

Rushes Creek Poultry Production Farm

SSD 7704

Modification 3 Modification Report

Prepared for:
ProTen Tamworth Pty Limited

January 2022



Prepared by:

eme
ADVISORY

RUSHES CREEK POULTRY PRODUCTION FARM, SSD 7704

Modification 3 – Modification Report

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APPROVED DEVELOPMENT

Development Consent: SSD 7704

Description: Rushes Creek Poultry Production Farm

Address: Rushes Creek Road, Rushes Creek NSW (see Section 2.1.1 for a schedule of land titles)

LGA: Tamworth Regional

PROPOSED MODIFICATION

Approval Pathway: Section 4.55(1A) of the *Environmental Planning and Assessment Act 1979*

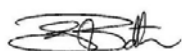
Description: See Sections 1.2 and 3

DECLARATION

We confirm that we have prepared the contents of this document and to the best of our knowledge:

- It contains all available information that is relevant to the environmental, social and economic impact assessment of the proposal; and
- It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

EME Advisory



Eryn Bath
3 January 2022

EXECUTIVE SUMMARY

INTRODUCTION

ProTen Tamworth Pty Limited (ProTen) was granted Development Consent SSD 7704 from the Department of Planning, Industry and Environment (DPIE) (as delegate for the Minister for Planning and Public Spaces) on 16 April 2020 to construct and operate an intensive poultry broiler production farm within a rural area known as Rushes Creek in the Tamworth Regional local government area.

This Modification Report has been prepared to accompany an application from ProTen seeking to modify Development Consent SSD 7704 under section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It presents a focussed evaluation of the modification, including relevant environmental, social and economic considerations.

DEVELOPMENT SITE

The Development Site comprises approximately 1,016 hectares of rural land in an area known as Rushes Creek approximately 43 kilometres (km) northwest of Tamworth and 33 km northeast of Gunnedah. Rushes Creek Road, which is a sealed two-lane rural road, forms the Development Site's eastern boundary and connects the Site to the Oxley Highway. Ski Gardens Road, which is a good quality gravel road, forms part of the Development Site's northern boundary and a short section traverses through the Site. The Namoi River is located to the north of the Development Site and Lake Keepit is located to the west and southwest.

The long-standing and existing use of the Development Site is traditional agricultural production. The surrounding area is also primarily characterised by traditional agricultural production, along with recreational activities around Lake Keepit. The Site is removed from any populated areas, and there is a relatively low density of surrounding privately-owned residences.

The Development Site and all adjoining lands are zoned "RU1 Primary Production" under the provisions of the *Tamworth Regional Local Environmental Plan 2010*.

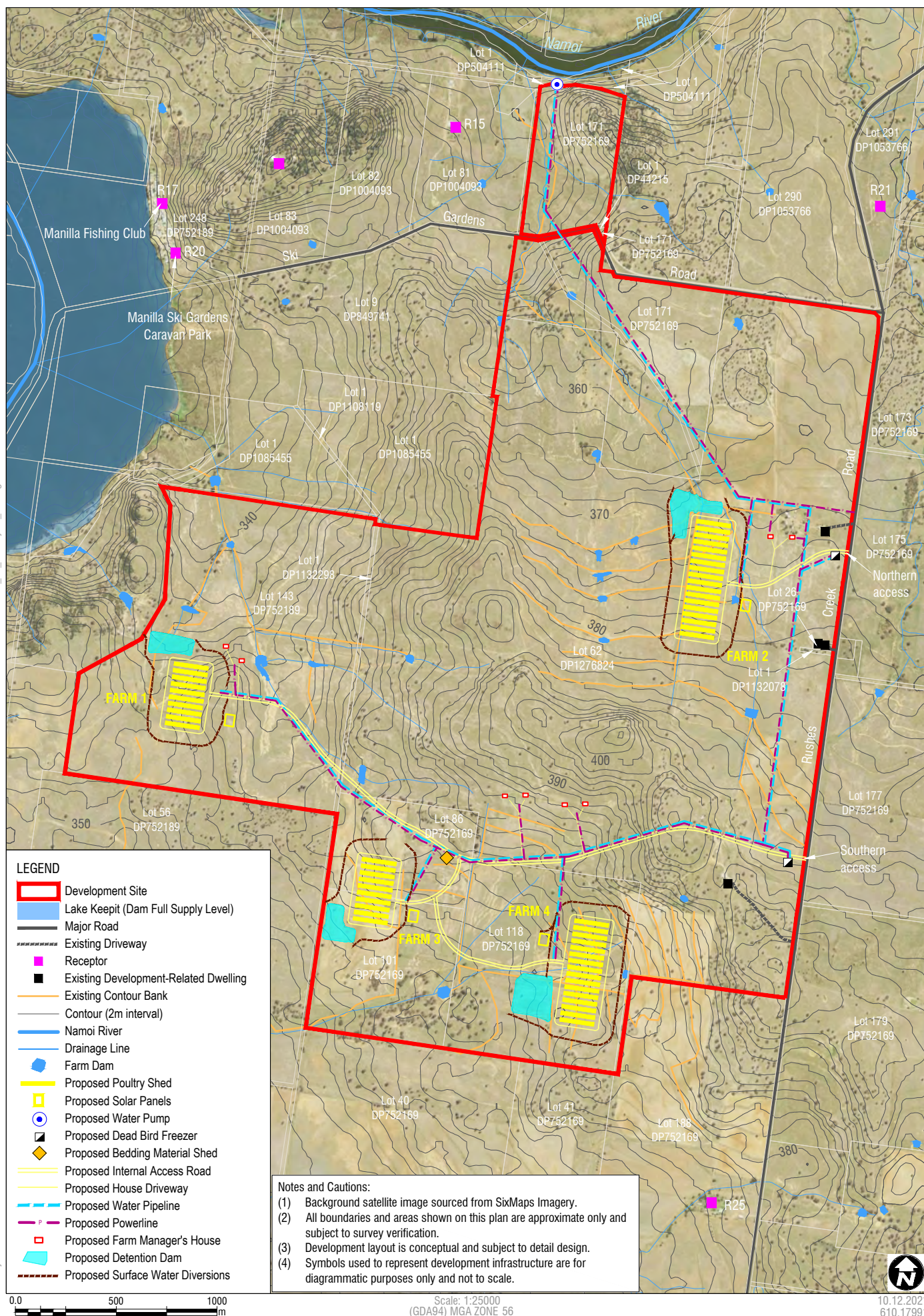
APPROVED DEVELOPMENT

The Development comprises four individual poultry production units, identified as Farms 1 to 4, where broiler birds will be grown for the purpose of producing poultry meat (for human consumption). Each farm will contain between 10 and 18 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, which will each have the capacity to house 56,500 birds, along with associated support and servicing infrastructure. The Development will comprise a total of 54 poultry sheds and house a combined population of 3,051,000 birds.

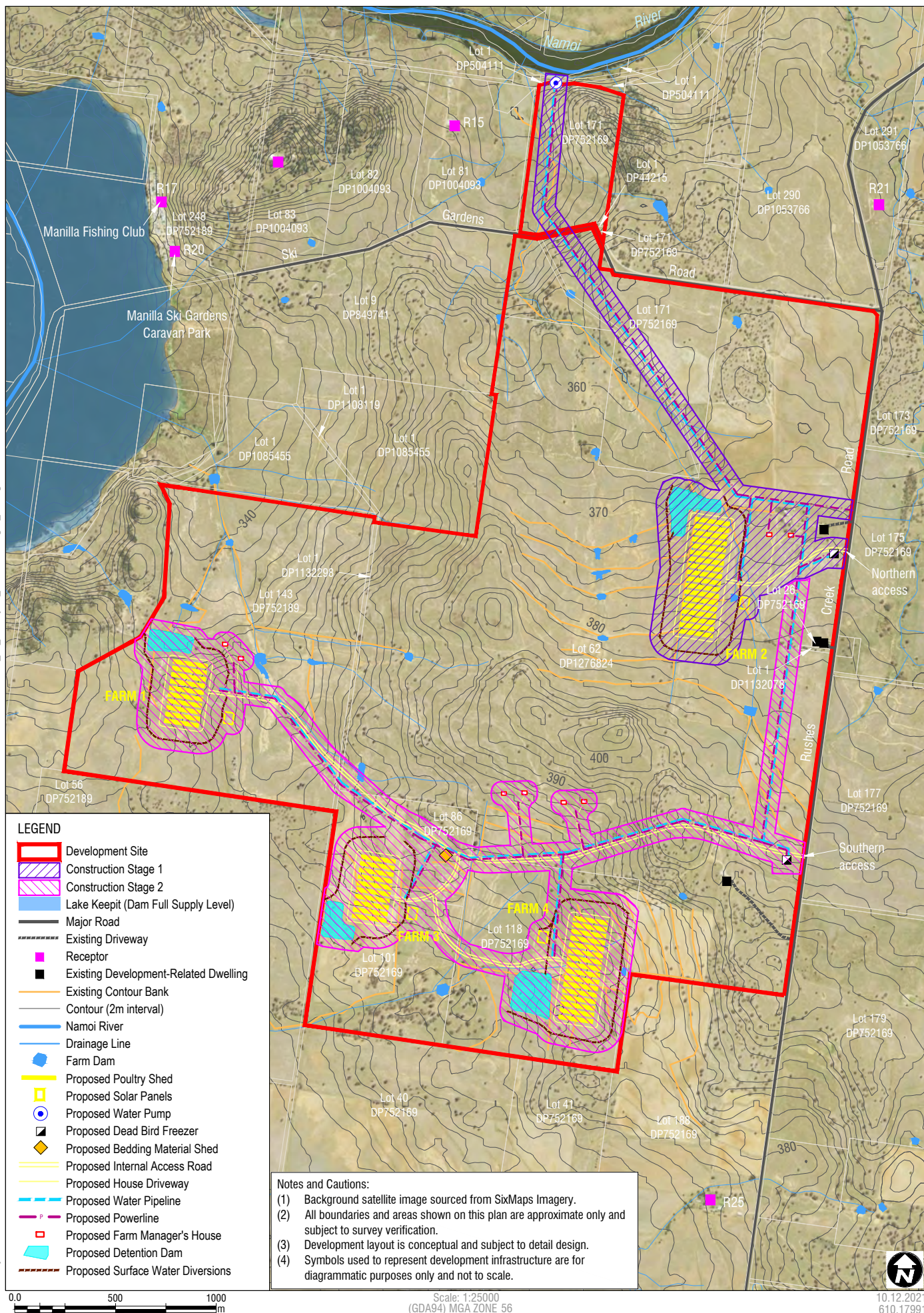
The Development is planned to be established over two separate stages, with Stage 1 comprising the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprising the construction and operation of Farms 1, 3 and 4 and associated ancillaries. Construction of Stage 1 commenced in August 2021 and is anticipated to be completed in mid-late 2022. The timeframes for Stage 2 are unknown at this point.

Figures A and B show the development layout and development staging, respectively.

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PROPOSED MODIFICATION 3

ProTen is seeking to modify Development Consent SSD 7704 pertaining to the Rushes Creek poultry farm development under section 4.55(1A) of the EP&A Act. Modification 3 relates to Stage 1 only (i.e. Farm 2 and associated ancillaries) and, in summary, comprises the following components:

- Minor amendments to the positioning of some of the ancillary infrastructure items at Farm 2, which, as shown on **Figure C**, includes the site office and workshop, water storage tanks, emergency generators, diesel storage and dead bird freezer. These optimisations will provide efficiencies and benefits for the initial site establishment and long-term farm operations.
- Additional emergency standby diesel generator capacity at Farm 2 comprising four 440 kilovolt amp (kVA) generators (in place of the currently approved three 390 kVA generators) to ensure adequate backup for the rare occasion when the primary operational power supply is lost. There would only ever be two of the proposed 440 kVA generators operating at any one time.
- Addition of a 45 kVA emergency standby diesel generator and 2,000 litre bunded diesel storage tank at the water supply pump near the Namoi River to provide backup for the rare occasion when the primary operational power supply is lost.
- Concurrent construction and operation at Farm 2 for up to 10 months to enable partial farm operations to commence earlier.
- Reliance on the proposed 440 kVA diesel generators to operate Farm 2 (only ever two operating at any one time) and the proposed 45 kVA diesel generator to operate the water supply pump for up to 10 months while the alternative renewable power option is approved and commissioned.

IMPACT ASSESSMENT

Preliminary stakeholder consultation and specialist impact assessments were undertaken to assist in identifying the potential environmental impacts associated with Modification 3 and any additional mitigation and management measure requirements. Specialist consultants were engaged to assess the implications associated with particulate matter emissions, traffic generation, noise emissions and hazards and risks. The findings of these specialist assessments are summarised below.

Particulate Matter

- Predicted ground level concentrations of oxides of nitrogen (NO₂), particulate matter less than 10 microns (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5}) and carbon monoxide (CO) from the modification readily comply with the relevant air quality criteria.
- Background concentrations are significantly elevated due to intense drought conditions and widespread bushfires in 2019 (i.e. selected representative year) and are not representative of normal conditions. As such, the predicted cumulative concentrations (i.e. with background) are unlikely to occur under normal circumstances.
- Modification 3 does not warrant any additional air quality controls.

Traffic

- The previously assessed and approved design of internal traffic arrangements for Farm 2 is sufficient to accommodate both construction and operational traffic demands, including site circulation, car parking and loading/unloading.
- Based on an assessment of operational and safety impacts associated with concurrent Farm 2 construction and operational traffic demands and additional diesel deliveries on the site accesses and external road network, no additional upgrades or mitigation measures are required beyond those previously committed to in the approved *Construction Traffic Management Plan* (CTMP) to support the additional traffic demands associated with Modification 3 for up to 10 months.

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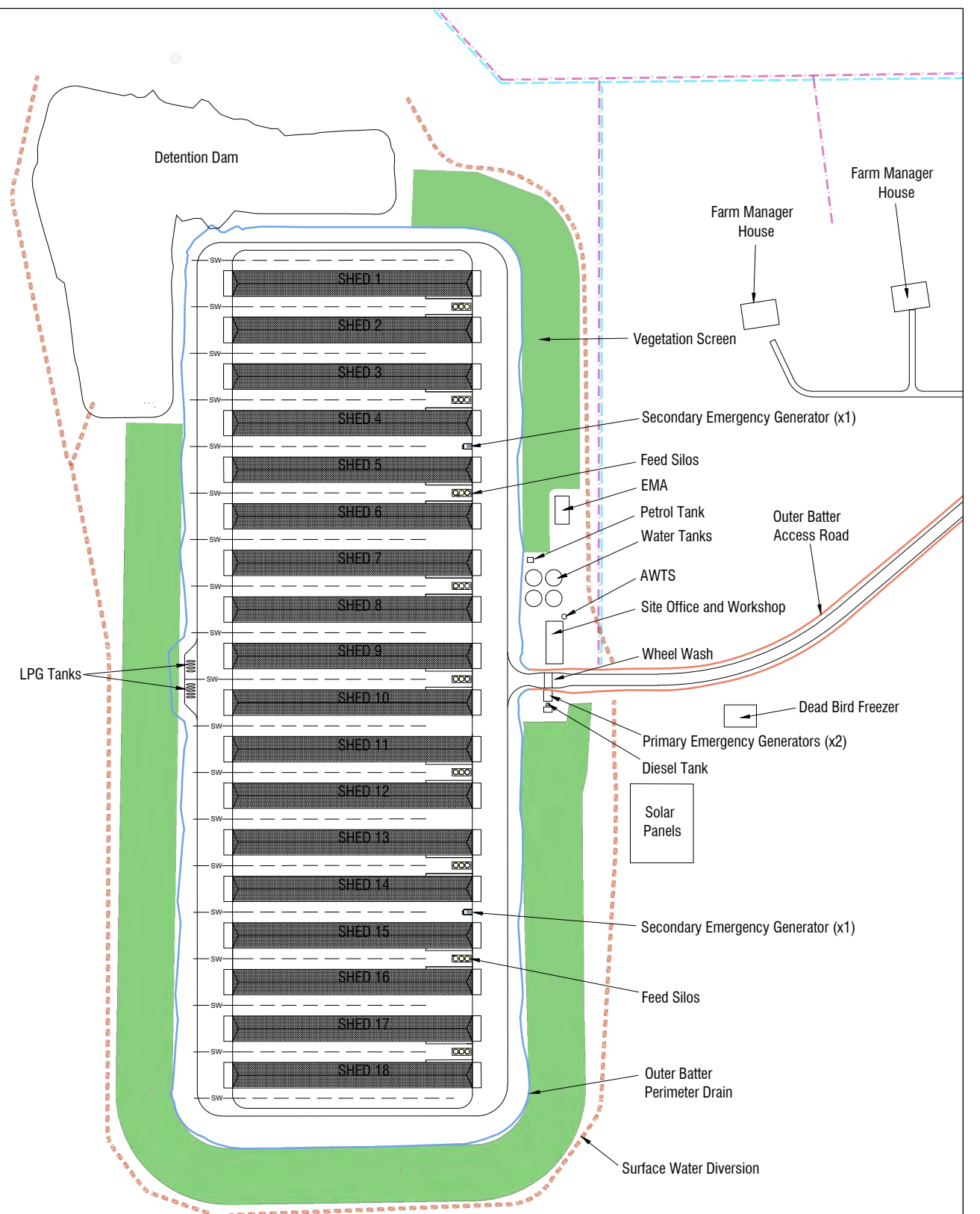


APPROVED FARM 2 LAYOUT

Note: Layout is conceptual. Symbols have been used to represent ancillaries.



Scale: 1:4000



PROPOSED FARM 2 LAYOUT

Note: Layout is conceptual. Symbols have been used to represent ancillaries.



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- While the traffic engineering implications of Modification 3 are minor and will only be for a short-term period, the CTMP has been updated to cover the modification components.

Noise

- The changes associated with Modification 3 should not materially change noise emission levels from the Development Site compared to those previously assessed and approved. Predicted noise increases are minimal and will be short-term for up to 10 months.
- Modification 3 does not warrant any additional noise controls.

Hazard and Risk

- Modification 3 will not have any material impact to the approved *Fire Safety Study* or the approved *Final Hazard Analysis*.
- Modification 3 does not warrant any additional hazard/risk controls.

The mitigation and management measures listed in the approved Summary of Commitments and approved *Construction Environmental Management Plan* will continue to be implemented to minimise the potential for impacts during Stage 1 construction. Additionally, there are various operational management plans currently being prepared, including the *Operational Environmental Management Plan*, *Air Quality Management Plan*, *Operational Driver Code of Conduct* and *Water Management Plan*, which will include mitigation and management measures to safeguard the local environment and surrounding populace during the Stage 1 operational phase. Each of these management plans will be submitted to DPIE for approval by the Planning Secretary prior to commencing operations at Farm 2.

JUSTIFICATION AND CONCLUSION

Modification 3 will facilitate the following key objectives for Stage 1 of the Rushes Creek poultry farm development:

- Allow development optimisations that will deliver long-term operational efficiencies and benefits at Farm 2;
- Enable early commencement of operations at Farm 2 while construction is on-going to meet supply contracts and market demand; and
- Enable operational power requirements of Farm 2 to be met using diesel generators for up to 10 months while the alternative renewable power option is finalised, approved and commissioned.

Modification 3 has been assessed in this Modification Report in accordance with the context of the relevant environmental legislation and planning instruments, and the following is concluded:

- The poultry farm development, as proposed to be modified, will be substantially the same development for which consent was originally granted under SSD 7704. The modification does not involve any significant material changes to the construction, operation or management of the poultry farm, with the primary use and core characteristics of the approved development remaining the same.
- The modification will have implications for air emissions, noise emissions and traffic generation, however these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved. No additional mitigation or management measures are warranted.
- A modification under section 4.55(1A) of the EP&A Act appears to be a suitable and lawful approval pathway for the proposal.

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1 INTRODUCTION

1.1 Background

ProTen Tamworth Pty Limited (ProTen) was granted Development Consent SSD 7704 from the Department of Planning, Industry and Environment (DPIE) (as delegate for the Minister for Planning and Public Spaces) on 16 April 2020 to construct and operate an intensive poultry broiler production farm within a rural area known as Rushes Creek in the Tamworth Regional local government area (Tamworth LGA). In summary, the approved Rushes Creek poultry production farm (the “Development”) comprises four individual poultry production units (PPUs), identified as Farms 1 to 4, each containing between 10 and 18 poultry sheds and various items of ancillary infrastructure. Combined, these four PPUs comprise a total of 54 poultry sheds and have the capacity to house up to 3,051,000 broiler birds.

While **Section 2** provides a summary of the approved Development, the following should be referred to for a detailed description:

- *Environmental Impact Statement, Intensive Livestock Agriculture, Rushes Creek Poultry Production Farm, SSD 7704* (SLR Consulting Australia [SLR] 2018a) (EIS), including appendices;
- *Rushes Creek Poultry Production Farm, SSD 7704, Response to Submissions* (EME Advisory [EME] 2019a) (RTS), including appendices;
- *Rushes Creek Poultry Production Farm, SSD 7704, Supplementary Response to Submissions* (EME 2019b) (Supplementary RTS), including all appendices;
- *Rushes Creek Poultry Production Farm, SSD 7704, Section 4.55(1A) Modification Report* (EME 2021a) (Modification 1), including appendices; and
- *Rushes Creek Poultry Production Farm SSD 7704, Modification Report – Condition B53(a)* (EME 2021b) (Modification 2).

The Rushes Creek poultry farm development is planned to be established over two separate stages, with Stage 1 comprising the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprising the construction and operation of Farms 1, 3 and 4 and associated ancillaries. Construction of Stage 1 commenced in August 2021 and is anticipated to be completed in mid-late 2022. The timeframes for Stage 2 are unknown at this point.

This Modification Report has been prepared to accompany an application from ProTen seeking to modify Development Consent SSD 7704 under section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as outlined in **Section 1.2** and detailed in **Section 3**. It presents a focussed evaluation of the modification, including relevant environmental, social and economic considerations.

1.2 Proposed Modification 3

1.2.1 Overview

ProTen is proposing to modify the approved Rushes Creek poultry farm development (SSD 7704). Modification 3 relates to Stage 1 only (i.e. Farm 2 and associated ancillaries) and, in summary, comprises the following components:

- Minor amendments to the positioning of some of the ancillary infrastructure items at Farm 2, including the site office and workshop, water storage tanks, emergency standby generators, diesel storage and dead bird freezer. These optimisations will provide efficiencies and benefits for the initial site establishment and long-term farm operations.

- Additional emergency standby diesel generator capacity at Farm 2 comprising four 440 kilovolt amp (kVA) generators (in place of the currently approved three 390 kVA generators) to ensure adequate backup for the rare occasion when the primary operational power supply is lost. There would only ever be two of the proposed 440 kVA generators operating at any one time.
- Addition of a 45 kVA emergency standby diesel generator and 2,000 litre (L) bunded diesel storage tank at the water supply pump near the Namoi River to provide backup for the rare occasion when the primary operational power supply is lost.
- Concurrent construction and operation at Farm 2 for up to 10 months to enable partial farm operations to commence earlier.
- Reliance on the proposed 440 kVA diesel generators to operate Farm 2 (only ever two operating at any one time) and the proposed 45 kVA diesel generator to operate the water supply pump for up to 10 months while the alternative renewable power option is finalised, approved and commissioned.

Further details on the proposed modification are provided in **Section 3**.

1.2.2 Strategic Context and Objectives

The poultry industry is well-established and has a high recognition factor in the Tamworth LGA, providing significant employment and contribution to the economy. It plays an ever-increasing role in the growth of agribusiness in the area, which is currently being supported and promoted by the NSW Government through the Namoi Regional Job Precinct project. This project focuses on improvements in planning to support the sustainable growth of intensive agriculture and livestock production in the Namoi region, including the Tamworth LGA.

ProTen sought development consent for the Rushes Creek poultry farm to augment the supply of meat chickens in the Tamworth LGA and assist in meeting the immediate and projected long-term demands in the Australian market. The Development will increase the supply of broiler poultry by up to 17 million birds per year, which is integral to the industry's strategy for continued growth within the region.

The need for Modification 3 stems from the following:

- The EIS that accompanied the development application for the poultry farm was based on conceptual development design. The EIS noted in several locations that the figures/drawings/plans provided were conceptual and subject to detailed design following development consent. This is common practice for large-scale developments. Detailed design for Stage 1 (i.e. Farm 2 and associated ancillaries) is now complete and several development optimisations were identified that will provide efficiencies and benefits without environmental impact or safety implications. Modification 3 includes these optimisations by way of proposing minor amendments to the positioning of some of the ancillaries at Farm 2 and additional emergency generator capacity.
- The EIS was prepared based on development construction being completed prior to commencing operation. However, due to the current demand for broiler birds in the Australian market and the associated immediate need for additional broiler sheds in the region, ProTen need to commence partial operations at Farm 2 while construction works are on-going to complete Farm 2 for a period of up to 10 months in order to meet supply contracts and market demand.

- The EIS was prepared based on all operational power requirements being met by solar panels and connection to Essential Energy’s reticulated electricity supply network, which requires extension of Essential Energy’s overhead supply infrastructure from Manilla. However, ProTen is now pursuing an option to take the development completely off-grid with a solar and battery solution (subject to a separate modification application and approval). This would deliver notable environmental benefits associated with:
 - Avoiding the need to extend Essential Energy’s overhead supply infrastructure approximately 17 km from Manilla through various privately-owned properties and public lands to the Development Site; and
 - Powering the Development using renewable solar energy, which will reduce greenhouse gas emissions and associated impacts.

Given that the off-grid solar option is still to be designed and there will be lead time required for approval, materials supply, installation and commissioning, ProTen anticipates that Farm 2 and associated ancillaries, including the water supply pump, will need to be powered using diesel generators for up to 10 months.

As such, the key objectives of Modification 3 for Stage 1 of the Development are:

- To allow development optimisations that will deliver long-term operational efficiencies and benefits at Farm 2;
- To enable early commencement of operations at Farm 2 while construction is on-going to meet supply contracts and market demand; and
- To enable operational power requirements of Farm 2 to be met via diesel generators for up to 10 months while the alternative renewable power option is finalised, approved and commissioned.

1.2.3 Approval Pathway

ProTen is seeking to modify Development Consent SSD 7704 under section 4.55(1A) of the EP&A Act. This Modification Report demonstrates:

- (a) While the proposed modification will have implications for air emissions, traffic generation and noise emissions, these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved; and
- (b) The Development, as proposed to be modified, will be substantially the same development for which consent was originally granted.

1.2.4 Stakeholder Consultation

Preliminary consultation has been undertaken with the below stakeholders in relation to Modification 3:

- Key government agencies, being:
 - DPIE;
 - Environment Protection Authority (EPA);
 - Transport for NSW (TfNSW); and
 - Tamworth Regional Council (Council); and
- Surrounding residents and recreational facilities.

Section 5 provides a summary of the consultation activities and the key issues/concerns/feedback raised by the consulted stakeholders.

2 APPROVED DEVELOPMENT

This section provides an overview of the Development Site and the approved Rushes Creek poultry farm development (SSD 7704). The documents listed in **Section 1.1** should be referred to for further details.

2.1 Development Site

2.1.1 Overview

The Development Site comprises approximately 1,016 hectares (ha) of rural land in an area known as Rushes Creek approximately 43 kilometres (km) northwest of Tamworth and 33 km northeast of Gunnedah in the Tamworth LGA (see **Figures 1** and **2**). **Table 1** provides of schedule of land titles within the Site.

Table 1 Schedule of Land Titles

Lot and Deposited Plan (DP)	Tenure
Lot 1 DP 44215	Freehold - owned by ProTen Tamworth Pty Limited
Part Lot 62 DP 1276824 ¹	
Lot 1 DP 1132298	
Lots 26, 86, 101, 118 and 171 DP 752169	
Part Lot 143 DP 752189	
Lot 1 DP 1132078	
Untitled parcel of land traversing through Lot 171 DP 752169	Council public road (unformed)

1 – recently created lot via the consolidation of Lots 85, 165 and 166 DP 752169, Lot 1 DP 1108119 and Lot 1 DP 1141148

Rushes Creek Road, which is a sealed two-lane rural road, forms the Development Site's eastern boundary and connects the Site to the Oxley Highway. Ski Gardens Road, which is a good quality gravel road, forms part of the Development Site's northern boundary and a short section traverses through the Development Site. The Namoi River is located to the north of the Development Site and Lake Keepit is located to the west and southwest.

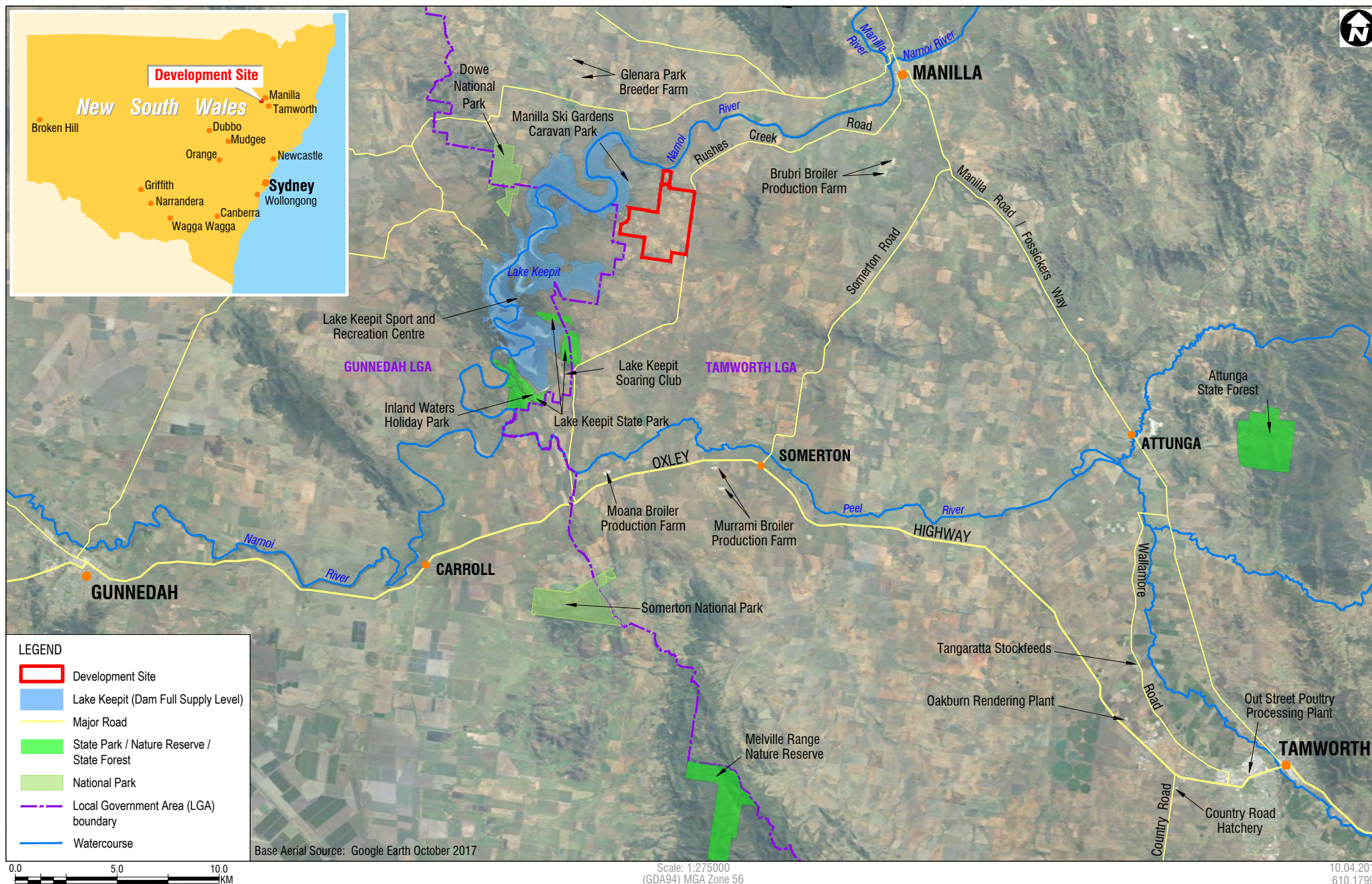
The long-standing and existing use of the Development Site is traditional agricultural production, including both livestock grazing and cropping. The extent of historical clearing and agricultural use is evident on the aerial image on **Figure 2**.

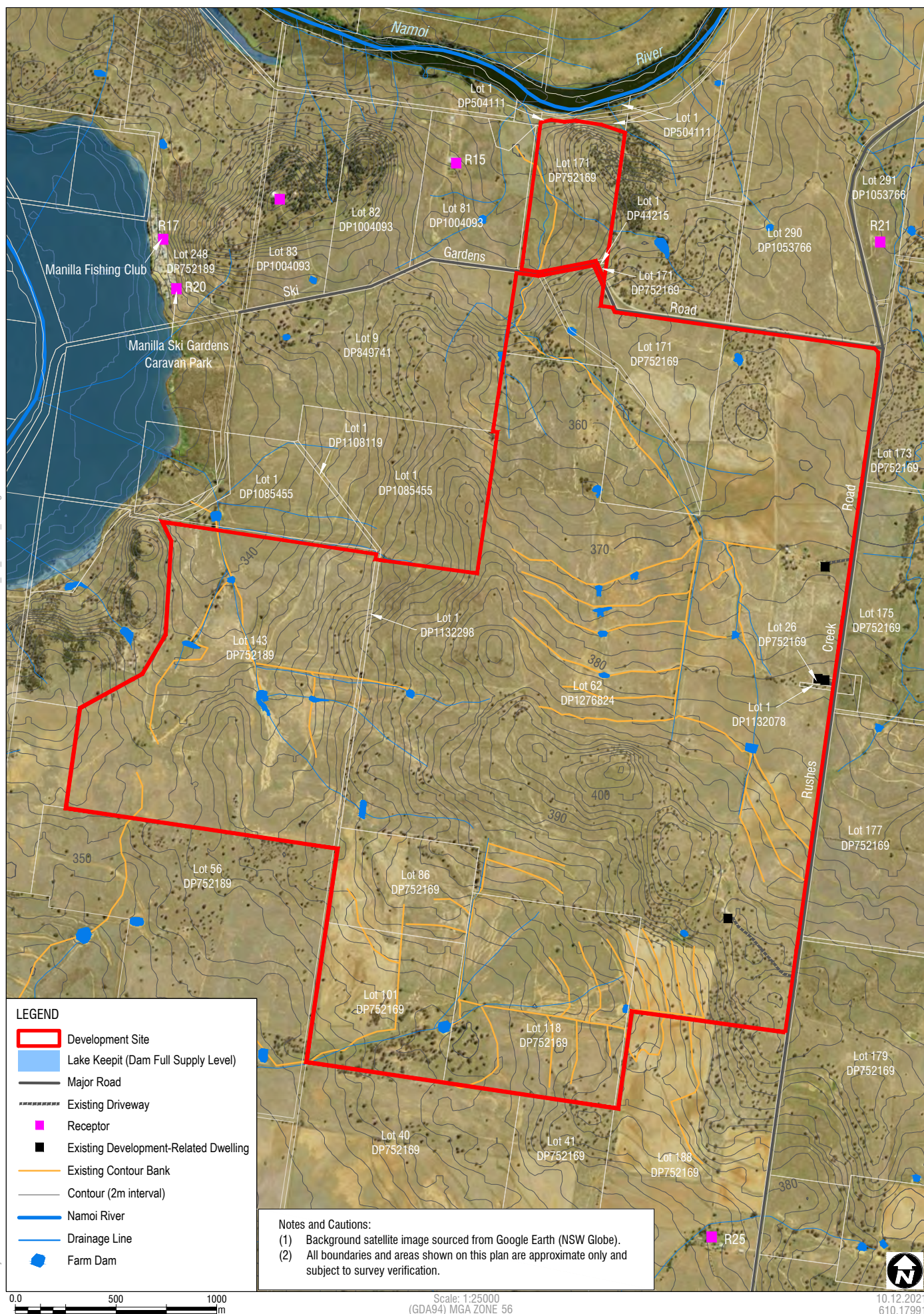
2.1.2 Zoning

Under the provisions of the *Tamworth Regional Local Environmental Plan 2010* (Tamworth LEP), the Development Site and all adjoining lands are zoned "RU1 Primary Production".

2.1.3 Surrounding Land Uses and Receptors

The area surrounding the Development Site is primarily characterised by traditional agricultural production, along with recreational activities around Lake Keepit. The nearest populated areas (see **Figure 1**) are Somerton (population circa 277) approximately 12 km to the southeast and Manilla (population circa 2,550) approximately 13 km to the northeast. There is a relatively low density of surrounding privately-owned residences, with the nearest shown on **Figure 3**.





LEGEND

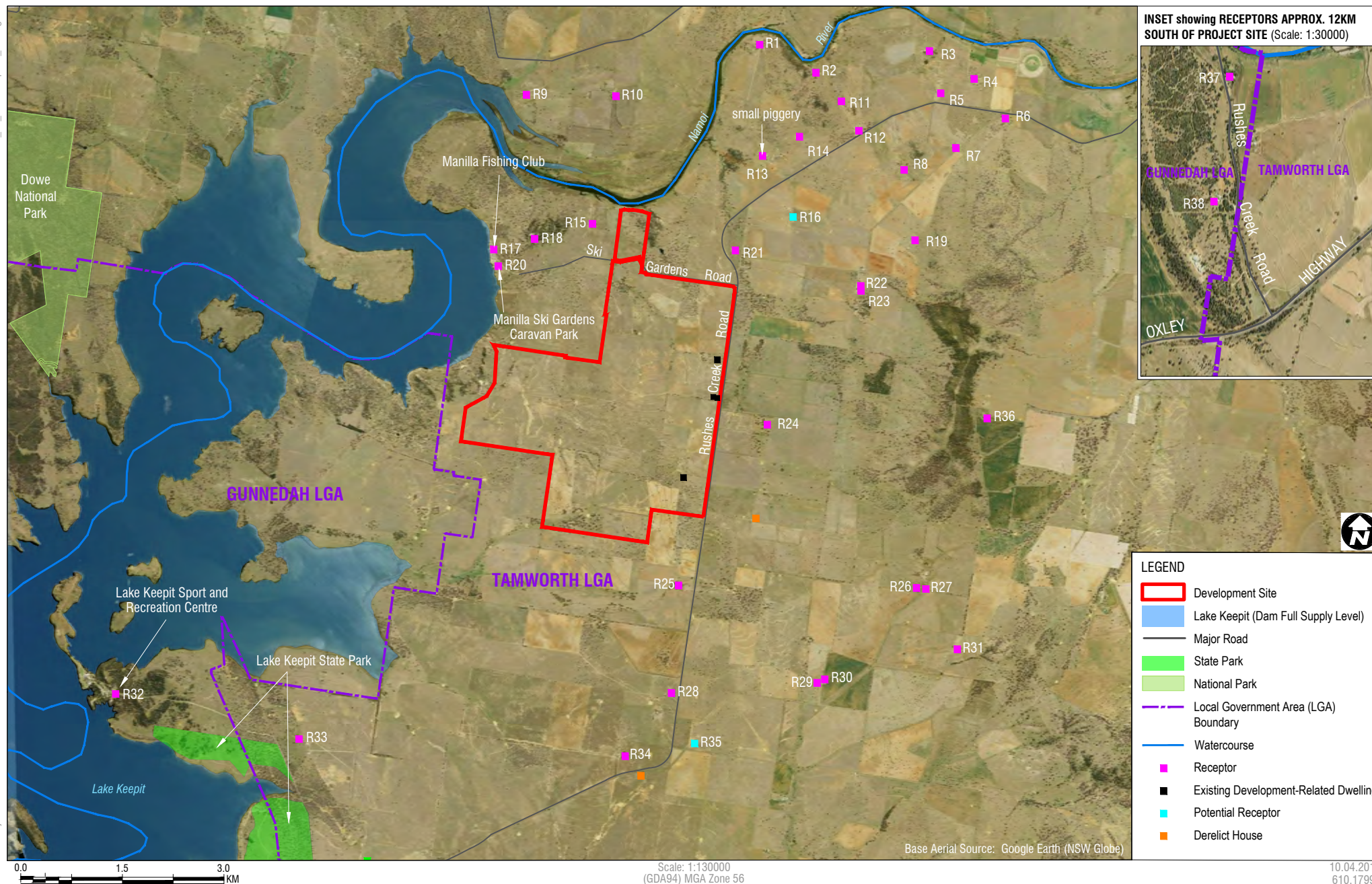
-  Development Site
-  Lake Keepit (Dam Full Supply Level)
-  Major Road
-  Existing Driveway
-  Receptor
-  Existing Development-Related Dwelling
-  Existing Contour Bank
-  Contour (2m interval)
-  Namoi River
-  Drainage Line
-  Farm Dam

Notes and Cautions:

- (1) Background satellite image sourced from Google Earth (NSW Globe).
(2) All boundaries and areas shown on this plan are approximate only and subject to survey verification.

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2.2 Development Consent and Secondary Approvals

2.2.1 Development Consent

ProTen obtained Development Consent SSD 7704 from DPIE (under delegation) on 16 April 2020 under Part 4 of the EP&A Act to construct and operate the Rushes Creek poultry production farm development within the Development Site described in **Section 2.1**. Since this time, the development consent has been modified on two occasions:

- (1) Modification 1 approved by DPIE (under delegation) on 15 June 2021 allowing:
 - An alternative remediation strategy for an area within the Development Site near Farm 2 containing arsenic impacted soils; and
 - Removal of condition B33(e) requiring the excavation of an Aboriginal hearth, which was not supported by the Registered Aboriginal Parties.
- (2) Modification 2 approved by DPIE (under delegation) on 2 September 2021 to amend condition B53(a) to correct the timing for the requirement to establish vegetation screens from pre-construction to pre-operation.

2.2.2 Environment Protection Licence

As a result of having the capacity to accommodate more than 250,000 birds at any time, the Development is a “scheduled activity” under clause 22 of Schedule 1 of the *Protection of the Environment Operation Act 1997* (POEO Act) and, as such, the occupier of the premises must hold an environment protection licence (EPL) administered by the EPA under Chapter 3 of the POEO Act.

The EPA issued EPL 21569 to ProTen on the 11 August 2021 for the Rushes Creek poultry farm development. The scheduled activity is “livestock intensive activities” and the fee-based activity is “bird accommodation” to a scale of greater than 1,000 tonnes. The EPA has advised that EPL 21569 currently focuses on regulation of the construction phase of the Development, with a licence variation required prior to commencing operation. It is understood that this variation is purely an administrative process to enable operational-focussed conditions and requirements to be added in line with the EPA’s General Terms of Approval (GTAs).

2.2.3 Water Licences

The poultry farm's water supply requirements will be met via the extraction of surface water from the Namoi River under the provisions of the following two water access licences (WALs) held by ProTen:

- WAL 41834 - general security licence with a share component of 317.2 units from the Upper Namoi regulated river source; and
- WAL 37794 - general security licence with a share component of 120 units from the Upper Namoi regulated river source.

The Natural Resources Access Regulator (NRAR) issued “miscellaneous work” number 90MW833079 on 20 August 2021 for the Namoi River pump site. Pursuant to section 4.41(1) of the EP&A Act, no further authorisations are required under the *Water Management Act 2000*.

2.2.4 Crown Land Licences

The approved Development includes the installation, use and maintenance of water supply infrastructure and associated electricity supply infrastructure within the following two parcels of land located between the Development Site and the Namoi River:

- (a) Lot 1 DP 504111, which is owned by the Water Administration Ministerial Corporation (WAMC) (as successor in title from the former Water Conservation and Irrigation Commission) and administered by WaterNSW.
- (b) A parcel of unformed road, which was appropriated by and vested in the then Water Conservation and Irrigation Commission (now WAMC) in 1969 and is administered by WaterNSW.

An application has been submitted to WaterNSW for a licence to legally occupy these parcels of land for the installation, use and maintenance of the approved servicing infrastructure.

2.3 Development Description Summary

The Development comprises four individual PPUs identified as Farms 1 to 4 where broiler birds will be grown for the purpose of producing poultry meat (for human consumption). Each farm will contain between 10 and 18 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, which will each have the capacity to house 56,500 birds, along with associated support and servicing infrastructure. The Development will comprise a total of 54 poultry sheds and house a combined population of 3,051,000 birds.

The Development will generally be constructed, operated and managed in accordance with current industry best practice standards, including the relevant requirements/recommendations in:

- *RSPCA Approved Farming Scheme Standards – Meat Chickens* (RSPCA Australia 2013); and
- *Best Practice Management for Meat Chicken Production in NSW* (Department of Primary Industries 2012).

The various components of the Development permitted to be constructed under Development Consent SSD 7704 are listed in **Table 2**. The approved conceptual development layout is shown on **Figure 4**.

Table 2 Development Description Summary

Aspect	Details
Purpose	Birds grown for the purpose of producing poultry meat
Number of PPUs	Four - Farms 1, 2, 3 and 4
Number of poultry sheds	Farm 1 – 10 sheds Farm 2 – 18 sheds Farm 3 – 10 sheds Farm 4 – 16 sheds Total – 54 sheds
Type of poultry sheds	Tunnel-ventilated, fully-enclosed, climate-controlled
Poultry shed dimensions	160 metres (m) long by 18 m wide by 4.7 m high (to roof ridge)
Poultry shed areas	Each shed – 2,880 square metres (m ²) Total – 155,520 m ²

Aspect	Details
Bird numbers	Each shed - 56,500 birds Farm 1 – 565,000 birds Farm 2 – 1,017,000 birds Farm 3 – 565,000 birds Farm 4 – 904,000 birds Total – 3,051,000 birds
Maximum bird density	34 kilograms per square metre (kg/m ²)
Hours of operation	24 hours a day, 7 days a week
Production cycle length	Approximately 65 days, comprising maximum bird occupation of 55 days and cleaning phase of 10 days
Production cycles per year	Approximately 5.6 on average
Support/servicing infrastructure	• Eight houses to accommodate farm managers; • Two access driveways from Rushes Creek Road and internal access roads; • Water supply infrastructure to extract, transfer, treat and store water from the Namoi River; • Reticulated electrical supply infrastructure; • Bedding material storage shed; • Two dead bird freezers; and • At each PPU: – Site office and workshop; – Feed silos; – Water storage tanks; – Solar panels; – Fuel and gas storage facilities; – Generators; – Vehicle wheel wash; – Ring roads; – Surface water management system, including upstream diversions; and – Aerated wastewater treatment system (AWTS).
Employment	Twenty (20) full-time equivalent employees.
Vehicle access	Two access driveways from Rushes Creek Road constructed to accommodate a basic left turn (BAL) treatment. Internal access roads and ring roads around each PPU constructed as all-weather rural-type roads.
Traffic generation	Heavy vehicles – approximately 8,455 per year. Light vehicles – approximately 4,597 per year.
Servicing	Electricity – solar panels and connection to Essential Energy's reticulated supply infrastructure. Generators for emergency backup use. Gas – bulk liquid petroleum gas (LPG) storage tanks. Water – licensed surface water allocation from the Namoi River.
Waste management	Systems to manage all waste streams generated by the poultry production operation to ensure no on-site waste storage or disposal.
Surface Water Management	An engineered surface water management system at each PPU comprising upstream diversions, grassed swale drains, table drains and a detention dam.
External lighting	One light fixture over the front and rear loading-unloading areas of each poultry shed.
Landscaping	Landscape plantings to improve the visual and environmental amenity of the Development Site, including vegetation screens around the perimeter of the PPUs.

The commercial activities associated with the poultry operation will be largely confined to the four PPU sites and internal access roads. It is intended to continue using the residual land outside of the disturbance footprint within the Development Site for continued agricultural production purposes under some form of lease or share farming arrangement.

2.4 Development Staging

The Rushes Creek poultry farm development is planned to be established over two separate stages, as illustrated on **Figure 5**. Stage 1 comprises the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprises the construction and operation of Farms 1, 3 and 4 and associated ancillaries. Construction of Stage 1 commenced in August 2021 and is anticipated to be completed in mid-late 2022. The timeframes for Stage 2 are unknown at this point.

Table 3 Development Staging

Stage	Key Aspects	Estimated Construction Duration	Anticipated Construction Commencement	Anticipated Construction Completion
1	- Northern site access from Rushes Creek Road. - Farm 2 - 18 poultry sheds and associated ancillaries and servicing.	12 to 15 months	August 2021 (commenced)	Mid-late 2022
2	2A - southern site access from Rushes Creek Road.	12 to 15 months	TBC	TBC
	2B - Farm 4 - 16 sheds and associated ancillaries and servicing.			
	2C - Farm 3 - 10 poultry sheds and associated ancillaries and servicing.	10 months		
	2D - Farm 1 - 10 poultry sheds and associated ancillaries and servicing.	10 months		

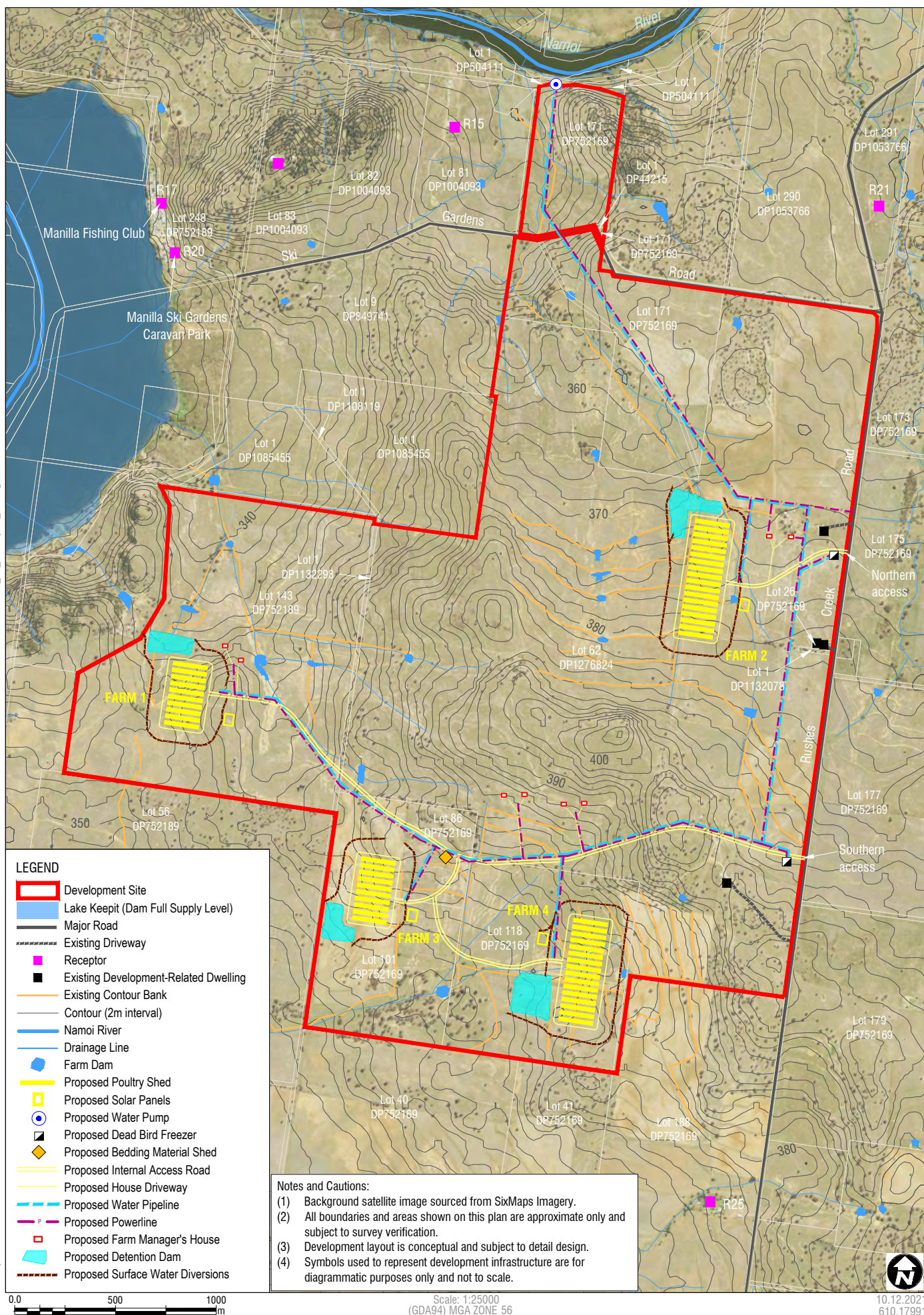
2.5 Construction Environmental Management

Several management plans have been prepared and approved by the Planning Secretary in accordance with Development Consent SSD 7704 to ensure that Stage 1 construction is completed in a manner that minimises the potential for environmental and social impact. These plans include the following:

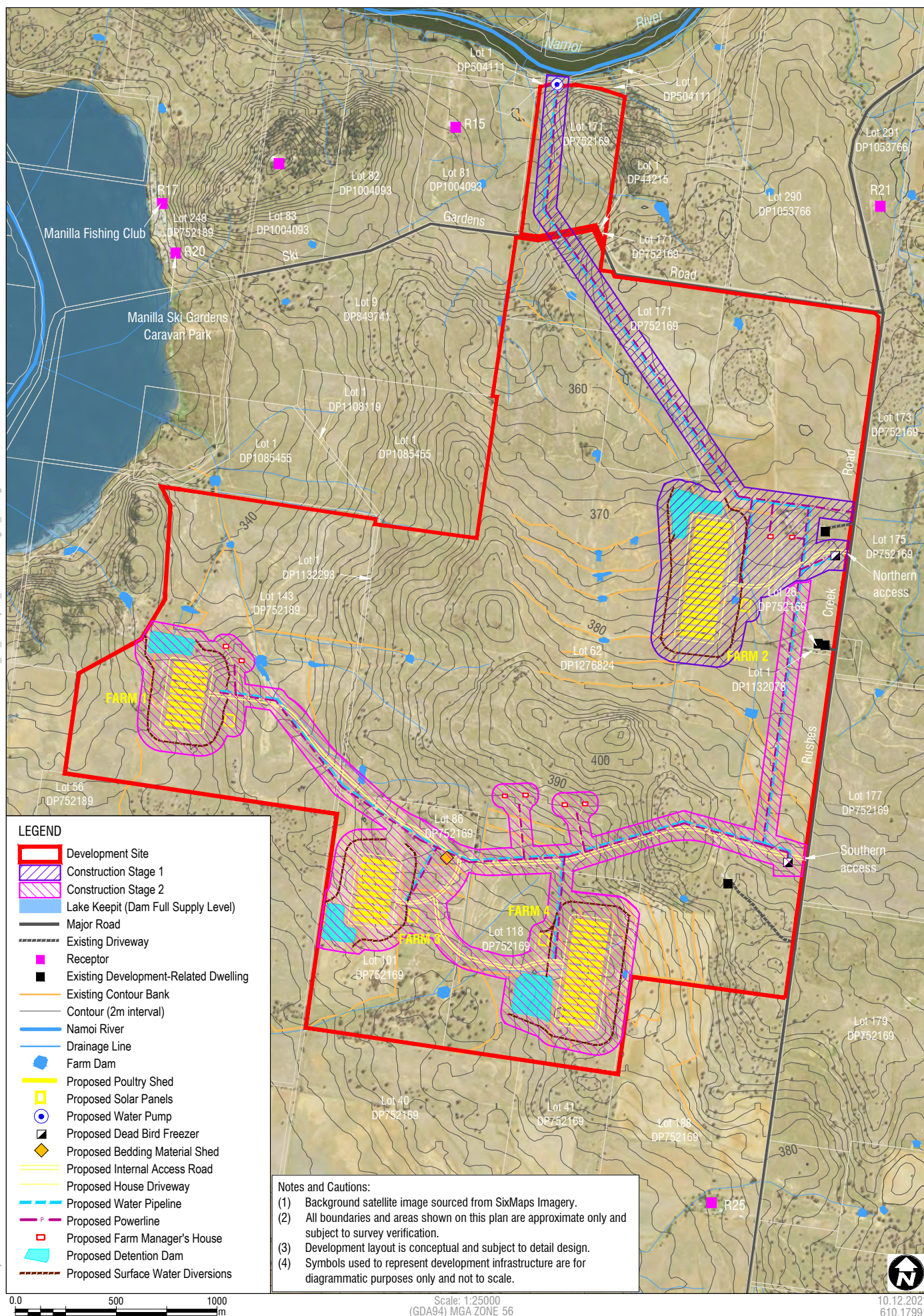
- *Construction Environmental Management Plan* (EME 2021c) (CEMP);
- *Erosion and Sediment Control Plans* (Lance Ryan Consulting Engineers 2021) (ESCPs);
- *Construction Traffic Management Plan* (SLR 2021a) (CTMP);
- *Revised Remedial Action Plan* (SLR 2021b) (RAP);
- *Unexpected Finds Procedure – Contamination* (SLR 2021c); and
- *Aboriginal Cultural Heritage Management Plan* (OzArk Environment and Heritage [OzArk] 2021a) (ACHMP).

A *Community Consultation Plan* (EME 2021d), which establishes the framework for community and stakeholder consultation/engagement throughout the construction and operational phases, has also been prepared and approved by the Planning Secretary.

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3 PROPOSED MODIFICATION 3

3.1 Overview

For the reasons outlined in **Section 1.1.2**, ProTen is seeking to modify Stage 1 of the Rushes Creek poultry farm development (see **Section 2.4** and **Figure 5**) approved under Development Consent SSD 7704 to allow the following:

- (a) Minor amendments to the positioning of some of the ancillary infrastructure items at Farm 2, including the site office and workshop, water storage tanks, emergency standby generators, diesel storage and dead bird freezer. These optimisations will provide efficiencies and benefits for the initial site establishment and long-term farm operations.
- (b) Additional emergency standby diesel generator capacity at Farm 2 comprising four 440 kVA generators (in place of the currently approved three 390 kVA generators) to ensure adequate backup for the rare occasion when the primary operational power supply is lost. There would only ever be two of the proposed 440 kVA generators operating at any one time.
- (c) Addition of a 45 kVA emergency standby diesel generator and 2,000 L bunded diesel storage tank at the water supply pump near the Namoi River to provide backup for the rare occasion when the primary operational power supply is lost.
- (d) Concurrent construction and operation at Farm 2 for up to 10 months to enable partial farm operations to commence earlier.
- (e) Reliance on the proposed 440 kVA diesel generators to operate Farm 2 (only ever two operating at any one time) and the proposed 45 kVA diesel generator to operate the water supply pump for up to 10 months while the alternative renewable power option is finalised, approved and commissioned.

These modification components are addressed in further detail in the below sub-sections.

3.2 Re-Positioning of Farm 2 Ancillary Infrastructure

The EIS that accompanied the development application for the poultry farm was based on conceptual development design. The detailed design for Stage 1 (i.e. Farm 2 and associated ancillaries) has recently been completed and several development optimisations were identified that will provide efficiencies and benefits for the initial site establishment and long-term farm operations and maintenance without environmental impact or safety implications. To achieve these optimisations, Modification 3 proposes minor amendments to the positioning of some of the ancillary infrastructure items at Farm 2.

Importantly, there are no changes proposed to the position or design of the poultry sheds. Nor are there any changes proposed to the main farm access road between Rushes Creek Road and Farm 2, the ring road around the poultry sheds, the surface water management system (including the upstream diversion and the detention dam), the LPG tanks, the two farm manager houses and various other infrastructure items. While the vegetation screen around the perimeter of Farm 2 will be adjusted to accommodate the proposed amendments, it will comprise approximately the same area and achieve the same functions of visual screening, odour dispersion and dust deposition.

Figure 6 shows the proposed Farm 2 layout and **Figure 7** shows the proposed updated layout of the Farm 2 site office and workshop building. **Figure 8** provides a comparison of the approved and proposed Farm 2 layouts.

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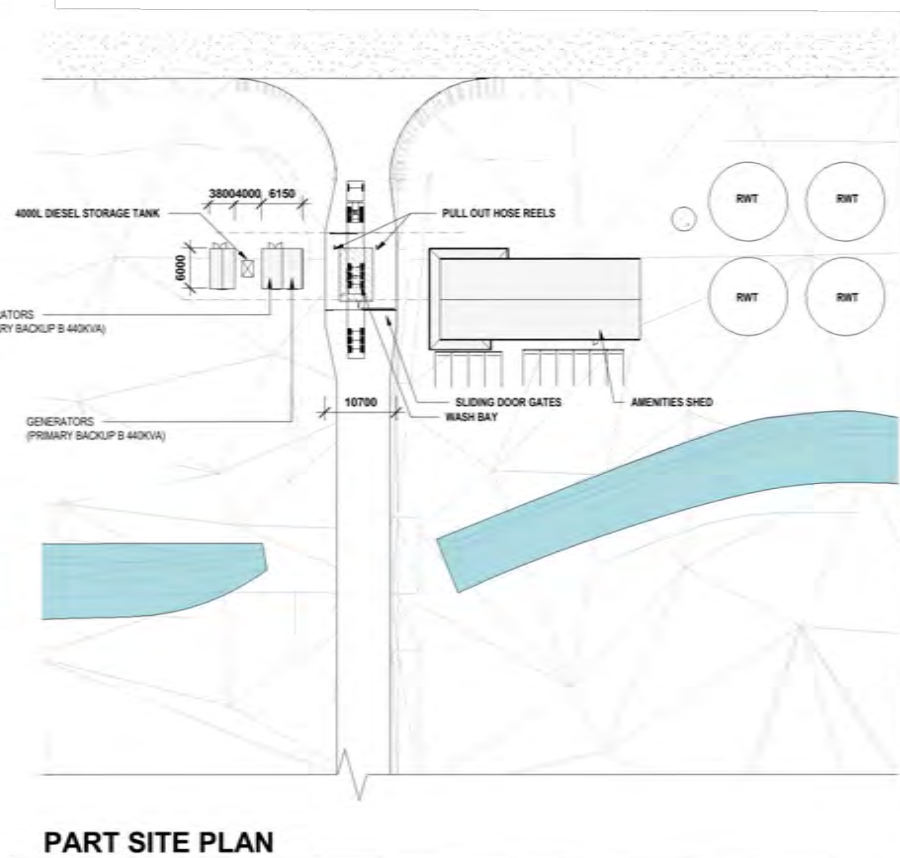
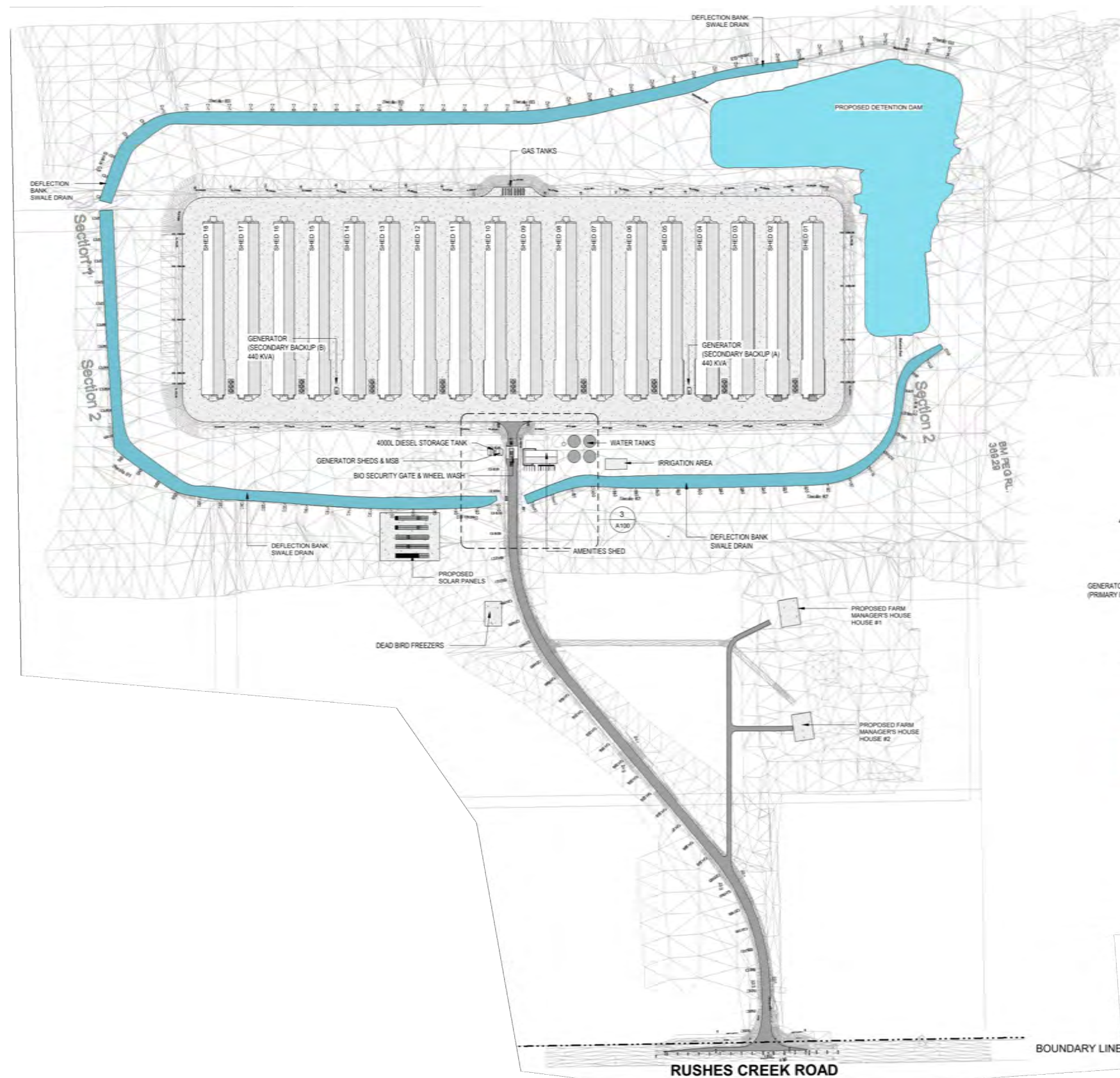
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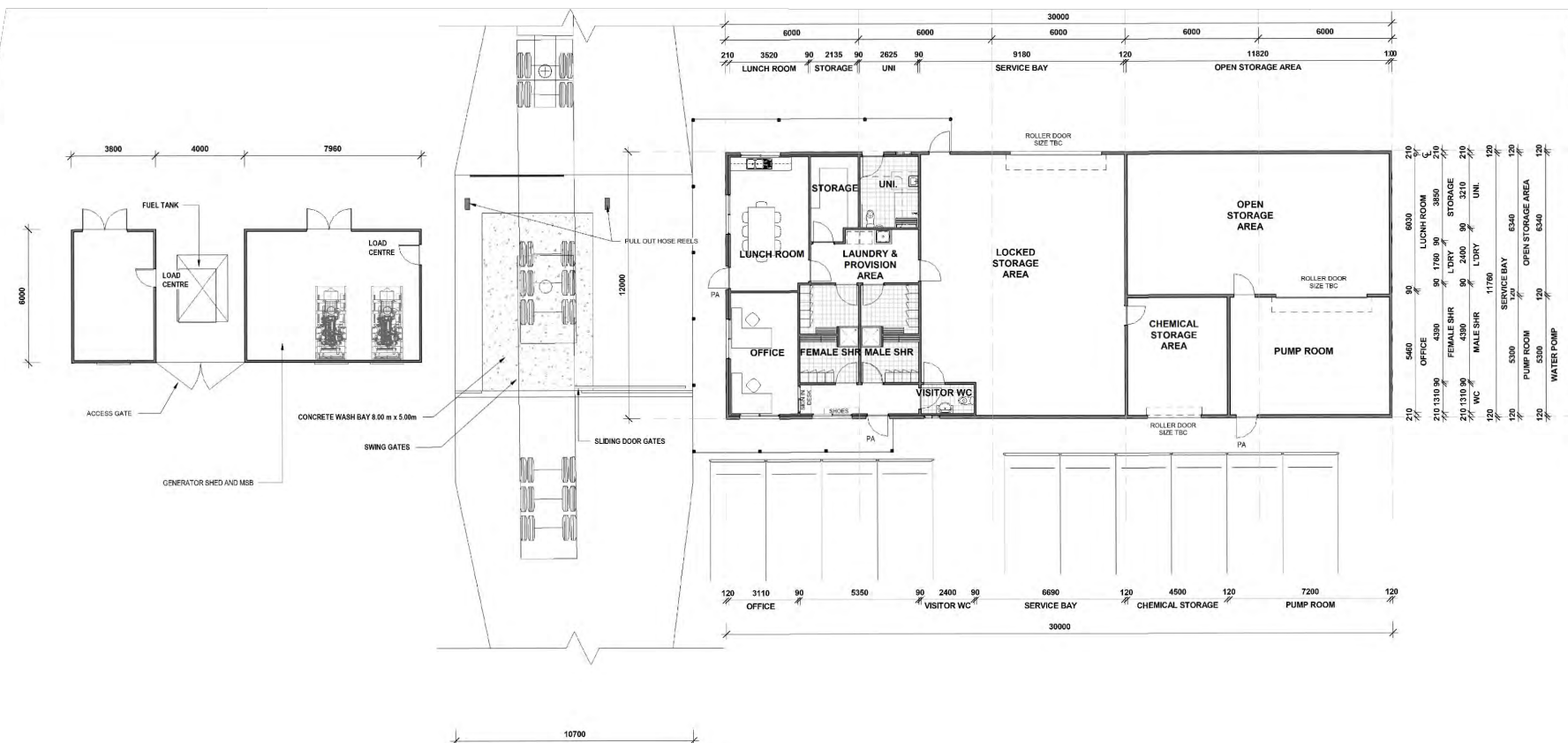


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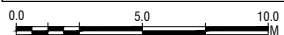


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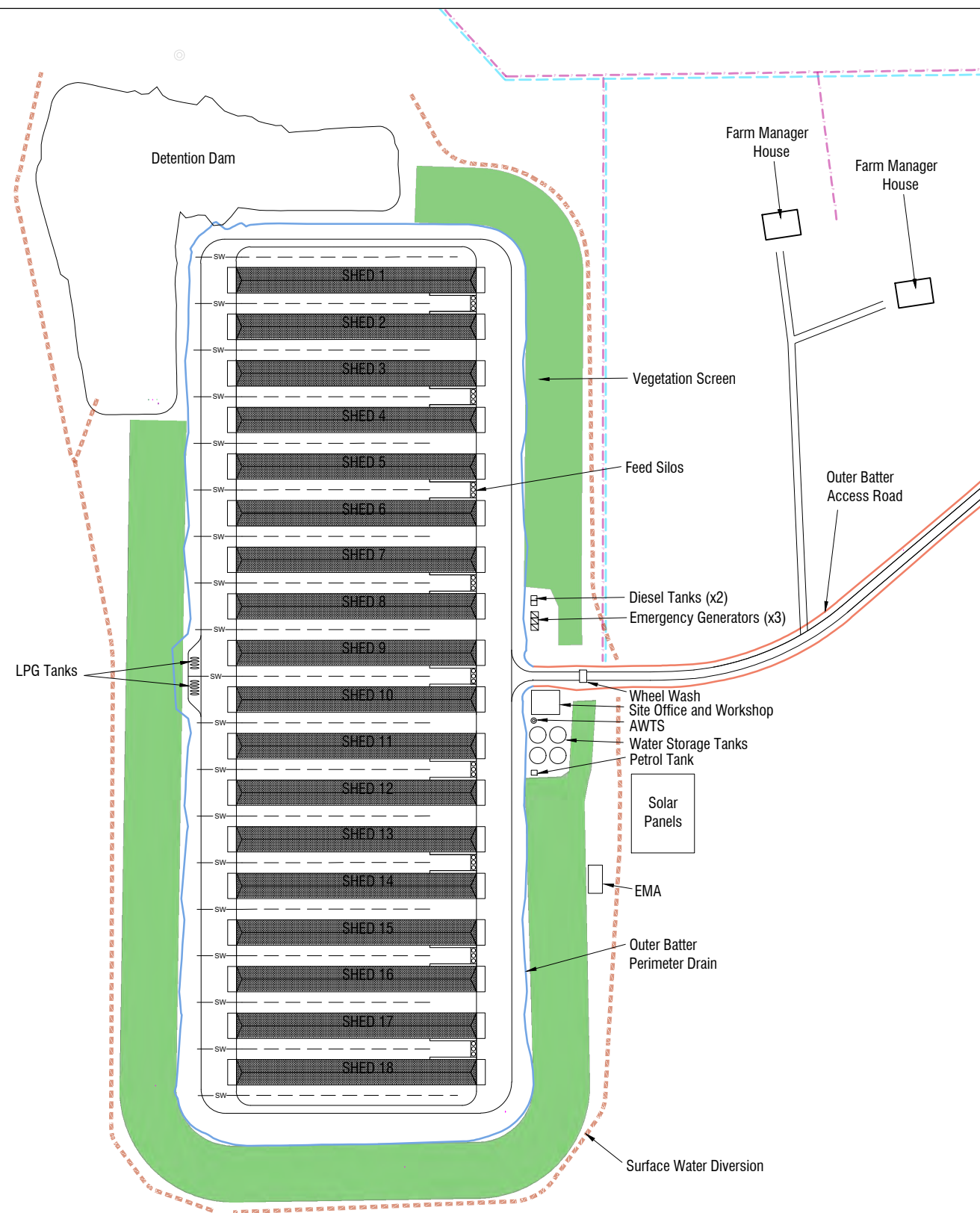
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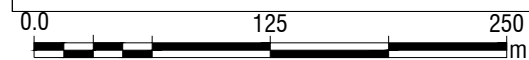
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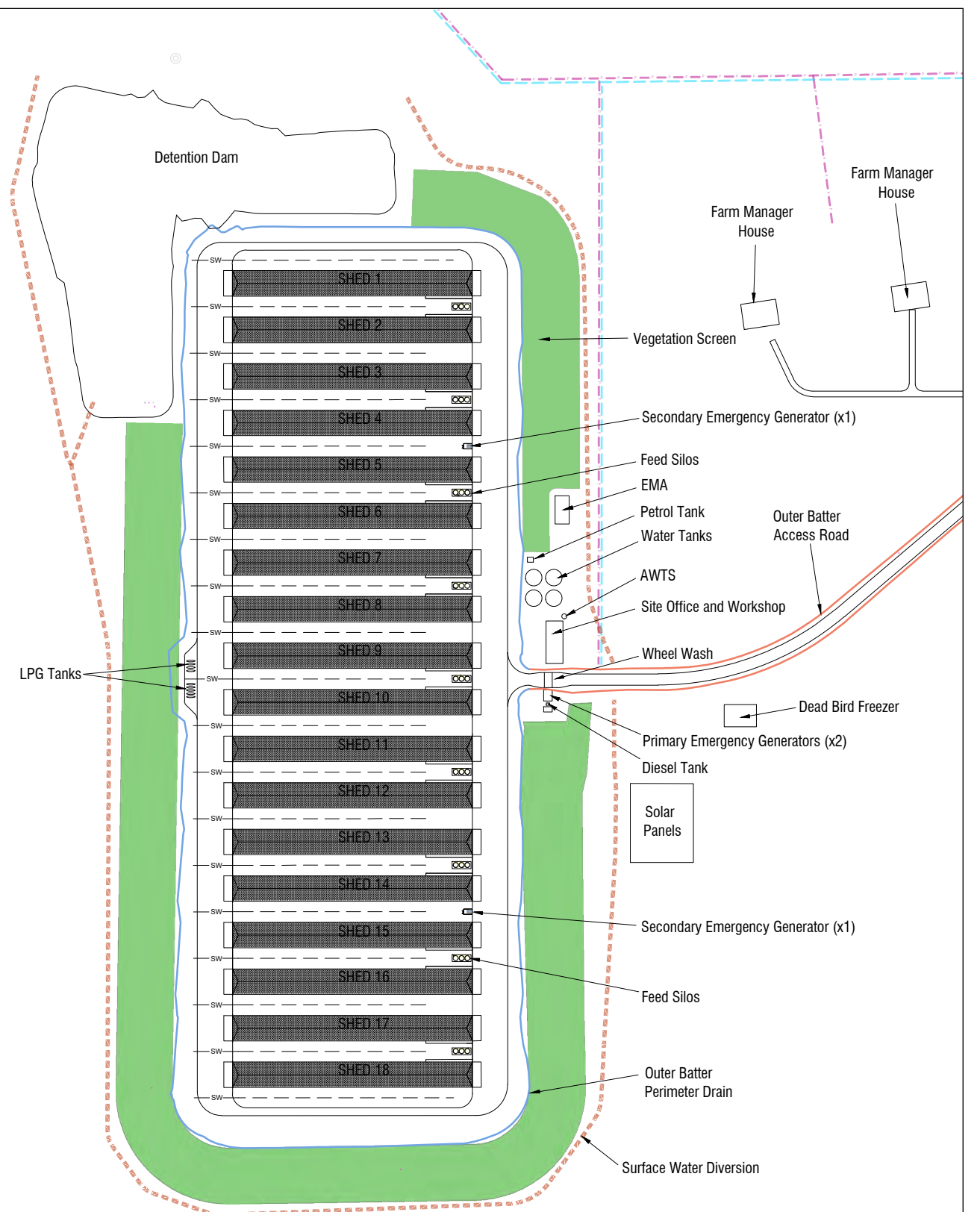


APPROVED FARM 2 LAYOUT

Note: Layout is conceptual. Symbols have been used to represent ancillaries.



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PROPOSED FARM 2 LAYOUT

Note: Layout is conceptual. Symbols have been used to represent ancillaries.



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The notable proposed amendments at Farm 2 comprise the following:

- Updating the layout for the site office and workshop building with a floor area of approximately 360 m² (in place of the currently approved 340 m² building). Construction materials, external colour scheme and facilities will remain as previously approved. As shown on **Figure 7**, and as currently approved, it will comprise office space, change rooms and toilets, large workshop/storage areas, a vented chemical store room and a pump room.
- Relocation of the site office and workshop building, AWTS and associated effluent management area (EMA), water storage tanks and petrol tank from the southern side of the farm access road to the northern side of the farm access road within the existing disturbance footprint. This will achieve hydraulic and electrical design efficiencies, including a reduction in materials, reduction in initial establishment costs and improved long-term sustainability.
- Relocation of the primary emergency diesel generators and associated diesel storage from the northern side of the farm access road to the southern side of the farm access road, and the inclusion of two secondary emergency generators (one between poultry sheds 4 and 5 and one between poultry sheds 14 and 15), all within the existing disturbance footprint. The detailed electrical design identified the need to position the primary generators at the farm's main switch board (MSB) and include additional generator capacity as emergency backup (see **Section 3.3**).
- Replacing the approved two 2,000 L aboveground diesel storage tanks with one 4,000 L aboveground diesel storage tank within the existing disturbance footprint. The tank will be appropriately bunded at 110% of the tank capacity (i.e. 4,400 L) and will meet relevant Australian Standards (AS).
- Realigning the feed silos between the poultry sheds from a north-south alignment to an east-west alignment at their existing locations and within the existing disturbance footprint to enable easier installation, access and operation.
- Relocating the dead bird freezer from the front of the Development Site adjacent to Rushes Creek Road to closer to Farm 2. Given that the freezer requires a power source, positioning it closer to the poultry farm will achieve electrical design efficiencies, including a reduction in materials, reduction in initial establishment costs and improved long-term sustainability. The freezer will remain outside of the defined biosecurity zone for Farm 2 and the dead birds will be able to be collected and transported off site without going near the livestock. While the new freezer location is outside of the existing disturbance footprint, it is within an area of non-native groundcover and will not increase the overall disturbance area for Farm 2.
- Realigning the vehicle access road to the farm manager houses to enable the light vehicle traffic generated by the managers and their families to exit the main farm access road much earlier and reduce the potential for interaction with operational heavy vehicle traffic. While the new road alignment is outside of the existing disturbance footprint, it is within an area of non-native groundcover and will not increase the overall disturbance area for Farm 2.

The proposed changes will not increase the disturbance area for Farm 2 and do not pose any environmental impact or safety implications (see **Section 6**).

3.3 Additional Standby Generator Capacity at Farm 2

The approved development includes three 390 kVA emergency standby diesel generators at Farm 2 for the rare occasion when the primary power supply is lost, which is anticipated to be up to around 5 days annually. Following detailed electrical design, Modification 3 proposes to increase the standby generator capacity at Farm 2 to four 440 kVA diesel generators, comprising two primary backup generators and two secondary backup generators. Importantly, there would only ever be two of the proposed 440 kVA generators operating at any one time.

As shown on **Figures 6 and 8**:

- The two primary backup 440 kVA generators would be positioned at the farm's MSB at the front of the farm on the southern side of the access road; and
- The two secondary backup 440 kVA generators, which will provide emergency backup to the primary generators, will be positioned between poultry sheds 4 and 5 and between poultry sheds 14 and 15.

The data sheets for the 440 kVA generators are contained in **Appendix A**. All four generators will be contained within lockable acoustic enclosures.

While no additional diesel storage is required or proposed, as listed in **Section 3.2**, the modification includes replacing the currently approved two 2,000 L aboveground bunded tanks at Farm 2 with one 4,000 L aboveground bunded tank.

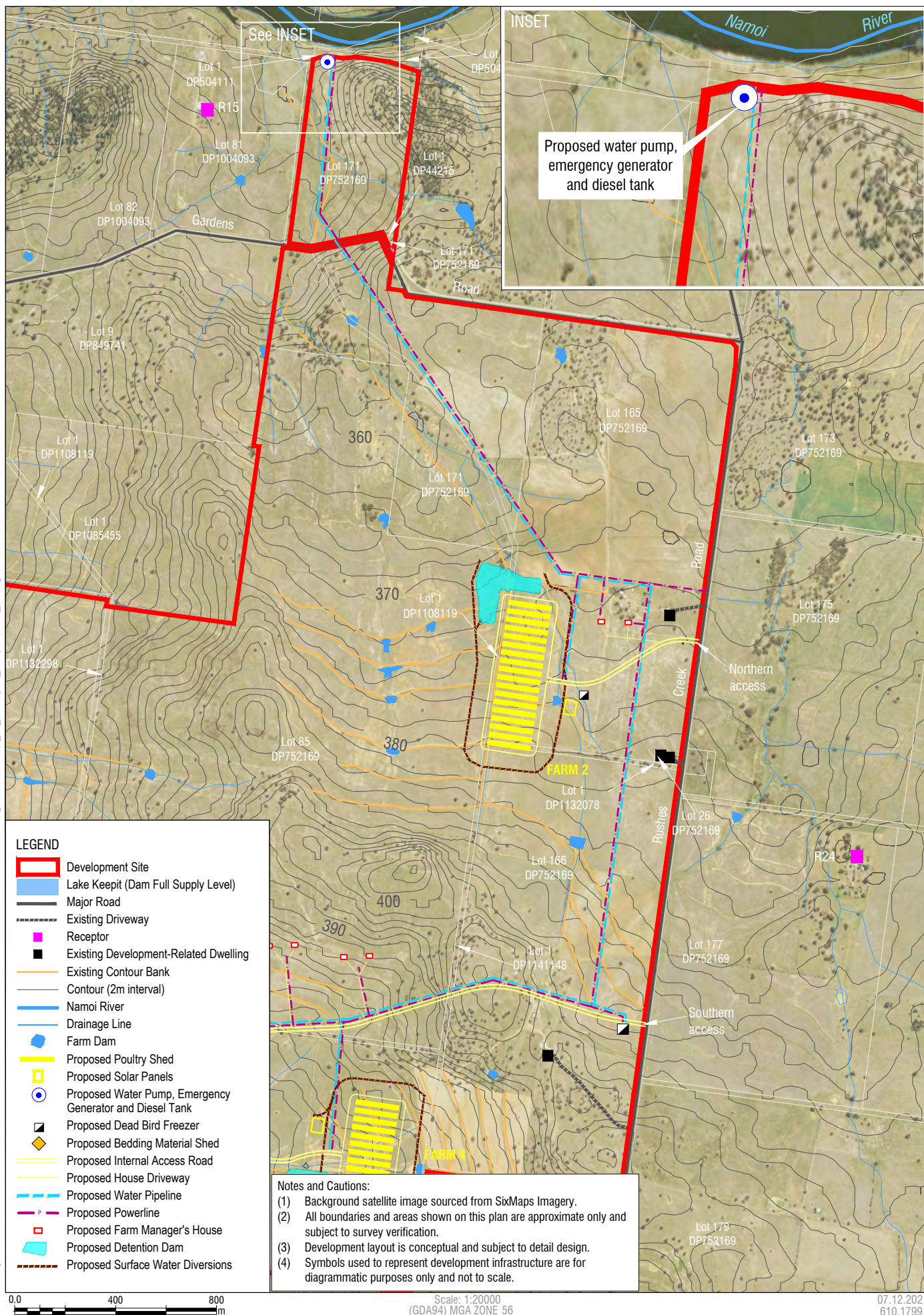
3.4 Standby Generator and Diesel Tank at Water Pump

Detailed electrical design identified that the Development does not currently include any backup power supply for the water pump at the Namoi River. Given water is a critical input to the poultry farm operation for bird consumption, shed ventilation and cleaning, it is essential that the water pump remains operational on the rare occasion when the primary power source is lost. Accordingly, Modification 3 proposes:

- (a) The installation of a 45 kVA emergency standby diesel generator contained within a lockable acoustic enclosure to provide backup power, as required, for the water pump at the Namoi River. The data sheets for the 45 kVA generator are contained in **Appendix A**; and
- (b) One 2,000 L aboveground diesel storage tank adjacent to the generator. The tank will be appropriately bunded at 110% of the tank capacity (i.e. 2,200 L) and will meet relevant AS.

The generator and associated diesel storage will be positioned adjacent to the approved water pump site within ProTen-owned land over 40 m back from the bank of the Namoi River (see **Figure 9**).

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3.5 Concurrent Construction and Operation

The EIS for the Rushes Creek poultry farm development was prepared based on construction works being completed prior to commencing operation. However, due to the current demand for broiler birds in the Australian market and the associated immediate need for additional broiler sheds in the Tamworth region, ProTen need to commence partial operations at Farm 2 while construction works are on-going to complete Farm 2 for a period of up to 10 months in order to meet supply contracts and market demand.

As such, Modification 3 seeks to allow concurrent construction and operation at Farm 2 for up to 10 months. The current indicative timing for construction and operational activities at Farm 2, as proposed, is summarised in **Table 4**. While **Table 4** indicates construction works and partial operations will occur concurrently for around 7 months, an additional 3 months has been included to allow for unforeseen construction delays like wet weather.

Table 4 Indicative Timing for Construction and Operations at Farm 2

Stage 1	Key Activities	Completion of Construction	Commencement of Operations
1A	Earthworks, including construction of the northern site access road and internal roads	January 2022 (i.e. prior to any operational activities)	-
1B	Construction of Sheds 1-8 (8 sheds) and ancillary infrastructure	Early February 2022	Mid-February 2022
1C	Construction of Sheds 9-12 (4 sheds)	Early April 2022	Mid-April 2022
1D	Construction of Sheds 13-16 (4 sheds)	Early June 2022	Mid-June 2022
1E	Construction of Sheds 17-18 (2 sheds)	Mid-August 2022	Late August 2022

Farm 2 earthworks, including the northern site access and internal roads, are currently underway and are due to be completed in January 2022 (i.e. prior to any operational activities commencing). Once the earthworks are complete, ProTen proposes to construct four to eight poultry sheds at a time and commission them while construction of the remaining sheds is on-going until all 18 sheds are completed and commissioned.

It is anticipated that construction of the first eight poultry sheds will be completed and commissioned in mid-February 2022, which is when the proposed concurrent construction and operation period would commence. Note that this commencement may be delayed and is subject to the construction program and any unforeseen delays like wet weather.

Concurrent construction and operational traffic generation and the associated implications for site access, internal roads and the external public road network are addressed in **Section 6.3**.

3.6 Diesel Generator Operations

The EIS for the Rushes Creek poultry farm development was prepared based on all operational power requirements being met by solar panels and connection to Essential Energy's reticulated electricity supply network, which requires extension of Essential Energy's overhead supply infrastructure from Manilla. However, ProTen is now pursuing an option to take the development completely off-grid with a solar and battery solution (subject to a separate modification application and approval). This would deliver notable environmental benefits associated with:

- Avoiding the need to extend Essential Energy's overhead supply infrastructure approximately 17 km from Manilla through various privately-owned properties and public lands to the Development Site; and

- Powering the Development using renewable solar energy, which will reduce greenhouse gas emissions and associated impacts.

Given that the off-grid solar option is still being designed and there will be lead time required for approval, materials supply, installation and commissioning, ProTen anticipates that Farm 2 and associated ancillaries will need to be powered using diesel generators for up to 10 months. As such, Modification 3 seeks to allow use of the proposed 440 kVA diesel generators (see **Section 3.3**) to operate Farm 2 (only ever two operating at any one time) and the proposed 45 kVA diesel generator (see **Section 3.4**) to operate the water supply pump at the Namoi River for up to 10 months from commencement of operations at Farm 2 while the potential alternative renewable power option is finalised, approved and commissioned. After this time, the generators will revert to their intended purpose of standby emergency generators.

As outlined in **Section 3.5**, it is anticipated that the first eight poultry sheds will be completed and commissioned in mid-February 2022, which is when the 10 month period (maximum) of generator power would commence. Note that this commencement may be delayed subject to the construction program and any unforeseen delays like wet weather.

As a result of the increased usage of the diesel generators, additional diesel deliveries will be required to Farm 2 for up to 10 months. It is anticipated that up to one diesel delivery per day in a rigid tanker will be required during peak times in the poultry production cycle over the 10 month period (maximum). The 2,000 L diesel storage tank for the water pump generator will require refuelling up to twice per week. A fuel trailer towed by a light vehicle will be used to transfer diesel from where it is delivered at Farm 2 to the water pump diesel storage tank as required. Traffic implications are addressed in **Section 6.3**.

4 PLANNING CONSIDERATIONS

4.1 Modification Approval Pathway

The Rushes Creek poultry production farm was granted Development Consent SSD 7704 from DPIE (as delegate for the Minister for Planning and Public Spaces) on 16 April 2020 under Part 4 of the EP&A Act.

ProTen is now seeking to modify Development Consent SSD 7704, as described in **Section 3**, under section 4.55(1A) of the EP&A Act. The requirements of section 4.55(1A) are listed in **Table 5**, with commentary provided as to how each requirement is addressed by the proposal.

Table 5 Section 4.55(1A) Modification Requirements

Section 4.55(1A)	Proposed Modification 3
Modifications involving minimal environmental impact A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if -	
(a) it is satisfied that the proposed modification is of minimal environmental impact, and	Modification 3 relates to Stage 1 only, being Farm 2 and associated ancillaries, and does not involve any significant material changes to the construction, operation or management of the approved poultry farm. In terms of the various components of the modification: - Minor amendments to the positioning of ancillaries at Farm 2 – these minor changes will not increase the disturbance area for Farm 2 and do not pose any environmental impact or safety implications. They will however help to achieve design efficiencies, including a reduction in materials and improved long-term sustainability. - Additional emergency diesel generators at Farm 2 and the water supply pump – implications for air and noise emissions, however these implications will be for short periods of time when the primary power supply is lost, which is anticipated to be up to 5 days per year, and will be minor compared to what has been previously assessed and approved. The generator and diesel tank at the water pump will be positioned over 40 m back from the Namoi River and the tank will be appropriately bunded and meet relevant AS. - Concurrent construction and operation at Farm 2 for up to 10 months and reliance on the diesel generators to operate Farm 2 for up to 10 months – implications for air emissions, traffic generation and noise emissions, however these implications will be short-term and are predicted to be minor in comparison to what has previously been assessed and approved. Section 6 demonstrates that Modification 3 poses minimal environmental impacts over and above what has already been assessed and approved, and no additional mitigation or management measures are required.
(b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all), and	The term “substantially the same development” has been interpreted by the NSW Land and Environment Court: - The meaning of “modify” is to alter without radical transformation (Transport Action Group Against Motorway Inc v Roads and Traffic Authority 1999); - The term “substantially” means “essentially or materially having the same essence” (Moto Projects (No 2) Pty Ltd v North Sydney Council 1999). The poultry farm development, as proposed to be modified, will be substantially the same development for which consent was originally granted under SSD 7704. Modification 3 does not involve any significant material changes to the construction, operation or management of the poultry farm, with the primary use and core characteristics of the approved development remaining the same. It is simply to allow development optimisations and early commencement of operations at Farm 2 using diesel generators for power for up to 10 months.

Section 4.55(1A)	Proposed Modification 3
(c) it has notified the application in accordance with - (i) the regulations, if the regulations so require, or (ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and	It is assumed that DPIE will refer the modification application (including a copy of this Modification Report) to TfNSW, EPA and Council.
(d) it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be.	Any submissions received from TfNSW, EPA and/or Council will be considered by DPIE.

In conclusion, a modification under section 4.55(1A) of the EP&A Act appears to be a suitable and lawful approval pathway for Modification 3. This Modification Report demonstrates:

- While the proposed modification will have implications for air emissions, noise emissions and traffic generation, these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved; and
- The Development, as proposed to be modified, will be substantially the same development for which consent was originally granted.

4.2 Key Legislation

Table 6 lists the key pieces of Commonwealth and NSW State legislation relevant to the Development and indicates the implications, if any, for the proposed modification.

Table 6 Key Legislation

Legislation	Proposed Modification
Commonwealth	
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Modification 3 will not have any impact on any matters of national environmental significance listed under the EPBC Act, and it will not result in any impact to the environment of Commonwealth land.
NSW State	
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	ProTen is seeking to modify Development Consent SSD 7704 under section 4.55(1A) of the EP&A Act, which, as discussed in Section 4.1 , appears to be a suitable and lawful approval pathway. The matters for consideration in section 4.15(1) of the EP&A Act, as relevant to the modification, have been appropriately addressed in this Modification Report.

Legislation	Proposed Modification
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	The EPA issued EPL 21569 to ProTen on the 11 August 2021 for the Rushes Creek poultry farm development. The EPA has advised that EPL 21569 currently focuses on regulation of the construction phase of the Development, with a licence variation required prior to commencing operation. It is understood that this variation is purely an administrative process to enable operational-focused conditions and requirements to be added in line with the EPA's GTAs. ProTen will submit an EPL variation application a minimum of 6 weeks prior to commencing operations.
<i>Roads Act 1993</i>	Council has issued approvals under section 138 of the <i>Roads Act 1993</i> for construction of the new northern site access from Rushes Creek Road and the installation of servicing infrastructure across Ski Gardens Road (both part of Stage 1 of the Development – see Figure 5). The modification does not pose any implications to these section 138 approvals and does not pose any additional activities on public roads.
<i>Water Management Act 2000 (WM Act).</i>	The water supply requirements of the poultry farm will be serviced via the extraction of surface water from the Namoi River under the provisions of two existing water access licences (WAL 41834 and WAL 37794) held by ProTen with a combined share component of 437.2 units from the Upper Namoi Regulated River Water Source. NRAR recently issued the miscellaneous works number 90MW833079 for the water pump site. The modification does not pose any implications to the existing water licences and does not pose any activities that require consideration under the WM Act.
<i>Crown Lands Act 1989</i>	The approved Development includes the installation, use and maintenance of water supply and power infrastructure within two parcels of land owned/vested with WAMC and administered by WaterNSW. An application has been submitted to WaterNSW seeking a licence over this land for the approved servicing infrastructure. The modification does not pose any implications for the approved servicing infrastructure within the abovementioned land or the current licence application. The infrastructure items proposed to be repositioned and the proposed new infrastructure items will all be located within ProTen-owned land.
<i>Biodiversity Conservation Act 2016</i>	ProTen has purchased and retired 29 White Box grassy woodlands credits to offset the disturbance of 1.17 ha of White Box grassy woodland - Derived Native Grassland approved in Stage 2 of the Development and, as such, has satisfied consent conditions B37 and B39(a). The infrastructure items proposed to be repositioned and the proposed new infrastructure items are all located within an area of non-native groundcover and are removed from significant vegetation communities, threatened species and hollow-bearing trees. As such, Modification 3 does not pose any additional biodiversity impacts.
<i>National Parks and Wildlife Act 1974</i>	Salvage of the two Aboriginal artefacts sites within the Stage 1 footprint and fencing of an additional two artefact sites in proximity to the Stage 1 footprint has been undertaken in accordance with the approved ACHMP. The salvaged sites are now listed with the <i>Aboriginal Heritage Information Management System</i> as destroyed with no further management requirements. Given the salvage and fencing works completed for Stage 1, the components of Modification 3 do not pose any risk to Aboriginal heritage. The infrastructure items proposed to be repositioned and the proposed new infrastructure items are removed from any previously identified Aboriginal heritage sites.

Legislation	Proposed Modification
<i>Contaminated Land Management Act 1997</i>	The small area of soil contamination within the Development Site has recently been remediated via in-situ capping and containment in accordance with the approved RAP (SLR 2021b). SLR is currently preparing <i>the Final Site Validation Report</i> and <i>Long Term Environmental Management Plan</i> in accordance with the relevant consent conditions. Modification 3 does not pose any implications in relation to the remediation site. The infrastructure items proposed to be repositioned and the proposed new infrastructure items are removed from the remediation site and there is an approved <i>Unexpected Finds Procedure</i> in place.

4.3 Environmental Planning Instruments

Environmental planning instruments (EPIs) are State environmental planning policies (SEPPs) and local environment plans (LEPs) made under the EP&A Act. While various SEPPs and the Tamworth LEP have been addressed in relation to the Rushes Creek poultry farm development in the EIS, RTS and Modification 1, Modification 3 does not raise any issues or pose any additional impacts that require consideration under these EPIs.

Modification 3 relates to Stage 1 only, being Farm 2 and associated ancillaries, and does not involve any significant material changes to the construction, operation or management of the approved poultry farm. As demonstrated in **Section 6**, while the modification will have implications for air emissions, traffic generation and noise emissions, these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved.

5 STAKEHOLDER CONSULTATION

Consultation has been undertaken with key government agencies and the surrounding residents and recreational facilities in relation to the key components of Modification 3. **Table 7** provides a summary of the consultation activities undertaken and the key issues raised and/or outcomes.

Table 7 Stakeholder Consultation

Date	Stakeholder	Method	Purpose / Outcome / Issues Raised
23 Aug 2021	EPA	Email	Introduce the proposed modification and seek feedback in relation to anticipated issues and assessment requirements, etc. The EPA responded via email on 1 September 2021 advising (in summary): - Concurrent construction and operation at Farm 2 – EPL is currently drafted to focus on construction and will need to be amended prior to operations commencing. There may need to be additional conditions added to account for operations, however these would likely be consistent with the EPA's GTAs – ProTen will submit an EPL variation application a minimum of 6 weeks prior to commencing operations. - Generator power for Farm 2 operations – air quality and noise assessments needed with any necessary mitigation measures identified – see Sections 6.2 and 6.8, respectively. - Details of diesel storages needed – see Sections 3.2 and 3.4.
23 Aug 2021	TfNSW	Email	Introduce the proposed modification and seek feedback in relation to anticipated issues and assessment requirements, etc. TfNSW responded via email on 8 September 2021 advising (in summary): - Concurrent construction and operation will modify the previously identified traffic impact. This will need to be quantified and any supporting documents updated to identify any traffic or safety concerns and mitigation measures proposed – see Section 6.3. - The approved CTMP will require updating taking into consideration the identified change of traffic volumes and include any identified mitigation measures – see Section 6.3.2 and Appendix D.
23 Aug 2021	Council	Email	Introduce the proposed modification and seek feedback in relation to anticipated issues and assessment requirements, etc. A follow-up email was sent to Council on 7 September 2021, however Council has not provided any feedback to date.
14 Sep 2021	DPIE	Scoping letter	Introduce the proposed modification and seek feedback on the intended section 4.55(1A) approval pathway and impact assessment approach. DPIE responded via letter & emails on 17 September 2021 advising (in summary): - Satisfied the application may be progressed, however unable to confirm if the approval pathway is appropriate until the detailed assessments are submitted and confirm minimal impact – see Section 6. - Recommend consultation with relevant agencies and stakeholders – completed as summarised in this table. - Concur with the assessment approach in that air quality, traffic and noise will be addressed by specialist consultants – see Sections 6.2, 6.3 and 6.8. - Detail the timing of how construction will progress to operational commissioning of each poultry shed – see Section 3.5. - Provide an analysis of impacts resulting from the worst-case combined construction/operational activities and any additional impacts arising from the revised operations – see Section 6. - Consideration on the timing of when the intended concurrent construction and operational period would commence – see Section 3.5. - Consideration of the distances between the LPG tanks and diesel tanks to ensure a preliminary hazard analysis is not needed – see Section 6.9.

Date	Stakeholder	Method	Purpose / Outcome / Issues Raised
1 Nov 2021	Surrounding residents and recreational facilities	Community newsletter – via mailbox drop	Provide an update on the development, introduce the proposed modification and provide contact details for relevant ProTen personnel for any queries/concerns. A copy of the community newsletter is provided in Appendix B . The only feedback that has been received by ProTen to date was a call from receptor R15 on 7 December 2021 concerned about the noise emissions from the proposed generator at the Namoi River water supply pump – see Section 6.8 . ProTen will engage further with this resident, including providing and discussing the noise assessment results and conclusions.
7 Dec 2021	DPIE	Draft Modification Report via email	Draft Modification Report submitted for adequacy review. DPIE responded via email on 17 September 2021 requesting updates to the traffic assessment to account for the fact that concurrent construction and operational traffic, while addressed in the approved <i>Construction Traffic Management Plan</i> (CTMP), has not previously been formally assessed and approved – see Section 6.3 .

Consultation with the various stakeholders will continue throughout the construction and operational phases in accordance with the approved *Community Consultation Plan* (EME 2021d).

6 IMPACT ASSESSMENT

This section addresses the potential environmental, social and economic impacts associated with the proposed modification and nominates any additional or alternative controls considered necessary to mitigate and manage these impacts. The issues have been addressed in the same order as the EIS.

6.1 Odour

Poultry farm odour emissions are a function of the number of birds, stocking density of birds, shed ventilation rates, shed design and shed management practices (particularly litter management). Modification 3 does not pose any changes in relation to bird numbers of the poultry sheds and, as such, there will be no changes to the previously assessed and approved odour emissions. Modification 3 does not warrant any assessment of odour nor any additional odour controls.

6.2 Particulate Matter

Astute Environmental Consulting (Astute) was engaged to undertake an assessment of particulate matter emissions and potential impacts associated with Modification 3 in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2016) (the Approved Methods). A copy of Astute's *Air Quality Assessment* is provided in **Appendix C**, with the key findings summarised in the below sub-sections.

The following documents should be referred to for details on the previously assessed and approved air quality impacts and mitigation and management measures:

- *Air Quality Assessment* (Pacific Environment Limited 2018) prepared as part of the EIS; and
- *Response to Air Quality Issues* (Astute 2019) prepared as part of the RTS.

6.2.1 Existing Environment

Representative Year

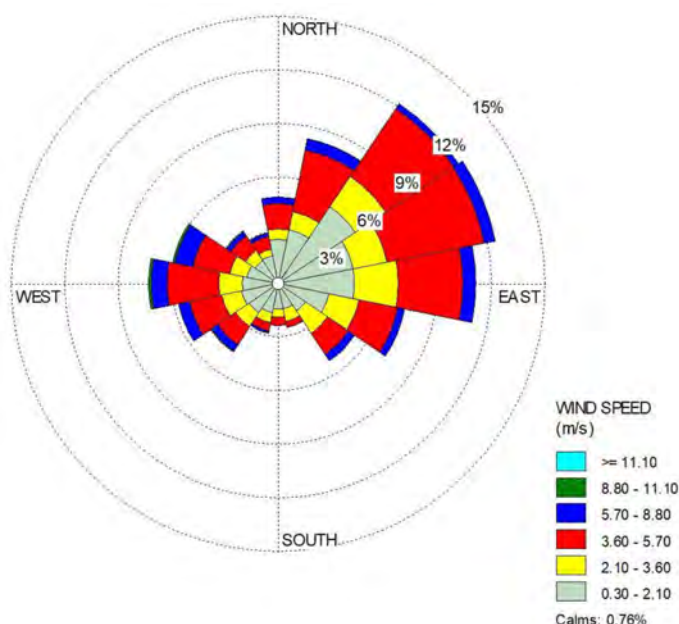
The representative year modelled in the EIS was selected based on an analysis of meteorological data from the Bureau of Meteorology station at the Tamworth Airport between 2005 and 2012. The year 2005 was selected as the most representative year for that assessment as it performed, on average, better than any other year for the most important parameters used in dispersion modelling.

ProTen installed a weather station within the Development Site in October 2018. In accordance with the Approved Methods (EPA 2016), Level 2 impact assessments are to be conducted using at least one year of site-specific meteorological data. As such, the year 2019 was selected and modelled by Astute (2021) for Modification 3.

Site Meteorology

Wind - a summary of the modelled annual wind behaviour at the Development Site is presented in the wind rose generated by Astute (2021) in **Figure 10**. The annual wind rose shows that the site is dominated by north easterly through easterly winds, with a noticeable westerly component. There is a low proportion of calm winds (approximately 1% of the time), with light winds (up to 3 metres per second [m/s]) occurring around 53% of the time.

Figure 10 Annual Wind Rose



Atmospheric Stability - atmospheric turbulence is an important factor in air pollution meteorology and plume dispersion. The most well-known stability classification is the Pasquill-Gifford scheme, which denotes stability classes from A to F. Class A is very unstable and occurs in association with strong surface heating and light winds, leading to intense convective turbulence. At the other extreme, class F denotes very stable conditions associated with strong temperature inversions and light winds, which commonly occur under clear skies at night and in the early morning. Intermediate stability classes grade from moderately unstable (B), through neutral (D) to slightly stable (E). Generally, unstable (or convective) conditions dominate during the daytime and stable flows are dominant at night. This diurnal pattern is most pronounced when there is relatively little cloud cover and light to moderate winds.

Astute (2021) has predicted a typical frequency of occurrence at the Development Site of class D (neutral) at 24%, class E (slightly stable) at 13% and class F (moderately stable) at 29%.

Atmospheric Mixing Height - mixing height is the depth of the atmospheric mixing layer beneath an elevated temperature inversion. It is an important parameter in air pollution meteorology as vertical diffusion or mixing of a plume is generally considered to be limited by the mixing height. In relation to the Development Site, Astute (2021) advises that the diurnal cycle is clear, whereby the mixing height at night is normally relatively low, and after sunrise it increases as a result of heat associated with the sun on the Earth's surface.

Air Quality

Air quality in the local area is influenced by typical rural sources, including farming activities, vehicle traffic along unsealed roads and wind erosion during dry periods. There is no air quality monitoring data available for the Development Site, with the nearest monitoring sites being in Tamworth approximately 45 km to the southeast and in Gunnedah approximately 35 km to the southwest. While neither of these are considered representative of the rural environment in which the Development Site is located, Astute (2021) selected to use Gunnedah given it monitors particulate matter less than 10 microns in diameter (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5}) and nitrogen dioxide (NO₂). The closest site that monitors carbon monoxide (CO) is Port Macquarie on the mid-north coast, approximately 230 km to the southeast of the Development Site.

Air quality in NSW in 2019 (i.e. selected representative year) was affected by intense drought conditions and widespread bushfires. However, as this year was selected as the most appropriate year for meteorological data, the influence of the drought and bushfire conditions is unavoidable. Astute's (2021) assessment therefore focused on no additional exceedances of the impact assessment criteria.

Astute (2021) provided the statistical summary for the 2019 background data in **Table 8**. For context, the annual average PM₁₀ for 2018 at Gunnedah was 18 µg/m³ in comparison to 24.9 µg/m³ in 2019, and the 90th percentile of all 24-hour concentration data for 2018 at Gunnedah was 32.2 µg/m³ in comparison to 47.7 µg/m³ in 2019 (Astute 2021). This clearly demonstrates that the 2019 background concentrations are unrealistic, and the predicted cumulative concentrations for Modification 3 (i.e. with background) are unlikely to occur under normal circumstances (Astute 2021).

Table 8 Adopted Background Air Quality Data 2019

Pollutant	Monitoring Site	Data Availability	Averaging Period	Statistic	Value (µg/m ³)	Assessment Criteria (µg/m ³)	Days Above Criteria
NO ₂	Gunnedah	95%	1-hour	Maximum	41.0	246	-
			Annual	Average	13.1	62	-
PM ₁₀	Gunnedah	92%	24-hour	Maximum	205.2	50	30
			Annual	Average	24.9	25	-
PM _{2.5}	Gunnedah	95%	24-hour	Maximum	94.1	25	27
			Annual	Average	11.4	8	-
CO	Port Macquarie	41%	15-minute	Maximum	21.6	100,000	-
			1-hour	Maximum	16.4	30,000	-
			8-hour	Average	12.0	10,000	-

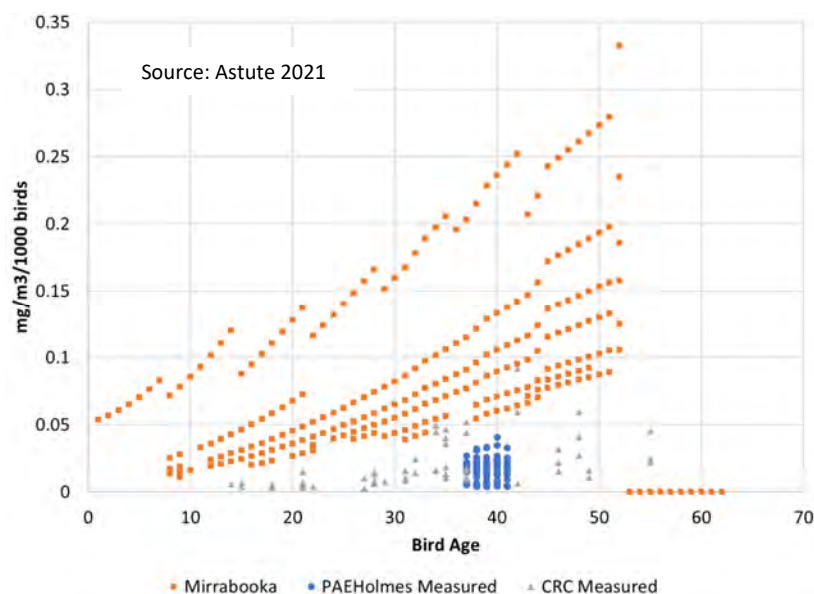
6.2.2 Emissions Estimation

Poultry Shed Particulate Emissions

Astute (2021) estimated operational particulate emissions based on data from broiler farms in NSW, along with theoretical considerations. The approach generates hourly varying emission rates from each poultry shed based on age and weight of birds present, shed ventilation rate, and shed design and management practices. The method is based on Mirrabooka 2002 (cited in Astute 2021), who reported emission rate data for a tunnel-ventilated poultry farm in NSW for chicken batches between 1 and 8 weeks of age to represent emissions over a full production cycle. It was standardised to relate the particulate concentration to the total bird mass at the time of sampling.

However, more recent measured real-world data from the Australian Poultry Cooperate Research Centre (Australian Poultry CRC) 2011 and PAEHolmes 2012 (cited in Astute 2021), have shown that the Mirrabooka data leads to much higher emissions than what actually occurs. A comparison of the three datasets is provided in **Figure 11**. It is evident that the Mirrabooka method significantly over-predicts dust emissions. Even if the Mirrabooka data were divided by four, the emission rate would still conservatively overpredict emissions. As such, Astute (2021) modified the Mirrabooka method by dividing the predicted emissions by four.

Figure 11 Modelled PM₁₀ Emission Rates



Diesel Generator Emissions

Astute (2021) modelled the diesel generators based on technical data provided by Himonsia (i.e. generator supplier) and literature values based on United States Environmental Protection Agency (USEPA) non-road data. Refer to Astute's report in **Appendix C** for the specifics. Astute (2021) notes the following:

- Building wake effects were included for the nearby buildings and enclosures;
- Individual exhaust stacks were included for the generators;
- The generators were conservatively modelled for one continuous year at prime power output;
- The 440 kVA generators are USEPA Tier 3 and the 45 kVA is USEPA Tier 2;
- Modelled emissions were oxides of nitrogen (as NO₂), PM₁₀ and PM_{2.5} and CO;
- PM₁₀ and PM_{2.5} emissions were conservatively assumed to be equal; and
- Background air quality data from monitoring sites in Gunnedah (NO₂, PM₁₀, PM_{2.5}) and Port Macquarie (CO) were included.

6.2.3 Assessment Criteria

When assessing any development proposal with potential air emissions, it is necessary to compare the potential impacts with relevant impact assessment criteria. Such criteria are used to assess the potential for ambient air quality to give rise to adverse health or nuisance effects.

The relevant air quality criteria for the assessment of Modification 3, in accordance with the Approved Methods (EPA 2016), are listed in **Table 9**.

Table 9 Particulate Matter Assessment Criteria

Pollutant	Averaging Period	Assessment Criteria ($\mu\text{g}/\text{m}^3$)
NO ₂	1-hour	246
	Annual	62
PM ₁₀	24-hour	50
	Annual	25
PM _{2.5}	24-hour	25
	Annual	8
CO	15-minutes	100,000
	1-hour	30,000
	8-hour	10,000

6.2.4 Impact Assessment

The modelling undertaken for the assessment of air quality impacts by Astute (2021) was in accordance with the Approved Methods (EPA 2016) and focussed on the following aspects of Modification 3:

- Reliance on the proposed 440 kVA diesel generators to operate Farm 2 (only ever two operating at any one time) and the proposed 45 kVA diesel generator to operate the water supply pump for up to 10 months; and
- Concurrent construction and operation at Farm 2 for up to 10 months.

Astute's (2021) modelling results presented below are based on the following:

- The two 440 kVA primary backup diesel generators and the 45 kVA water pump diesel generator will operate at full capacity continuously for 12 months. This is a conservative approach given these generators are only proposed to operate for a maximum of 10 months and will only operate at full capacity during peak times over the 10 month period (for example, in hot conditions with all shed fans running).
- Background PM₁₀ emissions from the entire approved 56 shed poultry development (i.e. not only the 18 sheds at Farm 2) have been included in the cumulative assessments.
- Background NO₂, PM_{2.5} and CO data from the Gunnedah and Port Macquarie monitoring stations have been included in the cumulative assessments.
- The approved emergency generators at Farms 1, 3 and 4 (Stage 2 of the Development and not subject to this modification) have not been included in the assessment given that these generators will only be required for the rare occasion when the primary power supply is lost, which is anticipated to be up to around 5 days annually. Farms 1, 3 and 4 will also not be constructed and operational for some time (unknown at this point), definitely outside of the 10 month period proposed in this modification.

Oxides of Nitrogen (as NO₂)

Table 10 lists the ground level NO₂ concentrations predicted by Astute (2021) for the maximum 1-hour and annual average periods for the generators in isolation and cumulatively with background concentrations at the surrounding receptors (see **Figure 3**).

Table 10 Predicted Ground Level NO₂ Concentrations

Receptor ID	Maximum 1-Hour Average (µg/m ³)		Annual Average (µg/m ³)	
	Isolation	Cumulative	Isolation	Cumulative
R1	9.8	50.8	0.1	13.2
R2	7.8	48.8	0.1	13.2
R3	11.6	52.6	0.0	13.1
R4	9.4	50.4	0.1	13.2
R5	8.3	49.3	0.1	13.2
R6	9.2	50.2	0.0	13.1
R7	14.0	55.0	0.1	13.2
R8	13.6	54.6	0.1	13.2
R9	8.4	49.4	0.1	13.2
R10	16.4	57.4	0.1	13.2
R11	10.5	51.5	0.1	13.2
R12	17.0	58.0	0.1	13.2
R13	13.0	54.0	0.1	13.2
R14	15.1	56.1	0.1	13.2
R15	37.2	78.2	0.6	13.7
R16	25.6	66.6	0.2	13.3
R17	9.8	50.8	0.2	13.3
R18	26.2	67.2	0.4	13.5
R19	21.5	62.5	0.1	13.2
R20	9.8	50.8	0.2	13.3
R21	23.8	64.8	0.2	13.3
R22	26.2	67.2	0.2	13.3
R23	26.7	67.7	0.2	13.3
R24	69.2	110.2	0.2	13.3
R25	14.3	55.3	0.1	13.2
R26	18.2	59.2	0.0	13.1
R27	17.0	58.0	0.0	13.1
R28	6.7	47.7	0.0	13.1
R29	12.9	53.9	0.0	13.1
R30	10.7	51.7	0.0	13.1
R31	11.8	52.8	0.0	13.1
R32	6.7	47.7	0.1	13.2
R33	6.2	47.2	0.1	13.2
R34	6.9	47.9	0.0	13.1
R35	12.0	53.0	0.0	13.1
R36	8.5	49.5	0.0	13.1
Criteria	246		62	

The results listed in **Table 10** show that all receptors are predicted to experience 1-hour maximum cumulative concentrations and annual average cumulative concentrations well below the criteria. The highest predicted 1-hour maximum cumulative concentration is at receptor R24 at 110.2 µg/m³, which is notably below the 246 µg/m³ criterion, and the highest predicted annual average cumulative concentration is at receptor R15 at 13.7 µg/m³, which is notable below the 62 µg/m³ criterion.

Particulate Matter <10 Microns (PM₁₀)

Table 11 lists the ground level PM₁₀ concentrations predicted by Astute (2021) for the maximum 24-hour and annual average periods for the generators in isolation and cumulatively with background concentrations at the surrounding receptors.

Table 11 Predicted Ground Level PM₁₀ Concentrations

Receptor ID	Max. 24-Hour Average (µg/m³)		Annual Average (µg/m³)	
	Isolation	Cumulative	Isolation	Cumulative
R1	0.05	207.6	0.003	24.8
R2	0.05	206.2	0.003	24.8
R3	0.03	206.3	0.002	24.8
R4	0.04	206.7	0.002	24.8
R5	0.04	206.5	0.002	24.8
R6	0.03	206.5	0.002	24.8
R7	0.04	206.7	0.002	24.8
R8	0.04	206.7	0.003	24.9
R9	0.07	205.8	0.006	24.8
R10	0.11	206.1	0.005	24.8
R11	0.05	206.1	0.003	24.8
R12	0.03	206.2	0.003	24.8
R13	0.06	206.3	0.005	24.8
R14	0.05	206.6	0.005	24.9
R15	0.37	206.2	0.043	24.9
R16	0.09	207.5	0.006	24.9
R17	0.05	206.4	0.008	24.9
R18	0.18	207.0	0.024	25.1
R19	0.05	206.7	0.003	24.9
R20	0.08	206.8	0.010	24.9
R21	0.15	206.9	0.009	25.0
R22	0.09	206.8	0.005	25.0
R23	0.10	206.8	0.005	25.0
R24	0.17	209.9	0.007	25.4
R25	0.03	211.7	0.002	25.2
R26	0.05	206.3	0.001	24.8
R27	0.05	206.2	0.001	24.8
R28	0.02	206.7	0.001	24.9
R29	0.02	206.0	0.001	24.8
R30	0.02	206.1	0.001	24.8
R31	0.03	206.2	0.001	24.8
R32	0.02	205.9	0.002	24.9
R33	0.03	206.8	0.003	25.0
R34	0.02	206.6	0.001	24.8
R35	0.02	207.0	0.001	24.8
R36	0.02	206.1	0.001	24.8
Criteria	50		25	
Existing days above criteria	0	30	N/A	N/A
Additional days above criteria	0	0	N/A	N/A

Maximum 24-Hour Average PM₁₀ Predictions

The results in **Table 11** show that all receptors are predicted to experience maximum 24-hour concentrations as a result of the generators in isolation well below the assessment criterion. The highest predicted maximum 24-hour average concentration is at receptor R15 at 0.37 µg/m³, which is significantly below the 50 µg/m³ criterion.

In relation to the cumulative maximum 24-hour average assessment, ambient air quality monitoring conducted at Gunnedah shows that there were 30 days in 2019 (i.e. selected representative year) when the background PM₁₀ concentration was above the 50 µg/m³ criterion, with a maximum recording of 205.2 µg/m³ (see **Section 6.2.1**). Astute (2021) applied a contemporaneous approach to the modellings results, focussing on no additional exceedances of the criterion. The assessment of maximum 24-hour PM₁₀ average cumulative concentrations for the modification with the 2019 background predicted no additional days above the 50 µg/m³ criterion at any receptor.

The maximum 24-hour average modelling results for the most likely affected receptor, being R25, are presented in **Table 12** and demonstrate no additional predicted exceedances.

Table 12 Cumulative Maximum 24-Hour PM₁₀ at Receptor R25

Ranked by Background				Ranked by Incremental Concentration			
Date	Max. 24-Hour Average (µg/m ³)			Date	Max. 24-Hour Average (µg/m ³)		
	Measured Background	Predicted Increment	Total		Predicted Increment	Measured Background	Total
8/08/2019	45.4	0.1	45.5	30/12/2019	6.5	23.3	29.8
7/09/2019	45.0	0.0	45.0	31/12/2019	3.8	23.3	27.1
11/12/2019	44.8	0.1	44.8	18/02/2019	3.6	30.0	33.6
1/11/2019	41.4	0.0	41.4	09/02/2019	1.9	34.6	36.5
12/12/2019	38.9	0.0	38.9	11/02/2019	1.7	21.0	22.7
27/07/2019	37.9	0.0	37.9	12/02/2019	1.5	35.9	37.4
10/08/2019	37.9	0.2	38.1	3/11/2019	0.9	14.1	15.0
15/12/2019	37.9	0.0	37.9	19/02/2019	0.9	35.9	36.8
2/07/2019	37.6	0.1	37.6	7/04/2019	0.9	15.5	16.4
6/03/2019	36.8	0.0	36.9	8/04/2019	0.9	14.1	15.0

Annual Average PM₁₀ Predictions

The results in **Table 11** show that all receptors are predicted to experience annual average PM₁₀ concentrations as a result of the generators in isolation well below the assessment criterion. The highest predicted annual average concentration is at receptor R15 at 0.043 µg/m³, which is significantly below the 25 µg/m³ criterion.

The cumulative annual average concentrations listed in **Table 11** are predicted to comply with the 25 µg/m³ criterion at 29 of the 36 surrounding receptors. Due to an elevated background concentration of 24.9 µg/m³ (see **Section 6.2.1**), which is only marginally under the criterion, seven receptors are predicted to slightly exceed the 25 µg/m³ criterion, with the highest being 25.4 µg/m³ at receptor R24.

Particulate Matter <2.5 Microns (PM_{2.5})

Table 13 lists the ground level PM_{2.5} concentrations predicted by Astute (2021) for the maximum 24-hour and annual average periods for the generators in isolation and cumulatively with background concentrations at the nearest surrounding receptors.

Table 13 Predicted Ground Level PM_{2.5} Concentrations

Receptor ID	Max. 24-Hour Average (µg/m³)		Annual Average (µg/m³)	
	Isolation	Cumulative	Isolation	Cumulative
R1	0.05	94.15	0.003	11.4
R2	0.05	94.15	0.003	11.4
R3	0.03	94.13	0.002	11.4
R4	0.04	94.14	0.002	11.4
R5	0.04	94.14	0.002	11.4
R6	0.03	94.13	0.002	11.4
R7	0.04	94.14	0.002	11.4
R8	0.04	94.14	0.003	11.4
R9	0.07	94.17	0.006	11.4
R10	0.11	94.21	0.005	11.4
R11	0.05	94.15	0.003	11.4
R12	0.03	94.13	0.003	11.4
R13	0.06	94.16	0.005	11.4
R14	0.05	94.15	0.005	11.4
R15	0.37	94.47	0.043	11.4
R16	0.09	94.19	0.006	11.4
R17	0.05	94.15	0.008	11.4
R18	0.18	94.28	0.024	11.4
R19	0.05	94.15	0.003	11.4
R20	0.08	94.18	0.010	11.4
R21	0.15	94.25	0.009	11.4
R22	0.09	94.19	0.005	11.4
R23	0.10	94.20	0.005	11.4
R24	0.17	94.27	0.007	11.4
R25	0.03	94.13	0.002	11.4
R26	0.05	94.15	0.001	11.4
R27	0.05	94.15	0.001	11.4
R28	0.02	94.12	0.001	11.4
R29	0.02	94.12	0.001	11.4
R30	0.02	94.12	0.001	11.4
R31	0.03	94.13	0.001	11.4
R32	0.02	94.12	0.002	11.4
R33	0.03	94.13	0.003	11.4
R34	0.02	94.12	0.001	11.4
R35	0.02	94.12	0.001	11.4
R36	0.02	94.12	0.001	11.4
Criteria	25		8	
Existing days above criterion	0	24	N/A	N/A
Additional days above criterion	0	0	N/A	N/A

Maximum 24-Hour Average PM_{2.5} Predictions

The results in **Table 13** show that all receptors are predicted to experience maximum 24-hour concentrations as a result of the generators in isolation well below the assessment criterion. The highest predicted maximum 24-hour average concentration is at receptor R15 at 0.37 µg/m³, which is significantly below the 25 µg/m³ criterion.

In relation to the cumulative maximum 24-hour assessment, ambient air quality monitoring conducted at the Gunnedah shows that there were 27 days in 2019 (i.e. selected representative year) when the PM_{2.5} concentration was above the 25 µg/m³ criterion, with a maximum recording of 94.1 µg/m³. Astute (2021) applied a contemporaneous approach to the modellings results, focussing on no additional exceedances of the criterion. The assessment of maximum 24-hour PM_{2.5} average cumulative concentrations for the modification with the 2019 background predicted no additional days above the 25 µg/m³ criterion at any receptor.

Annual Average PM_{2.5} Predictions

The results in **Table 13** show that all receptors are predicted to experience annual average PM_{2.5} concentrations as a result of the generators in isolation well below the assessment criterion. The highest predicted annual average concentration is at receptor R15 at 0.043 µg/m³, which is significantly below the 8 µg/m³ criterion.

The cumulative annual average concentrations listed in **Table 13** are above the assessment criterion of 8 µg/m³ at all surrounding receptors due to the elevated background concentration of 11.4 µg/m³, which, by itself, is notably over the criterion. The highest predicted increment as a result of the proposed modification is 0.043 µg/m³ at receptor R15.

Carbon Monoxide (CO)

Table 14 lists the ground level CO concentrations predicted by Astute (2021) for the maximum 15-minute, maximum 1-hour and maximum 8-hour average periods for the generators in isolation and cumulatively with background concentrations at the nearest surrounding receptors.

Table 14 Predicted Ground Level CO Concentrations

Receptor ID	Max. 15-Min. Average (µg/m ³)		Max. 1-Hour Average (µg/m ³)		Max. 8-Hour Average (µg/m ³)	
	Isolation	Cumulative	Isolation	Cumulative	Isolation	Cumulative
R1	3.3	24.9	2.5	18.9	1.1	13.1
R2	3.2	24.8	2.4	18.8	1.3	13.3
R3	2.9	24.5	2.2	18.6	0.8	12.8
R4	2.9	24.5	2.2	18.6	0.7	12.7
R5	2.4	24.0	1.8	18.2	0.7	12.7
R6	2.3	23.9	1.8	18.2	0.5	12.5
R7	3.6	25.2	2.7	19.1	0.8	12.8
R8	3.5	25.1	2.7	19.1	1.0	13.0
R9	4.2	25.8	3.2	19.6	1.3	13.3
R10	9.0	30.6	6.8	23.2	2.9	14.9
R11	4.0	25.6	3.0	19.4	1.3	13.3
R12	4.2	25.8	3.2	19.6	0.8	12.8
R13	5.6	27.2	4.2	20.6	1.5	13.5
R14	4.9	26.5	3.7	20.1	1.3	13.3
R15	36.5	58.1	27.6	44.0	9.6	21.6
R16	6.7	28.3	5.1	21.5	2.1	14.1

Receptor ID	Max. 15-Min. Average ($\mu\text{g}/\text{m}^3$)		Max. 1-Hour Average ($\mu\text{g}/\text{m}^3$)		Max. 8-Hour Average ($\mu\text{g}/\text{m}^3$)	
	Isolation	Cumulative	Isolation	Cumulative	Isolation	Cumulative
R17	5.0	26.6	3.8	20.2	1.2	13.2
R18	12.8	34.4	9.7	26.1	3.3	15.3
R19	6.5	28.1	4.9	21.3	1.0	13.0
R20	6.1	27.7	4.6	21.0	1.6	13.6
R21	10.7	32.3	8.1	24.5	3.9	15.9
R22	7.2	28.8	5.4	21.8	1.8	13.8
R23	7.6	29.2	5.7	22.1	1.9	13.9
R24	17.1	38.7	13.0	29.4	3.5	15.5
R25	3.8	25.4	2.9	19.3	0.6	12.6
R26	4.5	26.1	3.4	19.8	1.2	13.2
R27	4.2	25.8	3.2	19.6	1.1	13.1
R28	2.2	23.8	1.6	18.0	0.4	12.4
R29	3.5	25.1	2.7	19.1	0.5	12.5
R30	2.7	24.3	2.0	18.4	0.5	12.5
R31	3.1	24.7	2.4	18.8	0.5	12.5
R32	1.9	23.5	1.4	17.8	0.4	12.4
R33	1.6	23.2	1.2	17.6	0.6	12.6
R34	1.7	23.3	1.3	17.7	0.3	12.3
R35	3.5	25.1	2.7	19.1	0.4	12.4
R36	2.5	24.1	1.9	18.3	0.4	12.4
Criteria	100,000		30,000		10,000	

The results in **Table 14** show that all receptors are predicted to experience maximum 15-minute, 1-hour and 8-hour cumulative CO concentrations well below the assessment criteria of 100,000 $\mu\text{g}/\text{m}^3$, 30,000 $\mu\text{g}/\text{m}^3$ and 10,000 $\mu\text{g}/\text{m}^3$, respectively. The highest predicted cumulative concentrations are at receptor R15 at 58.1 $\mu\text{g}/\text{m}^3$, 44.0 $\mu\text{g}/\text{m}^3$ and 21.6 $\mu\text{g}/\text{m}^3$, respectively.

6.2.5 Conclusion

Astute (2021) concludes that the predicted ground level concentrations of NO_2 , PM_{10} , $\text{PM}_{2.5}$ and CO from the modification readily comply with the relevant air quality criteria. Background concentrations used in the modelling are significantly elevated due to intense drought conditions and widespread bushfires in 2019 (i.e. selected representative year) and are not representative of normal conditions. As such, the predicted cumulative concentrations for Modification 3 (i.e. with background) are unlikely to occur under normal circumstances (Astute 2021).

Astute (2021) emphasises that the modelling is conservative given it assumes that the two 440 kVA generators at Farm 2 and the 45 kVA generator at the water pump will operate at full capacity continuously for 12 months, where, in reality, the generators are only proposed to operate for a maximum of 10 months and will only operate at full capacity during peak times over the 10 month period (for example, in hot conditions with all shed fans running).

Modification 3 does not warrant any additional controls. The best management practices and mitigation measures listed in the approved Summary of Commitments and approved CEMP will continue to be implemented to minimise the potential for particulate matter emissions during construction. The *Air Quality Management Plan* (AQMP) being prepared in accordance with consent condition B4 for approval prior to commencing operations will include operational particulate matter control measures.

6.3 Traffic

SLR was engaged to undertake an assessment of the traffic and transport-related issues associated with Modification 3 focussing on:

- Internal design matters and external traffic impacts in relation to the proposed concurrent construction and operation at Farm 2 for up to 10 months and additional diesel deliveries for up to 10 months; and
- Implications for the approved CTMP (SLR 2021a).

A copy of SLR's *Modification 3 Traffic Assessment* (2021d) is provided in **Appendix D**, with the key findings summarised in the below sub-sections.

The following documents should be referred to for details on the surrounding public road network, development-related traffic generation and impact assessment:

- *Traffic Impact Assessment* (RoadNet 2018) prepared as part of the EIS;
- *Response to Traffic Matters* (SLR 2018b) prepared as part of the RTS; and
- CTMP (SLR 2021a) prepared in consultation with Council and TfNSW and approved by the Planning Secretary in compliance with consent condition B10.

6.3.1 Impact Assessment

SLR (2021d) identified the following aspects for assessment from a traffic engineering perspective:

- Construction and operational traffic associated with Farm 2 will concurrently travel on the external road network to and from the Development Site for a period of up to 10 months.
- Construction and operational traffic will access Farm 2 concurrently from Rushes Creek Road via the approved northern site access and internal roads for up to 10 months.
- Additional diesel deliveries via rigid tanks (up to heavy rigid vehicle [HRV] size) will be required to run the generators for up to 10 months. ProTen has advised that up to one diesel delivery per day will be required during peak times in the production cycle over the maximum 10 month period, resulting in two additional heavy vehicle (HV) movements per day (one inbound and one outbound). Fuel deliveries by HRV tankers were considered in the previous traffic assessments for the approved development, albeit at a lower frequency of around one delivery per month (two HV movements per month).
- In addition to diesel being transferred from the HRV tanker to the diesel tank at Farm 2, diesel will also occasionally be transferred to a 2,500 L fuel trailer that will be towed by a light vehicle (LV) (for example, ute or four-wheel drive) via Rushes Creek Road and Ski Gardens Road to refill the proposed diesel tank for the water pump generator. It is anticipated that the water pump diesel storage will require refueling up two times per week over the maximum 10 month period.

Internal Design Considerations

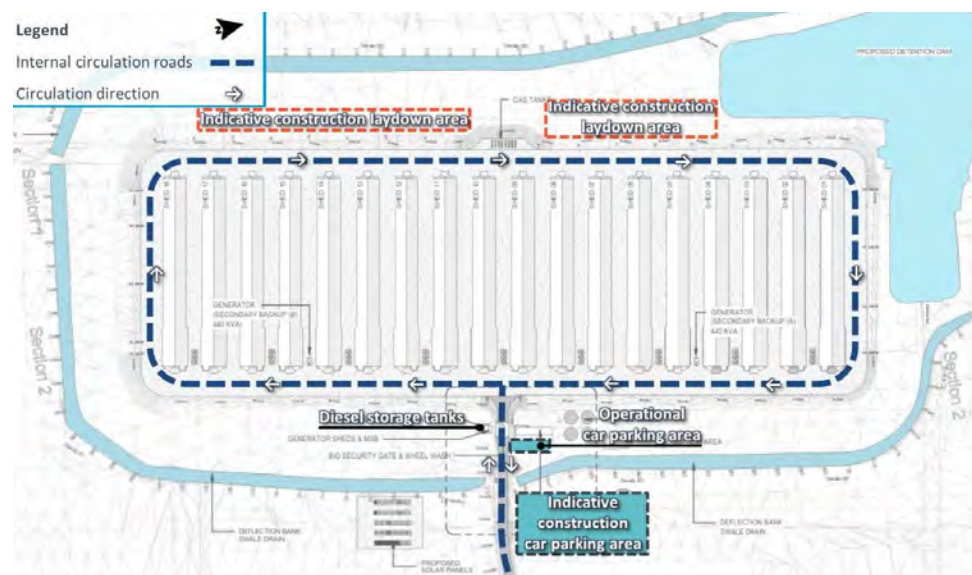
SLR (2021d) confirms that there are no material changes to the approval development layout in relation to traffic arrangements at Farm 2 and there will not be increased demands for car parking or loading areas as a result of Modification 3. The modification will however result in the concurrent use of internal traffic arrangements at Farm 2 by construction and operational traffic.

In relation to the ability of the approved Farm 2 internal traffic arrangements to service concurrent construction and operational traffic, SLR (2021d) notes the following:

- Separate areas will be provided for construction and operational car parking as indicated on **Figure 12**. As such, no impacts are anticipated from simultaneous construction and operational car parking demands.
- Access for design vehicles up to 20 m articulated vehicle size is required for construction traffic, and access for design vehicles to 25 m B-double size will be required for operational traffic. Given that the approved northern site access and Farm 2 internal circulation roads have been designed to accommodate vehicles up to the larger 25 m B-double size, the previously approved site access and circulation roads are sufficient to accommodate combined construction and operational traffic demands.
- Site circulation roads and laydown areas for construction materials and stockpiles, as shown on **Figure 12**, will be managed by the construction contractor to minimise the potential for conflicts between construction and operational traffic. This will include ensuring the circulation road around the poultry sheds has one-way traffic flow (clockwise) for the duration of construction (and operations, as per the EIS). Given the approved 15+ m width of the circulation road around the poultry sheds, the management of concurrent construction and operational traffic circulation around Farm 2, including loading/unloading, is not anticipated to pose any issues.

SLR (2021d) concludes that the previously assessed and approved design of internal traffic arrangements for Farm 2 is sufficient to accommodate both construction and operational traffic demands, including site circulation, car parking and loading/unloading.

Figure 12 Farm 2 Internal Traffic Arrangements



External Traffic Impacts – Additional Diesel Deliveries

Modification 3 is anticipated to result in the following additional operational traffic demands as a result of the additional diesel deliveries to Farm 2 for up to 10 months:

- Up to two additional HV movements per day (one inbound and one outbound) for the delivery of diesel to Farm 2 in HRVs. Deliveries are anticipated to occur outside of network peak hour periods and are likely to originate in Tamworth accessing Farm 2 via the Oxley Highway and Rushes Creek Road using the designated HV route as per the approved CTMP.

- Up to two additional LV movements per day (one inbound and one outbound) external to the Site transferring diesel from Farm 2 to the storage tank at water pump generator. The LV towing the fuel trailer will access the generator site via the Farm 2 northern site access, Rushes Creek Road, Ski Gardens Road and then via the existing Namoi River site access and internal road.

External Traffic Impacts – Concurrent Construction and Operation

While concurrent construction and operational activities at Farm 2 were not previously proposed or approved, SLR (2021d) advises that the external traffic impacts of this scenario have been previously assessed in the approved CTMP (SLR 2021a). This assessment has been included in SLR's *Modification 3 Traffic Assessment* (2021d) and summarised below to support the application for Modification 3.

The traffic demands expected to be generated by each activity proposed as part of Modification 3 have been sourced from the following traffic assessments:

- Operational phase (permanent) – *Traffic Impact Assessment* (RoadNet 2018);
- Operational phase additional fuel deliveries (temporary) – see above;
- Construction phase (temporary) - approved CTMP (SLR 2021a).

The temporary daily and peak hour traffic demands proposed as part of Modification 3 for a period of up to 10 months are summarised in **Table 15** and compared to that previously assessed and approved (i.e. operational phase traffic demands only).

Table 15 Approved and Proposed Traffic Generation

Component	Peak Daily Trips		Peak Hour Trips	
	Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
Approved Development Traffic Generation				
Operations	26 vpd	46 vpd	12 vph	5 vph
TOTAL	72 vpd		17 vpd	
Proposed Modification 3 Traffic Generation				
Operations	26 vpd	46 vpd	12 vph	5 vph
Additional fuel deliveries (temporary)	2 vpd	2 vpd	0 vph	0 vph
Construction (temporary)	58 vpd	2 vpd	29 vph	0 vph
Sub-total	86 vpd (+60 vpd)	50 vpd (+4 vpd)	41 vph (+29 vph)	5 vph (+0 vph)
TOTAL	136 vpd (+64 vpd)		46 vph (+29 vph)	

vpd – vehicles per day; vph – vehicles per hour

SLR's (2021d) assessment of the operational and safety impacts of the increased traffic demand anticipated to be generated by Modification 3 for up to 10 months is summarised in the below sub-sections.

Operational Assessment

SLR (2021d) undertook a detailed analysis of the traffic demands associated with Modification 3 on the operation of the Oxley Highway/Rushes Creek Road intersection, Rushes Creek Road/southern site access intersection and Rushes Creek Road/northern site access intersection using a conservative assessment scenario comprising the following traffic demands:

- 2025 background traffic demands (based on surveyed traffic volumes and 2% per annum growth on all roads as per RoadNet 2018); plus
- Development construction phase traffic demands (as per the approved CTMP); plus

- Development operational phase traffic demands (as per the RoadNet 2018).

Although not proposed, for the purposes of conservatism, SLR (2021d) considered combined construction and operational traffic demands at both the northern and southern site accesses to Rushes Creek Road (Modification 3 only proposes concurrent construction and operational traffic at the northern site access).

SLR's (2021d) assessment of the road network for the above scenario during the weekday AM and PM peak hour periods concluded:

- The existing layouts of the three assessed intersections perform well within typically adopted performance and safety thresholds;
- The existing road network has sufficient capacity to accommodate the conservative Modification 3 traffic scenario (i.e. combination of construction and operational phase traffic demands at the 2025 design year); and
- No additional upgrade or mitigation measures are considered necessary.

Safety Assessment

SLR (2021d) noted the following in relation to the suitability of the northern and southern site accesses to Rushes Creek Road to accommodate the daily and peak hour traffic demands proposed as part of Modification 3 for a period of up to 10 months:

- The location of the site accesses to Rushes Creek Road catered for appropriate sight distances in accordance with the relevant design standard, being the *Australian Standards for Parking facilities Part 2: Off-street commercial vehicle facilities* (AS2890.2);
- A turn warrant assessment of the site accesses to Rushes Creek Road conducted using the 2025 design traffic volumes demonstrates that the proposed BAL site access forms are suitable to accommodate the anticipated peak hour traffic demands generated by Modification 3; and
- The largest anticipated design vehicle for the construction phase is a 20 m articulated vehicle, which is smaller than the largest design vehicle for which the site accesses have been designed to accommodate (i.e. a 25 m B-double).

SLR (2021d) noted the following in relation to the suitability of Rushes Creek Road (to the south of the site accesses) and the Oxley Highway/Rushes Creek Road intersection to accommodate the daily and peak hour traffic demands proposed as part of Modification 3:

- Modification 3 is expected to generate up to four additional HV movements to Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection for a period of up to 10 months;
- Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection have previously been assessed as suitable to accommodate 25 m B-double movements. Both the Oxley Highway and Rushes Creek Road are approved 25/26 m B-double routes. The construction phase of the development will utilise design vehicles of up to 20 m articulated vehicle size and additional fuel deliveries will be conducted using heavy rigid vehicles, both of which are smaller than the assessed 25 m B-double design vehicle; and
- A turn warrant assessment of the Oxley Highway/Rushes Creek Road intersection conducted using the 2025 design traffic volumes demonstrates that the existing intersection form is suitable to accommodate the anticipated peak hour traffic demands generated by Modification 3.

Based on the above, SLR (2021d) concluded no specific safety measures are required to accommodate the traffic demands associated with Modification 3 beyond those included in the approved CTMP.

6.3.2 Updated CTMP

While SLR (2021d) concludes that the traffic engineering implications of Modification 3 are minor and will only be for a short-term period, as requested by TfNSW, SLR has updated the CTMP to cover the modification. A copy of the updated CTMP (SLR 2021e) is appended to the Traffic Assessment in **Appendix D**, and a summary of the updates is provided in **Table 16**.

Table 16 CTMP Updates

CTMP Section	Description of Update
Section 1.4 Previous Traffic Assessment	Updated to reference the traffic assessment for Modification 3
Section 2.4 Modification 3	New section providing a description of Modification 3
Section 3.1 Construction Activities and Staging	Updated to reflect Modification 3 staging and timing
Section 3.6 Modification 3 Traffic Demands	New section providing details of Modification 3 traffic demands
Section 5.2 Rushes Creek Road and Oxley Highway Intersection	Updated to consider Modification 3 traffic demands
Section 5.3 Mitigation Measures	Updated to consider Modification 3 traffic demands
Section 8 Summary	Updated to reflect Modification 3 staging, timing and traffic demands
Appendix B Road Authority Consultation Summary and Appendix C Evidence of Consultation	Updated to include pre-lodgement advice from TfNSW in relation to Modification 3
Appendix D Indicative Construction Staging Plans	Updated to reflect location of operational car parking area

Furthermore, an *Operational Driver Code of Conduct* prepared by SLR (2021f) in accordance with consent condition B14 has recently been submitted to DPIE for approval.

6.4 Surface Water

There are no notable surface water bodies or tributaries within the bounds of the Development Site. As shown on **Figure 4**, there are several intermittent drainage lines that traverse the Site, along with several farm dams. Runoff to the east of the ridgeline trending southeast-northwest through the centre of the Development Site is directed to the Namoi River via contour banks and shallow swales. Runoff to the west of this ridgeline is channelled to Lake Keepit through drainage lines in the south, west and southwest of the Development Site.

The potential for adverse impact to surface water resources as a result of Modification 3 is minimal. Given the controlled environment in which Farm 2 will operate, including an engineered surface water management system, best management practices and mitigation measures, there is a low risk to local water resources and no detectable impact is expected. Points to note in relation to Modification 3:

- The infrastructure items proposed to be repositioned at Farm 2 and the proposed new infrastructure items at Farm 2 will not increase the disturbance area. These items are all within the approved development footprint and within the controlled surface water management area, with the exception of the repositioned dead bird freezer and realigned access road to the farm managers' houses (both currently approved outside of the controlled surface water management area). The dead bird freezer will be fully enclosed, and appropriate erosion and sediment controls will be installed for the realigned access road.
- The proposed new diesel generator and diesel tank at the water supply pump will be positioned over 40 m back from the Namoi River adjacent to the currently approved water pump site. This infrastructure will not impact on the width or functioning of the riparian corridor or stability of the watercourse.
- The 4,000 L diesel storage tank at Farm 2 and the proposed new 2,000 L diesel storage tank at the water pump will be appropriately bunded and will meet relevant AS. The bund volume will be 110% of the respective tank volume.
- In accordance with consent conditions B17 and B18 and the approved CEMP, clean water diversions and erosion and sediment controls are being progressively installed prior to commencing surface disturbance activities in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom 2004) (the "Blue Book") and *Erosion and Sediment Control on Unsealed Roads* (Office of Environment and Heritage 2012) to ensure no off-site impacts. Refer to the ESCPs appended to the approved CEMP for specific detail. These ESCPs will be updated to cater for the minor changes proposed, primarily the realigned access road to the farm manager houses.
- Disturbed areas that will not be sealed or actively utilised for operational activities will be promptly rehabilitated to a stable landform and revegetated in a progressive manner to minimise exposed surfaces in accordance with the approved CEMP.

Modification 3 does not warrant any additional surface water controls. The development design controls and mitigation and management measures listed in the approved Summary of Commitments and CEMP will continue to be implemented to minimise the potential for surface water impacts during construction. The *Water Management Plan* (WMP) being prepared in accordance with consent condition B22 for approval prior to commencing operations will include operational surface water management and monitoring requirements.

6.5 Groundwater

The *Groundwater Bore Baseline Assessment* (SLR 2017) completed for the EIS identified the following in relation to the groundwater and strata beneath the Development Site:

- The shallow alluvial groundwater source is confined to the Namoi River channel itself and does not extend into the Development Site.
- The deeper fractured rock groundwater source is generally between 10 and 20 metres below ground level (mbgl) across the Development Site and the water bearing zones are found at depths between 31.5 and 103.6 mbgl (as recorded in bore drill logs), indicating confined aquifer conditions.
- Bore drill logs indicate the presence of a weathered clay-rich regolith layer between 0.5 and 3 m thick approximately 2 m below the surface immediately above basement rocks. The conceptual understanding is that this layer exists across the Site and regional area acting as an aquitard (geological formation that may contain groundwater however is not capable of transmitting significant quantities under normal hydraulic gradients). Its presence would restrict any downward movement into the groundwater system and confine the water bearing strata.

Modification 3 does not pose any risk to groundwater resources and no additional controls are required. The mitigation and management measures listed in the approved Summary of Commitments and CEMP will continue to be implemented to minimise the potential for groundwater impacts during construction. The WMP being prepared in accordance with consent condition B22 for approval prior to commencing operations will include operational groundwater management and monitoring requirements.

6.6 Biodiversity

ProTen has purchased and retired 29 White Box grassy woodlands credits to offset the disturbance of 1.17 ha of White Box grassy woodland - Derived Native Grassland approved in Stage 2 of the Development and, as such, has satisfied consent conditions B37 and B39(a).

All components of Modification 3, including the infrastructure items proposed to be repositioned and the proposed new infrastructure items, are all located within an area of non-native groundcover (see **Figure 13**) and are removed from significant vegetation communities, threatened species and hollow-bearing trees. Modification 3 does not pose any additional biodiversity impacts and no additional controls are required.

The measures listed in the approved Summary of Commitments and approved CEMP will be implemented to minimise any indirect risks to biodiversity during construction. The *Operational Environmental Management Plan* (OEMP) being prepared in accordance with consent conditions C5 to C7 for approval prior to commencing operations will include mitigation and management measures (as per the Summary of Commitment) to safeguard local biodiversity during the operational phase.

6.7 Aboriginal Heritage

The following Aboriginal heritage management works have been completed by OzArk and a representative of the Registered Aboriginal Parties in accordance with the approved ACHMP (OzArk 2021a) for Stage 1 of the Development:

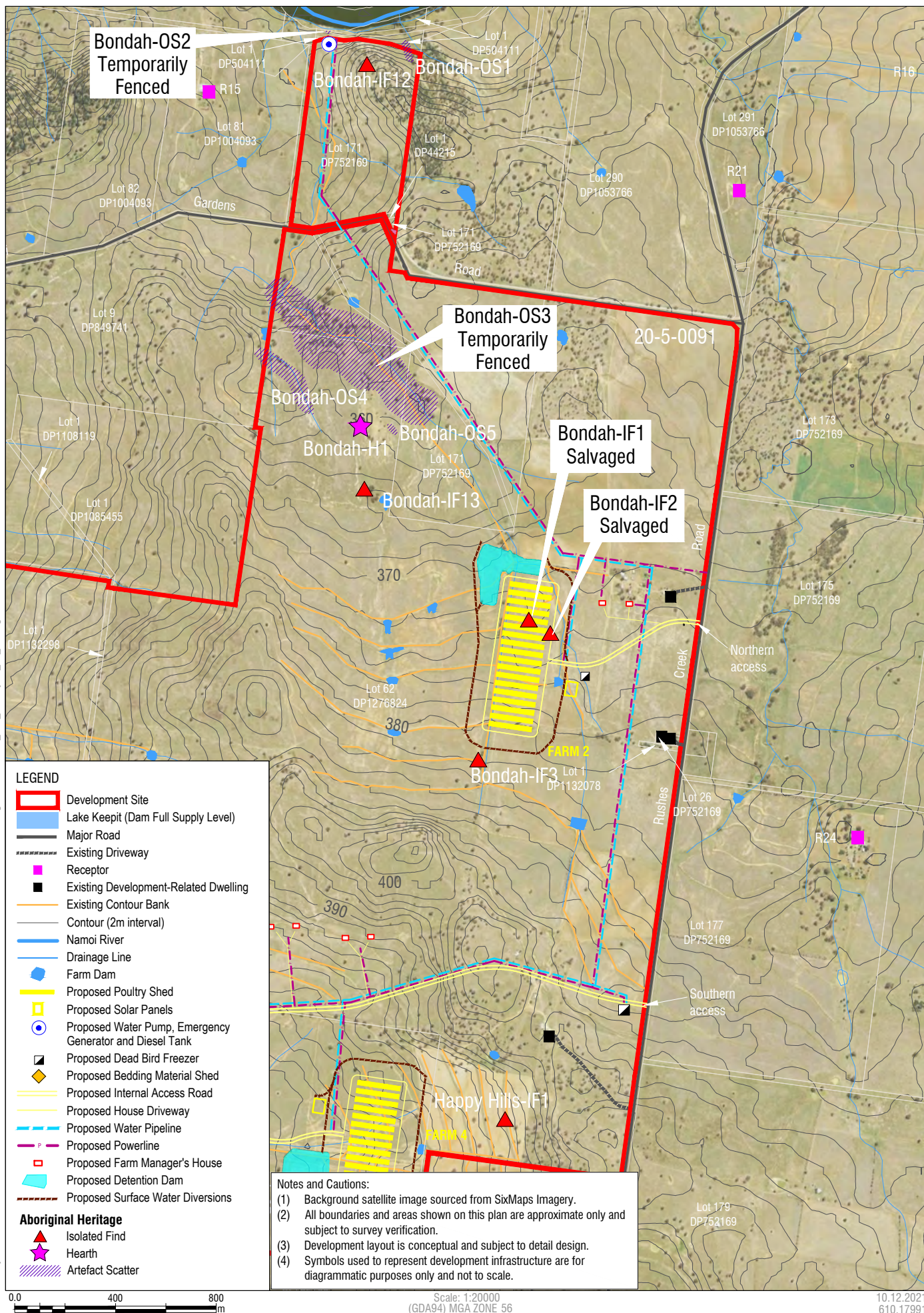
- The two Aboriginal heritage sites within the Stage 1 disturbance footprint identified as Bondah-IF1 and Bondah-IF2, which were to be salvaged by surface collection, have now been listed with the *Aboriginal Heritage Information Management System* as destroyed with no further requirements. The artefacts were unable to be located during the salvage.
- A further two Aboriginal heritage sites that are in close proximity to the Stage 1 disturbance footprint identified as Bondah-OS2 and Bondah-OS3 have been temporarily fenced with a 10 m buffer and signage installed to avoid unintentional impact during Stage 1 construction.
- The three Aboriginal scarred trees within the Development Site identified as Happy Hills-ST1, Happy Hills-ST2 and Happy Hills-ST3 have been permanently fenced with a 5 m buffer and signage installed. While these trees are removed from the disturbance footprint, fencing was requested by the Registered Aboriginal Parties.

The *Aboriginal Cultural Heritage Salvage Report* (OzArk 2021b) was submitted to Heritage NSW in early October 2021, and OzArk is currently updating the approved ACHMP accordingly.

Given the salvage and fencing works for Stage 1 of the Development have been completed, the components of Modification 3 do not pose any risk to Aboriginal heritage. The infrastructure items proposed to be repositioned and the proposed new infrastructure items are removed from any previously identified Aboriginal heritage sites.



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The measures listed in the approved Summary of Commitments, CEMP and ACHMP will continue to be implemented to safeguard Aboriginal heritage. The OEMP being prepared in accordance with consent conditions C5 to C7 for approval prior to commencing operations will also include mitigation and management measures (in accordance with the ACHMP) to safeguard Aboriginal heritage during the operational phase.

6.8 Noise

Global Acoustics was engaged to undertake an assessment of potential noise impacts associated with Modification 3 in accordance with *Interim Construction Noise Guideline* (Department of Environment and Climate Change 2009), *Noise Policy for Industry* (EPA 2017) and the *NSW Road Noise Policy* (Department of Environment, Climate Change and Water 2011). A copy of Global Acoustics' assessment report is provided in **Appendix E**, with the key findings summarised in the below sub-sections.

The following should be referred to for details on the previously assessed and approved noise impacts:

- *Noise Impact Assessment* (Global Acoustics 2018) (2018 NIA) prepared as part of the EIS; and
- *ProTen Rushes Creek Poultry Production Complex NIA regulator and community response* (Global Acoustics 2019) prepared as part of the RTS.

Key terminologies relevant to understanding noise include:

- dB – decibel, which is the noise level measurement unit.
- RBL - rating background level, which is the background noise level for a period (day, evening, night).
- LAeq - A-weighted equivalent noise level, which is essentially the average noise level.

6.8.1 Assessment Criteria

Table 17 summarises the noise impact assessment criteria previously adopted for the Development.

Table 17 Noise Impact Criteria

Period	Adopted RBL (dB)	Criterion L _{Aeq,15min} (dB)
Construction Noise		
Standard construction hours	30	L _{Aeq,15min} 40
Operation Noise		
Day (7:00 am to 6:00 pm)	30	L _{Aeq} 35
Evening (6:00 pm to 10:00 pm)		L _{Aeq} 35
Night (10:00 pm to 7:00 am)		L _{Aeq} 35
Sleep Disturbance Noise		
Night (10:00 pm to 7:00 am)	30	L _{A1,1min} 45
Traffic Noise		
Day (7:00 am to 10:00 pm)	-	L _{Aeq,15hour} 60
Night (10:00 pm to 7:00 am)		L _{Aeq,9hour} 55

6.8.2 Impact Assessment

Details on the modelling methodology used by Global Acoustics for the assessment of potential noise impacts, including for Modification 3, are provided in the 2018 NIA. Notably, neutral and enhancing meteorological conditions were considered for each construction and operational assessment scenario. Gradient winds were assessed with a 3 m/s source to receiver wind and stability class D conditions. Temperature inversion conditions were assessed with a 2 m/s drainage flow wind and stability class F conditions.

Global Acoustics (2021) identified that the following aspects of Modification 3 with potential noise implications:

- Operation of Farm 2 and the water supply pump using diesel generators for up to 10 months, and the associated increased diesel deliveries for up to 10 months; and
- Concurrent construction and operation at Farm 2 for up to 10 months.

Global Acoustics (2021) notes that the 2018 NIA assessed worst-case construction and operation impacts for the overall Development (i.e. Stages 1 and 2), whereas Modification 3 relates only to Stage 1. During the proposed 10 month period of concurrent construction and operation and 10 month period of generator use, only Farm 2 will be operating (i.e. approximately one-third of the total noise sources assessed in the EIS). As such, the modelling undertaken by Global Acoustics (2021) for Modification 3 is conservative in that it includes noise sources from Farms 1 to 4 (not just Farm 2).

Farm 2 and Water Pump Diesel Generators

The approved emergency diesel generators at Farms 1 to 4 were not included as a noise source in the 2018 NIA as they were for emergency backup use only. Global Acoustics addressed this in the RTS advising:

The total sound power for three generators operating at one PPU (i.e. 102 dB) will cause an increase of less than 0.5 dB to the sound power of each PPU, and to offsite noise levels. An increase in PPU sound power levels of less than 0.5 dB will not be noticeable offsite and noise levels will remain in compliance with operational noise criteria at each receptor considered in the NIA.

However, given the proposal to power Stage 1 using diesel generators for up to 10 months, Global Acoustics (2021) has updated the worst-case operational noise scenario considered in the 2018 NIA. The updated scenario now comprises the worst-case intermittent noise source of feed silo refilling, worst-case continuous operational noise sources and the proposed two 440 kVA generators at Farm 2 and the proposed 45 kVA generator at the water pump operating continuously at full capacity.

Table 18 lists the predicted impacts from this updated worst-case operational noise scenario during neutral and enhancing atmospheric conditions at the nearest sensitive receptors (see **Figure 3**). The predicted levels comply with the assessment criterion of 35 dB, with the highest impact predicted at receptor R25 during source to receiver wind conditions at 35 dB. Note that this updated scenario is conservative in that it includes the noise sources from Farms 1 to 4 (even though Farms 1, 3 and 4 will not be operational over this time) and will be for a maximum of 10 months.

Table 18 Predicted Worst-Case Operational Noise Levels

Receptor ID	Criterion L _{Aeq,15min} (dB)	Noise Levels L _{Aeq,15min} (dB)		
		Neutral Conditions	Source to Receiver Wind Conditions	Temperature Inversion Conditions
R15	35	24	28	28
R16		<20	<20	<20
R17		21	24	24
R20		22	26	26
R21		26	31	31
R22		<20	<20	<20
R23		<20	<20	<20
R24		29	34	32
R25		30	35	30

Concurrent Construction and Operation

In relation to the proposed 10 month period of concurrent construction and partial operations at Farm 2, earthworks are currently underway and are due to be completed in January 2022. As such, the primary noise generating construction activities will be completed prior to the poultry farm commencing partial operations in around mid-February 2022. Global Acoustics (2021) advises that the construction works scheduled after this time are expected to have a lower impact than the worst-case construction scenario assessed in the 2018 NIA.

Worst-case cumulative noise impacts from concurrent construction and operational activities have been conservatively assessed by Global Acoustics (2021) by combining the worst-case earthworks construction scenario from the 2018 NIA with the updated worst-case operational noise scenario (including generators) assessed above. **Table 19** lists the predicted worst-case impacts from concurrent construction and operations during neutral and enhancing atmospheric conditions at the nearest sensitive receptors. The predicted levels comply with assessment criterion of 40 dB, with the highest impact predicted at receptor R24 during source to receiver wind conditions at 38 dB. Note that this scenario will be for a maximum of 10 months from commencing partial operations at Farm 2 after which time construction works at Farm 2 will be completed.

Table 19 Predicted Worst-Case Concurrent Construction and Operational Noise Levels

Receptor ID	Criterion L _{Aeq,15min} (dB)	Noise Levels L _{Aeq,15min} (dB)		
		Neutral Conditions	Source to Receiver Wind Conditions	Temperature Inversion Conditions
R15	40	24	28	28
R16		22	26	26
R17		21	24	24
R20		22	26	26
R21		27	33	33
R22		21	25	25
R23		21	25	25
R24		33	38	34
R25		30	35	30

Additional Diesel Deliveries

Noise from road traffic generated by the Development was assessed in the 2018 NIA. As addressed in **Section 6.3.1**, Modification 3 is anticipated to generate up to 60 additional LV movements and up to four additional HV movements on a daily basis over the 10 month period. This represents an increase of around 13% to the total development traffic generation previously assessed and approved. Global Acoustics (2021) advises that a 13% increase in daily traffic movements is equivalent to approximately 0.5 dB in road traffic noise levels and there is no predicted exceedance of road traffic noise limits.

The majority of additional traffic associated with Modification 3 are LV movements expected to occur during normal construction hours. Global Acoustics (2021) notes that HV movements are more significant than LV movements in the generation of road traffic noise. Global Acoustics (2021) also notes that operations will only be approximately one-third of full production (i.e. Farm 2 only) during Modification 3 and, as such, operational noise is expected to be lower than that previously assessed and approved.

6.8.3 Conclusion

Global Acoustics (2021) concludes that the changes associated with Modification 3 should not materially change noise emission levels from the Development Site compared to those previously assessed and approved. Predicted noise increases are minimal and will be short-term for up to 10 months.

Modification 3 does not warrant any additional noise controls. The best management practices and mitigation measures listed in the approved Summary of Commitments and approved CEMP will continue to be implemented to minimise the potential for noise emissions and impacts during Stage 1 construction. The OEMP being prepared in accordance with consent conditions C5 to C7 for approval prior to commencing operations will include operational noise mitigation and management practices (in accordance with the Summary of Commitments).

6.9 Hazard and Risk

GHD was engaged to undertake an assessment of potential implications of Modification 3 in relation to the findings and requirements of the previously approved *Fire Safety Study* (GHD 2021a) (FSS) and *Final Hazard Analysis* (GHD 2021b) (FHA). A copy of GHD's assessment report is provided in **Appendix F**, with the key findings summarised in **Table 20**.

Table 20 Modification Implications for FSS and FHA

Modification Component	Impact on FSS and/or FHA Findings
Minor amendments to the positioning of ancillaries at Farm 2.	No impact on the FSS or FHA. LPG tanks assessed in the FSS will remain at the specified distances from the poultry sheds.
Additional emergency standby diesel generator capacity at Farm 2 comprising four 440 kVA generators (in place of previously approved three 390 kVA generators). No change to diesel storage volume.	No impact on FSS or FHA.
Diesel storage at Farm 2 to be one 4,000 L tank (in place of previously approved two 2,000 L tanks).	Diesel storage volume capacity will remain the same. Provision of a single tank in lieu of two smaller tanks does not impact the FSS or FHA.
Addition of a 45 kVA emergency standby diesel generator and 2,000 L diesel storage tank at the water supply pump near the Namoi River.	<i>Preliminary Hazard Analysis</i> (SLR 2018c) notes that diesel storage is permitted up to a threshold of 100,000 L. The additional 2,000 L storage at the water pump will not exceed this threshold or impact the FSS or FHA.

Modification Component	Impact on FSS and/or FHA Findings
Concurrent construction and operation at Farm 2 for up to 10 months.	No impact on FSS or FHA. Fire hydrants are to be commissioned and operational prior to any operation of Farm 2.
Reliance on diesel generators to operate Farm 2 and the river water pump for up to 10 months.	No impact on FSS or FHA. Low level alarms will be fitted to the water storage tanks at approximately two-thirds full capacity and will alarm if the water level drops below this point.

GHD (2021c) concludes that Modification 3 will not have any material impact to the approved FSS or FHA. The following requirements, which have been previously committed to, are noted by GHD (2021c):

- Fire hydrants will be installed and operational prior to commencing operations at Farm 2; and
- Low level alarms will be fitted to the water storage tanks prior to commencing operations at Farm 2 at approximately two-thirds full capacity and will alarm if the water level drops below this point.

Modification 3 does not warrant any additional controls. The development design features, best management practices and mitigation measures listed in the approved Summary of Commitments and CEMP will continue to be implemented to minimise the potential for hazards/risks. The OEMP being prepared in accordance with consent conditions C5 to C7 and the *Emergency Plan* being prepared in accordance with condition B41 will include operational hazard/risk mitigation and management practices.

6.10 Visual Amenity

There is no aspect of Modification 3 that poses any visual amenity impact over and above those previously assessed and approved. The infrastructure items proposed to be repositioned and the proposed new infrastructure items are within or within close proximity to the existing development footprint and will not increase the visibility of the approved poultry farm. It will remain consistent with what has been previously assessed and approved.

Modification 3 does not warrant any additional visual amenity controls. The development design features, best management practices and mitigation measures listed in the approved Summary of Commitments will be implemented to minimise the potential for visual amenity impacts. While the vegetation screen around the perimeter of Farm 2 will be adjusted to accommodate the proposed repositioning of ancillaries, it will comprise approximately the same area and achieve the same functions of visual screening, odour dispersion and dust deposition.

6.11 Energy Use and Greenhouse Gas

ProTen endeavours to reduce energy consumption at all their poultry operations. As research and development identifies areas where energy efficiency can be improved, ProTen implements appropriate updates/changes where practicable. The EIS for the Rushes Creek poultry farm was prepared based on all operational power requirements of the Development being met by solar panels and connection to Essential Energy's reticulated electricity supply network, which requires extension of Essential Energy's overhead supply infrastructure from Manilla. However, ProTen is now pursuing an option to take the development completely off-grid with a solar and battery solution (subject to a separate modification application and approval). This would deliver notable environmental benefits associated with:

- Avoiding the need to extend Essential Energy's overhead supply infrastructure approximately 17 km from Manilla to the Development Site through various privately-owned properties and public lands to the Development Site; and

- Powering the poultry farm using renewable solar energy, which will reduce greenhouse gas emissions and associated impacts.

Modification 3, if approved, will provide additional time for ProTen to secure the off-grid solar option in terms of design, approval, materials supply, installation and commissioning. If this occurs, the Rushes Creek poultry farm will be powered by renewable energy, which will reduce greenhouse gas emissions and associated environmental impacts.

6.12 Social

The potential for adverse impacts on the social amenity of the area is primarily associated with those resulting from odour, dust, traffic, noise and visual impacts. In the context of the Development, social amenity (due to its location and land use characteristics) means the intrinsic value that residents place on the area, including rural character, peace and quiet, visual amenity and access to major facilities.

Based on the findings and conclusions of this Modification Report, the potential for adverse impact on social amenity of the area as a result of Modification 3 is minimal. There will not be any change to the day-to-day life of surrounding residents and recreational land users, and no additional demand for community infrastructure, facilities or services. While there will be implications for air emissions, traffic generation and noise emissions, these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved.

6.13 Economic

Modification 3 will have positive economic implications for ProTen. It will:

- Allow development optimisations that will deliver long-term operational efficiencies and benefits, including a reduction in materials, reduction in initial establishment costs and improved long-term sustainability.
- Enable early commencement of operations at Farm 2 while construction is on-going to meet supply contracts and market demand. There is an increasing demand for broiler birds in the Australian market and an immediate need for additional broiler sheds in the Tamworth region to assist in meeting the market demand.

There is no evidence to suggest that Modification 3 will have any adverse economic implications for the surrounding landholders and residents or the wider community.

6.14 Cumulative

The Development Site is located in a rural area with no other notable intensive land use developments or operations nearby. The potential cumulative impacts associated with Modification 3 and the currently approved poultry farm development, being particulate matter emissions, traffic generation and noise emissions, have been assessed in the specialist impact assessments undertaken for this Modification Report contained in **Appendices C, D and E**, respectively, and summarised above in **Sections 6.2, 6.3 and 6.8**, respectively.

7 SUMMARY OF COMMITMENTS

Attached to Development Consent SSD 7704 as Appendix 2 is a consolidated summary of the development design features, mitigation measures and best management practices committed to by ProTen to avoid, mitigate and/or manage the potential impacts of the Development (i.e. the Summary of Commitments). A copy of the approved Summary of Commitments (updated in associated with Modification 1) is contained in **Appendix G**.

The Rushes Creek poultry farm development, as proposed to be modified, will be substantially the same development for which consent was originally granted under SSD 7704. Modification 3 does not involve any significant material changes to the construction, operation or management of the approved poultry farm. While the proposed modification will have implications for air emissions, traffic generation and noise emissions, these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved.

Consequently, Modification 3 does not warrant any additional mitigation or management measures and does not warrant any updates/amendments to the approved Summary of Commitments.

The mitigation and management measures listed in the approved Summary of Commitments and CEMP will continue to be implemented to minimise the potential for impacts during the Stage 1 construction phase. Additionally, there are various operational management plans, including the OEMP, AQMP, *Operational Driver Code of Conduct* and WMP, which will include mitigation measures and best management practices to safeguard the local environment and surrounding populace during the Stage 1 operational phase. Each of these management plans will be submitted to DPIE for approval by the Planning Secretary prior to commencing operations at Farm 2.

8 JUSTIFICATION AND CONCLUSION

This Modification Report has been prepared to accompany an application by ProTen seeking to modify Development Consent SSD 7704 for the Rushes Creek poultry production farm, under section 4.55(1A) of the EP&A Act to facilitate the following key objectives for Stage 1 of the Development (i.e. Farm 2 and associated ancillaries):

- Allow development optimisations that will deliver long-term operational efficiencies and benefits at Farm 2;
- Enable early commencement of operations at Farm 2 while construction is on-going to meet supply contracts and market demand; and
- Enable operational power requirements of Farm 2 to be met using diesel generators for up to 10 months while the alternative renewable power option is finalised, approved and commissioned.

Modification 3 has been assessed in this Modification Report in accordance with the context of the relevant environmental legislation and planning instruments, and the following is concluded:

- The poultry farm development, as proposed to be modified, will be substantially the same development for which consent was originally granted under SSD 7704. The modification does not involve any significant material changes to the construction, operation or management of the poultry farm, with the primary use and core characteristics of the approved development remaining the same.
- The modification will have implications for air emissions, noise emissions and traffic generation, however these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved. No additional mitigation or management measures are warranted.
- A modification under section 4.55(1A) of the EP&A Act appears to be a suitable and lawful approval pathway for the proposal.

The proposed modification is justified on environmental, social and economic grounds and it is consistent with the key objects of the EP&A Act. It will support the orderly and economic use and development of land for the approved poultry farm and promote good design through development optimisations, while at the same time protecting and managing valuable environmental and cultural resources. It will also provide additional time for ProTen to secure the off-grid solar option which would facilitate the poultry farm being powered by renewable energy and reduce greenhouse gas emissions and associated environmental impacts.

9 REFERENCES

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- EME Advisory (2019b) *Rushes Creek Poultry Production Farm, SSD 7704, Supplementary Response to Submissions*
- EME Advisory (2021a) *Rushes Creek Poultry Production Farm, SSD 7704, Section 4.55(1A) Modification Report*
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- EME Advisory (2021d) *Rushes Creek Poultry Production Farm, Development Consent SSD 7704, Community Consultation Plan*
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- SLR Consulting Australia (2017) *Rushes Creek Groundwater Bore Baseline Assessment*
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- SLR Consulting Australia (2018c) *SEPP 33 - Preliminary Risk Screening & Hazard Assessment, Intensive Livestock Agriculture, Rushes Creek*
- SLR Consulting Australia (2021a) *Construction Traffic Management Plan, Rushes Creek Poultry Production Farm*
- SLR Consulting Australia (2021b) *Revised Remedial Action Plan, Proposed Poultry Production Farm, Rushes Creek Road*
- SLR Consulting Australia (2021c) *Unexpected Finds Procedure – Contamination, Rushes Creek Poultry Production Farm*
- SLR Consulting Australia (2021d) *Rushes Creek Poultry Production Farm, Modification 3, Assessment of Traffic Matters*
- SLR Consulting Australia (2021e) *Construction Traffic Management Plan, Rushes Creek Poultry Production Farm*
- SLR Consulting Australia (2021f) *Operational Driver Code of Conduct, Rushes Creek Poultry Production Farm*

10 ABBREVIATIONS

ACHMP	Aboriginal Cultural Heritage Management Plan
Approved Methods	<i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW</i>
Astute	Astute Environmental Consulting
CEMP	Construction Environmental Management Plan
CO	carbon monoxide
CTMP	Construction Traffic Management Plan
Council	Tamworth Regional Council
dB	decibel
DP	Deposited Plan
DPiE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EME	EME Advisory
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ESCP	Erosion and Sediment Control Plan
FHA	Final Hazard Analysis
FSS	Fire Safety Study
Ha	hectare
km	kilometre
kVA	kilovolt amp
L	litre
LEP	Local Environmental Plan
LGA	local government area
LPG	liquid petroleum gas
m	metre
m/s	metres per second
m ²	square metre
mbgl	metres below ground level
NIA	Noise Impact Assessment
NO ₂	nitrogen dioxide
NRAR	Natural Resources Access Regulator
NSW	New South Wales
OEMP	Operational Environmental Management Plan
OzArk	OzArk Environment and Heritage
PM ₁₀	particulate matter less than 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter

POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PPU	poultry production unit
ProTen	ProTen Tamworth Pty Limited
RAP	Remedial Action Plan
RBL	rating background level
RTS	Response to Submissions
SEPP	State Environmental Planning Policy
SLR	SLR Consulting Australia
SSD	State significant development
Tamworth LEP	<i>Tamworth Regional Local Environmental Plan 2010</i>
TfNSW	Transport for NSW
USEPA	United States Environmental Protection Agency
vpd	vehicles per day
vph	vehicles per hour
WAL	water access licence
WMP	Water Management Plan

Appendix A

Data Sheets for Proposed Generators





INDUSTRIAL RANGE

AUSTRALIA Company with quality certification ISO 9001

AUSTRALIA gensets are compliant with EC mark which includes the following directives:

- 2006/42/CE Machinery safety.
- 2014/30/UE Electromagnetic compatibility.
- 2014/35/UE electrical equipment designed for use within certain voltage limits
- 2000/14/EC Sound Power level. Noise emissions outdoor equipment. (amended by 2005/88/EC)
- 97/68/EC Emissions of gaseous and particulate pollutants. (amended by 2012/46/EU)
- EN 12100, EN 13857, EN 60204

Ambient conditions of reference according to ISO 8528-1:2018 normative: 1000 mbar, 25°C, 30% relative humidity.

Prime Power (PRP):

According to ISO 8528-1:2018, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24 h of operation shall not exceed 70 % of the PRP.

Emergency Standby Power (ESP):

According to ISO 8528-1:2018, Emergency standby power is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24 h of operation shall not exceed 70 % of the ESP

Continuous Power (COP): According to Standard ISO 8528-1:2018, this is the maximum power available for continuous loads for unlimited running hours a year between the maintenance times recommended by the manufacturer under the environmental conditions established by the same.

G2 class load acceptance in accordance with ISO 8528-5:2018

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Manufacture facilities:

SPAIN • FRANCE • INDIA • CHINA • USA • BRAZIL • ARGENTINA

Subsidiaries:

PORTUGAL | POLAND | GERMANY | UK | SINGAPORE | UAE | PANAMA |
DOMINICAN REPUBLIC | ARGENTINA | ANGOLA | SOUTH AFRICA

SERVICE		PRP	ESP
POWER	kVA	402	440
POWER	kW	322	352
RATED SPEED	r.p.m.	1.500	
STANDARD VOLTAGE	V	400/230	
AVAILABLE VOLTAGES	V	230/132 · 230 V (t)	
RATED AT POWER FACTOR	Cos Phi	0,8	



STANDARD SOUNDPROOFING



G1



WATER-COOLED



THREE PHASE



50 HZ



DIESEL



STAGE 3A

Australia has the right to modify any feature without prior notice.

Weights and dimensions based on standard products. Illustrations may include optional equipment.

Technical data described in this catalogue correspond to the available information at the moment of printing.

The illustrations and images are indicative and may not coincide in their entirety with the product.

Industrial design under patent.



Engine Specifications | 1.500 r.p.m.

Rated Output (COP)	kW	269,6
Rated Output (PRP)	kW	342,6
Rated Output (ESP)	kW	377,6
Manufacturer	FPT_IVECO	
Model	C13TE2F	
Engine Type	4-stroke diesel	
Injection Type	Direct	
Aspiration Type	Turbocharged and after-cooled	
Number of cylinders and arrangement	6-L	
Bore and Stroke	mm	135 x 150
Displacement	L	12,88
Cooling System	Liquid (water + 50% glycol)	
Lube Oil Specifications	ACEA E3 - E5	
Compression Ratio	16,5:1	

Fuel Consumption ESP	l/h	97,4
Fuel Consumption 100% PRP	l/h	92,9
Fuel Consumption 80 % PRP	l/h	81
Fuel Consumption 50 % PRP	l/h	53
Lube oil consumption with full load	0,2 % of fuel consumption	
Total oil capacity including tubes, filters	L	35
Total coolant capacity	L	67
Governor	Type	Electrical
Air Filter	Type	Dry

- Diesel engine
- 4-stroke cycle
- Water-cooled
- 24V electrical system
- Water separator filter (no visible level)
- Dry air filter
- Radiator with pusher fan
- Radiator water level sensor
- HTW sender
- LOP sender
- Electronic governor
- Hot parts protection
- Moving parts protection



Generator Specifications | STAMFORD

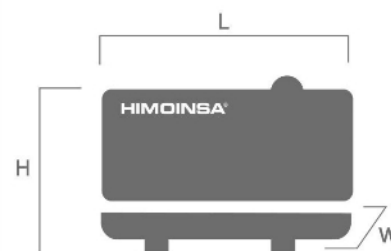
Manufacturer	STAMFORD	
Model	S4L1D.F41	
Poles	No.	4
Connection type (standard)	Star-series	
Mounting type	S-1 14"	
Insulation	Class	H class

Enclosure (according IEC-34-5)	IP23
Exciter system	Self-excited, brushless
Voltage regulator	A.V.R. (Electronic)
Bracket type	Single bearing
Coupling system	Flexible disc
Coating type	Standard (Vacuum impregnation)

- Self-excited and self-regulated
- 4 poles
- AVR governor
- IP23 protection
- H class insulation
- Single drive-shaft
- Flexible disc coupling

WEIGHT AND DIMENSIONS

		Standard Version	High Capacity version
Length (L)	mm	4.100	4.100
Height (H)	mm	2.200	2.600
Width (W)	mm	1.600	1.600
Maximum shipping volume	m ³	14,43	17,06
Weight with liquids in radiator and sump	Kg	4376	5011
Fuel tank capacity	L	597	1660
Autonomy	Hours	7	20
		Steel tank	Steel tank



SOUND PRESSURE

Sound pressure level	dB(A)@7m	68 ± 2,4
----------------------	----------	----------

APPLICATION DATA

EXHAUST SYSTEM

Maximum exhaust temperature	°C	520
Maximum allowed back pressure	kPa	5
Exhaust Flange Size (external diameter)	mm	140
Heat dissipated by exhaust pipe	KCal/Kwh	591

NECESSARY AMOUNT OF AIR

Intake air flow	m ³ /h	1770
Cooling Air Flow	m ³ /s	9,1
Alternator fan air flow	m ³ /s	0,76

STARTING SYSTEM

Starting power	kW	5,5
Starting power	CV	7,48
Recommended battery	Ah	185 x 2
Auxiliary Voltage	Vdc	24

FUEL SYSTEM

Fuel Oil Specifications		Diesel
Fuel Tank	L	597
Other fuel tank capacities	L	1.660



Soundproofed version

- Steel chassis
- Anti-vibration shock absorbers
- Fuel tank
- Fuel level gauge
- External emergency stop switch
- Bodywork made from high quality steel plate
- High mechanical strength
- Low noise emissions level
- Soundproofing provided by high-density volcanic rock wool
- Epoxy polyester powder coating
- Full access for maintenance (water, oil and filters, no need to remove the canopy)
- Reinforced lifting hooks for crane hoisting
- Watertight chassis (acts as a double barrier against liquid retention)
- Fuel tank drain plug
- Chassis drain plug
- Chassis ready for future mobile kit installation
- Steel residential silencer -35db(A) attenuation.
- Oil sump extraction kit
- Versatility to assemble a high capacity chassis with a metallic fuel tank
- IP Protection according to ISO 8528-13:2016
- 3 way valve for external fuel supply (available in 1/2" and 3/8" fittings) (Optional).
- Fuel transfer pump (Optional).

Automatic Controller- CEM7

The CEM7 is an Auto-start digital controller which is equipped on Himoinsa generator sets, which is able to control the operation, monitoring and protection of a generator-set.



Controller Display:

- Voltage between each Phase & Neutral
- Voltage between Phases
- Current (amps) on each Phase
- Frequency
- Active, Apparent, & Reactive Power
- Power Factor
- Instant Power (kWh) and Accumulative power
- Fuel level
- Oil pressure, coolant temperature
- Battery voltage, battery charging alternator voltage
- Engine Speed
- Hours running

Engine Alarms:

- High coolant temperature
- Low oil pressure
- Emergency stop
- Battery charging alternator
- Low coolant level
- Over Speed
- Under speed
- Low fuel level by sensor
- Battery low voltage

Generator Alarms:

- Over-load
- Unbalanced voltage
- Over-voltage
- Under-voltage
- Over-frequency
- Under-frequency
- Short-circuit
- Inverse Power
- Asymmetry among phases

Optional Sockets Boxes

Position: Mounted in rear panel, above alternator.

Socket Boxes CBR40



Socket type

3 x 15A 2P + T
1 x 32A 3P + N + T

Socket Boxes CBR41



Socket type

3 x 15A 2P + T
2 x 32A 3P + N + T



CONTROL PANELS



M5

Digital manual Auto-Start control panel and thermal magnetic protection (depending on current and voltage) and differential with CEM7.

Digital control unit CEM7



AS5

Automatic panel WITHOUT transfer switch and WITHOUT mains control with CEM7 unit. (*) AS5 as optional with CEA7 unit. Automatic panel without transfer switch and WITH mains control.



CC2

Himoinsa Switching cabinet WITH display.

Digital control unit CEC7



AS5 + CC2

Automatic panel WITH transfer switch and with mains control. The display will be on the genset and on the cabinet.

Digital control unit CEM7+CEC7



AC5

Automatic mains failure control panel. Wall-mounted cabinet WITH transfer switch and thermal magnetic protection (depending on current and voltage).

Digital control unit CEA7



Electrical system

- Electric control and power panel with measurements devices and control unit (according to necessity and configuration)
- 4-pole thermal magnetic circuit breaker
- Battery Switch
- Adjustable earth leakage protection (time & sensitivity) standard in M5 and AS5, with thermal magnetic protection
- Battery charger (standard on gensets with automatic control panels)
- Heating resistor (standard on sets with automatic control panels)
- Battery charger alternator with ground connection
- Starter battery/ies installed (cables and bracket included)
- Ground connection electrical installation with connection ready for ground spike (not supplied)

HIMOINSA A YANMAR COMPANY	Technical testing	Date:	11/05/2021
	Acoustic Study	Review :	1.0
	I+D+I Department	Directive:	2000/14/CE

GENERATING SET - STANDARD SOUNDPROOFING - G1 - DIESEL

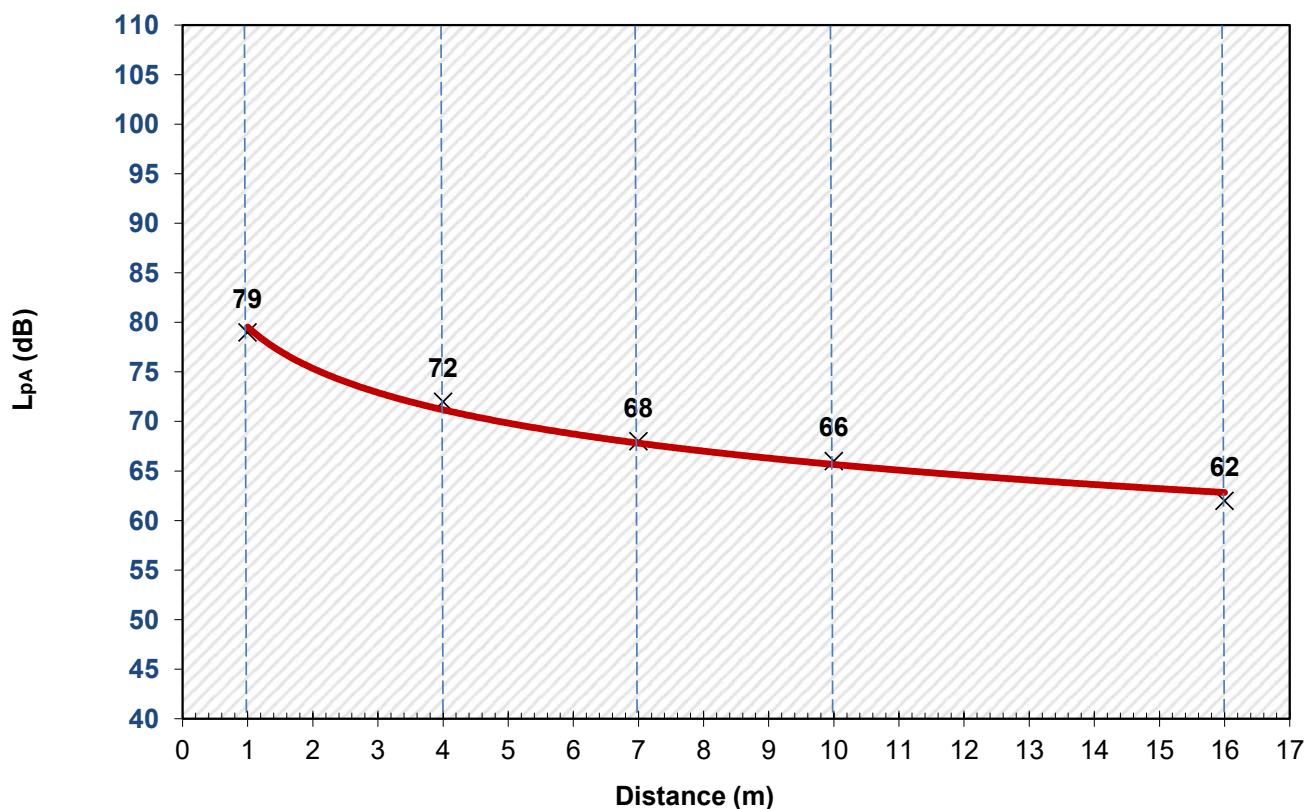
MODEL:	HFW-400 T5	TYPE:	☒ ☐ ☐ ☒ ☐
ENGINE:	FPT_IVECO	MODEL:	C13TE2F
ALTERNATOR:	STAMFORD	MODEL:	S4L1D.F41
POWER COP (kVA):	-	DIMENSIONS (mm):	4100 X 1600 X 2200 (length x width x height)
POWER COP (kW):	-	MANUFACTURING:	HIMOINSA 2021
Measurements made with verified sound level meter (ISO 9001:2015)			

RESULTS

* LWA (dB)	97
Uncertainty	2,3

** Distance (m)	1	4	7	10	16
LpA (dB)	79	72	68	66	62

Sound pressure level according to the distance



Sound pressure level according 2000/14/CE directive

* LWA: guaranteed power level.

** The distance in meters from the noise measurement is based on the parallelepiped method.

Review 03 02/2021



HIMOinsa



MODEL
HYW-45 T5
INDUSTRIAL RANGE
Standard soundproofing
Powered by YANMAR

- B10
- WATER-COOLED
- THREE PHASE
- 50 HZ
- STAGE 2
- DIESEL

Generating Rates



SERVICE		PRP	STANDBY
Power	kVA	41	45
Power	kW	33	36
Rated Speed	r.p.m.	1.500	
Standard Voltage	V	240/415	
Available Voltages	V	220/380-230/400	
Rated at power factor	Cos Phi	0.8	

01

HIMOinsa Company with quality certification ISO 9001

HIMOinsa gensets are compliant with EC mark which includes the following directives:

- 2006/42/CE Machinery safety.
- 2014/30/UE Electromagnetic compatibility.
- 2014/35/UE electrical equipment designed for use within certain voltage limits
- 2000/14/EC Sound Power level. Noise emissions outdoor equipment. (amended by 2005/88/EC)
- EN 12100, EN 13857, EN 60204

Ambient conditions of reference according to ISO 8528-1:2005 normative: 1000 mbar, 25°C, 30% relative humidity.

Prime Power (PRP):

According to ISO 8528-1:2005, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24 h of operation shall not exceed 70 % of the PRP.

Emergency Standby Power (ESP):

According to ISO 8528-1:2005, Emergency standby power is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24 h of operation shall not exceed 70 % of the ESP

G2 class load acceptance in accordance with ISO 8528-5:2013

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Engine Specifications 1.500 r.p.m.

ENGINE		PRP	STANDBY
Rated Output	kW	37,7	41,4
Manufacturer		YANMAR	
Model		4TNV98TGGEH	
Engine Type		4-stroke diesel	
Injection Type		Direct	
Aspiration Type		Turbocharged	
Number of cylinders and arrangement		4-L	
Bore and Stroke	mm	98 x 110	
Displacement	L	3,319	
Cooling System		Coolant	
Lube Oil Specifications		SAE 3 class 10W30 / API grade CD,CF	
Compression Ratio		18,1	
Fuel Consumption Standby	l/h	10,11	
Fuel Consumption 100% PRP	l/h	9,16	
Fuel Consumption 75 % PRP	l/h	6,94	
Fuel Consumption 50 % PRP	l/h	4,89	
Lube oil consumption with full load	g/kWh	0,27	
Total oil capacity	L	10,5	
Total coolant capacity	L	9	
Governor	Type	Mechanical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	45	

Generator

Generator		
Manufacturer		MECCALTE
Poles	No.	4
Connection type (standard)		Star-series
Mounting type		S-3 11"1/2
Insulation	Class	H class
Enclosure (according IEC-34-5)		IP23
Exciter system		Self-excited, brushless
Voltage regulator		A.V.R. (Electronic)
Bracket type		Single bearing
Coupling system		Flexible disc
Coating type		Standard (Vacuum impregnation)



Application Data

Exhaust System		
Maximum exhaust temperature	°C	480
Exhaust Gas Flow	m ³ /min	10,45
Maximum allowed back pressure	mm H ₂ O	1000
Exhaust Flange Size (external diameter)	mm	65

Necessary Amount Of Air		
Intake air flow	m ³ /h	194,16
Cooling Air Flow	m ³ /s	0,979
Alternator fan air flow	m ³ /s	0,09

Starting System		
Starting power	kW	2,3
Starting power	CV	3,13
Recommended battery	Ah	92
Auxiliary Voltage	Vdc	12

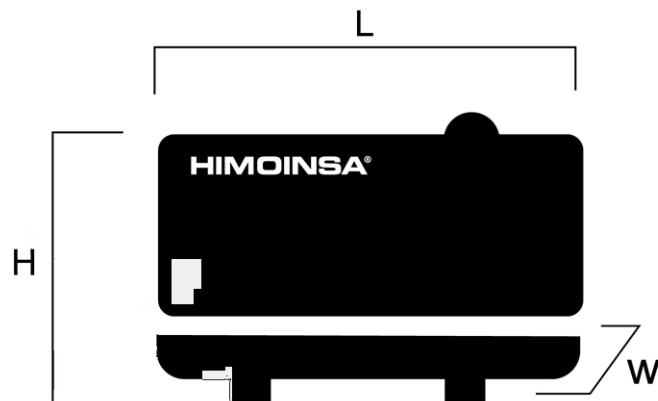
Fuel System		
Fuel Oil Specifications		Diesel
Fuel Tank	L	190



HIMOINSA

MODEL
HYW-45 T5
INDUSTRIAL RANGE
Standard soundproofing
Powered by YANMAR

Dimensions



B10 Weight and Dimensions			
(L) Length	mm	2.100	
(H) Height	mm	1.410	
(W) Width	mm	975	
Maximum shipping volume		m ³	2,89
(*) Weight with liquids in radiator and sump	kg	1.011	
Fuel tank capacity		L	190
Autonomy		Hours	27
Sound pressure level		dB(A)@7m	62 ± 2,3
(*) (with standard accessories)		HIGH CAPACITY VERSION (Steel tank)	

Australia has the right to modify any feature without prior notice.
Weights and dimensions based on standard products. Illustrations may include optional equipment.
Technical data described in this catalogue correspond to the available information at the moment of printing.
Industrial design under patent.

Local Distributor





HIMOINSA

MODEL
HYW-45 T5
INDUSTRIAL RANGE
Standard soundproofing
Powered by YANMAR

Control Panel M7

Control & Power Panel

1. CM Control Panel.
2. CP Power Panel.
3. On/Off Switch..
4. Emergency Stop.
5. Main Line Circuit Breaker for overload protection.
6. Main bus /hardwire connection panel with safety protection.



M7 Key-start control panel

The M7 device is a monitoring and control electronic system for electrical engine generator sets .

The M7 device is a compact module place in the front panel that develops the following features :

- User's interface. The M7 controller provides information about the status of the generator set and, at the same time, allows the user to interact with it; using M7 keyboard, user is able to configure the functions of the unit.

M7 controller allows to check the last 100 failures registered and a detailed information of the generator set of the last 10 failures.

- Generator set control. M7 controller keep the generator set in working order, including engine control and electrical signal monitoring the generator set, including engine and electrical signal. Every signal, sensor and actuator is connected to the rear part of the M device.

Generator set signals

- Phase to neutral voltage
- Phase to Phase voltage
- Phase current
- Frequency
- Real, apparent and reactive power
- power factor

Engine signals

- Fuel reserve
- Oil pressure
- High coolant temperature
- Coolant level
- Emergency stop
- Battery charger alternator voltage
- Battery voltage

Generator set outputs

- Preheating
- Engine control (fuel output or stop pulse)
- Crank output
- Battery charging alternator excitation.
- General warning output

05

Optional Automatic Controller CEM7

The CEM7 is an Auto-start digital controller which is equipped on Himoinsa generator sets, which is able to control the operation, monitoring and protection of a generator-set.



Controller Display:

- Voltage between each Phase& Neutral
- Voltage between Phases
- Current (amps) on each Phase
- Frequency
- Active, Apparent,& Reactive Power
- Power Factor
- Instant Power (kWh) and Accumulative power
- Fuel level
- Oil pressure, coolant temperature
- Battery voltage, battery charging alternator voltage
- Engine Speed
- Hours running

Engine Alarms:

- High coolant temperature
- Low oil pressure
- Emergency stop
- Battery charging alternator
- Low coolant level
- Over Speed
- Under speed
- Low fuel level by sensor
- Battery low voltage

Generator Alarms:

- Over-load
- Unbalanced voltage
- Over-voltage
- Under-voltage
- Over-frequency
- Under-frequency
- Short-circuit
- Inverse Power
- Asymmetry among phases





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Optional Sockets Boxes

Position: Mounted in rear panel, above alternator.

MODEL
HYW-45 T5
INDUSTRIAL RANGE
Standard soundproofing
Powered by YANMAR

Socket Boxes CBR40



Socket type
3 x 15A 2P + T
1 x 32A 3P + N + T

Socket Boxes CBR41



Socket type
3 x 15A 2P + T
2 x 32A 3P + N + T



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MODEL
HYW-45 T5
INDUSTRIAL RANGE
Standard soundproofing
Powered by YANMAR

Generator set features

Engine

- Diesel engine
- 4-stroke cycle
- Water-cooled
- 12V electrical system
- Radiator with blower fan
- Water separator filter (visible level)
- Mechanical governor
- Dry air filter
- Hot parts protection
- Moving parts protection

Alternator

- Self-excited and self-regulated
- IP23 protection
- H class insulation

Electrical system

- Electric control and power panel with measurements devices and control unit (according to necessity and configuration)
- 4-pole thermal magnetic circuit breaker
- Battery charger (standard on gensets with automatic control panels)
- Heating resistor (standard on sets with automatic control panels)
- Battery charger alternator with ground connection
- Starter battery/ies installed (cables and bracket included)
- Ground connection electrical installation with connection ready for ground spike (not supplied)
- Optional : · Battery isolator

Soundproofed version

- Steel chassis
- Anti-vibration shock absorbers
- Chassis with integrated fuel tank
- Fuel level gauge
- Emergency stop button
- Bodywork made from high quality steel plate
- High mechanical strength
- Low level of noise emissions
- Soundproofing provided by high-density volcanic rock wool
- Epoxy polyester powder coating
- Full access for maintenance (water, oil and filters, no need to remove the bonnet)
- Reinforced lifting hooks for crane hoisting
- Watertight chassis (acts as a double barrier against liquid retention)
- Fuel tank drain plug
- Chassis drain plug
- Chassis ready for future mobile kit installation
- Steel residential silencer -35db(A) attenuation.
- Oil sump extraction kit
- Versatility to assemble a high capacity chassis with a metallic fuel tank
- IP Protection according to ISO 8528-13:2016
- Optional : · Fuel transfer pump

HIMOINSA A YANMAR COMPANY	Technical testing	Date:	08/02/2021
	Acoustic Study	Review :	1.0
	I+D+I Department	Directive:	2000/14/CE

GENERATING SET - STANDARD SOUNDPROOFING - B10 - DIESEL

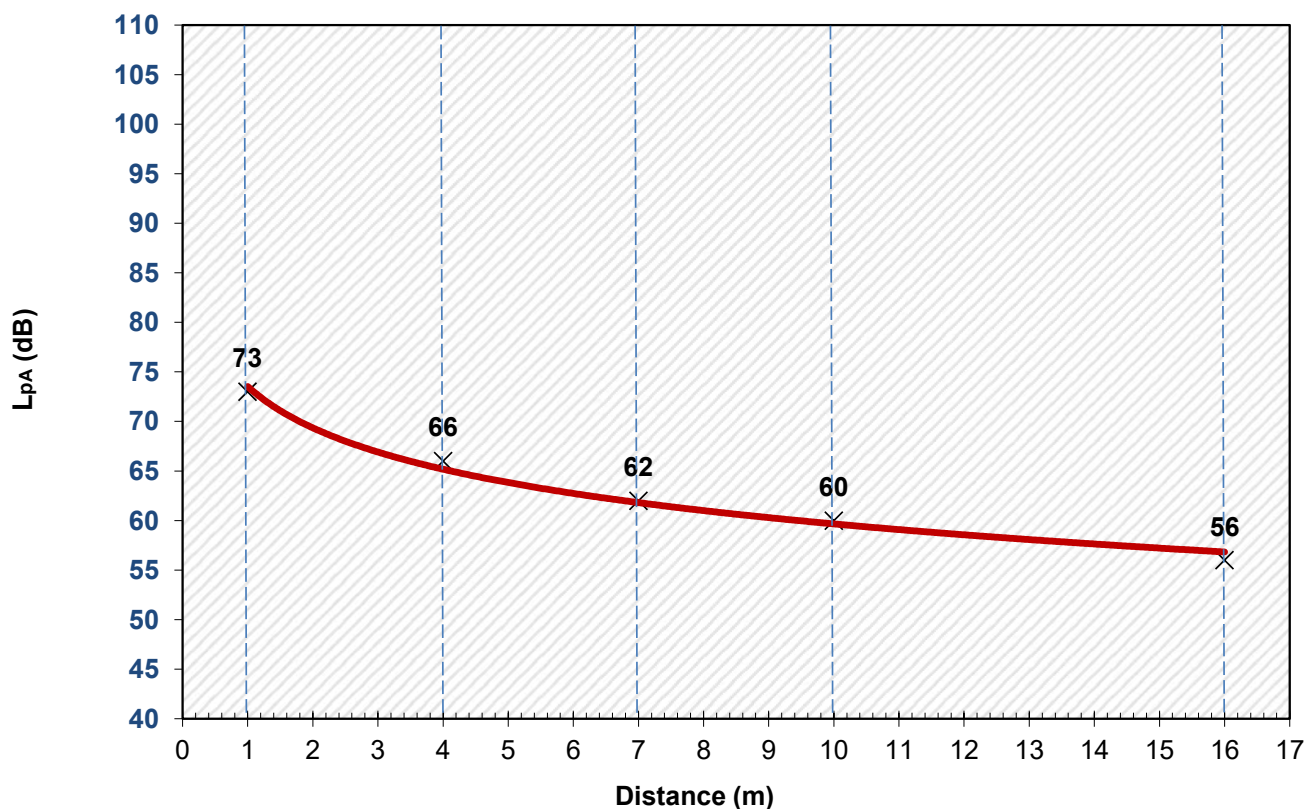
MODEL:	HYW-45 T5	TYPE:	☒ ☐ ☐ ☒ ☐ ☐
ENGINE:	YANMAR	MODEL:	4TNV98TGGEH
ALTERNATOR:	MECC ALTE	MODEL:	ECP32.2S4C
POWER COP (kVA):	-	DIMENSIONS (mm):	2100 X 975 X 1350 (length x width x height)
POWER COP (kW):	-	MANUFACTURING:	HIMOINSA 2021
Measurements made with verified sound level meter (ISO 9001:2015)			

RESULTS

* LWA (dB)	91
Uncertainty	2,3

** Distance (m)	1	4	7	10	16
LpA (dB)	73	66	62	60	56

Sound pressure level according to the distance



Sound pressure level according 2000/14/CE directive

* LWA: guaranteed power level.

** The distance in meters from the noise measurement is based on the parallelepiped method.

Review 03 02/2021

Appendix B

Community Newsletter



INTRODUCTION

Following the previous community newsletter on July 2021, the purpose of this newsletter is to provide you with an update on ProTen's poultry farm development on Rushes Creek Road, Rushes Creek NSW.

All background documents, including (but not limited to) the Environmental Impact Statement (EIS), Response to Submissions (RTS), Development Consent SSD 7704 and Construction Environmental Management Plan (CEMP) can be viewed and downloaded from:

- DPIE's Major Projects Portal - <https://www.planningportal.nsw.gov.au/major-projects/project/10721>
- ProTen's company website - <https://proten.com.au/Sustainability/Environmental-Documents>

DEVELOPMENT UPDATE

The poultry farm development is planned to be established over two separate stages, as shown on the attached Figure 2. Stage 1 comprises the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprises the construction and operation of Farms 1, 3 and 4 and associated ancillaries. Construction of Stage 1 commenced in August 2021 and is anticipated to be completed in mid-late 2022. The timeframes for Stage 2 are unknown at this point.

Also underway are the remediation works for the arsenic impacted soils identified in association with an old sheep dip near Farm 2. These works, which are being managed and supervised by specialist contamination consultants and overseen by an independent auditor, involve capping and containment of the arsenic impacted soils in-situ (i.e. in the location the soils were found), with long-term management. Some asbestos containing material, which was recently identified during excavation works for the detention dam at Farm 2, will also be contained under this long-term cap. Required notifications and reporting have been submitted to the Department of Planning, Industry and Environment (DPIE), Environment Protection Authority (EPA) and Tamworth Regional Council.



CONSTRUCTION HOURS

Under the NSW Government's *Environmental Planning and Assessment (COVID-19 Development-Construction Work Days) Order 2020*, construction works are currently permitted to be undertaken between 7:00 am and 6:00 pm Monday to Sunday (including public holidays) with the following limitations:

- No rock breaking or hammering, sheet piling, pile driving or similar outside of the standard construction hours of 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm Saturdays; and
- All feasible and reasonable measures will be taken to minimise noise.

ENVIRONMENTAL MANAGEMENT

ProTen has committed to a suite of best practice management and mitigation measures to be implemented during Stage 1 construction to avoid/minimise the potential for adverse impacts on the surrounding environment and community in a detailed Construction Environmental Management Plan (CEMP), which has been approved by DPIE. The CEMP includes management and mitigation measures for dust, traffic, noise, soil, surface water, biodiversity, Aboriginal heritage, potentially dangerous goods and waste. It also includes complaints and environmental incident management strategies.

The approved CEMP, including a stand-alone Construction Traffic Management Plan (CTMP), is available on ProTen's website (link provided on page 1).

PROPOSED MODIFICATION

An application will be submitted to DPIE in the coming weeks seeking to modify Stage 1 of the approved Rushes Creek poultry farm development. In summary, the modification comprises the following components:

- (a) Minor amendments to the positioning of ancillaries (for example, site office, water tanks, generators) at Farm 2 following detailed design. No change the position of the proposed farm access road off Rushes Creek Road or the poultry sheds. The attached Figure 3 shows the updated layout for Farm 2.
- (b) Additional emergency standby diesel generator capacity at Farm 2 following detailed design. Four 440 kilovolt amp (kVA) generators are proposed in place of the currently approved three 390 kVA generators. Importantly only two of the 440 kVA generators will operate at any one time.
- (c) Addition of a 45 kVA emergency standby diesel generator and bunded diesel storage near the Namoi River water supply pump.
- (d) Concurrent construction and operation at Farm 2 for up to 6 months. The EIS was prepared based on construction being completed prior to commencing operations. However, due to the current market demand for broiler birds in the Australian market, ProTen will need to commence partial operations at Farm 2 while construction works are still being undertaken to complete Farm 2 for up to 6 months to meet supply requirements. The schedule comprises the following indicative timeframes for Farm 2:
 - Earthworks currently underway and due to be completed early December 2021 (i.e. prior to any operational activities);
 - Construction of sheds 1-8 completed early February 2022 and commence operation mid February 2022;
 - Construction of sheds 9-12 completed early April 2022 and commence operation mid April 2022;
 - Construction of sheds 13-16 completed early June 2022 and commence operation mid June 2022; and
 - Construction of sheds 17-18 completed mid August 2022 and commence operation late August 2022.
- (e) Reliance on one to two of the 440 kVA diesel generators to operate Farm 2 and the 45 kVA generator to operate the water supply pump for up to 6 months while the long-term power supply is established. After this time the generators will revert to their original purpose of standby emergency generators.

While the proposed modification will have implications for air emissions, noise emissions and traffic generation, these implications will be short-term and are predicted to be relatively minor in comparison to what has previously been assessed and approved. An environmental impact assessment, including relevant specialist assessments, is currently underway and will accompany the modification application to DPIE.

Queries, concerns, additional information - if you have any queries/concerns or would like additional information regarding the modification, ProTen contact details are provided at the end of this newsletter.

COMMUNITY RESOURCES AND COMMUNICATION

ProTen is committed to open communications and fostering good relationships with the surrounding community. The Community Consultation Plan (CCP), which has been approved by DPIE for use throughout the construction and operational phases, is available on ProTen's website (link provided on page 1).

The key community resources and communications tools for the construction phase are summarised in the below table.

Resource / Tool	Description
Development webpage	Dedicated webpage on ProTen's website (www.proten.com.au) where key documents and information relevant to the development have been made publicly available. These include the EIS, RTS, development consent, CEMP, CTMP, other management plans/strategies, CCP, community newsletters, etc.
Community information session	Unfortunately, the community meeting intended prior to commencing construction had to be delayed due to the Covid restrictions at the time and ProTen's management team being largely based in Sydney. It is hoped that a community meeting can be convened in the near future when regional NSW travel restrictions are eased and it is safe to do so.
Community newsletters	Newsletters issued from time-to-time to keep the local community informed and up-to-date with development-related matters and provide contact details for feedback/queries/complaints. The newsletter will be distributed by mail/letterbox drop and will also be uploaded on the development webpage.
Site signage	A clearly visible sign has been installed adjacent to the Stage 1 construction site access off Rushes Creek Road providing relevant site information and contact details.
Emails, phone/video calls, face-to-face meetings	ProTen is happy to engage with residents and recreation facilities as requested via emails, phone/video calls and/or face-to-face meetings in relation to construction works, operations, environmental management, complaints, etc. See ProTen contact details on the following page.
ProTen environmental hotline	ProTen operates a toll-free number where the community can provide feedback and submit queries and/or complaints for follow-up. Hotline number – 1800 776 994.
Complaints management strategy	ProTen has a system to ensure that all complaints will be promptly and effectively received, handled and addressed. Investigative work and remedial action will be reported back to the complainant.

PROTECT CONTACT DETAILS

If you have any queries or concerns regarding Stage 1 of the poultry farm development, please contact (in the first instance) -

ProTen's Regional Operations Manager, Julian Johnson - julianj@proten.com.au / 0406 484 474

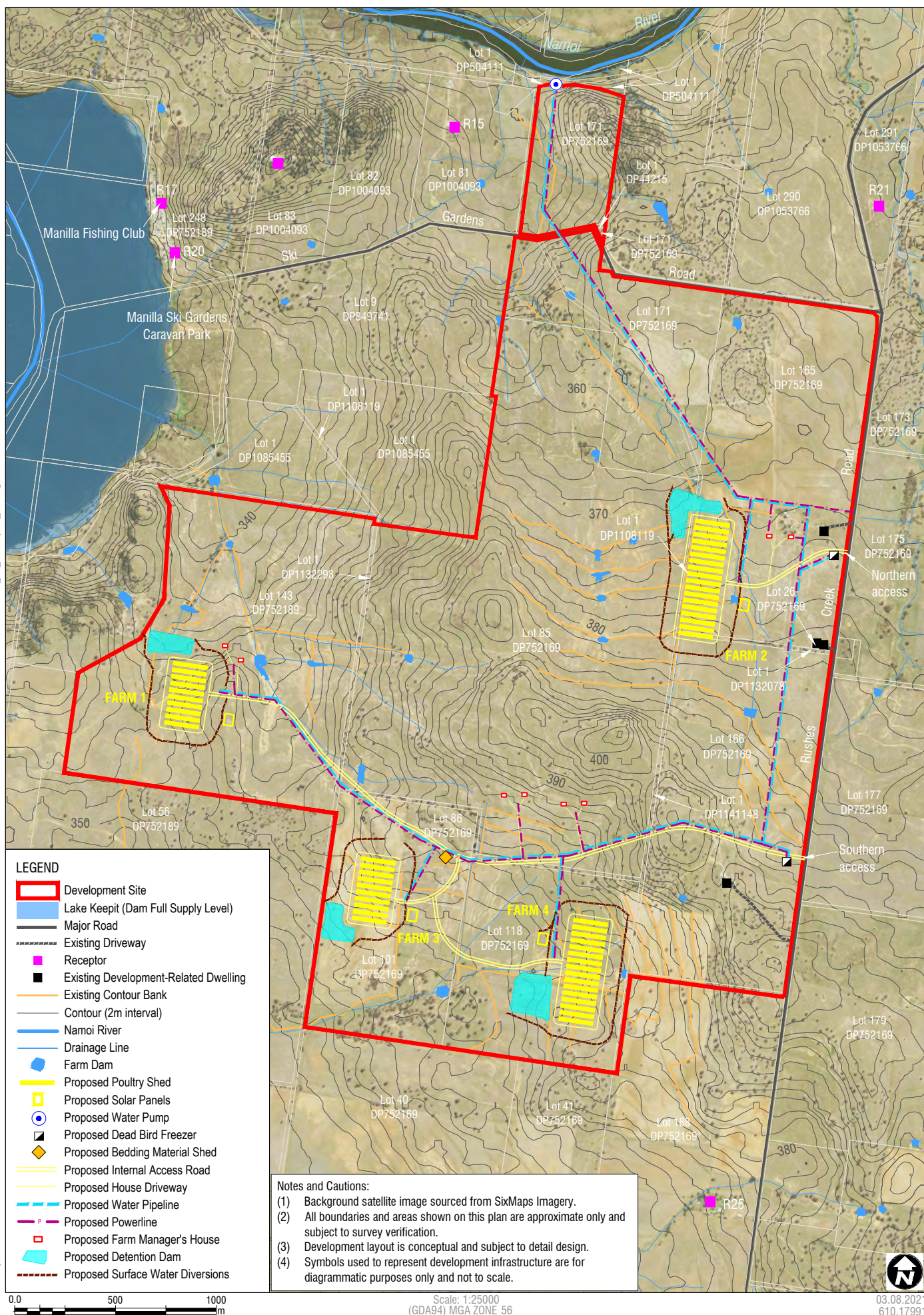
Julian is based in Tamworth and is the nominated "central contact person" for this development. He will be available for emails, phone/video calls and face-to-face meetings (subject to Covid restrictions).

Other relevant contacts:

ProTen's National Construction Manager – Adrian McKinnon – adrianm@proten.com.au / 0427 208971

ProTen environmental hotline (toll-free) – 1800 776 994

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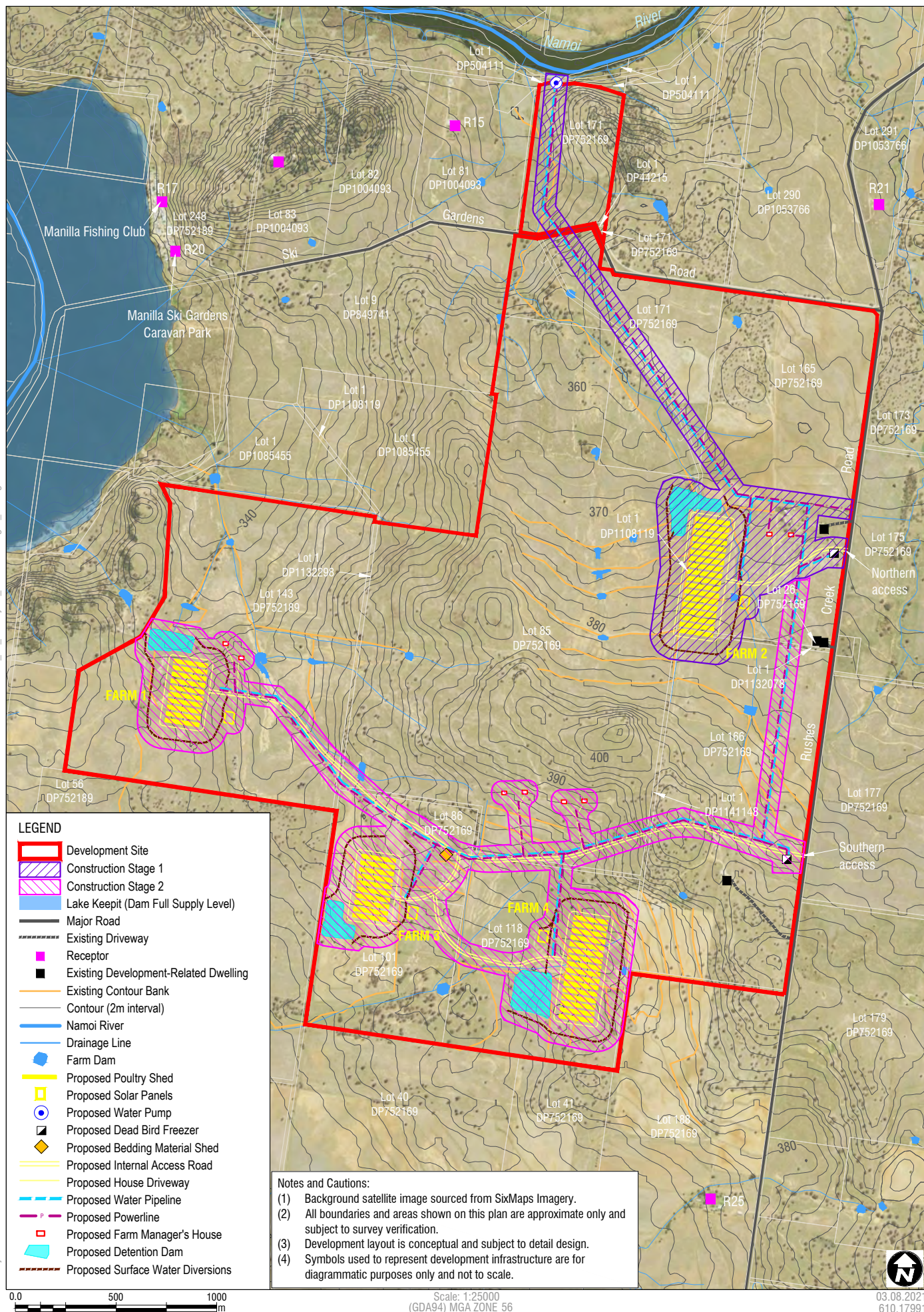
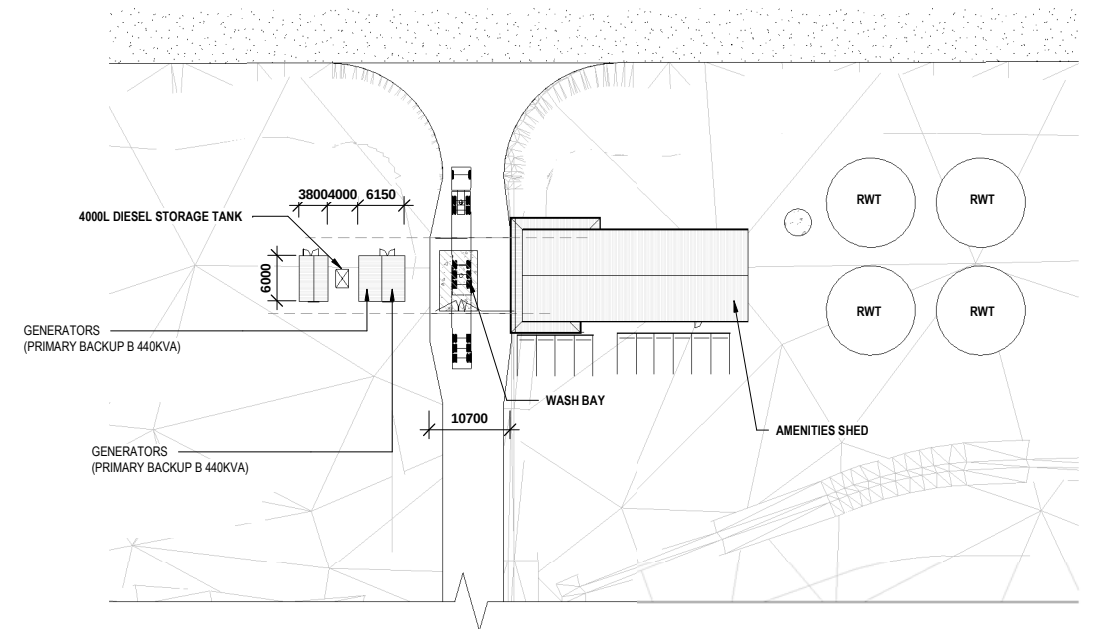
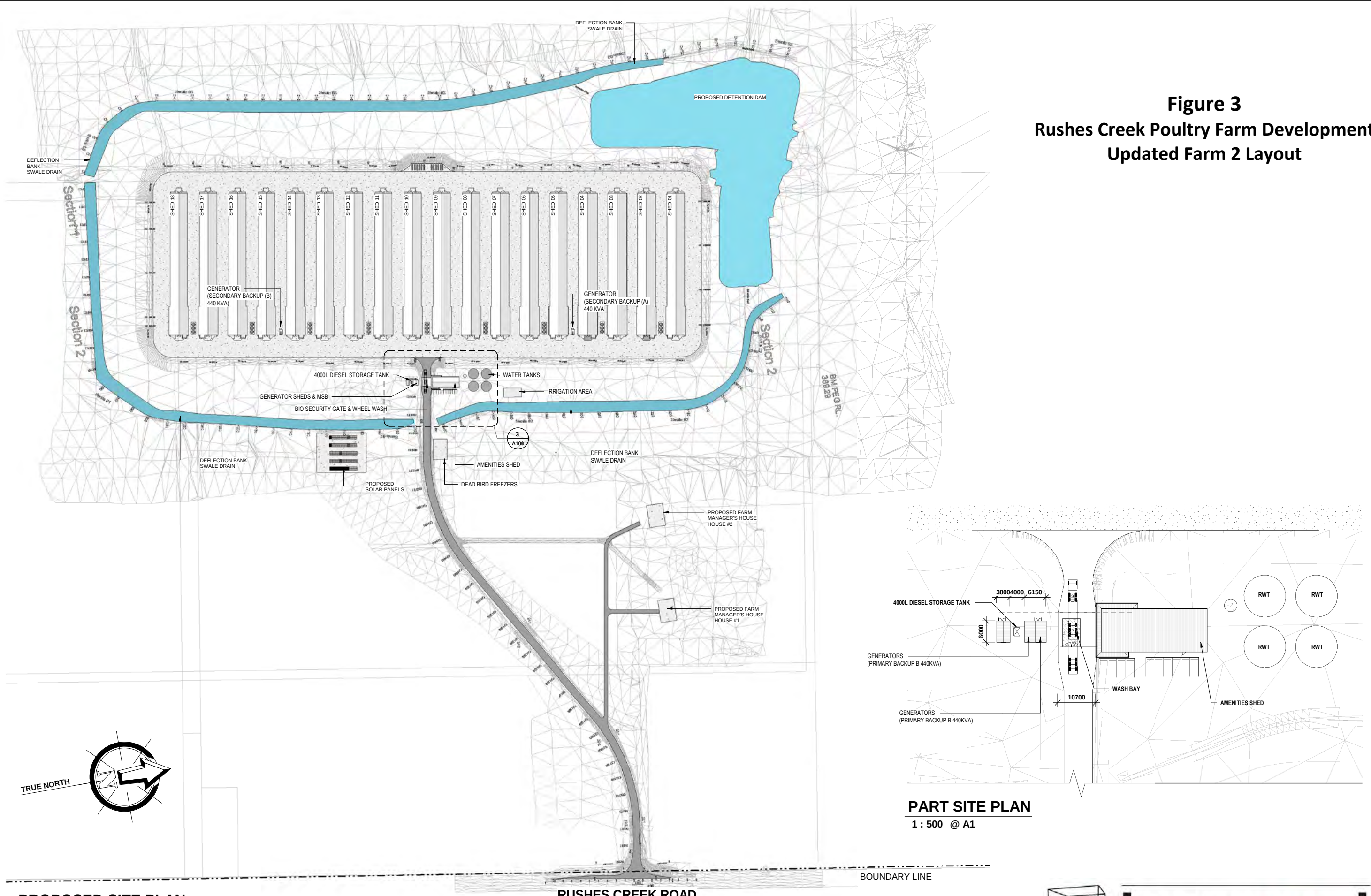


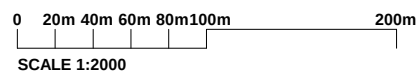
Figure 3
Rushes Creek Poultry Farm Development
Updated Farm 2 Layout



PART SITE PLAN
1 : 500 @ A1

PROPOSED SITE PLAN

1 : 2000 @ A1



DOCUMENTATION IN PROGRESS
NOT TO BE USED FOR CONSTRUCTION PURPOSES

ISSUED FOR COMMENT
PROTEN / AGRIBIZ

PROPOSED POULTRY SHEDS

RUSHES CREEK RD. RUSHES CREEK NSW 2346



DATE: 14/10/2021

21-166

A100

Appendix C

Air Quality Assessment

(Astute Environmental
Consulting)



Report

Rushes Creek – Modification 3 Diesel Generator Air Quality Assessment

Job: 21-161

Date: 2 December 2021

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Project Title	Rushes Creek – Modification 3 Diesel Generator Air Quality Assessment
Job Number	21-161
Client	ProTen
Approved for release by	Geordie Galvin
Disclaimer and Copyright:	This report is subject to the disclaimer and copyright statement located at www.astute-environmental.com.au.

Document Control

Version	Date	Author	Reviewer
R1-1	10/11/2021	W. Shillito	G. Galvin
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R1-4	02/12/2021	W. Shillito	W. Shillito

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1 INTRODUCTION

Astute Environmental Consulting ("Astute") was engaged by ProTen to conduct an air quality assessment relating Modification 3 at Farm 2 at the Rushes Creek Poultry Complex in the Tamworth Regional local government area.

ProTen was granted Development Consent SSD 7704 in April 2020 to construct and operate four poultry farm units (Farms 1 to 4) (up to 54 tunnel ventilated sheds) on a rural property on Rushes Creek Road approximately 43 kilometres (km) northwest of Tamworth and 33 km northeast of Gunnedah ("the site").

1.1 Background

ProTen is seeking approval to undertake an additional modification to Development Consent SSD 7704 (Modification 3) under section 4.55(1A) of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*.

Modification 3 relates to Stage 1 only (Farm 2) and comprises the following components:

- Minor amendments to the positioning of ancillaries at Farm 2 (including diesel generators) as shown on Figure 1-2 and Figure 1-3;
- Additional emergency standby diesel generator capacity at Farm 2;
- Addition of an emergency standby diesel generator and diesel storage at the Namoi River water supply pump;
- Concurrent construction and operation at Farm 2 for up to 10 months; and
- Reliance on diesel generators to operate Farm 2 and the water supply pump for up to 10 months.

This air quality assessment has focused on the following aspects of Modification 3:

- The change from the currently approved three 390 kilovolt amp (kVA) emergency standby diesel generators to the proposed four 440 kVA emergency standby diesel generators (two primary backup and two secondary backup) at Farm 2. There would only ever be two of the 440 kVA generators operating at any one time.
- The addition of a small 45 kVA emergency standby diesel generator at the Namoi River water supply pump.
- Concurrent construction and operation at Farm 2 for up to 10 months.

For the purpose of this air quality assessment, it is assumed that the two 440 kVA generators will be operating continuously for 1 year. This will provide sufficient power to the operation of the completed poultry sheds and/or the concurrent construction of the remaining sheds. It is considered a worst-case modelling scenario as it is likely that the power requirements for Farm 2 would only be required for approximately 10 months. The smaller 45 kVA diesel generator (water supply pump) will also be modelled continuously for year.

The particulate emissions (PM₁₀ only) from the diesel generators are assessed cumulatively with the PM₁₀ emissions from the operation of the approved 56 shed Farm and also with the inclusion of background air quality data. In line with the EIS modelling of dust emissions from the sheds, modelling of the internal roads is not considered warranted and has not been performed. Dust emissions from the internal roads can be effectively mitigated and managed via appropriate construction and operational maintenance.

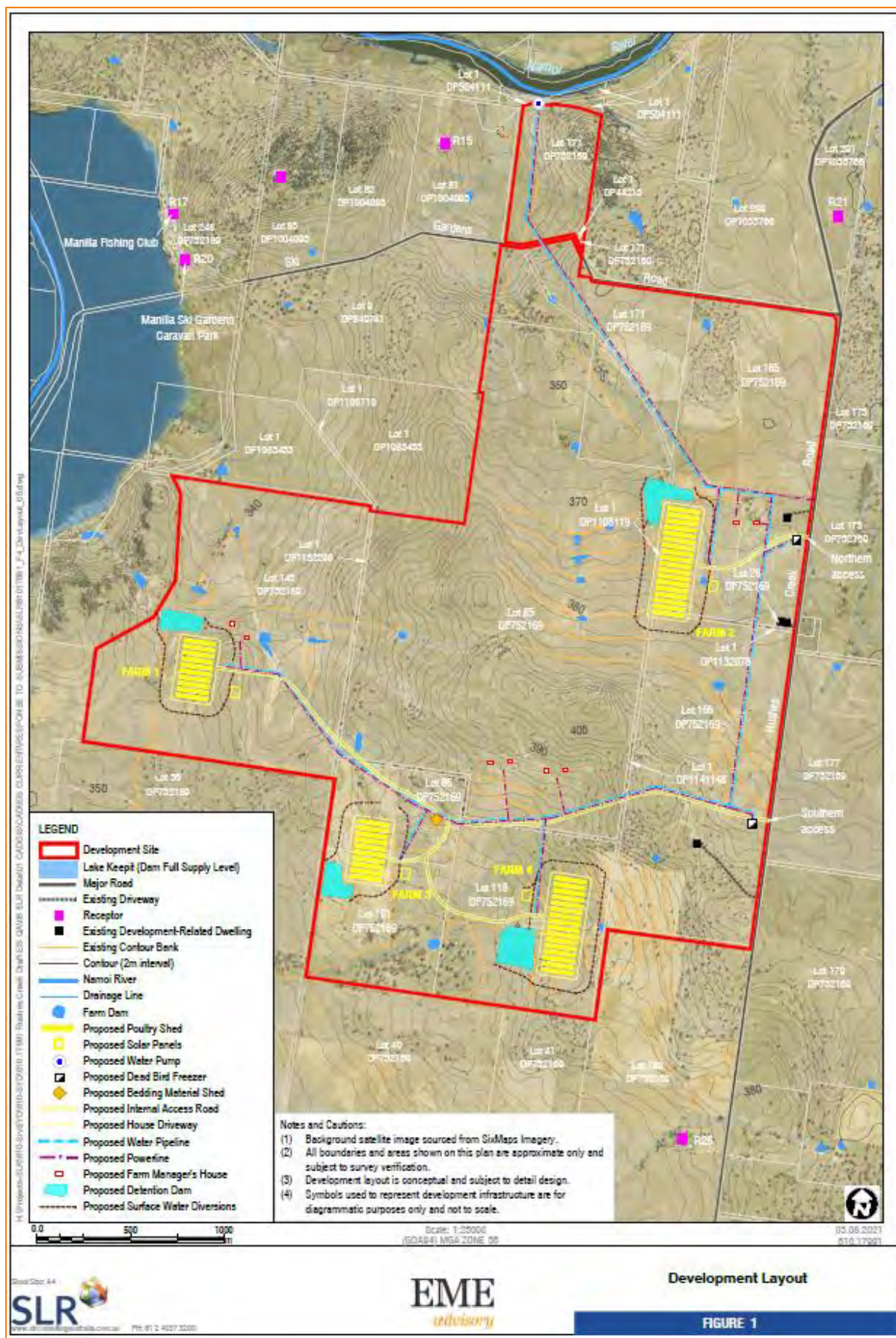


Figure 1-1: Development Layout (Source: EME Advisory)

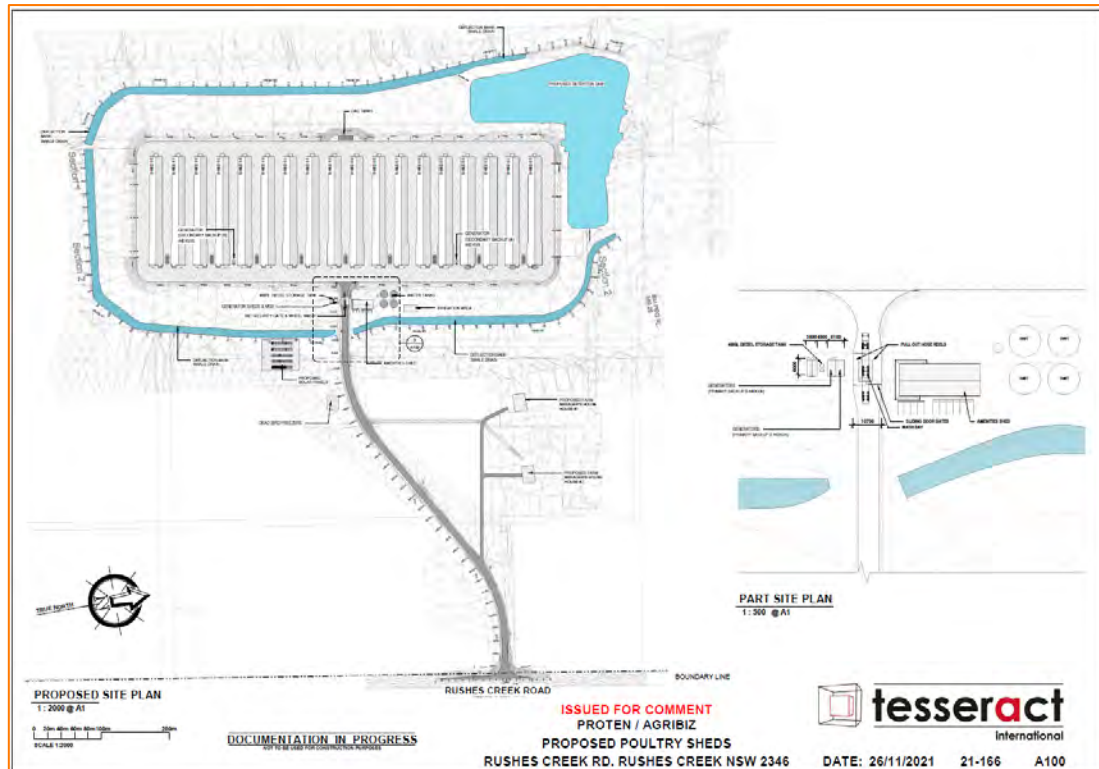


Figure 1-2: Farm 2 Ancillary Equipment

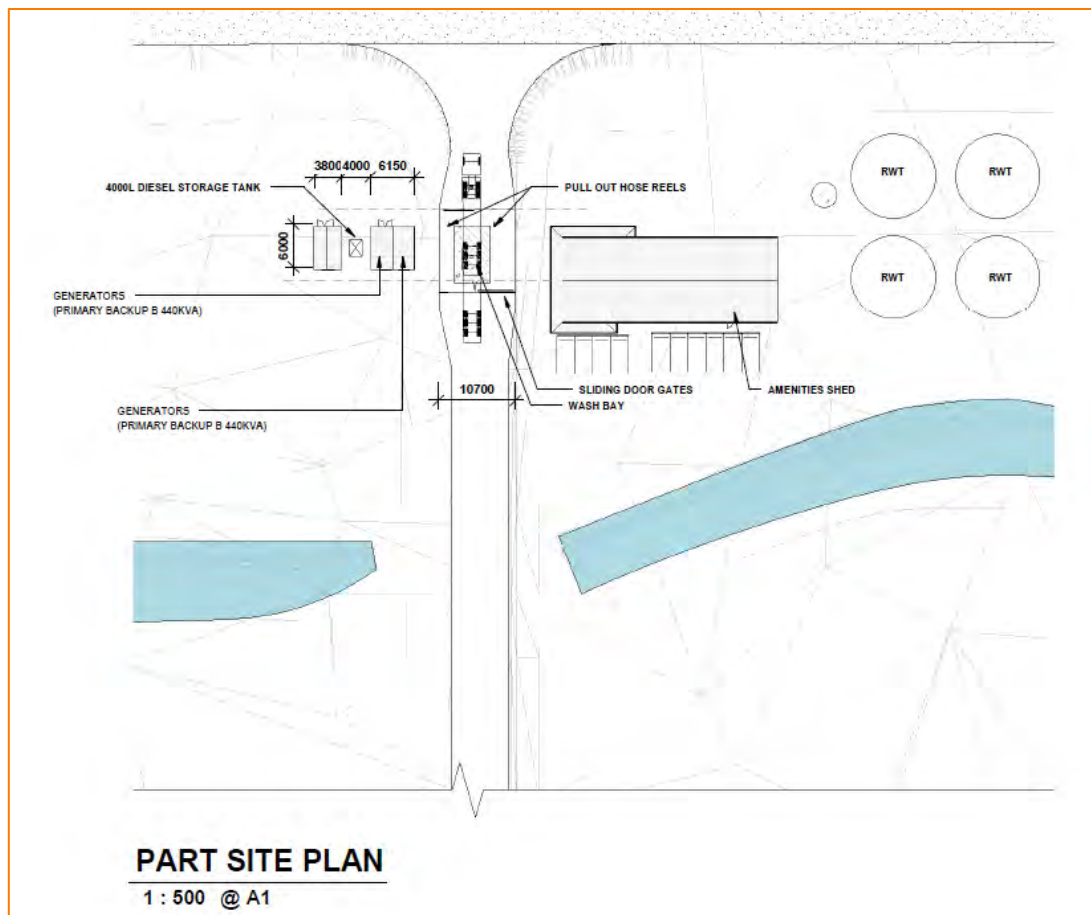


Figure 1-3: Farm 2 Ancillary Equipment - Part Site Plan

1.2 Scope of Work

The scope of work for the assessment included:

- Analysing onsite weather data to select a modelling year;
- Modelling meteorology for the area using TAPM/CALMET;
- Determining background air quality concentrations within the local airshed;
- Estimating diesel combustion emissions for the generators from manufacturer's specification;
- Predicting local air quality impacts using CALPUFF;
- Comparing the output of the dispersion modelling with the criteria in the Approved Methods (NSW EPA, 2016).
- Preparing a report.

The methodology used is summarised graphically in Figure 1-4.

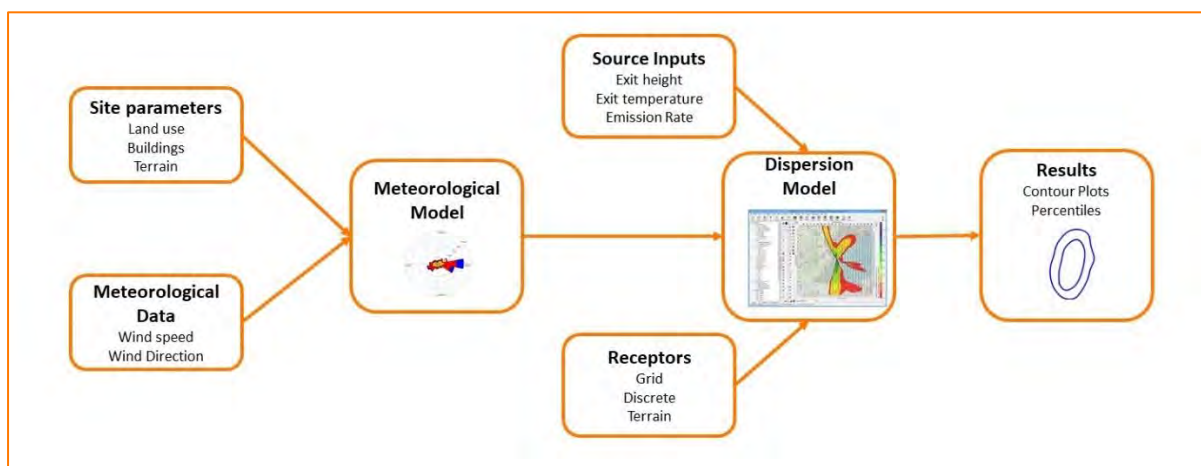


Figure 1-4 Modelling Methodology

2 ASSESSMENT CRITERIA

Emissions to air from activities in NSW are regulated under the *NSW Protection of the Environment Operations Act 1997* (POEO Act), *Protection of the Environment Operations (Clean Air) Regulation 2010* (POEO Clean Air Regulation), and *Protection of the Environment Operations (General) Regulation 2009, Part 5.4 Air pollution*.

The “Approved Methods for Modelling and Assessment of Air Pollutants in NSW” (Approved Methods) (NSW EPA, 2016), outlines the approach to be applied for the modelling and assessment of air pollutants in NSW. The impact assessment criteria for assessing potential air quality impacts related to Modification 3 are presented below in Table 2-1.

Table 2-1: Impact Assessment Criteria

Pollutant	Averaging Period	Value ($\mu\text{g}/\text{m}^3$)
NO ₂	1 hour	246
	Annual	62
PM ₁₀	24 hours	50
	Annual	25
PM _{2.5}	24 hours	25
	Annual	8
CO	15 minutes	100 (mg/m^3)
	1 hour	30 (mg/m^3)
	8 hours	10 (mg/m^3)

3 MODELLING METHODOLOGY

3.1 Representative year

The representative year modelled in the EIS (Pacific Environment, 2018) was selected based on an analysis of the Tamworth Airport BoM for the years 2005-2012. The year 2005 was selected as the most representative year for that assessment as it performed, on average, better than any other year for the most important parameters used in dispersion modelling.

Since publication of the EIS, ProTen have installed an onsite weather station which is discussed below in Section 3.4. In accordance with the Approved Methods (NSW EPA, 2016), Level 2 impact assessments are conducted using at least one year of site-specific meteorological data. The year 2019 year has been modelled for this assessment based on the methodology presented below and the fact that it is based on on-site data.

3.2 TAPM

TAPM (version 4), is a three-dimensional meteorological and air pollution model developed by CSIRO. The model is a prognostic model which uses synoptic-scale data to predict hourly meteorology in the area modelled. Details about TAPM can be found in the TAPM user manual (Hurley, 2008a) and details of the model development and underlying equations can be found in Hurley (2008b). Details of validation studies performed for TAPM are also available and include Hurley et. al. (2008c).

TAPM v4 predicts meteorological data including wind speed and direction in an area using a series of fluid dynamics and scalar transport equations (Hurley, 2008b) and it has both prognostic meteorological and air pollution (dispersion) components. The benefit of using TAPM is that key meteorological aspects including the influence of terrain induced flows are predicted both locally and regionally.

The TAPM default land use database was further refined to include more agricultural and cropping land whilst reducing the size of Lake Keepit within the 1 km modelling domain. The default and adjusted land-use files are presented in Figure 3-1. The TAPM setup is summarised in Table 3-1 and is consistent with good practice and the requirements in The Approved Methods.

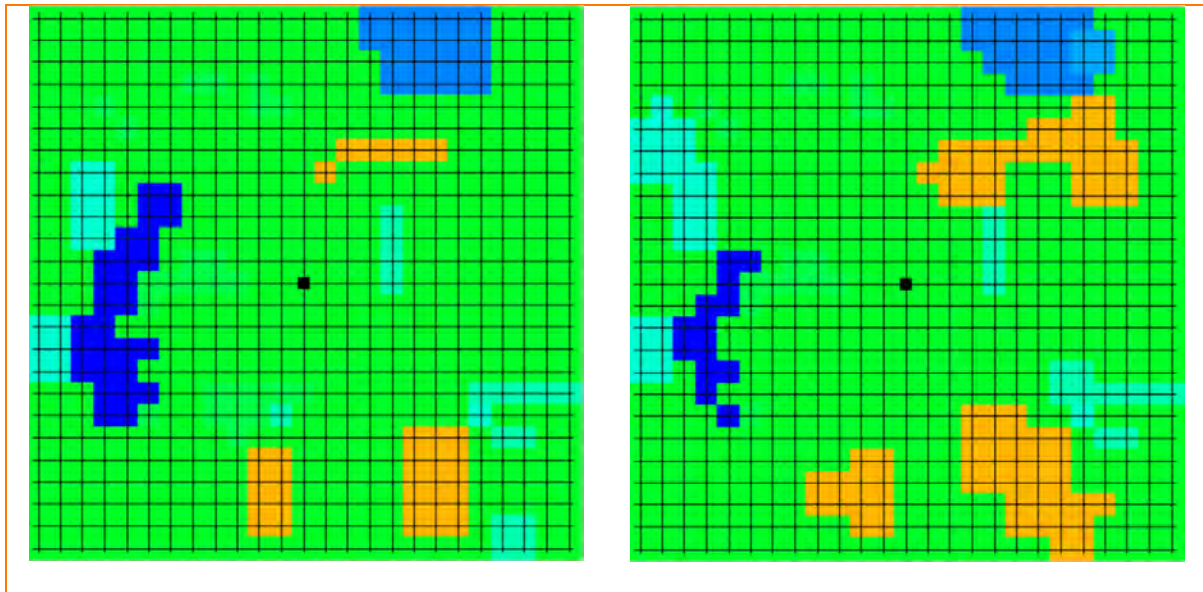


Figure 3-1: Default TAPM (left) and Adjusted Landuse (right) for the Site

3.3 CALMET

CALMET is the meteorological pre-processor to CALPUFF and generates wind fields which include slope flows, terrain effects, and can incorporate factors including terrain blocking. CALMET uses meteorological inputs in combination with land use and terrain information for the modelling domain to predict a three-dimensional meteorological grid (which includes wind speed, direction, air temperature, relative humidity, mixing height, and other variables) for the area (domain) to be modelled in CALPUFF.

A 20 km x 20 km domain with a terrain resolution of 100 m was modelled with the centre of the domain to the northeast of the site. A terrain resolution of 30 m was used throughout the domain and was initially taken from the SRTM dataset using CALPUFF view. This was then converted to a 100 m resolution for the model runs.

Land use was initially based on the Australia Pacific Global Land Cover Characterisation (GLCC) dataset at 1km resolution. The land use was then manually edited at 100 m resolution based on a recent aerial photograph of the area using Google Earth Pro and CALPUFF View.

Table 3-1: TAPM And CALMET Setup

Model	Parameter	Value
TAPM (v 4.0.5)	Number of grids (spacing)	30km, 10km, 3km, 1km
	Number of grid points	25 x 25 x 25 (vertical)
	Year of analysis	2019
	Centre of analysis	30°50'00" South (latitude), 150°35'30" East (longitude)
	Meteorological data assimilation	Yes; Onsite Weather Station X = 269,262m E, Y = 6,587,989m S z_site = 10m r_site = 4500m k_site = 1 q_site = 1
CALMET (v 6.334)	Meteorological grid domain	20km x 20km
	Meteorological grid resolution	0.10km
	South-west corner of domain	X = 259.500 km, Y = 6575.500 km
	Surface meteorological stations	N/A
	Upper air meteorological data	N/A
	3D Windfield	m3D from TAPM (1km) input as in initial guess in CALMET
	Year of analysis	2019
	Terrad	1.3 km
	Cloud	4 - Gridded cloud cover from Prognostic Relative Humidity at all levels

3.4 On site Weather Station

ProTen commissioned Measurement Engineering Australia (MEA) to install and manage an onsite weather station. A summary of the details that have been provided to Astute are as follows;

- The station went live in October 2018 collecting valid data;
- A WindSonic Ultrasonic Anemometer measuring wind speed and wind direction is positioned at 10 m from ground level;
- A Vaisala Humidity and Temperature Probe HMP155 measures air temperature and humidity sensor in sensor shelter;
- AA tipping bucket rain gauge on raised mount is located adjacent to the weather station;
- Data is logged over 15 minute periods;
- A logger with remote telemetry with data uploading to MEA's Green Brain server;
- The Weather Station is located at 30°49'8" South and 150°35'16" East; and
- Wind speed and direction averaging is performed using vector averaging methods.

3.5 CALPUFF

CALPUFF (Exponent, 2011) is a US EPA regulatory dispersion model and is a non-steady state puff dispersion model that simulates the effects of varying meteorological conditions on the emission of pollutants. The model contains algorithms for near source effects including building downwash, partial plume penetration as well as long range effects such as chemical transformation and pollutant removal. CALPUFF is widely recognised as being the best model for odour studies as it handles light wind conditions and terrain effects better than simpler steady state models such as AUSPLUME and AERMOD. As such it is accepted as a regulatory model in all states of Australia.

CALPUFF simulates complex effects including vertical wind shear, coastal winds including recirculation and katabatic drift. The model employs dispersion equations based on a Gaussian distribution of puffs released within the model run, and it takes into account variable effects between emission sources.

Key inputs used in CALPUFF for the project are summarised below in Table 3-2.

Table 3-2: CALPUFF Setup

Model	Parameter	Value
CALPUFF (v 6.40)	Meteorological grid domain	20km x 20km
	Meteorological grid resolution	0.10km
	South-west corner of domain	X = 259.500 km, Y = 6575.500 km
	Method used to compute dispersion coefficients	2 - dispersion coefficients using micrometeorological variables
	Minimum turbulence velocity (Svmin)	0.2 m/s
	Building downwash included	Yes; Prime method for nearby buildings
	Default settings	All other CALPUFF defaults have been used in line with OEH (2011).

3.6 Emissions Estimation

3.6.1 Particulate Matter from Poultry Sheds

Particulate emissions were based on data collected at a meat chicken farm in New South Wales as well as theoretical considerations. The method derives an hourly varying emission rate for a shed based on:

- age and weight of birds present;
- ventilation rate; and
- shed management.

The method was based on Mirrabooka (2002) who reported dust emission rate data for a tunnel ventilated farm with nipple and cup drinkers across a range of bird ages. The data were gathered between July and August of the test year. Mirrabooka (2002) showed that at the time, the emissions measured were comparable to Victorian EPA recommended emission rates. More recent data including PAEHolmes (2012)¹ and Australian Poultry CRC (2011) has shown that the Mirrabooka data leads to much higher emissions than what currently occurs. This is discussed further below.

The data was first standardised to bird mass which is summarised in Figure 3-2.

¹ Collected using a DustTrak which was calibrated based on co-located Hi-vol results.

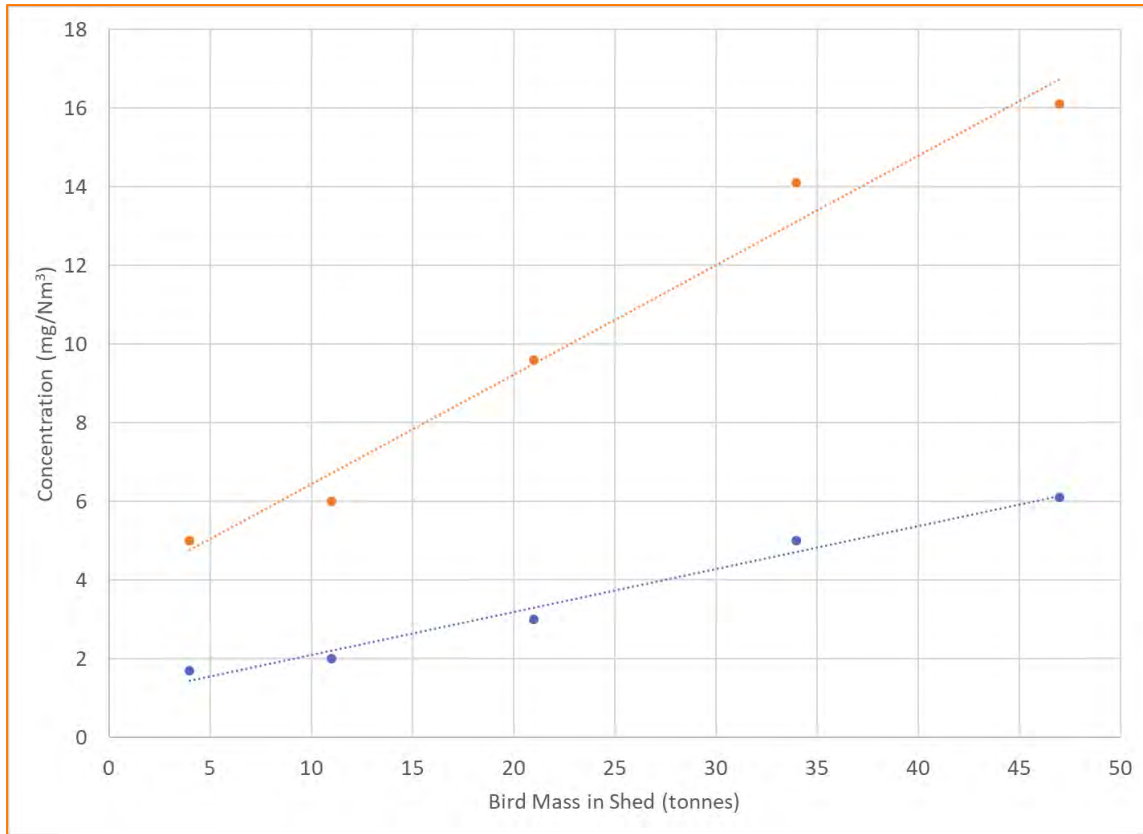


Figure 3-2: Bird Mass and Total Shed Concentration

From Figure 3-2, Equation 1 was developed where **PEC** is the maximum particulate concentration (mg/m^3), **M** is the total mass of birds (tonnes), **a** is 0.115 for PM_{10} and **b** is 0.917 for PM_{10} .

$$PEC = a \times M + b \quad \text{Equation 1}$$

To account for the dilution of dust as a function of ventilation (see Figure 3-3), Equation 2 was used where **PEC_v** is the emission concentration in mg/m^3 , **c** is 4.11 for PM_{10} , **V** is the ventilation rate in m^3/s and **d** is -0.58 for PM_{10} .

$$PEC_v = PEC \times (c \times V^d) \quad \text{Equation 2}$$

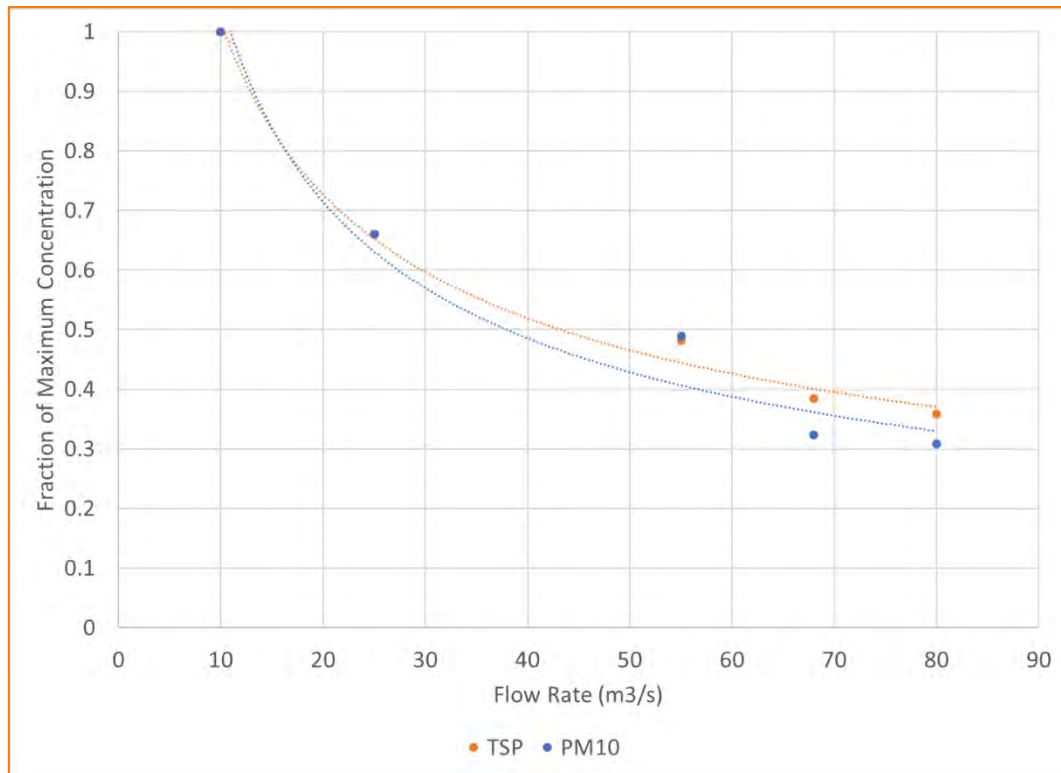


Figure 3-3: Particle Concentration and Flow Rate

The emission rate is then simply calculated at a point in time by multiplying PEC_v by the ventilation rate.

We note that published data including Poultry CRC (2011) and PAEHolmes (2012) has shown the aforementioned method overestimates emissions by factor of at least two. To demonstrate this Figure 3-4 was prepared. The figure which shows in shed concentration by bird age per 1000 birds should be read as follows:

- The orange markers are the predicted in shed concentrations using the Mirrabooka based method above for a proposed shed on a $mg/m^3/1000$ bird basis;
- The grey markers show the Poultry CRC data on a $mg/m^3/1000$ bird basis;
- The blue markers are the measured concentration data from PAEHolmes (2012) on a $mg/m^3/1000$ bird basis.

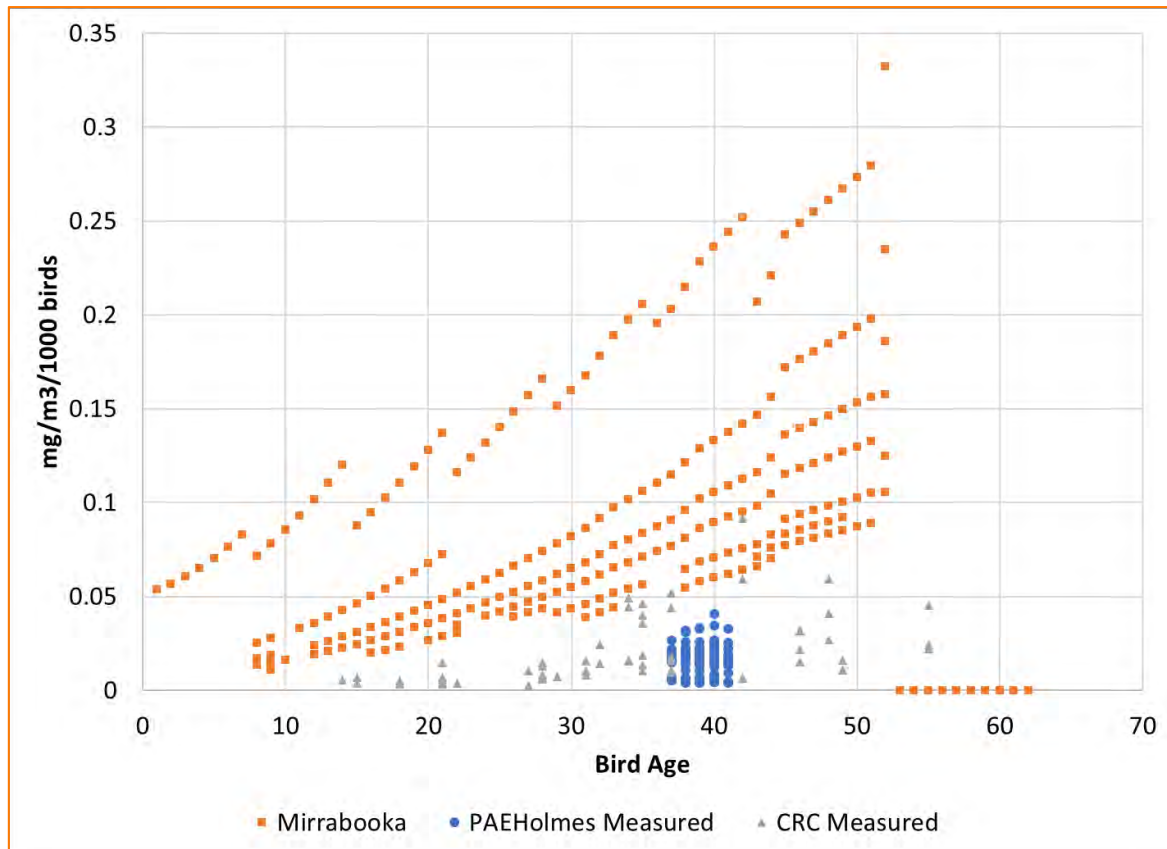


Figure 3-4: PM₁₀ - Comparison of Mirrabooka Estimated Concentrations to CRC and PAEHolmes Data

Figure 3-4 shows that the method significantly over predicts dust emissions. Even if the Mirrabooka method were divided by four, the emission rate would still overpredict emissions. Recognising this, we modified Equation 2 by dividing the predicted emissions by four. The resultant equation, Equation 3, is shown below.

$$PEC_v = \frac{PEC \times (c \times V^d)}{4} \quad \text{Equation 3}$$

3.6.2 Diesel Generators

The diesel generators have been modelled and analysed based on technical data provided by Himonsia (A Yanmar Company) and literature values based on USEPA Non-road data.

A summary for the modelling is as follows with the technical diesel generators presented in Table 3-3 and Table 3-4;

- Building wake effects have been including for the nearby buildings and enclosures;
- All generators have individual exhaust stacks and are 3m high;
- The generators are modelled for 1 continuous year at Prime Power output;
- The 440kVa generators are USEPA Tier3 and the 45kVA is a Tier2 specification;
- The modelled emissions include Oxides of Nitrogen (as NO₂), PM₁₀ and PM_{2.5} and Carbon Monoxide (CO);

- PM₁₀ and PM_{2.5} emissions are assumed to be equal (conservative); and
- Background air quality data from the NSW OEH monitoring station at Gunnedah and Port Macquarie (CO only) have been included in the results.

Table 3-3: Technical Data for the 440kVA Generators

	Parameter	Value	Source/Comments
Equipment Specifications	Type	HFW-400 T5	Himoninsa HFW-400 T5 Technical Datasheet
	Manufacturer	Himoninsa	
	Engine Model	C13TE2F	
	Fuel type	Diesel	
	Prime Power Load (kW)	352	
Stack details	Release height (m)	3	
	Exhaust Diameter (m)	0.14	
	Temperature (°C)	520	
	Flow Rate dry (kg/h)	1867	
	Flow rate (Nm ³ /s)	0.67	
	Exit velocity (m/s)	45.3	
Emissions Factors (g/kWh)	NO _x (Oxides of nitrogen)	3.68	
	Particulate Matter <10 microns (PM ₁₀)	0.10	
	Particulate Matter < 2.5 microns (PM _{2.5})	0.10	
	Carbon monoxide (CO)	0.69	
Emission Rates (g/s)	NO _x	0.36	Calculated
	PM ₁₀	0.0097	
	PM _{2.5}	0.0097	
	CO	0.067	

Table 3-4: Technical Data for the 45kVA Generator

	Parameter	Value	Source/Comments
Equipment Specifications	Type	HYW-45 T5	HYW-45 T5
	Manufacturer	HIMOINSA	
	Engine Model	4TNV98TGGEH	
	Fuel type	Diesel	
	Prime Power Load (kW)	36	
Stack details	Release height (m)	3	
	Exhaust Diameter (m)	0.04	
	Temperature (°C)	480	
	Flow Rate dry (m ³ /min)	10.45	
	Flow rate (Nm ³ /s)	0.0632	
	Exit velocity (m/s)	50.3	
Emissions Factors (g/kWh)	NO _x (Oxides of nitrogen)	7.40	USEAP Tier 2 maximum specifications
	Particulate Matter <10 microns (PM ₁₀)	0.60	
	Particulate Matter < 2.5 microns (PM _{2.5})	0.60	
	Carbon monoxide (CO)	5.50	
Emission Rates (g/s)	NO _x	0.074	Calculated
	PM ₁₀	0.0060	
	PM _{2.5}	0.0060	
	CO	0.055	

3.7 Modelling of NO_x Chemistry

During high-temperature combustion of diesel there will be formation of oxides of nitrogen primarily in the form of nitric oxide (NO) and nitrogen dioxide (NO₂). In typical combustion processes, the NO will be approximately 85% of the total NO_x with the residual percentage consisting of NO₂. (Mollenhauer & Tschoeke, 2010)

However, ultimately all oxides of nitrogen emitted into the atmosphere are oxidised to NO₂ and then further to other higher oxides of nitrogen. (Environment Agency, 2007)

The rate at which this oxidation takes place depends on prevailing atmospheric conditions including temperature, humidity and the presence of other substances in the atmosphere such as ozone. The rate of conversion is quite important and can vary from a few minutes to many hours. In accordance with a Level 1 Assessment in the Approved Methods the following has been performed:

1. Use a dispersion model to predict 1-hour and annual average ground-level concentrations of NO_x (as NO₂).
2. Assume that 100% of the NO_x emitted is converted to NO₂.
3. Determine the total ground-level concentration of NO₂ by adding the maximum predicted 1-hour and annual average ground-level concentrations with the maximum 1-hour and annual average background concentrations respectively.
4. If the impact assessment criteria are exceeded, a more refined assessment should be undertaken and/or additional management practices or emission controls applied.

4 EXISTING ENVIRONMENT

The principal meteorological parameters that influence plume dispersion are wind direction, wind speed, atmospheric stability (turbulence) and atmospheric mixing height (height of turbulent layer). This section presents a summary of the key meteorological features

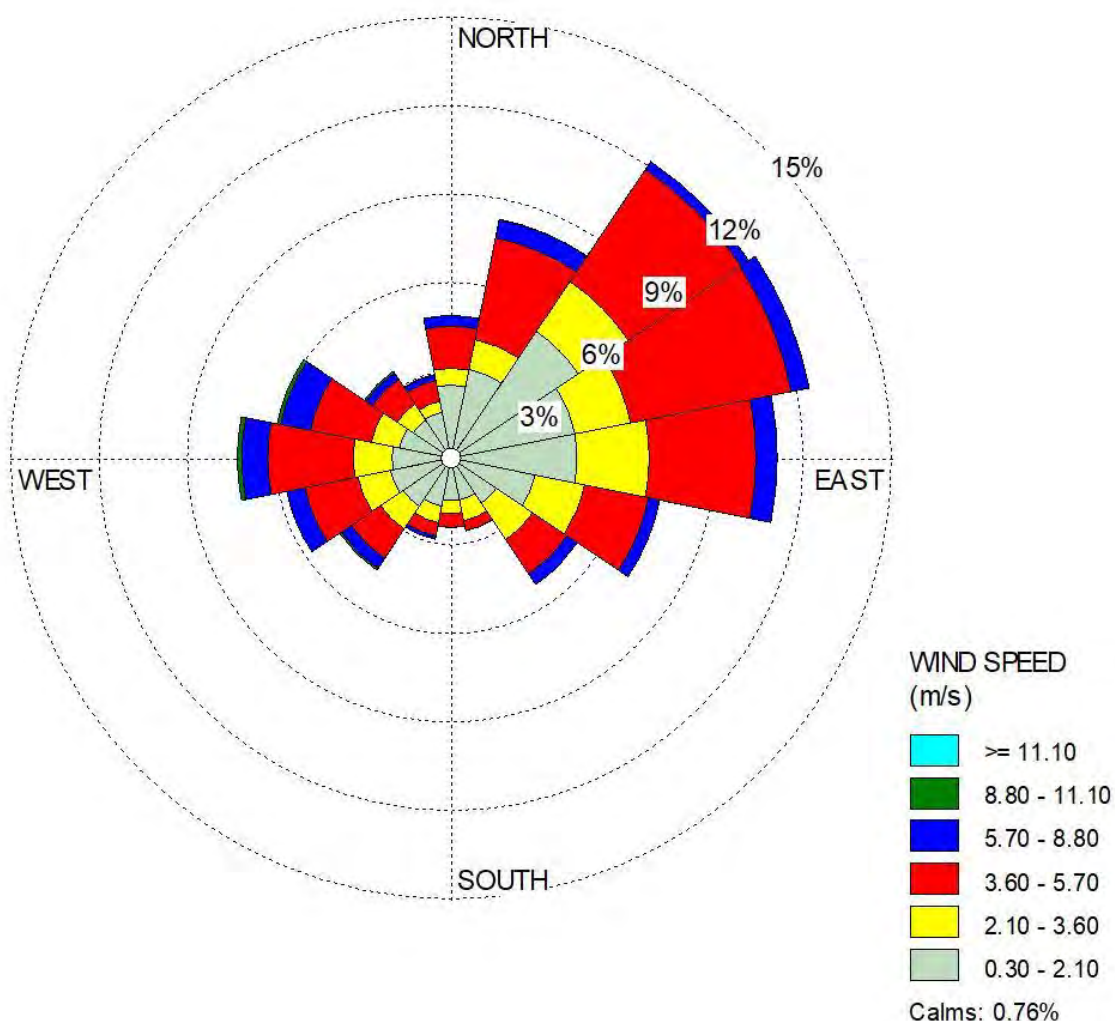
4.1 Metrological Data

4.1.1 Wind Speed and Direction

Wind roses are used to show the frequency of winds by direction and strength. The bars show the compass points (north, north-north-east, north-east etc) from which wind could blow. The length of each bar shows the frequency of winds from that direction and the different coloured sections within each bar show the wind speed categories and frequency of winds in those categories. In summary, wind roses are used to visually show winds over a period of time.

The wind roses below were created from data extracted from the TAPM and CALMET dataset incorporating the onsite weather station data (nudged TAPM) and are presented in Figure 4-1 and Figure 4-2. The annual wind rose (shows that the site is dominated by north easterly through easterly winds with a noticeable westerly component. Limited winds blow from the north and south.

The wind roses show a low proportion of calm winds (~1%) with light winds over the year (up to 3 m/s) occurring ~53% of the time. The wind speed frequencies are summarised graphically in Figure 4-3 below.



<i>Location:</i> Centre of domain	<i>Year:</i> 2019	<i>Data Source:</i> CALMET extract
<i>Calm winds:</i> 0.76 %	<i>Average wind speed:</i> 3.11 m/s	<i>Creator:</i> W. Shillito

Figure 4-1: Annual Wind Rose for Centre of Domain

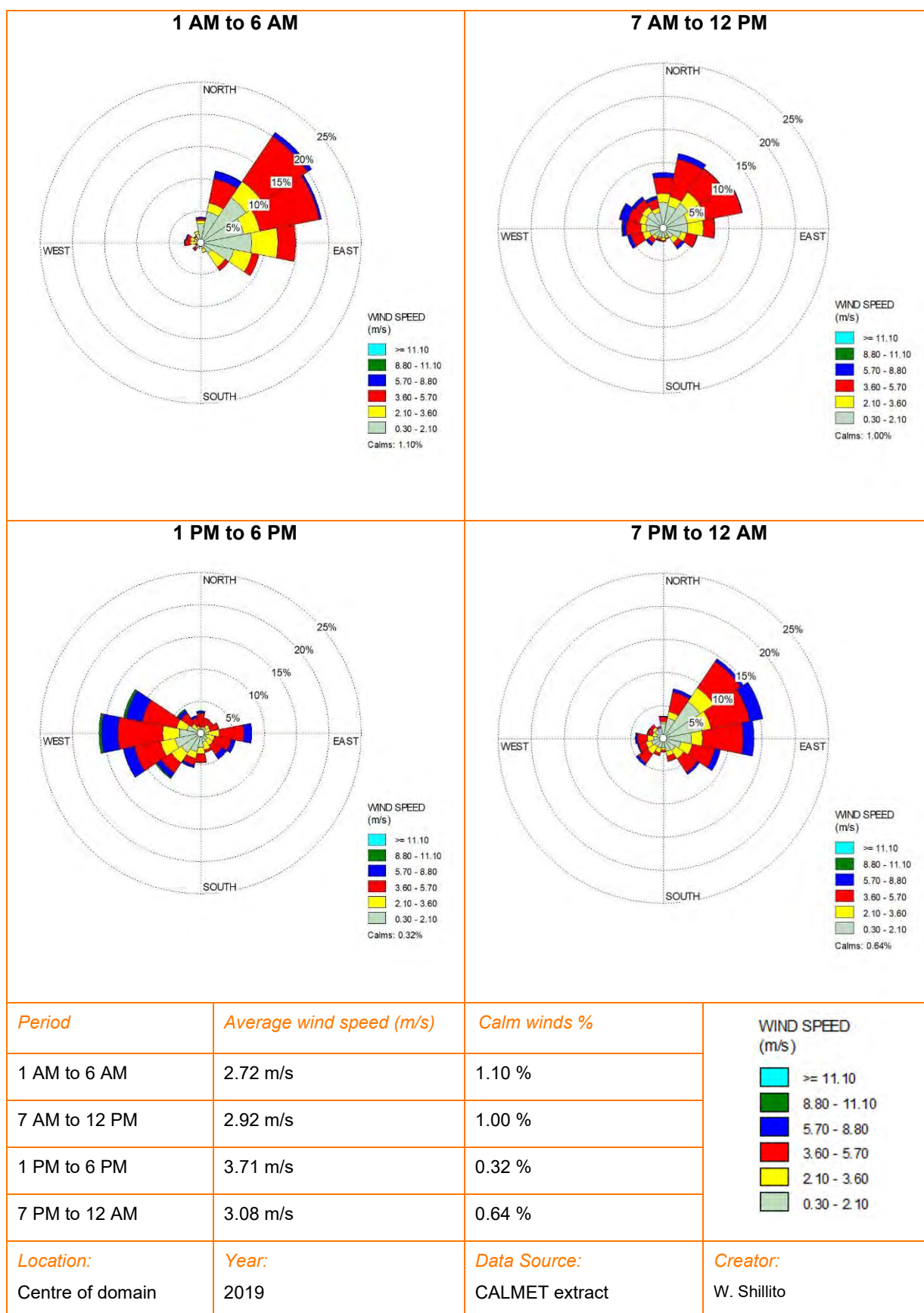


Figure 4-2: Time of Day Wind Roses

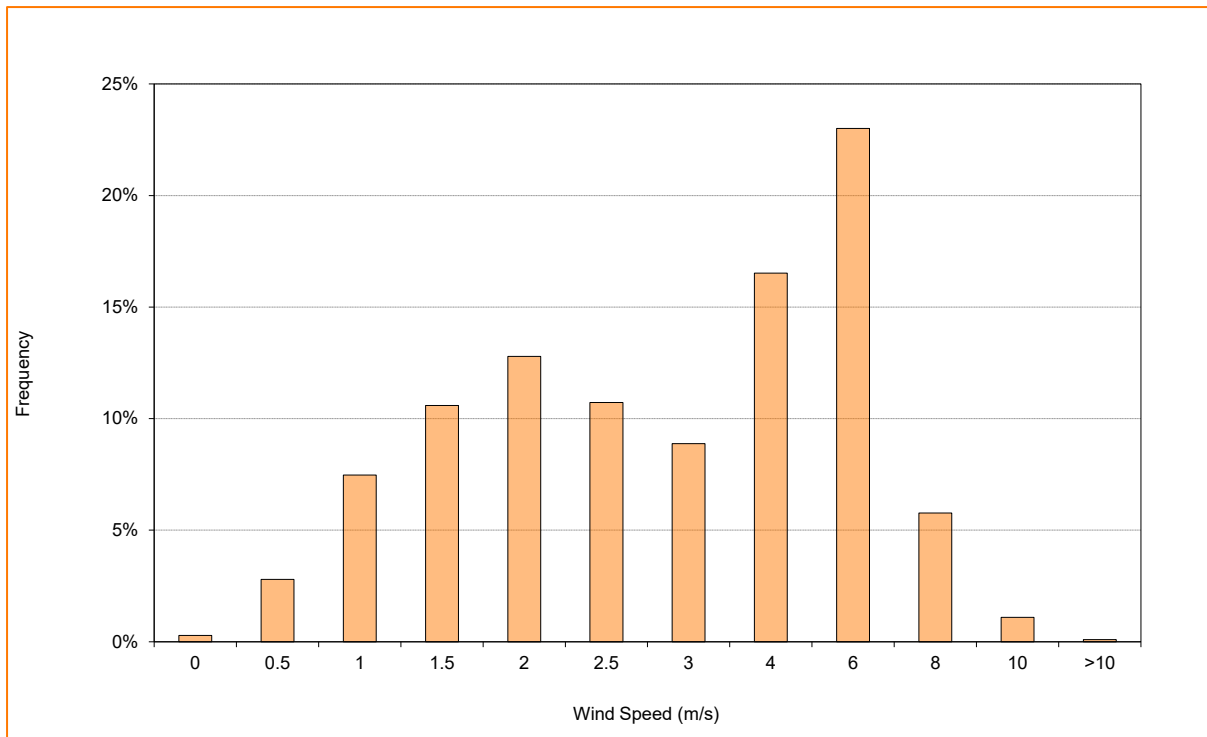


Figure 4-3: Wind Speed Frequency from CALMET

4.1.2 Atmospheric Stability

Atmospheric stability is a key factor in dispersion modelling and is used to describe turbulence in the atmosphere. Turbulence is an important factor in plume dispersion. Turbulence increases the width of a plume due to random motion within the plume. This changes the plume cross-sectional area (width and height of the plume), thus diluting or spreading the plume. As turbulence increases, the rate at which this occurs also increases. Limited or weak turbulence, therefore, does not dilute or diffuse the plume as much as strong turbulence, and leads to high downwind concentrations. This is often associated with low wind speeds (<0.3 m/s).

The Pasquill-Gifford stability scheme has been in use for many years to define turbulence in the atmosphere. The scheme uses stability classes from A to F². Class A is highly unstable and at the other end of the scheme are class F conditions, which are very stable conditions that commonly occur at night and in the early morning. As noted above, under stable conditions, plumes do not disperse as well as during the day (unstable conditions) and these conditions can lead to impacts, especially for ground level sources.

Between Class A and Class F are stability classes which range from moderately unstable (B), through neutral (D) to slightly stable (E). Whilst classes A and F are most often associated with clear skies, class D is linked to sunset and sunrise, or cloudy and/or windy daytime conditions. Unstable conditions most often occur during the daytime and stable conditions are most common at night.

The stability classes predicted by CALMET for the Development Site are summarised in Figure 4-4. The data shows that E and F class stability occurs ~42% of the time. The frequency of D class

² Note that CALPUFF uses a more accurate micrometeorological scheme for turbulence.

stability (24%) is typical of inland locations with limited winds above 2.5 m/s or with limited cloudy days.

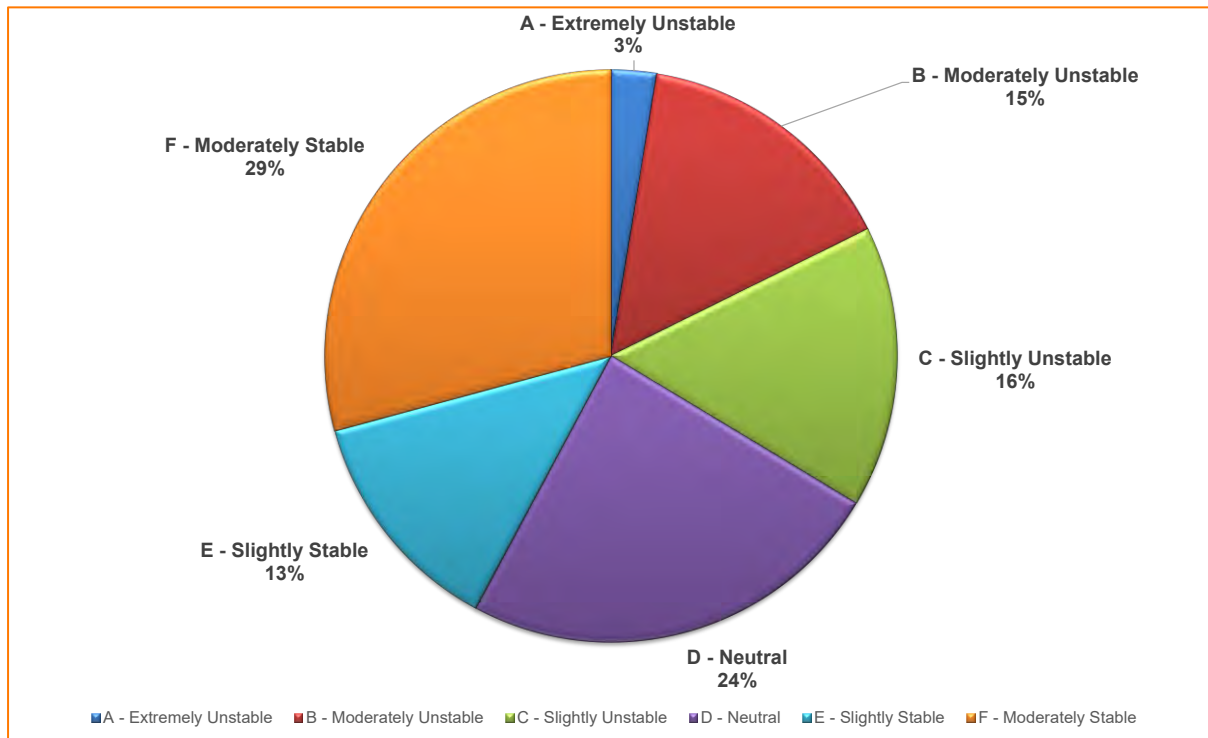


Figure 4-4: Atmospheric Stability

4.1.3 Atmospheric Mixing Height

The mixing height is the height of vertical mixing of air and suspended gases or particles above the ground. This height can be measured by the observation of the atmospheric temperature profile. A parcel of air rising from the surface of the Earth will rise at a given rate (called the dry-adiabatic lapse rate). As long as the parcel of air is warmer than the ambient temperature, it will continue to rise. However, once it becomes colder than the temperature of the environment, it will slow down and eventually stop (University of Michigan , 2004).

The mixing height is commonly referred to as an inversion layer. It is an important parameter when assessing air emissions as it defines the vertical mixing of a plume. This is because the air below the layer has restricted dispersion vertically and therefore the higher the mixing height, the more potential for dispersion.

The estimated variation of mixing height over time predicted at the site by CALMET is shown in Figure 4-5. The diurnal cycle is clear in this figure whereby at night the mixing height is normally relatively low and after sunrise, it increases as a result of heat associated with the sun on the Earth's surface. Overall, the estimated mixing height shown below is as expected.

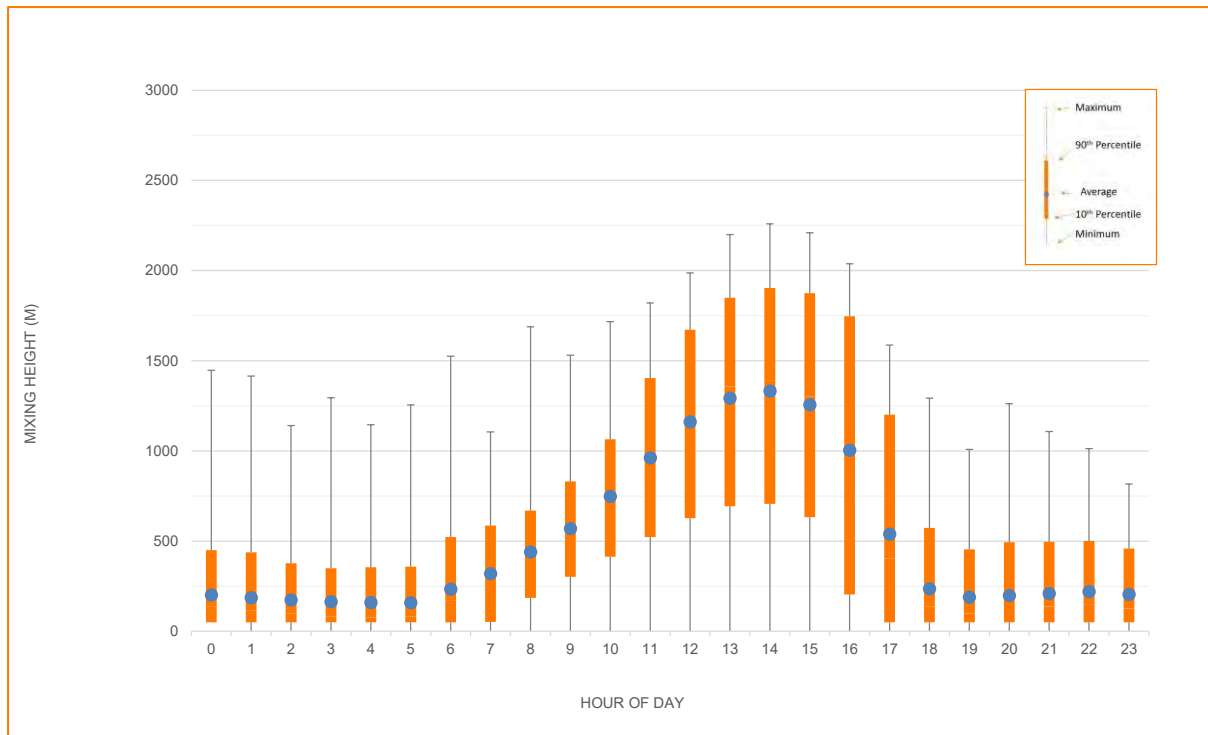


Figure 4-5: CALMET Extract – Predicted Mixing Heights

4.2 Background Air Quality Data

Air quality in the local area of the Rushes Creek Poultry Farm is influenced by typical rural sources that include farming activities, vehicle traffic along unsealed roads and wind erosion during dry periods. As no air quality monitoring data exists for the site, publicly available data has been relied upon to assess the potential cumulative impacts.

The Office of Environment and Heritage (OEH) operates several monitoring stations throughout New South Wales. The closest monitoring stations include Tamworth approximately 45kms to the southeast and Gunnedah 35 kms to the southeast. Gunnedah was selected as the most appropriate as it monitors for particulate matter and also nitrogen dioxide.

The closest monitoring station that had data for CO is Port Macquarie on the mid north coast, approximately 230 kms to the southeast. Whilst monitoring data for CO is scarce and unreliable (data gaps) it should be noted that NSW Annual Air Quality Statement 2019, states levels of CO easily met national standards.

Air quality in New South Wales in 2019 was affected by intense drought conditions and widespread bushfires. However, as this year was selected as the most appropriate year for meteorological data the influence of the bushfires was unavoidable. The assessment therefore focuses on no additional exceedances of the impact assessment criteria for the year modelled. A statistical summary for the 2019 data is presented below in Table 4-1. For context, the annual average for 2018 at Gunnedah was $18 \mu\text{g}/\text{m}^3$, and the 90th percentile of all 24 hour concentration data $32.2 \mu\text{g}/\text{m}^3$. This clearly demonstrates that the background concentrations for 2019 are unrealistic, and the predict concentrations shown here with background included are unlikely to occur under normal circumstances

Table 4-1: Adopted Background Air Quality Data 2019

Pollutant	Site	Data Availability	Number of Exceedances	Averaging Period	Statistic	Value (µg/m ³)
NO ₂	Gunnedah	95%	0	1 hour	Maximum	41.0
				Annual	Average	13.1
PM ₁₀	Gunnedah	92%	30 days	24 hours	Maximum	205.2
				Annual	Average	24.9
PM _{2.5}	Gunnedah	95%	27 days	24 hours	Maximum	94.1
				Annual	Average	11.4
CO	Port Macquarie	41%	0	15 minutes	Maximum	21.6
				1 hour	Maximum	16.4
				8 hours	Average	12.0

4.3 Sensitive Receptors

The existing and future sensitive receptors identified during the EIS process is presented in Figure 4-6 and the numbering has not been changed for this work.

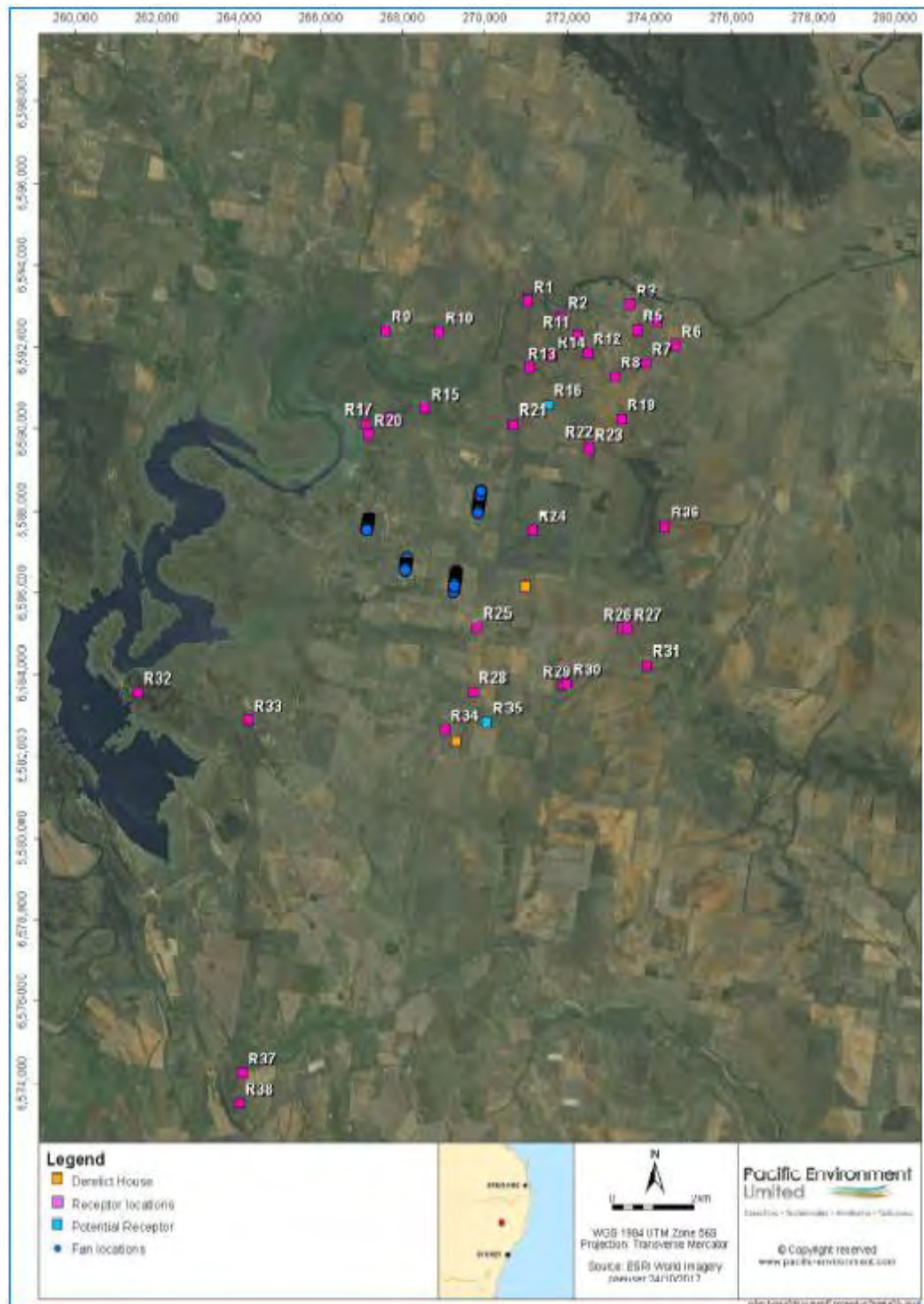


Figure 4-6: Sensitive Receptors (Source: EIS)

5 RESULTS

The modelling results presented below are based on the following assumptions and methodologies detailed in the Sections above;

- Two 440 kVA primary backup diesel generators are operating continuously for 1 year;
- The 45 kVA water pump generator is also operating continuously for 1 year;
- PM₁₀ emissions from the approved 56 shed Farm have been included in the cumulative assessment;
- Background air quality data from the Gunnedah and Port Macquarie monitoring stations have been included for NO₂, PM_{2.5} and CO; and
- The standby emergency diesel generators at Farm 1,3 and 4 have not been included as the generators will only be required between one to five days per year (Pacific Environment, 2018).

5.1 NO₂

The predicted ground level concentrations of NO₂ for both the maximum 1 hour and annual average are presented below in the following:

- Table 5-1: Predicted ground level concentrations – NO₂;
- Figure 5-1: Predicted maximum 1 hour average NO₂ in isolation; and
- Figure 5-2: Predicted maximum 1 hour average NO₂ with background.

The dispersion modelling results are summarised below;

- This conservative assessment has assumed 100% conversion and both generators and the water pump generator are operating at full capacity for a continuous year, where in reality this will occur for approximately 10 months and only during peak times (for example, in hot conditions with all shed fans running);
- Predicted 1 hour maximum concentrations assuming conservatively 100% conversion including background (cumulative) are predicted to comply the impact assessment criterion at all sensitive receptors;
- Predicted annual average concentrations including background (cumulative) are predicted to be in compliance with the impact assessment criterion at all sensitive receptors; and
- The most potentially affected receptor is SR24 with a maximum 1 hour prediction of 110 µg/m³.

Table 5-1: Predicted ground level concentrations – NO₂

Receptor	Maximum 1 hour average (µg/m ³)		Annual average (µg/m ³)	
	Isolation	Cumulative	Isolation	Cumulative
SR1	9.8	50.8	0.1	13.2
SR2	7.8	48.8	0.1	13.2
SR3	11.6	52.6	0.0	13.1
SR4	9.4	50.4	0.1	13.2
SR5	8.3	49.3	0.1	13.2
SR6	9.2	50.2	0.0	13.1
SR7	14.0	55.0	0.1	13.2
SR8	13.6	54.6	0.1	13.2
SR9	8.4	49.4	0.1	13.2
SR10	16.4	57.4	0.1	13.2
SR11	10.5	51.5	0.1	13.2
SR12	17.0	58.0	0.1	13.2
SR13	13.0	54.0	0.1	13.2
SR14	15.1	56.1	0.1	13.2
SR15	37.2	78.2	0.6	13.7
SR16	25.6	66.6	0.2	13.3
SR17	9.8	50.8	0.2	13.3
SR18	26.2	67.2	0.4	13.5
SR19	21.5	62.5	0.1	13.2
SR20	9.8	50.8	0.2	13.3
SR21	23.8	64.8	0.2	13.3
SR22	26.2	67.2	0.2	13.3
SR23	26.7	67.7	0.2	13.3
SR24	69.2	110.2	0.2	13.3
SR25	14.3	55.3	0.1	13.2
SR26	18.2	59.2	0.0	13.1
SR27	17.0	58.0	0.0	13.1
SR28	6.7	47.7	0.0	13.1
SR29	12.9	53.9	0.0	13.1
SR30	10.7	51.7	0.0	13.1
SR31	11.8	52.8	0.0	13.1
SR32	6.7	47.7	0.1	13.2
SR33	6.2	47.2	0.1	13.2
SR34	6.9	47.9	0.0	13.1
SR35	12.0	53.0	0.0	13.1
SR36	8.5	49.5	0.0	13.1
CRITERIA	NA	246	NA	62

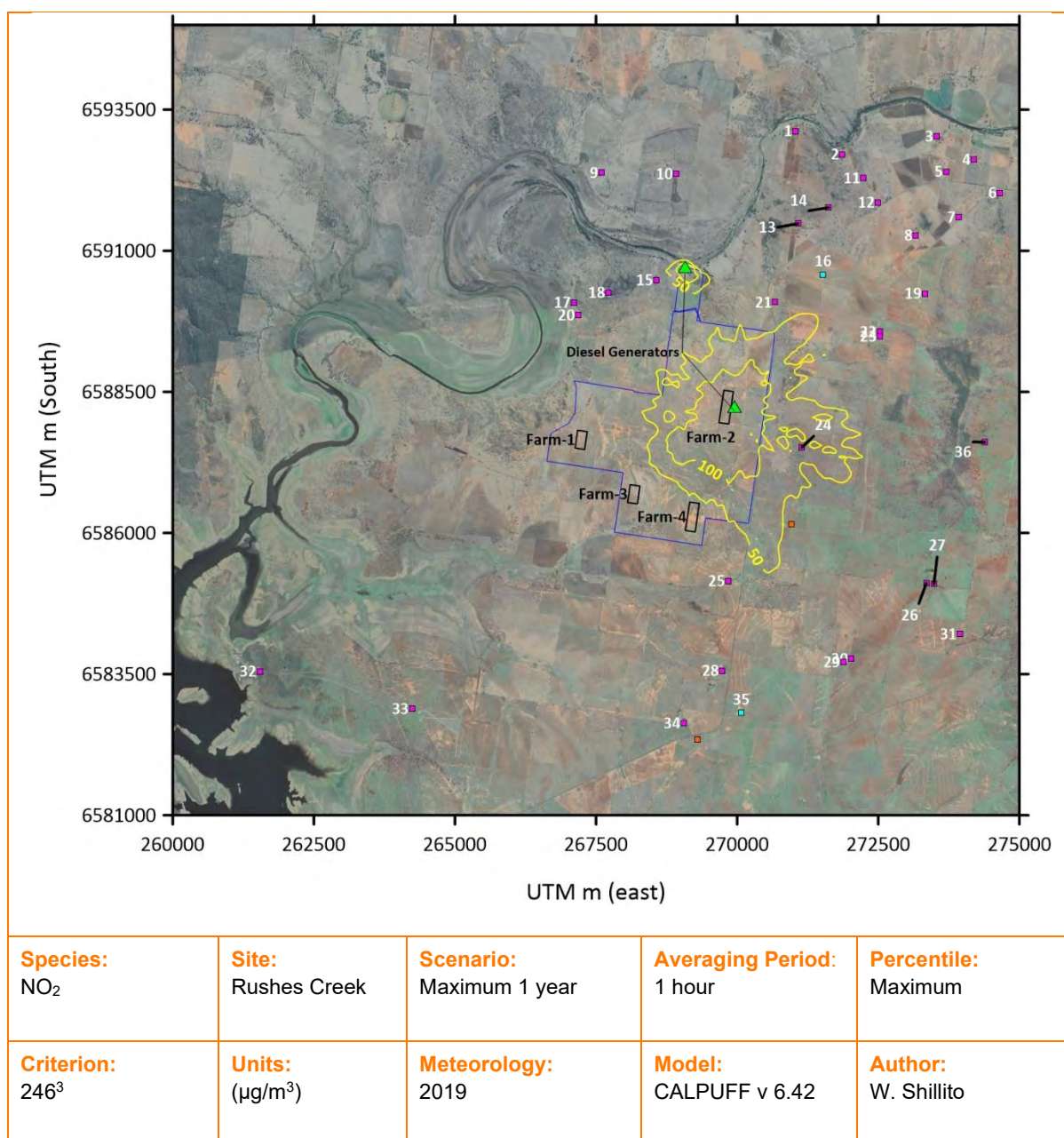


Figure 5-1: Predicted maximum 1 hour average NO₂ in isolation

³ Note this is a cumulative criterion and should have background concentrations included.

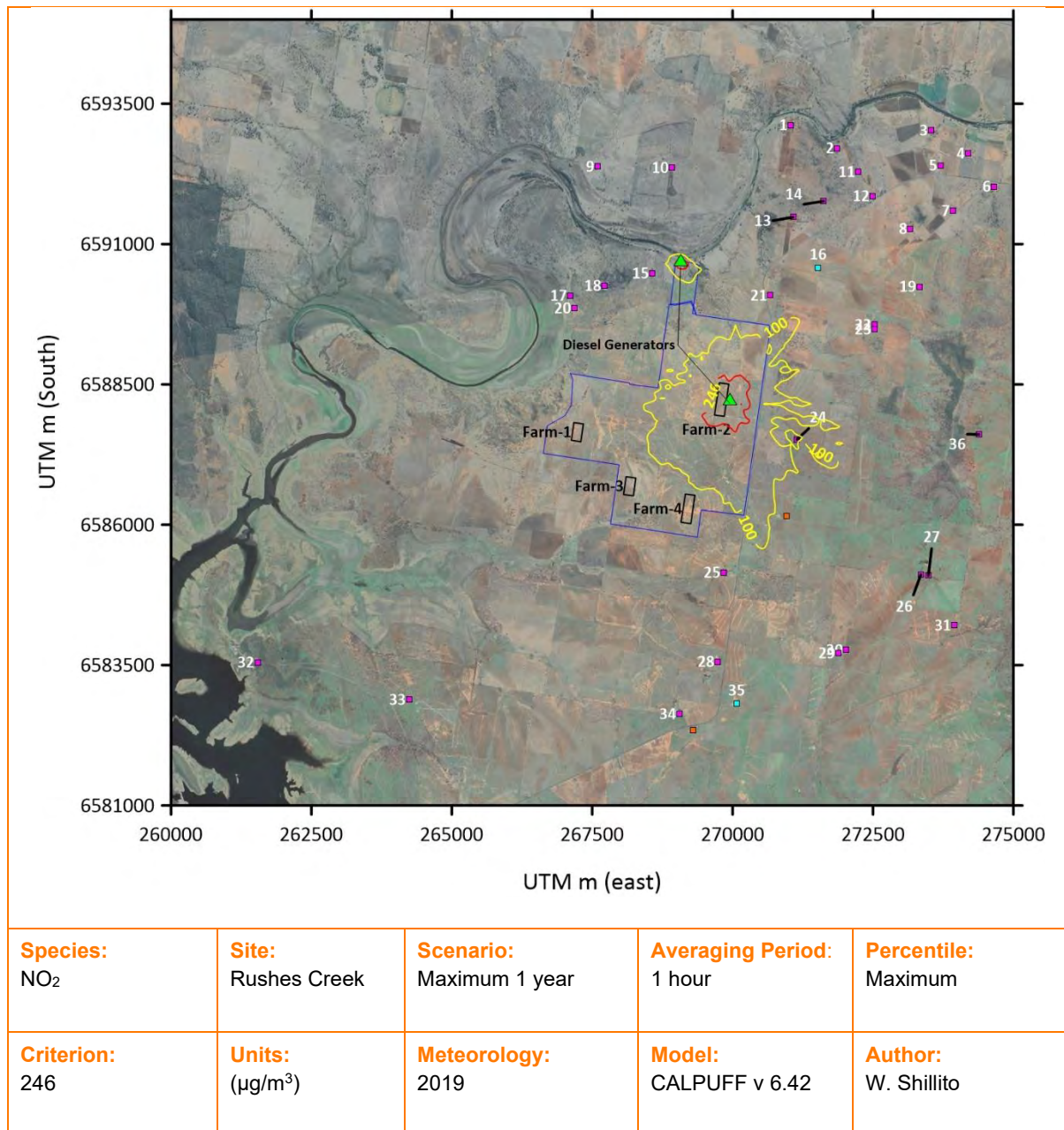


Figure 5-2: Predicted maximum 1 hour average NO₂ with background

5.2 PM₁₀

The predicted ground level concentrations of PM₁₀ for both the maximum 24 hour and annual average are presented below in Table 5-2.

The dispersion modelling results can be summarised as follows:

- The maximum predicted 24 hour concentration in isolation for all sensitive receptors was 0.37 µg/m³ at SR 15 which equates to 0.7% of the criteria;
- Ambient air quality monitoring conducted by NSW at Gunnedah shows that there were 30 days in 2019 when the concentration of PM₁₀ was above 50µg/m³ with a maximum 24 hour average of 205.2 µg/m³;
- A contemporaneous approach was then applied to the results with the removal of the 30 days of data, focussing on no additional exceedances of the criteria;
- The cumulative PM₁₀ assessment which includes the particulate emissions from the 56 sheds, using a contemporaneous approach, predicted no additional days above the 50µg/m³;
- The results for the most likely affected receptor (SR 25) were presented in Table 5-3 which showed no additional exceedances; and
- Predicted annual average concentrations for the diesel generators in isolation was negligible compared to the criteria (8µg/m³), with the most likely affected receptor (SR15) being 0.043µg/m³;
- Cumulative predictions including background and particulate emissions from the 56 sheds are predicted to be in compliance with the impact assessment criteria for 29 of the 36 sensitive receptors;
- However due to an elevated background of 24.9 µg/m³ which is marginally under the criteria of 25 µg/m³ (note comments above regarding the conservatism of adopting 2019 as a background year) and the Farm 2 shed emissions seven receptors are above the 25 µg/m³.

Table 5-2: Predicted ground level concentrations – PM₁₀

Receptor	Maximum 24 hour average (µg/m ³)		Annual average (µg/m ³)	
	Isolation of Diesel Generators	Cumulative with Background and Farm 2 Emissions	Isolation of Diesel Generators	Cumulative with Background and Farm 2 Emissions
SR1	0.05	207.6	0.003	24.8
SR2	0.05	206.2	0.003	24.8
SR3	0.03	206.3	0.002	24.8
SR4	0.04	206.7	0.002	24.8
SR5	0.04	206.5	0.002	24.8
SR6	0.03	206.5	0.002	24.8
SR7	0.04	206.7	0.002	24.8
SR8	0.04	206.7	0.003	24.9
SR9	0.07	205.8	0.006	24.8
SR10	0.11	206.1	0.005	24.8
SR11	0.05	206.1	0.003	24.8
SR12	0.03	206.2	0.003	24.8
SR13	0.06	206.3	0.005	24.8
SR14	0.05	206.6	0.005	24.9
SR15	0.37	206.2	0.043	24.9
SR16	0.09	207.5	0.006	24.9
SR17	0.05	206.4	0.008	24.9
SR18	0.18	207.0	0.024	25.1
SR19	0.05	206.7	0.003	24.9
SR20	0.08	206.8	0.010	24.9
SR21	0.15	206.9	0.009	25.0
SR22	0.09	206.8	0.005	25.0
SR23	0.10	206.8	0.005	25.0
SR24	0.17	209.9	0.007	25.4
SR25	0.03	211.7	0.002	25.2
SR26	0.05	206.3	0.001	24.8
SR27	0.05	206.2	0.001	24.8
SR28	0.02	206.7	0.001	24.9
SR29	0.02	206.0	0.001	24.8
SR30	0.02	206.1	0.001	24.8
SR31	0.03	206.2	0.001	24.8
SR32	0.02	205.9	0.002	24.9
SR33	0.03	206.8	0.003	25.0
SR34	0.02	206.6	0.001	24.8
SR35	0.02	207.0	0.001	24.8
SR36	0.02	206.1	0.001	24.8
Existing Number of Days Above Criteria	0	30	NA	NA
Additional Number of Days Above Criteria	0	0	NA	NA
CRITERIA	NA	50	NA	25

Note: Use of 2019 background concentrations is highly conservative.

Table 5-3: Cumulative 24 hour PM₁₀ (µg/m³) – SR 25

Ranked by Background				Ranked by Incremental Concentration			
Date	Measured	Predicted increment	Total	Date	Predicted increment	Measured Background	Total
8/08/2019	45.4	0.1	45.5	30/12/2019	6.5	23.3	29.8
7/09/2019	45.0	0.0	45.0	31/12/2019	3.8	23.3	27.1
11/12/2019	44.8	0.1	44.8	18/02/2019	3.6	30.0	33.6
1/11/2019	41.4	0.0	41.4	09/02/2019	1.9	34.6	36.5
12/12/2019	38.9	0.0	38.9	11/02/2019	1.7	21.0	22.7
27/07/2019	37.9	0.0	37.9	12/02/2019	1.5	35.9	37.4
10/08/2019	37.9	0.2	38.1	3/11/2019	0.9	14.1	15.0
15/12/2019	37.9	0.0	37.9	19/02/2019	0.9	35.9	36.8
2/07/2019	37.6	0.1	37.6	7/04/2019	0.9	15.5	16.4
6/03/2019	36.8	0.0	36.9	8/04/2019	0.9	14.1	15.0

5.3 PM_{2.5}

The predicted ground level concentrations of PM_{2.5} for both the maximum 24 hour and annual average are presented below in Table 5-2.

The dispersion modelling results can be summarised as follows:

- The maximum predicted 24 hour concentration in isolation for all sensitive receptors was 0.37 µg/m³ at SR 15 which equates to 1.4% of the criteria;
- Ambient air quality monitoring conducted by NSW at Gunnedah shows that there were 27 days in 2019 when the concentration of PM_{2.5} was above 25µg/m³ with a maximum 24 hour average of 94.1 µg/m³;
- The cumulative PM_{2.5} assessment taking into account Gunnedah data only, using a contemporaneous approach, predicted no additional days above the 25 µg/m³;
- Predicted annual average concentrations including background (cumulative) are predicted to be in non-compliance with the impact assessment criteria all sensitive receptors due to the elevated background concentration above the criteria of 8 µg/m³.

Table 5-4: Predicted ground level concentrations – PM_{2.5}

Receptor	Maximum 24 hour average (µg/m ³)		Annual average (µg/m ³)	
	Isolation of Diesel Generators	Cumulative with Background and Farm 2 Emissions	Isolation of Diesel Generators	Cumulative with Background and Farm 2 Emissions
SR1	0.05	94.15	0.003	11.4
SR2	0.05	94.15	0.003	11.4
SR3	0.03	94.13	0.002	11.4
SR4	0.04	94.14	0.002	11.4
SR5	0.04	94.14	0.002	11.4
SR6	0.03	94.13	0.002	11.4
SR7	0.04	94.14	0.002	11.4
SR8	0.04	94.14	0.003	11.4
SR9	0.07	94.17	0.006	11.4
SR10	0.11	94.21	0.005	11.4
SR11	0.05	94.15	0.003	11.4
SR12	0.03	94.13	0.003	11.4
SR13	0.06	94.16	0.005	11.4
SR14	0.05	94.15	0.005	11.4
SR15	0.37	94.47	0.043	11.4
SR16	0.09	94.19	0.006	11.4
SR17	0.05	94.15	0.008	11.4
SR18	0.18	94.28	0.024	11.4
SR19	0.05	94.15	0.003	11.4
SR20	0.08	94.18	0.010	11.4
SR21	0.15	94.25	0.009	11.4
SR22	0.09	94.19	0.005	11.4
SR23	0.10	94.20	0.005	11.4
SR24	0.17	94.27	0.007	11.4
SR25	0.03	94.13	0.002	11.4
SR26	0.05	94.15	0.001	11.4
SR27	0.05	94.15	0.001	11.4
SR28	0.02	94.12	0.001	11.4
SR29	0.02	94.12	0.001	11.4
SR30	0.02	94.12	0.001	11.4
SR31	0.03	94.13	0.001	11.4
SR32	0.02	94.12	0.002	11.4
SR33	0.03	94.13	0.003	11.4
SR34	0.02	94.12	0.001	11.4
SR35	0.02	94.12	0.001	11.4
SR36	0.02	94.12	0.001	11.4
Existing Number of Days Above Criteria	0	24	NA	NA
Additional Number of Days Above Criteria	0	0	NA	NA
CRITERIA	NA	25	NA	8

5.4 CO

The predicted ground level concentrations of CO are presented below in Table 5-5. The predicted ground level concentrations including background are predicted to be well below the impact assessment criteria for all three averaging periods.

Table 5-5: Predicted ground level concentrations – CO

Receptor	Maximum 15 minute average ($\mu\text{g}/\text{m}^3$)		Maximum 1 hour average ($\mu\text{g}/\text{m}^3$)		Maximum 8 hour average ($\mu\text{g}/\text{m}^3$)	
	Isolation	Cumulative	Isolation	Cumulative	Isolation	Cumulative
SR1	3.3	24.9	2.5	18.9	1.1	13.1
SR2	3.2	24.8	2.4	18.8	1.3	13.3
SR3	2.9	24.5	2.2	18.6	0.8	12.8
SR4	2.9	24.5	2.2	18.6	0.7	12.7
SR5	2.4	24.0	1.8	18.2	0.7	12.7
SR6	2.3	23.9	1.8	18.2	0.5	12.5
SR7	3.6	25.2	2.7	19.1	0.8	12.8
SR8	3.5	25.1	2.7	19.1	1.0	13.0
SR9	4.2	25.8	3.2	19.6	1.3	13.3
SR10	9.0	30.6	6.8	23.2	2.9	14.9
SR11	4.0	25.6	3.0	19.4	1.3	13.3
SR12	4.2	25.8	3.2	19.6	0.8	12.8
SR13	5.6	27.2	4.2	20.6	1.5	13.5
SR14	4.9	26.5	3.7	20.1	1.3	13.3
SR15	36.5	58.1	27.6	44.0	9.6	21.6
SR16	6.7	28.3	5.1	21.5	2.1	14.1
SR17	5.0	26.6	3.8	20.2	1.2	13.2
SR18	12.8	34.4	9.7	26.1	3.3	15.3
SR19	6.5	28.1	4.9	21.3	1.0	13.0
SR20	6.1	27.7	4.6	21.0	1.6	13.6
SR21	10.7	32.3	8.1	24.5	3.9	15.9
SR22	7.2	28.8	5.4	21.8	1.8	13.8
SR23	7.6	29.2	5.7	22.1	1.9	13.9
SR24	17.1	38.7	13.0	29.4	3.5	15.5
SR25	3.8	25.4	2.9	19.3	0.6	12.6
SR26	4.5	26.1	3.4	19.8	1.2	13.2
SR27	4.2	25.8	3.2	19.6	1.1	13.1
SR28	2.2	23.8	1.6	18.0	0.4	12.4
SR29	3.5	25.1	2.7	19.1	0.5	12.5
SR30	2.7	24.3	2.0	18.4	0.5	12.5
SR31	3.1	24.7	2.4	18.8	0.5	12.5
SR32	1.9	23.5	1.4	17.8	0.4	12.4
SR33	1.6	23.2	1.2	17.6	0.6	12.6
SR34	1.7	23.3	1.3	17.7	0.3	12.3
SR35	3.5	25.1	2.7	19.1	0.4	12.4
SR36	2.5	24.1	1.9	18.3	0.4	12.4
CRITERIA	NA	100,000	NA	30,000	NA	10,000

6 CONCLUSION

This report has assessed the potential air quality impacts associated with the Modification 3 for diesel generator capacity for Stage 1 of the Rushes Creek poultry farm development and temporary use of these diesel generators to power Farm 2 and the water pump for up to 10 months. Local land use, terrain and meteorology including the assimilation from an onsite ultrasonic weather station have been considered in the assessment. Background air quality was included in the assessment from both the Gunnedah and Port Macquarie monitoring sites. Dispersion modelling was conducted using CALPUFF in line with the approved methods.

The modelling indicates that the predicted ground level concentrations of NO₂, PM₁₀ and PM_{2.5} and CO easily comply with the relevant air quality criteria. Furthermore, the modelling conservatively assumes 100% conversion of NO_x to NO₂ and also that the two 440 kVA and one 45 kVA diesel generators are operating continuously for a complete year where in reality, this will only occur for approximately 10 months until the permanent power solution is established.

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Appendix D

Assessment of Traffic Matters

(SLR Consulting Australia)



MODIFICATION 3 TRAFFIC ASSESSMENT

Rushes Creek Poultry Production Farm

Prepared for:

ProTen Tamworth Pty Ltd
PO Box 1746
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SLR Ref: 620.30288-R03
Version No: -v1.0
December 2021



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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with ProTen Tamworth Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
620.30288-R03-v1.0	20 December 2021	Chris Lawlor	Jeff Baczynski	Chris Lawlor

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Appendix B	TfNSW Application Requirements Email
Appendix C	Assessment Traffic Volumes
Appendix D	Detailed SIDRA Outputs
Appendix E	Turn Warrants Assessment
Appendix F	Amended CTMP

1 Introduction

1.1 Context

SLR Consulting Australia Pty Ltd (**SLR**) has been engaged by ProTen Tamworth Pty Ltd (**ProTen**) to provide traffic engineering advice in relation to a proposed modification to an existing Development Consent (**Modification 3**) for the Rushes Creek Poultry Production Farm development (**Rushes Creek PPF** or **the development**). Plans for the proposed modification have been provided by ProTen and are included at **Appendix A**.

This traffic assessment has been prepared to inform assessment of Modification 3 by the NSW Government Department of Planning, Industry and Environment (**DPIE**) and relevant road authorities, including Transport for NSW (**TfNSW**) and Tamworth Regional Council (**TRC**), by identifying and addressing the relevant traffic and transport matters.

1.2 Planning Application

This assessment has been prepared as supporting information to accompany an application from ProTen, seeking a modification to Development Consent SSD 7704 under section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). For reference, Development Consent SSD 7704 was issued by DPIE on 16 April 2020 (**Development Consent**).

Modification 3, which relates to Stage 1 of the development only, comprises the following components:

- Minor amendments to the positioning of ancillaries at Farm 2 following detailed design;
- Additional emergency standby diesel generator capacity at Farm 2 following detailed design;
- Addition of an emergency standby diesel generator and diesel storage at the Namoi River water supply pump;
- Concurrent construction and operation at Farm 2 for a period of up to 10 months in order to be able to commence partial site operations earlier; and
- Reliance on the diesel generators to operate Farm 2 (poultry sheds and ancillaries) and the water supply pump at the Namoi River for up to 10 months while the permanent power option (reticulated electricity or off-grid solar & battery option) is commissioned.

1.3 TfNSW Assessment Requirements

TfNSW has provided pre-lodgement advice in relation to the proposed modification in an email dated 8 September 2021 (TfNSW reference: NTH16/00056/12), which is included at **Appendix B**. The TfNSW application requirements as per the attached email are reproduced in **Table 1**, followed by a response as to how each requirement has been addressed herein.

Table 1 TfNSW Traffic Assessment Requirements

Item	TfNSW Comment	Report Section
1	<i>"The proposed concurrent construction and operation will modify the previously identified traffic impact, this will need to be quantified and any supporting documents updated to identify any traffic or safety concerns this may identify and mitigation measures proposed."</i>	Sections 3, 4 and 5
2	<i>"TfNSW notes the approved Construction and Operational Traffic Management Plan/s will require updating, taking into consideration the identified change of traffic volumes and include any identified mitigation measures."</i>	Section 6 and Appendix F

1.4 Background

1.4.1 Approved Development

For reference, *Schedule 1* of the Development Consent permits the following development on the subject site:

"Construction and operation of the Rushes Creek Poultry Production Farm, including:

- ***Four poultry farms consisting of a total of 54 fully enclosed, tunnel ventilated poultry sheds;***
- ***A maximum operational capacity of 3,051,000 birds at any one time;***

Additional works, as described in the application include:

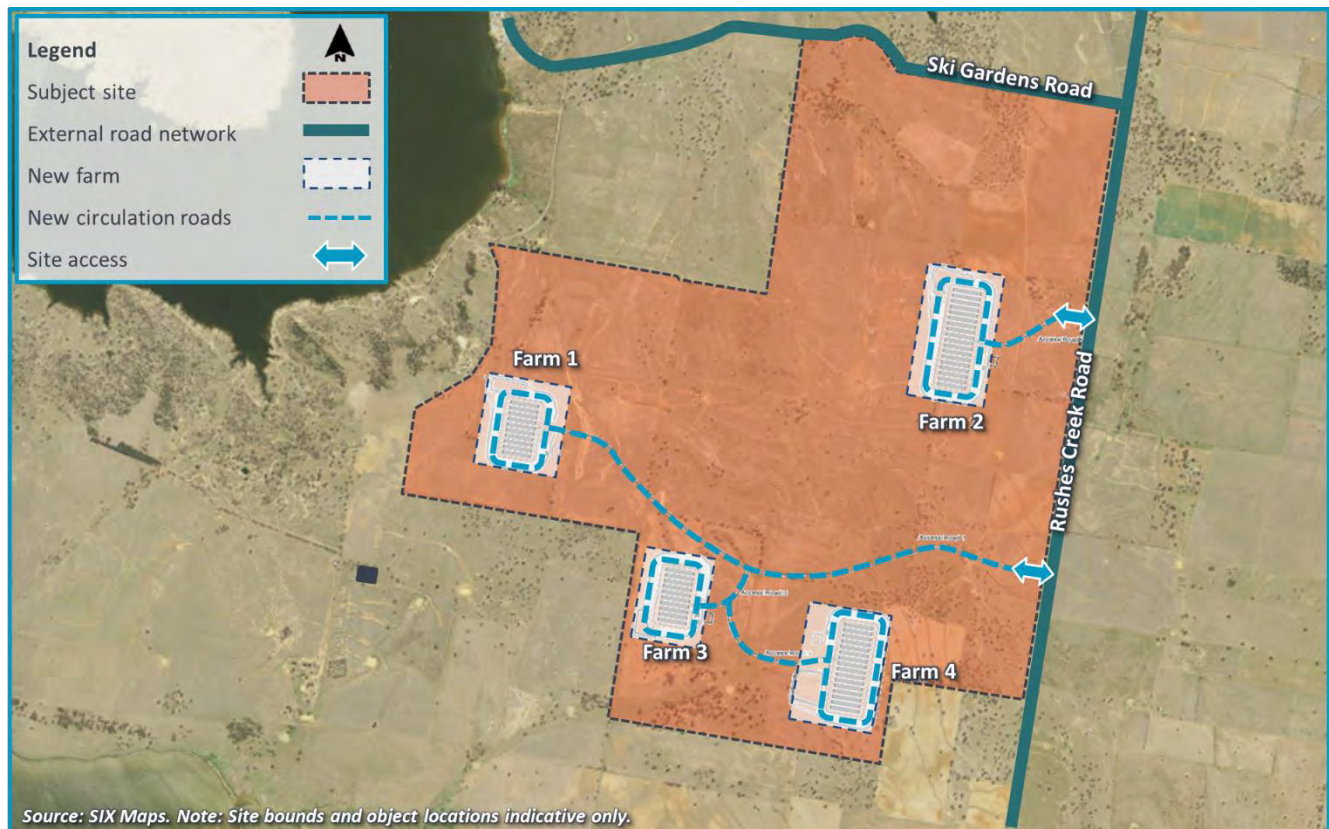
- ***Eight manufactured homes to accommodate farm managers;***
- ***Two access driveways from Rushes Creek Road and internal access roads;***
- ***Water supply infrastructure to extract, transfer, treat and store water from the Namoi River;***
- ***Reticulated electrical supply infrastructure;***
- ***Bedding material storage shed;***
- ***Two dead bird freezers; and***
- ***Boundary adjustments."***

Relevant aspects of the approved development are summarised overleaf in **Table 2** and the approved site layout and external access arrangements are indicatively illustrated overleaf on **Figure 1**.

Table 2 Summary of Approved Development

Farm	Number of Sheds	External Site Access
1	10 sheds	Via southern driveway crossover
2	18 sheds	Via northern driveway crossover
3	10 sheds	Via southern driveway crossover
4	16 sheds	Via southern driveway crossover

Figure 1 Approved Site Layout and External Access Arrangements



1.4.2 Previous Assessments

Reference is made to the following traffic assessments which have previously been prepared in relation to the operational and construction phases of the development:

- *Traffic Impact Assessment* report dated 25 June 2018 prepared by RoadNet (**RoadNet TIA**);
- *Supplementary Traffic Assessment* dated 20 December 2018 prepared by SLR (**SLR STA**);
- *Construction Traffic Management Plan* dated 11 June 2021 prepared by SLR (**Approved CTMP**). An amended version of the CTMP (**Amended CTMP**) has been prepared to reflect the changes proposed as part of Modification 3 and is included at **Appendix F**.

The above traffic assessments are referred to herein where necessary.

2 Proposed Modification 3

2.1 Modification Overview

For reference, the development is planned to be established over two separate stages, with Stage 1 comprising the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprising the construction and operation of Farms 1, 3 and 4 and associated ancillaries.

Modification 3 relates to Stage 1 only (i.e. Farm 2) and comprises the following two short-term components that will have associated traffic implications:

- **Concurrent construction and operation at Farm 2.** ProTen propose to commence partial operations at Farm 2 whilst construction works are still being undertaken to complete Farm 2 for up to 10 months. Four (4) to eight (8) sheds will be constructed at a time and commissioned, while construction of remaining sheds and ancillaries is ongoing, until all 18 sheds are completed and commissioned. Construction of Farm 2 commenced earlier this year, and it is anticipated that the first eight (8) sheds will be completed and commissioned in around February 2022.
- **Generator power for Farm 2 operations.** The development was approved based on operational power requirements being met by solar panels and connection to the reticulated electricity network. However, ProTen are now pursuing options to create an 'off-grid' solar and battery solution, which would be subject to a separate modification approval. In the interim period, the Farm 2 (poultry sheds and ancillaries) and the Namoi River water pump will need to rely on diesel generators for a period of up to 10 months for operation.

2.2 Timing of Stage 1 Construction and Operational Activities

The indicative timing for construction and operational activities at Farm 2 proposed as part of Modification 3 is summarised in **Table 3**. For clarity, Stage 1A of the development, consisting of earthworks at Farm 2, has already commenced as indicated above.

Table 3 Indicative Stage 1 Timing

Sub Stage	Description of Key Activities	Completion of Construction	Commencement of Operations
A	Earthworks, including construction of the northern site access to Rushes Creek Road and all internal Farm 2 circulation roads	January 2022 (prior to any operational activities)	-
B	Construction of Farm 2 sheds 1-8 (i.e. 8 sheds total) and ancillary support infrastructure	early-February 2022	mid-February 2022
C	Construction of Farm 2 sheds 9-12 (i.e. 4 sheds total)	early-April 2022	mid-April 2022
D	Construction of Farm 2 sheds 13-16 (i.e. 4 sheds total)	early-June 2022	mid-June 2022
E	Construction of Farm 2 sheds 17-18 (i.e. 2 sheds total)	mid-August 2022	late-August 2022

While **Table 3** indicates construction works and partial operations will occur concurrently for around seven (7) months, an additional three (3) months has been included to allow for unforeseen construction delays like wet weather.

Of note, consistent with that previously proposed, all Farm 2 earthworks, including construction of the approved northern site access to Rushes Creek Road and all internal circulation roads (unsealed), will be completed prior to the commencement of operations at Farm 2.

2.3 Traffic Engineering Implications

Resulting from the aforementioned activities, the following changes of relevance from a traffic engineering perspective are proposed as part of Modification 3 (i.e. compared to the approved development):

- Operational traffic and construction traffic (associated with Farm 2) would concurrently travel on the external road network to and from the development Site for a period of up to 10 months. The intersections and road segments impacted by this change are mapped on **Figure 2** overleaf for reference.
- Operational and construction traffic would access Farm 2 concurrently via the northern site access to Rushes Creek Road and associated internal circulations roads for a period of up to 10 months;
- As a result of the proposed increased usage of diesel power generators, additional fuel (diesel) deliveries would be required to Farm 2 by tankers up to Heavy Rigid Vehicle (**HRV**) size for a period of up to 10 months. ProTen has advised that up to one fuel delivery per day would be required during peak times in the production cycle, resulting in up two (2) additional heavy vehicle movements to/from Farm 2 per day, consisting of one (1) inbound and one (1) outbound movement. It is noted that fuel deliveries by HRV tankers to Farm 2 were previously considered in the traffic assessments conducted for the approved development, albeit at a lower frequency (i.e. around one (1) fuel delivery per month as per the RoadNet TIA) than is now proposed;
- Diesel would be transferred from the HRV fuel tanker to the diesel storage tanks on Farms 2, and also occasionally to a 2,500L fuel trailer. The fuel trailer, towed by a light vehicle (e.g. 4WD or ute), would be used to transfer diesel to generators around Farm 2 (i.e. those remote from the diesel storage tanks) and also to the generator for the Namoi River water supply pump as required. It is anticipated that the diesel generator for the water pump would require refuelling up to twice per week.

The locations of infrastructure relevant to the above commentary are mapped on **Figure 3** overleaf in the context of the surrounding road network and approved northern site access and internal circulations roads.

Figure 2 Study Intersections and Road Segments

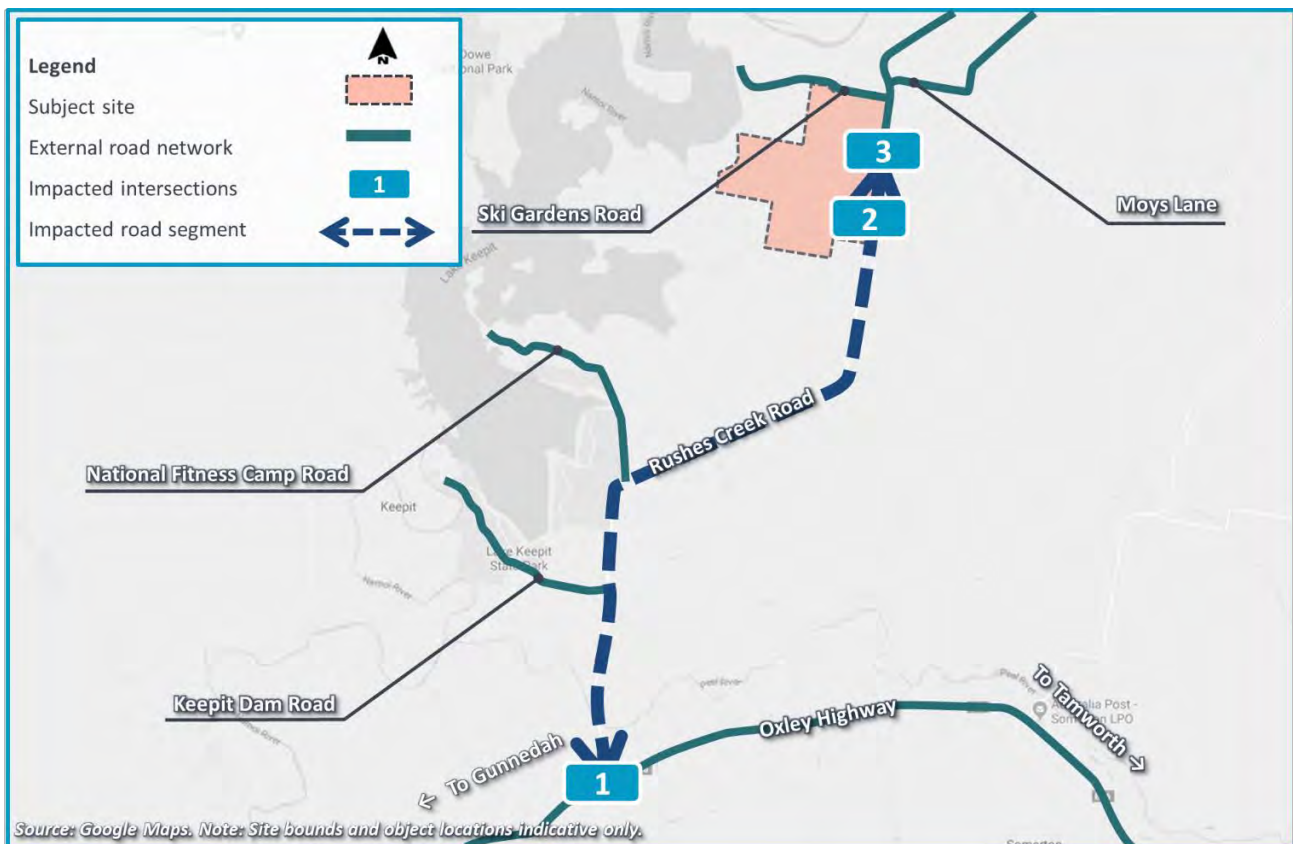
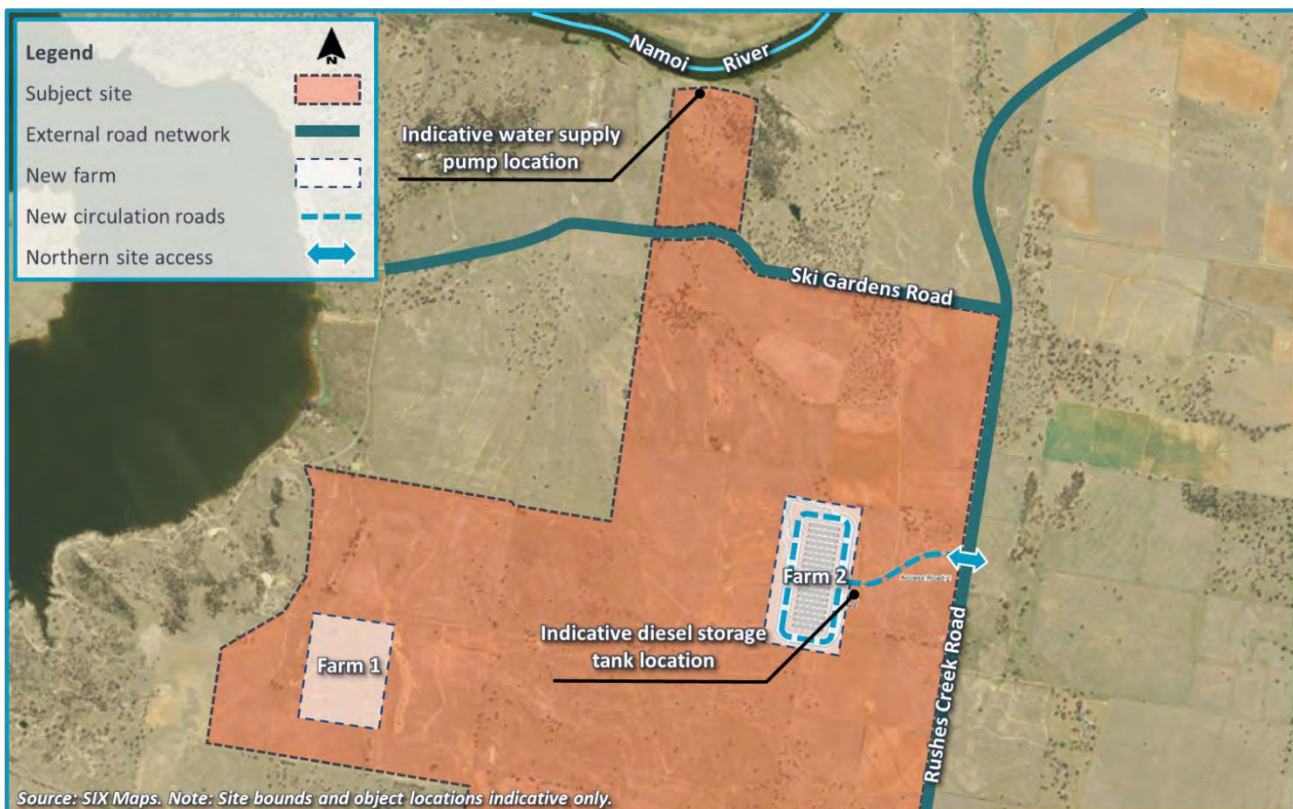


Figure 3 Farm 2 Site Access, Circulation Roads and Infrastructure Locations



3 Assessment of Traffic Matters

Reflecting the commentary provided in **Section 2.3** herein, SLR has assessed the following traffic matters of relevance to Modification 3:

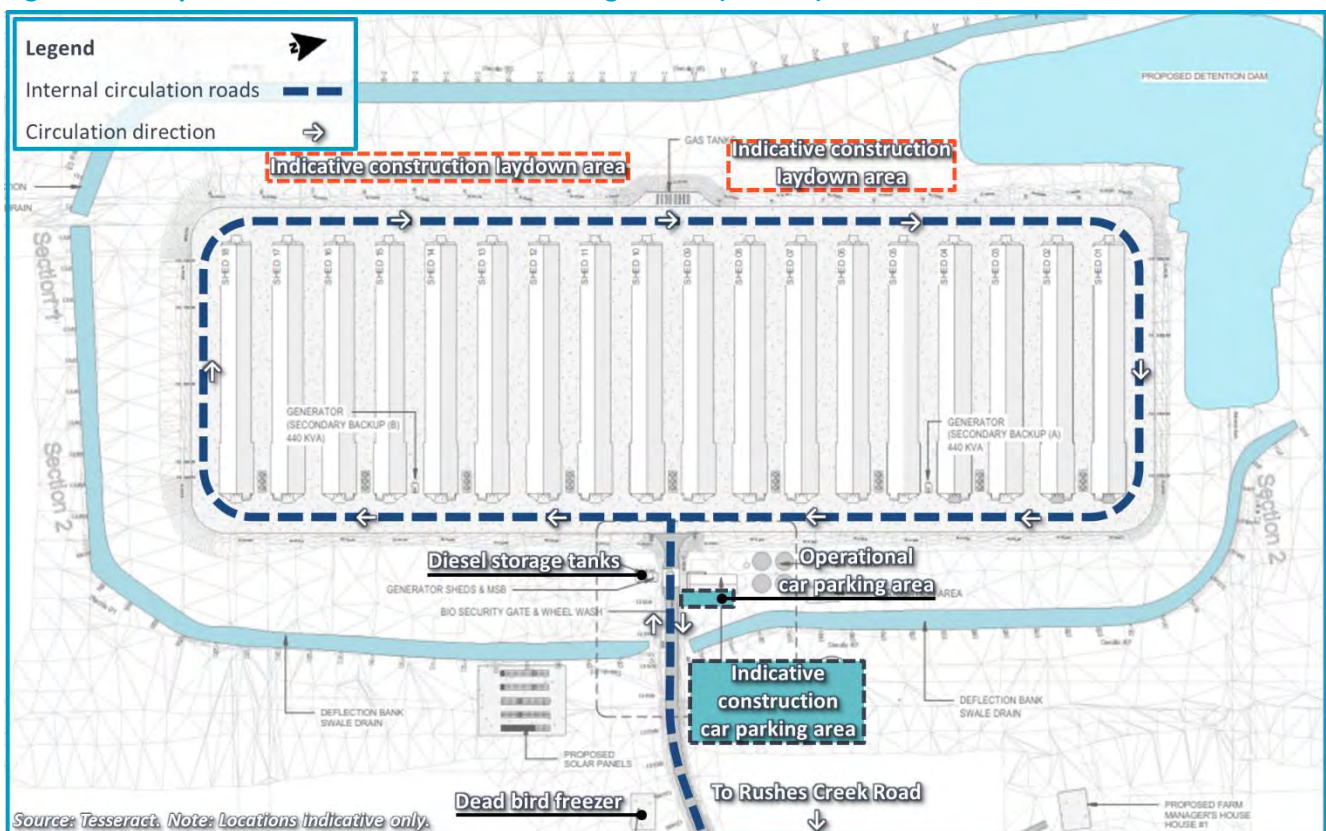
- Internal design matters;
- External traffic impacts.

3.1 Internal Design Matters

With regard to the design of internal traffic arrangements proposed within Farm 2 as a result of Modification 3, no material changes to the approved development layout or that considered by the Endorsed CTMP are proposed (Note, minor changes to the positioning of some ancillary facilities are proposed). Furthermore, Modification 3 will not result in increased demands for car parking or loading areas compared to that previously assessed, noting that diesel deliveries were previously proposed, albeit that the delivery frequency will now increase (i.e. up to one (1) delivery per day).

Modification 3 will, however, result in the concurrent use of internal traffic arrangements within Farm 2 by both operational and construction traffic. The vehicle circulation, parking and loading areas required to support site operations and construction traffic (refer to the Amended CTMP) are indicatively shown on **Figure 4**.

Figure 4 Proposed Farm 2 Internal Traffic Arrangements (Interim)



With regard to the ability of the approved Farm 2 internal traffic arrangements to service concurrent operational and construction traffic, the following is noted:

- Separate areas will be provided for operational and construction car parking as indicated on **Figure 4**, and therefore no additional impacts are anticipated to result from simultaneous operational and construction car parking demands;
- The northern site access and Farm 2 internal circulation roads have been designed to accommodate vehicles up to 25m B-Double size for the operational phase of the development as per the previous traffic assessments (i.e. RoadNet TIA and SLR STA) summarised at Section **1.4.2** herein, whilst access for design vehicles up to 20m Articulated Vehicle (**AV**) will be required for construction as indicated in the Endorsed CTMP. Given the proposed design of the main site access road (i.e. unsealed road between Farm 2 and the northern site access to Rushes Creek Road) and Farm 2 circulation road (i.e. unsealed road surrounding the poultry sheds), which are indicated on the development plans (refer to **Appendix A**) as having widths of around 8m and 15m+ respectively, and the anticipated peak hour and daily heavy vehicle volumes as detailed in **Section 3.2** below, the proposed site access and circulation roads are considered sufficient to accommodate combined operational and construction traffic demands;
- Site circulation roads and laydown areas for construction materials and stockpiles, the locations of which are indicatively shown on **Figure 4**, will be managed by the construction contractor to minimise the potential for conflicts between operational and construction traffic, including initiatives such as implementation of one-way circulation (clockwise) around Farm 2 for the duration of construction. Given the proposed width of the circulation roads surrounding the poultry sheds (i.e. 15m+), the management of concurrent operational and construction traffic circulation around the site, including loading and unloading, is not anticipated to be problematic.

Reflective of the above, the design of internal traffic arrangements is considered sufficient to accommodate both operational and construction traffic demands, including site circulation, car parking, and loading and unloading.

3.2 External Traffic Impacts

3.2.1 Additional External Traffic Demands Associated with Diesel Deliveries

Modification 3 is anticipated to result in the following additional traffic demands beyond that previously contemplated as a result of additional diesel deliveries to Farm 2 for up to 10 months:

- **Fuel deliveries by HRVs:** Up two (2) additional heavy vehicle movements per day, consisting of one (1) inbound and one (1) outbound movement. Fuel deliveries are anticipated to occur outside of network peak hour periods, and are likely to originate in Tamworth, accessing Farm 2 via the Oxley Highway and then Rushes Creek Road using the designated heavy vehicle route as described within the Approved CTMP;
- **Fuel transfer to the Namoi River water supply pump generator:** It has conservatively been assumed that this activity would create up two (2) additional light vehicle movements per day external to the site, consisting of one (1) inbound and one (1) outbound movement. A light vehicle towing a fuel trailer will access the Namoi River site generator (refer to **Figure 3**) via the northern (Farm 2) site access, Rushes Road, Ski Gardens Road, and then via the existing Namoi River site access and internal road.

3.2.2 Concurrent Site Operational and Construction Traffic Demands

Whilst concurrent site operation and construction activities on Farm 2 were not previously proposed, the external traffic impacts of this scenario had previously been considered in the Approved CTMP. Notwithstanding, the external traffic impacts of this scenario have also been assessed herein for the purposes of the formal Modification 3 application.

The traffic demands expected to be generated by each activity proposed as part of Modification 3 have been sourced from the following traffic assessments referenced in **Section 1.4.2** herein:

- **Operational phase** (permanent): RoadNet TIA;
- **Operational phase – additional fuel deliveries** (temporary): **Section 3.2.1** herein;
- **Construction phase** (temporary): Approved CTMP.

Reflective of the above commentary, the temporary daily and peak hour traffic demands proposed as part of Modification 3 for a period of up to 10 months are summarised in **Table 4** and compared to that generated by the approved development (i.e. operational phase traffic demands only).

Table 4 Comparison of Approved Development and Modification 3 Traffic Generation

Component	Peak Daily Trips		Peak Hour Trips	
	Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
Approved Development Traffic Generation				
Operational phase	26vpd	46vpd	12vph	5vph
Total	72vpd		17vph	
Proposed Modification 3 Traffic Generation				
Operational phase	26vpd	46vpd	12vph	5vph
Additional fuel deliveries (temporary)	2vpd	2vpd	0vph	0vph
Construction phase (temporary)	58vpd	2vpd	29vph	0vph
Subtotal	86vpd (+60vpd)	50vpd (+4vpd)	41vph (+29vph)	5vph (+0vph)
Total	136vpd (+64vph)		46vph (+29vph)	

vpd = vehicles per day, vph = vehicles per hour.

As indicated in **Table 4**, Modification 3 will result in additional daily and peak hour traffic demands compared to that formally approved by the Development Consent. Whilst the impacts of concurrent operational and construction traffic demands have previously been assessed in the Approved CTMP, it is understood that these traffic demands are not formally approved by the current Development Consent.

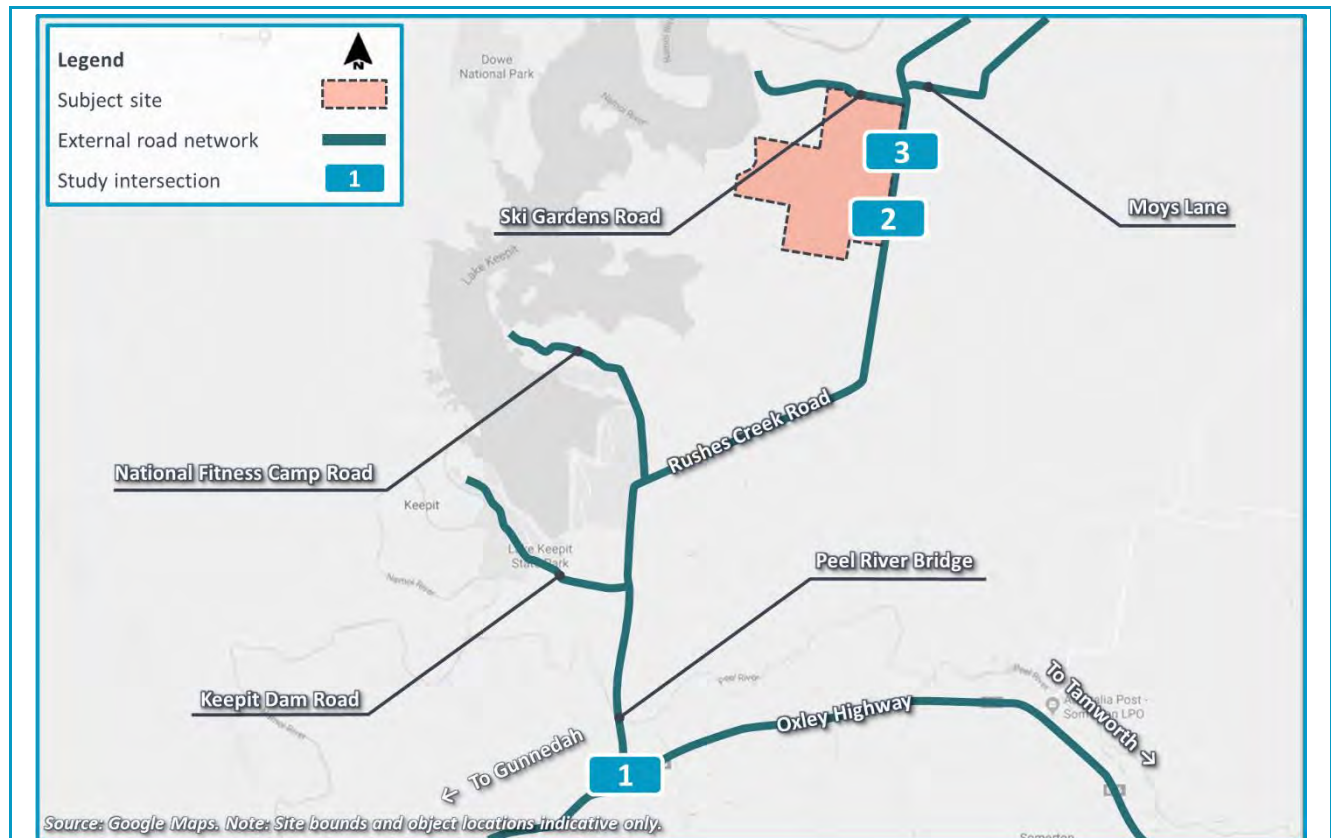
Accordingly, an assessment of the operational and safety impacts of the increased traffic demand anticipated to be generated by Modification 3 for a period of up to 10 months is documented in **Section 4** and **Section 5** respectively herein.

4 Operational Assessment

4.1 Study Intersections

A detailed analysis of the impacts of the proposed Modification 3 traffic demands on the operation of the external road network has been undertaken at the locations indicated on **Figure 5**.

Figure 5 Study Intersections



ID	Intersection	Intersection Form	Authority
1	Oxley Highway/Rushes Creek Road		TfNSW
2	Rushes Creek Road/Southern Site Access		GCC
3	Rushes Creek Road/Northern Site Access		GCC

4.2 Assessment Scenario

An operational assessment of study intersections has been undertaken for a conservative assessment scenario consisting of the following traffic demands:

- 2025 background traffic demands (i.e. based on surveyed traffic volumes and 2% per annum growth on all roads as per the RoadNet TIA); *plus*
- Development operational phase traffic demands (i.e. as per the RoadNet TIA); *plus*
- Development construction phase traffic demands (i.e. as per the Approved CTMP).

Although not proposed, for the purposes of conservatism, the assessment has considered combined operational and construction traffic demands at both northern and southern site accesses to Rushes Creek Road (i.e. these traffic demands are proposed at the northern site access only).

The operation of the road network has been assessed for the above scenario during both the weekday AM and PM peak hour periods in SIDRA Intersection. Assessment traffic volumes are included at **Appendix C**.

4.3 Performance Criteria

Study intersections have been assessed in SIDRA Intersection; an industry recognised analysis tool used to estimate the capacity and performance of intersections based on input parameters, including geometry and traffic volumes. SIDRA Intersection provides an estimate of an intersection's Degree of Saturation (**DOS**), queues and delays. The performance thresholds adopted for the operational assessment reported herein are detailed below.

4.3.1 Degree of Saturation

The maximum DOS thresholds identified by the Austroads *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments (AGTM12-20)* for each intersection type are reproduced in **Table 5**.

Table 5 Degree of Saturation Thresholds

Intersection Type	DOS Threshold
Signalised intersections	Less than or equal to 0.90
Roundabouts	Less than or equal to 0.85
Priority controlled intersections	Less than or equal to 0.80

DOS values exceeding those presented in **Table 5** indicate that an intersection is nearing its practical capacity and upgrade works may be required. Above these threshold values, users of the intersection are likely to experience rapidly increasing delays and queuing.

4.3.2 Critical Delay

The RMS (now TfNSW) *Guide to Traffic Generating Developments* (2002) recommends that the average delay statistic for the critical movement provides a better indication of intersection performance and safety for roundabouts and priority-controlled intersections than DOS. A summary of the delay thresholds recommended by TfNSW is provided in **Table 6**.

Table 6 Critical Delay Thresholds

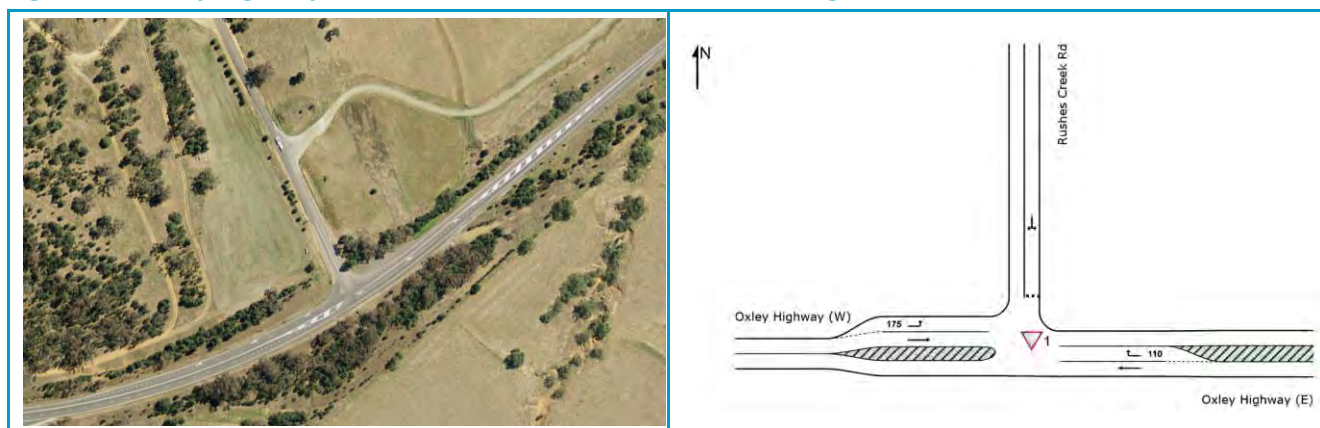
LOS	Description	Critical Delay (sec/vehicle)
A	Good operation	< 14 sec
B	Acceptable delays and spare capacity	15 - 28 sec
C	Satisfactory	29 - 42 sec
D	Near capacity	43 - 56 sec
E	At capacity, requires other control mode	57 - 70 sec

4.4 Intersection Assessment

4.4.1 Oxley Highway/Rushes Creek Road Intersection

The Oxley Highway/Rushes Creek Road intersection is currently a priority controlled T-intersection. The existing configuration and assessed SIDRA layout of the intersection are shown on **Figure 6**. The results of the SIDRA assessment are presented in **Table 7**. Detailed SIDRA outputs are provided at **Appendix D**.

Figure 6 Oxley Highway/Rushes Creek Road Intersection – Existing Intersection Form



Source: SIX Maps

Table 7 SIDRA Outputs: Oxley Highway/Rushes Creek Road Intersection

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Critical Delay	95 th %ile Queue	DOS	Critical Delay	95 th %ile Queue
<i>Existing priority controlled intersection</i>						
2025 Background With Development & Construction	0.10	11 sec	2m (E)	0.10	11 sec	3m (N)

The SIDRA analysis summarised in **Table 7** identifies that the existing intersection layout performs well within typically adopted performance (i.e. DOS of 0.80 for a priority-controlled intersection) and safety (i.e. critical delay of 57 seconds or less) thresholds for all assessed scenarios.

4.4.2 Rushes Creek Road/Southern Site Access

The Rushes Creek Road/Southern Site Access proposed as a priority controlled driveway crossover. The assessed SIDRA layout of the proposed access is shown on **Figure 7**. The results of the SIDRA assessment are presented in **Table 8**. Detailed SIDRA outputs are provided at **Appendix D**.

Figure 7 Rushes Creek Road/Southern Site Access – Proposed Access Form

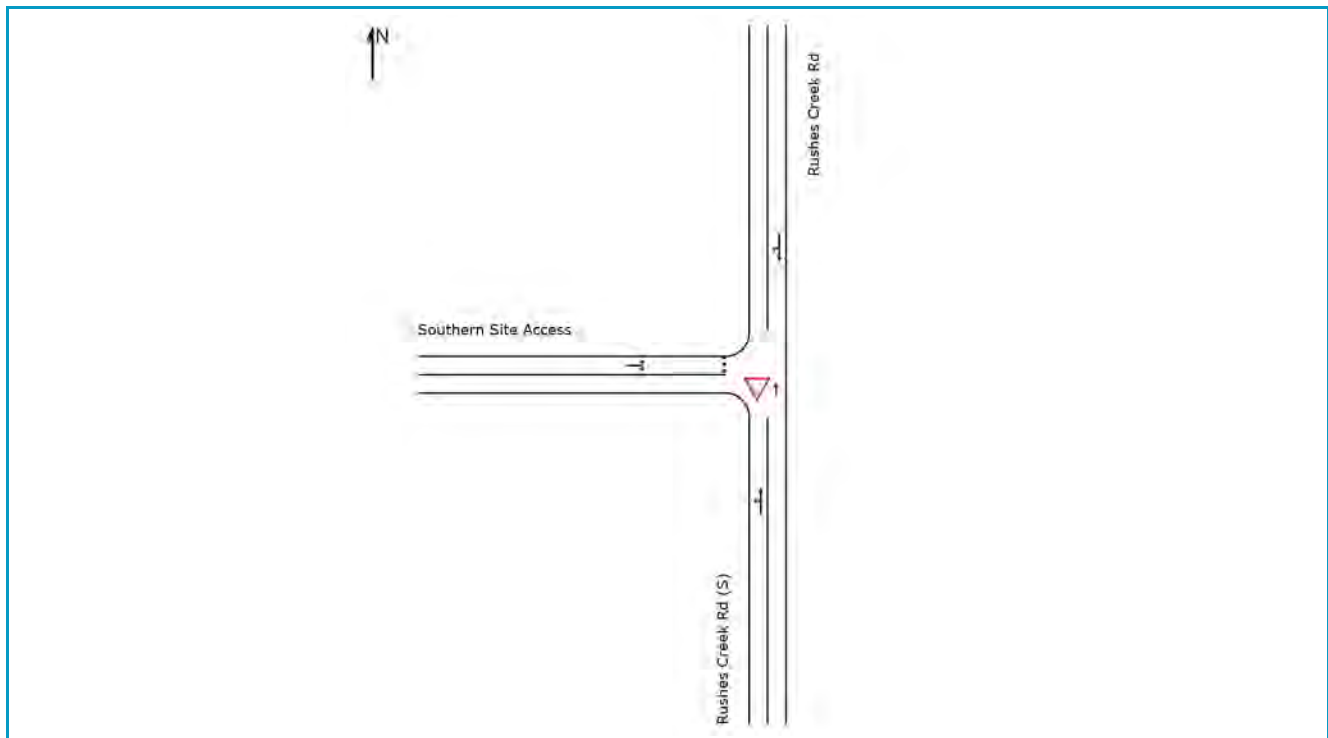


Table 8 SIDRA Outputs: Rushes Creek Road/Southern Site Access

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Critical Delay	95 th %ile Queue	DOS	Critical Delay	95 th %ile Queue
<i>Proposed priority controlled access</i>						
2025 Background With Development & Construction	0.04	8 sec	1m (W)	0.04	9 sec	1m (W)

The SIDRA analysis summarised in **Table 8** identifies that the proposed access layout performs well within typically adopted performance (i.e. DOS of 0.80 for a priority-controlled intersection) and safety (i.e. critical delay of 57 seconds or less) thresholds for all assessed scenarios.

4.4.3 Rushes Creek Road/Northern Site Access

The Rushes Creek Road/Northern Site Access proposed as a priority controlled driveway crossover. The assessed SIDRA layout of the proposed access is shown on **Figure 8**. The results of the SIDRA assessment are presented in **Table 9**. Detailed SIDRA outputs are provided at **Appendix D**.

Figure 8 Rushes Creek Road/Northern Site Access – Proposed Access Form

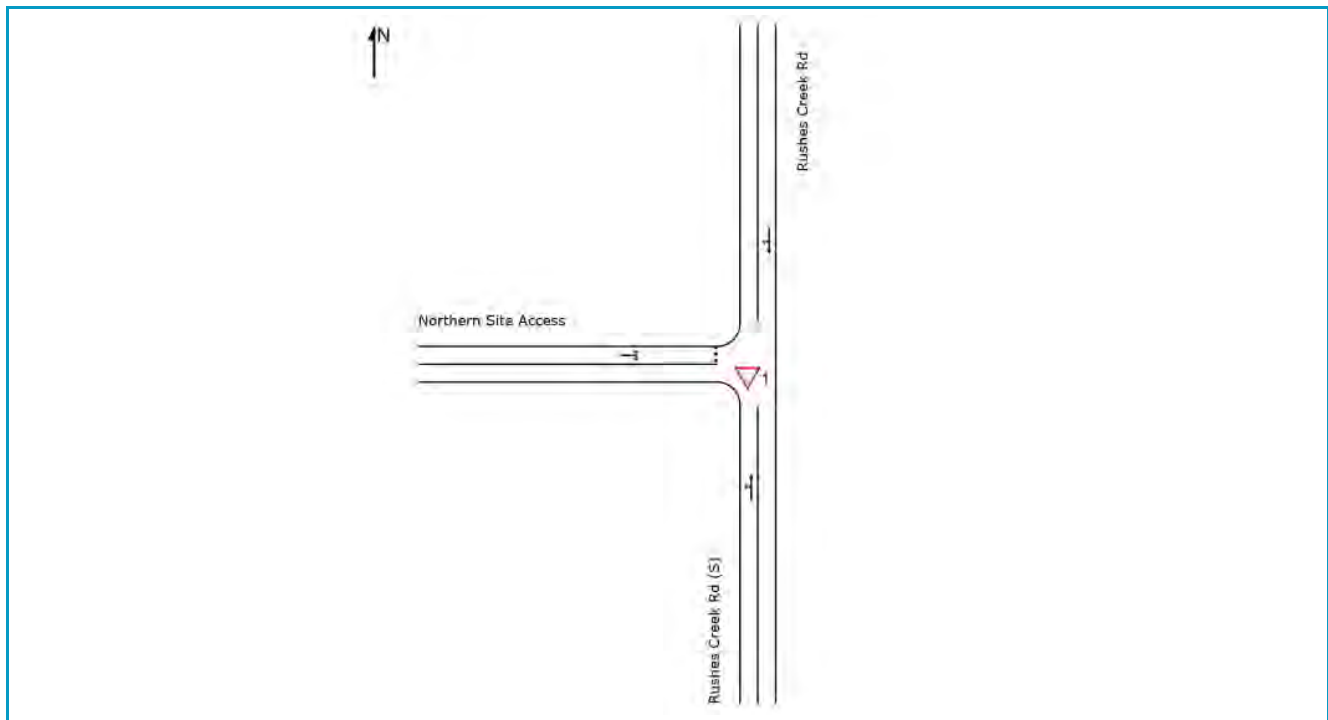


Table 9 SIDRA Outputs: Rushes Creek Road/Northern Site Access

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Critical Delay	95 th %ile Queue	DOS	Critical Delay	95 th %ile Queue
<i>Proposed priority controlled access</i>						
2025 Background With Development & Construction	0.04	8 sec	1m (W)	0.04	9 sec	1m (W)

The SIDRA analysis summarised in **Table 9** identifies that the proposed access layout performs well within typically adopted performance (i.e. DOS of 0.80 for a priority-controlled intersection) and safety (i.e. critical delay of 57 seconds or less) thresholds for all assessed scenarios.

4.5 Mitigation Measures

Based on the results of the operational assessment presented above, it is evident that the existing road network has sufficient capacity to accommodate the conservative Modification 3 traffic scenario (i.e. combination of operational and construction phase traffic demands at the 2025 design year) assessed herein. On this basis, no additional measures are considered necessary to offset the operational impacts of traffic associated with Modification 3.

5 Safety Assessment

5.1 Site Accesses

The following is noted in relation to the suitability of the proposed northern and southern site accesses to Rushes Creek Road to accommodate the daily and peak hour traffic demands proposed as part of Modification 3 for a period of up to 10 months:

- The SLR STA indicated that the location of the proposed northern and southern site accesses to Rushes Creek Road catered for appropriate sight distance in accordance with the relevant design standard, being the Australian Standards for *Parking facilities Part 2: Off-street commercial vehicle facilities (AS2890.2)*;
- A turn warrant assessment of both site accesses to Rushes Creek Road, a summary of which is included at **Appendix E**, was conducted using the 2025 design traffic volumes at **Appendix C** and demonstrates that the proposed BAL site access forms are suitable to accommodate the anticipated peak hour traffic demands generated by Modification 3;
- The largest anticipated design vehicle for the construction phase of the development is a 20m AV, which is smaller than the largest design vehicle for which the site accesses have been designed to accommodate (i.e. a 25m B-Double).

5.2 Rushes Creek Road and Oxley Highway Intersection

The following is noted in relation to the suitability Rushes Creek Road (i.e. to the south of the site accesses) and the Oxley Highway/Rushes Creek Road intersection to accommodate the daily and peak hour traffic demands proposed as part of Modification 3:

- As per **Table 4** herein, Modification 3 is expected to generate up to four (4) additional heavy vehicle movements (i.e. associated with construction traffic and additional fuel deliveries) to Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection for a period of up to 10 months;
- As per the SLR STA and Approved CTMP, Rushes Creek Road is an approved route 25/26m B-Double route. Furthermore, Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection have previously been assessed a suitable to accommodate 25m B-Double movements. Notwithstanding, the construction phase of the development will utilise design vehicles of up to 20m AV size (i.e. smaller than a 25/26m B-Double) and additional fuel deliveries will be conducted by HRVs (i.e. both of which are smaller than the assessed 25m B-Double design vehicle);
- A turn warrant assessment of the Oxley Highway/Rushes Creek Road intersection, a summary of which is included at **Appendix E**, was conducted using the 2025 design traffic volumes at **Appendix C**. The assessment demonstrates that the existing intersection form is suitable to accommodate the anticipated peak hour traffic demands generated by Modification 3.

5.3 Mitigation Measures

Based on the above commentary, no specific safety measures are considered to be warranted in order to accommodate the traffic demands associated with the Modification 3. Notwithstanding, it is proposed to implement a suite of traffic management measures for the duration of construction of the development as per the Approved CTMP. The Approved CTMP has been updated to reflect Modification 3 as per the commentary provided in **Section 6** herein.

6 Amended CTMP

As indicated above, the traffic engineering implications of Modification 3 are generally minor in nature and will only be for a period of up to 10 months. Notwithstanding, as requested by TfNSW, SLR has prepared an Amended CTMP, which is included at **Appendix F**, to reflect the changes proposed as part of Modification 3. For clarity, a summary of updates to various sections of Amended CTMP is summarised in **Table 10**.

Table 10 Summary of Updates Reflected in the Amended CTMP

CTMP Section	Description of Update
Section 1.4 (Previous traffic assessments)	Updated to reference this traffic assessment
Section 2.4 (Modification 3)	New section providing a description of Modification 3
Section 3.1 (Construction activities and staging)	Updated to reflect proposed Modification 3 staging and timing
Section 3.6 (Modification 3 Traffic Demands)	New section providing details of Modification 3 traffic demands
Section 5.3 (Rushes Creek Road and Oxley Highway Intersection)	Updated to consider Modification 3 traffic demands
Section 5.3 (Mitigation Measures)	Updated to consider Modification 3 traffic demands
Section 8 (Summary)	Updated to reflect proposed Modification 3 staging, timing and traffic demands
Appendix B (Road Authority Consultation Summary) & Appendix C (Evidence of Consultation)	Updated to include pre-lodgement advice from TfNSW
Appendix D (Indicative Construction Staging Plans)	Updated to reflect location of operational car parking area

7 Summary

SLR has been engaged by ProTen to provide traffic engineering advice in relation to Modification 3 for the Rushes Creek Poultry Production Farm development. Plans for the proposed modification have been provided by ProTen and are included at **Appendix A**.

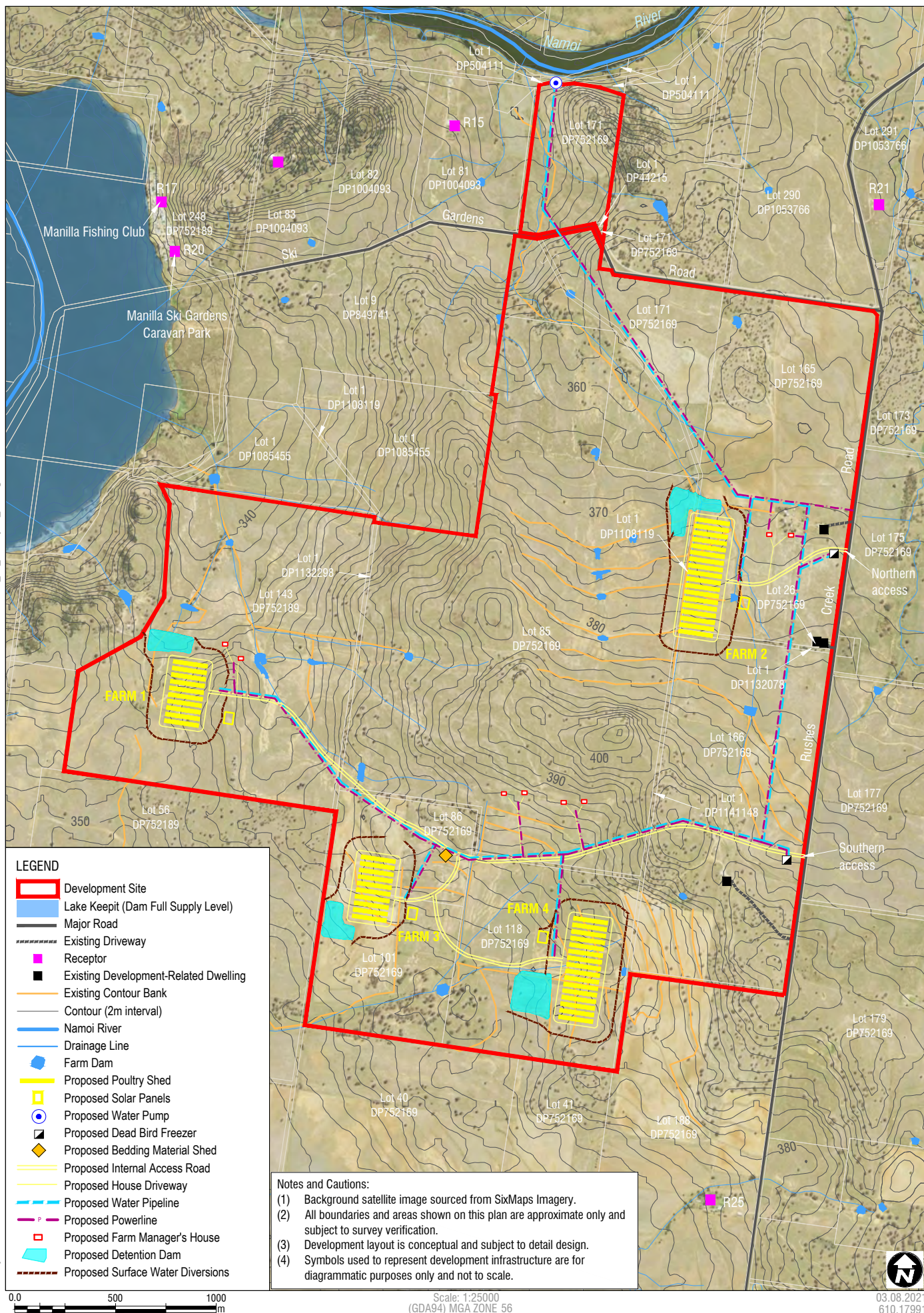
Based on the foregoing discussion and analysis, the following is concluded:

- There are no changes to the approved northern site access to Rushes Creek Road or internal traffic arrangements proposed as part of Modification 3. Furthermore, the design of the northern site access and internal traffic arrangements is considered sufficient to accommodate concurrent operational and construction traffic demands, including site circulation, car parking, and loading and unloading;
- An assessment of operational and safety impacts of concurrent Farm 2 operational and construction traffic demands, including consideration of additional fuel deliveries, on the northern site access and external road network indicates that no additional upgrades or mitigation measures are considered to be warranted beyond that currently required by the Approved CTMP to support concurrent operational and construction traffic demands;
- An Amended CTMP has been prepared to reflect proposed as part of Modification 3 and is included at **Appendix F**.

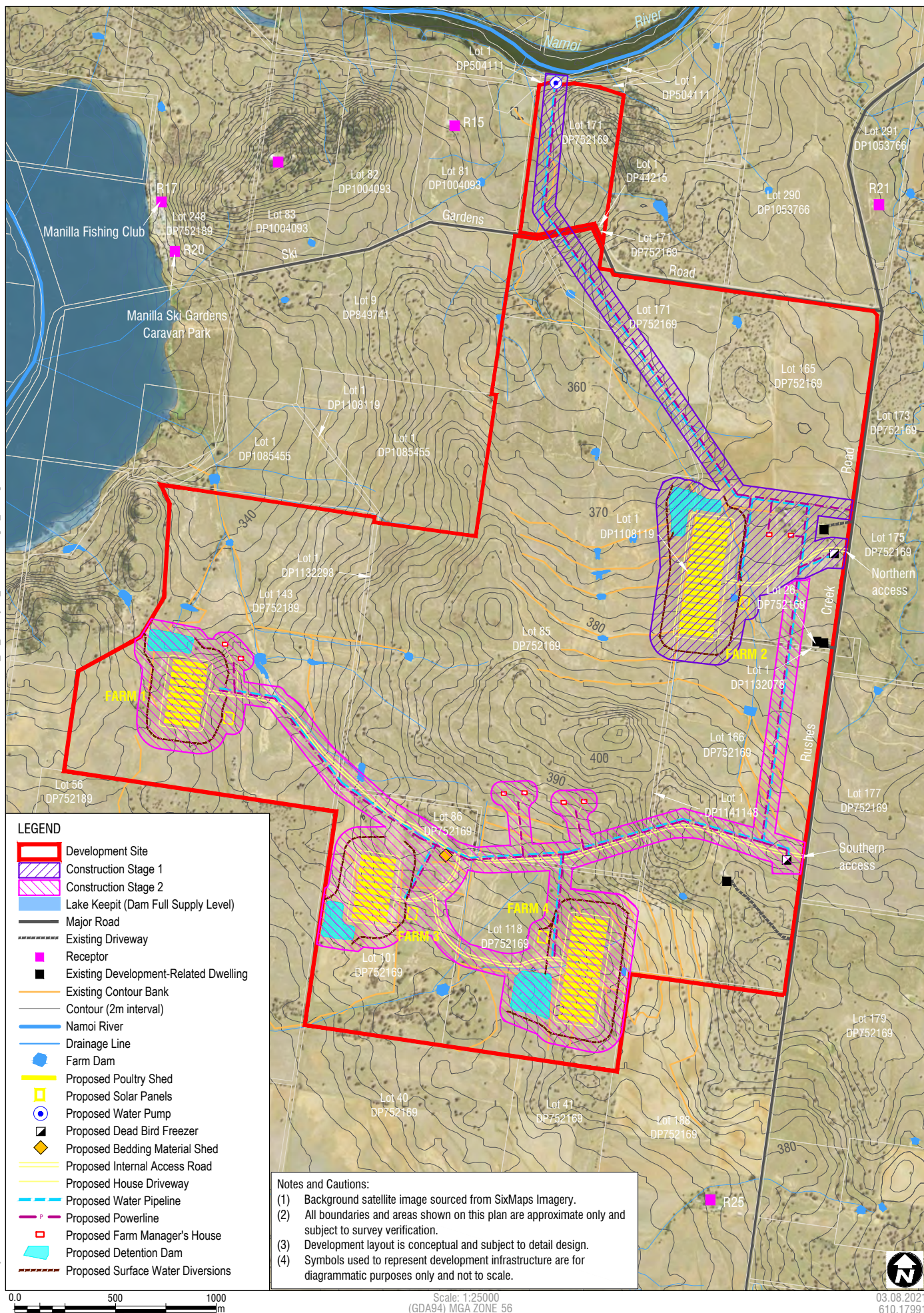
APPENDIX A

Amended Development Plans

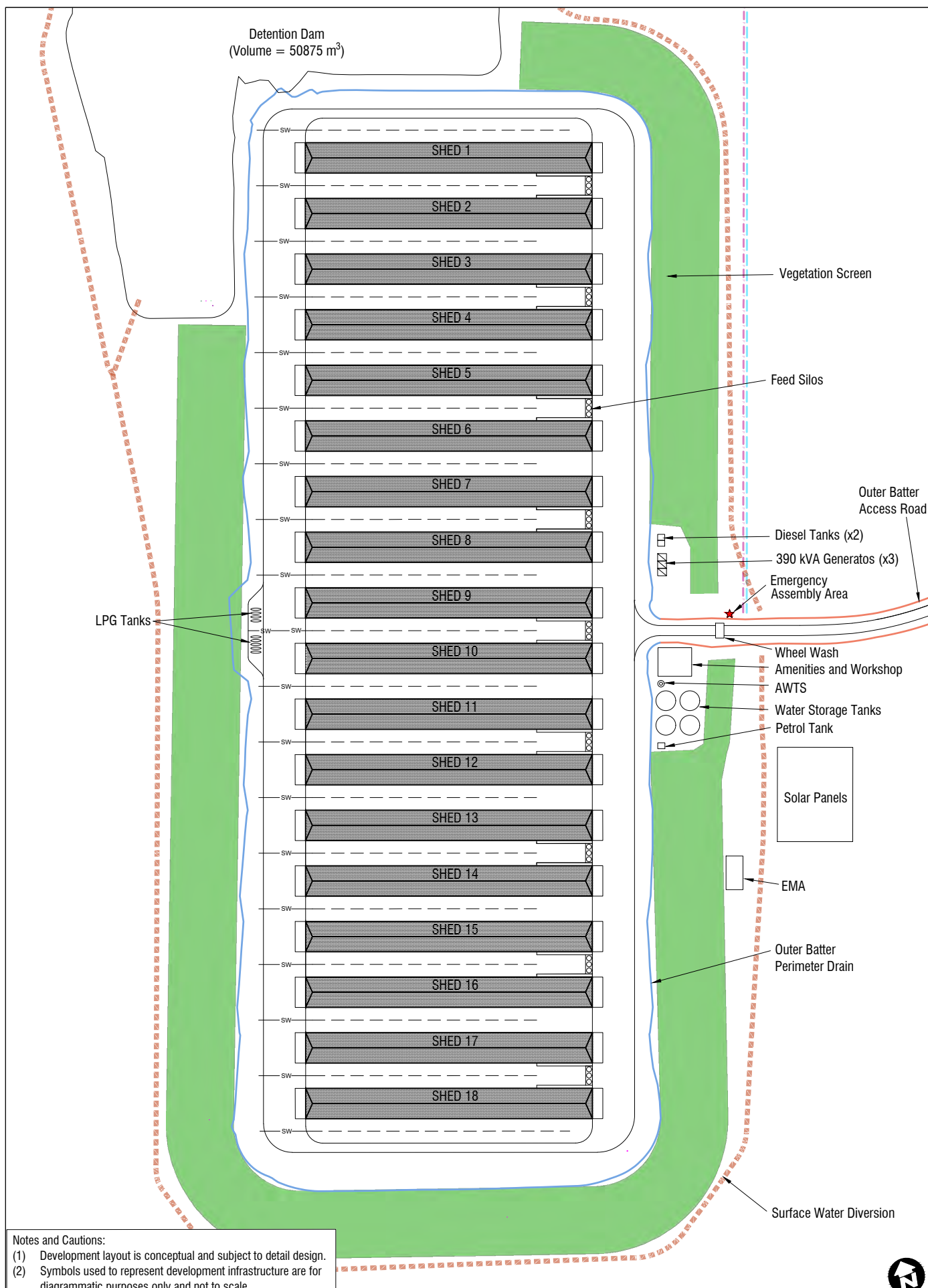
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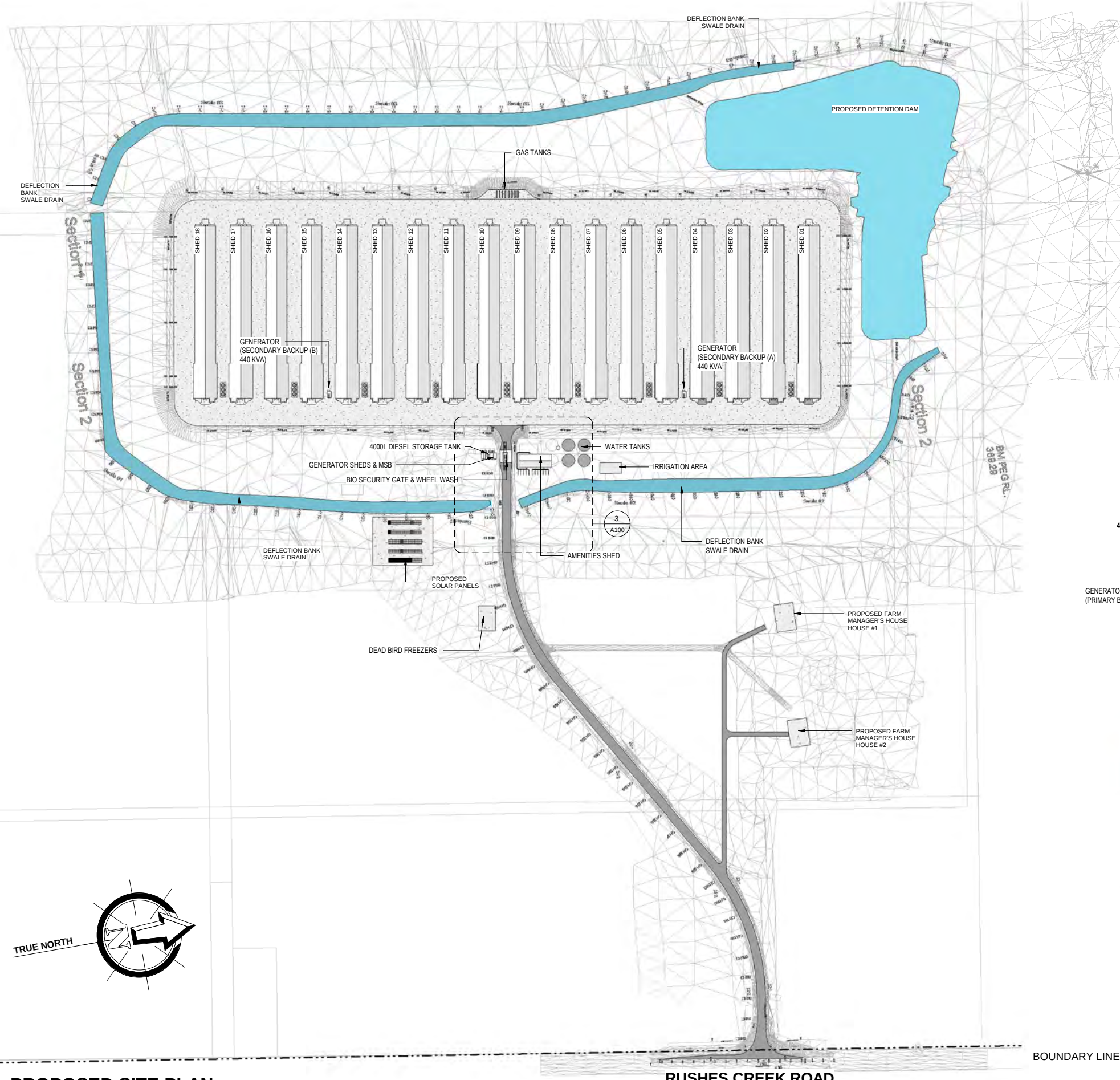
Notes and Cautions:

- (1) Development layout is conceptual and subject to detail design.
- (2) Symbols used to represent development infrastructure are for diagrammatic purposes only and not to scale.

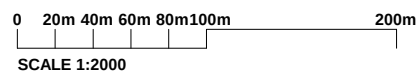
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Scale: 1:3000
(GDA94) MGA ZONE

10.04.2019
610.17991

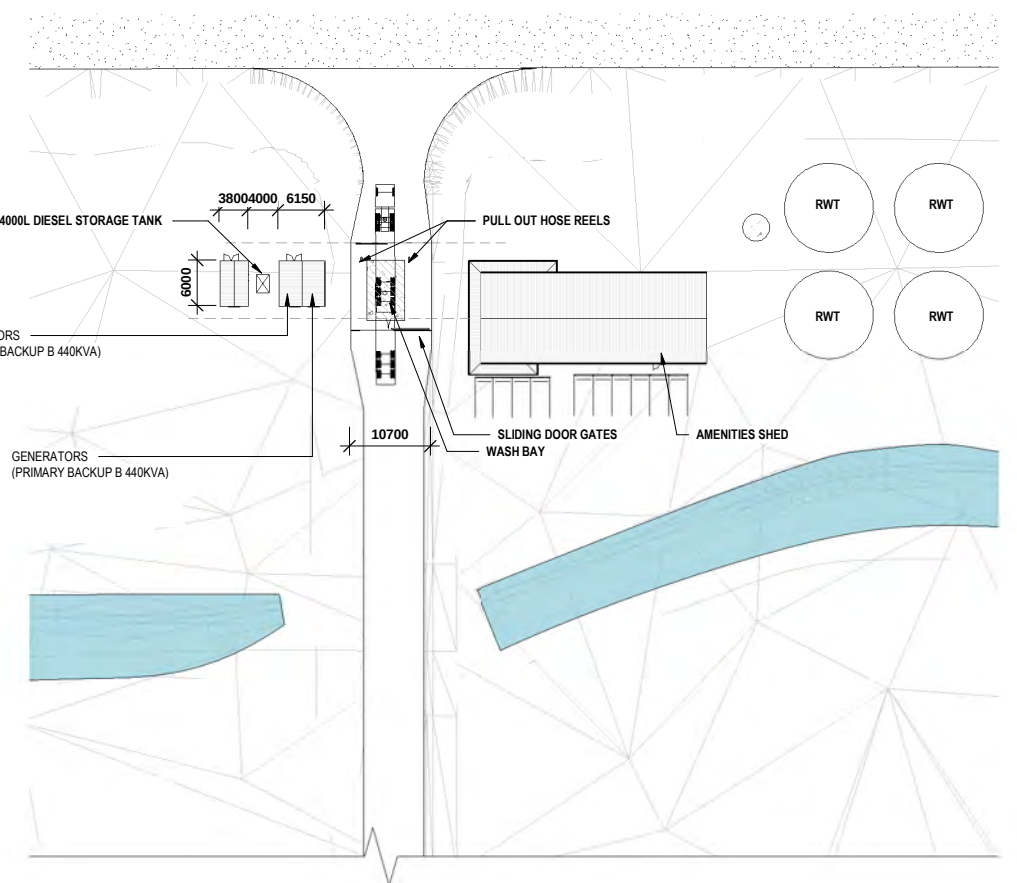


PROPOSED SITE PLAN
1 : 2000 @ A1



DOCUMENTATION IN PROGRESS
NOT TO BE USED FOR CONSTRUCTION PURPOSES

ISSUED FOR COMMENT
PROTEN / AGRIBIZ
PROPOSED POULTRY SHEDS
RUSHES CREEK RD. RUSHES CREEK NSW 2346



PART SITE PLAN
1 : 500 @ A1

APPENDIX B

TfNSW Application Requirements Email



Eryn Bath <eryn@emeadvisory.com>

NTH16/00056/12 - Proposed Modification to SSD 7704 - ProTen Rushes Creek Modification

Development Northern <development.northern@transport.nsw.gov.au>

8 September 2021 at 10:55

To: Eryn Bath <eryn@emeadvisory.com>

Cc: Lachlan Giles <lachlan@emeadvisory.com>

Hi Eryn

Thank you for contacting Transport for NSW regarding the proposed modification of SSD 7704, ProTen's Rushes Creek poultry farm located on Rushes Creek Road near Manilla approved on 14 April 2020.

TfNSW understands the proposed modification is to permit concurrent construction and ancillary facilities including solar and battery solution sufficient to enable Farm 2 to operate off-grid.

The proposed concurrent construction and operation will modify the previously identified traffic impact, this will need to be quantified and any supporting documents updated to identify any traffic or safety concerns this may identify and mitigation measures proposed.

TfNSW notes the approved Construction and Operational Traffic Management Plan/s will require updating, taking into consideration the identified change of traffic volumes and include any identified mitigation measures.

If you would like to discuss this matter further, please contact Leisa Sedger, Development Services Case Officer on 02 6640 1362 or email development.northern@transport.nsw.gov.au.

Kind regards

Leisa Sedger

for Matt Adams
Team Leader, Development Services

Community & Place | Region North

Regional & Outer Metropolitan
Transport for NSW

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal works hours.

P 02 6640 1362

E development.northern@transport.nsw.gov.au
A Level 1, 76 Victoria Street, Grafton NSW 2460



From: Eryn Bath [mailto:eryn@emeadvisory.com]
Sent: Monday, 23 August 2021 5:08 PM
To: Development Northern <development.northern@transport.nsw.gov.au>
Cc: Lachlan Giles <lachlan@emeadvisory.com>
Subject: ProTen Rushes Creek Modification

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

ATTENTION: LEISA SEDGER

Hi Lisa,

Reference is made to ProTen's Rushes Creek poultry farm development approved by DPIE under SSD 7704 for which you recently reviewed the CTMP. ProTen plans to establish the development over two separate stages, with Stage 1 comprising the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprising the construction and operation of Farms 1, 3 and 4 and associated ancillaries.

The purpose of this email is to introduce a proposal from ProTen to modify the development under section 4.55(1A) of the EP&A Act. The proposed modification relates to Stage 1 only and comprises two short-term components:

Concurrent construction and operation at Farm 2 - the EIS was prepared based on construction being completed prior to commencing operations. However, due to the current demand for broiler birds in the Australian market and the associated immediate need for additional broiler sheds in the Tamworth region, ProTen will need to undertake construction and partial operation at Farm 2 concurrently for up to 6 months in order to meet supply contracts.

Generator power for Farm 2 operations - the EIS was prepared based on all operational power requirements being met by solar panels and connection to Essential Energy's reticulated electricity supply network, with diesel generators for emergency use only. However, ProTen is now pursuing options to take the Development completely off-grid with a solar and battery solution (subject to a separate modification approval). Given that the off-grid solar option is in its infancy and there will be lead time required for approval, materials supply, installation and commissioning, ProTen anticipates that the operation of Farm 2 and associated ancillaries will need to rely on diesel generators for up to 6 months.

The proposed modification is anticipated to have relatively minor short-term implications for air quality, noise emissions and traffic generation.

I am currently preparing a Scoping Report to be submitted to DPIE outlining the proposed modification, key issues and the intended approach to the assessment of these issues.

Can you please respond to this email with any feedback in relation to the proposed modification, including anticipated traffic issues and assessment requirements, concerns, etc? I will include any feedback received in the Scoping Report.

Please don't hesitate to call me if you'd like to discuss.

Thanks in advance

Eryn

Eryn Bath

Principal Consultant, EME Advisory

T: 0427 024739

E: eryn@emeadvisory.com

W: www.emeadvisory.com



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Consider the environment. Please don't print this e-mail unless really necessary.

APPENDIX C

Assessment Traffic Volumes

AM Peak Hour					PM Peak Hour																																																																																																																																																																																																																																																																																																																																												
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AM Peak Hour

PM Peak Hour

		Rushes Creek Road	
Northern Site Access	L	R	T
	L		
		Rushes Creek Road	
Southern Site Access	(2) 3	R	T
	L		
	9		
	(3)		
		Rushes Creek Road	
Oxley Highway (W)	(0) 1	(0) (2)	
	L	0 3	
	T	R L	
		R 8 (3)	Oxley Highway (E)
		T	
LV	0		
HV	(00)		
AM DEV (southern site access)			

		Rushes Creek Road	
Northern Site Access	L	R	T
	L		
		Rushes Creek Road	
Southern Site Access	(3) 9	R	T
	L		
	3		
	(2)		
		Rushes Creek Road	
Oxley Highway (W)	(0) 0	(0) (3)	
	L	1 8	
	T	R L	
		R 3 (2)	Oxley Highway (E)
		T	
LV	0		
HV	(00)		
PM DEV (southern site access)			

		Rushes Creek Road	
Northern Site Access	L	R	T
	L		
		Rushes Creek Road	
Southern Site Access	(0) 0	R	T
	L		
	29		
	(0)		
		Rushes Creek Road	
Oxley Highway (W)	(0) 4	(0) (0)	
	L	0 0	
	T	R L	
		R 25 (0)	Oxley Highway (E)
		T	
LV	0		
HV	(00)		
AM CONS (southern site access)			

		Rushes Creek Road	
Northern Site Access	L	R	T
	L		
		Rushes Creek Road	
Southern Site Access	(0) 29	R	T
	L		
	0		
	(0)		
		Rushes Creek Road	
Oxley Highway (W)	(0) 0	(0) (0)	
	L	4 25	
	T	R L	
		R 0 (0)	Oxley Highway (E)
		T	
LV	0		
HV	(00)		
PM CONS (southern site access)			

		Rushes Creek Road	
Northern Site Access	(0) 0	(0) (4)	
	L	0 25	
	T	R T	
	38 17		
	(3) (6)		
		Rushes Creek Road	
Southern Site Access	(0) 0	(0) (6)	
	L	0 28	
	T	R T	
	0 55		
	(0) (9)		
		Rushes Creek Road	
Oxley Highway (W)	(2) 13	(2) (3)	
	L	15 13	
	T	R L	
	(31) 138	R 42 (7)	Oxley Highway (E)
		T 109 (21)	
LV	0		
HV	(00)		
2025 BG AM + DEV + CONS (northern site access)			

		Rushes Creek Road	
Northern Site Access	(0) 0	(0) (8)	
	L	0 26	
	T	R T	
	3 25		
	(2) (5)		
		Rushes Creek Road	
Southern Site Access	(0) 0	(0) (11)	
	L	0 64	
	T	R T	
	0 28		
	(0) (7)		
		Rushes Creek Road	
Oxley Highway (W)	(4) 17	(4) (8)	
	L	26 38	
	T	R L	
	(17) 137	R 11 (3)	Oxley Highway (E)
		T 142 (12)	
LV	0		
HV	(00)		
2025 BG PM + DEV + CONS (northern site access)			

		Rushes Creek Road	
Northern Site Access	(0) 0	(0) (4)	
	L	0 25	
	T	R T	
	0 17		
	(0) (6)		
		Rushes Creek Road	
Southern Site Access	(0) 0	(0) (4)	
	L	0 25	
	T	R T	
	38 17		
	(3) (6)		
		Rushes Creek Road	
Oxley Highway (W)	(2) 13	(2) (3)	
	L	15 13	
	T	R L	
	(31) 138	R 42 (7)	Oxley Highway (E)
		T 109 (21)	
LV	0		
HV	(00)		
2025 BG AM + DEV + CONS (southern site access)			

		Rushes Creek Road	
Northern Site Access	(0) 0	(0) (8)	
	L	0 26	
	T	R T	
	0 25		
	(0) (5)		
		Rushes Creek Road	
Southern Site Access	(0) 0	(0) (8)	
	L	0 26	
	T	R T	
	3 25		
	(2) (5)		
		Rushes Creek Road	
Oxley Highway (W)	(4) 17	(4) (8)	
	L	26 38	
	T	R L	
	(17) 137	R 11 (3)	Oxley Highway (E)
		T 142 (12)	
LV	0		
HV	(00)		
2025 BG PM + DEV + CONS (southern site access)			

APPENDIX D

Detailed SIDRA Outputs

SITE LAYOUT

▽ Site: 1 [2025 BG + DEV + CONS AM (Site Folder: Oxley Hwy/
Rushes Creek Rd)]

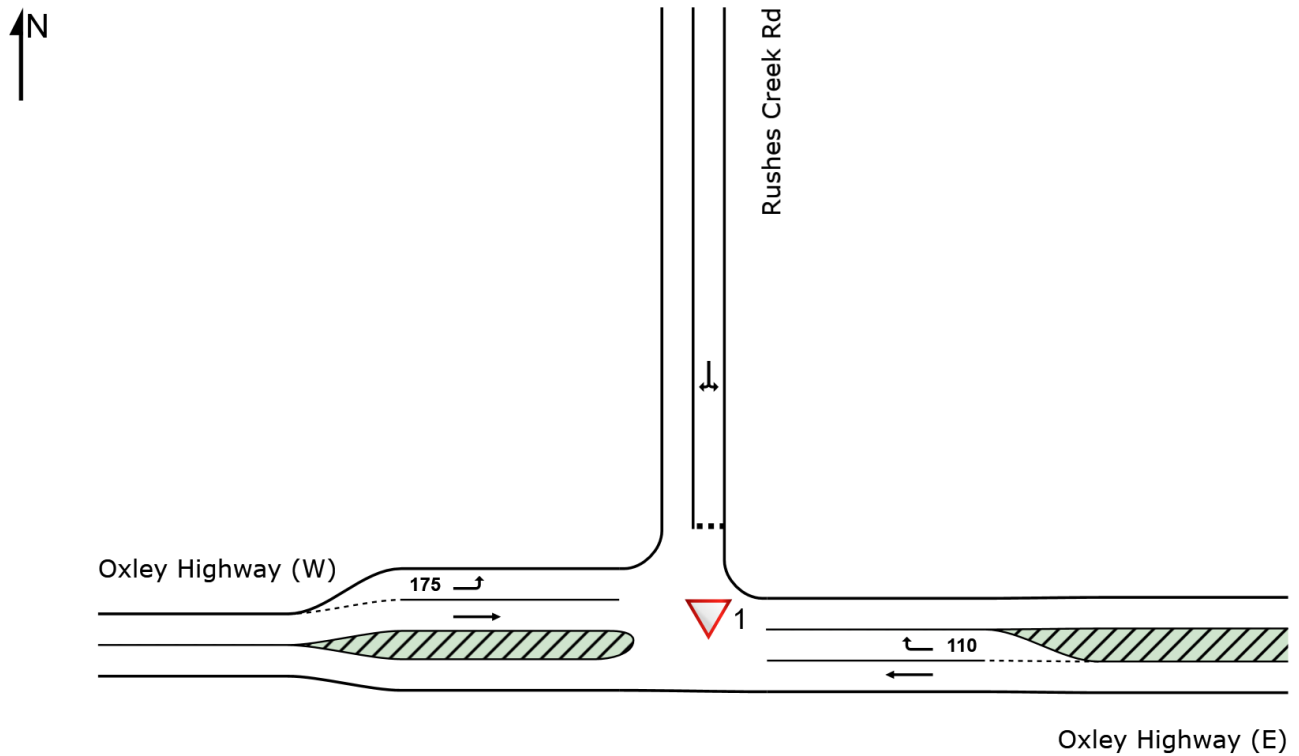
Intersection: Oxley Highway/Rushes Creek Road (existing)

Prepared by: CL

Site Category: Existing Design

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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SIDRA.sip9

MOVEMENT SUMMARY

▼ Site: 1 [2025 BG + DEV + CONS AM (Site Folder: Oxley Hwy/
Rushes Creek Rd)]

Intersection: Oxley Highway/Rushes Creek Road (existing)
Prepared by: CL
Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Oxley Highway (E)														
5	T1	130	21	137	16.2	0.078	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	49	7	52	14.3	0.048	8.8	LOS A	0.2	1.5	0.32	0.65	0.32	67.8
Approach		179	28	188	15.6	0.078	2.4	NA	0.2	1.5	0.09	0.18	0.09	88.5
North: Rushes Creek Rd														
7	L2	16	3	17	18.8	0.047	9.2	LOS A	0.2	1.4	0.39	0.68	0.39	65.4
9	R2	17	2	18	11.8	0.047	11.4	LOS A	0.2	1.4	0.39	0.68	0.39	67.3
Approach		33	5	35	15.2	0.047	10.4	LOS A	0.2	1.4	0.39	0.68	0.39	66.3
West: Oxley Highway (W)														
10	L2	15	2	16	13.3	0.009	8.2	LOS A	0.0	0.0	0.00	0.66	0.00	69.8
11	T1	169	31	178	18.3	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		184	33	194	17.9	0.102	0.7	NA	0.0	0.0	0.00	0.05	0.00	96.5
All Vehicles		396	66	417	16.7	0.102	2.3	NA	0.2	1.5	0.07	0.16	0.07	89.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: 1 [2025 BG + DEV + CONS PM (Site Folder: Oxley Hwy/
Rushes Creek Rd)]

Intersection: Oxley Highway/Rushes Creek Road (existing)

Prepared by: CL

Site Category: Existing Design

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Oxley Highway (E)														
5	T1	154	12	162	7.8	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	14	3	15	21.4	0.014	8.9	LOS A	0.1	0.4	0.31	0.63	0.31	65.6
Approach		168	15	177	8.9	0.087	0.7	NA	0.1	0.4	0.03	0.05	0.03	95.8
North: Rushes Creek Rd														
7	L2	46	8	48	17.4	0.098	9.1	LOS A	0.4	2.9	0.35	0.67	0.35	66.3
9	R2	30	4	32	13.3	0.098	11.3	LOS A	0.4	2.9	0.35	0.67	0.35	67.3
Approach		76	12	80	15.8	0.098	10.0	LOS A	0.4	2.9	0.35	0.67	0.35	66.7
West: Oxley Highway (W)														
10	L2	21	4	22	19.0	0.014	8.3	LOS A	0.0	0.0	0.00	0.66	0.00	67.9
11	T1	154	17	162	11.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		175	21	184	12.0	0.089	1.0	NA	0.0	0.0	0.00	0.08	0.00	94.6
All Vehicles		419	48	441	11.5	0.098	2.5	NA	0.4	2.9	0.07	0.18	0.07	88.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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SITE LAYOUT

▽ Site: 2 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Southern Site Access)]

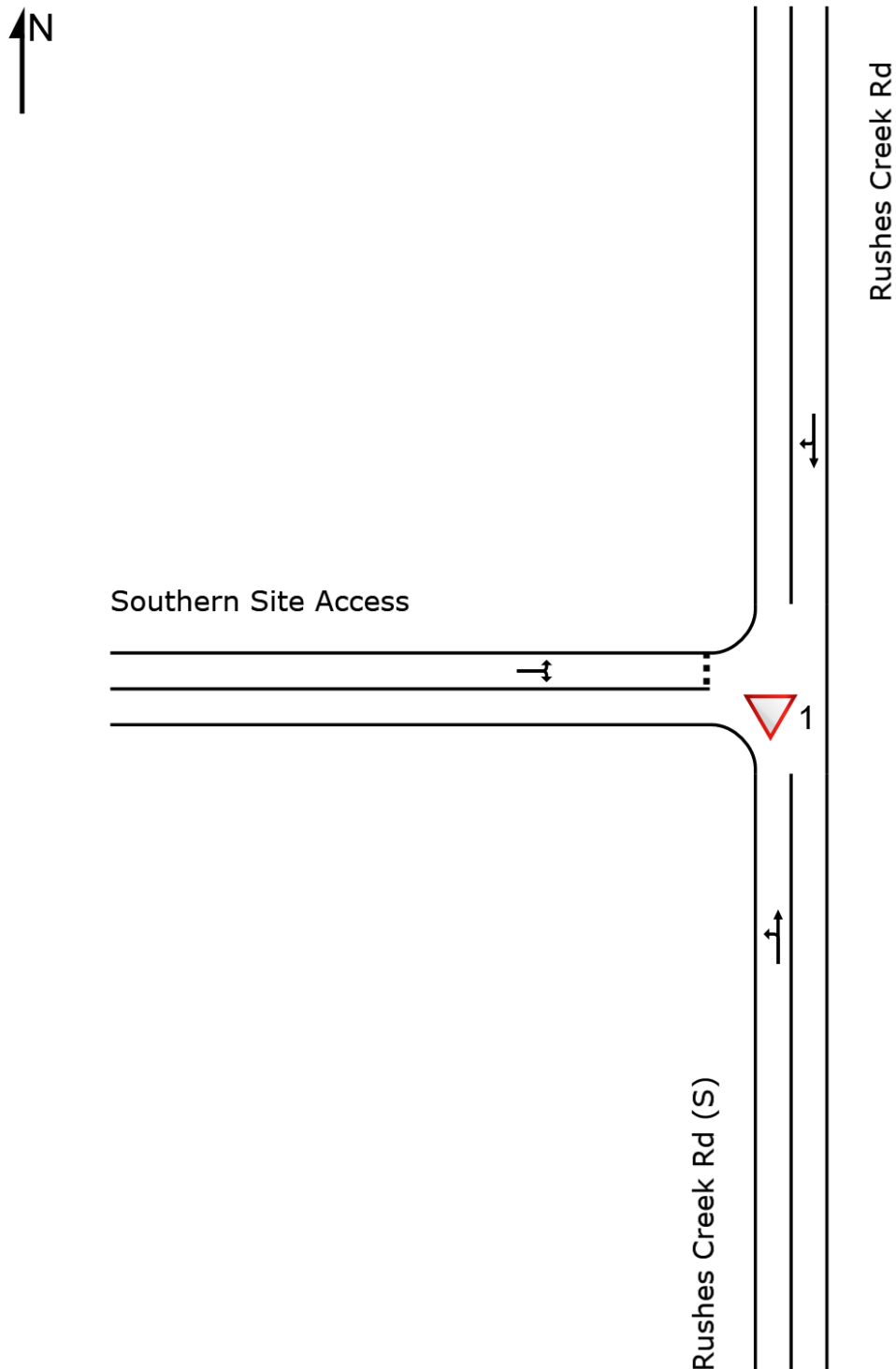
Intersection: Rushes Creek Road/Southern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

▼ Site: 2 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Southern Site Access)]

Intersection: Rushes Creek Road/Southern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	41	3	43	7.3	0.039	8.1	LOS A	0.0	0.0	0.00	0.43	0.00	75.3
11	T1	23	6	24	26.1	0.039	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	87.0
Approach		64	9	67	14.1	0.039	5.2	NA	0.0	0.0	0.00	0.43	0.00	79.2
North: Rushes Creek Rd (S)														
5	T1	29	4	31	13.8	0.018	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	99.0
6	R2	1	0	1	0.0	0.018	7.6	LOS A	0.0	0.0	0.01	0.02	0.01	34.0
Approach		30	4	32	13.3	0.018	0.3	NA	0.0	0.0	0.01	0.02	0.01	93.1
West: Southern Site Access														
7	L2	1	0	1	0.0	0.006	0.1	LOS A	0.0	0.2	0.13	0.14	0.13	31.5
9	R2	5	2	5	40.0	0.006	1.0	LOS A	0.0	0.2	0.13	0.14	0.13	28.8
Approach		6	2	6	33.3	0.006	0.8	LOS A	0.0	0.2	0.13	0.14	0.13	29.2
All Vehicles		100	15	105	15.0	0.039	3.4	NA	0.0	0.2	0.01	0.29	0.01	74.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▼ Site: 2 [2025 BG + DEV + CONS PM (Site Folder: Rushes Creek Rd/Southern Site Access)]

Intersection: Rushes Creek Road/Southern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	5	2	5	40.0	0.022	8.9	LOS A	0.0	0.0	0.00	0.10	0.00	70.0
11	T1	30	5	32	16.7	0.022	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	97.7
Approach		35	7	37	20.0	0.022	1.3	NA	0.0	0.0	0.00	0.10	0.00	92.5
North: Rushes Creek Rd (S)														
5	T1	34	8	36	23.5	0.022	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	99.1
6	R2	1	0	1	0.0	0.022	7.5	LOS A	0.0	0.1	0.01	0.02	0.01	34.0
Approach		35	8	37	22.9	0.022	0.2	NA	0.0	0.1	0.01	0.02	0.01	94.0
West: Southern Site Access														
7	L2	1	0	1	0.0	0.038	0.1	LOS A	0.1	0.9	0.15	0.18	0.15	31.4
9	R2	41	3	43	7.3	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
Approach		42	3	44	7.1	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
All Vehicles		112	18	118	16.1	0.038	0.8	NA	0.1	0.9	0.06	0.10	0.06	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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SITE LAYOUT

▽ Site: 3 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Northern Site Access)]

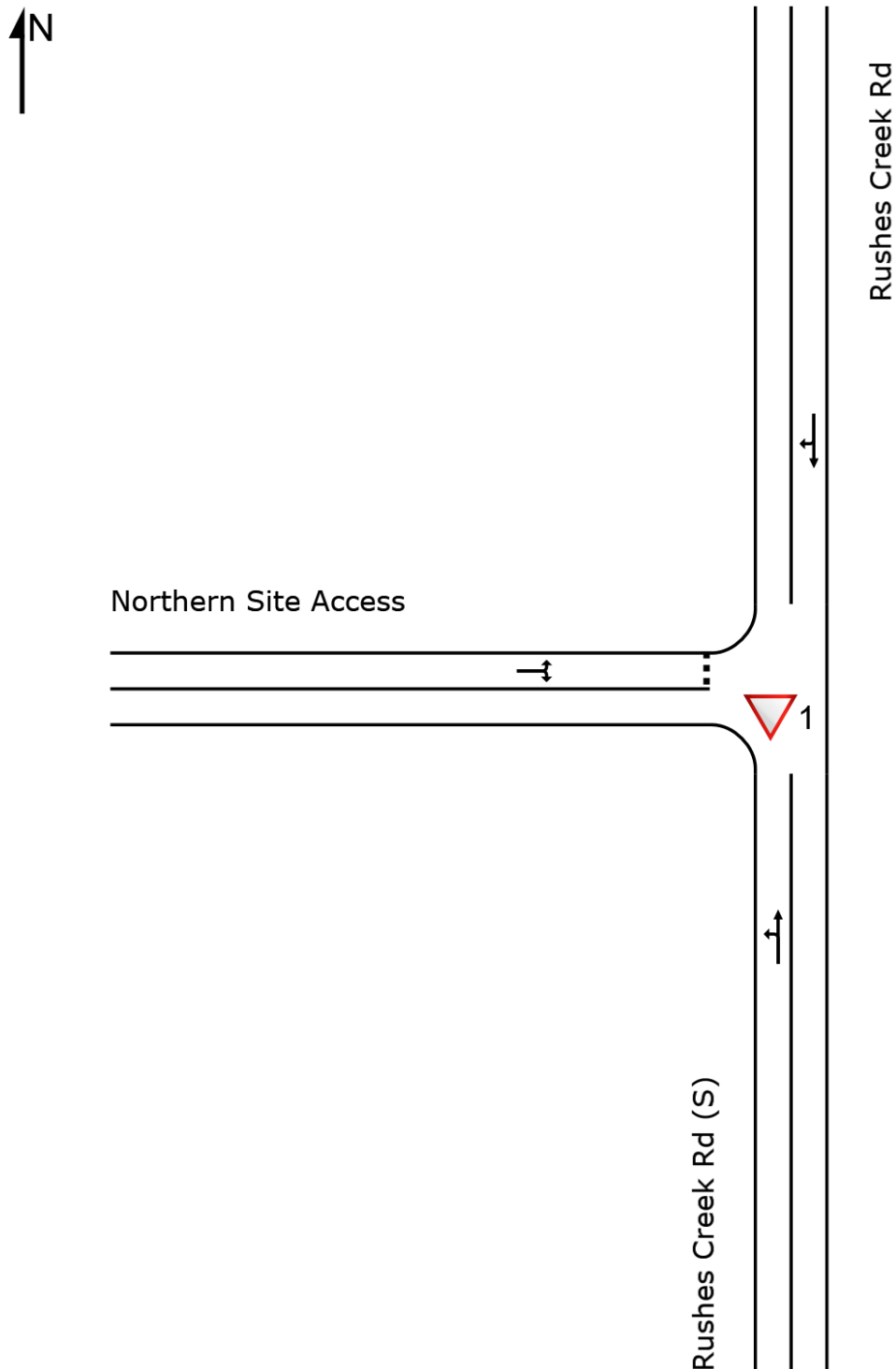
Intersection: Rushes Creek Road/Northern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Northern Site Access)]

Intersection: Rushes Creek Road/Northern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	41	3	43	7.3	0.039	8.1	LOS A	0.0	0.0	0.00	0.43	0.00	75.3
11	T1	23	6	24	26.1	0.039	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	87.0
Approach		64	9	67	14.1	0.039	5.2	NA	0.0	0.0	0.00	0.43	0.00	79.2
North: Rushes Creek Rd (S)														
5	T1	29	4	31	13.8	0.018	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	99.0
6	R2	1	0	1	0.0	0.018	7.6	LOS A	0.0	0.0	0.01	0.02	0.01	34.0
Approach		30	4	32	13.3	0.018	0.3	NA	0.0	0.0	0.01	0.02	0.01	93.1
West: Northern Site Access														
7	L2	1	0	1	0.0	0.006	0.1	LOS A	0.0	0.2	0.13	0.14	0.13	31.5
9	R2	5	2	5	40.0	0.006	1.0	LOS A	0.0	0.2	0.13	0.14	0.13	28.8
Approach		6	2	6	33.3	0.006	0.8	LOS A	0.0	0.2	0.13	0.14	0.13	29.2
All Vehicles		100	15	105	15.0	0.039	3.4	NA	0.0	0.2	0.01	0.29	0.01	74.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▽ Site: 3 [2025 BG + DEV + CONS PM (Site Folder: Rushes Creek Rd/Northern Site Access)]

Intersection: Rushes Creek Road/Northern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	5	2	5	40.0	0.022	8.9	LOS A	0.0	0.0	0.00	0.10	0.00	70.0
11	T1	30	5	32	16.7	0.022	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	97.7
Approach		35	7	37	20.0	0.022	1.3	NA	0.0	0.0	0.00	0.10	0.00	92.5
North: Rushes Creek Rd (S)														
5	T1	34	8	36	23.5	0.022	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	99.1
6	R2	1	0	1	0.0	0.022	7.5	LOS A	0.0	0.1	0.01	0.02	0.01	34.0
Approach		35	8	37	22.9	0.022	0.2	NA	0.0	0.1	0.01	0.02	0.01	94.0
West: Northern Site Access														
7	L2	1	0	1	0.0	0.038	0.1	LOS A	0.1	0.9	0.15	0.18	0.15	31.4
9	R2	41	3	43	7.3	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
Approach		42	3	44	7.1	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
All Vehicles		112	18	118	16.1	0.038	0.8	NA	0.1	0.9	0.06	0.10	0.06	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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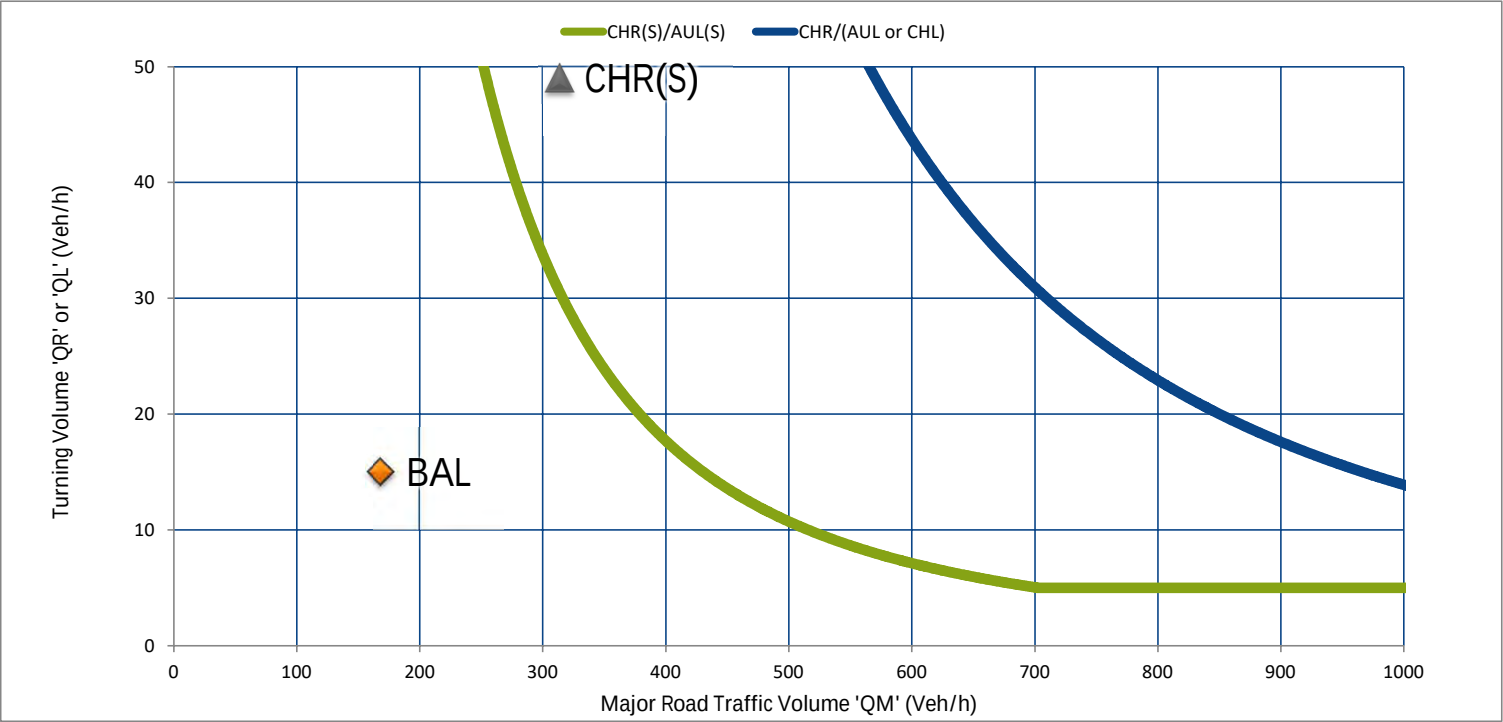
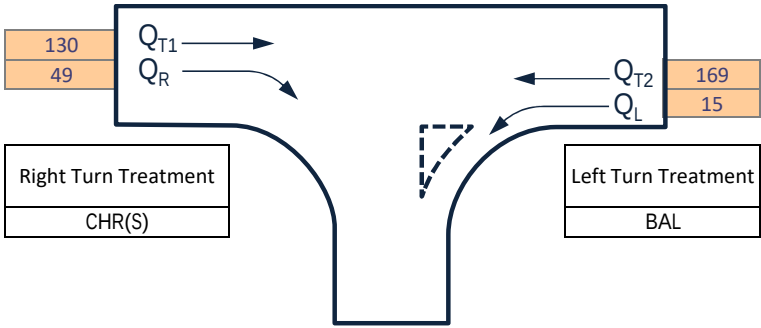
APPENDIX E

Turn Warrant Assessment

Assessment Year	2025
Peak Period	AM
Scenario	BG + DEV + CONS

Design Domain	Extended Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

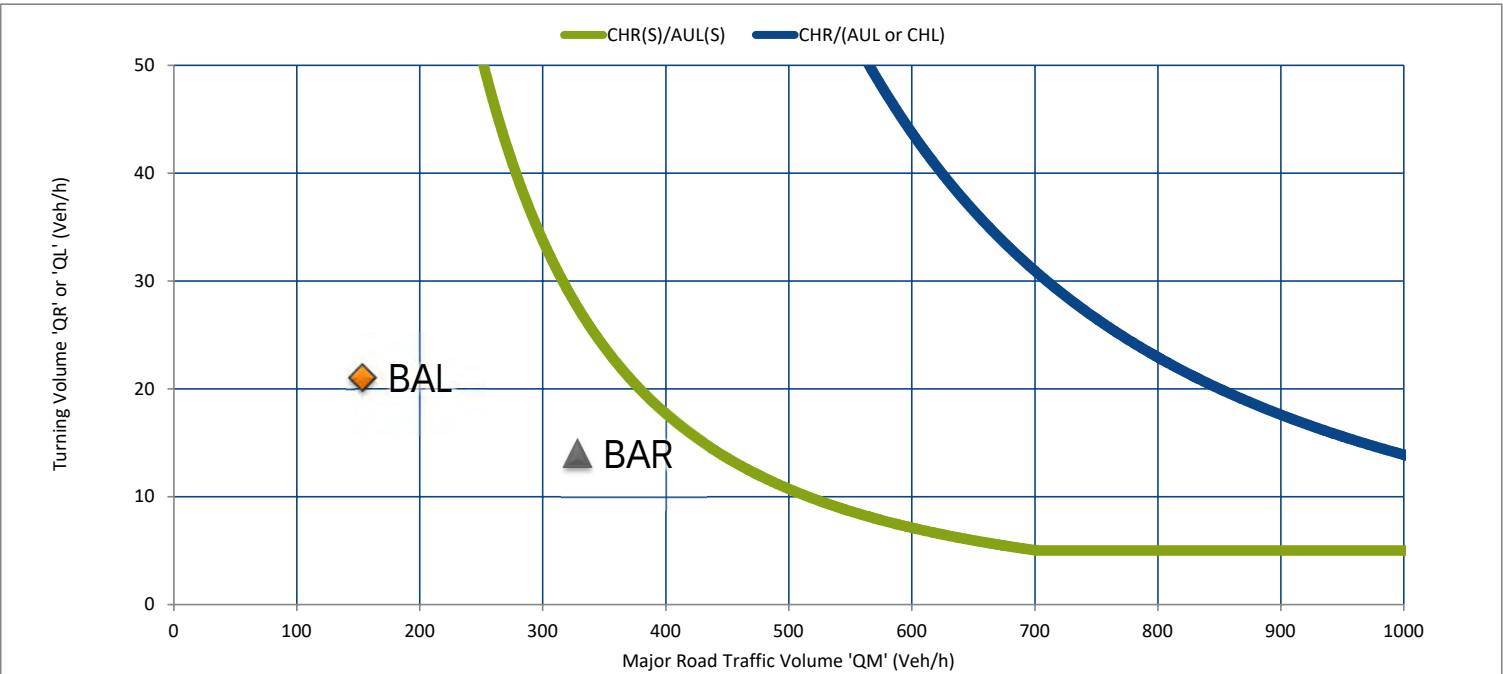
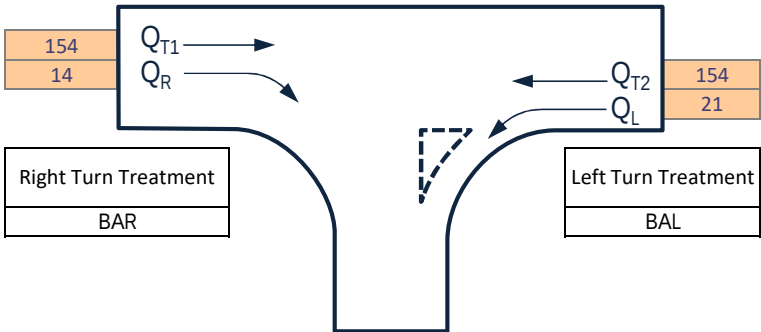
Q _M	Q _R /Q _L	
314	49	Right
169	15	Left



Assessment Year	2025
Peak Period	PM
Scenario	BG + DEV + CONS

Design Domain	Extended Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

Q _M	Q _R /Q _L	
329	14	Right
154	21	Left



Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Oxley Highway/Rushes Creek Road
23 March 2021

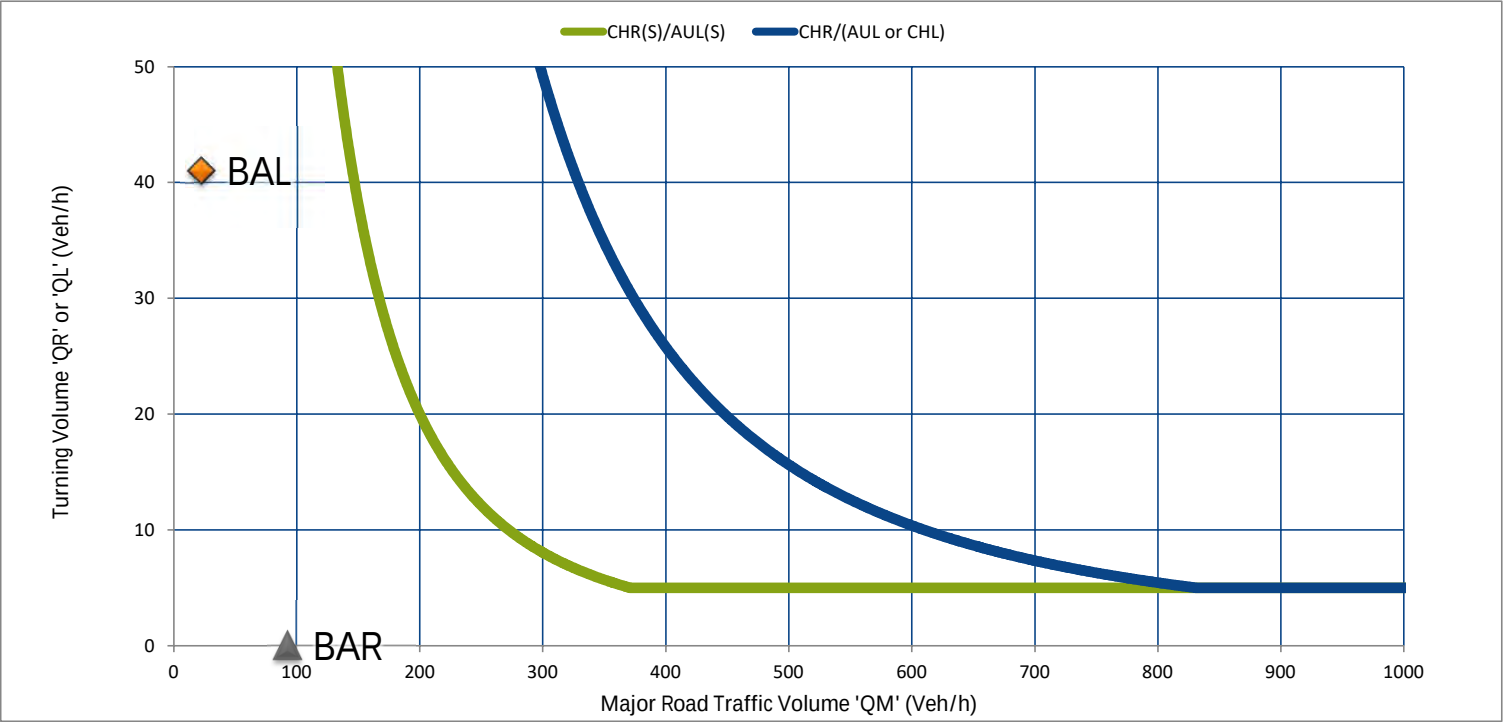
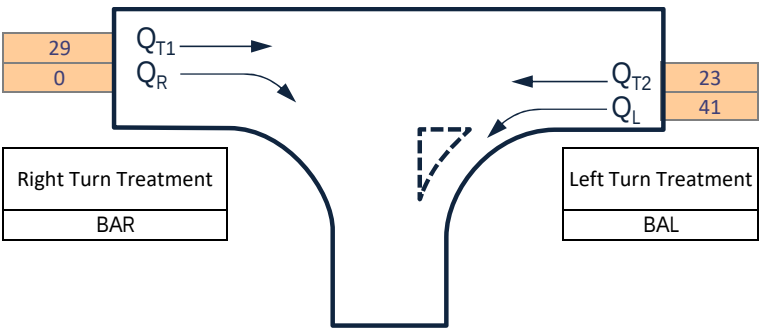
620.30288



Assessment Year	2025
Peak Period	AM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

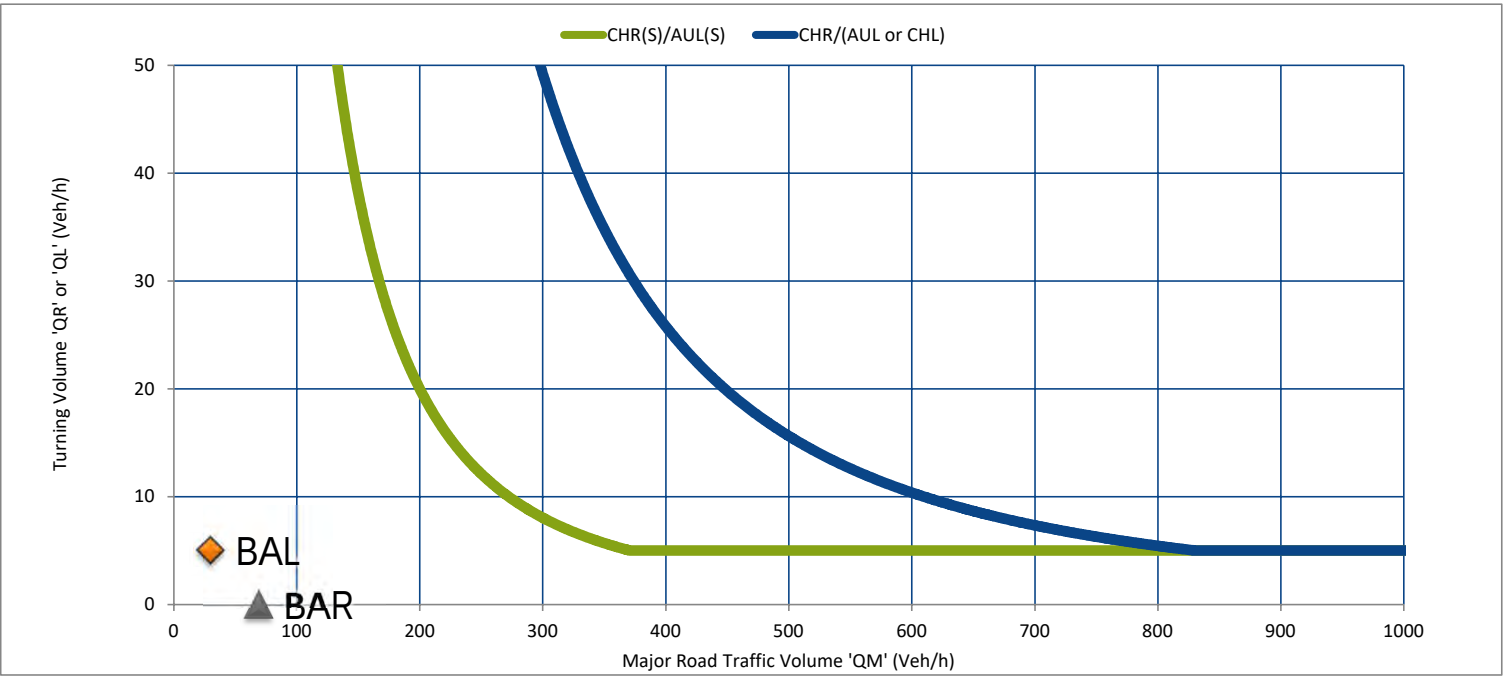
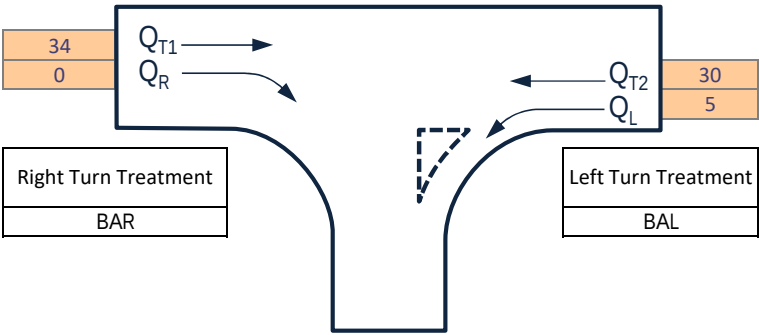
Q _M	Q _R /Q _L	
93	0	Right
23	41	Left



Assessment Year	2025
Peak Period	PM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

Q _M	Q _R /Q _L	
69	0	Right
30	5	Left



Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Rushes Creek Road/Northern Site Access
23 March 2021

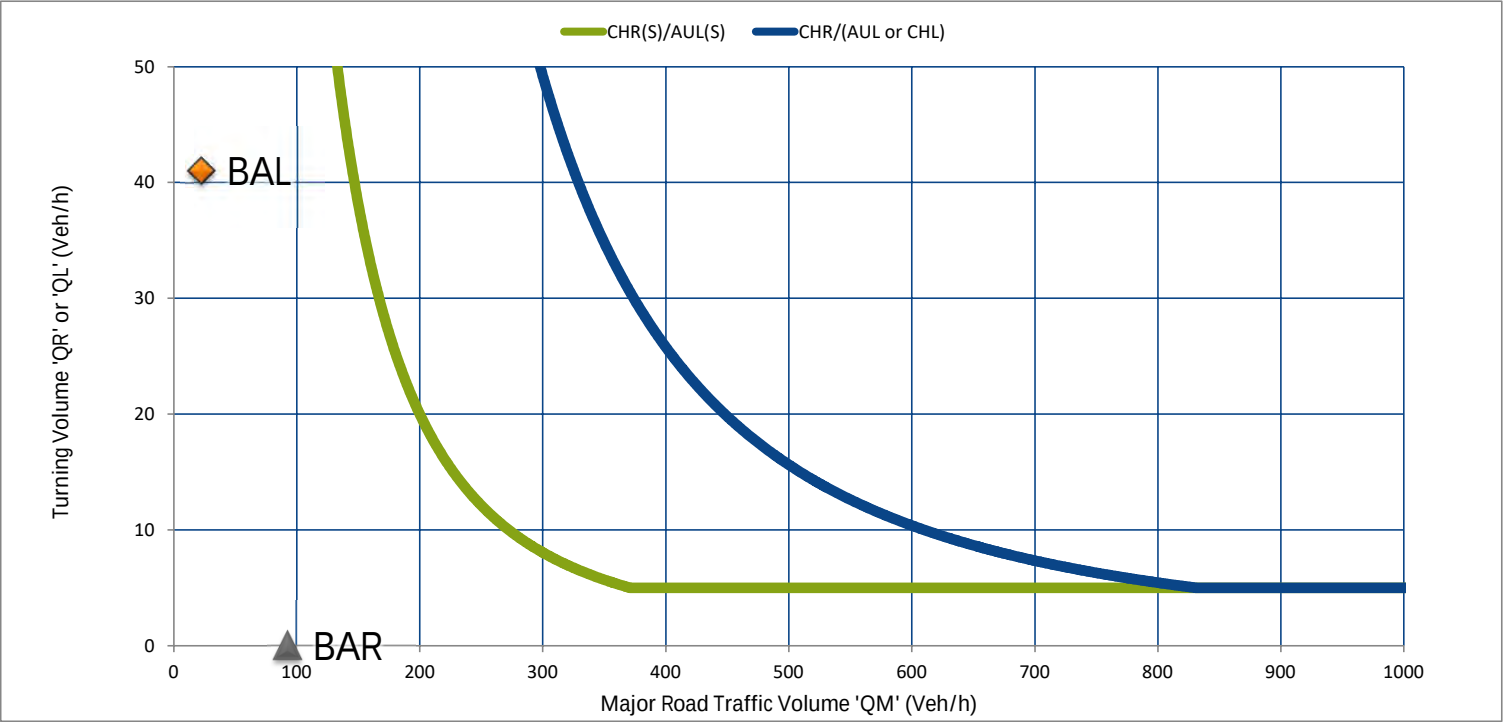
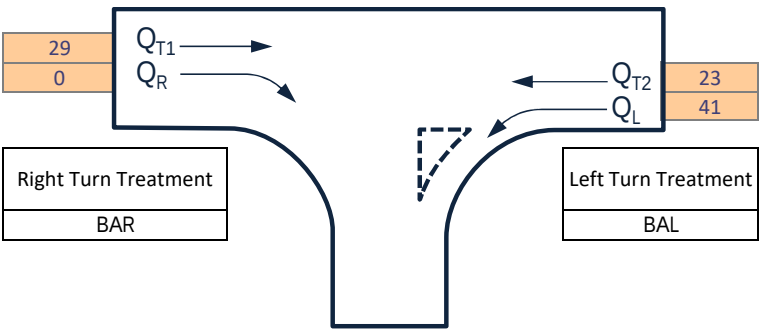
620.30288



Assessment Year	2025
Peak Period	AM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

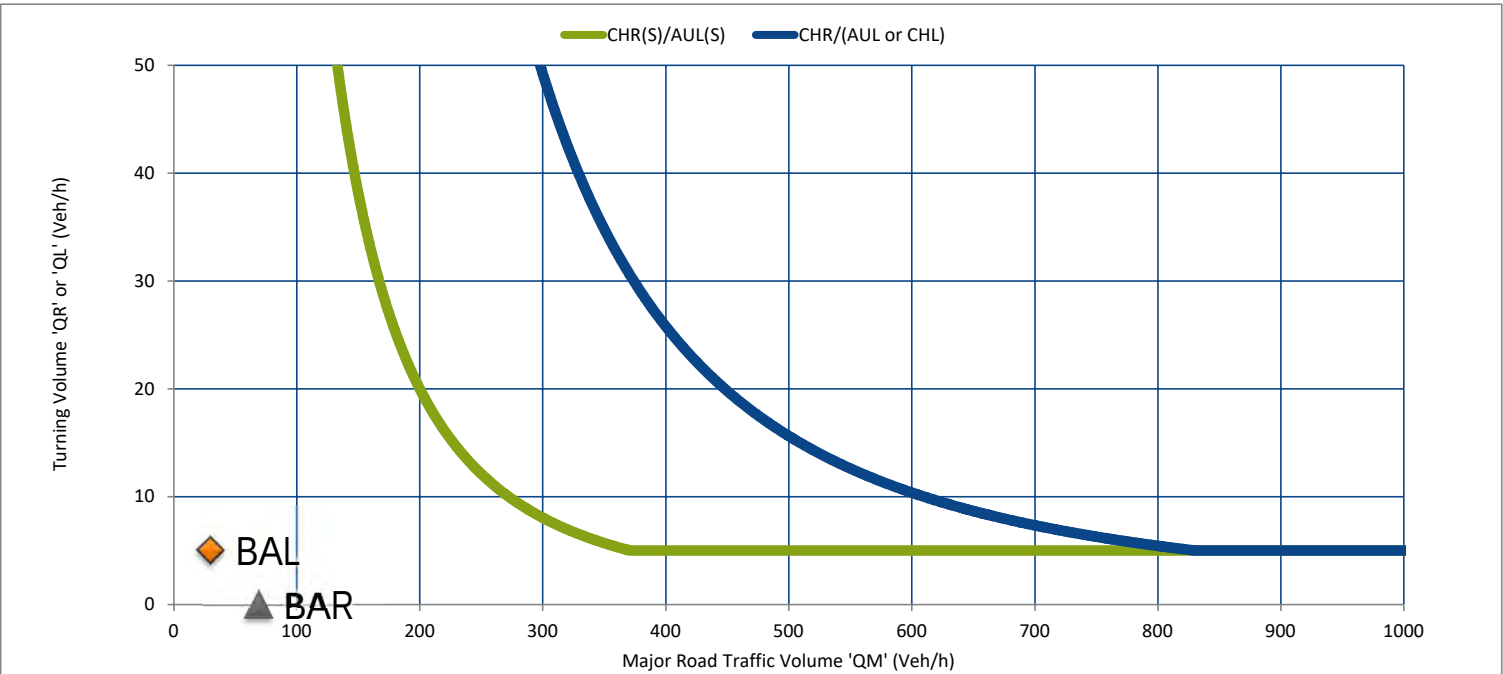
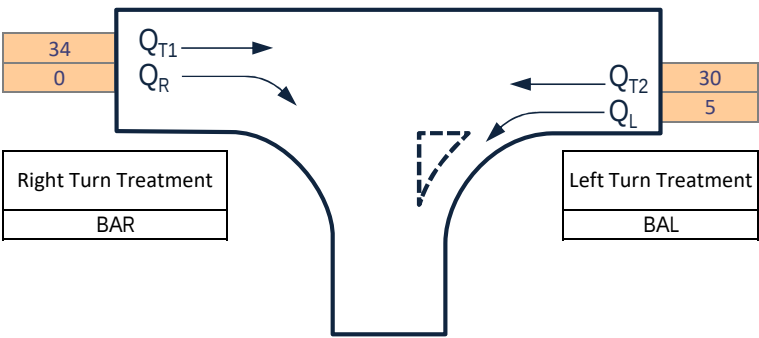
Q _M	Q _R /Q _L	
93	0	Right
23	41	Left



Assessment Year	2025
Peak Period	PM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

Q _M	Q _R /Q _L	
69	0	Right
30	5	Left



Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Rushes Creek Road/Southern Site Access
23 March 2021

620.30288



APPENDIX F

Amended CTMP

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Rushes Creek Poultry Production Farm

Prepared for:

ProTen Tamworth Pty Ltd
PO Box 1746
North Sydney NSW 2060

SLR Ref: 620.30288-R01
Version No: -v2.0
December 2021



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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with ProTen Tamworth Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
620.30288-R01-v2.0	Amended Final – Modification 3	20 December 2021	Chris Lawlor	Jeff Baczynski	Chris Lawlor
620.30288-R01-v1.0	Final – Post Road Auth. Review	11 June 2021	Chris Lawlor	Jeff Baczynski	Jeff Baczynski
620.30288-R01-v0.3	Draft for Road Authority Review	7 April 2021	Chris Lawlor	Jeff Baczynski	Chris Lawlor

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Appendix I	Drivers Code of Conduct

1 Introduction

1.1 Context

SLR Consulting Australia Pty Ltd (**SLR**) has been engaged by ProTen Tamworth Pty Ltd (**ProTen**) to prepare a Construction Traffic Management Plan (**CTMP**) for the Rushes Creek Poultry Production Farm (**Rushes Creek PPF** or **the Development**) located at Rushes Creek Road, Rushes Creek NSW.

The CTMP is required to satisfy Schedule 2, Part B (*Environmental Conditions*), Conditions B10 and B11 (*Construction Traffic Management Plan*) of the Development Consent issued by the NSW Government Department of Planning, Industry and Environment (**DPIE**) on 16 April 2020 (**Development Consent**).

This CTMP has been prepared by Chris Lawlor, whom DPIE has approved as ‘a suitably qualified and experienced person’. A copy of this approval is included at **Appendix A**.

1.2 CTMP Requirements

This CTMP has been prepared to satisfy the requirements of Schedule 2, Part B, Conditions B10 and B11 of the Development Consent, and to manage the potential impacts of the traffic demands associated with the construction phase of the Development on the surrounding road network. The specific requirements of the conditions to prepare a CTMP are reproduced in **Table 1** along with a response as to how each requirement has been addressed herein.

This CTMP is intended to be a living document that will be implemented effectively over the life of the project to manage safety for all road users. Details of the CTMP monitoring, review and an improvement process that is triggered by any incidents that may occur is identified in **Section 7**.

Table 1 CTMP Requirements: Schedule 2, Part B, Conditions B10 and B11

Item	Condition Requirement	CTMP Section
B10.	<i>Prior to the commencement of construction, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:</i>	-
(a)	<i>be prepared by a suitably qualified and experienced person(s);</i>	Section 1.1 & Appendix A
(b)	<i>be prepared in consultation with Council and Transport for NSW;</i>	Section 1.3, Appendix B & Appendix C
(c)	<i>detail the measures that are to be implemented to ensure road safety and network efficiency during construction;</i>	Section 6
(d)	<i>detail heavy vehicle routes, access and parking arrangements;</i>	Sections 3.3, 3.4, 6.2 & 6.3.2
(e)	<i>include a Driver Code of Conduct to:</i> <i>(i) minimise the impacts of earthworks and construction on the local and regional road network;</i> <i>(ii) minimise conflicts with other road users;</i> <i>(iii) minimise road traffic noise; and</i> <i>(iv) ensure truck drivers use specified routes;</i>	Section 6.1 & Appendix I
(f)	<i>include a program to monitor the effectiveness of these measures; and</i>	Section 7.3
(g)	<i>if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.</i>	Section 6.5
B11.	<i>The Applicant must:</i>	-
(a)	<i>not commence construction until the Construction Traffic Management Plan required by condition B10 is approved by the Planning Secretary; and</i>	Section 7.1
(b)	<i>implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.</i>	Section 7.1

1.3 Road Authority Consultation

Schedule 2, Part A (*Administrative Conditions*), Condition A11 (*Evidence of Consultation*) of the Development Consent states the following with regard to consultation for management plans:

“Where conditions of this consent require consultation with an identified party, the Applicant must:

- (a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and***
- (b) provide details of the consultation undertaken including:***
 - (i) the outcome of that consultation, matters resolved and unresolved; and***
 - (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.”***

Schedule 2, Part B, Condition B10(b) requires that the CTMP “***be prepared in consultation with Council and Transport for NSW***”. Reflective of the above, Transport for NSW (**TfNSW**) and Tamworth Regional Council (**TRC**) have been contacted by SLR. A summary of the road authority consultation is provided at **Appendix B** and evidence of the consultation is included at **Appendix C**.

Importantly it is noted that this final version of the CTMP incorporates updates based on stakeholder input received on the draft version of the CTMP. In particular, this finalised version of the CTMP identifies monitoring, review and improvement processes that will be implemented to address any issues identified throughout the project lifecycle.

1.4 Previous Traffic Assessments

Reference is made to the following traffic assessments which have previously been prepared in relation to the operational phase of the Development:

- *Traffic Impact Assessment* report dated 25 June 2018 prepared by RoadNet (**RoadNet TIA**);
- *Supplementary Traffic Assessment* dated 20 December 2018 prepared by SLR (**SLR STA**);
- *Modification 3: Assessment of Traffic Matters* dated 20 December 2021 prepared by SLR (**MOD3 TA**).

The above traffic assessments are referred to herein where necessary.

2 Development Overview

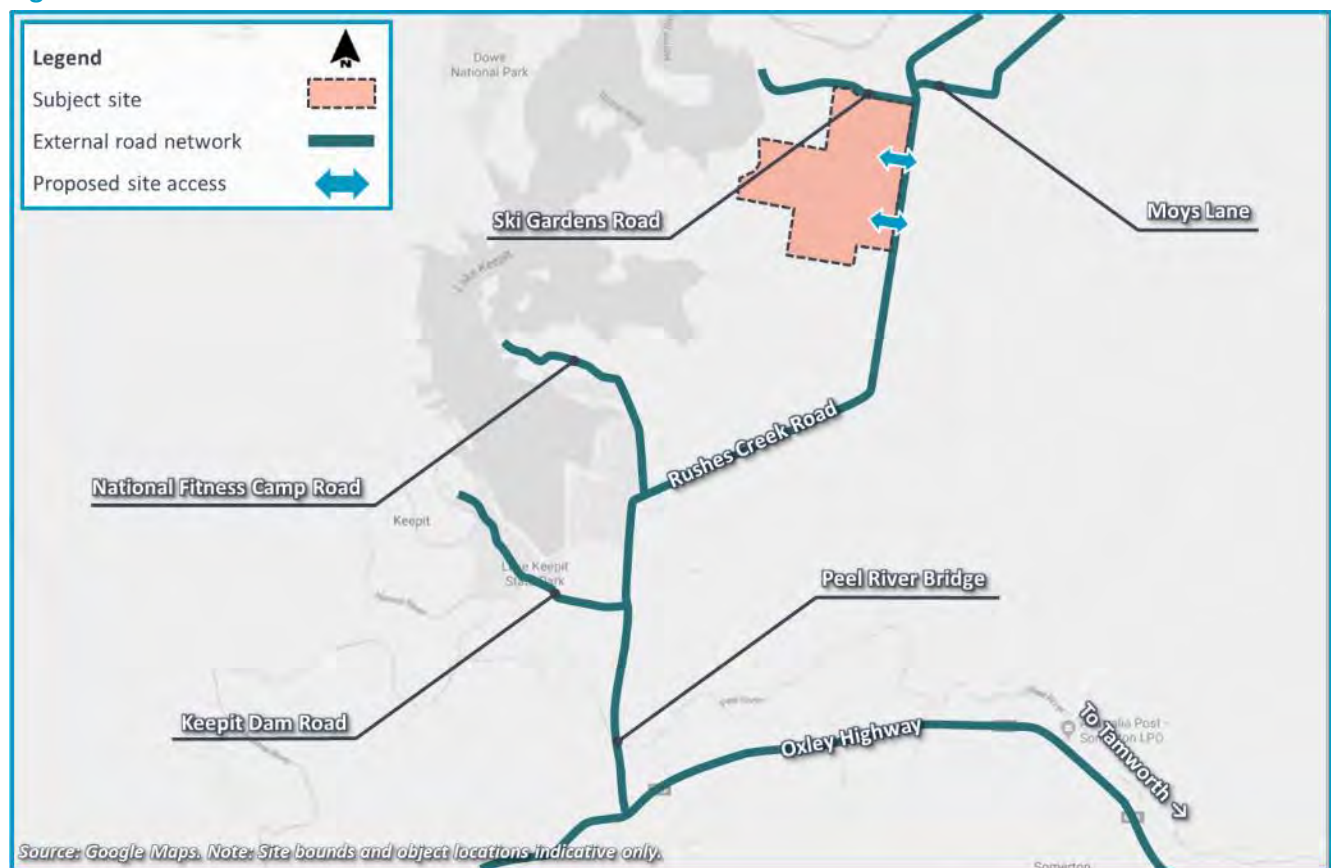
2.1 Site Location

The subject site comprises approximately 1,016 hectares (**ha**) of rural land in an area known as Rushes Creek situated approximately 43 kilometres (**km**) northwest of Tamworth and 33km northeast of Gunnedah within the Tamworth Regional Local Government Area (**LGA**) in the New England North West Region of NSW.

The site is zoned as 'RU1 Primary Production' under the provisions of the Tamworth Regional Local Environmental Plan (**Tamworth LEP**) and is bound by Rushes Creek Road to the east and rural uses in all other directions. Rushes Creek Road is a sealed two-lane rural road and connects the subject site to the Oxley Highway (NSW State Route B56) to the south. The Namoi River is located to the north of the site and Lake Keepit is located to the west and southwest.

The site is shown in the context of the surrounding area on **Figure 1**.

Figure 1 Site Location



2.2 Surrounding Road Network

Details of the key roads surrounding the subject site are detailed in **Table 2**.

Table 2 Key Roads

Road Name	Classification	Authority	Existing form	Posted Speed
Oxley Highway	State Road	TfNSW	Two lane, undivided single carriageway (~7.0m + shoulders), rural cross-section (swales)	100km/h
Rushes Creek Road	Unclassified	TRC	Two lane, undivided single carriageway (6.5 – 7.0m seal width), rural cross-section (swales)	100km/h

Of note, the previous traffic assessments (i.e. RoadNet TIA and SLR STA) conducted for the operational phase of the Development identified the following of relevance in relation to the Oxley Highway/Rushes Creek Road intersection and Rushes Creek Road:

- No patterns of crashes or existing safety deficiencies were identified;
- The existing linemarking and signage provided in the vicinity of the Oxley Highway/Rushes Creek Road intersection is generally compliant with current design standards;
- Appropriate allowances are available at the existing Oxley Highway/Rushes Creek Road intersection in order to accommodate 25m B-Double movements (note, both the Oxley Highway and Rushes Creek Road are approved 25/26m B-Double routes);
- That Rushes Creek Road is of a suitable existing form to accommodate 25m B-Double movements.

2.3 Approved Development

Schedule 1 of the Development Consent permits the following development on the subject site:

“Construction and operation of the Rushes Creek Poultry Production Farm, including:

- ***Four poultry farms consisting of a total of 54 fully enclosed, tunnel ventilated poultry sheds;***
- ***A maximum operational capacity of 3,051,000 birds at any one time;***

Additional works, as described in the application include:

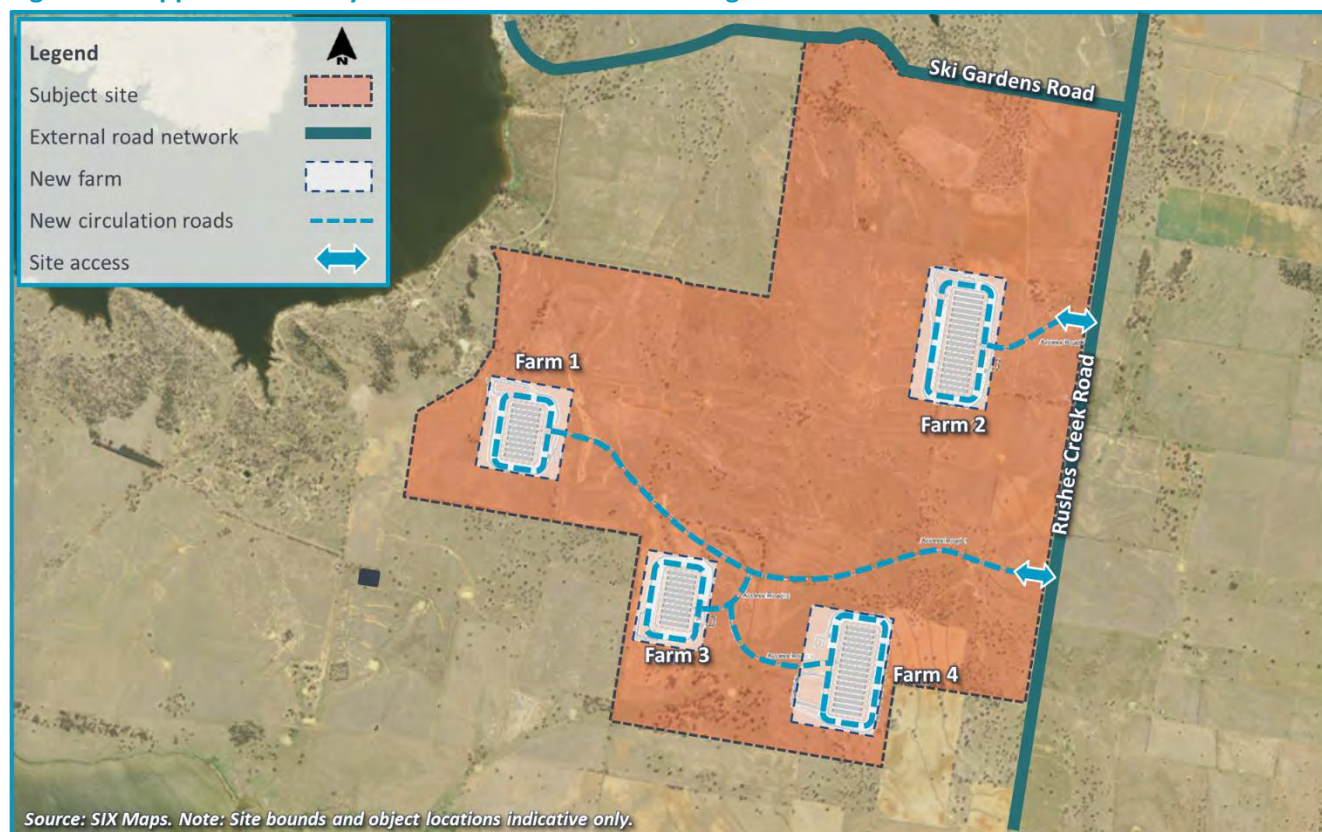
- ***Eight manufactured homes to accommodate farm managers;***
- ***Two access driveways from Rushes Creek Road and internal access roads;***
- ***Water supply infrastructure to extract, transfer, treat and store water from the Namoi River;***
- ***Reticulated electrical supply infrastructure;***
- ***Bedding material storage shed;***
- ***Two dead bird freezers; and***
- ***Boundary adjustments.”***

A summary of aspects of relevant aspects of the Development is provided in **Table 3** and the approved site layout and external access arrangements are indicatively illustrated on **Figure 2**.

Table 3 Summary of Approved Development

Farm	Number of Sheds	External Site Access
1	10 sheds	Via southern driveway crossover
2	18 sheds	Via northern driveway crossover
3	10 sheds	Via southern driveway crossover
4	16 sheds	Via southern driveway crossover

Figure 2 Approved Site Layout and External Access Arrangements



2.4 Modification 3

A proposed modification to the existing Development Consent (**Modification 3**) has been submitted to DPIE by ProTen. Modification 3 relates to Stage 1 of construction only at Farm 2 (refer to **Section 3.1** herein) and comprises the following two short-term components that will have associated traffic implications:

- **Concurrent construction and operation at Farm 2.** ProTen propose to commence partial operations at Farm 2 whilst construction works are still being undertaken to complete Farm 2 for up to 10 months. Four (4) to eight (8) sheds will be constructed at a time and commissioned, while construction of remaining sheds and ancillaries is ongoing, until all 18 sheds are completed and commissioned. Construction of Farm 2 commenced in September of this year, and it is anticipated that the first eight (8) sheds will be completed and commissioned in around February 2022.
- **Generator power for Farm 2 operations.** The development was approved based on operational power requirements being met by solar panels and connection to the reticulated electricity network. However, ProTen are now pursuing options to create an 'off-grid' solar and battery solution, which would be subject to a separate modification approval. In the interim period, the Farm 2 (poultry sheds and ancillaries) and the Namoi River water pump will need to rely on diesel generators for a period of up to 10 months for operation.

This version of the CTMP has been amended to reflect the changes to the approved development resulting from Modification 3.

2.5 Development Traffic Generation – Operational Phase

The RoadNet TIA indicated that the Development is anticipated to generate the following peak traffic demands during the operational phase:

- Up to 72 vehicles per day (**vpd**) consisting of 26 light vehicle movements and 46 heavy vehicle movements;
- AM peak hour:
 - Light vehicles: 12 vehicles per hour (**vph**) (9vph inbound, 3vph outbound);
 - Heavy vehicles: 5vph (3vph inbound, 2vph outbound);
 - **Total: 17vph** (12vph inbound, 5vph outbound).
- PM peak hour:
 - Light vehicles: 12 vehicles per hour (**vph**) (3vph inbound, 9vph outbound);
 - Heavy vehicles: 5vph (2vph inbound, 3vph outbound);
 - **Total: 17vph** (5vph inbound, 2vph outbound).

The traffic distribution adopted by the RoadNet TIA for Development traffic was as follows:

- Light vehicles:
 - 80% to east via Oxley Highway;
 - 15% to west via Oxley Highway;
 - 5% to north via Rushes Creek Road.
- Heavy vehicles: 100% to east via Oxley Highway.

3 Construction Phase Overview

3.1 Construction Activities and Staging

Construction of the Development is proposed to occur over two separate stages as summarised in **Table 4**, along with the key activities proposed and anticipated duration of each stage. Indicative staging plans for the construction phase of the Development have been prepared by Agribiz and are included at **Appendix D**. A detailed breakdown of construction activities and associated traffic volumes has been provided by Agribiz and is included at **Appendix E**.

Table 4 Construction Stages and Duration

Stage	Key Activities	Duration
1	A. Construction of the northern site access to Rushes Creek Road.	15 months
	B. Construction of Farm 2 sheds 1-8 (i.e. 8 sheds total) and ancillary support infrastructure	
	C. Construction of Farm 2 sheds 9-12 (i.e. 4 sheds total)	
	D. Construction of Farm 2 sheds 13-16 (i.e. 4 sheds total)	
	E. Construction of Farm 2 sheds 17-18 (i.e. 2 sheds total)	
2	A. Construction of the southern site access to Rushes Creek Road.	15 months
	B. Construction of the Farm 4 (16 sheds)	
	C. Construction of the Farm 3 (10 sheds)	10 months
	D. Construction of the Farm 1 (16 sheds)	10 months
Total		50 months

Stage 1A of the development, consisting of earthworks at Farm 2, has already commenced, with completion of Stage 1E expected in August 2022. Construction of Stage 2 is expected to commence in 2022, with completion anticipated in 2025. It is understood that each individual farm will begin operating immediately following the completion of construction.

The majority of construction activities will occur wholly within the subject site, with the exception of construction of the northern and southern site access to Rushes Creek Road, and also for the installation of water and electrical supply infrastructure under Ski Gardens Road. It is understood that no import/export of fill/cut external to the site is required as part of the construction phase of the Development.

3.2 Hours of Operation

As per Schedule 2, Part B, Condition B25 of the Development Consent, earthworks and construction activities are restricted to the following hours of work:

- Monday to Friday: 7AM to 6PM;
- Saturday: 8AM to 1PM.

Schedule 2, Part B, Condition B26 of the Development Consent permits works that are inaudible at the nearest sensitive receivers can be undertaken outside of the above hours.

3.3 Site Access

The construction of the proposed site accesses to Rushes Creek Road will be staged as follows:

- The northern site access construction (i.e. Stage 1A) will occur prior to the construction of Farm 2;
- The southern site access construction (i.e. Stage 2A) will occur prior to the construction of Farms 4, 3 and 1.

Each of the new site accesses will consist of the following treatments:

- Sealed driveway crossovers between Rushes Creek Road and the site boundary, sufficient to accommodate the swept paths of 25m B-Doubles entering and exiting the site;
- Site access roads will be sealed for a minimum of 50m into the site from Rushes Creek Road;
- Pavement widening will be provided on Rushes Creek Road to accommodate Basic Left (**BAL**) turn treatments.

There are existing site accesses off Rushes Creek Road that are available for vehicles associated with the site preparation works, and therefore vehicles associated with the construction of the site accesses are able to park, unload and load within the subject site (i.e. vehicles are not required to stand within the road reserve external to the site).

3.4 Internal Circulation Roads, Car Parking and Loading Unloading Areas

Indicative construction staging plans have been prepared by Agribiz are included at **Appendix D**. The plans indicate the following proposed provisions for the construction phase of the Development:

- Internal circulation roads will be consistent with that proposed for the operational phase of the Development as indicated on **Figure 2** (i.e. all-weather type unsealed roads);
- Unsealed car parking areas will be provided for contractors. It is anticipated that a maximum of 27 contractors will be present on-site at any one time during the construction of each farm, and hence car parking should be provided to accommodate up to 27 vehicles. The spatial provisions indicated on the plans provided at **Appendix D** are broadly consistent with this requirement;
- A separate car parking area will be provided for operational parking (refer to **Appendix D**), and therefore no additional impacts are anticipated to result from simultaneous operational and construction car parking demands;
- A number of laydown areas are proposed within each farm construction site for the loading/unloading of heavy vehicles.

Car parking and laydown areas should be signed accordingly to assist in identification of these areas for contractors and delivery drivers.

3.5 Construction Phase Traffic Demands

A detailed breakdown of construction activities and associated traffic volumes has been provided by Agribiz and is included at **Appendix E**. The breakdown of traffic volumes for each month throughout the construction phase of the Development indicates the following peak monthly traffic demands for each stage of the construction:

- **Stage 1** (month 5 of construction):
 - Light vehicles: 1,358 trips (97% of total);
 - Heavy vehicles: 54 trips (3% of total);
 - **All vehicles: 1,412 trips.**
- **Stage 2** (month 5 of construction):
 - Light vehicles: 1,358 trips (97% of total);
 - Heavy vehicles: 54 trips (3% of total);
 - **All vehicles: 1,412 trips.**

The peak monthly construction phase traffic volumes were broken down into peak daily volumes using the following conservative assumptions:

- Average month of 30 days;
- Consistent with the hours of operation as per **Section 3.2**, 5.5 work days per week;
- Reflective of the above assumptions, adopting an average of 23.6 working days per month (i.e. $30/7 \times 5.5 = 23.6$).

Reflective of the above assumptions, the peak daily traffic volumes anticipated during the construction phase of the Development are presented in **Table 5**.

Table 5 Construction Phase - Peak Daily Traffic Volumes

Stage/Access	Light Vehicles	Heavy Vehicles	All Vehicles
Stage 1 – Northern site access	58vpd	2vpd	60vpd
Stage 1 – Southern site access	58vpd	2vpd	60vpd

vpd = vehicles per day

Table 5 indicates that the construction phase of the Development is forecast to generate up to 60vpd during peak months, consisting of 58 light vehicle trips and two heavy vehicle trips per day. As indicated by the information provided at **Appendix E**, the largest anticipated design vehicle is a 20m Articulated Vehicle (**AV**) (i.e. 'semi-trailer').

The peak daily traffic volumes in **Table 5** have been converted into peak hour traffic in **Table 6** using the following conservative assumptions:

- All light vehicles (i.e. primarily associated with site personnel and contractors) would enter or exit the site during peak hour periods (i.e. 50% of daily trips during the AM peak hour, 50% of daily trips during the PM peak hour);
- Heavy vehicle trips (i.e. primarily associated with deliveries of equipment or machinery) would be distributed across the day, with 10% of trips occurring during the AM and PM network peak hours.

Table 6 Construction Phase - Peak Hour Traffic Volumes

Stage/Access	Light Vehicles	Heavy Vehicles	All Vehicles
Stage 1 – Northern site access	29vph	0vph	29vph
Stage 2 – Southern site access	29vph	0vph	29vph

vph = vehicles per hour

The following distribution of light and heavy vehicle trips has been adopted for the construction phase of the Development generally consistent with the RoadNet TIA:

- **Light vehicle trips:**
 - East via Oxley Highway: 85%;
 - West via Oxley Highway: 15%.
- **Heavy vehicle trips:**
 - East via Oxley Highway: 100%.

Conservatively, all trips during the AM peak hour have been assumed to be inbound trips, and all trips during the PM peak hour have been assumed to be outbound trips.

Reflective of all assumptions documented above, the traffic volumes utilised for the operational assessment are included at **Appendix F**.

3.6 Modification 3 Traffic Demands

The MOD3 TA indicated that Modification 3 is expected to result in the following (temporary) traffic demands at the northern site access to Rushes Creek Road for a period of up to 10 months during Stage 1 of construction (i.e. Farm 2):

- Concurrent operational and construction traffic demands at Farm 2;
- Associated with additional fuel deliveries to Farm 2, an additional 4vpd, consisting of 2 light vehicle movements and 2 heavy vehicle movements. Of note, no additional peak hour traffic movements are anticipated to be generated by fuel deliveries.

The anticipated Modification 3 traffic demands are compared with the previously assessed development traffic demands (i.e. combined operational and construction demands as per Version 1.0 of this CTMP) in **Table 7** overleaf.

Table 7 Comparison of Assessed Development and Modification 3 Traffic Generation

Component	Peak Daily Trips		Peak Hour Trips	
	Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
Assessed Development Traffic Generation				
Operational phase ¹	26vpd	46vpd	12vph	5vph
Construction phase ²	58vpd	2vpd	29vph	0vph
Subtotal	84vpd	48vpd	41vph	5vph
Total	132vpd		46vph	
Proposed Modification 3 Traffic Generation				
Assessed development (operations + construction)	84vpd	48vpd	41vph	5vph
Additional fuel deliveries	2vpd	2vpd	0vph	0vph
Subtotal	86vpd (+2%)	50vpd (+4%)	41vph (+0%)	5vph (+0%)
Total	136vpd (+3%)		46vph (+0%)	

¹Refer to Section 2.5 herein.

²Refer to Section 3.5 herein.

Of note, **Table 7** indicates the following:

- The additional fuel deliveries associated with Modification 3 are anticipated to generate up to four (4) additional vehicle movements per day external to the site, which is an increase of around 3% ($4/132 \times 100 = 3.0\%$) beyond that previously assessed. This minor increase in daily development traffic demands for up to 10 months is not considered to be significant from a traffic engineering perspective;
- Modification 3 is not anticipated to generate additional traffic demands during network peak hour periods beyond that assessed herein (refer to **Section 4**).

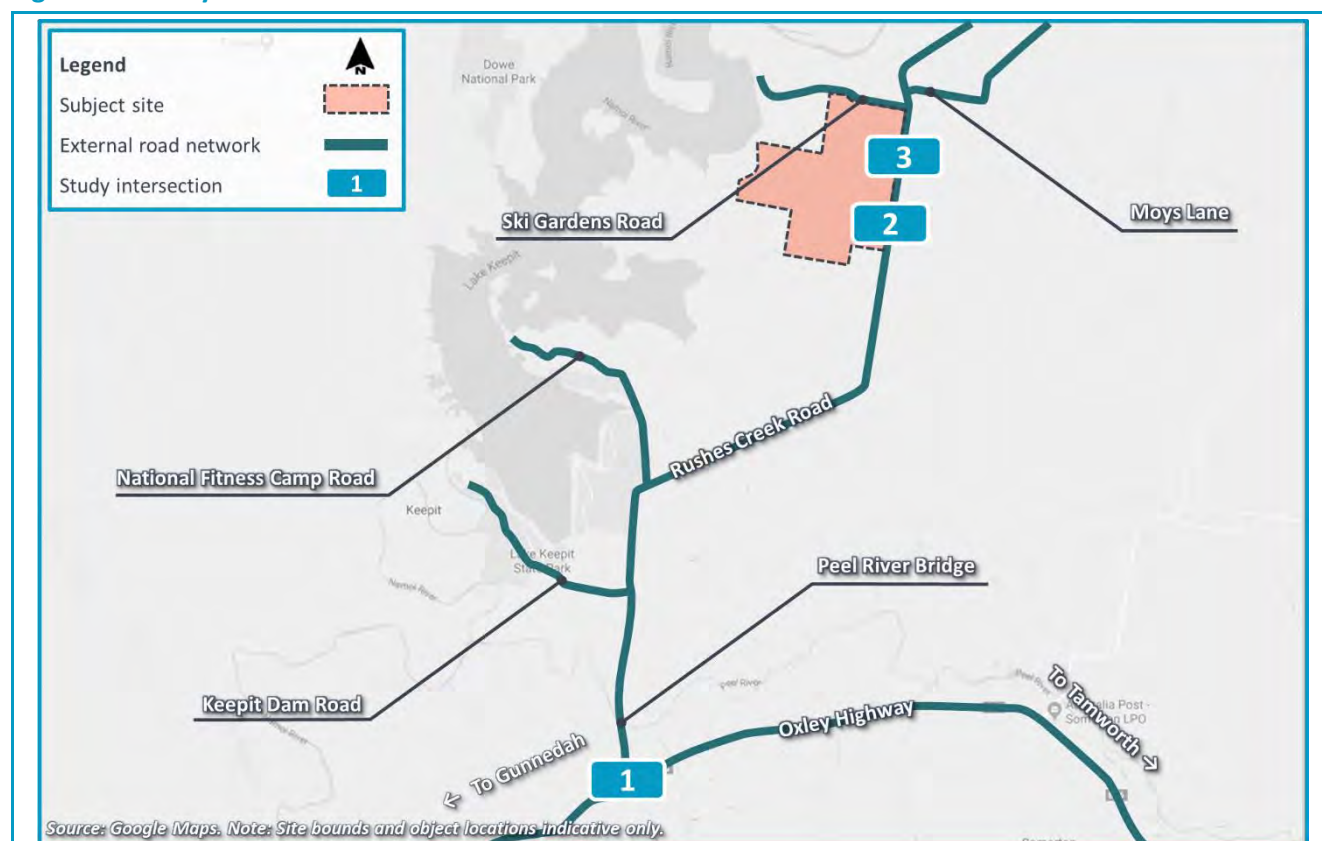
Operational and safety assessments considering combined construction and operational traffic demands for the development (including consideration of Modification 3) are documented in **Section 4** and **Section 5** herein.

4 Operational Assessment

4.1 Study Intersections

A detailed analysis of the potential impacts of the combination of construction and operational phase traffic demands associated with the Development on the operation of the external road network has been undertaken at the locations indicated on **Figure 3**.

Figure 3 Study Intersections



ID	Intersection	Intersection Form	Authority
1	Oxley Highway/Rushes Creek Road		TfNSW
2	Rushes Creek Road/Southern Site Access		GCC
3	Rushes Creek Road/Northern Site Access		GCC

4.2 Assessment Scenario

An operational assessment of study intersections has been undertaken for a conservative assessment scenario consisting of the following traffic demands:

- 2025 background traffic demands (i.e. based on surveyed traffic volumes and 2% per annum growth on all roads as per the RoadNet TIA); *plus*
- Development operational phase traffic demands (i.e. as per the RoadNet TIA); *plus*
- Development construction phase traffic demands (i.e. as per **Section 3.5** herein).

The operation of the road network has been assessed for the above scenario during both the weekday AM and PM peak hour periods in SIDRA Intersection. Assessment traffic volumes are included at **Appendix F**.

4.3 Performance Criteria

Study intersections have been assessed in SIDRA Intersection; an industry recognised analysis tool used to estimate the capacity and performance of intersections based on input parameters, including geometry and traffic volumes. SIDRA Intersection provides an estimate of an intersection's Degree of Saturation (**DOS**), queues and delays. The performance thresholds adopted for the operational assessment reported herein are detailed below.

4.3.1 Degree of Saturation

The maximum DOS thresholds identified by the Austroads *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments (AGTM12-20)* for each intersection type are reproduced in **Table 8**.

Table 8 Degree of Saturation Thresholds

Intersection Type	DOS Threshold
Signalised intersections	Less than or equal to 0.90
Roundabouts	Less than or equal to 0.85
Priority controlled intersections	Less than or equal to 0.80

DOS values exceeding those presented in **Table 8** indicate that an intersection is nearing its practical capacity and upgrade works may be required. Above these threshold values, users of the intersection are likely to experience rapidly increasing delays and queuing.

4.3.2 Critical Delay

The RMS (now TfNSW) *Guide to Traffic Generating Developments* (2002) recommends that the average delay statistic for the critical movement provides a better indication of intersection performance and safety for roundabouts and priority-controlled intersections than DOS. A summary of the delay thresholds recommended by TfNSW is provided in **Table 9**.

Table 9 Critical Delay Thresholds

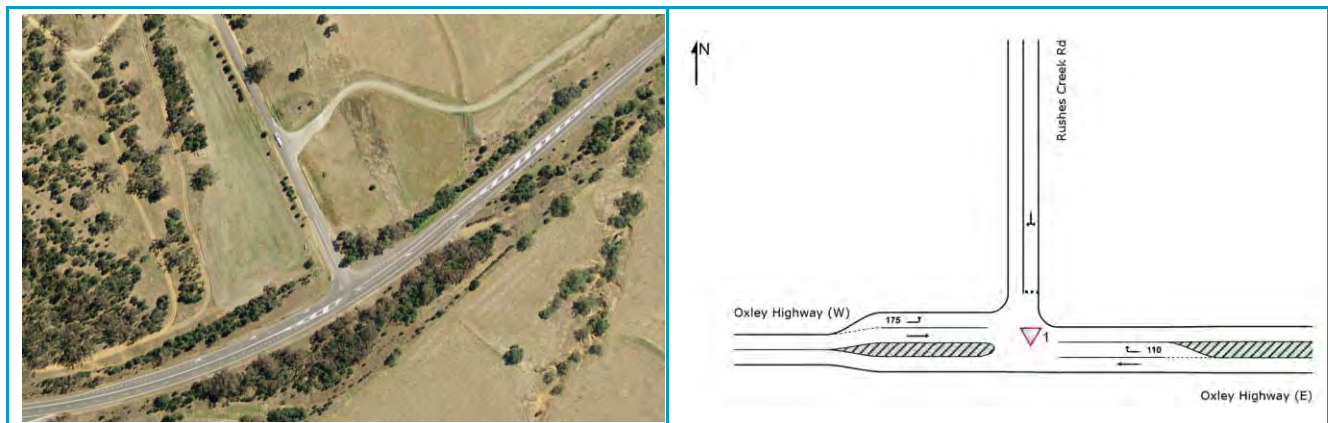
LOS	Description	Critical Delay (sec/vehicle)
A	Good operation	< 14 sec
B	Acceptable delays and spare capacity	15 - 28 sec
C	Satisfactory	29 - 42 sec
D	Near capacity	43 - 56 sec
E	At capacity, requires other control mode	57 - 70 sec

4.4 Intersection Assessment

4.4.1 Oxley Highway/Rushes Creek Road Intersection

The Oxley Highway/Rushes Creek Road intersection is currently a priority controlled T-intersection. The existing configuration and assessed SIDRA layout of the intersection are shown on **Figure 4**. The results of the SIDRA assessment are presented in **Table 10**. Detailed SIDRA outputs are provided at **Appendix G**.

Figure 4 Oxley Highway/Rushes Creek Road Intersection – Existing Intersection Form



Source: SIX Maps

Table 10 SIDRA Outputs: Oxley Highway/Rushes Creek Road Intersection

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Critical Delay	95 th %ile Queue	DOS	Critical Delay	95 th %ile Queue
<i>Existing priority controlled intersection</i>						
2025 Background With Development & Construction	0.10	11 sec	2m (E)	0.10	11 sec	3m (N)

The SIDRA analysis summarised in **Table 10** identifies that the existing intersection layout performs well within typically adopted performance (i.e. DOS of 0.80 for a priority-controlled intersection) and safety (i.e. critical delay of 57 seconds or less) thresholds for all assessed scenarios.

4.4.2 Rushes Creek Road/Southern Site Access

The Rushes Creek Road/Southern Site Access proposed as a priority controlled driveway crossover. The assessed SIDRA layout of the proposed access is shown on **Figure 5**. The results of the SIDRA assessment are presented in **Table 11**. Detailed SIDRA outputs are provided at **Appendix G**.

Figure 5 Rushes Creek Road/Southern Site Access – Proposed Access Form

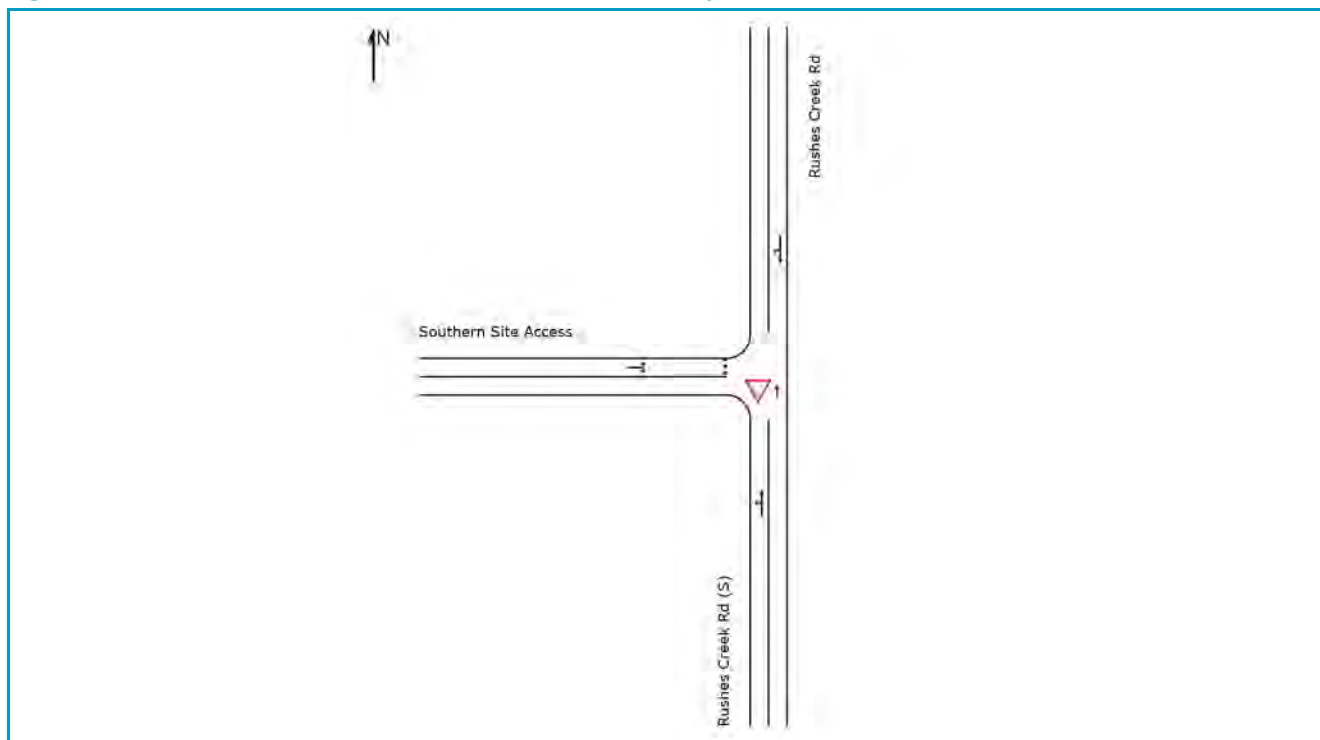


Table 11 SIDRA Outputs: Rushes Creek Road/Southern Site Access

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Critical Delay	95 th %ile Queue	DOS	Critical Delay	95 th %ile Queue
<i>Proposed priority controlled access</i>						
2025 Background With Development & Construction	0.04	8 sec	1m (W)	0.04	9 sec	1m (W)

The SIDRA analysis summarised in **Table 11** identifies that the proposed access layout performs well within typically adopted performance (i.e. DOS of 0.80 for a priority-controlled intersection) and safety (i.e. critical delay of 57 seconds or less) thresholds for all assessed scenarios.

4.4.3 Rushes Creek Road/Northern Site Access

The Rushes Creek Road/Northern Site Access proposed as a priority controlled driveway crossover. The assessed SIDRA layout of the proposed access is shown on **Figure 6**. The results of the SIDRA assessment are presented in **Table 12**. Detailed SIDRA outputs are provided at **Appendix G**.

Figure 6 Rushes Creek Road/Northern Site Access – Proposed Access Form

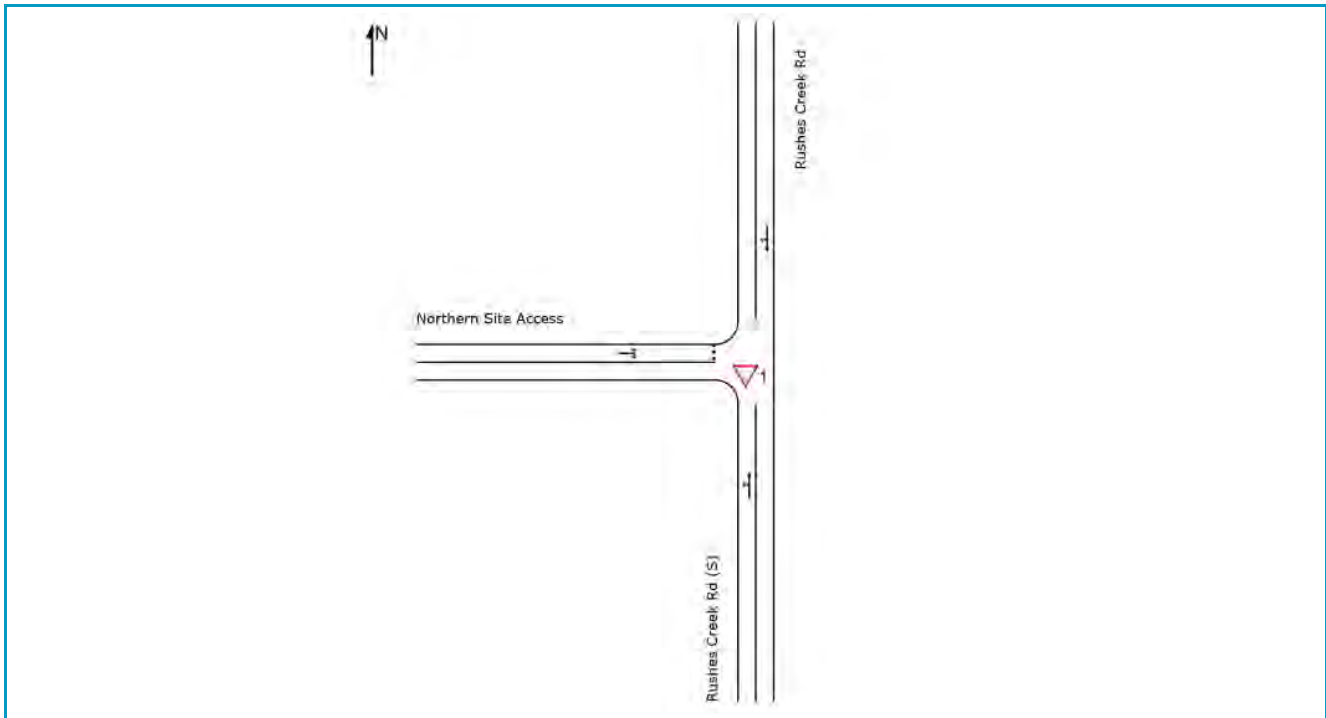


Table 12 SIDRA Outputs: Rushes Creek Road/Northern Site Access

Scenario	AM Peak Hour			PM Peak Hour		
	DOS	Critical Delay	95 th %ile Queue	DOS	Critical Delay	95 th %ile Queue
<i>Proposed priority controlled access</i>						
2025 Background With Development & Construction	0.04	8 sec	1m (W)	0.04	9 sec	1m (W)

The SIDRA analysis summarised in **Table 12** identifies that the proposed access layout performs well within typically adopted performance (i.e. DOS of 0.80 for a priority-controlled intersection) and safety (i.e. critical delay of 57 seconds or less) thresholds for all assessed scenarios.

4.5 Mitigation Measures

Based on the results of the operational assessment presented above, it is evident that the existing road network has sufficient capacity to accommodate the conservative Development traffic scenario (i.e. combination of operational and construction phase traffic demands at the 2025 design year) assessed herein. On this basis, no additional measures are considered necessary to offset the operational impacts of traffic associated with the construction phase of the Development.

5 Safety Assessment

5.1 Site Accesses

The following is noted in relation to the suitability of the proposed northern and southern site accesses to Rushes Creek Road to accommodate traffic associated with the construction phase of the Development:

- The SLR STA indicated that the location of the proposed northern and southern site accesses to Rushes Creek Road catered for appropriate sight distance in accordance with the relevant design standard, being the Australian Standards for *Parking facilities Part 2: Off-street commercial vehicle facilities (AS2890.2)*;
- A turn warrant assessment of both site accesses to Rushes Creek Road, a summary of which is included at **Appendix H**, was conducted using the 2025 design traffic volumes at **Appendix F** and demonstrates that the proposed BAL site access forms are suitable to accommodate the anticipated peak hour traffic demands generated by the combination of construction and operational phases of the Development;
- The largest anticipated design vehicle for the construction phase of the Development is a 20m AV, which is smaller than the largest design vehicle for which the site accesses have been designed to accommodate (i.e. a 25m B-Double).

5.2 Rushes Creek Road and Oxley Highway Intersection

The following is noted in relation to the suitability Rushes Creek Road (i.e. to the south of the site accesses) and the Oxley Highway/Rushes Creek Road intersection to accommodate traffic associated with the construction phase of the Development, including consideration of Modification 3:

- As discussed in **Section 3.5** herein, the construction phase of the Development will generate an additional two (2) heavy vehicle movements (i.e. on peak days) to Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection for the duration of construction;
- As per the commentary provided in **Section 3.6** herein, Modification 3 is expected to generate an additional two (2) heavy vehicle movements (HRVs associated with fuel deliveries) to Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection for a period of up to 10 months;
- As per **Section 2.2** herein, Rushes Creek Road is an approved route 25/26m B-Double route. Furthermore, Rushes Creek Road and the Oxley Highway/Rushes Creek Road intersection have previously been assessed a suitable to accommodate 25m B-Double movements. Notwithstanding, the construction phase of the Development will utilise design vehicles of up to 20m AV size (i.e. smaller than a 25/26m B-Double);
- A turn warrant assessment of the Oxley Highway/Rushes Creek Road intersection, a summary of which is included at **Appendix H**, was conducted using the 2025 design traffic volumes at **Appendix F**. The assessment demonstrates that the existing intersection form is suitable to accommodate the anticipated peak hour traffic demands generated by the combination of construction and operational phases of the Development.

5.3 Mitigation Measures

Based on the above commentary, no specific safety measures are considered to be warranted in order to accommodate the traffic demands associated with the construction phase of the Development, including consideration of Modification 3. Notwithstanding, it is proposed to implement a suite of construction traffic management measures, which are detailed in **Section 6** herein, to ensure that traffic associated with the construction phase of the Development does not impact on the safety of the surrounding road network.

6 Construction Phase Traffic Management Measures

6.1 Drivers Code of Conduct

This CTMP provides additional details to supplement the *Rushes Creek Poultry Production Farm (Construction Phase): Drivers Code of Conduct* document (**Drivers Code of Conduct**), which is included at **Appendix I**. As part of the mandatory site induction, all heavy vehicle drivers entering the construction site are required to read the Drivers Code of Conduct, complete and sign the *Confirmation of Understanding* section, and return to authorised site personnel for secure storage onsite.

6.2 Site Management

The following procedures are to be observed by all vehicle drivers accessing the subject site:

- The construction site has a drug and alcohol policy which includes random testing;
- Drivers are to obey all site signage and the directions of site personnel;
- Vehicles are to use designated circulation roads within the site where possible;
- All vehicles are to park and load/unload within the site using designated parking and loading areas where possible. Vehicles are not to park or load/unload within the public road reserve;
- All drivers are required to operate vehicles in a safe and courteous manner, within and external to the subject site.

6.3 Heavy Vehicle Management

6.3.1 General Requirements

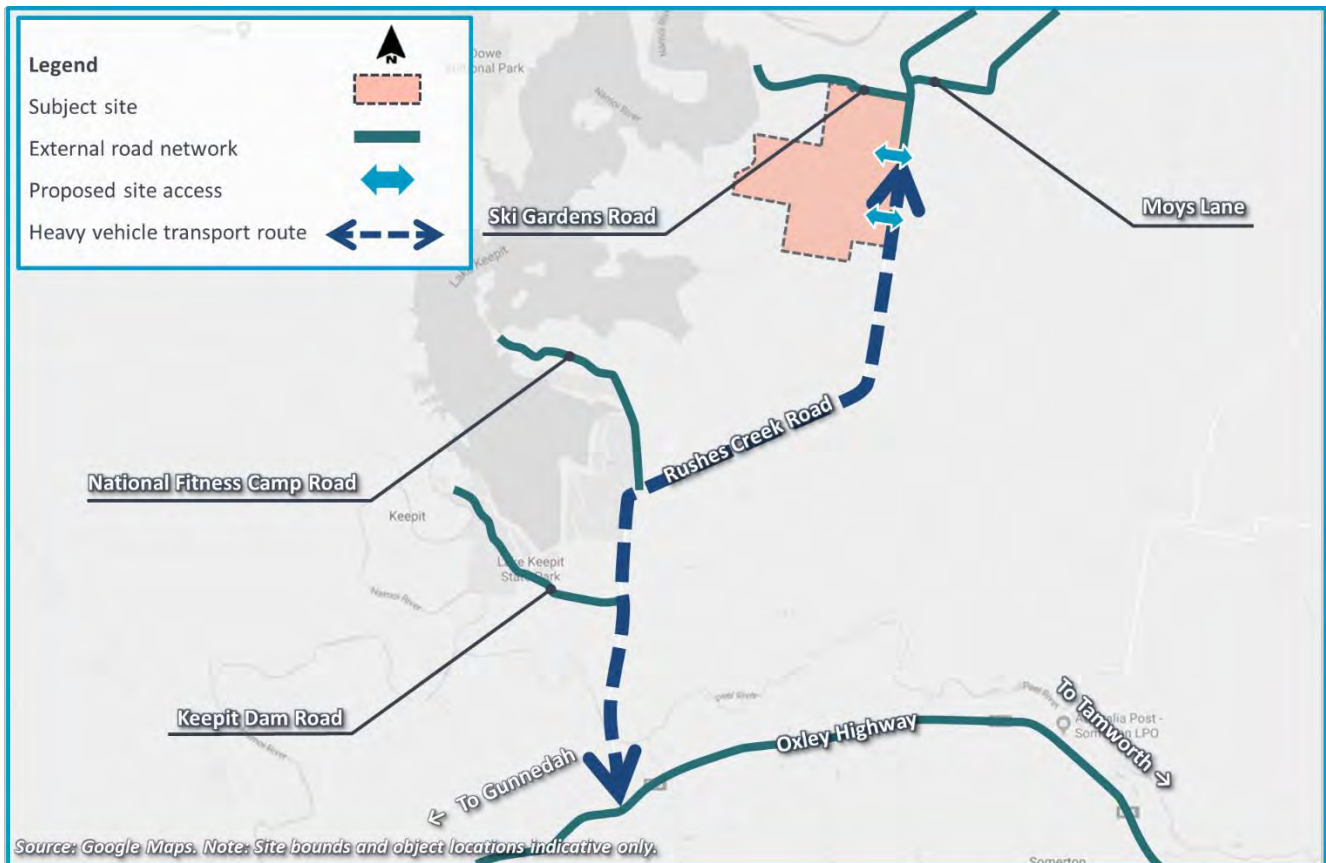
All heavy vehicle drivers accessing the subject site must abide by the following:

- Undertake a site induction carried out by authorised site personnel or suitably qualified person under the direction of the site manager;
- All drivers must hold a valid driver's licence which is appropriate for the class of vehicle under their operation;
- All drivers are to ensure their load is legal, covered and secure before entering or exiting the site;
- All drivers must comply with Chain of Responsibility legislation;
- Vehicles entering the subject site are to be registered, roadworthy, and of sound mechanical condition. Site management may request to inspect any vehicle or request maintenance records for any vehicle and reserves the right to prohibit any vehicle from entering the subject site should there be any indication that the vehicle is not roadworthy or safe to operate;
- Any accidents, incidents, complaints, hazards, spillages or near misses must be reported immediately to the site manager. This includes incidents along the designated heavy vehicle transport route on the external road network.

6.3.2 Designated Heavy Vehicle Transport Route

To minimise the safety impact on residential areas and school zones, the designated transport route for heavy vehicles for the subject site is via Rushes Creek Road to the south of the site towards the Oxley Highway as indicated on **Figure 7**. Heavy vehicles are not to use Rushes Creek Road to the north of the subject site (i.e. towards Manilla), as the appropriateness of this route for heavy vehicle movements has not been assessed.

Figure 7 Designated Heavy Vehicle Transport Route



It is understood that works will take place on Ski Gardens Road to install water and electrical supply infrastructure underneath the road. Should heavy vehicles access to Ski Gardens Road be required as part of these works, this would need to be considered as part of a relevant Traffic Control Plan (TCP) prepared to accompany the external works within the public road reserve (see **Section 6.4**).

Through minimising heavy vehicle movements along roads in the vicinity of the site that include either school zones or that facilitate lower speed residential property access, the designated heavy vehicle transport route minimises the safety impacts on residential areas and school zones through limiting the potential for haulage vehicles to interact with the following:

- Students walking or cycling to school, or boarding/alighting buses;
- Pedestrians and children around residential properties;
- Vehicles or cyclists entering or leaving residential property accesses.

The typical framework applied to risk management seeks to (1) Avoid; (2) Manage, and (3) Mitigate risks (in order of preference). By avoiding residential areas and school zones, the proposed heavy vehicle transport route is consistent with this framework.

6.3.3 Speed Management

Posted speed limits along the designated heavy vehicle transport route indicated on **Figure 7** are as follows:

- Within the subject site: 60km/h generally, 40km/h within the vicinity of work sites or farms;
- Rushes Creek Road: 100km/h;
- Oxley Highway: 100km/h.

6.3.4 Noise Management

To limit heavy vehicle noise associated with construction activities, drivers are to abide by the following requirements:

- Vehicle access to the subject site is to be via the designated haulage route of Rushes Creek Road to the south of the site towards the Oxley Highway;
- Heavy vehicles using Rushes Creek Road are not to use engine or compression braking systems, except where required for safety reasons;
- Posted speed limits on the external road network are to be observed, and vehicle speeds are to be restricted to 60km/h within the subject site, or 40km/h within the vicinity of work sites or farms;
- Vehicles are to be turned off when not in use.

6.3.5 Dust Management

To minimise the potential for dust production within the subject site, drivers are to abide by the following requirements:

- Vehicle speeds are to be restricted to 60km/h within the subject site, or 40km/h within the vicinity of work sites or farms;
- Vehicles are to use designated circulation roads within the site where possible;
- Drivers are to report excessive dust production from internal circulation roads to the site manager;
- Water trucks will be used to wet down internal circulation roads during dry conditions and when excessive dust production is reported to the site manager.

6.4 Traffic Control Plans

TCPs for the construction of the proposed northern and southern site accesses to Rushes Creek Road, and the installation of water and electrical supply infrastructure under Ski Gardens Road, have not been prepared as part of this CTMP, however, should be prepared prior to the commencement of any works within the road reserve. The TCPs should provide details of the layout and nature of any temporary traffic control devices required to ensure safe movements within a particular area on the public road network and may include:

- Temporary signage/devices to notify road users of potential hazards or changed conditions;
- Temporary speed limits;

- Detours;
- UHF frequencies for communication with site or traffic control personnel; and
- Any other proposed changes to traffic conditions.

TCPs should be prepared by a suitability qualified person and be implemented by a suitability qualified traffic management contractor in accordance with the following relevant guidelines:

- The Australian Standard for Manual of uniform traffic control devices *Part 3: Traffic Control for Works on Roads (AS1742.3)*;
- Supplement to AS1742.3 (TfNSW, 2020);
- *Traffic control at work sites (TCAWS) Technical Manual* (TfNSW, 2020);
- *Austroads Guide to Temporary Traffic Management (AGTTM)*.

All necessary approvals shall be obtained from the relevant road authorities (i.e. TRC) prior to implementation of the TCPs. A copy of relevant TCPs should be provided to all contractors as part of the site induction process to ensure awareness and compliance.

6.5 Community Consultation in Relation to External Works

It is noted that temporary lane closures (i.e. one lane to remain open under traffic control) on Rushes Creek Road are likely to be required in order to facilitate the construction of the northern and southern site accesses, and potentially also for the and the installation of water and electrical supply infrastructure under Ski Gardens Road. Details of any notification/consultation measures (if required) to minimise disruptions to road users will be provided in due course in the respective TCPs for the construction of the northern and southern site accesses.

At a high level, however, given the anticipated peak hour traffic volumes along Rushes Creek Road in the vicinity of the site accesses (i.e. <100vph in both directions as per the 2025 design traffic volumes at **Appendix F**), delays for vehicles due to traffic control are anticipated to be minor. Likewise for Ski Gardens Road, reflective of the low traffic volumes along this local road, delays for vehicles due to traffic control are also expected to be minor.

7 CTMP Monitoring/Review & Improvement Process

7.1 Implementation

In accordance with Schedule 2, Part B, Condition B10 of the Development Consent:

- Construction on the subject site should not commence until this CTMP has been approved by the Planning Secretary; and
- The most recent version of this CTMP approved by the Planning Secretary should be implemented for the duration of construction.

7.2 Monitoring

7.2.1 Incident Reporting and Non-Compliance Notification

Any incidents of relevance to this CTMP (i.e. those reported either through formal complaints to DPIE or the site manager, and also those observed by site personnel) should be reported to DPIE in accordance with Schedule 2, Part C, Condition C9 and *Appendix 3* (Incident Notification and Reporting Requirements) of the Development Consent. Reference should also be made to the complaints management strategy and environmental incidents management strategy in the approved Construction Environmental Management Plan (**CEMP**).

Any non-compliance with the Development Consent, this CTMP, or the Drivers Code of Conduct should be reported to DPIE in accordance with Schedule 2, Part C, Condition C10 of the Development Consent.

7.2.2 Non-Compliance Response Procedure

Compliance of this CTMP with the Development Consent conditions will be measured according to the following performance indicators:

- An authorised site staff member or suitably qualified person under the direction of the site manager will undertake formal observations of compliance at six-monthly intervals;
- Contractor and employee awareness of this CTMP and Drivers Code of Conduct; and
- The frequency and nature of complaints reported to the subject site in relation to construction traffic.

Incident reporting is to be undertaken as per the requirements in **Section 7.2**. In the event of non-compliance, the following actions will be undertaken:

- Establish the details in relation to the incident (date, location, vehicle, driver etc.);
- Confirm that the reported incident involves a vehicle associated with the subject site;
- Conduct an investigation into why the incident occurred and evaluate the effectiveness of the current mitigation strategy;
- Provide details of any corrective actions and/or preventative measures to be implemented in order to address the incident and prevent reoccurrence; and
- Report details of any non-compliance to DPIE in accordance with **Section 7.2**.
- Identify any necessary improvement processes that become apparent as a result of the incident and implement relevant improvements to the CTMP.

Should any driver be found to have acted in breach of the Drivers Code of Conduct, through either a formal complaint, or through observations by authorised site personnel, disciplinary action will be taken, which could include the following:

- Verbal notification (if possible) and written confirmation to the driver of non-compliance with the Drivers Code of Conduct;
- Refusal to load/unload affected vehicles and direction to the driver to leave the site;
- Implementation of a temporary ban of the affected vehicle or driver until such time as sufficient evidence has been provided to authorised site staff that the breach has been rectified and/or will not occur again;
- In the case of a serious breach or repeated non-compliance with the Drivers Code of Conduct, a permanent site ban of the affected vehicle or driver will be considered.

7.3 CTMP Review & Improvement Process

Incident reporting is to be undertaken as per the requirements in **Section 7.2**. In the event of non-compliance, the following actions in addition to those captured in **Section 7.2**. will be undertaken:

- Document and implement any necessary improvements to the CTMP that become apparent as a result of the incident;
- Issue an updated version of the CTMP to relevant stakeholders which:
 - Describes the incident which is the catalyst for the update of the CTMP.
 - Describes the CTMP refinement in an improvement register that would likely be an appendix to the CTMP to aid stakeholder review.
 - Captures the improvement as appropriate within the body of the CTMP.

8 Summary

SLR has been engaged by ProTen to prepare a **CTMP** for the Rushes Creek **PPF** located at Rushes Creek Road, Rushes Creek.

Based on the analysis and discussion herein, the following is concluded:

- Construction of the Development will occur over two stages, with Stage 1A having already commenced and completion of Stage 1E expected in August 2022. Stage 2 is expected to commence in 2022, with completion anticipated in 2025;
- Two new site accesses, a northern and southern access to Rushes Creek Road, will be constructed at the start of each respective stage (i.e. northern access for Stage 1 and southern access for Stage 2) and will provide access for construction traffic to the subject site;
- The construction phase of the Development is anticipated to generate up to 60vpd during the peak months of construction, consisting of up to 58 light vehicle trips and 2 heavy vehicle trips per day;
- Modification 3, which proposes concurrent construction and operational traffic demands and additional fuel deliveries, is anticipated to generate up to 134vpd for a period of up to 10 months during Stage 1 of construction, consisting of up to 84 light vehicle trips and 50 heavy vehicle trips per day;
- The operational assessment documented herein demonstrates that the existing road network has sufficient capacity to accommodate the conservative Development traffic scenario assessed (i.e. combination of operational and construction traffic at the 2025 design year, including consideration of Modification 3). On this basis, no additional measures are considered necessary to offset the potential operational impacts of traffic associated with the construction phase of the Development or Modification 3;
- No specific safety measures are considered to be warranted in order to accommodate the traffic demands associated with the construction phase of the Development, including consideration of Modification 3. Notwithstanding, a variety of management measures, including the following, will be implemented to ensure that traffic associated with the construction phase of the Development does not impact on the safety of the surrounding road network:
 - All heavy vehicle drivers accessing the subject site will be required to read and abide by the Drivers Code of Conduct, and adhere to the designated heavy vehicle transport route using Rushes Creek Road to the south of the site toward the Oxley Highway;
 - TCPs should be prepared prior to the commencement of any works within the road reserve, including for the construction of the proposed northern and southern site accesses to Rushes Creek Road, and the installation of water and electrical supply infrastructure under Ski Gardens Road.
- Any incidents or non-compliance with the Development Consent, this CTMP, or the Drivers Code of Conduct should be reported to the DPIE in accordance with the relevant Development Consent conditions.

APPENDIX A

DPIE Approval of Traffic Consultant



Mr Chris Lawlor
Associate – Transport Advisory
SLR Consulting Australia Pty Ltd
PO Box 26
Spring Hill QLD 4004

15 February 2021

Dear Mr Lawlor

**Rushes Creek Poultry Production Farm (SSD-7704)
Approval of Traffic Consultant – Condition B10**

I refer to your letter dated 12 February 2021 seeking the Planning Secretary's endorsement for you to prepare the Construction Traffic Management Plan (CTMP) required by Schedule 2, Condition B10 of the Rushes Creek Poultry Production Farm development consent (SSD-7704).

The Department has reviewed your CV provided with your letter and is satisfied you have suitable qualifications and experience to prepare the CTMP, in accordance with Condition B10(a). I therefore endorse your engagement by ProTen Tamworth Pty Ltd to prepare the CTMP for the approved development.

Should you have any further enquiries, please contact Sally Munk, Principal Planner, Planning and Assessment, at the Department on 9274 6431 or via email at sally.munk@planning.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'C. Ritchie'.

Chris Ritchie
Director
Industry Assessments

As nominee of the Planning Secretary

cc. Bill Williams, ProTen Tamworth Pty Ltd

APPENDIX B

Road Authority Consultation Summary

B1 Initial Consultation

SLR contacted both TfNSW and TRC on 12 January 2021 via email to establish any additional CTMP requirements beyond the relevant Development Consent conditions, however, did not receive a written response from either authority. A copy of the emails requesting initial consultation are included at **Appendix C**.

B2 Review of Draft CTMP

B2.1 TfNSW Consultation

A copy of the correspondence received in relation to the draft CTMP is reproduced at **Appendix C**.

B2.2 TRC Consultation

An email associated with the issuing of the draft CTMP is reproduced at **Appendix C**. It was noted that no feedback was received from TRC.

B3 Modification 3 Consultation

TfNSW has provided pre-lodgement advice in relation to the Modification in an email dated 8 September 2021 (TfNSW reference: NTH16/00056/12), which is included at **Attachment C**.

APPENDIX C

Evidence of Consultation

Chris Lawlor

From: Gillogly, Mitchell <m.gillogly@tamworth.nsw.gov.au>
Sent: Tuesday, 12 January 2021 9:44 AM
To: Brake, Steve; Manners, Alex
Cc: Chris Lawlor; Lobsey, Sam
Subject: FW: 620.30288: Rushes Creek PPF - request for engagement re CTMP
Attachments: RC Development Consent SSD 7704.pdf

Hi Steve and Alex,

Can one of you assist Chris as per below.

Thanks.

Regards,

Mitch Gillogly

Team Leader – Development Assessment

P 02 6767 5462 | E m.gillogly@tamworth.nsw.gov.au

437 Peel Street

PO Box 555 Tamworth NSW 2340

www.tamworth.nsw.gov.au



From: Chris Lawlor < >
Sent: Tuesday, 12 January 2021 10:26 AM
To: Lobsey, Sam <s.lobsey@tamworth.nsw.gov.au>; Gillogly, Mitchell <m.gillogly@tamworth.nsw.gov.au>
Cc: Eryn Bath <eryn@emeadvisory.com>
Subject: 620.30288: Rushes Creek PPF - request for engagement re CTMP

Hi Sam and Mitch,

I hope you are both going well. I refer to the attached Development Consent (Consent) for the Rushes Creek Poultry Production Farm (PPF) development issued by the Department of Planning , Industry and Environment (DPIE) on 16 April 2020. SLR Consulting has been engaged by ProTen Tamworth Pty Ltd (ProTen) to prepare a Construction Traffic Management Plan (CTMP) in accordance with Schedule 2, Condition B10 of the Consent, which is reproduced below for ease of reference.

TRAFFIC AND ACCESS

Construction Traffic Management Plan

- B10. Prior to the commencement of construction, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) be prepared in consultation with Council and Transport for NSW;
 - (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
 - (d) detail heavy vehicle routes, access and parking arrangements;
 - (e) include a Driver Code of Conduct to:
 - (i) minimise the impacts of earthworks and construction on the local and regional road network;
 - (ii) minimise conflicts with other road users;
 - (iii) minimise road traffic noise; and
 - (iv) ensure truck drivers use specified routes;
 - (f) include a program to monitor the effectiveness of these measures; and
 - (g) if necessary, detail procedures for notifying residents and the community (including local schools), of potential disruptions to routes.
- B11. The Applicant must:
- (a) not commence construction until the Construction Traffic Management Plan required by condition B10 is approved by the Planning Secretary; and
 - (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

Condition B10(b) of the consent requires that the CTMP is prepared in consultation with Council. Eryn Bath from EME Advisory has provided you as contacts to seek input in relation to the CTMP – could you please forward this email and the below queries onto Council's traffic engineers as required?

As per the above, the CTMP must be prepared in consultation with Council. To satisfy this requirement, this email serves to commence that consultation. We kindly request a response to the following two (2) points:

1. Could you please confirm whether you require any additional considerations into developing the CTMP above those specifically stated in the Consent and copied into this email? If so, could you please state your considerations via return email?
2. Do you request a copy of the draft CTMP for review/feedback prior to ProTen's submission to DPIE for ultimate approval?

I appreciate your response on this matter. Please note that in accordance with the Consent, ProTen must not commence construction under the Consent until a CTMP has been approved by DPIE. The stakeholder consultation process will need to be completed prior to ProTen submitting the CTMP for approval. As the CTMP is considered critical path, I would appreciate your response as soon as practical.

Please do not hesitate to contact me should you wish to discuss further.

Cheers



Chris Lawlor

Associate - Transport Advisory

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From: Chris Lawlor
Sent: Tuesday, 12 January 2021 9:46 AM
To: development.northern@rms.nsw.gov.au;
development.northern@transport.nsw.gov.au
Cc: Eryn Bath
Subject: 620.30288: Rushes Creek PPF - request for engagement re CTMP
Attachments: RC Development Consent SSD 7704.pdf

Hi,

I refer to the attached Development Consent (Consent) for the Rushes Creek Poultry Production Farm (PPF) development issued by the Department of Planning, Industry and Environment (DPIE) on 16 April 2020. SLR Consulting has been engaged by ProTen Tamworth Pty Ltd (ProTen) to prepare a Construction Traffic Management Plan (CTMP) in accordance with Schedule 2, Condition B10 of the Consent, which is reproduced below for ease of reference.

TRAFFIC AND ACCESS

Construction Traffic Management Plan

- B10.** Prior to the commencement of construction, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) be prepared in consultation with Council and Transport for NSW;
 - (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
 - (d) detail heavy vehicle routes, access and parking arrangements;
 - (e) include a Driver Code of Conduct to:
 - (i) minimise the impacts of earthworks and construction on the local and regional road network;
 - (ii) minimise conflicts with other road users;
 - (iii) minimise road traffic noise; and
 - (iv) ensure truck drivers use specified routes;
 - (f) include a program to monitor the effectiveness of these measures; and
 - (g) if necessary, detail procedures for notifying residents and the community (including local schools), of potential disruptions to routes.
- B11.** The Applicant must:
- (a) not commence construction until the Construction Traffic Management Plan required by condition B10 is approved by the Planning Secretary; and
 - (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

Condition B10(b) of the consent requires that the CTMP is prepared in consultation with Transport for NSW (TfNSW). Could you please forward this email and the below queries onto the relevant TfNSW contact?

As per the above, the CTMP must be prepared in consultation with TfNSW. To satisfy this requirement, this email serves to commence that consultation. We kindly request a response to the following two (2) points:

1. Could you please confirm whether you require any additional considerations into developing the CTMP above those specifically stated in the Consent and copied into this email? If so, could you please state your considerations via return email?
2. Do you request a copy of the draft CTMP for review/feedback prior to ProTen's submission to DPIE for ultimate approval?

I appreciate your response on this matter. Please note that in accordance with the Consent, ProTen must not commence construction under the Consent until a CTMP has been approved by DPIE. The stakeholder consultation process will need to be completed prior to ProTen submitting the CTMP for approval. As the CTMP is considered critical path, I would appreciate your response as soon as practical.

Please do not hesitate to contact me should you wish to discuss further.

Cheers



Chris Lawlor

Associate - Transport Advisory

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From: Eryn Bath <eryn@emeadvisory.com>
Sent: Friday, 11 June 2021 10:56 AM
To: Jeffrey Baczynski
Subject: Fwd: 620.30288: Rushes Creek PPF - request for engagement re CTMP

Hi Jeff,

See below email trail for the three emails issued to Council in relation to the draft CTMP for Rushes Creek .. no responses received to date.

Cheers
Eryn

Eryn Bath
Principal Consultant, EME Advisory

T: 0427 024739
E: eryn@emeadvisory.com
W: www.emeadvisory.com



----- Forwarded message -----

From: Eryn Bath <eryn@emeadvisory.com>
Date: Thu, 20 May 2021 at 13:22
Subject: Re: 620.30288: Rushes Creek PPF - request for engagement re CTMP
To: Lobsey, Sam <s.lobsey@tamworth.nsw.gov.au>, Gillogly, Mitchell <m.gillogly@tamworth.nsw.gov.au>, Brake, Steve <s.brake@tamworth.nsw.gov.au>

Hi Sam, Mitch and Steve,

Just wondering if Council has any feedback on the draft CTMP emailed to you on 8 April (see below) for ProTen's Rushes Creek poultry farm development?

I'd really like to submit it to DPIE for approval next week.

Thanks and regards
Eryn

Eryn Bath
Principal Consultant, EME Advisory

T: 0427 024739
E: eryn@emeadvisory.com
W: www.emeadvisory.com



On Thu, 8 Apr 2021 at 13:17, Eryn Bath <eryn@emeadvisory.com> wrote:

Hi Sam, Mitch and Steve,

As you know, ProTen received Development Consent SSD 7704 (attached) from DPIE on 16 April 2020 for the Rushes Creek Poultry Production Farm approximately 43 km northwest of Tamworth.
Consent condition B10 requires ProTen to prepare a Construction Traffic Management Plan (CTMP) in consultation with Council for approval by the Planning Secretary. As per the email below, SLR Consulting emailed Council on 12 January 2021 seeking any additional CTMP requirements beyond those specified under condition B10, however no response has been received to date.

Please now find attached a copy of the draft CTMP prepared by SLR Consulting for review by Council prior to finalising and submitting to DPIE. Given that the CTMP is a pre-commencement condition, Council's review at the earliest opportunity would be appreciated. The draft CTMP has also been forwarded to TfNSW for their review.

Thanks in advance
Eryn

Eryn Bath
Principal Consultant, EME Advisory

T: 0427 024739
E: eryn@emeadvisory.com
W: www.emeadvisory.com



----- Forwarded message -----

From: Chris Lawlor <clawlor@slrconsulting.com>
Date: Tue, 12 Jan 2021 at 10:25
Subject: 620.30288: Rushes Creek PPF - request for engagement re CTMP
To: s.lobsey@tamworth.nsw.gov.au <s.lobsey@tamworth.nsw.gov.au>, m.gillogly@tamworth.nsw.gov.au <m.gillogly@tamworth.nsw.gov.au>
Cc: Eryn Bath <eryn@emeadvisory.com>

Hi Sam and Mitch,

I hope you are both going well. I refer to the attached Development Consent (Consent) for the Rushes Creek Poultry Production Farm (PPF) development issued by the Department of Planning, Industry and Environment (DPIE) on 16 April 2020. SLR Consulting has been engaged by ProTen Tamworth Pty Ltd (ProTen) to prepare a Construction Traffic Management Plan (CTMP) in accordance with Schedule 2, Condition B10 of the Consent, which is reproduced below for ease of reference.

TRAFFIC AND ACCESS

Construction Traffic Management Plan

- B10. Prior to the commencement of construction, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) be prepared in consultation with Council and Transport for NSW;
 - (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
 - (d) detail heavy vehicle routes, access and parking arrangements;
 - (e) include a Driver Code of Conduct to:
 - (i) minimise the impacts of earthworks and construction on the local and regional road network;
 - (ii) minimise conflicts with other road users;
 - (iii) minimise road traffic noise; and
 - (iv) ensure truck drivers use specified routes;
 - (f) include a program to monitor the effectiveness of these measures; and
 - (g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.
- B11. The Applicant must:
- (a) not commence construction until the Construction Traffic Management Plan required by condition B10 is approved by the Planning Secretary; and
 - (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

Condition B10(b) of the consent requires that the CTMP is prepared in consultation with Council. Eryn Bath from EME Advisory has provided you as contacts to seek input in relation to the CTMP – could you please forward this email and the below queries onto Council's traffic engineers as required?

As per the above, the CTMP must be prepared in consultation with Council. To satisfy this requirement, this email serves to commence that consultation. We kindly request a response to the following two (2) points:

1. Could you please confirm whether you require any additional considerations into developing the CTMP above those specifically stated in the Consent and copied into this email? If so, could you please state your considerations via return email?
2. Do you request a copy of the draft CTMP for review/feedback prior to ProTen's submission to DPIE for ultimate approval?

I appreciate your response on this matter. Please note that in accordance with the Consent, ProTen must not commence construction under the Consent until a CTMP has been approved by DPIE. The stakeholder consultation process will need to be completed prior to ProTen submitting the CTMP for approval. As the CTMP is considered critical path, I would appreciate your response as soon as practical.

Please do not hesitate to contact me should you wish to discuss further.

Cheers



Chris Lawlor

Associate - Transport Advisory

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clawlor@slrconsulting.com

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30 April 2021

File No: NTH16/00056/10

Your Ref: SSD-7704

Attention: Sally Monk

The Director

Department of Planning Industry and Environment

Dear Sir / Madam,

**Re: SSD 7704 – Rushes Creek Poultry Production Farm
Draft Construction Traffic Management Plan**

I refer to advice from the Planning Portal on 8 April 2021 requesting Transport for NSW (TfNSW) provide comment on the Draft Construction Traffic Management Plan (CTMP) prepared to satisfy condition B10 and B11 of State Significant Development consent dated 16 April 2020.

TfNSW understands that the proponent is required to prepare the CTMP in consultation with relevant roads authorities. TfNSW engaged with the proponent by phone on 15 January 2021 and advised that the reference document to inform the preparation of the CTMP is Austroads Guide to Temporary Traffic Management Part 2: Traffic Management Planning. In addition the proponent was encouraged to send a Draft for comment once prepared prior to lodgment with the department. TfNSW notes that this is our first opportunity to comment on the Draft document.

TfNSW notes that the CTMP includes a range of measures that can be flexibly implemented to plan, schedule and manage construction traffic impacts on the identified transport route. It is important that the final document is implemented effectively over the life of the project to manage safety for all road users. In this respect, the CTMP does not include details of monitoring, review or improvement processes to measure performance and address any issues identified throughout the project lifecycle. TfNSW recommends the department consider working whether any further detail of processes should be detailed in finalising the management plan.

If you have any further enquiries regarding the above comments please do not hesitate to contact Leisa Sedger, Development Assessment Officer, on 6640 1362 or email development.northern@transport.nsw.gov.au.

Yours faithfully,



for Matt Adams

Team Leader, Development Services

Community and Place | Region North

Regional & Outer Metropolitan

Transport for NSW



Eryn Bath <eryn@emeadvisory.com>

NTH16/00056/12 - Proposed Modification to SSD 7704 - ProTen Rushes Creek Modification

Development Northern <development.northern@transport.nsw.gov.au>

8 September 2021 at 10:55

To: Eryn Bath <eryn@emeadvisory.com>

Cc: Lachlan Giles <lachlan@emeadvisory.com>

Hi Eryn

Thank you for contacting Transport for NSW regarding the proposed modification of SSD 7704, ProTen's Rushes Creek poultry farm located on Rushes Creek Road near Manilla approved on 14 April 2020.

TfNSW understands the proposed modification is to permit concurrent construction and ancillary facilities including solar and battery solution sufficient to enable Farm 2 to operate off-grid.

The proposed concurrent construction and operation will modify the previously identified traffic impact, this will need to be quantified and any supporting documents updated to identify any traffic or safety concerns this may identify and mitigation measures proposed.

TfNSW notes the approved Construction and Operational Traffic Management Plan/s will require updating, taking into consideration the identified change of traffic volumes and include any identified mitigation measures.

If you would like to discuss this matter further, please contact Leisa Sedger, Development Services Case Officer on 02 6640 1362 or email development.northern@transport.nsw.gov.au.

Kind regards

Leisa Sedger

for Matt Adams
Team Leader, Development Services

Community & Place | Region North

Regional & Outer Metropolitan
Transport for NSW

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal works hours.

P 02 6640 1362

E development.northern@transport.nsw.gov.au
A Level 1, 76 Victoria Street, Grafton NSW 2460



Transport
for NSW

From: Eryn Bath [mailto:eryn@emeadvisory.com]
Sent: Monday, 23 August 2021 5:08 PM
To: Development Northern <development.northern@transport.nsw.gov.au>
Cc: Lachlan Giles <lachlan@emeadvisory.com>
Subject: ProTen Rushes Creek Modification

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

ATTENTION: LEISA SEDGER

Hi Lisa,

Reference is made to ProTen's Rushes Creek poultry farm development approved by DPIE under SSD 7704 for which you recently reviewed the CTMP. ProTen plans to establish the development over two separate stages, with Stage 1 comprising the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprising the construction and operation of Farms 1, 3 and 4 and associated ancillaries.

The purpose of this email is to introduce a proposal from ProTen to modify the development under section 4.55(1A) of the EP&A Act. The proposed modification relates to Stage 1 only and comprises two short-term components:

Concurrent construction and operation at Farm 2 - the EIS was prepared based on construction being completed prior to commencing operations. However, due to the current demand for broiler birds in the Australian market and the associated immediate need for additional broiler sheds in the Tamworth region, ProTen will need to undertake construction and partial operation at Farm 2 concurrently for up to 6 months in order to meet supply contracts.

Generator power for Farm 2 operations - the EIS was prepared based on all operational power requirements being met by solar panels and connection to Essential Energy's reticulated electricity supply network, with diesel generators for emergency use only. However, ProTen is now pursuing options to take the Development completely off-grid with a solar and battery solution (subject to a separate modification approval). Given that the off-grid solar option is in its infancy and there will be lead time required for approval, materials supply, installation and commissioning, ProTen anticipates that the operation of Farm 2 and associated ancillaries will need to rely on diesel generators for up to 6 months.

The proposed modification is anticipated to have relatively minor short-term implications for air quality, noise emissions and traffic generation.

I am currently preparing a Scoping Report to be submitted to DPIE outlining the proposed modification, key issues and the intended approach to the assessment of these issues.

Can you please respond to this email with any feedback in relation to the proposed modification, including anticipated traffic issues and assessment requirements, concerns, etc? I will include any feedback received in the Scoping Report.

Please don't hesitate to call me if you'd like to discuss.

Thanks in advance

Eryn

Eryn Bath

Principal Consultant, EME Advisory

T: 0427 024739

E: eryn@emeadvisory.com

W: www.emeadvisory.com



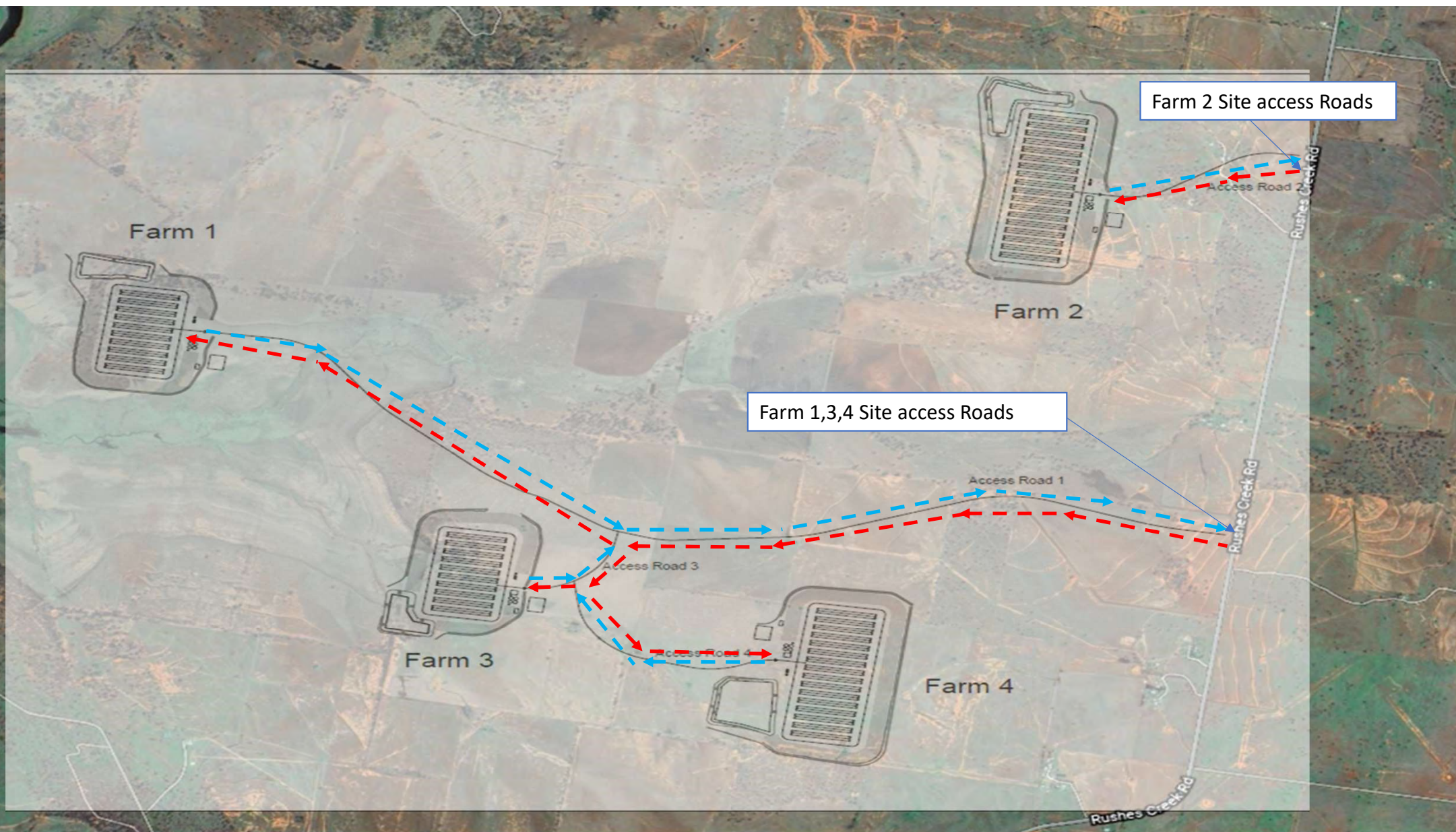
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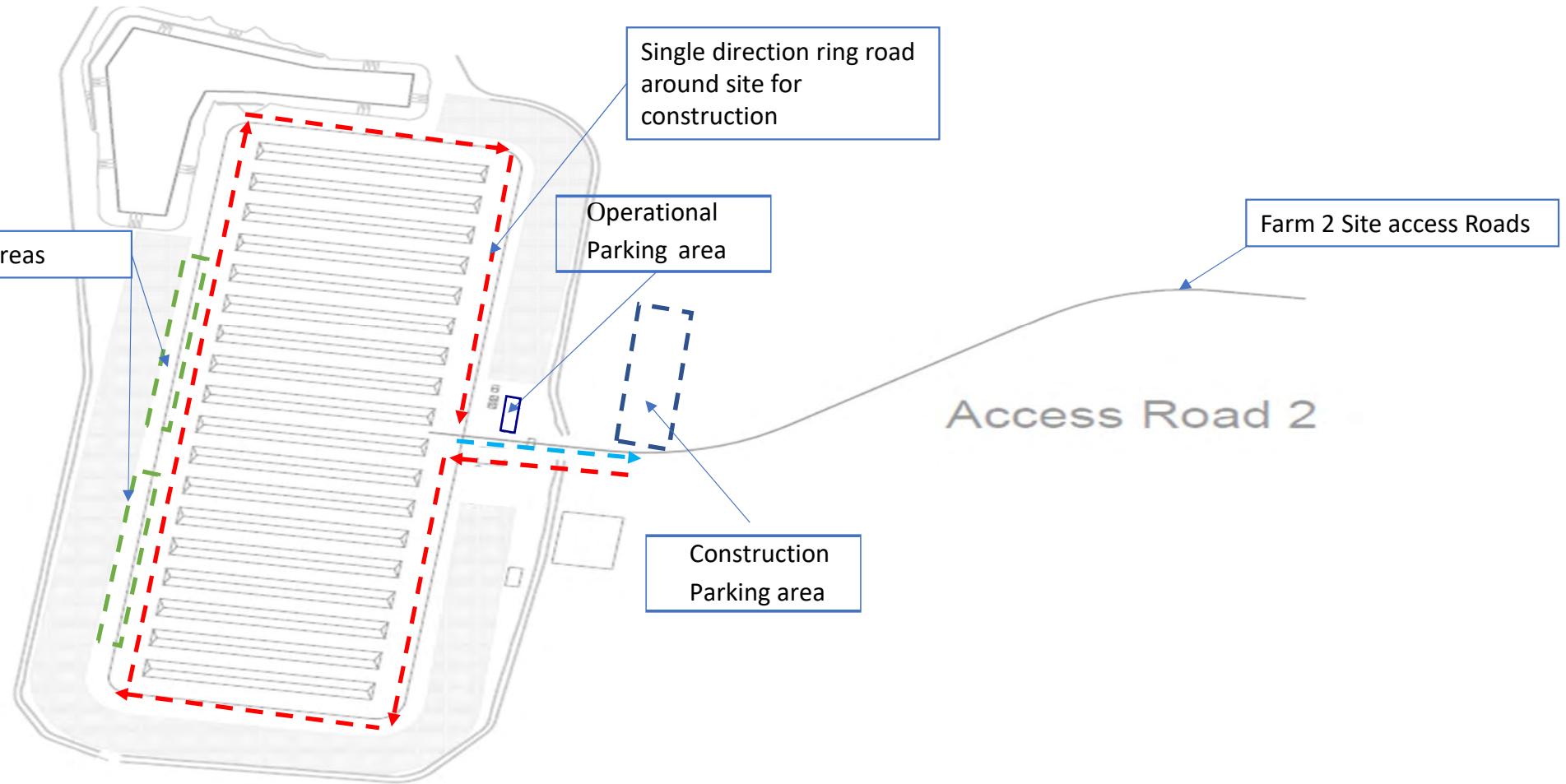


Consider the environment. Please don't print this e-mail unless really necessary.

APPENDIX D

Indicative Construction Staging Plans

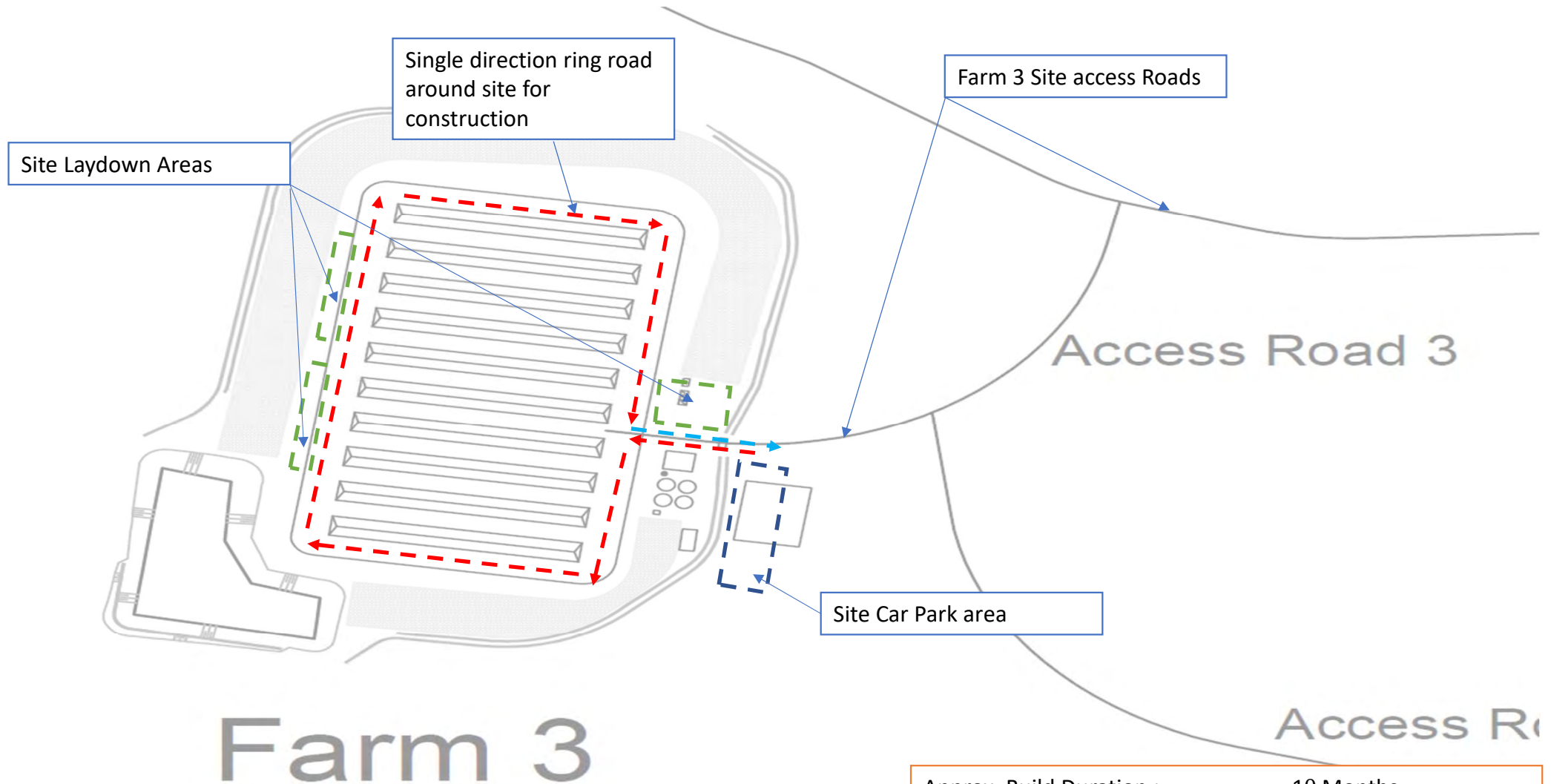




Farm 2

Approx. Build Duration : 15 Months
Approx. Number of on-site workers : 27





Approx. Build Duration :	10 Months
Approx. Number of on-site workers :	27

Farm 1

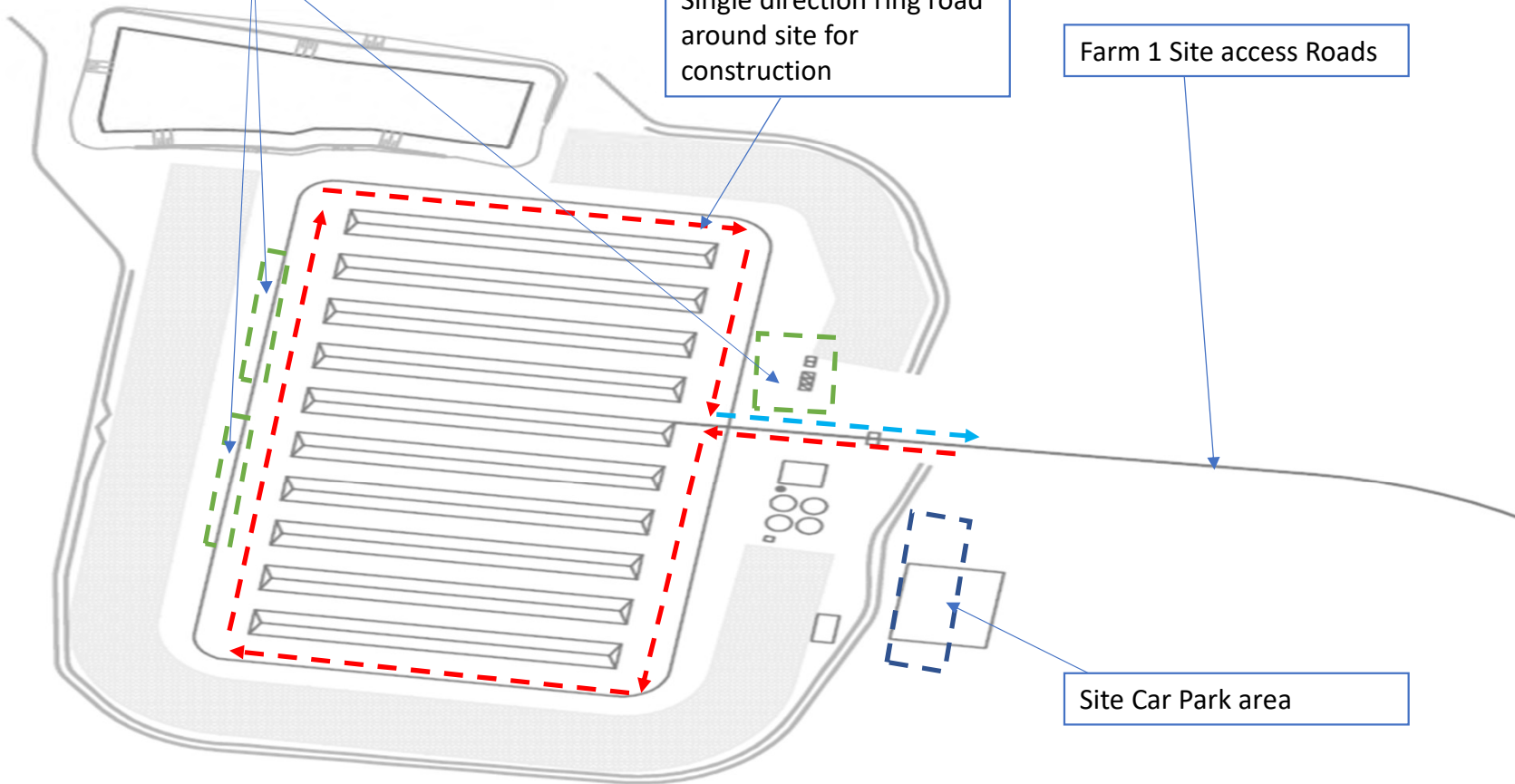
Site Laydown Areas

Single direction ring road
around site for
construction

Approx.. Build Duration : 10 Months
Approx. Number of on-site workers : 27

Farm 1 Site access Roads

Site Car Park area



APPENDIX E

Construction Activities and Traffic Volumes

Task	Type and size of Vehicle		STAGE ONE															
			Farm 2 (18 Sheds)															
		Calendar month	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22
		Construction months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Builder (Ancillary Facilities)	2T Ute	Builder (ancillary) contractors driving to and from the site daily for work					72	72	72									
	5T - Flat bed Tow truck	Delivery of the Telehandler - enter site at the start of the job and return to pick it up and the end of the job.					4											
Builder Supply and install)	2T Ute	Builders contractors driving to and from the site daily for work				168	168	168	168	168	168	168	168	168	168	168	168	168
	5T - Flat bed Tow truck	Builder machinery supply. One deliver at the start of the project and a pick up at the end of the project.				2									2	2	2	2
	Semi Trailer	Semi trailers to deliver all require machinery. One day to drop Machinery off and one day to return at the and pf the project to pick-up.				4									8	8	8	8
	Semi Trailer	Total of 20 semi trailer loads of shed material supply of a 10 day period.				16	16	12				16			16			
Concreter	18T Concrete Mixer	Onsite Batch Plant - 18T Concrete Mixers arrive on day one, stay on site for the duration of the job and then leave.				20				20					15			
	2T Ute	Concrete contractors driving to and from the site daily for work				210	210											
	32T Concrete boom pump	Onsite Batch Plant - 32T Concrete boom pump will arrive on day one, stay on site for the duration of the job and then leave.				4	4											
Civil	2T Ute	Earthworks contractors driving to and from the site daily for work	364	364	364	364	364	364										
	Semi Trailer	Semi trailers to deliver all earth works machinery. One day to drop Machinery off and one day to return at the and pf the project to pick-up. (3 x semi trailer load of equipment in one day)	8															8
Electrical HV works	10 T Solid axle string truck	10 T Solid axle string truck arrive on day one, stay on site for the duration of the job and then leave.		2	2													
	20 T Crane borer	20 T Crane borer will arrive on day one, stay on site for the duration of the job and then leave.		2	2													
	2T Ute	HV Electrical contractors driving to and from the site daily for work		104	40													
	5T - Flat bed Tow truck	Delivery of the EWP - enter site at the start of the job and return to pick it up and the end of the job.		8	8													
Electrician	2T Ute	Electrical contractors driving to and from the site daily for work				168	168	168	168	168	168	168	168	168	168	168	168	168
	5T - Flat bed Tow truck	Delivery of the EWP - enter site at the start of the job and return to pick it up and the end of the job.					8								8	8	8	8
Generator	20 T franna Crane	Franna crane to onload truck and place generators in positions.						2					2					
	Semi Trailer	Semi trailers to deliver all generators for farm 1 construction in one load. One day to drop Machinery off and one day to return at the and pf the project to pick-up.						2					2					
Plumber	2T Ute	Plumber contractors driving to and from the site daily for work		156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
	Semi Trailer	Semi trailers to deliver all earth works machinery. One day to drop Machinery off and one day to return at the and pf the project to pick-up.	4															
Professional Services	2T Ute	PM entering and leaving site each day.	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Shed Equipment (supply and install)	2T Ute	Equipment installation contractors driving to and from the site daily for work				168	168	168	168	168	168	168	168	168	168	168	168	168
	5T - Flat bed Tow truck	(blank)					2					2						
	Semi Trailer	Semi trailers to deliver shipping container for equipment supply. Total of 20 semi trailer loads over a 10 day period.				20	20					20	20	20	20	20	20	20
Silo delivery and install	20 T franna Crane	Delivery of the Telehandler - enter site at the start of the job and return to pick it up and the end of the job.								4			4					
	2T Ute	Silo installation contractors driving to and from the site daily for work								78			78					
Solar	2T Ute	Solar contractors driving to and from the site daily for work									84							
Total vehicle movements at Rushes Creek Road site accesses (per month)			428	688	624	1,352	1,412	1,164	784	814	796	750	818	732	781	750	750	758
Daily trips (23.6 days per month based on 5.5 days per week)			18	29	26	57	60	49	33	35	34	32	35	31	33	32	32	32
23.6																		
Monthly Light Vehicles			416	676	612	1,286	1,358	1,148	784	790	796	712	790	712	712	712	712	712
Daily Light Vehicles			18	29	26	55	58	49	33	34	34	30	34	30	30	30	30	30
Monthly Heavy Vehicles			12	12	12	66	54	16	0	24	0	38	28	20	69	38	38	46
Daily Heavy Vehicles			1	1	1	3	2	1	0	1	0	2	1	1	3	2	2	2
Total Monthly Vehicles			428	688	624	1,352	1,412	1,164	784	814	796	750	818	732	781	750	750	758
CHECK			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak hour trips			18	29	26	55	58	49	33	34	34	30	34	30	30	30	30	30
Outside peak hour trips			1	1	1	3	2	1	0	1	0	2	1	1	3	2	2	2
AM			9	14	13	28	29	24	17	17	17	15	17	15	15	15	15	15
PM			9	14	13	28	29	24	17	17	17	15	17	15	15	15	15	15

Farm 4 (16 Sheds)														Farm 3 (10 Sheds)										Farm 1 (10 Sheds)									
Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25
1	2	3	4	5	6	7	8	9	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
				72	72	72												72	72	72								72	72	72			
				4														4		4								4		4			
			168	168	168	168	168	168	168	168	168	168	168				168	168	168	168	168	168	168				168	168	168	168	168	168	168
			2									2	2				2										2						
			4									8	8				4										4						
			16	16	12				16	16							16	16	12								16	16	12				
			20			20				10							20										20						
			210	210													210										210						
			4	4													4										4						
364	364	364	364	364										364	364									364	364								
8														8										8									
	2	2	2																														
	2	2	2																														
	104	40	40																														
	8		8																														
		168	168	168	168	168	168	168	168	168	168	168	168		168	168	168	168	168	168	168	168	168		168	168	168	168	168	168	168	168	168
				8								8	8					8									8						
					2					2									2										2				
					2					2									2										2				
		156	156	156	156	156	156	156	156	156	156	156	48		156	156	156	156	156	156	156	156	156		156	156	156	156	156	156	156	156	156
4														4										4									
52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
			168	168	168	168	168	168	168	168	168	168	168				168	168	168	168	168	168	168				168	168	168	168	168	168	168
				2					2									2										2					
			20	20					20	20	20	20	20				20	20									20	20					
							4			4												4									4		
							78			78												78									78		
								84														84										84	
428	532	784	1,404	1,412	800	804	794	796	750	844	732	750	642	428	740	376	988	834	800	788	794	796	712	428	740	376	988	834	800	788	794	796	712
18	23	33	60	60	34	34	34	34	32	36	31	32	27	18	31	16	42	35	34	33	34	34	30	18	31	16	42	35	34	33	34	34	30

416	520	780	1,326	1,358	784	784	790	796	712	790	712	712	604	416	740	376	922	784	784	784	790	796	712	416	740	376	922	784	784	784	790	796	712
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428	532	784	1,404	1,412	800	804	794	796	750	844	732	750	642	428	740	376	988	834	800	788	794	796	712	428	740	376	988	834	800	788	794	796	712
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

18	22	33	56	58	33	33	34	34	30	34	30	30	26	18	31	16	39	33	33	33	34	34	30	18	31	16	39	33	33	33	34	34	30
1	1	0	3	2	1	1	0	0	2	2	1	2	2	1	0	0	3	2	1	0	0	0	0	1	0	0	3	2	1	0	0	0	0
9	11	17	28	29	17	17	17	17	15	17	15	15	13	9	16	8	20	17	17	17	17	17	15	9	16	8	20	17	17	17	17	17	15
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Assessment Traffic Volumes

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APPENDIX G

Detailed SIDRA Outputs

SITE LAYOUT

▽ Site: 1 [2025 BG + DEV + CONS AM (Site Folder: Oxley Hwy/
Rushes Creek Rd)]

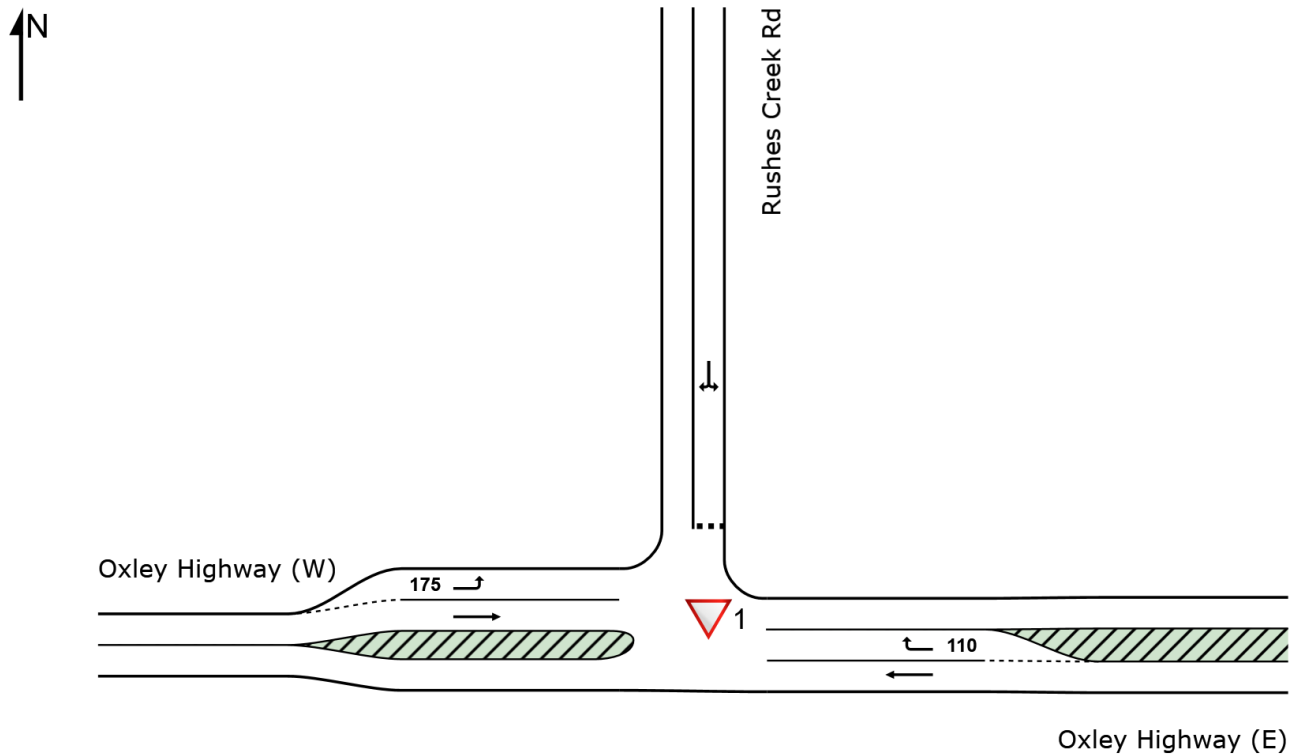
Intersection: Oxley Highway/Rushes Creek Road (existing)

Prepared by: CL

Site Category: Existing Design

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Organisation: SLR CONSULTING AUSTRALIA | Licence: NETWORK / 1PC | Created: Tuesday, 23 March 2021 11:46:49 AM

Project: H:\BNE\Projects-SLR\620-BNE\620.30288.00000 Rushes Creek PPF CTMP\02 Analysis\2021 03 - SIDRA\620.30288 CTMP
SIDRA.sip9

MOVEMENT SUMMARY

▼ Site: 1 [2025 BG + DEV + CONS AM (Site Folder: Oxley Hwy/
Rushes Creek Rd)]

Intersection: Oxley Highway/Rushes Creek Road (existing)

Prepared by: CL

Site Category: Existing Design

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Oxley Highway (E)														
5	T1	130	21	137	16.2	0.078	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	49	7	52	14.3	0.048	8.8	LOS A	0.2	1.5	0.32	0.65	0.32	67.8
Approach		179	28	188	15.6	0.078	2.4	NA	0.2	1.5	0.09	0.18	0.09	88.5
North: Rushes Creek Rd														
7	L2	16	3	17	18.8	0.047	9.2	LOS A	0.2	1.4	0.39	0.68	0.39	65.4
9	R2	17	2	18	11.8	0.047	11.4	LOS A	0.2	1.4	0.39	0.68	0.39	67.3
Approach		33	5	35	15.2	0.047	10.4	LOS A	0.2	1.4	0.39	0.68	0.39	66.3
West: Oxley Highway (W)														
10	L2	15	2	16	13.3	0.009	8.2	LOS A	0.0	0.0	0.00	0.66	0.00	69.8
11	T1	169	31	178	18.3	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		184	33	194	17.9	0.102	0.7	NA	0.0	0.0	0.00	0.05	0.00	96.5
All Vehicles		396	66	417	16.7	0.102	2.3	NA	0.2	1.5	0.07	0.16	0.07	89.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▼ Site: 1 [2025 BG + DEV + CONS PM (Site Folder: Oxley Hwy/
Rushes Creek Rd)]

Intersection: Oxley Highway/Rushes Creek Road (existing)

Prepared by: CL

Site Category: Existing Design

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
East: Oxley Highway (E)														
5	T1	154	12	162	7.8	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	14	3	15	21.4	0.014	8.9	LOS A	0.1	0.4	0.31	0.63	0.31	65.6
Approach		168	15	177	8.9	0.087	0.7	NA	0.1	0.4	0.03	0.05	0.03	95.8
North: Rushes Creek Rd														
7	L2	46	8	48	17.4	0.098	9.1	LOS A	0.4	2.9	0.35	0.67	0.35	66.3
9	R2	30	4	32	13.3	0.098	11.3	LOS A	0.4	2.9	0.35	0.67	0.35	67.3
Approach		76	12	80	15.8	0.098	10.0	LOS A	0.4	2.9	0.35	0.67	0.35	66.7
West: Oxley Highway (W)														
10	L2	21	4	22	19.0	0.014	8.3	LOS A	0.0	0.0	0.00	0.66	0.00	67.9
11	T1	154	17	162	11.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		175	21	184	12.0	0.089	1.0	NA	0.0	0.0	0.00	0.08	0.00	94.6
All Vehicles		419	48	441	11.5	0.098	2.5	NA	0.4	2.9	0.07	0.18	0.07	88.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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SITE LAYOUT

▽ Site: 2 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Southern Site Access)]

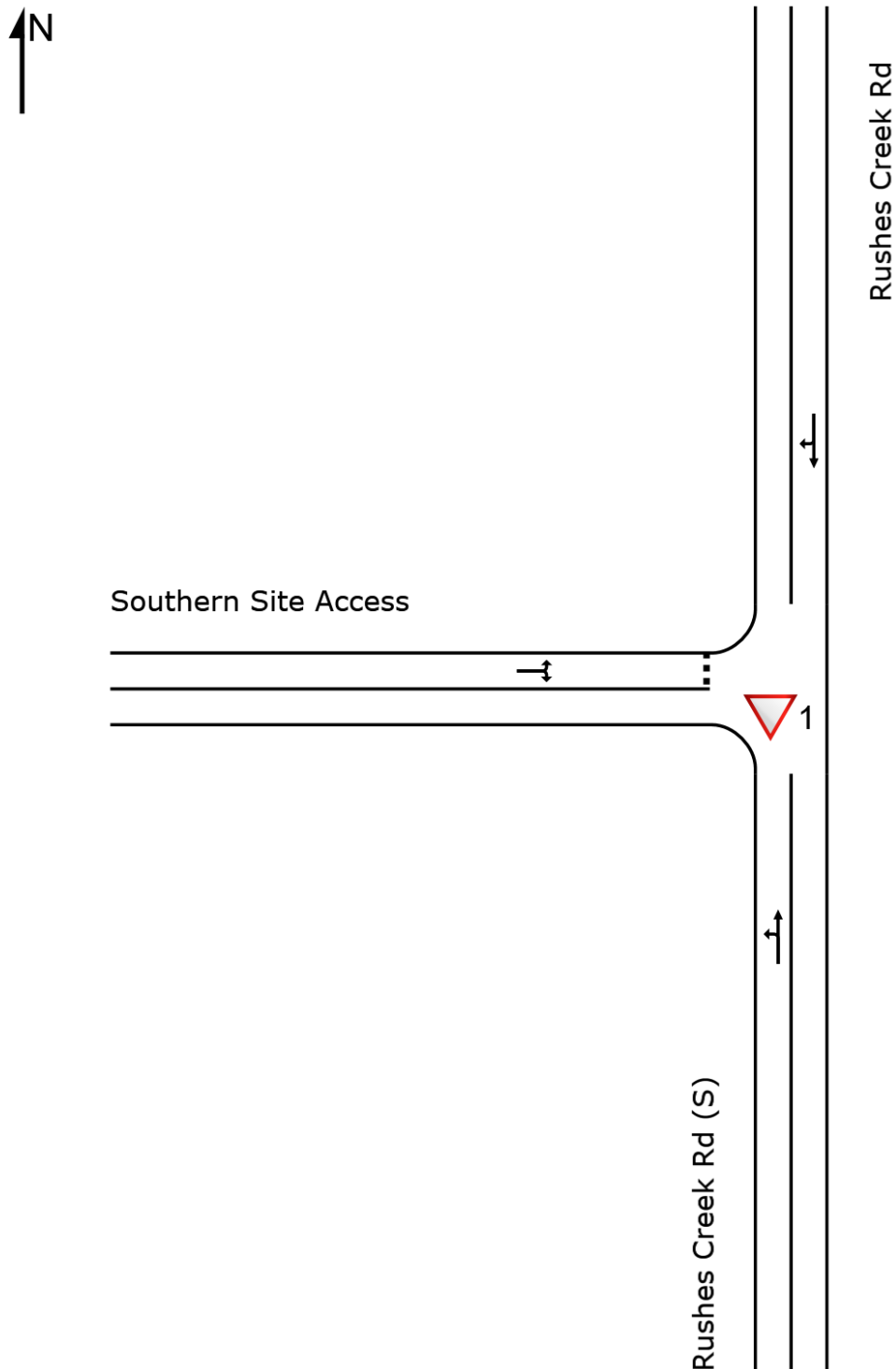
Intersection: Rushes Creek Road/Southern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

▽ Site: 2 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Southern Site Access)]

Intersection: Rushes Creek Road/Southern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	41	3	43	7.3	0.039	8.1	LOS A	0.0	0.0	0.00	0.43	0.00	75.3
11	T1	23	6	24	26.1	0.039	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	87.0
Approach		64	9	67	14.1	0.039	5.2	NA	0.0	0.0	0.00	0.43	0.00	79.2
North: Rushes Creek Rd (S)														
5	T1	29	4	31	13.8	0.018	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	99.0
6	R2	1	0	1	0.0	0.018	7.6	LOS A	0.0	0.0	0.01	0.02	0.01	34.0
Approach		30	4	32	13.3	0.018	0.3	NA	0.0	0.0	0.01	0.02	0.01	93.1
West: Southern Site Access														
7	L2	1	0	1	0.0	0.006	0.1	LOS A	0.0	0.2	0.13	0.14	0.13	31.5
9	R2	5	2	5	40.0	0.006	1.0	LOS A	0.0	0.2	0.13	0.14	0.13	28.8
Approach		6	2	6	33.3	0.006	0.8	LOS A	0.0	0.2	0.13	0.14	0.13	29.2
All Vehicles		100	15	105	15.0	0.039	3.4	NA	0.0	0.2	0.01	0.29	0.01	74.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▼ Site: 2 [2025 BG + DEV + CONS PM (Site Folder: Rushes Creek Rd/Southern Site Access)]

Intersection: Rushes Creek Road/Southern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	5	2	5	40.0	0.022	8.9	LOS A	0.0	0.0	0.00	0.10	0.00	70.0
11	T1	30	5	32	16.7	0.022	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	97.7
Approach		35	7	37	20.0	0.022	1.3	NA	0.0	0.0	0.00	0.10	0.00	92.5
North: Rushes Creek Rd (S)														
5	T1	34	8	36	23.5	0.022	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	99.1
6	R2	1	0	1	0.0	0.022	7.5	LOS A	0.0	0.1	0.01	0.02	0.01	34.0
Approach		35	8	37	22.9	0.022	0.2	NA	0.0	0.1	0.01	0.02	0.01	94.0
West: Southern Site Access														
7	L2	1	0	1	0.0	0.038	0.1	LOS A	0.1	0.9	0.15	0.18	0.15	31.4
9	R2	41	3	43	7.3	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
Approach		42	3	44	7.1	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
All Vehicles		112	18	118	16.1	0.038	0.8	NA	0.1	0.9	0.06	0.10	0.06	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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SITE LAYOUT

▽ Site: 3 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Northern Site Access)]

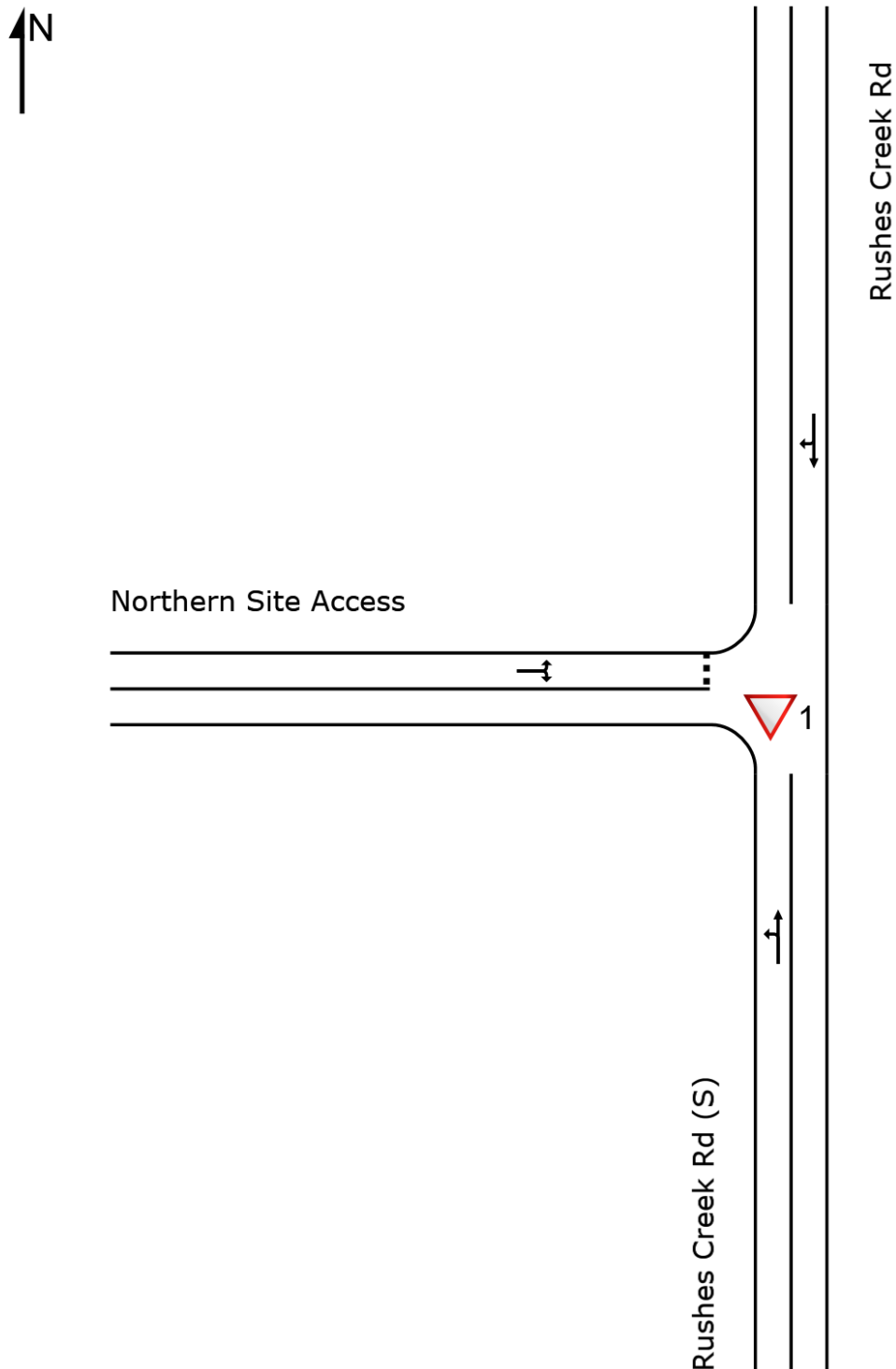
Intersection: Rushes Creek Road/Northern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

▼ Site: 3 [2025 BG + DEV + CONS AM (Site Folder: Rushes Creek Rd/Northern Site Access)]

Intersection: Rushes Creek Road/Northern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	41	3	43	7.3	0.039	8.1	LOS A	0.0	0.0	0.00	0.43	0.00	75.3
11	T1	23	6	24	26.1	0.039	0.0	LOS A	0.0	0.0	0.00	0.43	0.00	87.0
Approach		64	9	67	14.1	0.039	5.2	NA	0.0	0.0	0.00	0.43	0.00	79.2
North: Rushes Creek Rd (S)														
5	T1	29	4	31	13.8	0.018	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	99.0
6	R2	1	0	1	0.0	0.018	7.6	LOS A	0.0	0.0	0.01	0.02	0.01	34.0
Approach		30	4	32	13.3	0.018	0.3	NA	0.0	0.0	0.01	0.02	0.01	93.1
West: Northern Site Access														
7	L2	1	0	1	0.0	0.006	0.1	LOS A	0.0	0.2	0.13	0.14	0.13	31.5
9	R2	5	2	5	40.0	0.006	1.0	LOS A	0.0	0.2	0.13	0.14	0.13	28.8
Approach		6	2	6	33.3	0.006	0.8	LOS A	0.0	0.2	0.13	0.14	0.13	29.2
All Vehicles		100	15	105	15.0	0.039	3.4	NA	0.0	0.2	0.01	0.29	0.01	74.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▽ Site: 3 [2025 BG + DEV + CONS PM (Site Folder: Rushes Creek Rd/Northern Site Access)]

Intersection: Rushes Creek Road/Northern Site Access (proposed)

Prepared by: CL

Site Category: Proposed Design 1

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rushes Creek Rd (S)														
10	L2	5	2	5	40.0	0.022	8.9	LOS A	0.0	0.0	0.00	0.10	0.00	70.0
11	T1	30	5	32	16.7	0.022	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	97.7
Approach		35	7	37	20.0	0.022	1.3	NA	0.0	0.0	0.00	0.10	0.00	92.5
North: Rushes Creek Rd (S)														
5	T1	34	8	36	23.5	0.022	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	99.1
6	R2	1	0	1	0.0	0.022	7.5	LOS A	0.0	0.1	0.01	0.02	0.01	34.0
Approach		35	8	37	22.9	0.022	0.2	NA	0.0	0.1	0.01	0.02	0.01	94.0
West: Northern Site Access														
7	L2	1	0	1	0.0	0.038	0.1	LOS A	0.1	0.9	0.15	0.18	0.15	31.4
9	R2	41	3	43	7.3	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
Approach		42	3	44	7.1	0.038	0.9	LOS A	0.1	0.9	0.15	0.18	0.15	30.9
All Vehicles		112	18	118	16.1	0.038	0.8	NA	0.1	0.9	0.06	0.10	0.06	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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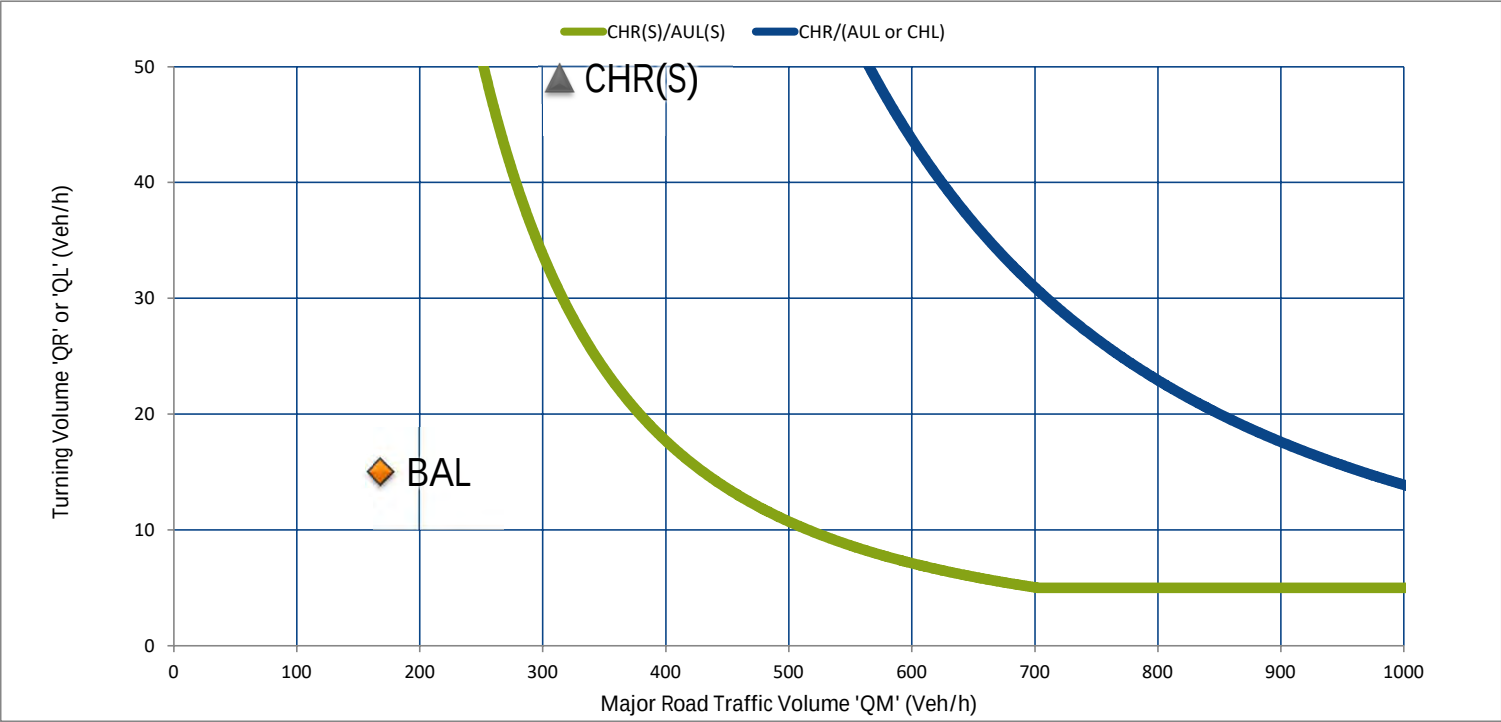
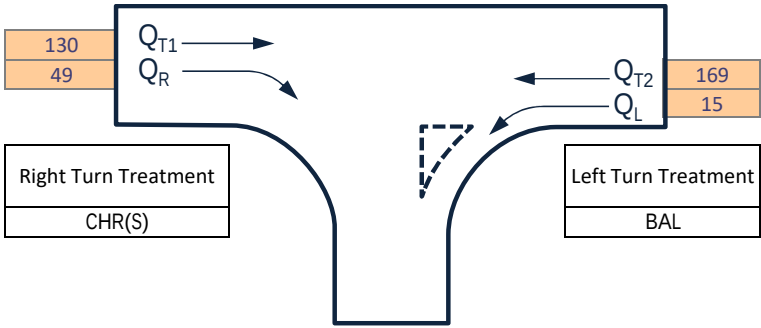
APPENDIX H

Turn Warrant Assessment

Assessment Year	2025
Peak Period	AM
Scenario	BG + DEV + CONS

Design Domain	Extended Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

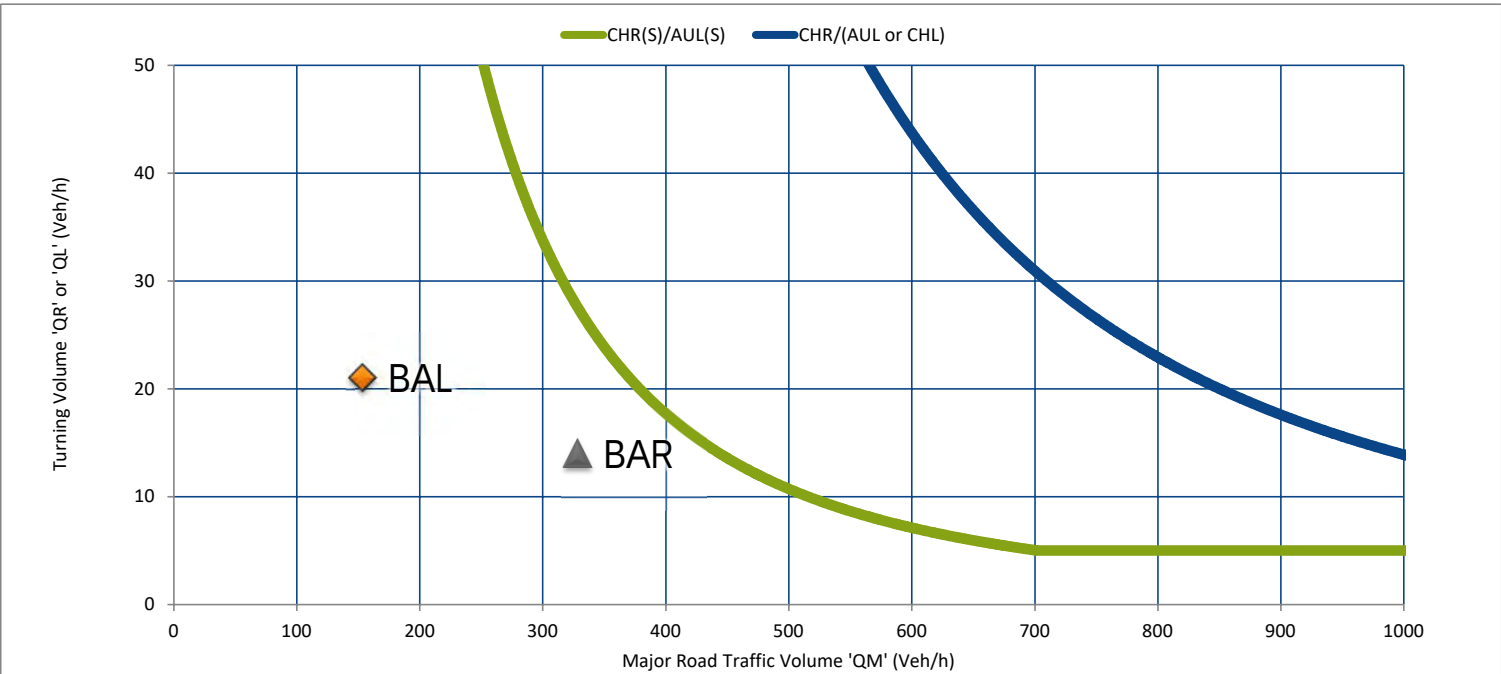
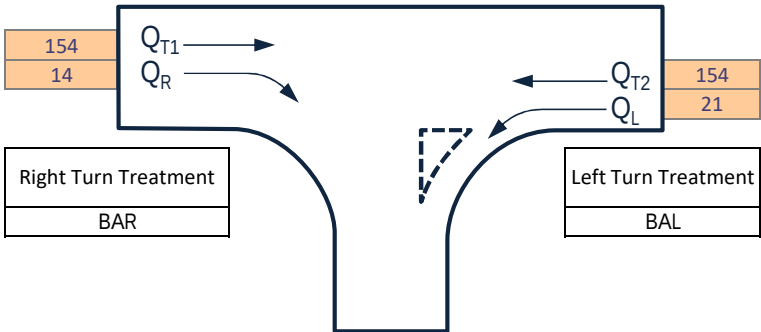
Q _M	Q _R /Q _L	
314	49	Right
169	15	Left



Assessment Year	2025
Peak Period	PM
Scenario	BG + DEV + CONS

Design Domain	Extended Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

Q _M	Q _R /Q _L	
329	14	Right
154	21	Left



Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Oxley Highway/Rushes Creek Road
23 March 2021

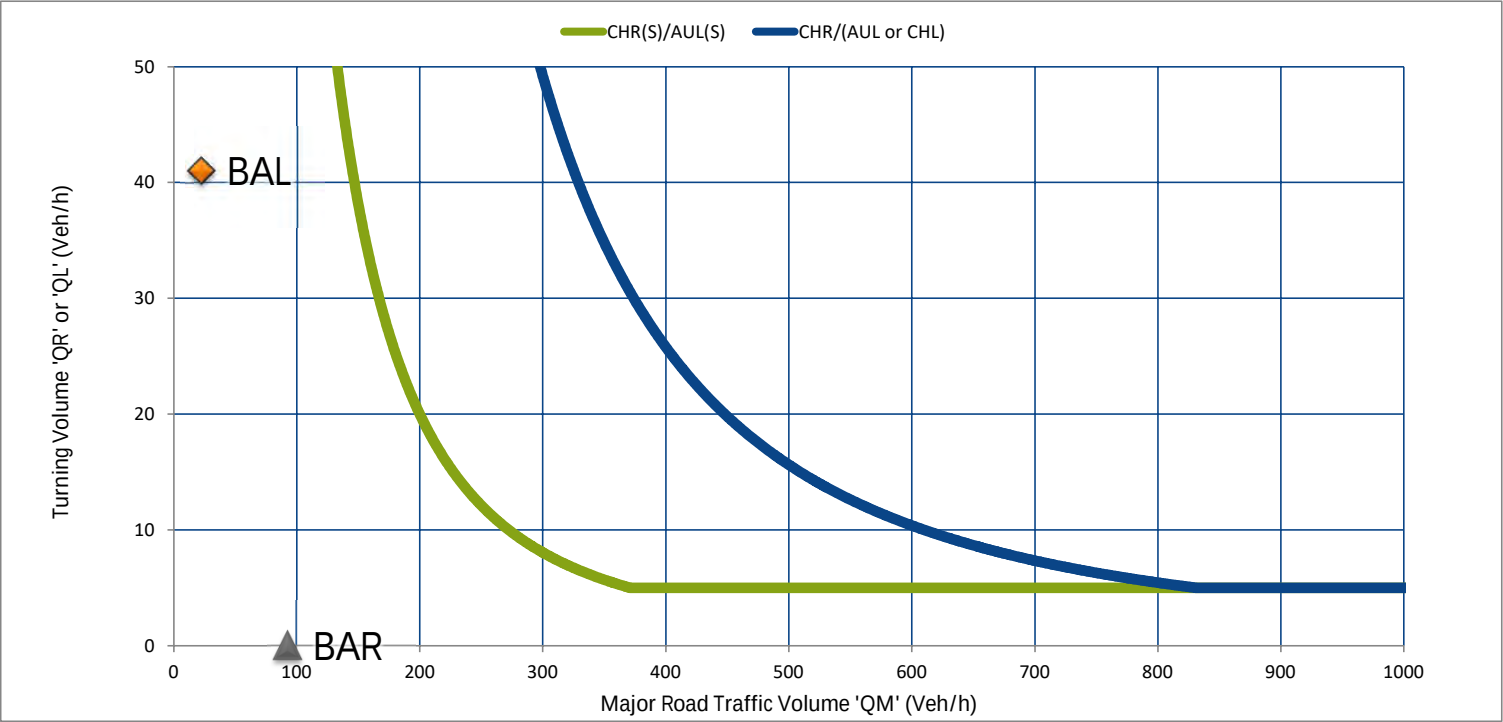
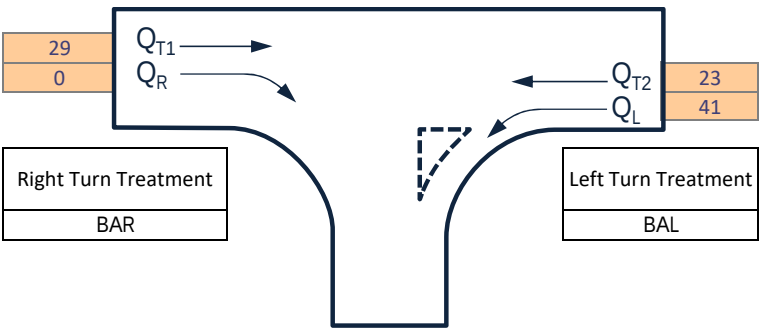
620.30288



Assessment Year	2025
Peak Period	AM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

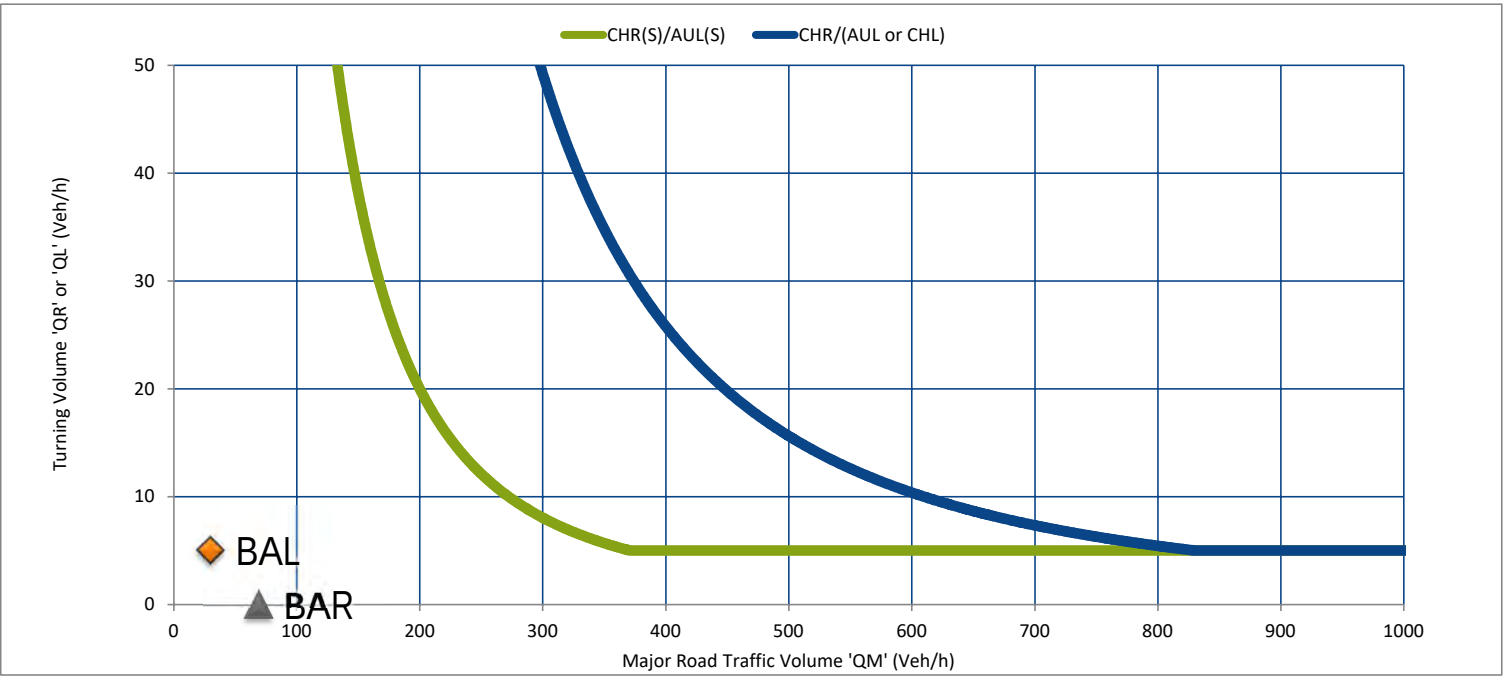
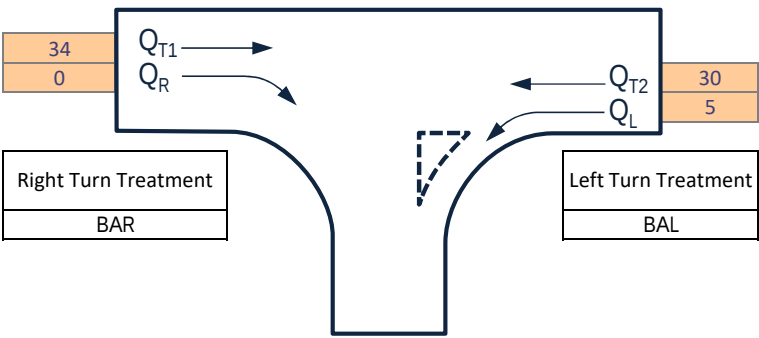
Q _M	Q _R /Q _L	
93	0	Right
23	41	Left



Assessment Year	2025
Peak Period	PM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

Q _M	Q _R /Q _L	
69	0	Right
30	5	Left



Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Rushes Creek Road/Northern Site Access
23 March 2021

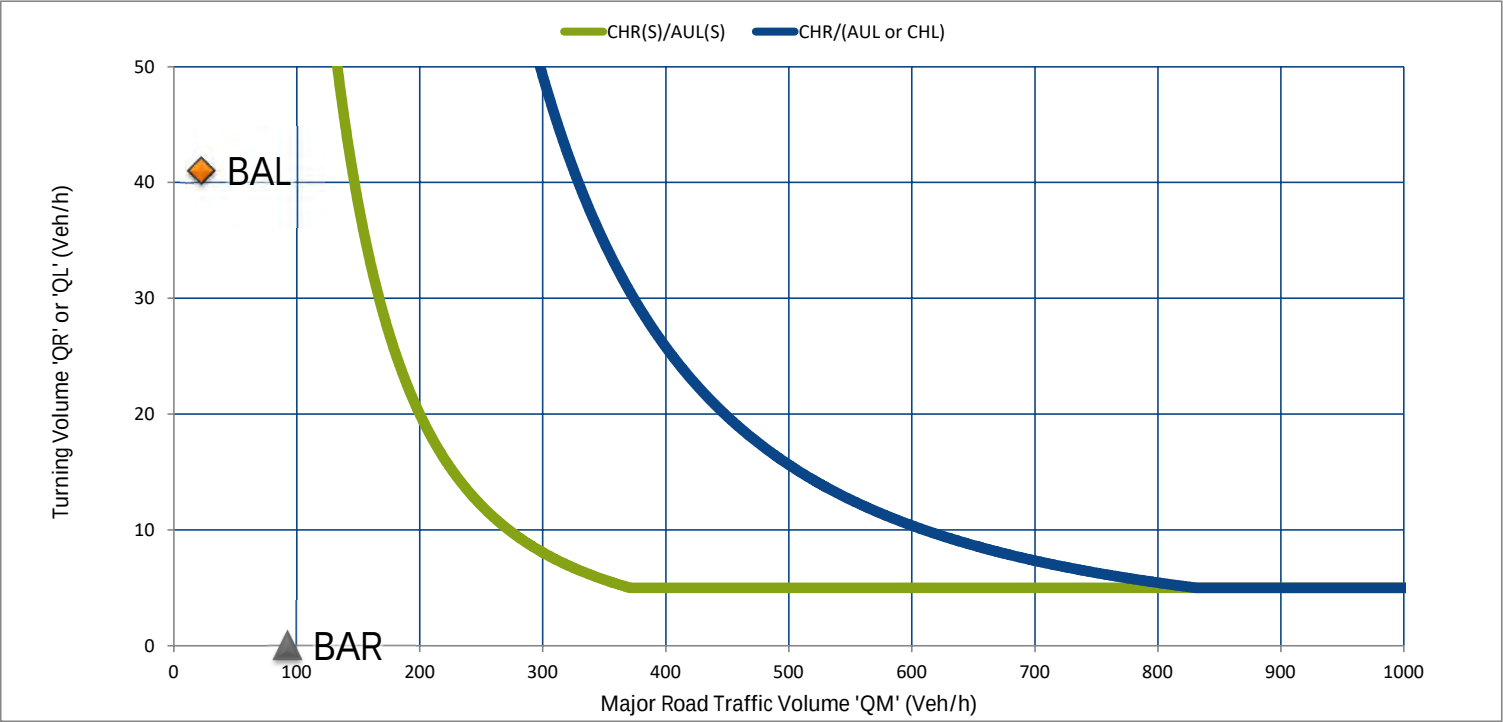
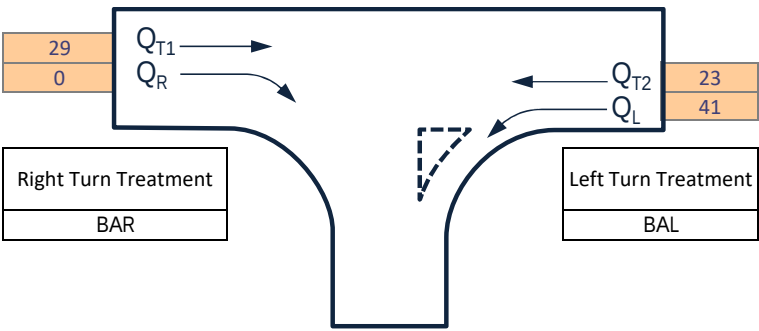
620.30288



Assessment Year	2025
Peak Period	AM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

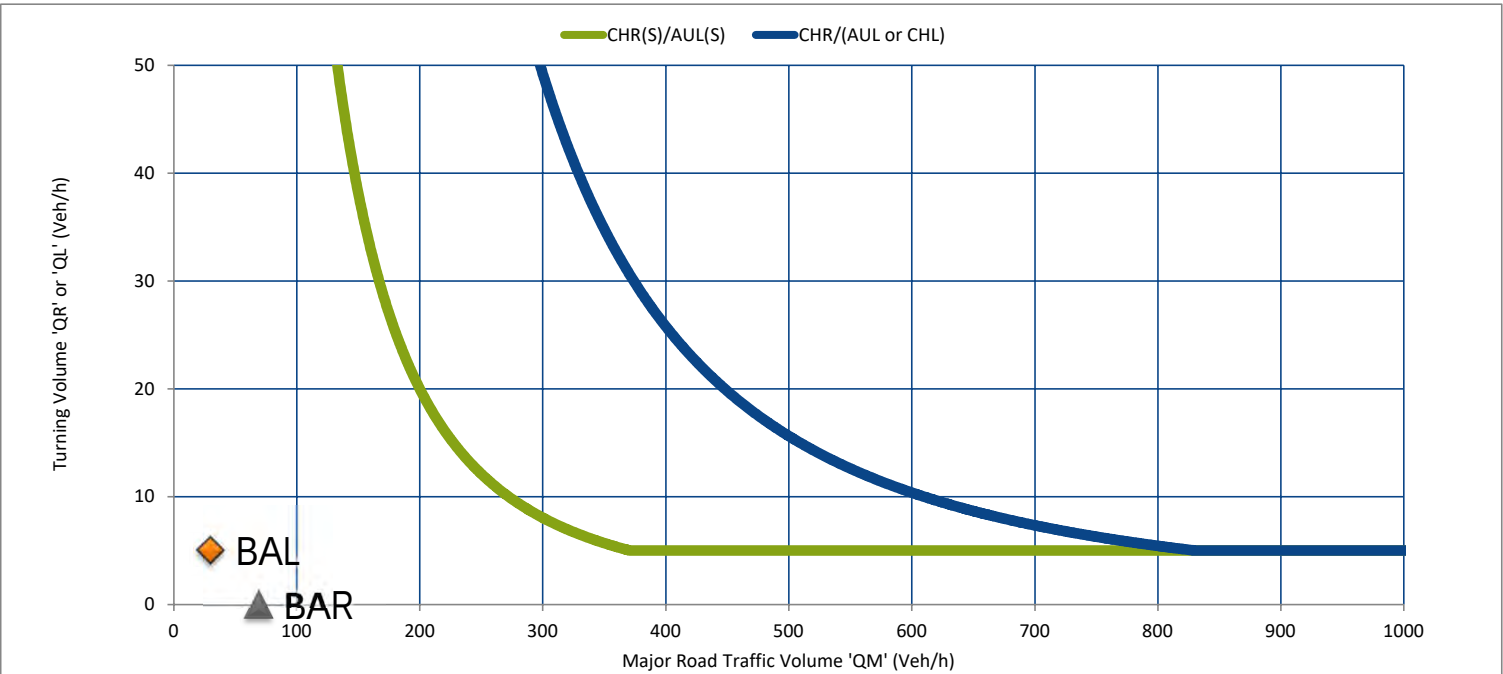
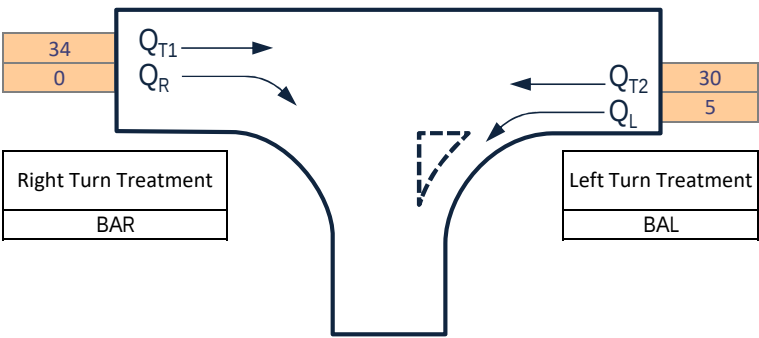
Q _M	Q _R /Q _L	
93	0	Right
23	41	Left



Assessment Year	2025
Peak Period	PM
Scenario	BG + DEV + CONS

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>=100km/h
Splitter Island?	No

Q _M	Q _R /Q _L	
69	0	Right
30	5	Left



Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Rushes Creek Road/Southern Site Access
23 March 2021

620.30288



APPENDIX I

Driver's Code of Conduct

Rushes Creek Poultry Production Farm (Construction Phase): Drivers Code of Conduct

1 Drivers Code of Conduct

1.1 General Requirements

All heavy vehicle drivers are required to:

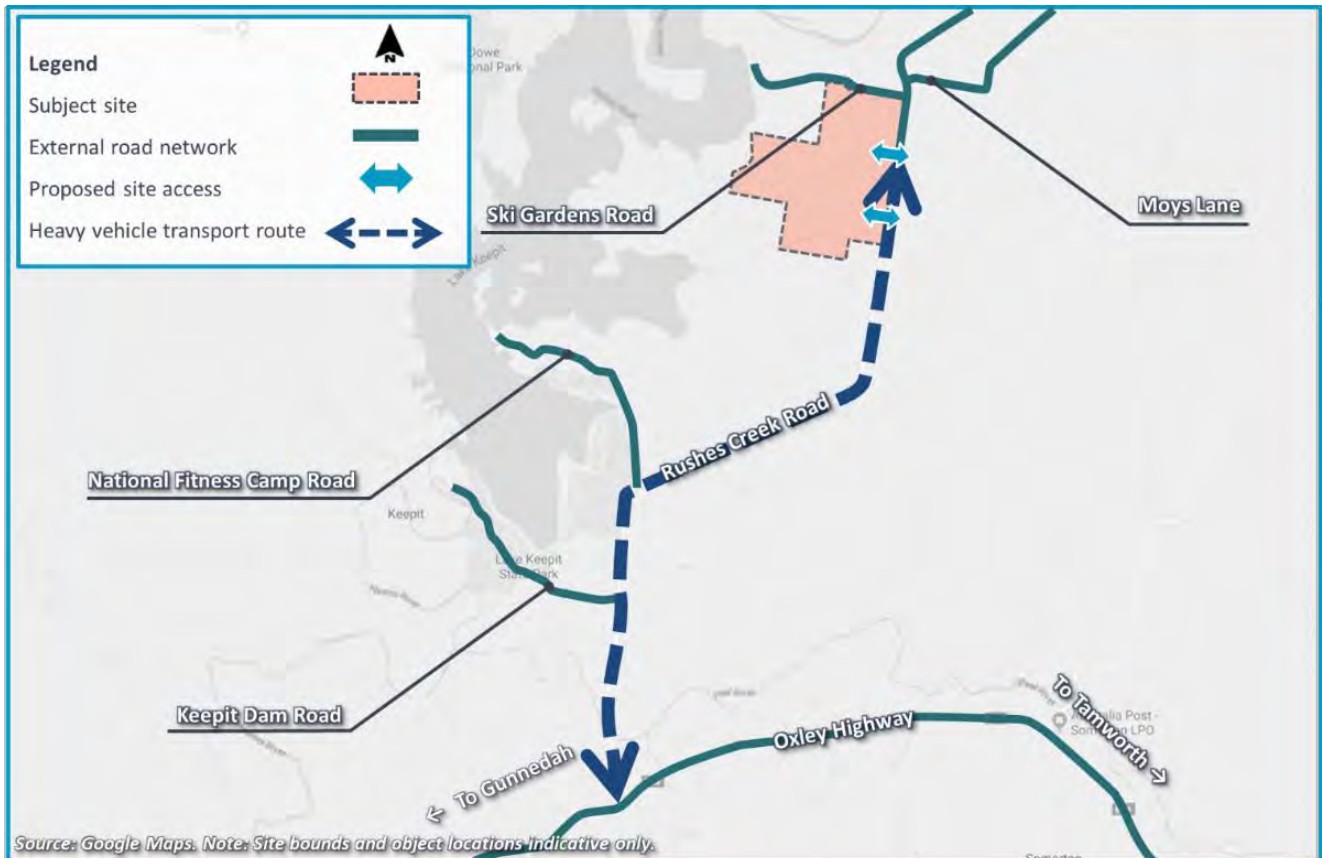
- Undertake a site induction carried out by authorised site personnel or suitably qualified person under the direction of the site manager;
- Obey all site signage and the directions of site personnel;
- Hold a valid driver's licence which is appropriate for the class of vehicle under their operation;
- Operate vehicles in a safe and courteous manner, within and external to the subject site;
- Ensure their load is legal, covered and secure before entering or exiting the site;
- Comply with the relevant requirements of Chain of Responsibility legislation.

1.2 Site Specific Requirements

The following procedures are to be observed by all heavy vehicle drivers accessing the subject site:

- The construction site has a drug and alcohol policy which includes random testing;
- Vehicles are to use designated circulation roads within the site where possible;
- All vehicles are to park and load/unload within the site using designated parking and loading areas where possible. Vehicles are not to park or load/unload within the public road reserve;
- Posted speed limits on the external road network are to be observed, and vehicle speeds are to be restricted to 60km/h within the subject site, or 40km/h within the vicinity of work sites or farms;
- Heavy vehicle access to the subject site is to be via the designated haulage route of Rushes Creek Road to the south of the site towards the Oxley Highway as indicated on **Figure 1**. Heavy vehicles are not to use Rushes Creek Road to the north of the subject site (i.e. towards Manilla).
- Heavy vehicles using Rushes Creek Road are not to use engine or compression braking systems, except where required for safety reasons;
- Vehicles are to be turned off when not in use;
- Drivers are to report excessive dust production from internal circulation roads to the site manager.

Figure 1 Designated Heavy Vehicle Transport Route



Vehicles entering the subject site are to be registered, roadworthy, and of sound mechanical condition. Site management may request to inspect any vehicle or request maintenance records for any vehicle and reserves the right to prohibit any vehicle from entering the subject site should there be any indication that the vehicle is not roadworthy or safe to operate.

Any accidents, incidents, complaints, hazards, spillages or near misses must be reported immediately to the site manager. This includes incidents along the designated heavy vehicle transport route on the external road network.

2 Non-compliance

Should any driver be found to have acted in breach of this Drivers Code of Conduct, through either a formal complaint, or through observations by authorised site personnel, disciplinary action will be taken, which could include the following:

- Verbal notification (if possible) and written confirmation to the driver of non-compliance with the Drivers Code of Conduct;
- Refusal to load/unload affected vehicles and direction to the driver to leave the site;
- Implementation of a temporary ban of the affected vehicle or driver until such time as sufficient evidence has been provided to authorised site personnel that the breach has been rectified and/or will not occur again;
- In the case of a serious breach or repeated non-compliance with the Drivers Code of Conduct, a permanent site ban of the affected vehicle or driver will be considered.

3 Confirmation of Understanding

I, of
(name) **(company)**

have read/had explained to me, the *Rushes Creek Poultry Production Farm (Construction Phase): Code of Conduct* and understand my obligations with regard to its content.

I further confirm I will comply with all requirements of the *Rushes Creek Poultry Production Farm (Construction Phase): Code of Conduct* and also that I understand the consequences of non-compliance with this document.

Signed:

Date:

Endorsed by:
(Authorised site representative)

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Appendix E

Noise Assessment

(Global Acoustics)



23 December 2021

EME Advisory Pty Ltd
Greenwich NSW 2085
Attention: Eryn Bath

Dear Eryn ,

Regarding: ProTen Rushes Creek Poultry Production Complex, Modification 3 to
Development Consent SSD 7704

1 INTRODUCTION

On 16 April 2020 Development Consent SSD 7704 was granted by the NSW Department of Planning, Industry and Environment (DPIE) to construct and operate an intensive poultry broiler production farm at Rushes Creek in the Tamworth Regional Local Government Area. The proposed development consists of four farms (Farms 1 – 4). The development is planned to be established over two separate stages; with Stage 1 comprising the construction and operation of Farm 2 and associated ancillaries, and Stage 2 comprising the construction and operation of Farms 1, 3 and 4 and associated ancillaries.

Global Acoustics prepared a noise impact assessment report titled *ProTen Rushes Poultry Production Complex, Noise Impact Assessment* (January 2018, file reference 16285_R01.pdf) (the EIS NIA) which formed part of the Environmental Impact Statement (EIS) for the development application. In January 2019, Global Acoustics provided a response to submissions in letter format (file reference 16285_L01.pdf).

Modification 1 and Modification 2 to SSD 7704, approved on 15 June 2021 and 2 September 2021 respectively, did not involve any changes to the construction or operation of the poultry farm itself and had no significance to the noise impact from the proposed development.

ProTen are seeking to undertake a third modification to SSD 7704 (Modification 3) which relates only to Farm 2 and comprises the following components:

- minor amendments to the positioning of some of the ancillary infrastructure items at Farm 2, including the site office and workshop, water storage tanks, emergency standby generators, diesel storage and dead bird freezer, to provide operational efficiencies and benefits;

- additional emergency standby diesel generator capacity at Farm 2 comprising 4 x 440 kVA generators (as opposed to the approved 3 x 390 kVA generators). There would only ever be two of the proposed 440 kVA generators operating at any one time;
- addition of a 45 kVA emergency standby diesel generator and 2,000 L bunded diesel storage tank at the water supply pump near the Namoi River;
- concurrent construction and operation at Farm 2 for up to 10 months in order to be able to commence partial farm operations earlier; and
- reliance on the diesel generators to operate Farm 2 and the water supply pump for up to 10 months while the permanent power option is established.

This letter provides acoustics advice regarding potential noise impact associated with Modification 3. Figure 1 and Figure 2 show the construction staging and site plan for Farm 2.

Key elements of Modification 3 that relate to noise include:

- operation of Farm 2 using diesel generators for a period of up to 10 months;
- operation of the water supply pump at the Namoi River using diesel generators for a period of up to 10 months;
- concurrent construction and operation of Farm 2 for a period of up to 10 months; and
- increase to the number of diesel deliveries by rigid tankers.

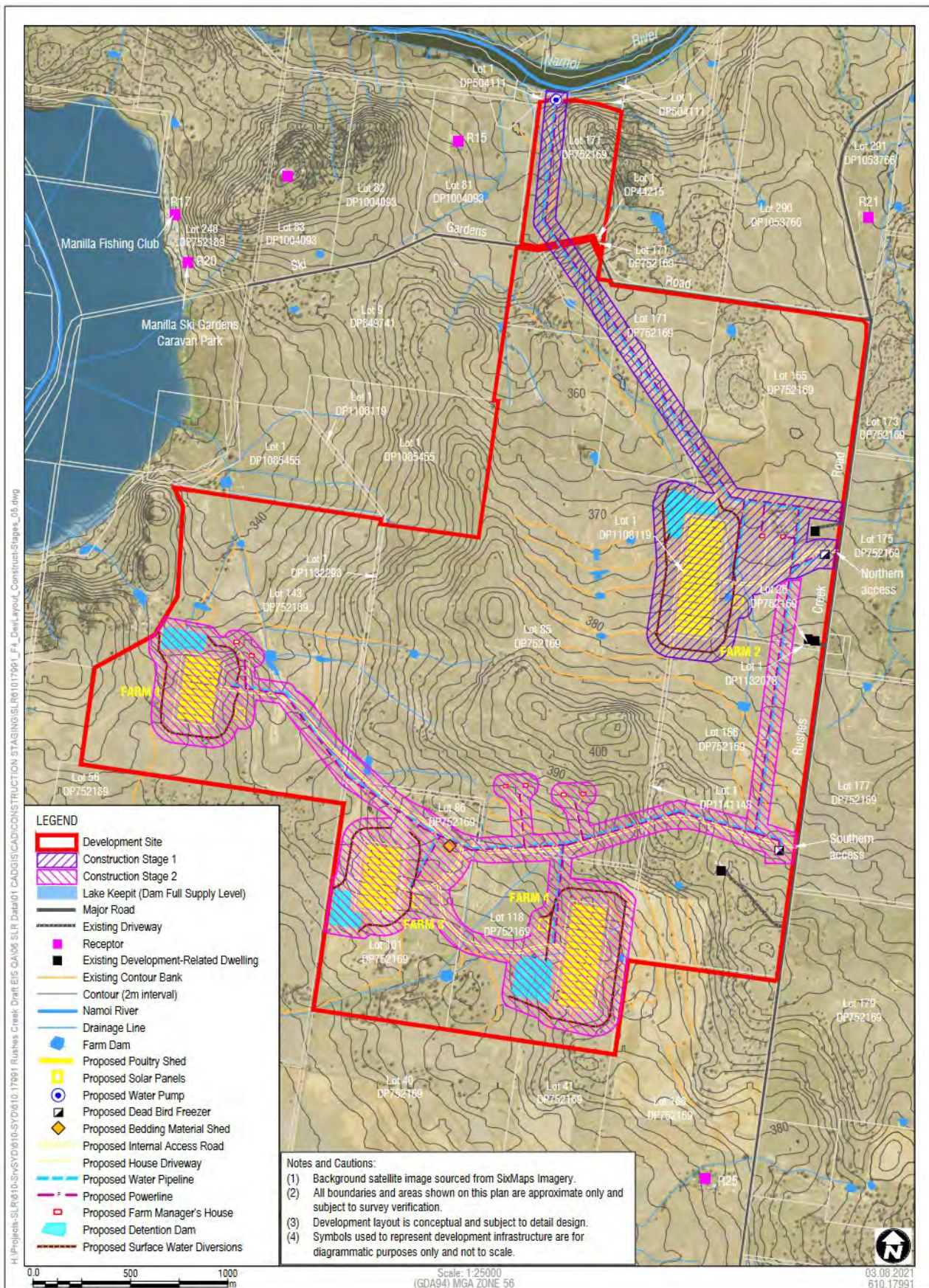


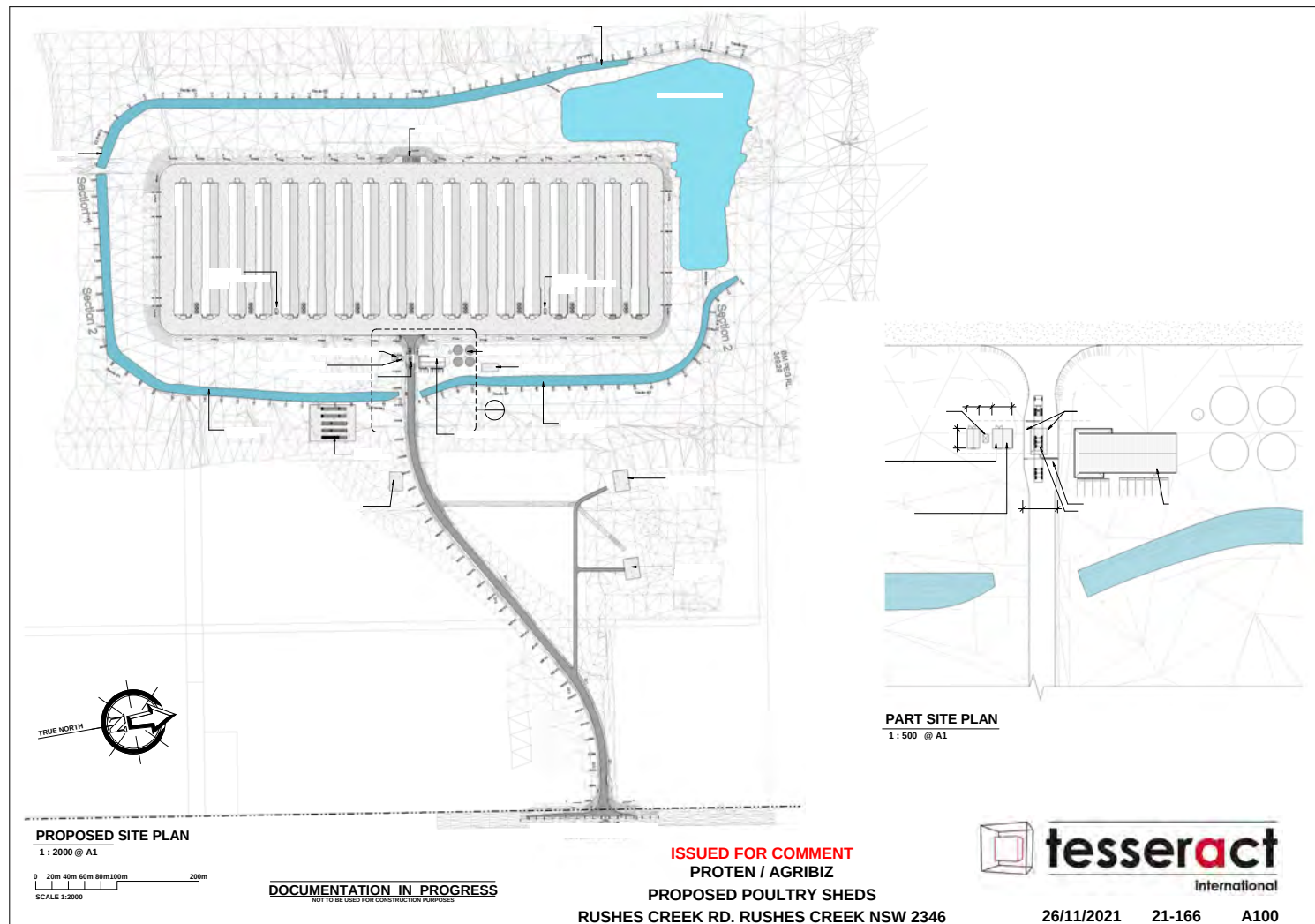
Figure 1: Construction Staging

Global Acoustics Pty Ltd | PO Box 3115 | Thornton NSW 2322

Telephone +61 2 4966 4333 | Email global@globalacoustics.com.au

ABN 94 094 985 734

**Figure
2:**



Proposed Site Plan - Farm 2

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ABN 94 094 985 734

2 MODIFICATION 3 NOISE IMPACTS

Potential noise impacts associated with the proposed Modification 3 will be addressed in this section. Detailed methodology for noise modelling can be found in EIS NIA (report 16285_R01.pdf). It should be noted that the EIS NIA assessed worst-case construction and operation impacts for Stage 1 and 2 of the development (Farms 1 – 4). Modification 3 relates only to Stage 1 (Farm 2) which encompasses 18 of the proposed 54 total sheds. The farms operate in a modular way so during Stage 1 where only one farm is operating approximately one third of the total noise sources (ventilation fans, vehicle movements etc) assessed in the EIS NIA will be operating.

Sound power data used in the noise modelling are shown in Table 2.1.

Table 2.1: SOUND POWER DATA FOR OPERATIONAL SOURCES – $L_{eq,15minute}$ (dB)

Plant Item	L_W	L_{WA}
EIS NIA		
Ventilation fans (each)	100	87
Feed silo refill pump (5 minutes operation out of 15 minutes)	112	106
Delivery truck	106	97
Forklift	113	103
Modification 3¹		
440 kVA diesel generator	-	97
45 kVA diesel generator	-	91

Note:

1. A-weighted sound power data supplied by the client. No linear or spectral data was provided. Where required spectral data has been sourced from Global Acoustics sound power database.

2.1 Farm 2 and Namoi River Diesel Generators

Diesel generators were not included as a noise source in the EIS NIA as the client advised they were for emergency backup use only. This was addressed in the response to submissions where we advised that, based on the three 390 kilovolt-amp (kVA) generators per farm/poultry production unit (PPU) in the original plans. The response stated *“The total sound power for three generators operating at one PPU (i.e. 102 dB) will cause an increase of less than 0.5 dB to the sound power of each PPU, and to offsite noise levels. An increase in PPU sound power levels of less than 0.5 dB will not be noticeable offsite and noise levels will remain in compliance with operational noise criteria at each receptor considered in the NIA.”*

ProTen is now pursuing options to take the development completely off-grid with a solar and battery solution (subject to a separate modification approval). Given the lead time for the approval, supply, installation and commissioning ProTen anticipates that Farm 2 and associated ancillaries will need to rely on

diesel generators for power for up to six months. This includes four 440 kVA generators (only two would operate at a time with two as backup) to power Farm 2 and a 45 kVA generator required to power a water supply pump at the Namoi River. Sound power data provided by the client is shown in Table 2.1.

The predicted worst-case operational scenario in the EIS NIA was Scenario 2 – Feed Silo Refilling which combined feed silo refilling with worst-case continuous operational noise sources. This scenario has been re-modelled including Farm 2 and Namoi River diesel generators. It should be noted that this model includes continuous noise sources from all farms (Farms 1 – 4), not just Farm 2.

Table 2.2: PREDICTED WORST-CASE OPERATIONAL NOISE LEVELS – $L_{Aeq,15min}$ (dB)

Receptor ID	Neutral	Source to Receiver Wind	Inversion	Criterion	Exceedance
R15	24	28	28	35	Nil
R16	<20	<20	<20	35	Nil
R17	21	24	24	35	Nil
R20	22	26	26	35	Nil
R21	26	31	31	35	Nil
R22	<20	<20	<20	35	Nil
R23	<20	<20	<20	35	Nil
R24	29	34	32	35	Nil
R55	30	35	30	35	Nil

Note:

1. Results in bold type exceed the operational noise criterion (if applicable).

No exceedances of operational noise criteria are predicted.

2.2 Concurrent Construction and Operation

The EIS NIA considered one worst-case construction scenario, which, based on information provided by the client was site preparation, earthworks and road construction. No concurrent construction and operation results were included. The client has advised that site preparation and earthworks are currently underway and will be completed prior to the commencement of operational activities. That is, the primary noise generating construction tasks will be complete prior to the site becoming operational, with less significant noise generating tasks being conducted concurrently with operation of Farm 2.

Farm 2 consists of 18 sheds which will be built in stages. The proposed construction schedule provides the following dates for operations to commence:

- shed 1 – 8 operating from February 2022;
- shed 9 – 12 operating from April 2022;

- sheds 13 – 16 operating from June 2022; and
- sheds 17 – 18 operating from August 2022.

Modification 3 seeks to include the ramping up of operation for Farm 2 between February and August 2022 whilst construction work is ongoing. During this time slab construction, superstructure construction, installation of services and associated equipment will occur at the same time as operational sources including ventilation fans, bird delivery/collection, feed silo refilling and other heavy vehicle movements. The construction works scheduled after February 2022 when operations have commenced are expected to have a lower impact than the construction scenario considered in the EIS NIA.

Worst-case cumulative noise impacts from concurrent construction and operational activities have been assessed by combining the earthworks construction scenario from the EIS NIA with operational noise sources from Section 2.2. Results in Table 2.3 represent predicted worst-case impacts from concurrent construction activities.

Table 2.3: CALCULATED WORST-CASE CONCURRENT CONSTRUCTION AND OPERATIONS – $L_{Aeq,15min}$ (dB)

Receptor ID	Neutral	Source to Receiver Wind	Inversion	Criterion ²	Exceedance
R15	24	28	28	40	Nil
R16	22	26	26	40	Nil
R17	21	24	24	40	Nil
R20	22	26	26	40	Nil
R21	27	33	33	40	Nil
R22	21	25	25	40	Nil
R23	21	25	25	40	Nil
R24	33	38	34	40	Nil
R55	30	35	30	40	Nil

Note:

1. Results in bold type exceed the construction noise limit (if applicable); and
2. Assessed against the standard construction hours construction noise criterion.

No exceedances of construction noise criteria are predicted.

2.3 Increased Traffic

Noise from road traffic generated by the development was considered in the EIS NIA. This assessment included existing road traffic and operational phase traffic generated by the development with data sourced from RoadNet document titled *Rushes Creek Poultry Production Complex – Traffic Impact Assessment (RoadNet September 2017)*.

Road traffic implications of Modification 3 have been assessed by SLR in a document titled *Rushes Creek Poultry Farm Modification 3 Assessment of Traffic Matters* (SLR, 11 November 2021). A summary of existing traffic and traffic generated by the development is provided in Table 2.4.

Table 2.4: COMPARISON OF EXISTING TRAFFIC AND TRAFFIC GENERATED BY THE DEVELOPMENT

Component	Peak Daily Trips (vpd)		Peak Hour Trips (vph)	
	Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
Existing traffic ¹	320	85	44	13
Total	405		57	
Approved Development Traffic Generation				
Operational phase	26	46	12	5
Total	72		17	
Proposed Modification 3 Traffic Generation				
Operational phase	26	46	12	5
Additional fuel deliveries (temporary)	2	2	0	0
Construction phase (temporary)	58	2	29	0
Subtotal	86 (+60)	50 (+4)	41 (+29)	5 (+0)
Total	136		46	

Note:

- Existing traffic was measured by RoadNet over the period of 06:00 – 18:00.

Proposed Modification 3 is predicted to generate an additional 60 light vehicle trips per day and an additional 4 heavy vehicle movements per day which is a 13% increase to the total existing and approved traffic. A 13% increase in traffic is approximately a 0.5 dB in road traffic noise levels. There is no predicted exceedance of road traffic noise limits outlined in the NSW Road Noise Policy.

The vast majority of additional proposed vehicle movements for Modification 3 are light vehicle movements which are expected to occur during normal construction hours during normal morning and afternoon peak periods. It should also be noted that heavy vehicle movements are more significant than light vehicle movements in generation of road traffic noise. As operations will be only up to one third of full production during Modification 3 and so the operational noise is expected to be lower than the impact predicted in the EIS NIA.

3 CONCLUSION

Results presented in this letter report show that the changes associated with the proposed Modification 3 should not materially change site noise emission levels from those predicted for the EIS NIA, as predicted increases are minimal in all cases and will be short-term. Continued compliance is predicted for all receptors.

It should also be noted that the EIS NIA and modelling in this report have assessed worst-case construction and operation impacts for Stage 1 and 2 of the development (Farms 1 – 4). Modification 3 relates only to Stage 1 (Farm 2) which encompasses 18 of the proposed 54 total sheds. The farms operate in a modular way so during Stage 1 where only one farm is operating approximately one third of the total noise sources (ventilation fans, vehicle movements etc) assessed in the EIS NIA will be operating.

I trust this information meets your requirements. If you have any questions or need further details please contact me.



Prepared: Ryan Bruniges
Consultant



QA Review: Jeremy Welbourne
Consultant

Appendix F

Addendum to Fire Safety Study

(GHD)



Our ref: 12545704

Revision: 2

3 December 2021

ProTen Tamworth Pty Ltd

Suite 1103, Level 11

99 Mount Street

North Sydney NSW 2060.

Re: CAN02: Addendum to Fire Safety Study

Project: Rushes Creek Poultry Production Farm

Background

The purpose of this Consultant Advice Note (CAN) is to assess the Stage 1 proposed modification works to Rushes Creek Poultry Production Farm, and whether the modifications impact the findings and requirements of the following documents:

- Fire Safety Study (FSS) undertaken by GHD Pty Ltd (Reference #: 12545704, Revision 0, dated 29 June 2021); and
- Final Hazard Analysis (FHA) undertaken by GHD Pty Ltd (Reference #: 12545704-CAN01, Revision 0, dated 30 June 2021).

This CAN shall be read in conjunction with both of the referenced documents above.

Proposed Modification Works

Following detailed design of the facility, the following modifications are proposed;

- Minor amendments to the positioning of ancillaries at Farm 2 following detailed design. Refer to the modified layout in Appendix A.
- Additional emergency standby diesel generator capacity at Farm 2. This is to encompass:
 - o 4 x 440 kVA generators (as opposed to 3 x 390 kVA generators). There is no change to total diesel storage volume.
- Diesel storage at Farm 2 is to be 1 x 4,000 L tank instead of 2 x 2,000 L tanks.
- Addition of a 45 kVA emergency standby diesel generator and 2,000 L diesel storage at the water supply pump near the Namoi River.
- Concurrent construction and operation at Farm 2 for up to 10 months.
- Reliance on diesel generators to operate Farm 2 and the river water supply pump for up to 10 months.

Assessment

The proposed modifications detailed above have been reviewed against the referenced documents and the findings are summarised in Table 1.

Table 1: Assessment of proposed modifications against Fire Safety Study

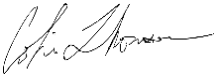
Modification	Impact on Fire Safety Study Findings
Minor amendments to the positioning of ancillaries at Farm 2 following detailed design. Refer modified layout in Appendix A.	Repositioning of ancillaries at Farm 2 does not affect the FSS and FHA. LPG tanks assessed in the FSS shall remain at the specified distances from the poultry sheds.
Additional emergency standby diesel generator capacity at Farm 2 following detailed design. This is to encompass: • 4 x 440 kVA generators (as opposed to 3 x 390 kVA generators). • No change to diesel storage volume.	Addition of emergency standby diesel generator at Farm 2 does not affect the FSS and FHA.
Diesel storage at Farm 2 to be 1 x 4,000 L tank instead of 2 x 2,000 L tanks.	The capacity of diesel storage remains unchanged. Provision of a single diesel storage tank in lieu of two smaller tanks does not impact the FSS and FHA.
Addition of a 45 kVA emergency standby diesel generator and 2,000 L diesel storage at the water supply pump near the Namoi River.	The SLR preliminary screening notes that diesel storage is permitted up to a threshold of 100,000 L. It is noted that each PPU houses 4,000 L of diesel storage. An additional 2,000 L storage at the water supply pump does not impact the FSS and FHA.
Concurrent construction and operation at Farm 2 for up to 10 months.	Fire hydrants are to be commissioned and operational prior to any operation of Farm 2.
Reliance on diesel generators to operate Farm 2 and the river water supply pump for up to 10 months.	Water storage tanks at each farm is provided with an alarm which sounds when water levels drop to 2/3 full, therefore reliance on diesel generators to operate the river water supply pump to fill the tanks is not expected to impact the FSS and FHA findings. The low level alarms shall be implemented and operational during the operational period.

Based on the review of the modifications proposed, there is no material impact to the referenced Fire Safety Study and Final Hazard Analysis.

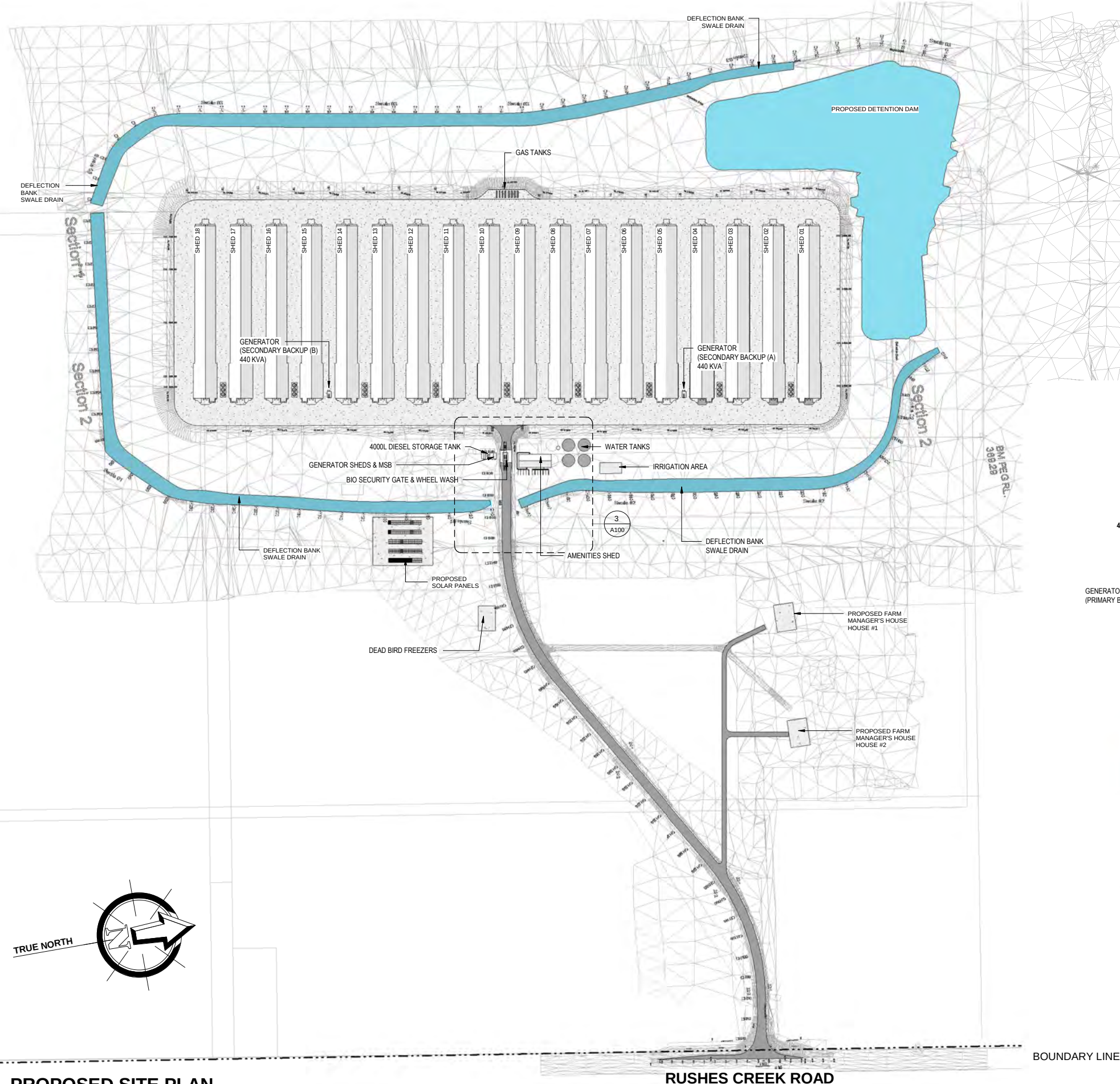
It is however recommended that the following to be adopted during the concurrent construction and operation of Farm 2 to ensure adequate firefighting provisions are provided:

- Fire hydrants shall be operational during this period; and
- Water storage tanks filled via the diesel generator water pumps shall be provided with a low level alarm to sound when tanks reach a capacity of two-thirds full (as detailed in the fire safety study requirements).

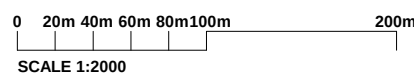
We trust this addendum provides insight with respect to the proposed modifications at Rushes Creek Poultry Production Farm. If you have any further queries, see contact details below.

Documented By	Technical Review By	Approved By
		
Mark Tsai Fire Engineer mark.tsai@ghd.com	Colin Thomson <i>Chartered Fire Safety Engineer – Engineers Australia</i> Technical Director – Fire Engineering colin.thomson@ghd.com	Colin Thomson <i>Chartered Fire Safety Engineer – Engineers Australia</i> <i>Certifier (Fire Safety) – BDC04754</i> Technical Director – Fire Engineering colin.thomson@ghd.com

Appendix A Modified Layout at Farm 2

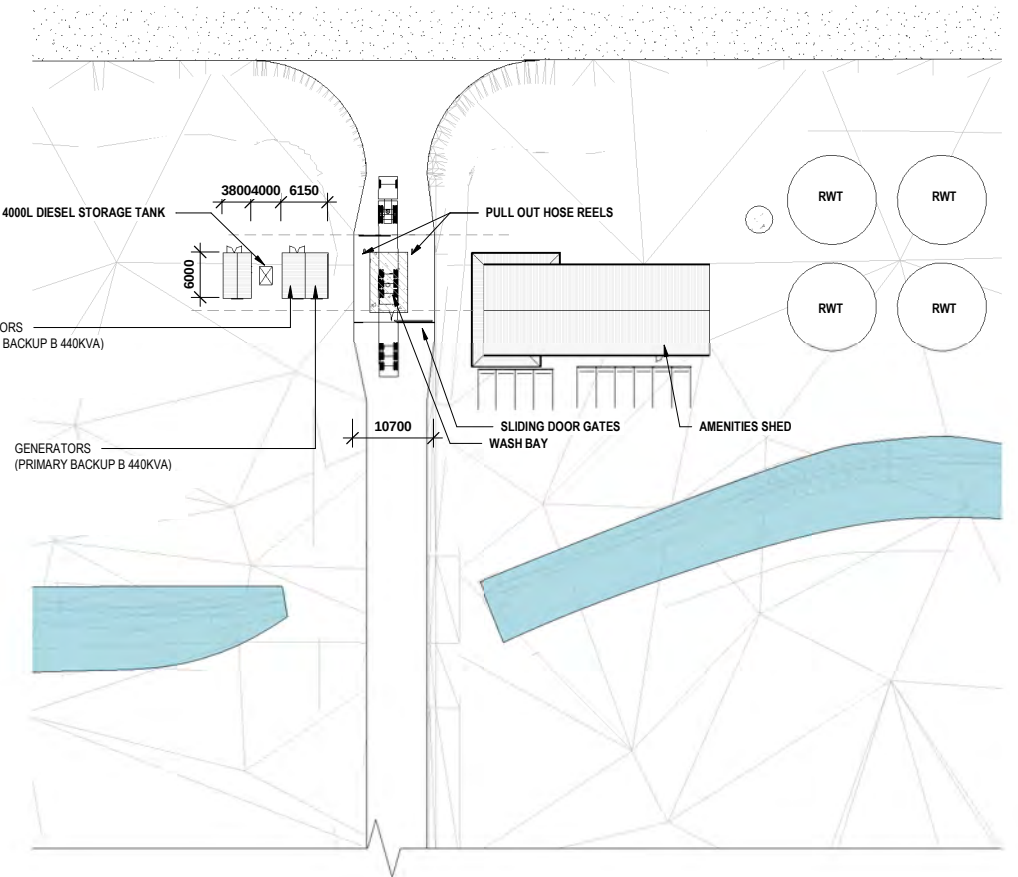


PROPOSED SITE PLAN
1 : 2000 @ A1



DOCUMENTATION IN PROGRESS
NOT TO BE USED FOR CONSTRUCTION PURPOSES

ISSUED FOR COMMENT
PROTEN / AGRIBIZ
PROPOSED POULTRY SHEDS
RUSHES CREEK RD. RUSHES CREEK NSW 2346



PART SITE PLAN
1 : 500 @ A1



DATE: 26/11/2021 **21-166** **A100**

Appendix G

Approved Summary of Commitments



RUSHES CREEK POULTRY FARM DEVELOPMENT, SSD 7704

UPDATED SUMMARY OF COMMITMENTS (May 2021)

Development Construction
- ProTen will implement all practicable measures to prevent or minimise any harm to the local environment and surrounding populace that may result from the construction of the Development. - ProTen will construct the Development generally as described in the EIS and RTS and in accordance with detailed design completed following development consent, along with the necessary construction approvals (for example, construction certificates). - A CEMP will be developed for approval prior to commencing construction. It will describe the activities to be undertaken on site during construction, outline construction staging and timing, nominate the roles and responsibilities for all relevant construction personnel, include community and stakeholder consultation requirements and include procedures for complaints and incident management. The CEMP will also specify the environmental management and mitigation measures to be implemented during construction in relation to: - Surface water; - Soils; - Traffic; - Biodiversity; - Aboriginal heritage; - Noise; - Dust; and - Waste. - Construction workers will be suitably inducted and trained. Training in relation to environmental responsibilities will take place initially through the site induction and then on an on-going basis through toolbox talks (or similar).
Development Operation
- ProTen will implement all practicable measures to prevent or minimise any harm to the local environment and surrounding populace that may result from operation of the Development. - The Development will generally be constructed, operated and managed in accordance with current industry best practice standards, including the relevant requirements/recommendations in the RSPCA Standards (RSPCA Australia 2013) and Best Practice Guidelines (DPI 2012). - ProTen will operate the Development generally as described in this EIS and RTS. - An OEMP will be developed for approval prior to commencing operation. It will describe the operational activities to be undertaken on site, nominate the roles and responsibilities for all relevant personnel, include community and stakeholder consultation requirements and include procedures for complaints and incident management. The OEMP will also include the following issue-specific management plans: - Air Quality Management Plan; - Surface Water Management Plan; - Biodiversity Management Plan; - Aboriginal Cultural Heritage Management Plan; - Waste Management Plan; - Landscaping Management Plan; - Mass Mortality Disposal Strategy; and - Pollution Incident Response Management Plan. It will also specify the environmental management and mitigation measures to be implemented in relation to traffic, noise, energy efficiency and pest control. - The Development will not exceed a maximum population of 3,051,000 broiler birds, and the maximum number of birds placed on any given day will be 636,000 ($\pm 6\%$). - Stocking densities will comply with the RSPCA Standards (2013) specification of 34 kg/m². - Employees and contractors will be suitably inducted and trained. Training in relation to environmental responsibilities will take place initially through the site induction and then on an on-going basis through toolbox talks (or similar). - The Development will be managed in compliance with ProTen's standard operating procedures, including a regular site inspection and maintenance program to minimise the potential for adverse environmental impacts, extend the life of equipment, reduce operating costs and maximise operational efficiency. Emphasis will be placed on keeping the insides of the poultry sheds and surrounding environs as clean as possible.

Land Contamination
- The <i>Revised Remedial Action Plan</i> (SLR 2021) will be implemented and completed within 12 months of commencing construction to remediate arsenic impacted soil adjacent to the former sheep dip in Lot 165 DP 752169. - A site validation report will be prepared in accordance with <i>Contaminated Land Guidelines: Consultants Reporting on Contaminated Land</i> (EPA 2020) for submission to Council, EPA and DPIE within 30 days of completing the remediation works. - An EMP will be prepared for the remedial area at the completion of the remediation and validation work. It will document the on-going management requirements for the remedial area and associated responsible parties.
Drinking Water Supplies
Quality assurance programs will be prepared and implemented in accordance with the <i>NSW Health Private Water Supply Guidelines</i> (NSW Health 2014) for the drinking water supplies at the PPUs and farm managers' houses. These programs will be submitted to the HNELHD prior to commencing operation.
Odour
Development Design - The poultry sheds will be tunnel-ventilated to allow control over internal moisture levels and promote optimum growing conditions and bird health. - The poultry sheds will be fully enclosed, have wide eaves and will be surrounded by dwarf concrete bund walls to prevent stormwater entering the poultry sheds and elevated moisture levels. - The poultry sheds will be fitted with nipple drinkers with drip cups to minimise water spillage and elevated moisture levels. - The feed silos will be fully enclosed to prevent the entry of rainwater and elevated moisture levels. Shed Operations During Bird Growing Phase - The Development will not exceed a maximum population of 3,051,000 broiler birds. - Stocking densities will comply with the RSPCA Standards (2013) specification of 34 kg/m². - Stocking densities and bird health will be regularly checked and, if necessary, appropriate corrective measures implemented. - A minimum depth of 50 mm of fresh bedding material will be laid throughout the poultry sheds at the start of each batch. - Bedding material moisture levels will be regularly checked. Any excessively wet material and/or caked material beneath drinking lines will be promptly identified, removed and replaced. - Bird drinkers will be maintained to minimise/avoid leakage that will result in wet patches in the bedding material. - The poultry shed ventilation systems will be maintained to ensure air movement is at design levels. - Where possible, activities that may increase odour emissions (for example, bedding material replacement) will be undertaken during daytime hours. - Shed access points will remain closed at all times other than for the purposes of allowing access to the sheds. - Dead birds will be collected from the poultry sheds on a daily basis and stored in the on-site dead bird freezers prior to being removed from site. Shed Operations During Shed Cleanout - Poultry litter will be promptly removed from the poultry sheds and transported off site in covered trucks at the end of each production cycle. - Where possible, litter handling will be avoided during adverse climatic conditions, such as times of cold air drainage during early morning or strong winds. The shed ventilation systems will not be used during litter removal. - Poultry litter will not be stockpiled or spread within the Development Site. Vegetation Screens - Vegetation screens will be established and maintained around the perimeter of each PPU on a progressive basis as soon as practicable following bulk earthworks and construction at each PPU. Weather Station - A weather station will be installed within the Development Site to collect on-going and up-to-date weather monitoring data, which will assist in investigating and responding to any air quality complaints.

Particulate Matter

Construction

- Surface disturbance will be limited to the smallest practicable area possible.
- Disturbed areas will be promptly rehabilitated and revegetated to a stable landform.
- When necessary, dust will be minimised by “wetting” down surfaces being worked and/or carrying traffic during dry conditions.
- Where possible, vehicles on site will be confined to designated roadways.
- Internal roads will be appropriately constructed and maintained with a suitably compacted base.
- Vehicles will not exceed a general speed limit of 60 km/hr along the internal access roads, with a reduced speed limit of 40 km/hr in the vicinity of work sites.
- Plant and equipment will be regularly maintained to ensure optimal operating condition.
- Loaded heavy vehicles entering or exiting the Development Site will have their loads covered.

Development Design

- The feed silos will be fully enclosed to minimise emissions of particulate matter when loading and unloading.
- The poultry sheds will be tunnel-ventilated, which will allow control over the moisture levels and promote optimum growing conditions and bird health. The increased airflow and improved feed conversion in tunnel-vented sheds helps to maintain bedding material within the optimal moisture range.

Wheel Generated Dust From Unsealed Roadways

- The two site access roads will be bitumen-sealed for a minimum of 50 m from Rushes Creek Road.
- Internal roads will be appropriately constructed and maintained with a suitably compacted base.
- When necessary, internal roads will be “wetted down” during dry conditions.
- Vehicles will not exceed a general speed limit of 60 km/hr along the internal access roads, with a reduced speed limit of 40 km/hr in the vicinity of the PPUs.
- Internal traffic will be restricted to the designated access roads (except in the event of an emergency or incident).

Dust Emissions from Poultry Sheds

- The bedding material will be managed to ensure that moisture levels do not drop below approximately 15%.
- The poultry shed ventilation systems will be maintained to ensure air movement is at design levels.
- The poultry sheds will be thoroughly cleaned between batches, with a focus on the fan end of the sheds.

Emergency Standby Diesel Generators

- The generators will be contained in lockable acoustics enclosures with vertical air discharge and will only be used in emergency situations when mains power from the electricity grid is lost.
- The generators will meet the relevant emission standards in Schedule 4 of the Clean Air Regulation.

Materials Handling and Transfer

- When possible, handling bedding material/poultry litter will be limited to daytime hours to avoid adverse weather conditions.
- Poultry litter will be promptly transported off site in covered trucks at the end of each batch.

Vegetation Screens

- Vegetation screens will be established and maintained around the perimeter of each PPU on a progressive basis as soon as practicable following bulk earthworks and construction at each PPU.

Weather Station

- A weather station will be installed within the Development Site to collect on-going and up-to-date weather monitoring data, which will assist in investigating and responding to any air quality complaints.

Traffic

Construction

- A CTMP will be prepared for approval prior to commencing construction.
- The generic traffic control plan will be implemented if the construction of the new site access driveways off Rushes Creek Road and/or the installation of water and electricity supply lines under Ski Gardens Road results in the need to restrict the two-way traffic arrangement on the respective roads to a single lane.
- Construction vehicles will enter and exit the Development Site during the initial site preparation works via the existing site access driveways off Rushes Creek Road and subsequently via the two new access driveways to be constructed off Rushes Creek Road at the commencement of construction.

- Vehicles will not exceed a general speed limit of 60 km/hr along the main site access roads from Rushes Creek Road, with a reduced speed limit of 40 km/hr in the vicinity of all work sites.
- All construction-related traffic and construction plant/equipment will park along the internal access roads and/or on construction sites. There will be no queuing or parking on Rushes Creek Road.
- Where possible, vehicles on site will be confined to designated roadways.
- Suitable signage will be erected indicating internal traffic direction and speed limits to ensure the orderly and safe use of the site, as well as to minimise the potential for traffic conflict.
- Internal roads will be maintained clear of obstruction and used exclusively for the purposes of transport, loading-unloading and parking.
- Loaded heavy vehicles entering or exiting the Development Site will have their loads covered.
- Heavy vehicles exiting the Development Site will be cleaned of dirt, sand and other materials (if necessary) to avoid tracking these materials on to the public road network.
- The only traffic to enter the Development Site will be construction traffic and, if required, emergency vehicles. There will not be any general public access.
- All heavy vehicle drivers will read and sign a Driver Code of Conduct that will include, but not be limited to, the following:
 - A map of the primary transport route(s) highlighting critical locations;
 - Safety initiatives for transport through residential areas and/or school zones;
 - A driver induction process and regular toolbox talks (or similar);
 - A complaints resolution and disciplinary procedure;
 - A directive to drivers to slow down and provide right-of-way to any livestock and/or farm machinery on the transport routes; and
 - A directive to drivers to avoid the use of compression braking along Rushes Creek Road.

Oxley Highway / Rushes Creek Road Intersection

- Visibility plays at the Oxley Highway / Rushes Creek Road intersection will be checked in both the horizontal and vertical planes via detailed field investigation or survey to confirm, in particular, whether there is a need for any vegetation trimming/clearing on the inside of the horizontal curve immediately to the west of the intersection to ensure SISD.
- A review of the line-marking arrangement on Rushes Creek Road at the Oxley Highway intersection will be undertaken to ensure it is consistent with the Give-Way intersection control.
- Additional signage will be erected at the Oxley Highway / Rushes Creek Road intersection in the form of advance signposting in both directions to warn of trucks turning at the intersection.

Development Design

- The two new access driveways from Rushes Creek Road will be constructed to accommodate a BAL treatment in accordance with AGRD Part 4A (Austroads 2017). Directional signage will be installed on Rushes Creek Road to assist approaching traffic identify the access points and access control (Give Way) signage and line-marking will be provided to control vehicles exiting the Development Site.
- The two new access roads will be bitumen-sealed for a minimum of 50 m from Rushes Creek Road and will be approximately 6.5 m wide. The remaining lengths of the internal access roads within the Development Site will be constructed as all-weather rural-type roads to meet the minimum requirements of AS 2890.2 Part 2 to accommodate the turning movements of B-doubles.
- Signage will be installed on the two access driveways near their intersections with Rushes Creek Road instructing heavy vehicle drivers to avoid the use of compression braking within the Development Site and on Rushes Creek Road.
- A one-way circulation road (ring road) will be established around the perimeter of each PPU to enable traffic to enter, exit and manoeuvre for loading-unloading and servicing activities in a forward direction.

Operation

- Traffic will enter and exit the Development Site via the two new access driveways off Rushes Creek Road.
- Heavy vehicles travelling between the Development Site and the poultry industry service facilities located in and around Tamworth will utilise the nominated heavy vehicle route (approved B-double route) comprising the Oxley Highway and Rushes Creek Road (see Figure 19).
- Vehicles will not exceed a general speed limit of 60 km/hr along the internal access roads, with a reduced speed limit of 40 km/hr in the vicinity of the PPUs.
- Suitable signage will be erected indicating internal traffic direction and speed limits to ensure the orderly and safe use of the site, as well as to minimise the potential for traffic conflict.
- Internal roads will be appropriately maintained to provide safe driving conditions (and also minimise noise and dust emissions).
- Internal roads will be maintained clear of obstruction and used exclusively for the purposes of transport, loading-unloading and parking.
- Internal traffic will be restricted to the designated access roads (except in the event of an emergency or incident).

- Car parking will be provided adjacent to the amenities facility at each PPU for employees and visitors, and adequate area will be available at each PPU and along internal access roads for any heavy vehicle parking requirements. There will be no parking along Rushes Creek Road.
- All heavy vehicle drivers will read and sign a Driver Code of Conduct that will include, but not be limited to, the following:
 - A map of the primary transport route(s) highlighting critical locations;
 - Safety initiatives for transport through residential areas and/or school zones;
 - A driver induction process and regular toolbox talks (or similar);
 - A complaints resolution and disciplinary procedure;
 - A directive to drivers to slow down and provide right-of-way to any livestock and/or farm machinery on the transport routes; and
 - A directive to drivers to avoid the use of compression braking along Rushes Creek Road.
- Consultation will be undertaken with Council and the local traffic committee in relation to installing signage on Rushes Creek Road near the Development Site and near the Oxley Highway intersection instructing heavy vehicle drivers to avoid compression braking along Rushes Creek Road.

Surface Water

Construction

- Construction works will be planned and coordinated in order to limit the area of disturbance at any one time (as far as practicable).
- Erosion and sediment controls will be implemented prior to disturbance activities commencing in accordance with the Blue Book (Landcom 2004) and *Erosion and Sediment Control on Unsealed Roads* (OEH 2012).
- Clean water diversions comprising a deflection bank and swale drain will be installed around the upstream sides of each of the four PPUs to convey clean water run-off around the construction sites. They will be constructed and stabilised prior to earthworks commencing at each PPU and will be designed to convey the runoff from the upstream catchment for rainfall events up to the 1% AEP event.
- Stripped topsoil will be appropriately stockpiled and managed for use in future rehabilitation works.
- Disturbed areas will be promptly rehabilitated and revegetated to a stable landform following completion of disturbance activities (see Section 4.3.6 in the EIS).
- An on-going inspection and maintenance program will be implemented to ensure the continued integrity of the erosion and sediment control structures throughout the construction period. They will be visually inspected on a monthly basis and following significant rainfall events and any required maintenance work will be promptly undertaken.

Development Design and Operation

- The poultry sheds will be fully enclosed and surrounded by a dwarf concrete bund wall to prevent stormwater entering the sheds and allow for the controlled discharge of wash down water from the sheds.
- The clean water diversions (comprising a deflection bank and swale drain) installed prior to earthworks around the upstream sides of each of the four PPUs will be maintained to convey clean water run-off around the PPUs and prevent this water from entering the controlled surface water management system. The diversions will be designed and maintained to convey the runoff from the upstream catchment for rainfall events up to the 1% AEP event.
- Engineered surface water management systems will be installed at each PPU to capture and manage wash down water and stormwater runoff within the PPU environs, providing long-term structural management controls throughout the life of the operation. Each system will be designed to capture the runoff from 200 mm of rainfall, which is equivalent to the depth of rainfall for a 1% AEP 72-hour event.
- AWTs will be installed to manage the sewage generated by the staff amenities at each PPU and the farm managers' houses in accordance with the manufacturer's specifications and Council approval requirements. Each AWTs (12 in total) will have a treatment capacity of 10 equivalent persons at 200 L/p/d and the treated effluent will be released over an area of approximately 200 m² via sub-surface irrigation.
- The extraction of surface water from the Namoi River to service the Development's water supply requirements will be under the provisions of the two existing water access licences held by ProTen (WAL41834 and WAL37794). Extraction will not exceed the combined licensed allocation of 437.2 units per year under the provisions of the *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016*.
- An on-going inspection and maintenance program will be implemented to ensure the continued integrity of the surface water management systems, including upstream diversions. They will be visually inspected on a monthly basis and following significant rainfall events and any required maintenance work will be promptly undertaken to ensure the system's design capacity is maintained.
- The detention dams at each PPU will be visually inspected on an annual basis and, if necessary, will be desilted to ensure the dams maintain their design capacity.
- The grassed swale drains between the poultry sheds will be carefully managed to minimise soil disturbance and maximise infiltration and stormwater treatment potential. They will be regularly slashed to encourage continual grass growth and associated nutrient up-take.

- Dry-cleaning practices at the end of each production cycle will be maximised within the poultry sheds prior to washing with water to minimise the volume of wash water and the amount of poultry litter (and associated sediments and nutrients) in the wash down water.
- Water captured in the detention dams will be reused for regular irrigation of the planted vegetation screens at each PPU. Advice will be sought from an appropriate professional to ensure that the tree and shrub species selected for the vegetation screens can effectively cope with and utilise the anticipated nutrient loads within the irrigation water.
- The waste management systems listed in Section 4.18 of the EIS will be implemented to ensure that each waste stream generated is effectively managed and disposed of off site. There will not be any on-site stockpiling or disposal of waste.
- The best management practices and mitigation measures outlined in Section 4.19 of the EIS will be implemented for the storage of chemicals and fuels.

Mosquito Control

- The table drains and detention dams will be maintained free of vegetation.
- The vegetation screens around the PPUs will not be over-irrigated to avoid water collecting in any depressions for long periods of time.
- If it is identified that mosquitos have become an issue, a larvicide will be applied to the detention dams and surrounds to prevent mosquitoes from maturing to adults and/or the detention dams and surrounds will be fogged.

Groundwater

- There will not be any groundwater extraction or use by the Development.
- Each poultry shed will be fully enclosed and have concrete flooring.
- Each poultry shed will be surrounded by a dwarf concrete bund wall measuring 400 mm high to prevent rainwater and runoff entering the sheds and to allow for the controlled discharge of wash down water from the sheds.
- Engineered surface water management systems will be installed at each PPU to capture and manage wash down water and stormwater runoff within the PPU environs, providing long-term structural management controls throughout the life of the operation. Each system will be designed to capture the runoff from 200 mm of rainfall, which is equivalent to the depth of rainfall for a 1% AEP 72-hour event.
- The internal surfaces of the detention dams will be compacted or lined to provide an impermeable surface.
- AWTSS will be installed to manage the sewage generated by the staff amenities at each PPU and the farm managers' houses in accordance with the manufacturer's specifications and Council approval requirements. Each AWTSS (12 in total) will have a treatment capacity of 10 equivalent persons at 200 L/p/d and the treated effluent will be released over an area of approximately 200 m² via sub-surface irrigation.
- An on-going inspection and maintenance program will be implemented to ensure the continued integrity of the surface water management systems. They will be visually inspected on a monthly basis and following significant rainfall events and any required maintenance work will be promptly undertaken to ensure the system's design capacity is maintained.
- The grassed swale drains between the poultry sheds will be carefully managed to minimise soil disturbance and maximise infiltration and stormwater treatment potential. They will be regularly slashed to encourage continual grass growth and associated nutrient up-take.
- Dry-cleaning practices at the end of each production cycle will be maximised within the poultry sheds prior to washing with water to minimise the volume of wash water and the amount of poultry litter (and associated sediments and nutrients) in the wash down water.
- The waste management systems listed in Section 4.18 of the EIS will be implemented to ensure that each waste stream generated is effectively managed and disposed of off site. There will not be any on-site stockpiling or disposal of waste.
- The best management practices and mitigation measures outlined in Section 4.19 of the EIS will be implemented for the storage of chemicals and fuels.

Biodiversity

Construction

- Construction areas will be clearly delineated to ensure no native vegetation outside of these areas is cleared.
- Erosion and sediment controls will be implemented prior to disturbance activities commencing in accordance with the Blue Book (Landcom 2004) and *Erosion and Sediment Control on Unsealed Roads* (OEH 2012).
- An on-going inspection and maintenance program will be implemented to ensure the continued integrity of the erosion and sediment control structures throughout the construction period. They will be visually inspected on a monthly basis and following significant rainfall events and any required maintenance work will be promptly undertaken.
- Vehicles will not exceed a general speed limit of 60 km/hr along the main site access roads from Rushes Creek Road, with a reduced speed limit of 40 km/hr in the vicinity of work sites.
- If considered necessary, vehicles leaving the Development Site will be cleaned to avoid the spread of weeds.
- WIRES will be contacted prior to planned tree felling to advise of proposed works and arrange a volunteer wildlife handler (if required and available) to rescue any fauna.

- Rubbish, including building material wastes and food scraps, will be properly managed and will not be stockpiled within areas of native vegetation.
- Disturbed areas will be promptly rehabilitated and revegetated to a stable landform following completion of disturbance activities (see Section 4.3.6 in the EIS).
- Revegetation works and landscape plantings will be regularly inspected and assessed for maintenance requirements, including weed control.

Operation

- Engineered surface water management systems will be installed at each PPU to capture and manage wash down water and stormwater runoff within the PPU environs, providing long-term structural management controls throughout the life of the operation.
- If any native fauna are by chance injured during operations, WIRES will be contacted to arrange proper care for the animal. WIRES will also be contacted to remove any bats discovered within the poultry sheds.
- Suitable signage will be erected to direct traffic, limit traffic speed and minimise night time noise levels.
- Vehicles will not exceed a general speed limit of 60 km/hr along the internal access roads, with a reduced speed limit of 40 km/hr in the vicinity of the PPUs.
- Internal traffic will be restricted to the designated access roads (except in the event of an emergency or incident).
- Efforts will be made to ensure the poultry sheds and other site buildings are fully enclosed and maintained in an attempt to exclude bats from roosting within the sheds/buildings.
- The waste management systems listed in Section 4.18 in the EIS will be implemented to ensure that each waste stream generated is effectively managed and disposed of off site. There will not be any on-site stockpiling or disposal of waste.
- External lighting will be aimed downwards and only used when necessary during times of low light and/or heavy fog.
- A wheel wash facility will be installed on the access road to each PPU in order to minimise the risk of spread of plant pathogens and weeds.
- Pest control measures (see Section 4.21 in the EIS) will be implemented to prevent and control outbreaks.

Biodiversity Offset Strategy

- The Biodiversity Offset Strategy outlined in Section 8.6.5 of the EIS will be implemented to fulfil the offset requirements for the Development.
- The biodiversity offsetting actions and outcomes will be documented in an addendum to the Biodiversity Offset Strategy for submission to the DPE and OEH within 12 months of obtaining development consent.

Aboriginal Heritage

Aboriginal Cultural Heritage Management Plan

- Prior to the commencement of construction, an ACHMP will be prepared for approval in consultation with the RAPs and OEH. It will describe the management actions for all Aboriginal sites within the Development Site, including the seven sites within the disturbance footprint, and include an unexpected finds protocol.

Archaeological Salvage and Fencing

- The seven Aboriginal sites within the disturbance footprint of the Development, being Happy Hills-IF3, Bondah-IF1, Bondah-IF2, Bondah-IF7, Bondah-IF8, Happy Hills-OS3 and Bondah-OS11, will be salvaged by a surface collection and recording of all visible surface artefacts in consultation with the RAPs and OEH. The salvage works will be detailed in the ACHMP and will include the mapping, analysis and collection of all surface artefacts at the seven sites. The results of the salvage will be included in a report to preserve the data in a useable form.
- The five Aboriginal sites in close proximity to the disturbance footprint of the Development will be fenced with appropriate buffers and signed. Specifically:
 - Happy Hills-IF4 is located within 50 m of an access road – it will be permanently fenced with a 10 m buffer and signed “Do Not Enter”;
 - Bondah-IF5 is located within 30 m of an access road – it will be permanently fenced with a 10 m buffer and signed “Do Not Enter”;
 - Bondah-OS2 is located within 50 m of water and electricity supply lines – it will be fenced with a 10 m buffer and signed “Do Not Enter” during construction;
 - Bondah-OS3 is located within 60 m of water and electricity supply lines – it will be fenced with a 10 m buffer along its eastern extents and signed “Do Not Enter” during construction; and
 - Bondah-OS9 is located within 20 m of water and electricity supply lines – it will be permanently fenced with a 10 m buffer around its northern extent and signed “Do Not Enter”.

Archaeological Excavation of Bondah-H1

- Consultation with the RAPs will be undertaken to determine the cultural appropriateness of excavating the Aboriginal hearth identified as Bondah-H1 during the preparation of the ACHMP. If the RAPs confirm the appropriateness and potential benefits, archaeological excavation of Bondah-H1 to determine if it is an Aboriginal oven will be included in the ACHMP. The excavation will also be used to determine whether in-situ charcoal remains beneath the cluster of stones for radio carbon C14 dating.

General

- No disturbance will occur outside of the disturbance footprint assessed in this EIS. Any alterations to the Development footprint will be assessed in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010).
- The three Aboriginal scarred trees identified within the Development Site will be further examined with reference to the *Aboriginal Scarred Trees in New South Wales, A Field Manual* (DEC 2005) should the Development's disturbance footprint change in a manner that potentially threatens these trees.
- Employees and contractors will be made aware of the presence of the identified Aboriginal sites during site inductions and training.
- If any Aboriginal sites are uncovered during construction or operation, all work within the vicinity will cease immediately and the unexpected finds protocol in the approved ACHMP will be followed.

Noise**Construction**

- Construction activities will be restricted to the following standard daytime hours:
 - Monday to Friday – 7:00 am to 6:00 pm;
 - Saturday – 8:00 am to 1:00 pm; and
 - No audible construction work on Sundays or public holidays.
- Plant and equipment operators will be instructed on how to minimise noise generation at all times. If necessary, this may include avoiding the operation of noisy plant and equipment simultaneously.
- Plant and equipment will be maintained to meet regulatory and industry standards, as well as ensure optimal operating conditions.

Operation

- Noise generating equipment purchased by the operator will comply with relevant workplace health and safety requirements.
- Plant and equipment will be maintained to meet regulatory and industry standards and ensure optimal operating conditions.
- A unidirectional traffic movement system, via a one-way circulation road around each PPU, will be established to minimise the use of reversing beepers.
- Internal roads will be appropriately constructed and maintained with a suitably compacted base.
- Vehicles will not exceed a general speed limit of 60 km/hr along the internal access roads, with a reduced speed limit of 40 km/hour in the vicinity of the PPUs.
- Suitable signage will be erected to direct traffic, limit traffic speed and minimise night time noise levels.
- The emergency standby diesel generators will be contained in lockable acoustics enclosures with vertical air discharge and will only be used in emergency situations when mains power from the electricity grid is lost.

Road Traffic

- A directive to heavy vehicle drivers will be included in the Driver Code of Conduct to avoid the use of compression braking along Rushes Creek Road.
- Signage will be installed on the two access driveways near their intersections with Rushes Creek Road within the Development Site instructing heavy vehicle drivers to avoid the use of compression braking within the Development Site and on Rushes Creek Road.
- Consultation will be undertaken with Council and the local traffic committee in relation to installing signage on Rushes Creek Road near the Development Site and near the Oxley Highway intersection instructing heavy vehicle drivers to avoid compression braking along Rushes Creek Road.

Hazard and Risk

- Diesel and petrol will be stored in aboveground bunded tanks, with the minimum bund volumes being 110% of the respective tank capacity.
- LPG will be stored in aboveground tanks installed and maintained in compliance with *AS/NZS 1596:2014 The Storage and Handling of LP Gas*. Minimum separation distances will be maintained.
- Chemicals will be stored in the vented chemical store within the amenities and workshop building at each PPU.
- Copies of the SDSs for each chemical and fuel will be kept within the chemical store and/or office at each PPU.

- Spill kits will also be maintained within the chemical store at each PPU.
- Diesel, petrol and LPG storages will be separated from each other and separated from the chemical store in the amenities and workshop building at each PPU.
- The chemical and fuel storage bunding will be constructed of material sufficiently impervious to the stored chemicals/fuel and be able to prevent the migration of any spillage or leakage to the surrounding environment. Where relevant, the bunding will comply with the relevant requirements of the following Australian Standards and will be approved by a structural engineer:
 - *AS/NZS 1596:2014 The Storage and Handling of LP Gas*, where applicable to the proposed LPG storage tanks;
 - *AS 1940:2017 The Storage and Handling of Flammable and Combustible Liquids*, where applicable to the proposed petrol and diesel storage tanks;
 - *AS 2507:1998 The Storage and Handling of Agricultural and Veterinary Chemicals*, where applicable to the proposed storage of chemicals comprising ADG Classes 3, 6.1, 8 and 9 and non-dangerous goods; and
 - *AS 3780:2008 The Storage and Handling of Corrosive Substances*, where applicable to the proposed storage of chemicals comprising ADG Class 8 substances.
- The following controls will be implemented in relation to LPG storage to reduce risks to an acceptable level -
 - Installations will comply with AS/NZS 1596:2014, specifically sections 3, 5, 6, 8, 11, 12 and 13;
 - Tanks will be made of steel and comply with the requirements AS/NZS 1200;
 - Tank filling will comply with section 6.6 of AS/NZS 1596:2014;
 - Tanks will have an automatic fill shutoff when they have reached capacity in accordance with section 6.6 of AS/NZS 1596:2014;
 - Outflow will be controlled in accordance with section 5 of AS/NZS 1596:2014;
 - Appropriate compliant safety shut down and isolation valves will be installed as per sections 5.3 and 6.7 of AS/NZS 1596:2014;
 - Inspections, testing and maintenance will be undertaken in accordance with section 11.5 of AS/NZS 1596:2014;
 - Separation distances will be maintained as per AS/NZS 1596:2014;
 - Hazard area classification will be in accordance with AS/NZS 60079.10.1:2009;
 - Electrical equipment will comply with AS3000;
 - Fire safety systems will be installed and/or available in accordance with section 13 of AS/NZS 1596:2014;
 - Fire-sensing elements of the emergency shutdown system will be located in a position to sense a fire at the filling/loading connection; and
 - Staff will be trained in how to use firefighting equipment and fire drills should be undertaken.
- If considered necessary, a Fire Safety Study will be undertaken following development consent, in parallel with development detailed design, for approval prior to commencing construction.

Visual Amenity

Development Design

- The poultry sheds, along with some other infrastructure items, will be constructed using non-reflective materials. The walls will be a eucalyptus green (or similar) colour sympathetic with the surrounding natural environment.
- The solar panels will have anti-reflective treatment and there will not be any mirrors or lenses used.
- External lighting will comprise individual light fixtures mounted at a height of approximately 4 m over the front and rear of each poultry shed, with no broad area or flood lighting.

Vegetation Screens

- Vegetation screens will be established and maintained around the perimeter of each PPU on a progressive basis as soon as practicable following bulk earthworks and construction at each PPU.
- Advice will be sought from an appropriate professional to ensure that the tree and shrub species selected for the vegetation screens can effectively cope with and utilise the anticipated nutrient loads within the irrigation water.

Operation

- External lighting will be aimed downwards and only used when necessary during times of low light and/or heavy fog.

Greenhouse Gas and Energy Efficiency

Development Design

- The poultry sheds will be insulated with high thermal performing expanded polystyrene with fire-retardant.
- The poultry sheds will be tunnel-ventilated, fully-enclosed and climate-controlled, which will reduce power consumption.
- Solar panels will be installed at each PPU to generate clean renewable energy to power the PPUs and reduce dependency on reticulated electricity. The panels will produce energy during the day and any surplus energy will be able to be fed into the electricity grid.
- Low lux lighting will be installed within the poultry sheds.

Operation

- External lighting will only be used when necessary during times of low light and/or heavy fog.

- The integrity of the poultry sheds will be regularly checked to identify and rectify any air leaks, which place additional load on ventilation fans.
- Internal lighting, temperature, humidity and static pressure will be continuously monitored within the poultry sheds and automatically adjusted to suit conditions. This will avoid unnecessary solar, electricity and LPG usage.
- Equipment such as ventilation fans and heaters will be regularly maintained and serviced to ensure optimal performance and efficiency.

Social

- Shortly following submission of this EIS to the DPE for public exhibition, ProTen will hold a community information session. This session will serve to overview the Development, outline and discuss the findings of key impact assessments and provide an overview of the EIS assessment and determination process, including how to review and comment on the EIS during the exhibition phase.
- ProTen will hold subsequent face-to-face meetings if requested by any of the community stakeholders.
- ProTen will arrange additional community information sessions prior to commencing both construction and operation if desired by the community stakeholders.
- Community and stakeholder consultation commitments will be included in both the CEMP and OEMP, which will be publicly available on ProTen's website once approved.
- Prior to the commencing both construction and operation ProTen will inform the surrounding residents and operators of the surrounding recreational facilities of planned commencement of construction/operation via a letter drop. The letter will advise relevant details, including general construction/operation activities, key dates, staging and hours, and relevant site contact details. These stakeholders will also be informed of any changes to the construction/operation activities in writing.
- Clearly visible signage will be installed at both the site access driveways off Rushes Creek Road prior to commencing construction and during operation. The signs will advise relevant details, including the site name, site office location, site contact details and any specific access requirements.
- ProTen will continue to operate its freecall environmental hotline number, which is provided on the company's website, to ensure community concerns can be raised and addressed.
- ProTen will work with the Lake Keepit Soaring Club following development consent to establish an emergency landing strip for gliders within the Development Site.
- ProTen will be levied and pay development contributions to Council pursuant to the EP&A Act and in accordance with the *Tamworth Regional Council Section 94A (Indirect) Development Contributions Plan 2013*.

