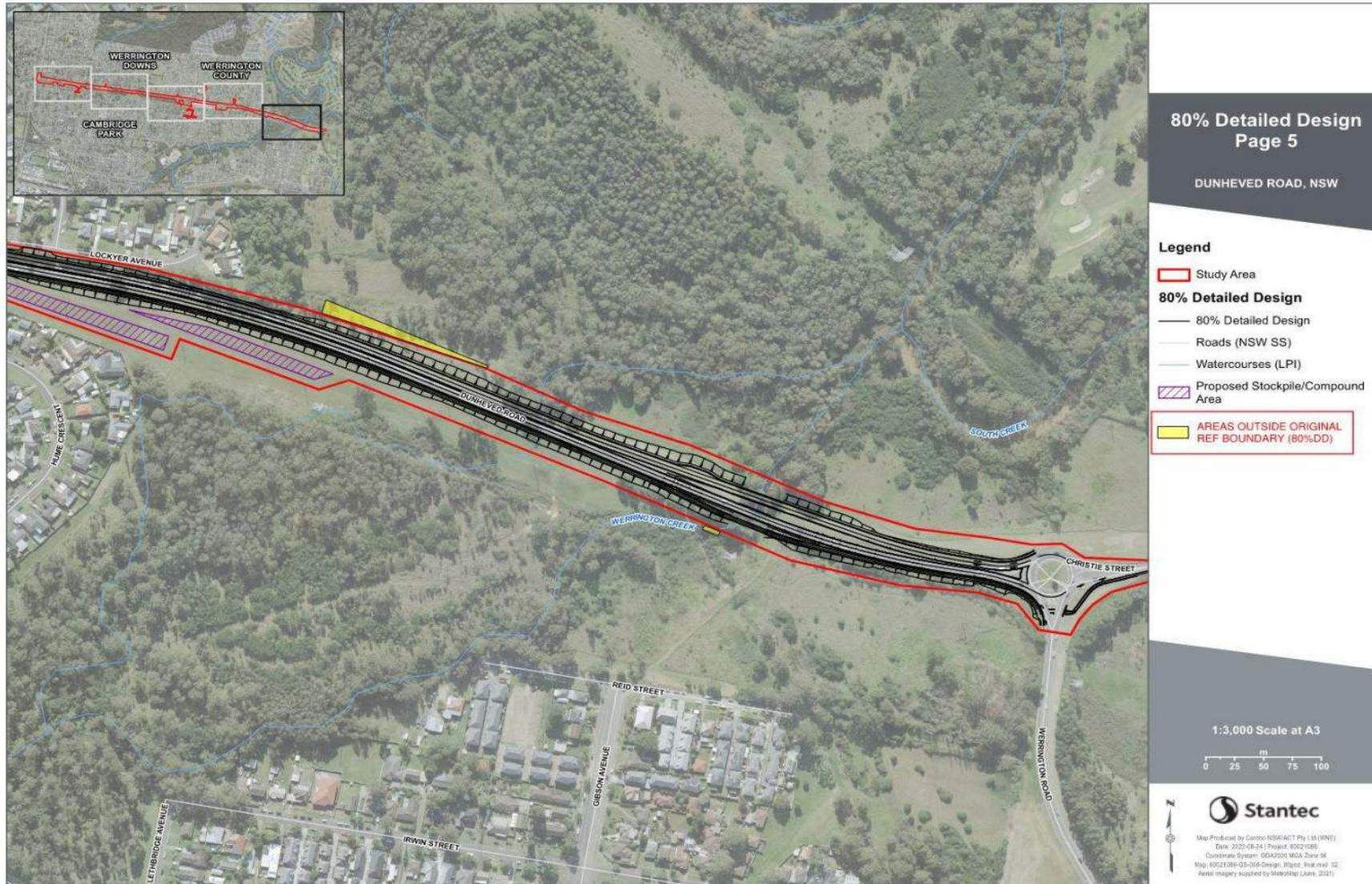


Figure 1-1 REF study area and proposed modifications



1.3 Consistency Review Letter

Stantec was requested by Council to undertake a consistency review of the proposed modifications in the form of a letter to determine whether the modification works would be covered under the existing Project REF.

It was considered that, the project as amended by the detailed design changes was consistent with the original Project. The assessment noted that additional areas were impacted as they were outside of the original study area. Because of this, Council requested an addendum to the Project REF be prepared. The consistency review letter is attached as Appendix A.

1.4 EPL Review Letter

Stantec was requested by Council to determine the consistency of the Environmental Protection Licence (EPL) requirements and update accordingly with the proposed modifications. The EPL licencing update letter updated threshold requirements for an EPL and determined that the Project REF appropriately assesses the potential impacts of management of materials and the conclusions would be unchanged. The EPL review letter is attached as Appendix B.

The contractor will have the responsibility for obtaining the EPL once the design is finalised and the cut and fill quantities are confirmed.

1.5 Purpose of the report

This Addendum Review of Environmental Factors (AREF) has been prepared by Stantec on behalf of Council. For the purposes of these works, Council is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This AREF is to be read in conjunction with the Project REF. The purpose of this AREF is to describe the proposed modification, to document and assess its likely impacts on the environment, and to detail mitigation and management measures to be implemented.

The description of the proposed modification and assessment of associated environmental impacts has been undertaken in context of section 171 of the *Environmental Planning and Assessment Regulation 2000*.

In doing so, the AREF helps to fulfil the requirements of:

- Section 5.5 of the EP&A Act including that Council examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the AREF would be considered when assessing:

- Whether the proposed modification is likely to result in a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the *Biodiversity Conservation Act 2016* (BC Act) and/or *Fisheries Management Act 1994* (FM Act), in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report



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- The significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten long-term survival of these matters, and whether offsets are required and able to be secured



2 Needs and options considered

2.1 Strategic need for the proposed modification

Chapter 2 of the Project REF addresses the strategic need for the project, the project objectives and the options that were considered.

The proposed modifications described and assessed in this AREF are consistent with the strategic need for the project.

2.2 Proposed modification objectives and development criteria

Section 2.1 of the Project REF identifies the project objectives and development criteria that apply to the proposed modification.

The proposed modifications described and assessed in this AREF are consistent with the strategic need for the project.



3 Description of the proposed modification

Council proposes to modify the Project as outlined in the following sections. Modifications included in this section pertain to changes to the Project that are located outside the existing Project boundary / REF study area.

3.1 Additional Noise Barrier

3.1.1 Approved Project

In the approved design, the area to the north of the alignment between Richmond Road and the Dunheved Road cul-de-sac included a footpath along the alignment and landscaping to connect it to the residential properties along the road. A noise barrier was included in the approved design at the recommendation of the project REF; however, it did not extend outside of the project boundary.

3.1.2 Proposed Modification

As part of the detailed design, it is proposed to include a noise barrier that runs along the residential properties, as suggested in the Noise and Vibration specialist assessment prepared for the project REF.

The additional noise barrier would extend outside the Project boundary on the northeast side of the Dunheved Road / Richmond Road intersection (CH00 – CH70) (refer Figure 3-1 and Figure 3-2).



Dunheved Road Upgrade
3 Description of the proposed modification



Figure 3-1 Location of additional noise barrier



3 Description of the proposed modification



3.2.1 Approved Project

3.2.2 Proposed Modification



Dunheved Road Upgrade

3 Description of the proposed modification

Additional footpaths are located within the yellow shaded area in the following areas:

- Figure 3-3 – to the west of Trinity Drive including Dunheved Road cul-de-sac north of the alignment (CH250 – CH375)
- Figure 3-4 – to the east of Trinity Drive including Dunheved Road cul-de-sac north of the alignment (CH400 – CH700)
- Figure 3-5 – along the east side of Brookfield Avenue north of the alignment to just north of Bungalow Parade (CH1550)
- Figure 3-6 – on the northeast corner of the Lockyer Avenue and Henry Lawson Avenue intersection, north of Dunheved Road (CH2410)

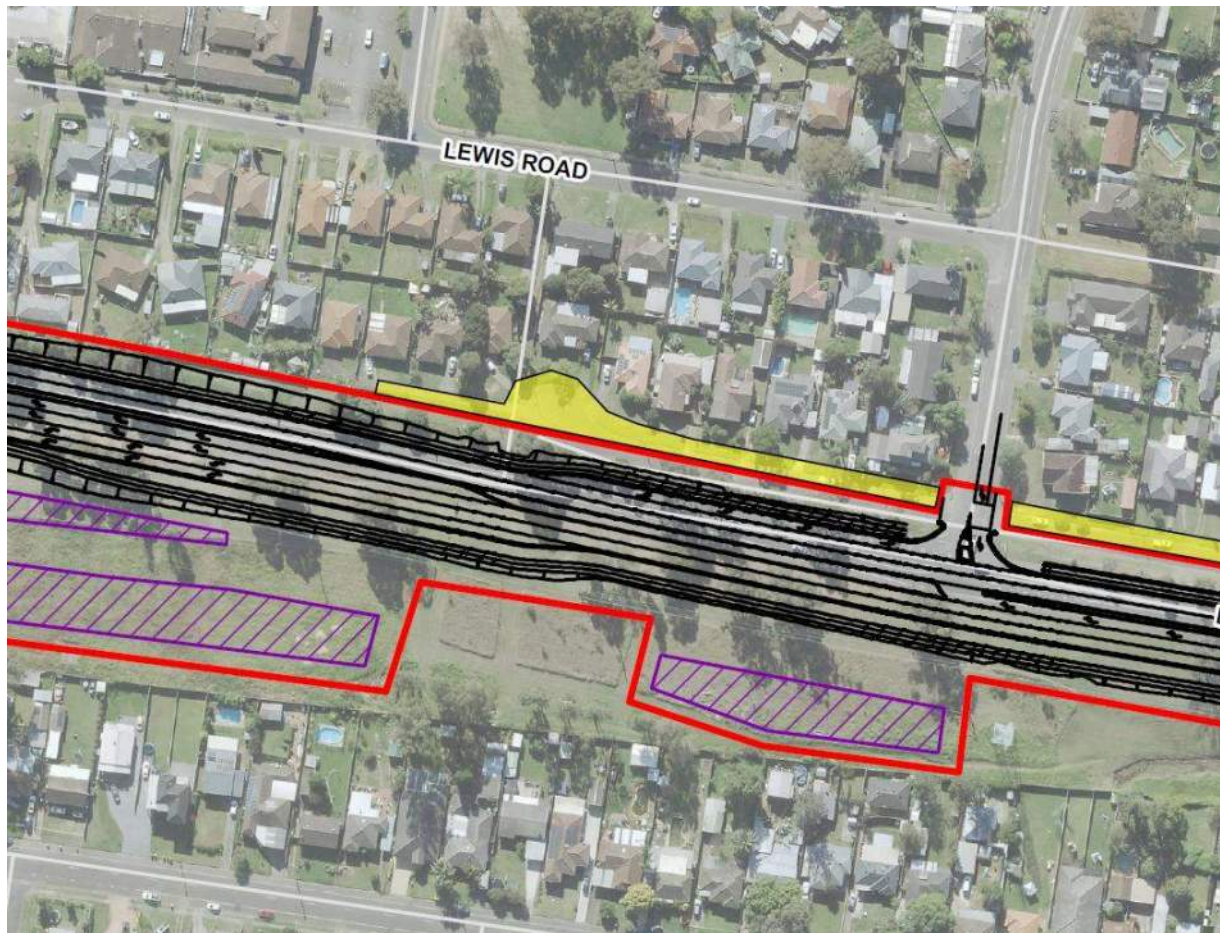


Figure 3-3 Location of additional footpath (Trinity Drive east)



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3 Description of the proposed modification

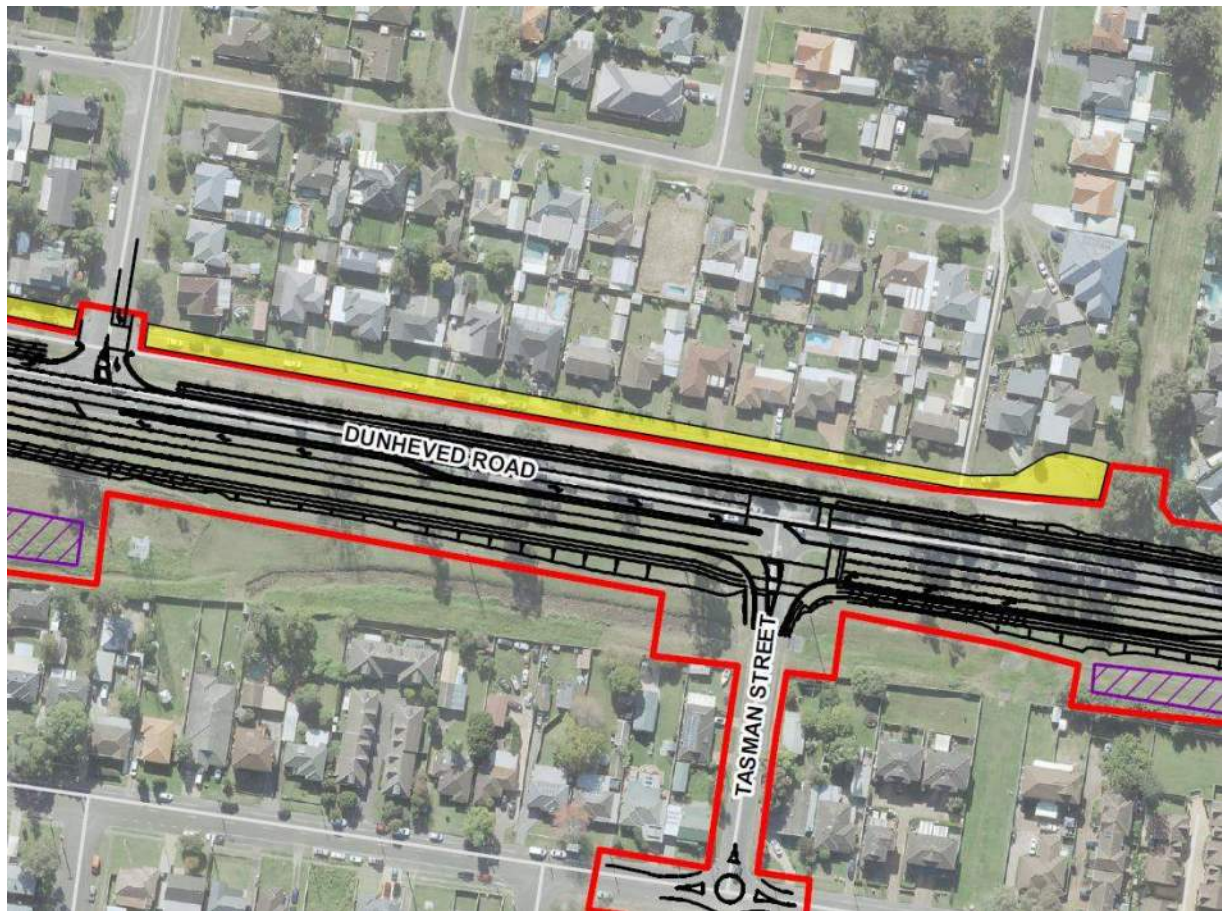


Figure 3-4 Location of additional footpath (Trinity Drive west)

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3 Description of the proposed modification

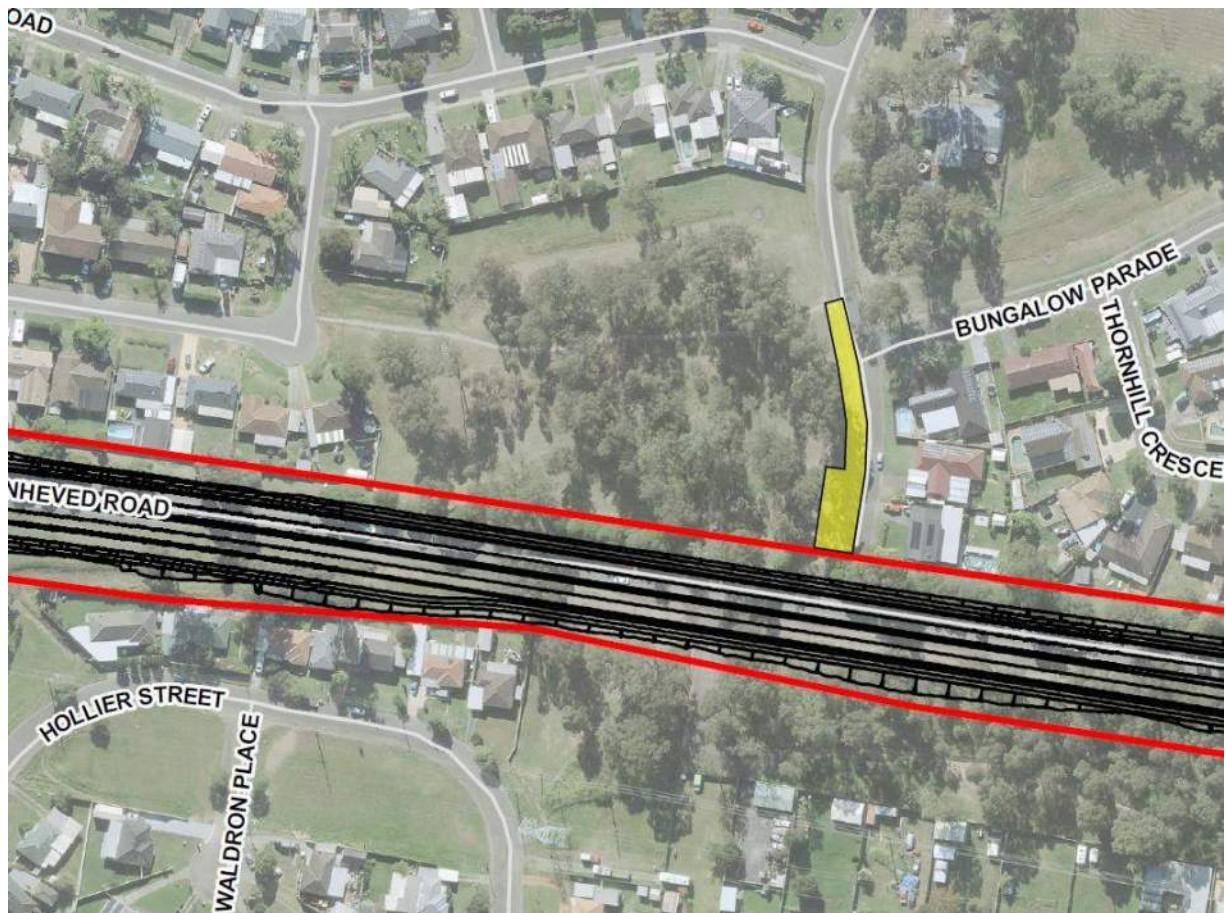


Figure 3-5 Location of additional footpath (Bungalow Parade)

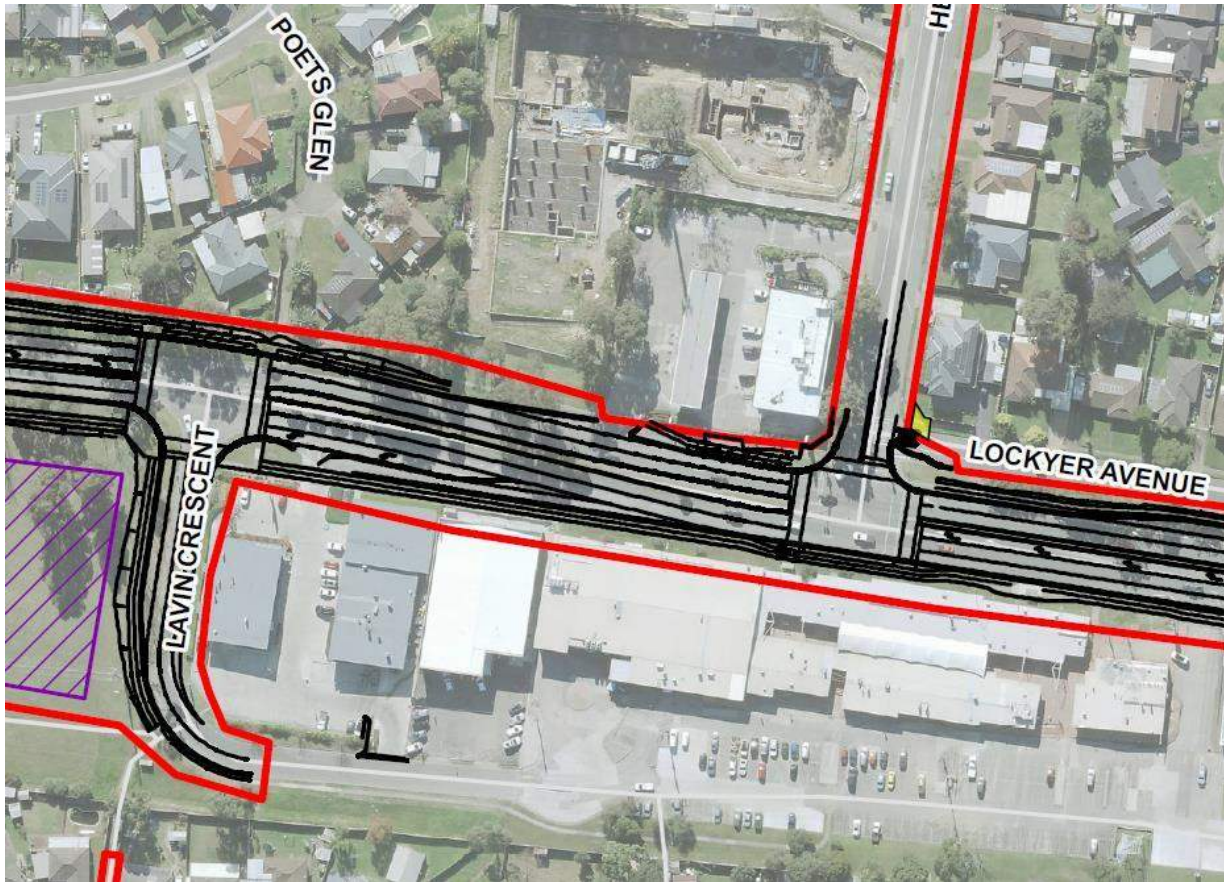


Figure 3-6 Location of additional footpath (Henry Lawson Avenue)

3.3 Additional landscaped areas

3.3.1 Approved Project

Landscaped areas are included in the Project REF adjacent to the approved new alignment. These areas encompass the planting of native trees, shrubs and grasses either side of Dunheved Road.

3.3.2 Proposed Modification

As part of the detailed design, modifications to the approved landscaping have been made. These modifications include new areas of turfed area, mass planting, and proposed trees outside of the approved project boundary in the following areas outlined in yellow:

Additional landscaping includes proposed trees and mass planting in two areas shown in the following figures:

- Figure 3-7 and Figure 3-8 – around the new noise barrier wall on the northeast side of the Dunheved Road / Richmond Road intersection (CH00 – CH70)
- Figure 3-9 and Figure 3-10 – on the north side of the alignment to the east of Lockyer Avenue just west of South creek (bottom), refer Figure 3-7 (CH3500 – CH3650).

Dunheved Road Upgrade

3 Description of the proposed modification

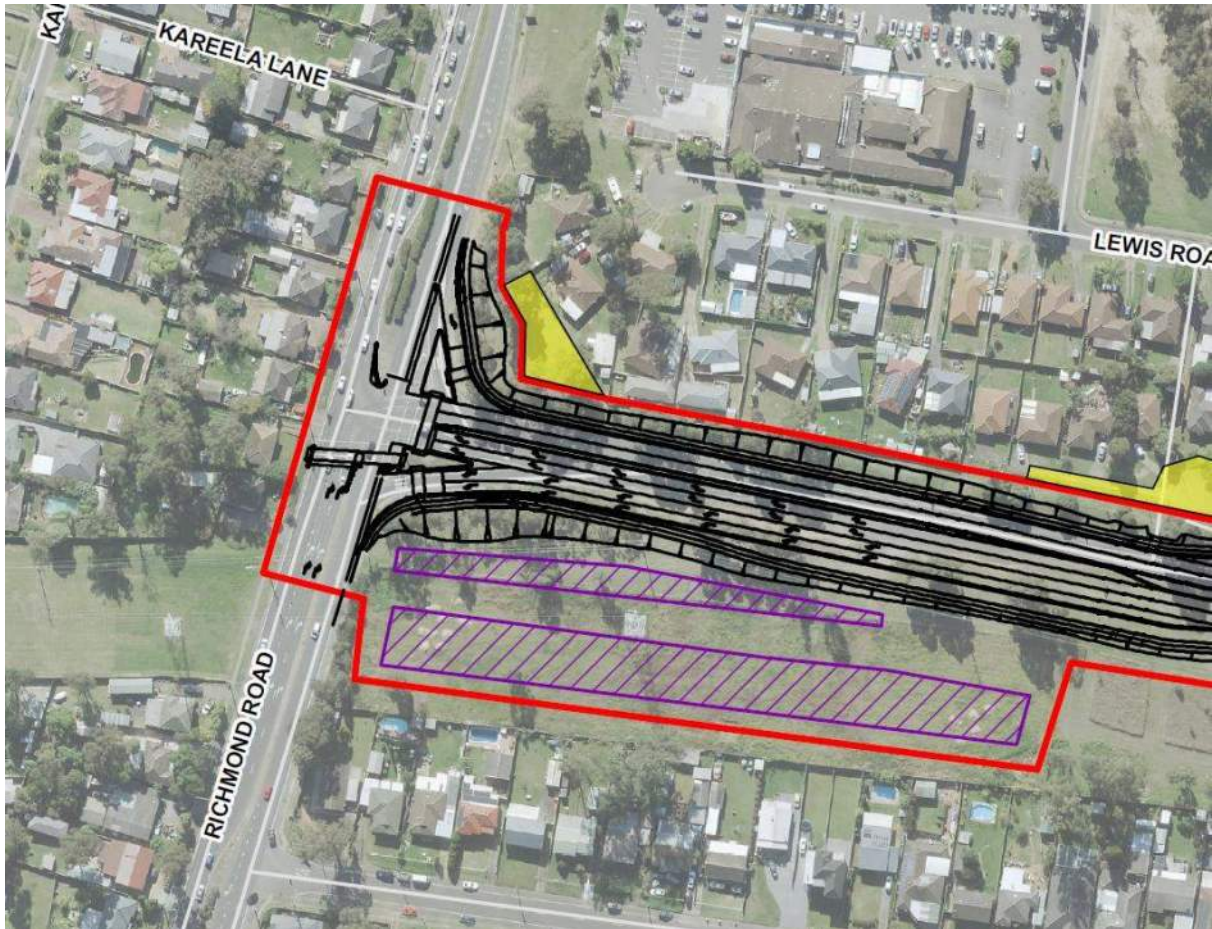
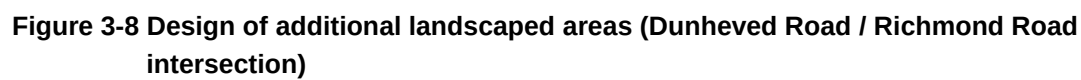


Figure 3-7 Location of additional landscaped areas (Dunheved Road / Richmond Road intersection)

3 Description of the proposed modification



Dunheved Road Upgrade

3 Description of the proposed modification

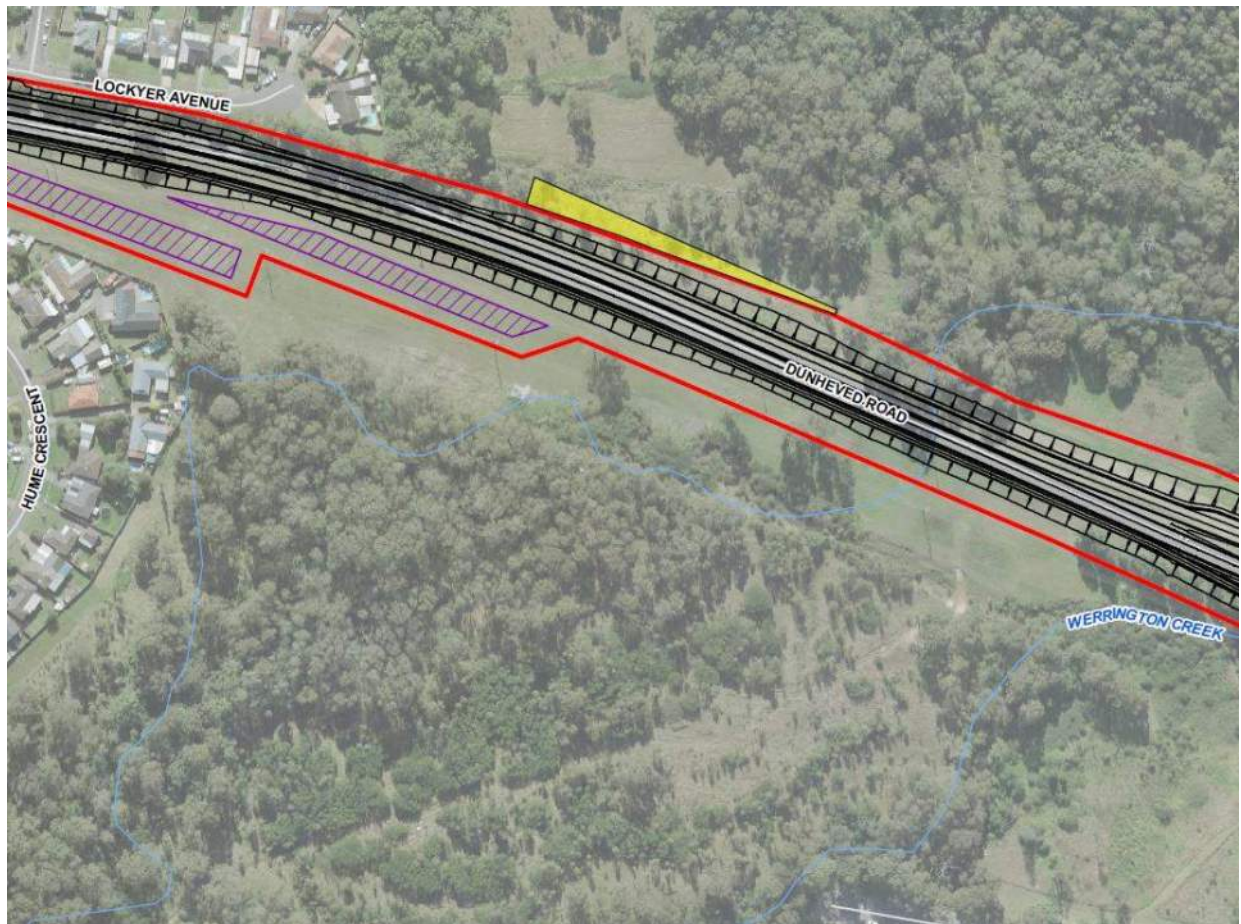


Figure 3-9 Location of additional landscaped areas (east of Lockyer Avenue)

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3 Description of the proposed modification

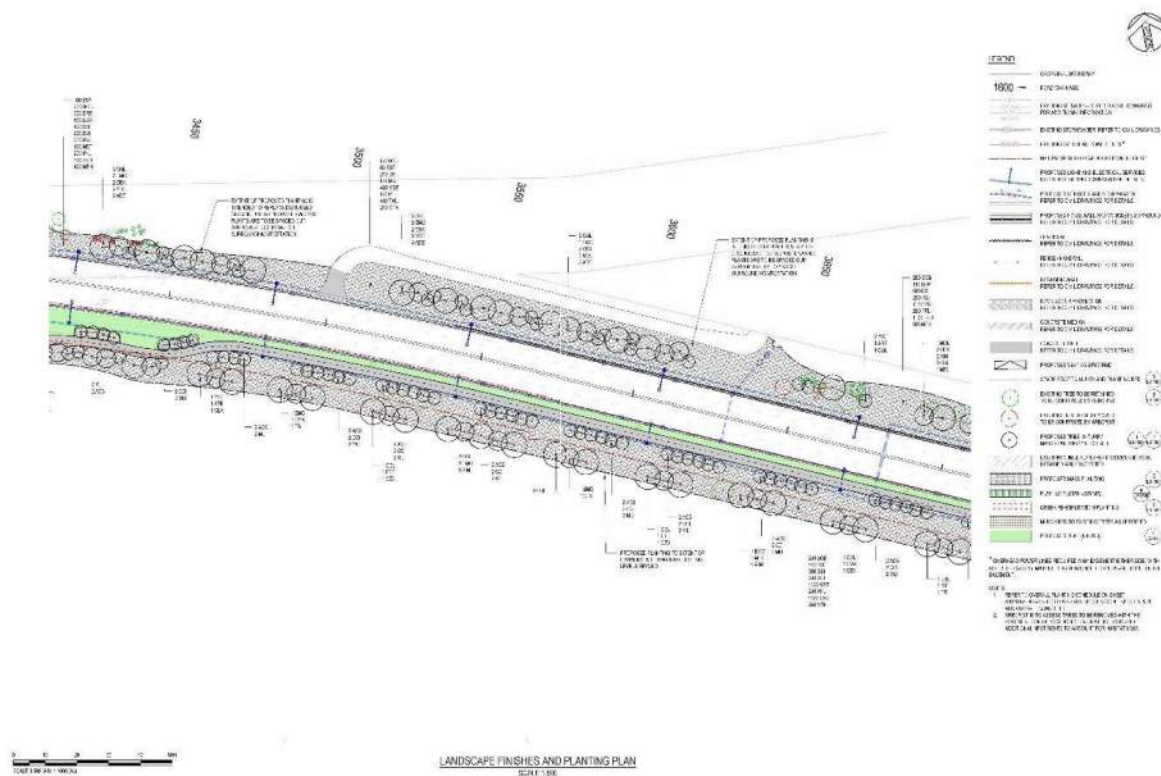


Figure 3-10 Design of additional landscaped areas (east of Lockyer Avenue)

3.4 Additional Access Track

3.4.1 Approved Project

The existing boundary to the east of Lockyer Avenue follows the road alignment with minor landscaping either side of the road alignment. No landscaping or access tracks were included in the design.

3.4.2 Proposed Modification

As part of the detailed design an access track has been implemented around the additional landscaped area east of Lockyer Avenue. The access track is required to maintain existing access from Lot 7 DP719910 to Dunheved Road. The access track will consist of 200mm thick Class 2 DGB and has been designed to accommodate an 8.8m service vehicle. The access track is to be implemented outside the approved project boundary.

The location of the access track is highlighted in yellow in Figure 3-9 and the design is shown in Figure 3-10.



3.5 Additional Stormwater Drainage

3.5.1 Approved Project

In the approved design, stormwater drainage pits and pipes are proposed along the alignment and side roads to cater for the Dunheved Road upgrade.

3.5.2 Proposed Modification

As part of the detailed design modification to the stormwater drainage pits and pipes have been made. No existing trees will be impacted by the proposed drainage design modification. Sections of the stormwater drainage is located outside the approved project boundary. These sections are shown in the following figures:

- Figure 3-11 and Figure 3-12 – Northern side of Dunheved Road (CH1410).
- Figure 3-13 and Figure 3-14 – Southern side of Lavin Crescent (CH2250)
- Figure 3-15 and Figure 3-16 – Northern side of Orleton Place.

Proposed drainage at northern side of Dunheved Road will be located within an existing easement in Council owned land. Proposed drainage at the southern side of Lavin Crescent will be located within the road reserve. Proposed drainage at northern side of Orleton Place will be located within an existing easement.



Figure 3-11 Location of proposed stormwater drainage (at Dunheved Road)

3 Description of the proposed modification



Dunheved Road Upgrade 3 Description of the proposed modification

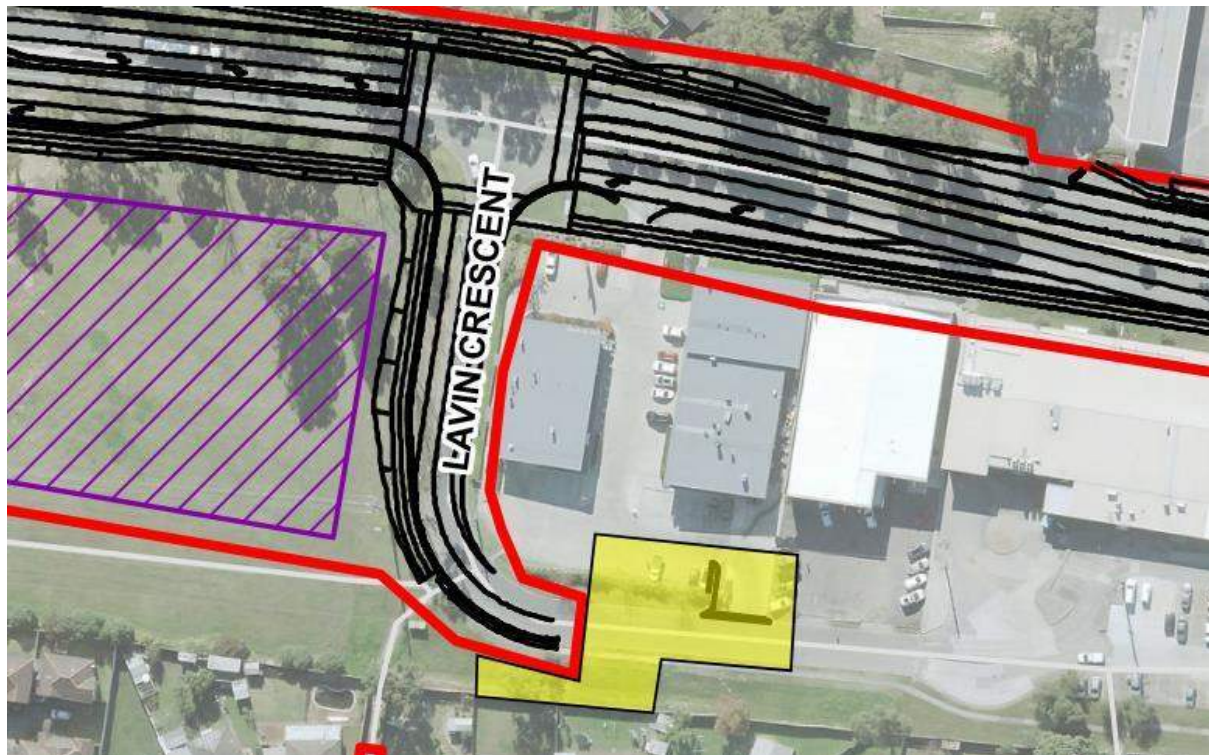


Figure 3-13 Location of proposed stormwater drainage (at Lavin Crescent)

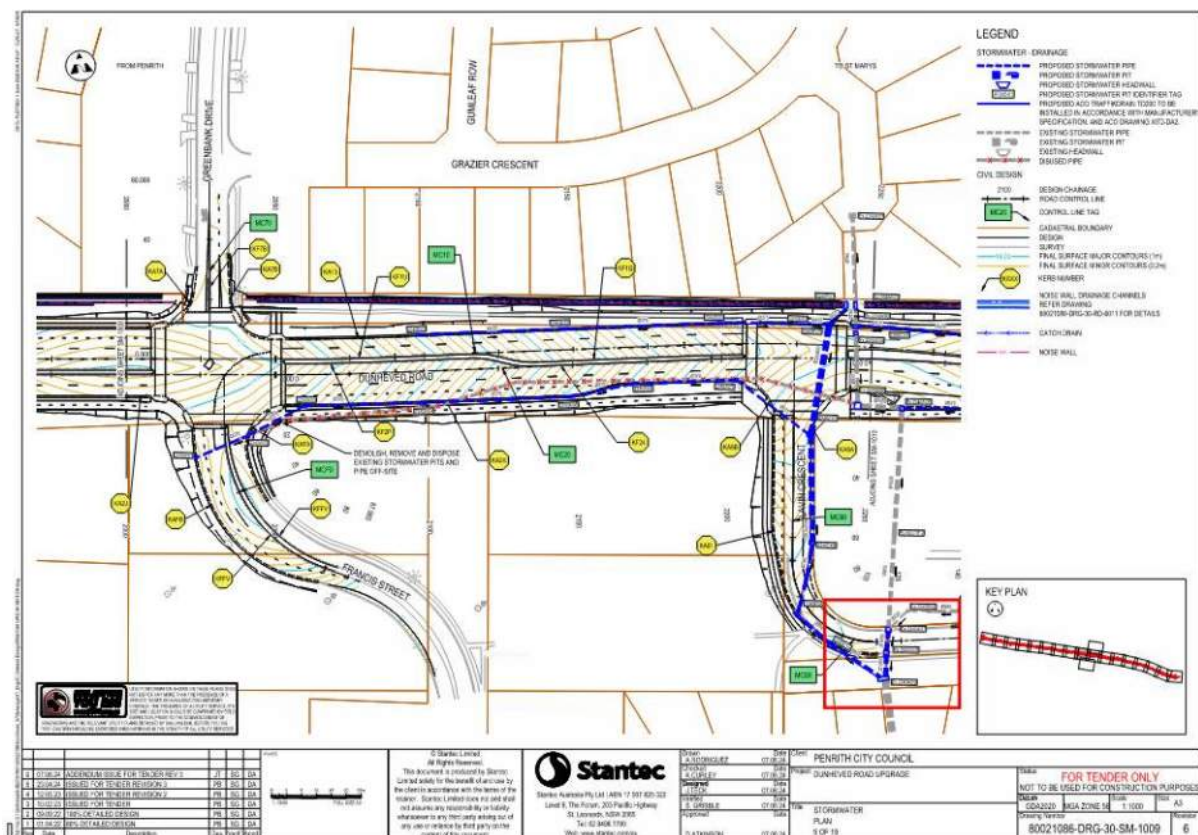


Figure 3-14 Design of proposed stormwater drainage (at Lavin Crescent)



3 Description of the proposed modification



3.6 Additional High Voltage and Transmission lines

3.6.1 Approved Project

In the approved design, a high voltage line and transmission line are proposed to be undergrounded along Dunheved Road where the existing overhead lines are crossing Dunheved Road and impacted by the proposed road upgrade.

3.6.2 Proposed Modification

As part of the detailed design modification to the high voltage and transmission underground lines have been made. Alteration to the proposed alignment of the high voltage and transmission underground lines was made to ensure that the proposed alignment is within the existing easement. Section of the underground lines is located outside the approved project boundary. This section is located on the southern side of Dunheved Road east of John Oxley Avenue (CH2750 – CH3000) and is shown in Figure 3-17.

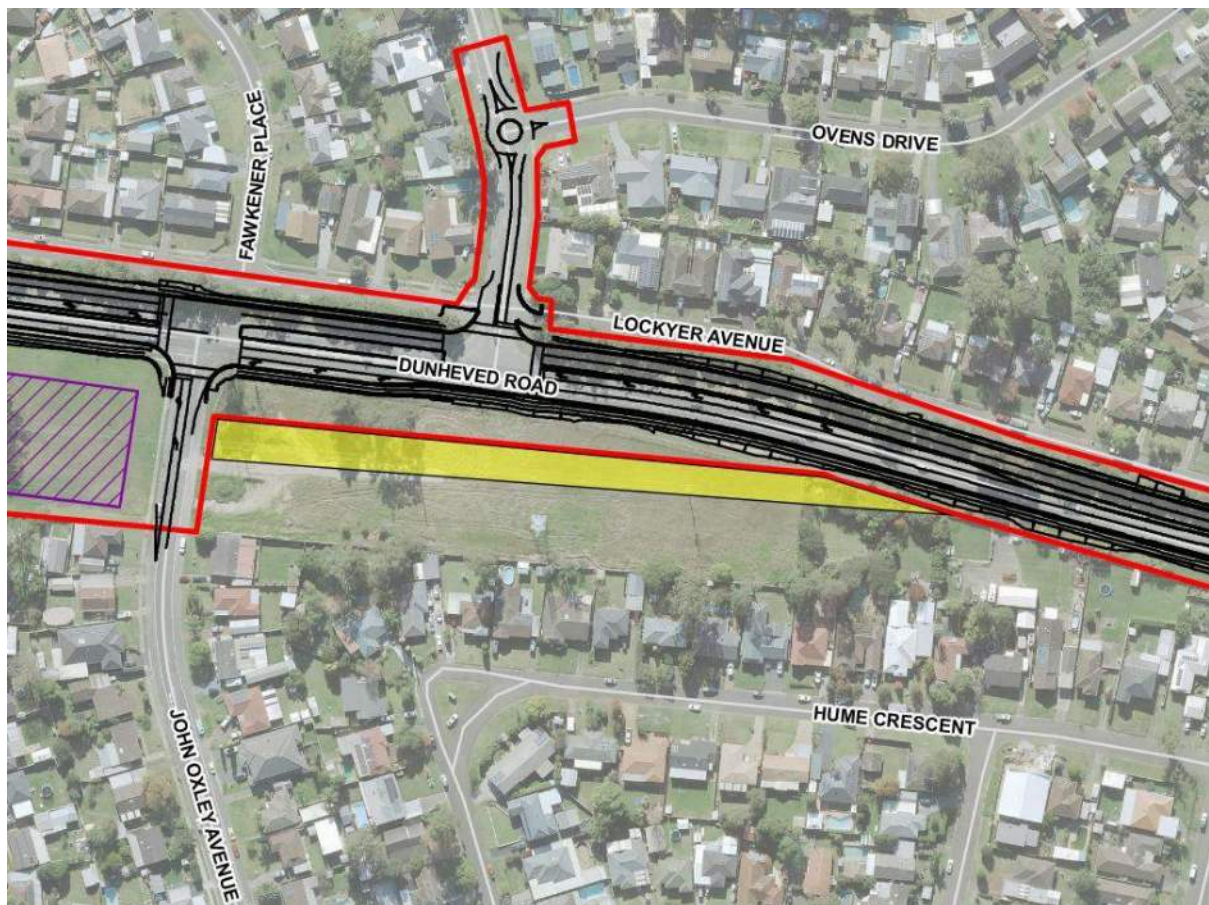


Figure 3-17 Location of proposed high voltage and transmission underground lines.

3.7 Additional Driveway

3.7.1 Approved Project

In the approved design, new access driveways and adjustment to existing driveways is proposed where the existing access is impacted by the Dunheved Road upgrade.

3.7.2 Proposed Modification

As part of the detailed design modification to an existing driveway has been made. The existing driveway requires widening as vehicles cannot exit 'Red Rooster' at Dunheved Road, the widened driveway will also accommodate delivery vehicles. This driveway is located outside the approved project boundary. The driveway is located at Lavin Crescent (CH2300) and is shown in Figure 3-18 and Figure 3-19.

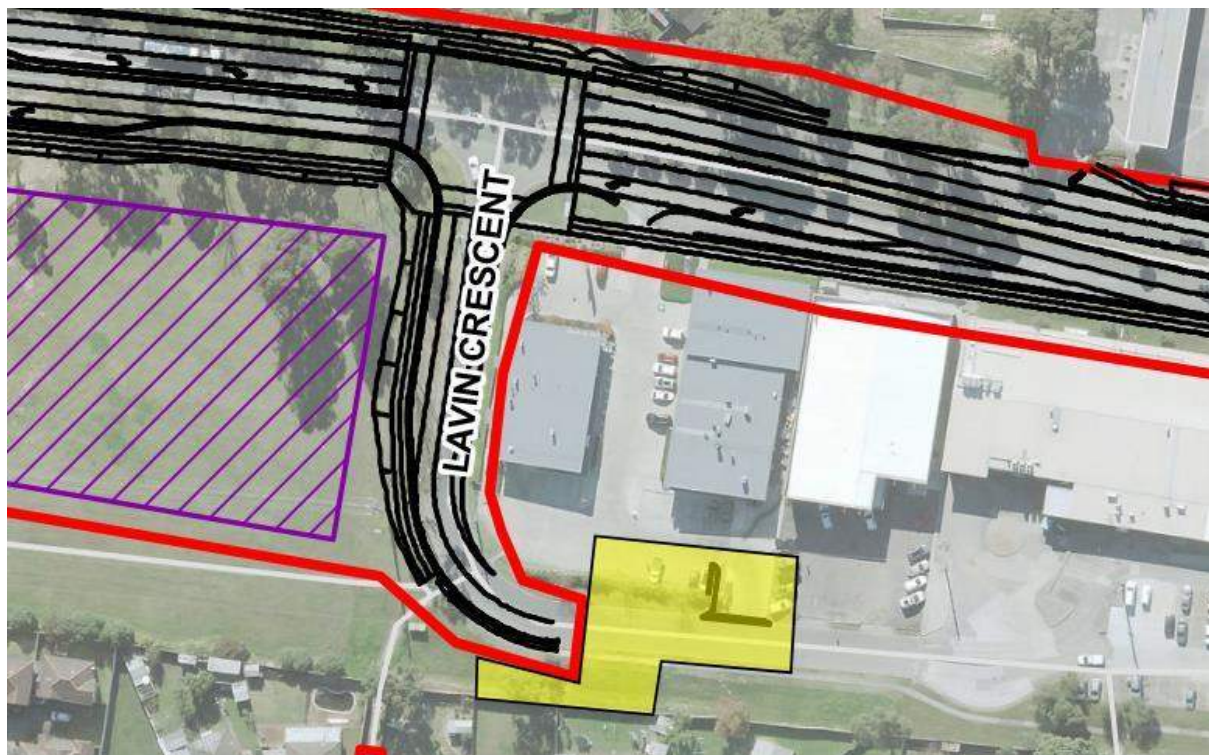


Figure 3-18 Location of driveway modification (at Lavin Crescent)

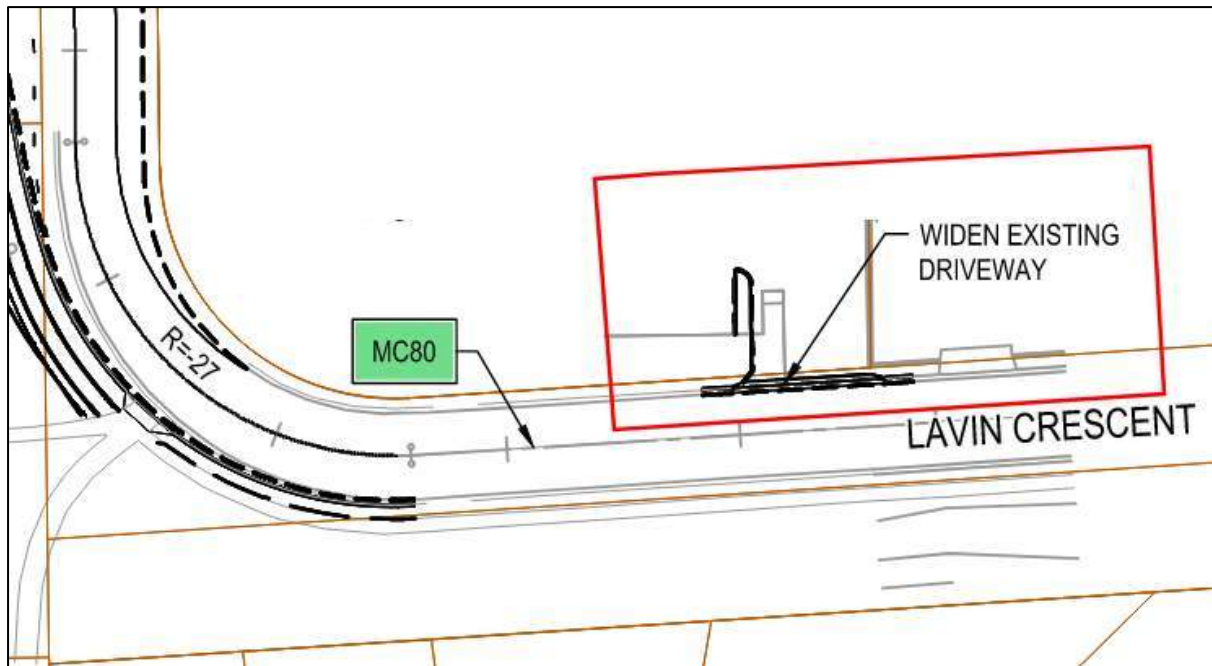


Figure 3-19 Design of driveway modification (at Lavin Crescent)

3.8 Additional Scour Protection

3.8.1 Approved Project

In the approved design, scour protection is proposed along Werrington Creek at the existing and proposed bridges along Dunheved Road.

3.8.2 Proposed Modification

As part of the detailed design modification to the proposed scour protection area has been made. The scour protection design required slight adjustment based on design calculation. A small section of the proposed scour protection is located outside the approved project boundary. The scour protection is located at Werrington Creek (CH3880) and is shown in **Figure 3-20** and **Figure 3-21**.

Dunheved Road Upgrade

3 Description of the proposed modification

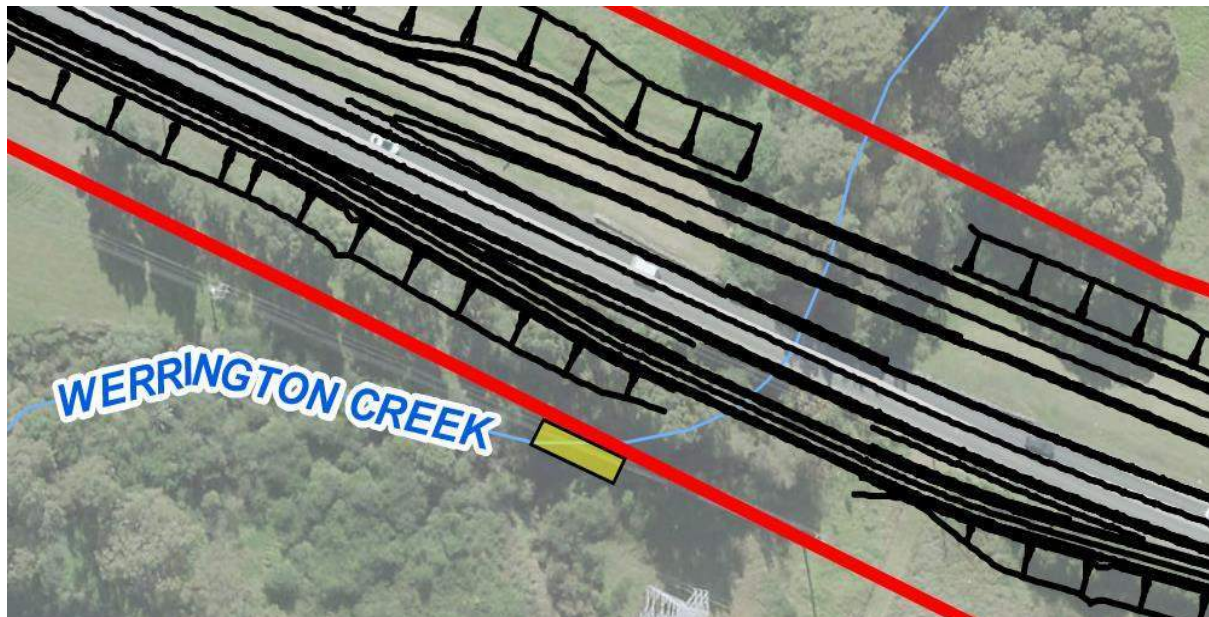


Figure 3-20 Location of proposed scour protection (at Werrington Creek)

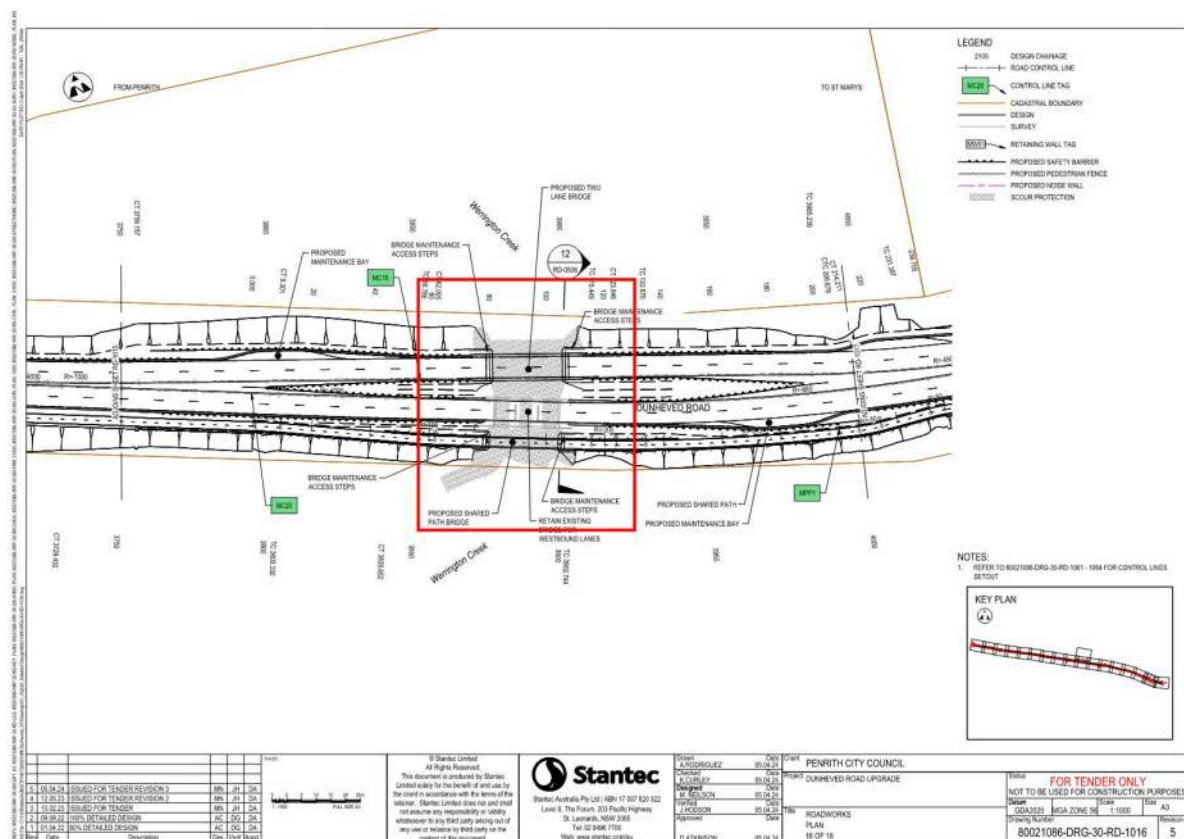


Figure 3-21 Design of proposed scour protection (at Werrington Creek)



3.9 Construction Activities

The methodology, construction staging, proposed plant and equipment, and ancillary facilities are outlined in section 3.3 of the Project REF and are consistent with those used to construct the proposed modifications.

Construction would be carried out in accordance with standard construction working hours:

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sundays and public holidays: no work

As stated in the Project REF, any work carried out outside of standard working hours would be in accordance with the ICNG (DECC 2009) and *Construction Noise and Vibration Guideline* (CNVG) (RMS 2016).



4 Statutory Planning and Legislation

4.1 Environmental Planning and Assessment Act 1979

In NSW, the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) regulate development, planning and environmental impact assessment requirements. Division 5.1 of the EP&A Act regulates 'activities' which are unlikely to have a significant environmental impact and require an REF to be supplied for approval by the determining authority (Council).

Under Section 5.5 of the EP&A Act, Council is required to examine and consider, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of its activities.

The project REF and subsequent AREF has been developed in accordance with Section 170 and 171 of the EP&A Regulation to ensure that all relevant environmental factors have been assessed and incorporated in the preparation of this document.

4.1.1 State Environmental Planning Policies

State Environmental Planning Policy (Transport and Infrastructure) 2021

The *State Environmental Planning Policy (Transport & Infrastructure) 2021* (TI SEPP) to facilitate the effective delivery of infrastructure across the state.

Dunheved Road is a regional public road within an existing road corridor managed by Council, a public authority for the purposes of the TI SEPP and *Roads Act 1993*. Section 2.109 of the TI SEPP 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.

The proposed modifications are appropriately categorised as road infrastructure facilities and under the 2.109 of the TI SEPP and is to be carried out by a public authority (Council), it can be assessed under Division 5.1 of the EP&A Act.

The proposed modification is not located on land reserved under the *National Parks and Wildlife Act 1974* (NP&W Act) and does not affect land or development regulated by any of the following SEPPs:

- *State Environmental Planning Policy (Precincts – Central Rivers City) 2021*
- *State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021*
- *State Environmental Planning Policy (Precincts – Regional) 2021*
- *State Environmental Planning Policy (Precincts – Western Parkland City) 2021*

State Environmental Planning Policy (Biodiversity and Conservation) 2021

The *State Environmental Planning Policy (Biodiversity and Conservation) 2021* (BC SEPP) represents the administrative consolidation of 11 SEPPs, including *Sydney Regional Environmental Plan (No 20) – Hawkesbury- Nepean River (No 2- 1997)*. This former SREP has been consolidated into Chapter 9 of the new BC SEPP and still contains the same provisions from the Hawkesbury–Nepean River SREP which relates to the protection of the environment of this river system.



The proposed modifications still fall within the boundaries of the BC SEPP and the provisions still apply.

4.1.2 Other Environmental Planning Instruments (EPIs)

Greater Sydney Region Plan (A Metropolis of Three Cities)

The Greater Sydney Region Plan (A Metropolis of Three Cities) 2018 sets the strategic framework for the region, aiming to protect and enhance the region's assets and plan for a sustainable future.

The proposed modifications fall within the footprint of the Greater Sydney Region Plan (Penrith City LGA/Western Parkland City District) and aligns with the relevant objectives identified in the Plan.

The objectives most relevant to the project are included in section 4.3.1 of the Project REF.

Western City District Plan

This Western City District Plan is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. One of the purposes of the District Plan is to inform local strategic planning statements and local environmental plans, the assessment of planning proposals as well as community strategic plans and policies. The plan has the same key principles/focus areas as the Greater Sydney Region Plan (Infrastructure, Liveability, Productivity and Sustainability), and also 22 Planning Priorities, all of which are applicable in the consideration of an infrastructure project in this district.

The most applicable planning priorities in the district plan to this project are included in section 4.3.2 of the Project REF.

Penrith Local Strategic Planning Statement

Council has prepared a Local Strategic Planning Statement (LSPS) to provide a 20-year land use planning vision for the city. It has been developed to be consistent with existing local and regional strategies and has identified the basis for strategic planning in the Penrith LGA, having regard to economic, social and environmental matters.

The proposed modifications fall within the footprint of the Penrith Local Strategic Planning Statement (within Werrington County and adjacent St Mary's Strategic Growth Area) and aligns with the relevant objectives identified in the Plan, refer to section 4.3.3 of the Project REF.

4.1.3 Local Environmental Plans

The proposed modifications would still occur on land use zoned under the *Penrith Local Environmental Plan 2010* (Penrith LEP) as:

- R2 Low Density Residential
- R3 Medium Density Residential
- RE1 Public Recreation
- B2 Local Centre
- E2 Environmental Conservation



- SP2 Infrastructure.

There are a number of statutory controls that apply to the site under the LEP, consistent with the objectives for each land use zone. However, the TI SEPP overrides the provisions of the LEP and development consent under Division 4.1 of the EP&A Act is not required.

4.2 Other relevant NSW legislation

Table 4-1 lists the NSW legislation relevant to the proposed modifications or the land on which they would occur / be built.

Table 4-1 Other relevant NSW legislation

Legislation and application	Relevance to the proposed modifications and further requirements
<i>NSW Contaminated Land management Act 1997 (CLM Act)</i>	An updated search of the EPA notified Contaminated sites was undertaken on 21 August 2024. There are no changes as a result of the proposed modifications. The proposed modifications would not result in any changes to the waste classification certificate.
<i>NSW Heritage Act 1977</i>	A search of relevant heritage databases including State Heritage Inventory (SHR), Australia Heritage Database (AHD) and LEP mapping was undertaken on 21 August 2024. No additional heritage listings have been impacted as a result of the proposed modifications.
<i>NSW National Parks and Wildlife Act 1974 (NP&W Act)</i>	An updated AHIMS search was undertaken on 21 August 2024. Additional sites were noted in the AHIMS search however none were in the vicinity of the proposed modifications. No changes are anticipated as a result of the proposed modifications. The proposed modifications do not impact on any land classified under the NP&W Act
<i>NSW Protection of the Environment Operations Act 1997 (POEO Act)</i>	There are no changes to the requirement for an EPL licence as a result of the proposed modifications. A review of the EPL licence threshold for the volumes of material has been completed and is included as Appendix B.
<i>NSW Waste Avoidance and Resource Recovery Act 2001</i>	There are no changes as a result of the proposed modifications. The modifications are not expected to have a substantial increase in waste. Any excess mulch can be used within the new landscaped areas.
<i>NSW Roads Act 1993 (Roads Act)</i>	Dunheved Road is a council owned road therefore there are no changes as a result of the proposed modifications. There would be no changes to the need for a road occupancy license.



Legislation and application	Relevance to the proposed modifications and further requirements
NSW <i>Biodiversity Conservation Act 2016</i> (BC Act)	No vegetation is to be removed as part of the proposed modifications and it is not anticipated that modifications will have an adverse impact on the biodiversity value of the area. No further assessment is required as long as no vegetation is to be removed. Mitigation measures proposed in the BDAR must be followed for the additional areas in the proposed modifications. There are no changes as a result of the proposed modifications.
NSW <i>Biosecurity Act 2015</i>	If weeds are present in the additional areas, mitigation measures identified in section 6.8 of the project REF would manage the impacts. There are no changes as a result of the proposed modifications.
NSW <i>Fisheries Management Act 1994</i> (FM Act) and <i>Fisheries Management (General) Regulation 2002</i> (FM Regulation)	The proposed modifications do not impact any waterways or Key Fish Habitat and do not require any permits or approvals. There are no changes as a result of the proposed modifications.

4.3 Commonwealth Legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) a referral to the Australian Government is required for proposed actions that have the potential to significantly impact on Matters of National Environmental Significance (MNES) or the environment of Commonwealth land.

A search of the EPBC Protected Matters Search Tool (PMST) was undertaken on 21 August 2024. It was noted that there were additional threatened species and marine species lists. A likelihood of occurrence assessment has been undertaken for the additional threatened species (refer section 6.2), this has not been carried out for the additional marine species as they have been deemed unlikely to occur due to the location of the project.

4.4 Confirmation of Statutory Position

The proposed modification is categorised as development for the purpose of a road and road infrastructure facilities and is being carried out by or on behalf of a public authority. Under section 2.109 of the TI SEPP the proposed modification is permissible without consent. The proposed modifications are not State significant infrastructure or State significant development. The proposed modification can be assessed under Division 5.1 of the EP&A Act.

Council is the determining authority for the AREF.



5 Stakeholder Consultation

5.1 Agency consultation

Consultation for the project is detailed in Chapter 5 of the Project REF. Consultation was undertaken in accordance with the former *State Environmental Planning Policy (Infrastructure) 2007* (I SEPP) provisions for agency consultation and is consistent with the proposed modifications.

The proposed modifications are consistent with the updated *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TI SEPP) requirements for consultation and do not require any additional consultation.



6 Environmental Assessment

This section of the AREF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposed modifications. All aspects of the environment potentially impacted upon by the proposed modification have been considered.

6.1 Noise and Vibration

6.1.1 Existing Environment and Potential Impacts

The existing acoustic environment generally consists of major road traffic noise from Dunheved Road and Richmond Road as well as minor road traffic from surrounding local roads. Sensitive receivers in the vicinity of the project include residents along Dunheved Road on both the north and south sides and adjacent roads.

Following a review of the Noise and Vibration assessment undertaken by Stantec for the Project REF (Stantec 2023) it was determined that the proposed modifications are outside of the project boundary including the proposed noise barrier, additional landscaping and additional footpaths. It was determined that the proposed modifications would not have a substantial impact on sensitive receivers during the construction and operational phase of the project.

As the noise barrier was suggested as a measure to reduce noise impacts it would have a positive long-term benefit on sensitive receivers behind the wall as it would act to shield a portion of noise and vibration for sensitive receivers.

6.1.2 Additional Safeguards and Management Measures

Considerations and mitigation measures recommended in the Project REF have been deemed appropriate for the proposed modifications and no further mitigation measures are required. The existing measures would account for increased impacts as a result of these modifications.

6.2 Biodiversity

6.2.1 Existing Environment and Potential Impacts

The existing biodiversity environment is consistent with findings from database searches in the Project REF. Results from a PMST search (DCCEEW, 2024) and BioNet Atlas search (BioNet, 2024) on 21 August 2024 identified 14 additional threatened species within the 5km buffer area.

The additional threatened species have been assessed for likelihood of occurrence (refer Appendix C). All additional species were found to have a low likelihood of occurrence within the Project boundary. Mitigation measures outlined in the Project REF would be suitable and no further mitigation measures are required.

The additional landscaping (mass planting and tree planting) and access track east of Lockyer Avenue would require activities adjacent to areas potentially mapped as moderate-low likelihood of Plant Community Type (PCT) 849. No clearing is to be undertaken in this area for these



modifications. Mitigation measures outlined in the Project REF would be suitable, no further mitigation measures are required.

It was determined that impacts identified in the Project REF would be consistent with the additional species under the assumption that no additional clearing would be undertaken. No additional impacts are anticipated as a result of the proposed modifications assuming mitigation measures are implemented.

No additional clearing is required for impacts associated with the addition of stormwater pits/pipes, high voltage/transmission lines, driveway widening, and scour protection listed in Section 3 of this report.

6.2.2 Safeguards and management measures

The mitigation measures identified in the Project REF are considered appropriate to mitigate the impacts of the proposed modifications, specifically the existing requirements for tree protection zones.

The vegetation clearing protocol mitigation measure states that no vegetation is to be cleared or removed outside of approved clearing limits. Additional areas do not fall within these limits; therefore, no clearing is permitted. This measure would extend to areas that extend outside of the project boundary and no additional native vegetation is to be removed or cleared.

6.3 Other Impacts

Table 6-1 outlines the other environmental impacts relevant to the proposed modifications.

Table 6-1 Assessment of other impacts

Potential impact	Additional impacts	Section of the Project REF	Description of impacts
Traffic and transport	No additional impacts	Section 6.1	The proposed modifications would not require any additional road closures or traffic measures on top of what was proposed in the Project REF. The proposed modifications may incur minor impacts to pedestrian access in areas where new footpaths are to be implemented Mitigation measures identified in the Project REF are suitable for the proposed modifications and no new mitigations would be required.
Contamination, soil, and geology	No additional impacts	Section 6.3	An updated search on 21 August 2024, of the EPA List of Notified Sites (EPA 2024a) and the EPS record of notices (EPA, 2024b) did not identify any new sites of contamination. The proposed modifications would not incur any additional contamination, soil, or geological impacts.



Potential impact	Additional impacts	Section of the Project REF	Description of impacts
			Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Hydrology and flooding	No additional impacts	Section 6.4	The proposed modifications would not incur any additional impacts to hydrology and flooding. A review of the flood mapping from the project REF shows that only the additional landscaping to the east of Lockyer Avenue is near any potential flooding areas. Areas that overlap with this additional area are mapped as low impact and are unlikely to trigger any potential impacts. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Air quality	No additional impacts	Section 6.5	A search of air quality concentrations from monitoring stations on 21 August 2024 shows no major changes in air quality data and no reduction from “Good” air quality reading from the Penrith monitoring station. The proposed modifications are not anticipated to incur any additional impacts to air quality. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Non-Aboriginal heritage	No additional impacts	Section 6.6	A review of the Australia Heritage database, State Heritage Inventory, and LEP mapping on 21 August 2024 identified no additional historical heritage items in the study area. The proposed modifications are not anticipated to incur any additional impacts to non-Aboriginal heritage. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Aboriginal heritage	No additional impacts	Section 6.7	An updated Aboriginal Heritage Information Management System (AHIMS) was undertaken on 21 August 2024 which indicated there are no registered sites located within or near the updated project boundary.



Potential impact	Additional impacts	Section of the Project REF	Description of impacts
			The proposed modifications are not anticipated to incur any additional impacts to aboriginal heritage. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Socio-economic and visual amenity	No additional impacts	Section 6.9	No additional socio-economic or visual amenity impacts are anticipated as a result of the proposed modifications. The project REF determined that the proposed works would have a long-term positive impact on socio-economic environment and visual amenity of the area. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Waste management	No additional impacts	Section 6.10	It is expected that no additional waste stream would be generated as a result of the proposed modifications. All waste is to be disposed of at an appropriate licensed facility. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.
Cumulative impacts	No additional impacts	Section 6.11	Transports Major Projects webpage and Penrith City Council webpage were reviewed on 21 August 2024 and no additional major projects have been started in the vicinity of the project. No additional cumulative impacts are anticipated as a result of the proposed modifications. Mitigation measures identified in the project REF are suitable for the proposed modifications and no new mitigations would be required.



7 Environmental Management

No additional mitigation measures have been proposed to those outlined in the Project REF, refer to Chapter 6 of the Project REF (Stantec, 2023). The mitigation measures listed are considered adequate to ameliorate any potential impacts as a result of the proposed modifications.

The CEMP will be developed in accordance with the REF and the AREF by the Contractor.

7.1 Licensing and Approvals

There are no additional licenses, permits or approvals are needed as a result of the proposed modifications.



8 Conclusion

8.1 Justification

The proposed modification to the Project is not anticipated to have any additional impacts on social outcomes, the biophysical environment, economic factors or public interest.

8.2 Objects of the EP&A Act

Table 8-1 describes how the proposed modifications are consistent with the objects of the EP&A Act.

Table 8-1 Objects of the EP&A Act

Object	Comment
1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposed modifications would satisfy noise mitigation for nearby residents and the landscaping would better tie in the project to the area. The changes are consistent with the project REF.
1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental, and social considerations in decision-making about environmental planning and assessment.	Additional landscaping and planting would increase the greenspace of the area. The changes are consistent with the project REF.
1.3(c) To promote the orderly and economic use and development of land.	Not applicable
1.3(d) To promote the delivery and maintenance of affordable housing.	Not applicable
1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	No additional clearing is involved in the proposed modifications. Protection of native vegetation would be adhered to. The changes are consistent with the project REF.
1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	No impact to built and cultural heritage is anticipated as a result of the proposed modifications. The changes are consistent with the project REF.
1.3(g) To promote good design and amenity of the built environment.	Additional landscaping would support the design of the project and enhance amenity. The changes are consistent with the project REF.



1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Not applicable
1.3(i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State.	Not applicable
1.3(j) To provide increased opportunity for community participation in environmental planning and assessment.	Not applicable

8.3 Conclusion

This AREF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This has included consideration where relevant, of conservation agreements and plans of management under the NPW Act, biodiversity stewardship sites under the BC Act, wilderness areas, areas of outstanding value, impacts on threatened species, populations and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the Federal EPBC Act.

The proposed modification as described in the AREF best meets the Project objectives and would have no additional impact on the aforementioned environmental factors. Safeguards and management measures as detailed in the Project REF and this AREF would ameliorate or minimise these expected impacts. Overall, the proposed modification is considered justified.



9 Certification

This AREF provides a true and fair review of the proposed modification 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 proposed modification.

Lennelle Barnes

Principal Environmental Scientist

Stantec Australia Pty Ltd

Date: 03/10/2024



Appendix A Consistency Review Letter





Stantec Australia Pty Ltd
Level 9, The Forum, 203 Pacific Highway
St. Leonards NSW 2065
AUSTRALIA
ABN 17 007 820 322

30 July 2024

Project/File: Dunheved Road

Penrith City Council
PO Box 60, Penrith NSW 2751

Dear Penrith City Council,

Reference: Consistency Review for Dunheved Road Final Design

Stantec has undertaken a consistency review for the changes in the detailed design for the Dunheved Road upgrade. Additional works have been identified outside of the original construction boundary that was assessed in the Review of Environmental Factors (REF). These works relate to activities additional to the road design such as landscaping and footpaths.

These include the following:

- Ch 50: the landscaped area mapped as "proposed mass planting" on the north side of the alignment
- Ch 2400: the landscaped area mapped as "proposed mass planting" to the east of Lockyer Avenue
- Ch 250: the area mapped as "concrete path" around the cul-de-sac to the north of Dunheved Road
- Ch 650: the area mapped as "concrete path" around the cul-de-sac to the north of Dunheved Road
- Ch1550: The area mapped as "concrete path" along Brookfield Avenue.

The updated REF Study Area is attached – Sheets 1 to 5.

These additional areas have not been considered in the REF; however, after consideration of the environmental factors outlined in the REF, it appears that they are unlikely to result in further impacts to the social or physical environment under the assumption that they would not involve the clearing or disturbance of any native or protected vegetation assessed in the REF. It has been assumed that separate consultation has been undertaken with adjacent landholders regarding path location.

The Road Traffic Noise Assessment undertaken as part of the REF (Appendix E) comprehensively assessed the impact of the proposed upgrade with or without mitigation including provision of noise walls in certain locations. The assessment included a noise wall at or near Ch 50 behind properties 43 and 47 Lewis Road consistent with the proposed mass planting area noted above. The detailed design has extended the noise wall a small distance (approximately 10m to the north-west). This change is not expected to result in increased noise levels at either 43 or 47 Lewis Road. The modification is likely to result in reduced operational noise levels. The change is therefore consistent with the conclusions of the noise impact assessment in the REF. It is assumed that extension of the noise wall in this location would not involve disturbance of any native or protected vegetation additional to that assessed in the REF. It is also assumed that consultation with the adjacent landholders has or would be undertaken prior to construction commencing regarding noise wall design.

The project as amended by detailed design changes is considered consistent with the conclusions of the REF including any requirements for implementing mitigation measures outlined in the REF.

Reference: Consistency Review for Final Design

Regards,

STANTEC AUSTRALIA PTY LTD



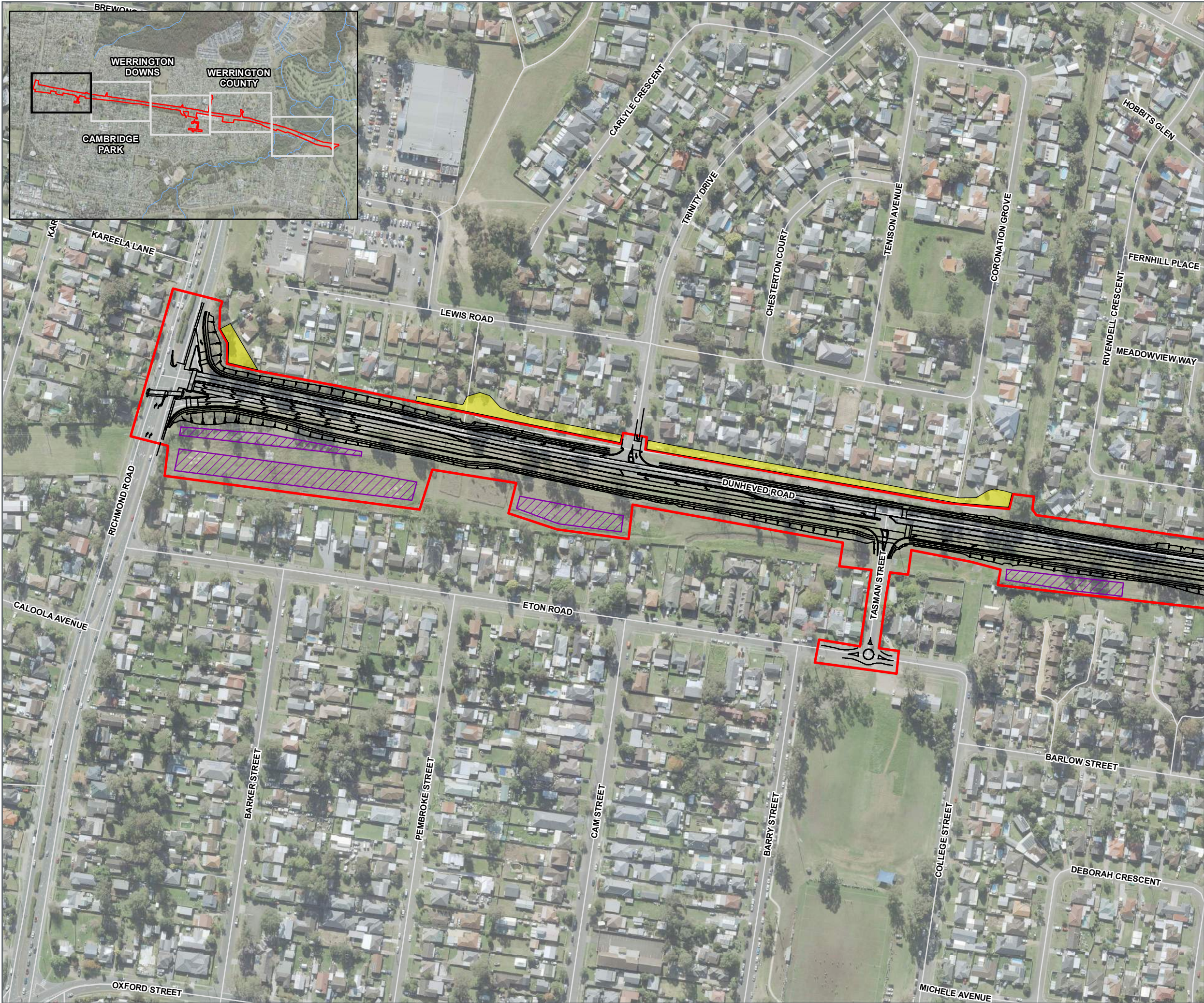
Kevin Roberts

Technical Delivery Lead - Environment

Phone: +61 2 6263 9453

Kevin.Roberts@stantec.com

Enc: Updated REF Study Area



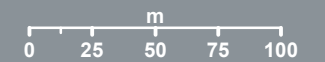
80% Detailed Design Page 1

DUNHEVED ROAD, NSW

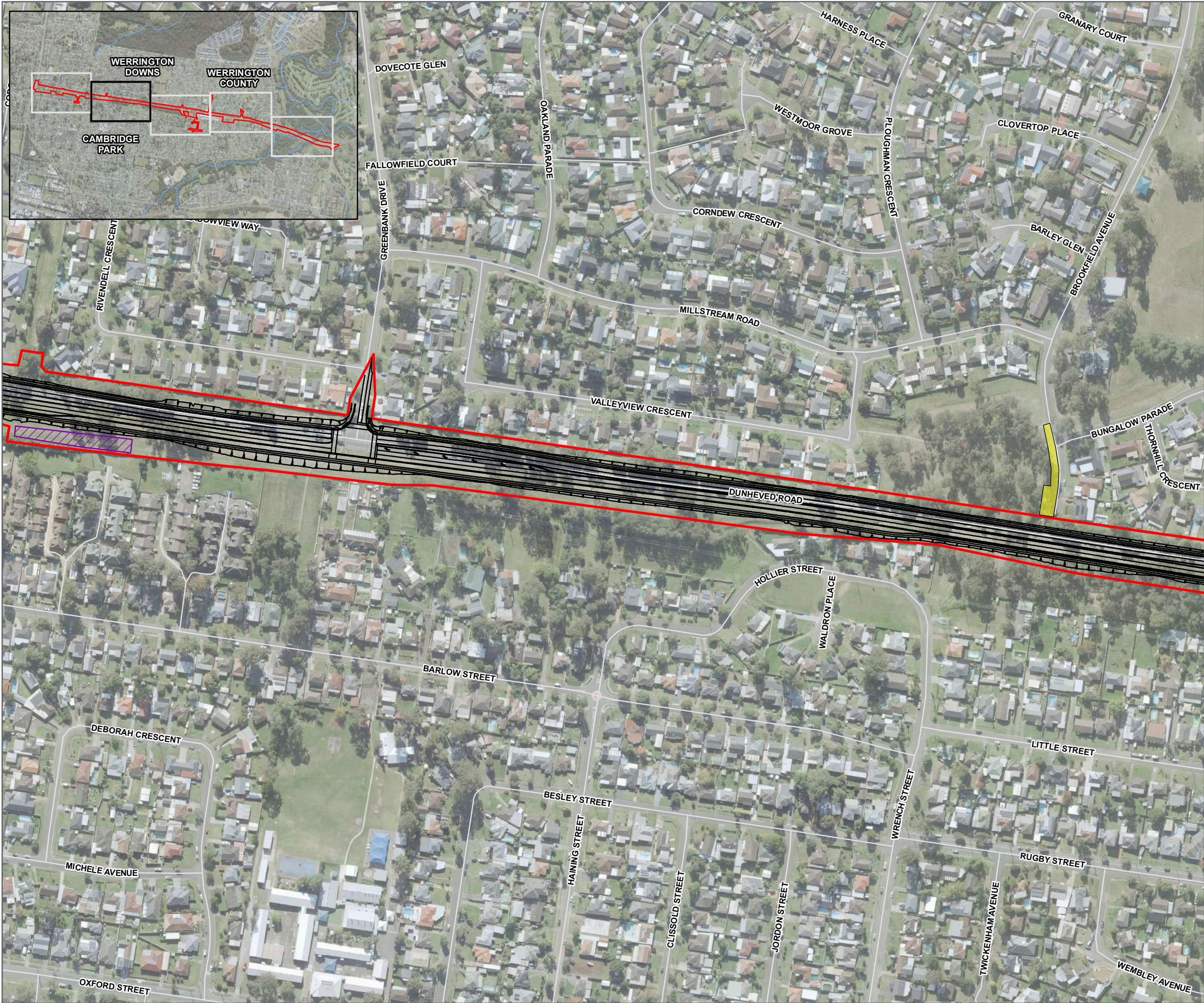
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- 80% Detailed Design**
 -  80% Detailed Design
 -  Roads (NSW SS)
 -  Watercourses (LPI)
 -  Proposed Stockpile/Compound Area
-  AREAS OUTSIDE ORIGINAL REF BOUNDARY (80%DD)

1:3,000 Scale at A3



Map Produced by Cardno NSW/ACT Pty Ltd (WNE)
Date: 2022-08-24 | Project: 80021086
Coordinate System: GDA2020 MGA Zone 56
Map: 80021086-GS-008-Design_80pcd_final.mxd 02
Aerial imagery supplied by MetroMap (June, 2021)



80% Detailed Design Page 2

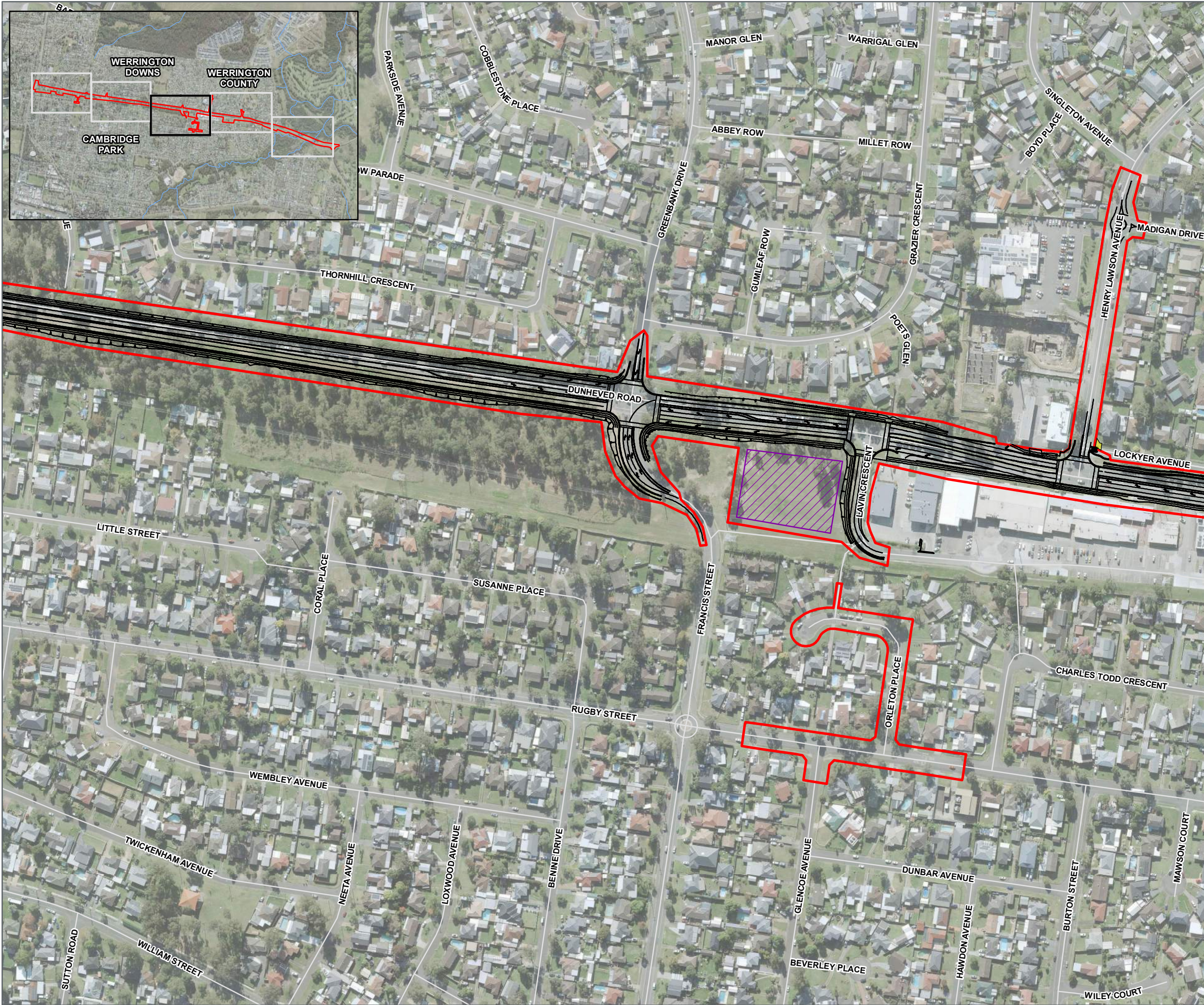
DUNHEVED ROAD, NSW

Legend

- Study Area
- 80% Detailed Design**
 - 80% Detailed Design
 - Roads (NSW SS)
 - Watercourses (LPI)
 - Proposed Stockpile/Compound Area
 - AREAS OUTSIDE ORIGINAL REF BOUNDARY (80%DD)

1:3,000 Scale at A3

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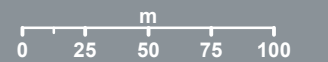
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DUNHEVED ROAD, NSW

Legend

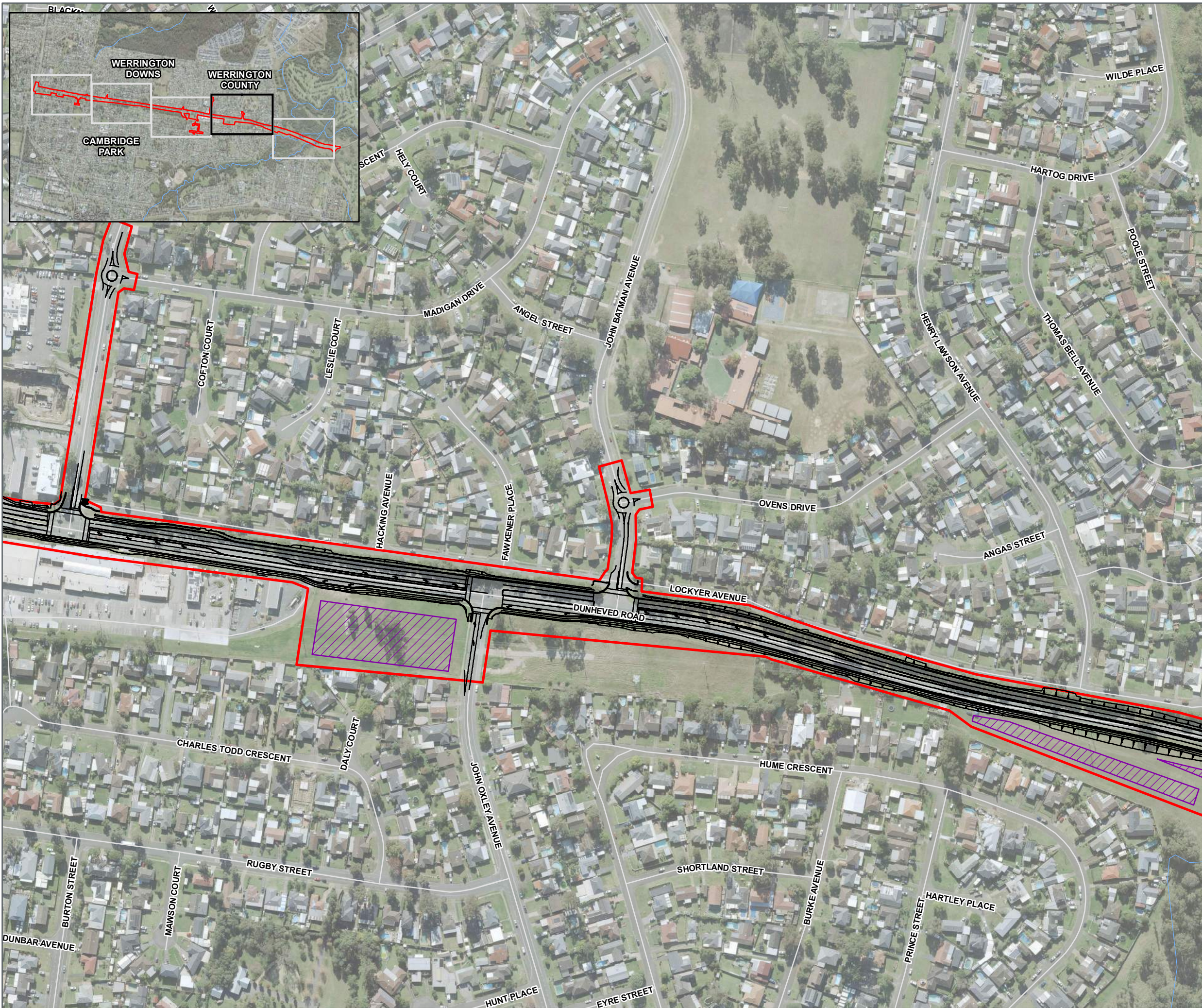
- Study Area
- 80% Detailed Design**
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 - Watercourses (LPI)
 - Proposed Stockpile/Compound Area
- AREAS OUTSIDE ORIGINAL REF BOUNDARY (80%DD)

1:3,000 Scale at A3



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80% Detailed Design Page 4

DUNHEVED ROAD, NSW

Legend

-  Study Area
-  80% Detailed Design
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-  Watercourses (LPI)
-  Proposed Stockpile/Compound Area
-  AREAS OUTSIDE ORIGINAL REF BOUNDARY (80%DD)

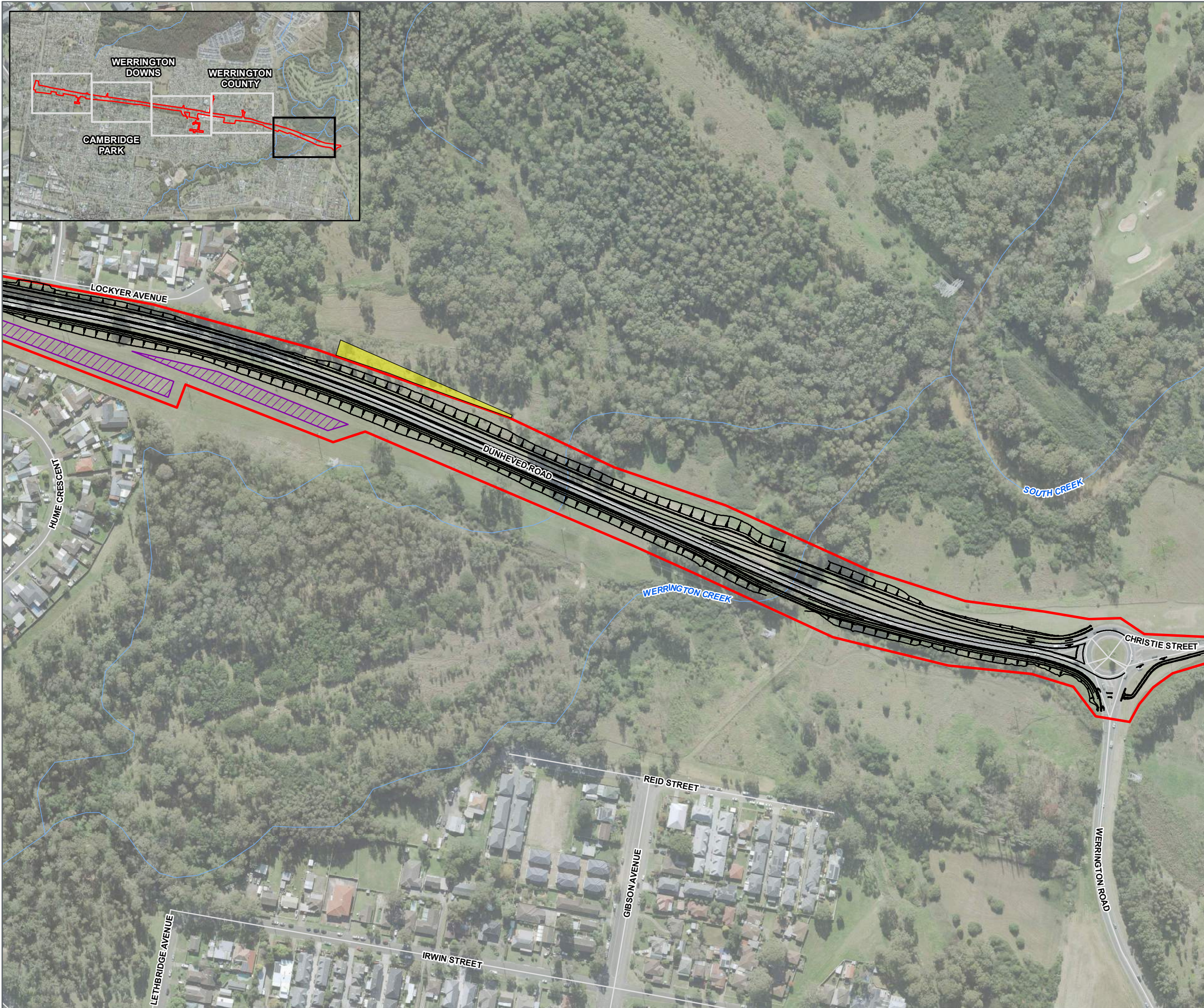
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Map: 80021086-GS-008-Design_80pcd_final.mxd 02
Aerial imagery supplied by MetroMap (June, 2021)



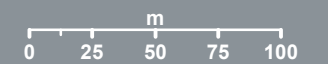
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DUNHEVED ROAD, NSW

Legend

-  Study Area
- 80% Detailed Design**
 -  80% Detailed Design
 -  Roads (NSW SS)
 -  Watercourses (LPI)
 -  Proposed Stockpile/Compound Area
-  AREAS OUTSIDE ORIGINAL REF BOUNDARY (80%DD)

1:3,000 Scale at A3



Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (WNE)
Date: 2022-08-24 | Project: 80021086
Coordinate System: GDA2020 MGA Zone 56
Map: 80021086-GS-008-Design_80pcd_final.mxd 02
Aerial imagery supplied by MetroMap (June, 2021)

Appendix B EPL Review Letter





Stantec Australia Pty Ltd
Level 9, The Forum, 203 Pacific Highway
St. Leonards NSW 2065
AUSTRALIA
ABN 17 007 820 322

18 July 2024

Project/File: Dunheved Road

Penrith City Council
PO Box 60, Penrith NSW 2751

Dear Penrith City Council,

Reference: EPL Licensing update Dunheved Road

Stantec provides the following advice about the potential requirements for licensing under the *Protection of the Environment Operations Act 1997* (POEO Act).

Table 4.6 of the approved review of environmental factors (REF) provides a detailed list of the requirements where the need for any additional permits, licences and/or approvals for the works were identified. This included consideration of the need for an Environment Protection Licence (EPL) from the Environment Protection Authority (EPA) under the POEO Act.

Clause 35 of Schedule 1 of the POEO Act relates to Road Construction and specifies thresholds that trigger the need for an EPL. Table 4.6 of the REF identifies that an EPL may be required due to triggers including one relating to the extraction or processing of material. The Table advised that these thresholds would need to be reviewed once the design is finalised and cut and fill requirements are confirmed.

This update confirms the Schedule 1 trigger in the Table should read:

(3) The activity to which this clause applies is declared to be a scheduled activity if the activity results in one or more of the following—

(a) the extraction or processing (over the life of the construction) of more than—

- (i) 50,000 tonnes of materials in the case of premises in the regulated area or in the local government areas of Bega Valley, Eurobodalla, Goulburn Mulwaree, Queanbeyan-Palerang Regional or Snowy Monaro Regional, or*
- (ii) 150,000 tonnes of material in any other case.*

The Dunheved Road project is located within the 'regulated area' and therefore the trigger of 50,000 tonnes of material applies to this project.

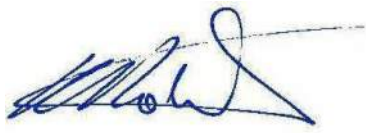
The decision to submit an EPL application would be made by the proponent or constructor depending on assessment of the total volume of the finalised cut and fill requirements (or any other triggers that may apply).

Stantec has reviewed the REF and advises it appropriately assesses the potential impacts of management of materials such as soils and waste material. The conclusions of the REF, including any requirements for implementing mitigation measures, would be unchanged. Stantec considers that revision (and any re approval or consultation) is not required.

Regards,

STANTEC AUSTRALIA PTY LTD

Reference: EPL Licencing update Dunheved Road



Kevin Roberts

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Appendix C Likelihood of Occurrence for Additional PMST results



Name	BC	EPBC	Habitat description	Likelihood
Birds				
Southern Whiteface (<i>Aphelocephala leucopsis</i>)	V	V	Dry open forests and woodland and inland scrubs of mallee, mulga and saltbush are the preferred habitat of Southern Whiteface, especially areas with fallen timber or dead trees and stumps.	Low: No suitable dry open forest or mallee scrub within the Study Area. No historical records. Therefore this species is unlikely to occur.
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)		V	The Sharp-tailed Sandpiper prefers the grassy edges of shallow inland freshwater wetlands. It is also found around swage farms, flooded fields, mudflats, mangroves, rocky shores and beaches.	Low. This is a migratory wetland species. Due to unsuitable habitat within the Study Area, and the mobile nature of the species, it is unlikely to occur.
South-eastern Glossy Black-Cockatoo (<i>Calyptorhynchus lathami lathami</i>)	V	V	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods	Low. No suitable foraging habitat within the Study Area. Bionet sighting more than 2km away in 2011. Therefore this species is unlikely to occur.
Brown Treecreeper (south-eastern) (<i>Climacteris picumnus victoriae</i>)	V	V	Found in the drier open forests and woodlands, the Brown Treecreeper stays in the same area all year round.	Low. No suitable habitat within the Study Area. No historical sightings. Therefore this species is unlikely to occur.
Red Goshawk (<i>Erythrotriorchis radiatus</i>)	E	E	Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands.	Low. No suitable wetland habitat within the Study Area. No historical sightings. Therefore this species is unlikely to occur.
Latham's Snipe (<i>Gallinago hardwickii</i>)		V	Latham's Snipe are seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges,	Low. This is a migratory species. No suitable wetland habitat within the Study Area. No historical

			grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration.	records. Therefore this species is unlikely to occur.
South-eastern Hooded Robin (<i>Melanodryas cucullate cucullate</i>)	E	E	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas.	Low. No suitable habitat within the Study Area. No historical sightings. Therefore this species is unlikely to occur.
Blue-winged Parrot (<i>Neophema chrysostoma</i>)	V	V	The Blue-winged Parrot inhabits a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones. Throughout their range they favour grasslands and grassy woodlands.	Low. No suitable habitat within the Study Area. No historical sightings. Therefore this species is unlikely to occur.
Diamond Firetail (<i>Stagonopleura guttata</i>)	V	V	Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum <i>Eucalyptus pauciflora</i> Woodlands.	Low. No suitable woodland habitat within the Study Area. Bionet sightings more than 2km away in 2014. Therefore this species is unlikely to occur.
Common Greenshank (<i>Tringa nebularia</i>)		E	Common Greenshanks are found both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops.	Low. This is a migratory species. No suitable habitat within the Study Area. Due to mobile nature of species, it is unlikely to occur in the Study Area.
PLANT				
Camden White Gum (<i>Eucalyptus benthamii</i>)	CE	V	Occurs in open forest. Occurs on the alluvial flats of the Nepean River and its tributaries. There are two major subpopulations: in the Kedumba Valley of the Blue Mountains National Park and at Bents Basin State Recreation Area.	Low: based on the disturbed nature of the Study Area, and no historical sightings, this species is unlikely to occur.
Micromyrtus blakelyi	V	V	Typically occurs within heathlands in shallow sandy soil in cracks and depressions of sandstone rock platforms.	Low: based on the disturbed nature of the Study Area, and no historical

				sightings, this species is unlikely to occur.
REPTILE				
Pink-tailed Worm-lizard (Aprasia parapulchella)	V	V	Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>).	Low. No suitable native grassy habitat within the Study Area. No historical records. Therefore this species is unlikely to occur.
Striped Legless Lizard (<i>Delma impar</i>)	V	V	Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component.	Low. No suitable habitat within the Study Area. No historical records. Therefore this species is unlikely to occur.
Broad-headed Snake (<i>Hoplocephalus bungaroides</i>)	E	E	Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring.	Low. No suitable rocky habitat within the Study Area. Bionet sightings more than 2km away, in 2016. Therefore this species is unlikely to occur.



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