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Narrandera Poultry Production Complex Operational Environmental Management Plan

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ProTen Holdings Pty Limited

PO Box 1746

North Sydney NSW 2060

Narrandera Poultry Production Complex

Sturt Highway, Narrandera NSW

Operational Environmental Management Plan

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1 INTRODUCTION

1.1 Background

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent SSD 6882 on 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities.

This Operational Environmental Management Plan (OEMP) has been prepared for the Development by SLR Consulting Australia (SLR) on behalf of ProTen Holdings (ProTen).

For the purposes of this document, the Development is described in:

- The *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement (EIS)* (SLR 2015a) and the appendices contained within; and
- The *Euroley Poultry Production Complex SSD 6882, Response to Submissions (RTS)* (SLR 2015b) and the appendices contained within.

1.2 Document Purpose and Scope

This OEMP has been prepared to:

- Satisfy the requirements of condition C4 of Development Consent SSD 6882, which is listed below in **Table 1**;
- Ensure that other relevant conditions imposed by Development Consent SSD 6882 and the Environment Protection Licence EPL 20748 are fully implemented and/or complied with;
- Ensure the application of best practice environmental management;
- Ensure that the commitments made in the EIS (SLR 2015a) and RTS (SLR 2015b) are fully implemented and/or complied with during the life of the Development; and
- Ensure that the environmental risks associated with the operation of the Development are properly managed.

It also been prepared with consideration to condition C6 of Development Consent SSD 6882, which sets out the requirements for management plans required by the consent, and the following guideline documents:

- *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources [DIPNR] 2004); and
- *Best Practice Management for Meat Chicken Production in NSW, Manual 2 - Meat Chicken Growing Management* (Department of Primary Industries [DPI] 2012).

Table 1 - Development Consent Condition C4

Condition No.	Condition	OEMP Section
C4.	The Applicant shall prepare and implement an Operational Environmental Management Plan (OEMP) to the satisfaction of the Secretary. The OEMP must:	
(a)	Be submitted to the Secretary for approval prior to the commencement of operation;	Section 1.3
(b)	Be consistent with the NSW DPI's <i>Best Practice Management for Meat Chicken Production in NSW - Manual 2 (Meat Chicken Growing Management)</i> ;	Section 1.2
(c)	Be prepared by a suitably qualified and experienced expert;	Section 1.1
(d)	Provide the strategic framework for environmental management of the Development;	Section 3
(e)	Identify the statutory approvals that apply for the Development;	Section 3.3
(f)	Describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Development;	Section 3.2
(g)	Describe the procedures that would be implemented to:	
	(i) keep the local community and relevant agencies informed about the operation and environmental performance of the Development;	Sections 5.2 and 7
	(ii) Receive, handle, respond to and record complaints;	Section 8
	(iii) Resolve any disputes that might arise;	Section 7.3
	(iv) Respond to any non-compliance;	Section 9
(v) Respond to emergencies; and	Sections 6 and 9, Appendices I and M	
(h)	Include the following environmental management plans:	
	(i) Air quality (see Conditions B3, B4 and B5);	Sections 4.2 and 4.3 and Appendix E
	(ii) Emergency Disposal and Bio-security Protocol (see Condition B9);	Section 4.14 and Appendix L
	(iii) Biodiversity (see Condition B10 to B12 inclusive);	Section 4.7 and Appendix J
	(iv) Waste (see Condition B21);	Section 4.10 and Appendix H
	(v) Emergency and Evacuation (see Condition B36);	Section 6, Appendices I and M
	(vi) Water (see Condition B45);	Section 4.6 and Appendix G
	(vii) Landscaping (see Condition B47); and	Section 4.11 and Appendix F
(viii) Aboriginal Cultural Heritage (see Condition B55).	Section 4.8 and Appendix K	

The following separate management plans have been prepared and are appended to this OEMP:

- *Air Quality Management Plan (AQMP)* (Pacific Environment Limited [PEL] 2016);
- *Water Management Plan (WMP)* (SLR 2020);
- *Biodiversity Management Plan (BMP)* (SLR 2016a);
- *Aboriginal Cultural Heritage Management Plan (ACHMP)* (OzArk Environment and Heritage [OzArk] 2016);
- *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020);

- *Flooding Emergency and Evacuation Plan* (SLR 2016b);
- *Waste Management Plan* (SLR 2016c);
- *Landscape Management Plan* (SLR 2015c); and
- *Emergency Disposal and Biosecurity Protocol* (SLR 2016d).

1.3 Government Agency Consultation

In accordance condition C4(a) of Development Consent SDD 6882, this OEMP was originally submitted to the Department of Planning and Environment (DP&E) prior to the commencement of operation on the 19 April 2016.

Consultation was undertaken with various other State and local government agencies during the preparation of the various environmental management plans referred to under condition C4(h). **Table 2** summarises the consultation undertaken to date and any follow-up actions undertaken to date.

Table 2 - Government Agency Consultation

Consent Condition No.	Environmental Management Plan	Agencies Consulted ¹	Feedback Received and Actions Taken (to date)
B3	<i>Air Quality Management Plan</i> (AQMP)	EPA	Feedback received and management plan updated accordingly.
B9	<i>Emergency Disposal and Biosecurity Protocol</i>	EPA	Feedback received and management plan updated accordingly.
		Council	Waiting response/feedback.
		DPI Agriculture	Feedback received and management plan updated accordingly.
B12	<i>Biodiversity Management Plan</i> (BMP)	OEH	Feedback received and management plan updated accordingly.
B21	<i>Waste Management Plan</i>	N/A	N/A
B25	<i>Emergency Plan</i>	N/A	N/A
B36	<i>Flood Emergency and Evacuation Plan</i>	SES	Response received and no actions required.
		Council	Waiting response/feedback.
B45	<i>Water Management Plan</i> (WMP)	DPI Water	Feedback received and management plan updated accordingly.
B47	<i>Landscape Management Plan</i> (LMP)	N/A	N/A
B55	<i>Aboriginal Cultural Heritage Management Plan</i> (ACHMP)	OEH	Feedback received and management plan updated accordingly.

EPA – Environment Protection Authority

Council – Narrandera Shire Council

DPI Agriculture – Department of Primary Industries – Agriculture

OEH – Office of Environment and Heritage

SES – State Emergency Services

DPI Water – Department of Primary Industries - Water

The *Emergency Disposal and Biosecurity Protocol* and *Flood Emergency and Evacuation Plan* will be reviewed and, if required, updated upon receiving any feedback from Council. These documents will then be re-submitted to the DP&E and updated in the OEMP.

2 DEVELOPMENT DESCRIPTION

2.1 Location

The Development Site comprises approximately 1,160 hectares of rural land positioned off the Sturt Highway approximately 26 km west of Narrandera in south western NSW within the Narrandera Local Government Area (LGA). The land parcels contained within the Development Site are listed in **Table 3** and shown on **Figure 1**.

Table 3 - Schedule of Land Parcels

Lot and Deposited Plan	Notes
Lots 1, 41, 42, 44, 45 and 54 in DP 750898	Freehold land within Development Site
Lot 1 in DP 1054064	Freehold land within Development Site
Sections of Crown road in the southern portion of the Development Site	These sections are covered by an enclosure permit. ProTen is working towards closing and purchasing these sections of Crown road.
Sections of Crown road along the northern boundary of the Development Site.	The section of Crown road between Lot 42 in DP 750898 and Lot 12 in DP 750898 is covered by an enclosure permit. The access road from the Stuart Highway in to the Development Site will cross this section of Crown road. ProTen is working towards closing and purchasing this section of Crown road.
Lot 39 in DP 750876, Lots 12 and 15 in DP 750898 and a section of Crown road	An easement will be created through these parcels of land in order to construct and operate the access road between the Sturt Highway and the Development Site.

The north-west corner of the Development Site abuts the “Banandra” portions of the South West Woodland Nature Reserve and Murrumbidgee Valley National Park.

2.2 Nearest Receptors

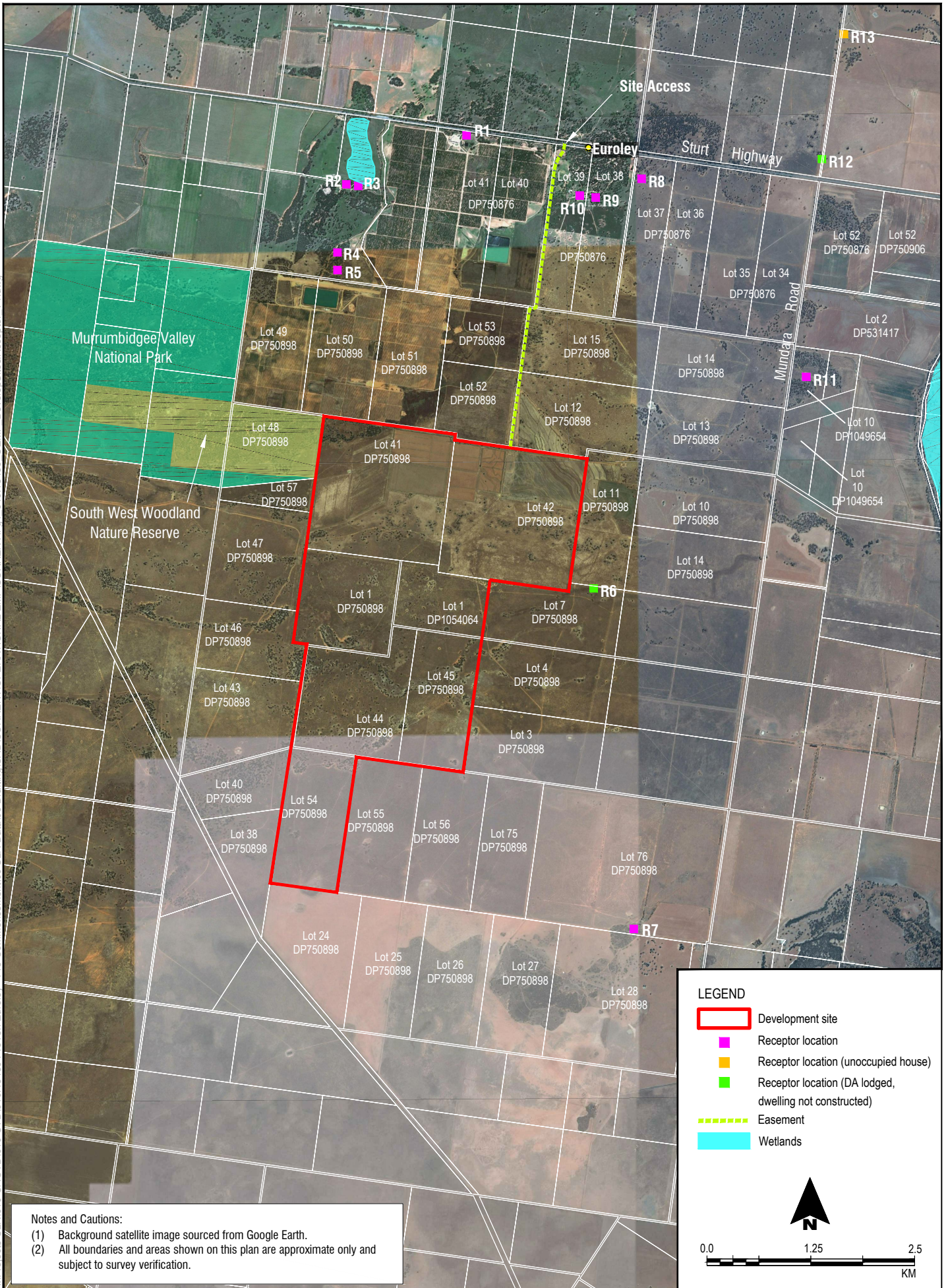
The Development Site is removed from any urban areas and there is a low density of surrounding residential dwellings. Eleven privately-owned residences have been identified in the neighbouring and nearby properties (labelled R1-R5, R7-R11 and R13) as shown on **Figure 1**. The nearest of these are R5 and R4 located approximately 2.1 km and 2.3 km, respectively, to the north of the northern-most PPU (Farm 75).

The receptors labelled R6 and R12 on **Figure 1** represent proposed dwellings for which development applications have been lodged with Council, however have not been constructed (at the time of writing this OEMP).

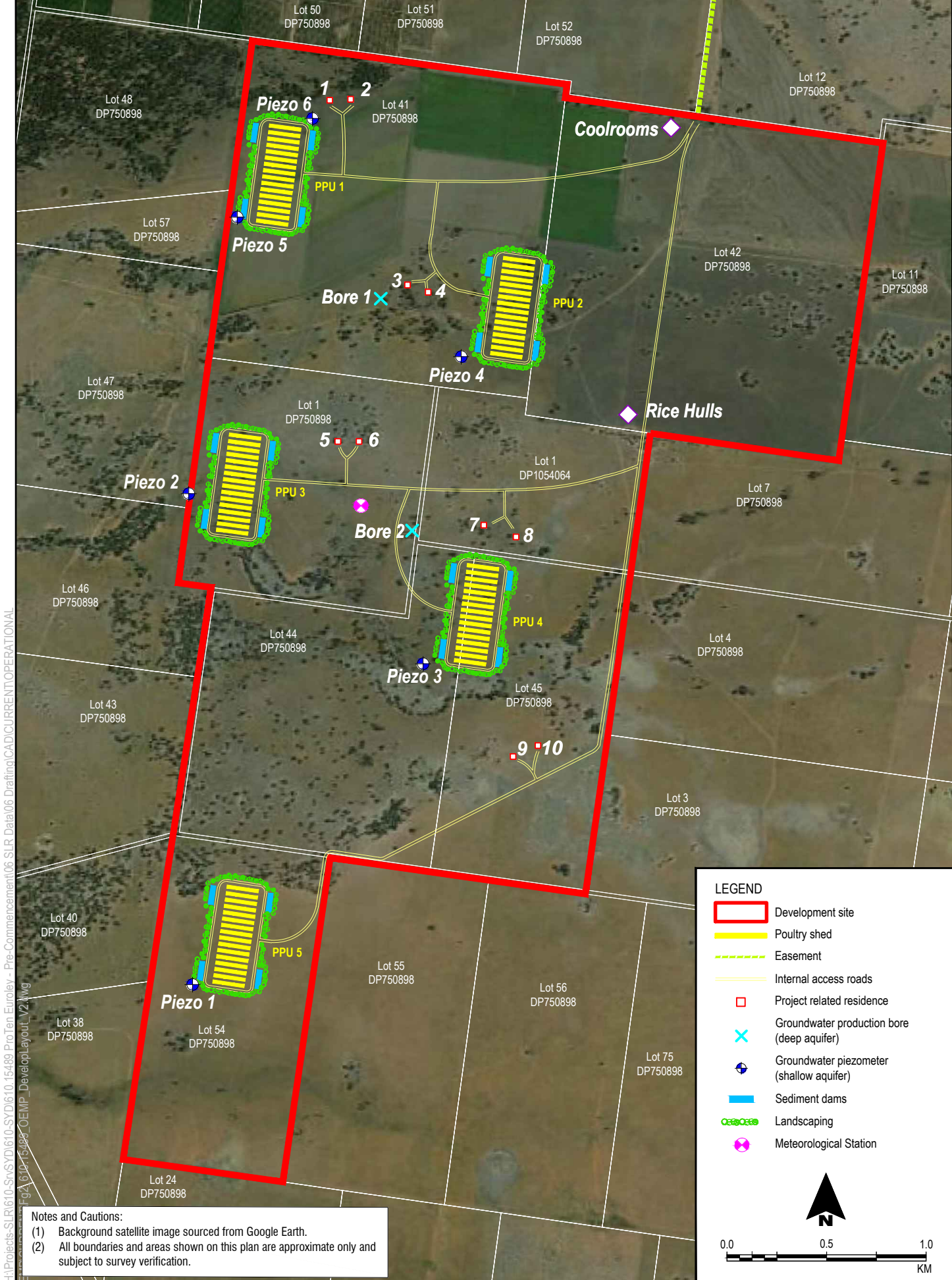
2.3 Development Overview

Figures 2 and **3** show the approved layout of the Development and each PPU, respectively. The Development comprises five poultry production units (PPUs) or farms, where birds will be grown for human consumption, along with associated support infrastructure. Each PPU comprises 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, each having the capacity to house 49,000 birds. This equates to a PPU population of 784,000 birds and a total Development population of 3.92 million birds.

H:\Projects\SLR\610-SvS\610-SYD\610-15489-ProTen Euroley - Pre-Commencement\06_SLR_Data\06_Draft\06_CAD\CURRENT\OPERATIONAL_EMP\CURRENT\Fig1_610_15489_OEMP_DeveloperSite&Receptor_V1.dwg



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

LEGEND

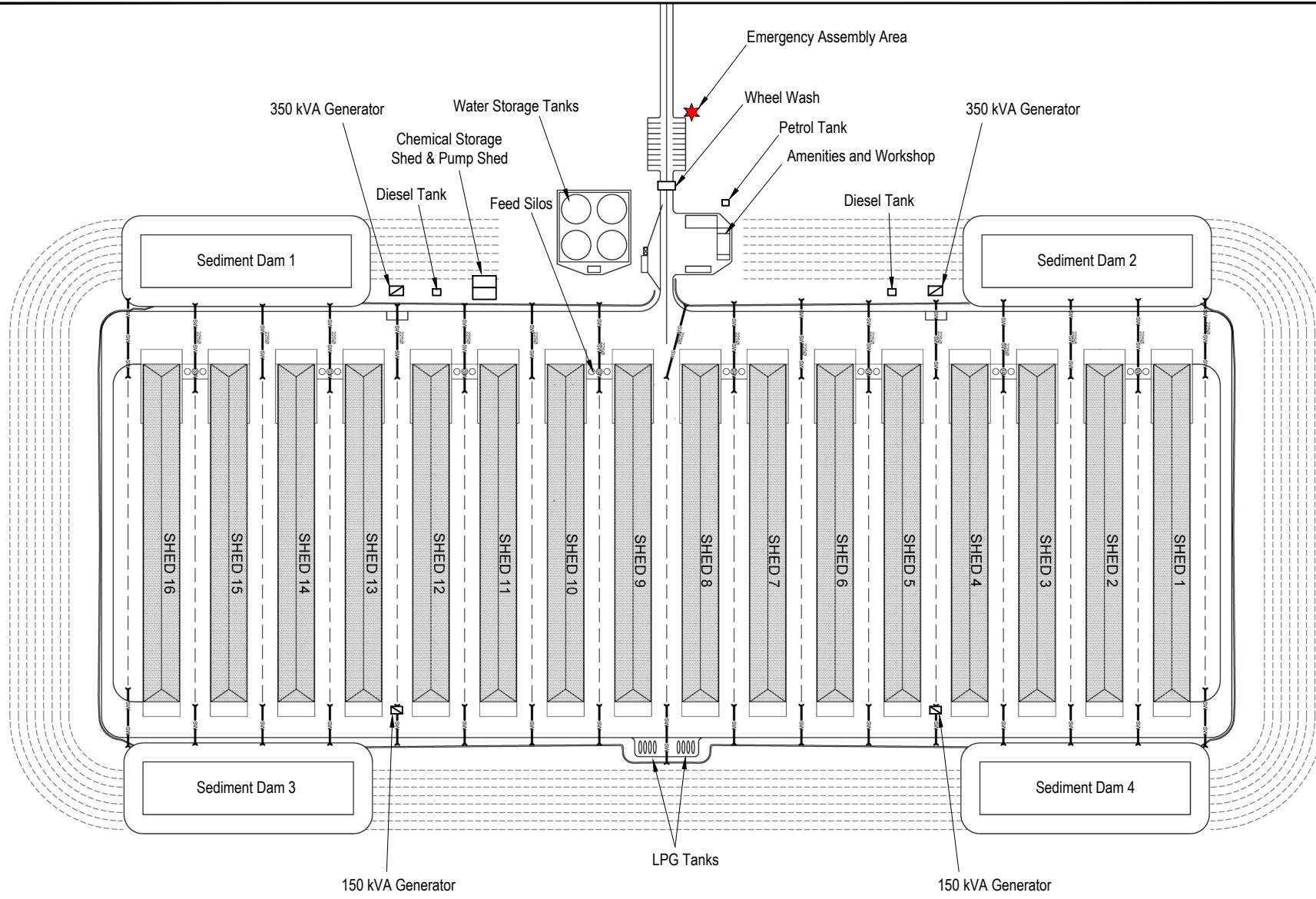
- Development site
- Poultry shed
- Easement
- Internal access roads
- Project related residence
- × Groundwater production bore (deep aquifer)
- ⊕ Groundwater piezometer (shallow aquifer)
- Sediment dams
- Landscaping
- ⊙ Meteorological Station





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Note:
 Symbols depicting generators, fuel tanks, wheel wash
 and chemical storage shed, are conceptual only.

Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

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Poultry Production Unit Layout

FIGURE 3

Table 4 contains a summary of the some of the key elements of the Development.

Table 4 - Summary of Proposed Development

Development Characteristic	Proposed Development
Purpose	Birds grown for human consumption
Number of PPUs	Five
Number of poultry sheds per PPU	16, each measuring 160 metres long by 17 metres wide
Total number of poultry sheds	80
Type of poultry sheds	Tunnel-ventilated, fully-enclosed, climate-controlled
Maximum shed population	49,000 birds
Maximum PPU population	784,000 birds
Maximum Development population	3.92 million birds
Maximum bird density within sheds	40 kilograms per square metre (kg/m ²)
Hours of operation	24 hours a day, 7 days a week
Production cycle length	Approximately 9 weeks, comprising a maximum bird occupation of 8 weeks and a cleaning phase of 1 week
Number of production cycles per year	On average, approximately 5.7

In addition to the poultry shedding, the Development also includes:

- Ten residential dwellings to house the farm managers and assistant farm managers; and
- Various other infrastructure items to support the poultry production operation, including –
 - Site office at each PPU encompassing office space and staff amenities;
 - Workshop at each PPU;
 - Chemical and fuel storage facilities at each PPU;
 - Wheel wash facility at each PPU;
 - Diesel generators at each PPU;
 - Feed silos and water storage tanks at each PPU;
 - Surface water management systems at each PPU;
 - Poultry shed bedding material (rice hulls) storage shed;
 - Dead bird coolroom/chiller; and
 - Groundwater production bores.

The commercial activities associated with the poultry operation will be largely confined to the relatively small PPU sites (see **Figure 2**). The land outside of these areas will likely continue to be used for agricultural production purposes under some form of lease or share farming arrangement.

2.4 Operating Hours

The Development will operate 24 hours a day, seven days a week with the majority of activities being carried out between 7:00 am and 7:00 pm. For reasons of livestock welfare, as the birds reached their desired processing (slaughter) weight they will be removed from the sheds and transported from the Development Site between 8.00 pm and 2.00 pm, when it is cooler and the birds are more settled.

There will typically be one daily shift for farm workers commencing at 7.00 am and finishing at 4.00 pm.

3 ENVIRONMENTAL MANAGEMENT FRAMEWORK

3.1 Key Contacts

3.1.1 ProTen

The implementation of this OEMP is to be undertaken by the key company individuals listed in **Table 5**.

Table 5 - ProTen Contacts

Key Contact	Company Position	Contact Details
Graham Kirby	Operations Manager – Griffith and Narrandera	Ph: 02 6962 1770 Email: graham@proten.com.au
Bill Williams	CEO	Ph: 02 9458 1701 Email: bwilliams@proten.com.au
ProTen Head Office (Sydney)	-	Ph: 02 9458 1700
Environment Hotline	-	Ph: 1800 776 994 (freecall)

3.1.2 Regulatory Authorities and Stakeholders

Table 6 lists the contact details for the various regulatory authorities and stakeholders that have an interest in the operation of the Development.

Table 6 - Regulatory Authorities and Stakeholders Contacts

Regulatory Authority / Stakeholder	Key Contact	Contact Details
Department of Planning and Environment (DP&E)	Industry Assessments	Ph: 02 9228 6333 or 1300 305695 Email: information@planning.nsw.gov.au
	Post-Consent Compliance	Ph: 02 9228 6333 or 1300 305695 Email: compliance@planning.nsw.gov.au
Environment Protection Authority (EPA)	Environment Line	Ph: 131 555 or 02 9995 5555 Email: info@environment.nsw.gov.au
	Griffith Regional Office	Ph: 02 6969 0700
Office of Environment and Heritage (OEH)	Environment Line	Ph: 131 555 or 02 9995 5555 Email: info@environment.nsw.gov.au
	South West Regional	Ph: 02 6022 0624
Department of Primary Industries – Water (DPI Water)	Wagga Wagga Office (local office)	Ph: 02 6932 9100
	Dubbo Office (regulation)	Ph: 02 6884 2560
Department of Primary Industries – Agriculture (DPI Agriculture)	Goulburn (District Office – Agriculture)	Ph: 02 4824 3700
	Agriculture and biosecurity matters	Ph: 1800 808095
Department of Primary Industries – Lands (DPI Lands)	Griffith (Crown Lands Office)	Ph: 02 6960 3600
Narrandera Shire Council	Development and Environmental Services	Ph: 02 6959 5510 (8.15 am to 4.30 pm) or 0429 0437198 after hours Council Ranger Email: council@narrandera.nsw.gov.au
NSW Wildlife Information, Rescue and Education Service (WIRES)	Wildlife Rescue Line	Ph: 02 8977 3309 or 1300 094 737
Local Aboriginal Land Council	Leeton and District Local Aboriginal Land Council	Ph: 02 6953 4344
NSW Health	Central Office	Ph: 1800 020 103

Regulatory Authority / Stakeholder	Key Contact	Contact Details
	Albury Public Health Unit	Ph: 02 6053 4800
WorkCover NSW	Incident Notification Hotline (Response Management Team)	Ph: 131 050 <i>Select Option 3 to report a 'serious incident or fatality' - this will result in the incident being recorded and the appropriate person being contacted.</i>
Emergency Services	NSW Police Fire and Rescue NSW NSW Ambulance Service	Ph: 000
	State Emergency Services (SES)	Ph: 132 500

3.2 Roles and Responsibility

The key personnel responsible for operational environmental management are listed in **Table 7**.

Table 7 - Roles and Responsibilities

Role	Responsibilities
ProTen Site Management	<ul style="list-style-type: none"> • Overall responsibility for environmental management and compliance with the Development Consent and relevant legislation; • Coordinate routine environmental site inspections and maintenance; • Coordinate necessary environmental reporting and regulatory authority liaisons; • Record, notify, investigate and respond to any complaints and/or enquiries and, where necessary, develop and implement corrective actions; • Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; • Oversee the implementation of this OEMP and provide adequate resources to enable implementation of this OEMP; and • Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this OEMP.
All employees and contractors	<ul style="list-style-type: none"> • Ensure familiarity, implementation and compliance with this OEMP and appended management plans; • Support ProTen’s commitment to environmental management and compliance; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to ProTen Site Management without delay; and • Report any inappropriate operational and/or environmental management practices to ProTen Site Management without delay.

3.3 Regulatory Framework

3.3.1 Development Consent

The Development will be constructed in accordance with Development Consent SSD 6882 and also in accordance with the other documents referenced under condition A2 of the Consent:

- The EIS (SLR 2015a) and the appendices contained within;
- The RTS (SLR 2015b) and the appendices contained within;
- The Management and Mitigation Measures attached to the Development Consent as Appendix 1, which have been replicated from the EIS (SLR 2015a); and
- The plans and drawings attached to the Development Consent as Appendix 2, which have been sourced from the EIS (SLR 2015a) and RTS (SLR 2015b).

If there is any inconsistency between the plans and documentation referred to in condition A2, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of Development Consent SSD 6882 prevail to the extent of any inconsistency.

A copy of Development Consent SSD 6882 is attached as **Appendix A**.

3.3.2 Environment Protection Licence

As a result of having the capacity to accommodate more than 250,000 birds at any time, the Development is a premises-based activity under Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) requiring the occupier to hold an Environment Protection Licence (EPL) administered by the EPA.

The Development will operate under the provisions of EPL 20748, as issued by the EPA. A copy of EPL 20748 is contained within **Appendix B**.

3.3.3 Water Access Licence

A water access licence (WAL 11788) permitting the abstraction of 488 megalitres per year (ML/year) has been transferred to the Development Site to allow extraction of water from the two groundwater production bores (see **Figure 2**) installed at the Development Site. These bores access the Deep Aquifer (Calivil Formation) in accordance with the WAL conditions and are capable of a maximum pump rate of 7 ML/day. A copy of WAL 11788 is contained in **Appendix C**.

3.3.4 Other Statutory Obligations

There are various statutory instruments administered by Commonwealth, State and local government agencies that apply to the Development. These include, but are not limited to, legislative acts and their associated regulations, and planning instruments.

ProTen has a responsibility to ensure that the operation of the Development meets the requirements of all applicable statutory obligations. Where necessary, ProTen should consult with the relevant government agencies and/or seek professional advice/assistance from its environmental consultant(s).

3.4 Inductions and Training

ProTen Site Management will ensure that all employees and contractors involved with the operation of the Development are suitable inducted and trained prior to commencing any work on site. Training in relation to environmental responsibilities and implementation of this OEMP will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar).

The topics to be covered during the induction and toolbox talks include (but are not limited to):

- General site maintenance and management expectations and requirements;
- Familiarisation with site environmental management and mitigation measures in this OEMP;
- The Driver Code of Conduct contained in **Appendix D**;
- The fauna management protocol outlined in **Section 4.7.2**;
- The location and management of Aboriginal heritage items/sites as outlined in **Section 4.8**;
- The unexpected finds protocol for Aboriginal heritage items/sites as outlined in **Section 4.8.1**;
- Waste avoidance and management strategies as summarised in **Section 4.10**;
- Biosecurity measures, clinical signs of sick/injured birds and actions to be undertaken in the unlikely event of an emergency animal disease (EAD) as detailed in **Appendix L**;
- Appropriate response and management of environmental incidents in accordance with the protocol detailed in **Section 9**; and
- Appropriate response and management of complaints received from the public, government agencies or other stakeholders in accordance with the protocol detailed in **Section 8**.

Records of all inductions and training undertaken will be recorded in a Training Register.

4 ENVIRONMENTAL MANAGEMENT MEASURES

Key environmental issues associated with the Development are identified and addressed in the EIS (SLR 2015a) and RTS (SLR 2015b) and a suite of development design, best management practices and mitigation measures have been committed to minimise the potential for adverse impact on the local environment and surrounding populace. These environmental mitigation and management measures, along with additional controls and monitoring requirements from the various management plans appended to the OEMP, are summarised in the following sections.

4.1 General

Table 8 outlines the general environmental controls that will be implemented throughout life of the Development to minimise the potential for adverse impacts on the local environmental and surrounding receptors.

Table 8 - General Construction Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
ProTen will implement all practicable measures to prevent or minimise any harm to the environment that may result from the commissioning and operation of the Development.	ProTen Site Management	On-going	<ul style="list-style-type: none"> Consent Condition A1
ProTen will carry out the Development generally in accordance with Development Consent SSD 6882, the EIS (SLR 2015a) and the RTS (SLR 2015b).	ProTen Site Management	On-going	<ul style="list-style-type: none"> Consent Condition A2
The Development will not exceed a maximum population of 3.92 million broilers at any one time.	ProTen Site Management	On-going	<ul style="list-style-type: none"> Condition A6
The stocking densities of the Development will comply with the standards detailed in <i>National Animal Welfare Standards for the Chicken Meat Industry</i> (Australian Poultry CRC 2008) at all times.	ProTen Site Management	On-going	<ul style="list-style-type: none"> Condition A6
The Development will operate 24 hours a day, seven days per week, with the majority of activities carried out between 7:00 am and 7:00 pm.	ProTen Site Management	On-going	<ul style="list-style-type: none"> EIS
The complaints and incident management strategies contained within Sections 8 and 9 will be implemented to ensure that all complaints and incidents relating to the Development are promptly and effectively addressed.	All employees and contractors	On-going	<ul style="list-style-type: none"> EIS
Employees and contractors involved with the operation of the Development will be suitably inducted and trained prior to commencing any work on site as outlined in Section 3.4 .	ProTen Site Management	Inductions prior to work commencing. Regular/as needed toolbox talks.	<ul style="list-style-type: none"> EIS

4.2 Odour Management

An *Air Quality Management Plan* (AQMP) (PEL 2016) has been prepared for the Development in accordance with Condition B3 of Development Consent SSD 6882 and is contained within **Appendix E**.

The following sources have been identified as the primary potential sources of odour emissions during the operation of the Development:

- Shed operations during the bird growing phase;
- Shed operations during shed cleanout;
- Dead birds; and
- Spilt litter during cleanout.

Based on the number of surrounding residences and population, an odour ground-level concentration criterion of 6 odour units (OU) was adopted for the Development in the RTS (SLR 2015b). This is the odour criterion not to be exceeded more than one percent of the time.

ProTen understands that odour issues are directly related to farm operation, with good management practices playing a significant role in reducing the potential for emissions. The environmental controls listed in **Table 9** will be implemented to minimise the potential for adverse odour emissions. The appended AQMP (PEL 2016) should be referred to for further detail.

Table 9 - Odour Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Shed Operations During Bird Growing Phase			
The Development will not exceed a maximum population of 3.92 million broilers at any one time. To be confirmed by batch records.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent Condition A6 • EPL Condition L4.1
The stocking densities of the Development will comply with the standards detailed in <i>National Animal Welfare Standards for the Chicken Meat Industry</i> (Australian Poultry CRC 2008) at all times. To be confirmed by batch records.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent Condition A6
Shed stocking densities and bird health within the poultry sheds will be regularly checked and, if necessary, appropriate corrective measure implemented.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
The Development will not be populated with 3.92 million broilers in one day at the commencement of each production cycle.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent Condition A6
The commencement of broiler production for each PPU will be separated by a minimum of 36 hours. To be confirmed by batch records.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent Condition A6 • EPL Condition O4.1
The time period for the population of the entire farm (all five PPUs) will be a minimum of 10 days.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent Condition A6
The poultry shed ventilation systems and evaporative cooling systems will be maintained to ensure air movement is at design level.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
Bird drinkers will be maintained and repaired to minimise leakage that will result in wet patches in the shed litter.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
A minimum depth of 45 mm of uncompacted fresh bedding material will be laid throughout the sheds at the start of the batch.	ProTen Site Management	Prior to new batch	<ul style="list-style-type: none"> • AQMP

Control	Responsibility	Timing / Frequency	Reference / Notes
Bedding material moisture will be regularly checked and maintained to avoid becoming wet.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
Very wet and sticky bedding material associated with drinker spills will be replaced with fresh litter as soon as practicable.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
Where possible, activities that may increase odour emissions (for example, bedding material replacement) will be undertaken during daytime hours.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP
Stormwater drains around the sheds will be maintained to ensure that water does not pond around the sheds.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP
Shed walls and roofs will be maintained and leaks repaired immediately to prevent wet patches in the litter.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP
Shed access points will remain closed at all times other than for the purposes of allowing access to the sheds.	All employees and contractors	On-going	<ul style="list-style-type: none"> • AQMP
Landscape plantings (vegetation screens) will be established around the perimeter of each PPU in accordance with the LMP in Appendix F .	ProTen Site Management	Following bulk earthworks and construction	<ul style="list-style-type: none"> • LMP • EIS
Shed Operations During Shed Cleanout			
Litter will be promptly transported off-site in covered trucks at the end of each batch. Where possible, litter handling will be avoided during adverse climatic conditions, such as times of cold air drainage during early morning and strong winds. The shed ventilation systems will not be used during litter removal.	ProTen Site Management	End of batch	<ul style="list-style-type: none"> • AQMP • Consent Condition B7 • EIS
Any litter spillages will be promptly cleaned up.	All employees and contractors	End of batch	<ul style="list-style-type: none"> • AQMP
Litter will not be stockpiled or spread within the Development Site.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • EIS
Dead Birds			
Dead birds will be collected from the sheds on a daily basis and stored in an enclosed on-site coolroom/chiller prior to being removed from site.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
The dead bird coolroom/chiller will be kept closed while awaiting collection and will not be allowed to overflow.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP
Meteorological Monitoring			
A suitable meteorological station will be installed and maintained within the Site to continuously monitor the following parameters: <ul style="list-style-type: none"> • Wind speed and direction at 10 m; • Temperature at 10 m and 2 m; • Rainfall; and • Relative humidity. 	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • Consent Condition B5 • EPL Condition M2.1

4.3 Dust Management

The AQMP (PEL 2016) prepared for the Development in accordance with Condition B3 of Development Consent SSD 6882 also addresses dust emissions. A copy of the AQMP is contained within **Appendix E**. The following sources have been identified as the primary potential sources of operational dust emissions from the Development:

- Wheel generated dust from unsealed roadways;
- Dust emissions from sheds;
- Materials handling and transfer (i.e. litter placement and removal); and
- Windblown dust from open areas.

Table 10 lists the criteria for particulate matter adopted in the EIS (SLR 2015a).

Table 10 - Particulate Matter Criteria

Pollutant	Agency	Criterion	Averaging Time
PM ₁₀	EPA	50 µg/m ³	24-Hour Maximum
		30 µg/m ³	Annual Mean

The environmental controls listed in **Table 11** will be implemented to minimise the potential for adverse dust emissions. The appended AQMP (PEL 2016) should be referred to for further detail.

Table 11 - Dust Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Wheel Generated Dust From Unsealed Roadways			
Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour in the vicinity of all work sites.	All employees and contractors	On-going	<ul style="list-style-type: none"> • Consent Condition B7 • EIS
Internal traffic will be restricted to designated access roads (except in the event of an emergency or incident).	All employees and contractors	On-going	<ul style="list-style-type: none"> • AQMP
Internal roads will be appropriately maintained.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP • EIS
When necessary, internal roads will be "wetted down" during dry periods	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP
Loaded vehicles leaving the Site will be cleaned of dirt, sand and other materials to avoid tracking these materials on to the public road network.	All employees and contractors	On-going	<ul style="list-style-type: none"> • AQMP • Consent Condition B7
Heavy vehicles will not use engine breaks.	All employees and contractors	On-going	<ul style="list-style-type: none"> • AQMP • Consent Condition B7
Dust Emissions From Poultry Sheds			
Landscape plantings (vegetation screens) will be established around the perimeter of each PPU in accordance with the LMP in Appendix F .	ProTen Site Management	Following bulk earthworks / construction	<ul style="list-style-type: none"> • AQMP • LMP • EIS
The bedding material will be managed to ensure that moisture levels do not drop below approximately 15%.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • AQMP

Control	Responsibility	Timing / Frequency	Reference / Notes
The poultry shed ventilation systems will be maintained to ensure optimal operating condition and air movement is at design level.	ProTen Site Management	On-going	<ul style="list-style-type: none"> EIS
Sheds will be thoroughly cleaned between batches, with a focus on the fan end of the sheds.	ProTen Site Management	End of batch	<ul style="list-style-type: none"> AQMP EIS
Materials Handling and Transfer			
Bedding material/litter will be placed in to the sheds and loaded in to trucks in a matter that limits drop heights.	ProTen Site Management	Prior to new batch and end of batch	<ul style="list-style-type: none"> AQMP
When possible, placement and removal of bedding material will be limited to daytime hours to avoid adverse weather conditions.	ProTen Site Management	Prior to new batch and end of batch	<ul style="list-style-type: none"> AQMP
If necessary, the top layer of bedding material/litter will be "wetted down" prior to movement if dust generation is likely (e.g. dry conditions and adverse weather conditions).	ProTen Site Management	Prior to new batch and end of batch.	<ul style="list-style-type: none"> AQMP
Litter will be promptly transported off site in covered trucks at the end of each batch.	ProTen Site Management	End of batch	<ul style="list-style-type: none"> AQMP Consent Condition B7 EPL Condition O3.2

4.4 Noise Management

Noise impacts have been demonstrated to not be an issue for well managed poultry broiler production operations. Furthermore, the Development Site offers several advantages in terms of potential noise impacts, including being removed from any urban areas, low density of surrounding privately-owned residences and significant separation distances.

Table 12 lists the noise criteria imposed by conditions B32 and B33 of Development Consent SSD 6882.

Table 12 - Noise Criteria

Location	Day	Evening	Night	
	LAeq(15min)	LAeq(15min)	LAeq(15min)	LA1(1min)
Privately-owned residences	35	35	35	45
<i>Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy (EPA 2000) (INP). Appendix 9 of the INP sets out the the meteorological conditions under which this criterion applies.</i>				
Noise Modifying Factors If noise from an activity is substantially tonal, intermittent or impulsive in nature or contains major components within the low frequency range (as described in Chapter 4 of the INP [EPA 2000]), 5 dBA shall be added to the measured noise level when comparing the measured noise with the above noise limits as specified in Table 4.1 of the INP.				

The environmental controls listed in **Table 13** will be implemented to minimise the potential for adverse noise impacts at the nearest receptor locations during operation of the Development.

Table 13 - Noise Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Plant and equipment operators will be appropriately instructed on how to minimise noise generation at all times.	ProTen Site Management	On-going	• EIS
Noise generating equipment purchased by the operator will comply with relevant occupational health and safety requirements.	ProTen Site Management	On-going	• EIS
Plant and equipment will be maintained to meet regulatory and industry standards, as well as ensure optimal operating conditions.	ProTen Site Management	On-going	• EIS
Emergency standby diesel generators will only be used when power from the electricity grid is lost and they will be appropriately housed to minimise noise emissions.	ProTen Site Management	On-going	• EIS
Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour in the vicinity of all work sites.	All employees and contractors	On-going	• Consent Condition B7 • EIS
Internal roads will be appropriately maintained.	ProTen Site Management	On-going	• EIS
A unidirectional traffic movement system, via a one-way circulation road around each PPU, will be maintained to minimise the use of reversing alarms.	ProTen Site Management	On-going	• EIS
Suitable signage will be erected to direct traffic, limit traffic speed and minimise night time noise levels.	ProTen Site Management	On-going	• EIS
Larger heavy vehicles will follow available designated B-double routes when travelling to and from the Site.	All employees and contractors	On-going	• EIS

4.5 Traffic Management

The environmental controls listed in **Table 14** will be implemented to minimise the potential for adverse traffic-related impacts from the Development.

Table 14 - Traffic Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
All traffic will enter and exit the Development Site via the Sturt Highway intersection and access road.	All employees and contractors	On-going	• EIS
Suitable signage will be erected to direct traffic and limit traffic speed.	ProTen Site Management	Prior to operation	• EIS
A unidirectional traffic movement system, via a one-way circulation road around each PPU, will be maintained.	ProTen Site Management	On-going	• EIS
Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour to be adopted in the vicinity of all work sites.	All employees and contractors	On-going	• Consent Condition B7 • EIS
Internal roads will be appropriately maintained.	ProTen Site Management	On-going	• EIS
Internal traffic will be restricted to designated access roads (except in the event of an emergency or incident).	All employees and contractors	On-going	
Internal roads will be maintained clear of obstruction and used exclusively for the purposes of transport, loading-unloading and parking.	ProTen Site Management	On-going	• EIS
There will be no parking along the Sturt Highway.	All employees and contractors	On-going	
Larger heavy vehicles will follow available designated B-double routes when travelling to and from the Site.	All employees and contractors	On-going	• EIS
All drivers will read and sign the Driver Code of Conduct in Appendix D .	ProTen Site Management	As required for any drivers	

4.6 Water Management

A *Water Management Plan* (WMP) (SLR 2020) has been prepared for the Development in accordance with condition B45 of Development Consent SSD 6882 and is contained within **Appendix G**.

For the purposes of clarifying allowable activities with respect to water management, different water classifications and objectives for water management have been identified. **Table 15** lists the classes of water within the Development Site, describes their source, the target design objectives/performance criteria and the way each class is to be managed.

Table 15 - Water Sources and Management Systems

Water Resource Classification	Description and Source of Water	Target Design Objective	Treatment
Dirty Water	Sediment laden runoff produced from exposed soils and disturbed surfaces. Generally characterised by a high turbidity and sediment load. Generally associated with temporary construction activities and unsealed access roads.	Based on Blue Book criteria (depends on the size and duration of the disturbance).	Dirty water runoff will be contained within sediment basins or passed through sediment control devices to detain sediment and reduce turbidity before discharge to the natural environment.
Wash Down Water	Water produced from the cleaning and wash down of the PPUs. Characterised by elevated nutrient levels.	An engineered surface water management system at each PPU has been designed with the total storage on site equivalent to 170% of the storage capacity required to contain runoff from a 100 year annual recurrent interval (ARI), 72 hour flood event.	Wash down water will be directed to grassed swale drains between the poultry sheds designed to allow infiltration of the water into the topsoil for effective nutrient uptake by the grass. During heavy rainfall events, excess water from the swales will be conveyed via pipes under the PPU ring road and in to a table drain installed around the PPU perimeter. The table drain will convey the water to one of four small sediment dams located at the corners of each PPU.
Clean Water	Surface water runoff produced from undisturbed clean water catchments such as forested areas or open pastures. Characterised by low turbidity and low nutrient content.	Clean water diversions designed, installed and maintained to convey a 100 year ARI rainfall event.	Where required, clean water will be diverted around disturbance areas and released to the natural environment.
Groundwater	Groundwater contained within the aquifers.	N/A	Groundwater will be extracted to meet operational water requirements.
Sewage	Sewage produced from staff amenities and residences.	Designed, installed and managed in accordance with relevant council guidelines.	Sewage will be treated and disposed of via on-site aerated wastewater management systems.

The environmental controls listed in **Table 16** will be implemented to safeguard local water resources and/or minimise and manage the potential for adverse impact. The WMP (SLR 2020) in **Appendix G** should be referred to for details regarding the engineered surface water management system.

Table 16 - Water Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Surface Water Management System			
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 and where identified to have reduced capacity due to excessive sediment build-up or scouring, rectification works (desilting, regrading and/or reshaping) will be undertaken to ensure the structures maintain their design capacity and can handle subsequent rainfall events.	ProTen Site Management	Monthly; Prior to predicted significant rainfall event; and Following significant rainfall event,	<ul style="list-style-type: none"> WMP
The grassed swale drains between the poultry sheds will be carefully managed to minimise soil disturbance and maximise infiltration of runoff, as well as regularly slashed to encourage continual grass growth and associated nutrient up-take.	ProTen Site Management	On-going	<ul style="list-style-type: none"> WMP
Dry-cleaning practices at the end of each batch will be maximised within the sheds prior to washing with water to minimise the volume of wash water, along with the amount of poultry litter (and associated sediments and nutrients) washed out of the sheds.	ProTen Site Management	End of batch	<ul style="list-style-type: none"> WMP
Erosion and Sediment Control (ESC)			
Appropriate ESC structures and management measures will be installed and maintained in accordance with the <i>Blue Book</i> (Landcom 2004) and <i>Erosion and Sediment Control on Unsealed Roads</i> (OEH 2012). See Section 6 of the WMP in Appendix G .	ProTen Site Management	On-going	<ul style="list-style-type: none"> WMP
Appropriate ESC measures will be installed for any new disturbance activity to contain and treat any dirty water runoff.	ProTen Site Management	Prior to any new disturbance activity	<ul style="list-style-type: none"> WMP
Internal traffic will be restricted to designated access roads (except in the event of an emergency or incident).	All employees and contractors	On-going	<ul style="list-style-type: none"> WMP
Disturbed areas will be promptly rehabilitated and revegetated to a stable landform following the completion of disturbance activities. See Section 6.3 of the WMP in Appendix G for details.	ProTen Site Management	Immediately following disturbance activities	<ul style="list-style-type: none"> WMP
An on-going inspection and maintenance program will be implemented to ensure the continued integrity of ESC structures.	ProTen Site Management	Monthly; Prior to predicted significant rainfall event; and Following significant rainfall event,	<ul style="list-style-type: none"> WMP
General			
Waste streams will be managed in accordance with the <i>Waste Management Plan</i> in Appendix H to ensure that waste is effectively managed and disposed of off site. There will not be any on-site stockpiling or disposal of waste materials.	ProTen Site Management	On-going	<ul style="list-style-type: none"> WMP <i>Waste Mgt Plan</i> EIS

Control	Responsibility	Timing / Frequency	Reference / Notes
The best management practices and mitigation measures for chemicals and fuels described in the <i>Emergency Plan</i> and <i>Addendum Report</i> in Appendix I will be implemented.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • WMP • <i>Emergency Plan</i> • <i>Addendum Report</i>
Should a chemical/fuel overflow or spill event occur, it will be dealt with according to the <i>Emergency Plan</i> and <i>Addendum Report</i> in Appendix I .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • WMP • <i>Emergency Plan</i> • <i>Addendum Report</i>
Surface Water and Groundwater Monitoring and Remediation Work			
On-going surface water and groundwater monitoring activities will be undertaken as detailed in the WMP in Appendix G and summarised in Table 25 .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • WMP

4.7 Biodiversity Management

A *Biodiversity Management Plan* (BMP) (SLR 2016a) has been prepared for the Development in accordance with condition B12 of Development Consent SSD 6882 and is contained within **Appendix J**.

SLR (2016a) identified the following operational activities that could potentially affect native flora and fauna within the Development Site:

- Vehicle movements, which could result in vehicle strike of native birds and ground fauna (mainly reptiles and mammals);
- Introduction or spread of weeds and/or plant pathogens, primarily via vehicle movements;
- Dust generation, which can adversely affect plant growth;
- Excessive noise, which can inhibit or modify behaviour of certain native animals or cause dispersal from the noise source; and
- Lighting, which can adversely affect nocturnal fauna through eye-shine and exposure to predators.

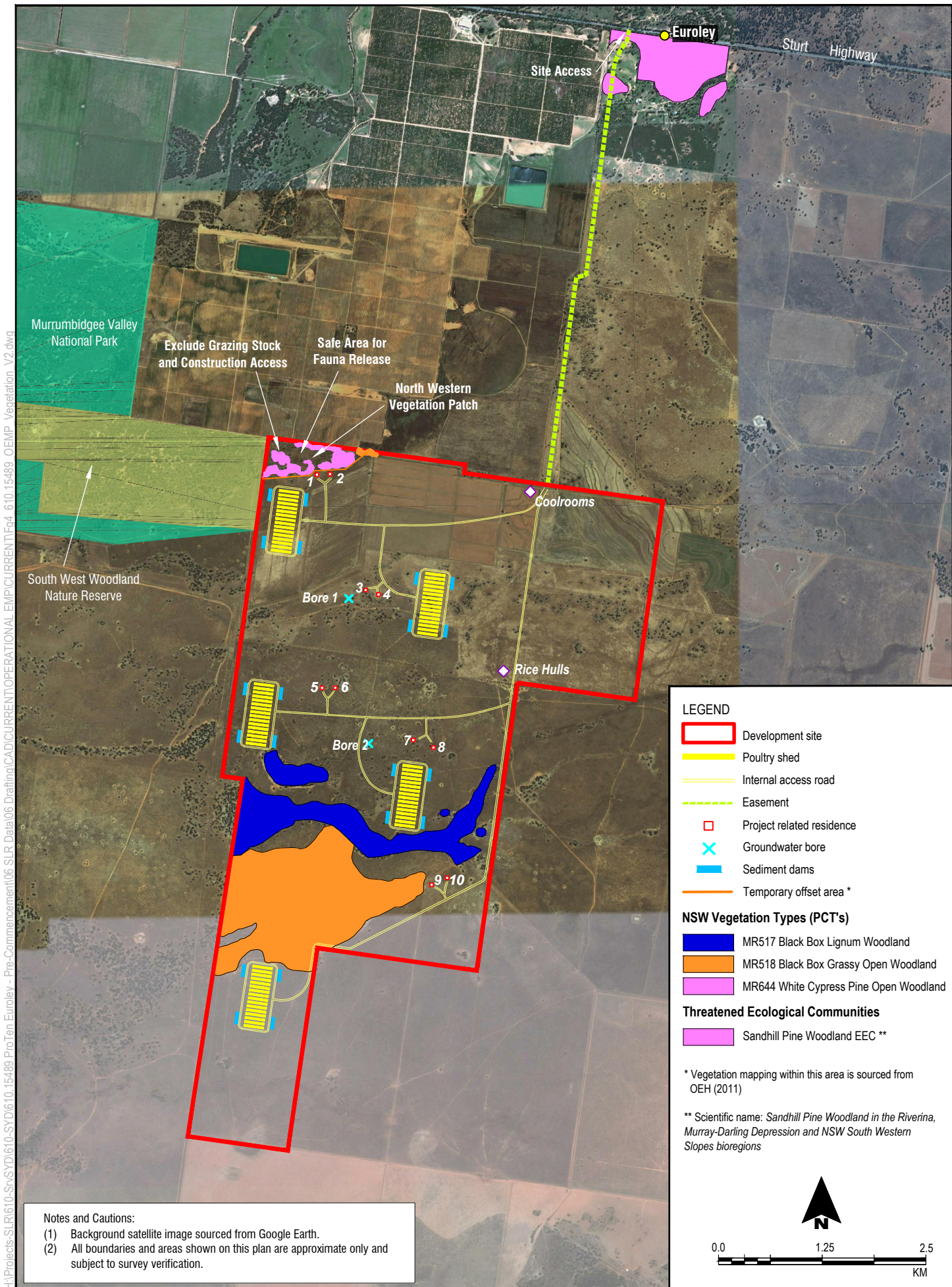
The environmental controls listed in **Table 17** will be implemented to minimise the potential for impacts to biodiversity.

Table 17 - Biodiversity Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
A minimum 100 m buffer will be maintained between any construction/ disturbance activities (including revegetation sites and vehicle access tracks) and the boundary of areas of remnant vegetation and the South West Woodland Nature Reserve as shown on Figure 4 .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • BMP • RTS
Appropriate ESC structures and management measures will be installed and maintained in accordance with the <i>Blue Book</i> (Landcom 2004) and <i>Erosion and Sediment Control on Unsealed Roads</i> (OEH 2012). See Section 6 of the WMP in Appendix G .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • BMP • WMP
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..	All employees and contractors	On-going	<ul style="list-style-type: none"> • BMP
The <i>Fauna Management Protocol</i> in Section 4.7.2 will be followed (as required) for the identification and management of any rescued fauna.	All employees and contractors	On-going	<ul style="list-style-type: none"> • BMP
Rubbish (such as food scraps and waste) will be properly managed and will not be stockpiled within areas of native vegetation.	All employees and contractors	On-going	<ul style="list-style-type: none"> • BMP
Suitable signage will be erected to direct traffic, limit traffic speed and minimise night time noise levels.	ProTen Site Management	Prior to operation	<ul style="list-style-type: none"> • BMP
Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour to be adopted in the vicinity of all work sites.	All employees and contractors	On-going	<ul style="list-style-type: none"> • BMP • EIS
Internal access roads will be appropriately maintained to minimise dust and noise emissions and provide safe driving conditions.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • BMP • EIS

Control	Responsibility	Timing / Frequency	Reference / Notes
Internal traffic will be restricted to designated access roads (except in the event of an emergency or incident).	All employees and contractors	On-going	<ul style="list-style-type: none"> BMP
Emergency standby diesel generators will only be used when power from the electricity grid is lost and they will be appropriately housed to minimise noise emissions.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP EIS
A unidirectional traffic movement system, via a one-way circulation road around each PPU, will be maintained to minimise the use of reversing alarms and potential traffic conflicts.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP EIS
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.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP
Waste streams will be managed in accordance with the <i>Waste Management Plan</i> in Appendix H to ensure that waste is effectively managed and disposed of off site. There will not be any on-site stockpiling or disposal of waste materials.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP <i>Waste Mgt Plan</i> EIS
Outdoor light fixtures will be aimed downwards and will only be used when necessary during times of low light and/or heavy fog.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP EIS
A wheel wash will be installed on the access road to each PPU in order to minimise the risk of spread of plant pathogens and weeds.	All employees and contractors	On-going	<ul style="list-style-type: none"> BMP EIS
Appropriate pest/vermin control measures will be implemented to prevent and control pest/vermin populations and outbreaks.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP EIS
Landscape Plantings			
All revegetation works within 100 m of native vegetation (including EEC vegetation) will be undertaken with locally indigenous species as per Table 1 in the LMP in Appendix F .	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP LMP RTS
Revegetation of disturbed areas using exotic sterile grass seed (see Section 3 of the LMP in Appendix F) is not to be undertaken within areas of existing native vegetation or within 100 m of native vegetation.	ProTen Site Management	On-going	<ul style="list-style-type: none"> BMP
Regular inspections of landscaping works will be undertaken, noting plant losses, threatening processes, vegetation condition, weeds and replacement tree planting requirements.	ProTen Site Management	Monthly for 6 months after planting; and Quarterly thereafter for 18 months from date of final planting or until plantings are observed to be well-established and healthy (whichever is longer).	<ul style="list-style-type: none"> BMP LMP
Temporary Offset Area			
A stock proof fence will be installed along southern (unfenced) perimeter of the Temporary Offset Area.	ProTen Site Management	Completed	<ul style="list-style-type: none"> BMP RTS
A baseline inspection of the Temporary Offset Area will be undertaken noting the presence of weeds, feral animals and EEC vegetation will be undertaken.	ProTen Site Management	Completed	<ul style="list-style-type: none"> BMP

Control	Responsibility	Timing / Frequency	Reference / Notes
Regular inspections of the Temporary Offset Area fencing will be undertaken and repairs carried out as necessary.	ProTen Site Management	Quarterly for 12 months from installation (i.e. the "Credits Wanted" EOI period)	<ul style="list-style-type: none"> BMP
Targeted weed control will be undertaken within the Temporary OffSet Area for any new records of weed infestation/noxious weed species recorded during inspections.	ProTen Site Management	As required during the 12 month "Credits Wanted" EOI period	<ul style="list-style-type: none"> BMP
If the Temporary Offset Area is to become a more permanent offset area (i.e. if suitable credits have not been identified for purchase at the end of the 12 month EOI period), a detailed ecological survey (including establishment of one BioBanking plot) will be undertaken to confirm that the vegetation is Sandhill Pine Woodland EEC (or other vegetation type).	Qualified Ecologist	After 15 October 2016 if suitable credits have not been identified for purchase	<ul style="list-style-type: none"> BMP <i>Biodiversity Offset Strategy</i> (SLR 2015d)
If the Temporary Offset Area is to become a more permanent offset area (i.e. if suitable credits have not been identified for purchase at the end of the 12 month EOI period), appropriate management actions will be determined and undertaken in consultation with OEH.	Qualified Ecologist	After 15 October 2016 if suitable credits have not been identified for purchase	<ul style="list-style-type: none"> BMP <i>Biodiversity Offset Strategy</i> (SLR 2015d)
If the Temporary Offset Area is to become a more permanent offset area (i.e. if suitable credits have not been identified for purchase at the end of the 12 month EOI period): <ul style="list-style-type: none"> Supplementary measures will be applied and suitable monetary fund deposit made; or NPWS will be consulted on whether the land could be dedicated to the national park estate (i.e. potentially added to the South West Woodland Nature Reserve). 	Qualified Ecologist	After 15 October 2016 if suitable credits have not been identified for purchase	<ul style="list-style-type: none"> BMP <i>Biodiversity Offset Strategy</i> (SLR 2015d)



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LEGEND

- Development site
- Poultry shed
- Internal access road
- Easement
- Project related residence
- X Groundwater bore
- Sediment dams
- Temporary offset area *

NSW Vegetation Types (PCT's)

- MR517 Black Box Lignum Woodland
- MR518 Black Box Grassy Open Woodland
- MR644 White Cypress Pine Open Woodland

Threatened Ecological Communities

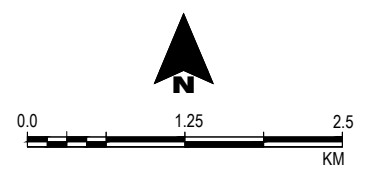
- Sandhill Pine Woodland EEC **

* Vegetation mapping within this area is sourced from OEH (2011)

** Scientific name: *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions*

Notes and Cautions:

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



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4.7.1 Biodiversity Offset Strategy

Condition B10 of Development Consent SSD 6882 imposes the following:

The Applicant shall implement the strategy for offsetting impacts as described in the Biodiversity Offset Strategy at Appendix K of the RTS prepared by SLR (dated 31 August 2015) and developed in accordance with the Framework for Biodiversity Assessment (OEH 2014) and the NSW Biodiversity Offsets Policy for Major Projects (OEH 2014). The advertisement period for the Expression of Interest on the Office of Environment and Heritage's 'Credits Wanted' register will be 12 months.

In accordance with the *Biodiversity Offset Strategy* (SLR 2015d), the actions to be completed to fulfil the offset requirements for the Development are:

- Uploading an expression of interest (EOI) for the required ecosystem credits on the "Credits Wanted" register of the BioBanking Credit Register. This EOI was submitted on the 15 October 2015 for a period of 12 months.
- Monitor the availability of matching ecosystem credits during the 12 month advertisement period, including regularly checking the credit register for ecosystem credits that match the required type and number of credits, including "variation credits" from the same vegetation formations.
- Consult regularly with the OEH BioBanking Team and the Albury office of OEH on the availability of suitable credits during the advertisement period.
- During, or at the end of, the advertisement period (i.e. 15 October 2016), either:
 - Purchase like-for-like credits or if not available purchase "variation credits"; or if both credit types not available, then:
 - Conduct a detailed ecological survey of the Temporary Offset Area (including establishment of one BioBanking plot), as necessary, to confirm that the vegetation is Sandhill Pine Woodland EEC; and
 - Identified appropriate management actions (in consultation with OEH) for the Temporary Offset Area; and
 - Apply supplementary measures and calculate suitable monetary fund deposit; or
 - Consult with NPWS on whether the land could be dedicated to the national park estate (i.e. potentially added to the South West Woodland Nature Reserve).

4.7.2 Fauna Management Protocol

If any native fauna are by chance injured or impacted during operations, ProTen Site Management will contact NSW Wildlife Information Rescue and Education Service (WIRES) to arrange proper care for the animal.

In the event that any native fauna is injured or impacted upon during operation, the following *Fauna Management Protocol* will be followed:

- WIRES will be contacted (02 8977 3309 / 1300 094 737) to care for any injured animals (if required and available).
- If possible, any fauna fleeing an operational area will be directed to a safe area outside the Development's operational footprint or, if necessary, captured and relocated to a safe area.
- All fauna will be handled in a way as to prevent injury and unnecessary stress to the animal (and to the handler).

- All fauna that are required to be captured, and are uninjured, will be captured in a hessian bag (see note below) or ventilated box and relocated to a safe and appropriate location within the Temporary Offset Area (see **Figure 4**), which is to be protected from any disturbance. Relocation is to be undertaken on the same day as capture.
- Any fauna that is injured will be contained in a warm, dark and quiet place. The animal will be wrapped in a towel (or similar) and placed in a ventilated box. Site management will call WIRES (02 8977 3309 / 1300 094 737) for advice on the best course of action. This may include transporting the injured animal to the nearest vet or waiting for a rescuer to arrive at site.
- Wildlife captured, relocated and/or treated will be reported to WIRES.

Note: hessian bags are not suitable for birds or any animals with claws that could become stuck in the small holes or entangled in the fibres. If required, WIRES will be contacted for advice and/or to provide appropriate equipment for wildlife capture and care.

4.8 Aboriginal Heritage Management

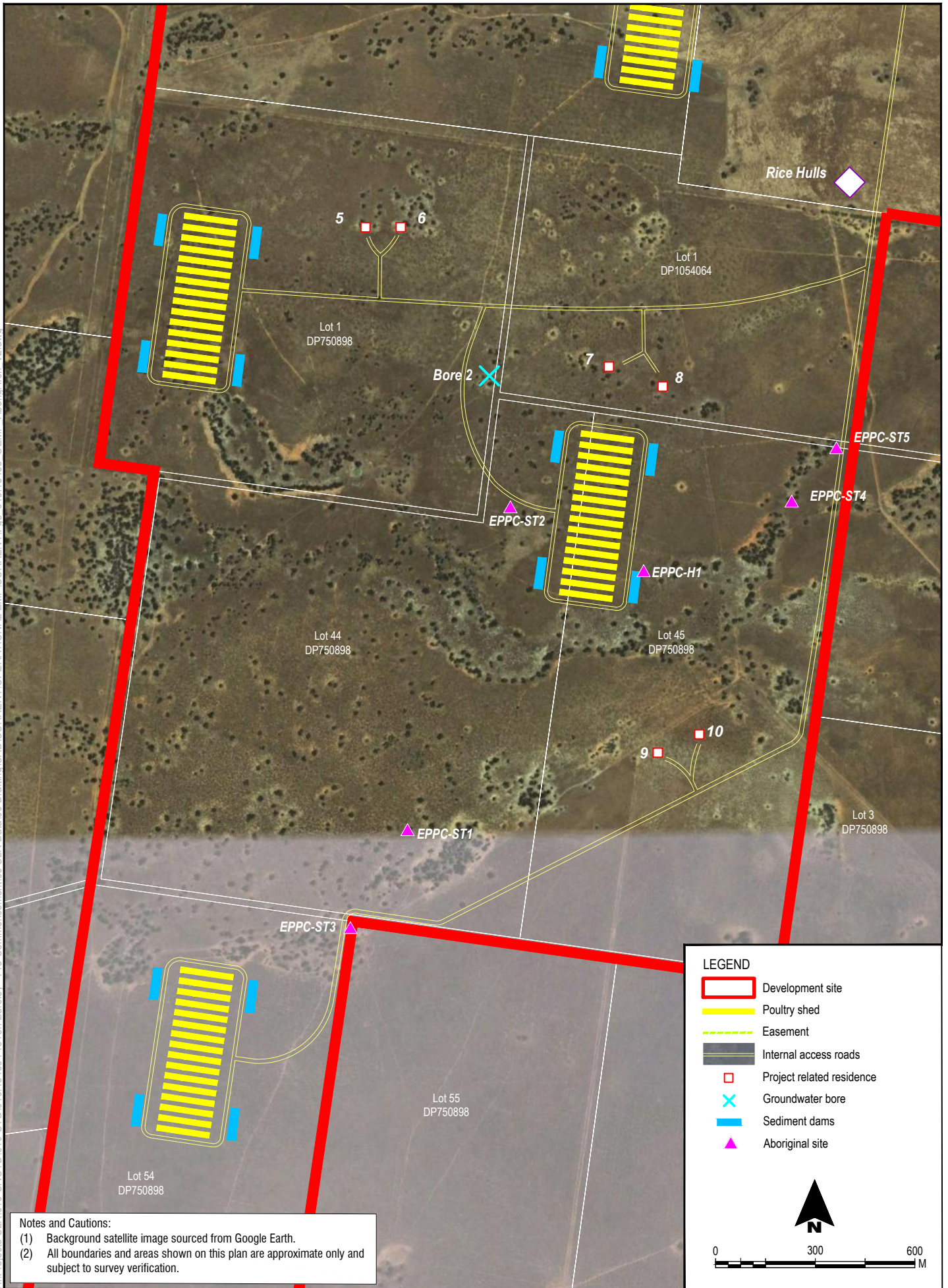
An *Aboriginal Cultural Heritage Management Plan* (ACHMP) (OzArk 2016) has been prepared for the Development in accordance with condition B55 of Development Consent SSD 6882 and is contained within **Appendix K**.

Field surveys identified six Aboriginal heritage sites within the Development Site, comprising five scarred trees and one hearth (see **Figure 5**). While some of these sites are located within close proximity to Development infrastructure, they are not located within the Development footprint. **Table 18** lists the environmental controls that will be implemented to avoid any impact on all Aboriginal heritage sites during the operation of the Development.

Table 18 - Aboriginal Heritage Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
The six identified Aboriginal sites will be permanently fenced with a 10 m buffer. The fencing will be clearly visible and signed with "Do Not Enter".	ProTen Site Management	Completed	<ul style="list-style-type: none"> ACHMP Consent Condition B52 EIS
The following alternative mitigation measures will be implemented in the vicinity of the EPPC-ST5 scar tree to ensure the protection of the tree where road batters encroach within the 10 m buffer zone: <ol style="list-style-type: none"> No ground surface disturbing works (digging) will occur within the 10 m buffer zone. If the batter of a road needs to encroach within 10 m buffer zone, the batter will sit on the ground surface and will not be dug in, and it will be kept as far from the trunk of the tree as practicable. Sediment control measures will be put in place at the base of the batter to prevent any sediment run-off from the batter from accumulating at the base of the trunk. The material to be used in the batter will not chemically change the pH/acidity of the soils in the area such the tree may suffer poor health as a result. 	ProTen Site Management	Completed	<ul style="list-style-type: none"> ACHMP
ProTen employees and contractors will be made aware of the presence of the six identified Aboriginal heritage sites during site inductions and training.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> ACHMP EIS
If the scarred trees naturally fall over, the Leeton and District Local Aboriginal Land Council will be contacted to discuss if further management is required and, if so, what the appropriate management would be.	ProTen Site Management	If required	<ul style="list-style-type: none"> ACHMP
Any alterations to the Development footprint that are outside of the study areas of the Aboriginal heritage field surveys will be assessed in accordance with the <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> .	Qualified Archaeologist	If required	<ul style="list-style-type: none"> ACHMP
If an Aboriginal object/place is known to be directly or indirectly impacted, an application to OEHL will be made for an Aboriginal Heritage Impact Permit (AHIP).	Qualified Archaeologist	If required	<ul style="list-style-type: none"> ACHMP Consent Condition B54
Should any Aboriginal objects be uncovered during operations the <i>Unexpected Finds Protocol</i> in Section 4.8.1 will be followed.	All employees and contractors	If required	<ul style="list-style-type: none"> ACHMP


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

LEGEND

- Development site
- Poultry shed
- Easement
- Internal access roads
- Project related residence
- X Groundwater bore
- Sediment dams
- ▲ Aboriginal site



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4.8.1 Unexpected Finds Protocol

The following *Unexpected Finds Protocol* will be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered:

- (1) All ground surface disturbance in the area of the find(s) will cease immediately after the find(s) are uncovered.
 - (a) The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and
 - (b) The site supervisor will be informed of the find(s).
- (2) If there is substantial doubt regarding an Aboriginal origin for the find(s), then a qualified opinion from an archaeologist will be gained as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be archaeological. If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.
- (3) The following authorities or personnel will be immediately notified of the discovery:
 - (a) OEH; and
 - (b) Leeton and District Local Aboriginal Land Council (L&D LALC).
- (4) In co-operation with the appropriate authorities and relevant Aboriginal community representatives, the following will be facilitates:
 - (a) The recording and assessment of the find(s);
 - (b) Fulfilling any legal constraints arising from the find(s). This will include complying with OEH directions; and
 - (c) The development and conduct of appropriate management strategies. Strategies will depend on consultation with L&D LALC and the assessment of the significance of the find(s);
- (5) Where the find(s) are determined to be Aboriginal objects, any re-commencement of construction/operation related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements.

Should suspected ancestral human remains be encountered, the following process will be adhered to:

- The remains will not be further disturb or moved;
- Work will immediately cease in the vicinity and the area cordoned off;
- NSW Police will be notified;
- The OEH's Environment Line (131 555) will be notified as soon as practicable and available details of the remains and their location provided; and
- Work will not re-commence in the area unless authorised in writing by OEH.

4.9 Potentially Hazardous Goods

An *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) has been prepared for the Development in accordance with condition B25 of Development Consent SSD 6882 and is contained within **Appendix I**. The *Emergency Plan* and *Addendum Report* also fulfils the need for a Pollution Incident Response Management Plan (PIRMP) as agreed to with the EPA.

The *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) contain an inventory of hazardous substances, chemicals and fuels, including storage locations and volumes. The only chemicals and fuels will be used at the Development will be for the following purposes:

- Liquid petroleum gas (LPG), petrol and diesel for power and equipment requirements;
- Sanitation products used in the poultry sheds during the cleaning phase at the end of each batch;
- Sanitation products for the wheel wash facilities and foot baths;
- Disinfectant for the water supply;
- Pest and vermin control products (when necessary); and
- Weed control products (when necessary).

The environmental controls listed in **Table 19** will be implemented to minimise the potential for environmental incidents relating to the storage, handling and transport of potentially hazardous goods. The appended *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) should be referred to for further detail.

Table 19 - Potentially Hazardous Goods Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference
LPG			
The above-ground LPG storage tanks will be installed and maintained to comply with the following requirements for ventilation, access and set up: <ul style="list-style-type: none"> • In the open air, outside of buildings; • Nearby construction, fences, walls, vapour barriers and the like will permit free access around the tanks and cross-ventilation; and • The largest tank will have a diameter of 1.2 m and, as such, adjacent tanks will be separated by 1.2 m. 	Elgas and ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i> • <i>Preliminary Hazard Analysis (SLR 2015e)</i>
LPG storage at each PPU will be maintained in accordance with the relevant requirements of <i>AS/NZS 1596:2014 The Storage and Handling of LP Gas</i> for both public places (i.e. South West Woodland Nature Reserve and residences) and private places (i.e. buildings where people are employed or reside within the Site). This includes minimum separation distances of 10 m from a public place and 17 m from a protected place.	Elgas and ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i> • <i>Preliminary Hazard Analysis (SLR 2015e)</i>
The operation of the Development will meet the criteria laid down in <i>Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning</i> (DoP 2011) (HIPAP 4).	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i> • <i>Preliminary Hazard Analysis (SLR 2015e)</i>
Any new LPG tank to be installed will be appropriately certified.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>

Control	Responsibility	Timing / Frequency	Reference
LPG will be delivered to the Development Site in specific-purpose rigid trucks at a frequency of less than once per week.	Elgas and ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Fire Management			
All buildings will be maintained to meet the relevant requirements of the Building Code of Australia (BCA).	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Electrical installations will be maintained to meet the requirements of relevant AS, including AS 3000:2007 - <i>Electrical Wiring Rules</i> .	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Fire extinguishers, fire blankets and hose reels will be installed and maintained at designated locations compliant with relevant AS. The extinguishers will be determined by fuel source, with water extinguishers installed for combustible materials and ABE powder extinguishers installed for wide coverage of combustible and electrically-generated fires.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Due to the need to connect fire hydrants and hose reels, on-site water storage will be compliant with AS 2419.1 2005 – <i>Fire Hydrant Installations</i> .	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Appropriate warning/identification signs will be installed and maintained for fuels and fire protection equipment.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Any new diesel, petrol or LPG tanks will be appropriately certified.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Foam extinguishers will be installed and maintained with the capacity to cover the surface area of the diesel/petrol bund area.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
The diesel and petrol tanks will be stored within banded areas with a minimum bund volume of 110% of the volume of the largest single stored volume within the bund.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
The diesel, petrol and LPG storage (i.e. dissimilar fuels) will be separated from each other and located at equidistant points from one another while still be within safe working distance to the poultry sheds.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Annual maintenance and testing will be undertaken for high voltage electricity infrastructure.	ProTen Site Management	Annual	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
General housekeeping procedures will be regularly undertaken to ensure any trees/shrubs in the vicinity of electrical installations are adequately pruned or removed to maintained clearance and the areas around electrical installations are kept clear of any combustible materials.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Hazardous Materials			
Employees and contractors will be instructed in the proper use and handling of all chemicals used on site, as well as incident management procedures. If appropriate, this will include completion of training such as <i>SMARTtrain</i> or <i>ChemCert</i> (or similar).	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>

Control	Responsibility	Timing / Frequency	Reference
Spill kits will be provided and maintained at strategic locations within the Development Site.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
All chemical use will be undertaken in full compliance with the relevant statutory requirements, including the <i>Pesticides Act 1999</i> .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Where appropriate, chemicals used will be approved by the Australian Pesticide and Veterinary Medicine Authority as safe and fit for that particular use.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
A chemical storage facility that is appropriately sealed and bunded, and with appropriate signage, will be installed and maintained at each PPU.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
The diesel and petrol tanks will be stored within bunded areas with a minimum bund volume of 110% of the volume of the largest single stored volume within the bund.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>
Copies of the Safety Data Sheet (SDS) for each chemical and fuel used on site will be kept within the chemical storage facility and in the PPU office.	ProTen Site Management	Prior to commencement and on-going	<ul style="list-style-type: none"> • <i>Emergency Plan</i> • <i>Addendum Report</i>

4.9.1 Chemical or Fuel Spill

The actions specified on the relevant SDS will be implemented in the event of a minor chemical spill.

In the event of a major spill, which is considered highly unlikely given the relatively low volumes of chemicals and fuels to be stored on site and the environment controls listed in **Table 19**, the following procedure will be implemented:

- The EPA and/or other appropriate regulatory authority will be contacted and advised of the nature of the chemical spill or incident, and any instructions issued by the authority will be strictly adhered to.
- Where possible, spilled material will be contained used vermiculite or similar absorbing material, and/or recovered into suitable containers.
- Any contaminated soil and/or absorption material will be collected, managed and disposal of as advised by the regulatory authority.
- Clean soil will be brought in once all contaminated material has been removed.

The *Environmental Incident Management Strategy* in **Section 9**, including notification requirements, will be followed in the event of a spill/incident.

4.10 Waste Management

A *Waste Management Plan (WMP)* (SLR 2016c) has been prepared for the Development in accordance with condition B 21 of Development Consent SSD 6882 and is contained within **Appendix H**.

Primary waste streams to be generated by the Development, along with their respective waste classifications under the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA 2014) and intended reuse/recycling/disposal are listed in **Table 20**.

Table 20 - Operational Waste Types, Classifications and Management

Waste Type	NSW Classification	Reuse / Recycling / Disposal
General daily waste	General solid waste (putrescible and non-putrescible).	Disposal at landfill.
Empty chemical and fuel containers	Hazardous waste if containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid waste (non-putrescible) if the containers have been cleaned by washing or vacuuming.	Off site reuse, recycling or disposal at licensed facility. Empty chemical containers will be returned to the local supply company and/or Baiada for reuse, recycling or disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or disposal. Any non-returnable chemical containers will be collected via the "drumMUSTER" program. (N.B. transport to comply with the <i>Australian Code for the Transport of Dangerous Goods by Road & Rail</i>)
Poultry litter	General solid waste (putrescible).	Off site reuse for beneficial application on rural/agricultural land and/or off site treatment to produce a commercial product (i.e. value-added product). The litter will not be stockpiled or disposed of within the bounds of the Development Site under any circumstances. Furthermore, ProTen prefers not to see the spreading of litter within a 5 km radius of a poultry shed.
Dead birds	General solid waste (putrescible).	Dead birds will be collected from the poultry sheds on a daily basis and stored in on-site chillers prior to transport off site for treatment in Baiada's rendering plant to produce tallow and poultry offal meal (i.e. value-added products).
Sewage (from staff amenities and residences)	Liquid waste	Treated and disposed of via on-site aerated wastewater treatment systems (one at each residence and PPU) installed and operated in accordance with Council requirements and the relevant standards/guidelines.
Green waste	General solid waste (non-putrescible)	Composting and/or direct reuse on site.
Tyres	Special waste	Off site recycling or disposal at licensed facility.
Air and oil filters and rags	General solid waste (non-putrescible)	Off site recycling or disposal at licensed facility.
Batteries	Hazardous waste	Off site recycling.
Light bulbs / fluorescent tubes	Hazardous waste	Off site recycling.
Mass bird mortalities	General solid waste (putrescible)	Various options exist for the disposal of bird carcasses and fomites in the event of an emergency animal disease. Refer to the <i>Emergency Disposal and Biosecurity Protocol</i> in Appendix L .

The environmental controls listed in **Table 21** will be implemented to minimise waste generation and ensure waste is effectively managed and disposed of off site.

Table 21 - Waste Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Waste streams will be managed in accordance with the reuse / recycling / disposal methods nominated in Table 20 .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • EIS
No stockpiling or disposal of waste materials will occur within the bounds of the Development Site.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • Consent Condition B19 • EIS
Waste materials removed from the Site for reuse, recycling, treatment or disposal will be directed to a facility or premises lawfully permitted to accept the materials.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • Consent Condition B17
Waste generated outside the Site will not be received at the Site for any purpose.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • Consent Condition B18 • EPL Condition L2.1
Only wastes that cannot be cost effectively reused or recycled will be sent for disposal.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i>
General waste skips will be checked on a weekly basis. If the skips are reaching capacity, removal and replacement will be organised for the next 24 hours.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i>
All loaded vehicles leaving the site will have their loads covered..	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • Consent Condition B7
Poultry litter will not be stockpiled, stored or utilised within the Site in any way.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • Consent Condition B19 • EIS
Dead birds will not be disposed to land by burial or any other method at the premises (unless otherwise permitted by a relevant authority during an emergency animal disease event).	ProTen Site Management	On-going	<ul style="list-style-type: none"> • <i>Waste Mgt Plan</i> • Consent Condition B20 • EPL Condition O5.2

4.11 Visual Amenity

The *Landscaping Management Plan* (LMP) (SLR 2015c) prepared for the Development in accordance with condition B47 of Development Consent SSD 6882 is contained in **Appendix F**. The landscaping will comprise suitable tree and shrub species strategically planted around the perimeter of each PPU. The plantings will be based on relevant recommendations in *Planning Guidelines Separating Agricultural and Residential Land Uses* (Queensland Department of Natural Resources 1997), these being:

- A biological buffer of a minimum total width of around 40 metres;
- Contain consistent, yet random, plantings of a variety of tree and shrub species of differing growth habits, at spacings of around 4 to 7 metres;
- Include species with long, thin and rough foliage to facilitate the capture of spray droplets and dust particles;
- Provide a permeable barrier that allows air to pass through the buffer. The plantings will aim to achieve a porosity of around 0.5 (i.e. around 50 percent of the screen will be air space);
- Include species that are hardy and fast growing; and
- Foliage from base to crown (i.e. lower and upper storey vegetation) to ensure that the buffer is effective in slowing and filtering air movement at all levels.

On-going monitoring and maintenance activities are required to ensure continual health and growth of the plantings.

The environment controls listed in **Table 22** will be implemented to minimise the visual impact of the Development from surrounding lands. The appended *Landscaping Management Plan* should be referred to for further detail regarding the vegetation screen plantings.

Table 22 - Visual Amenity Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Outdoor lighting fixtures will be mounted, screened and directed in a manner to avoid nuisance to the surrounding environment, properties and roadways.	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent condition B46 • EIS
Outdoor lighting will only be used when necessary during times of low light and/or heavy fog and will comply with <i>AS4282 1997 – Control of the Obstructive Effects of Outdoor Lighting</i> .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • Consent condition B46 • EIS
Vegetation screens will be established and maintained around the perimeter of each PPU in accordance with the LMP in Appendix F .	ProTen Site Management	On-going	<ul style="list-style-type: none"> • EIS • LMP

4.12 Energy Efficiency and Greenhouse Gas

In accordance with condition B48 of Development Consent SSD 6882, ProTen will implement all reasonable and feasible measures to minimise energy use onsite and greenhouse gas emissions onsite.

The environmental controls listed in **Table 23** will be implemented to improve energy efficiency and minimise greenhouse gas emissions.

Table 23 - Energy Efficiency Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
External lighting will only be used when necessary during times of low light and/or heavy fog.	ProTen Site Management	On-going	• EIS
The integrity of the poultry sheds will be regularly checked in order to identify and rectify any air leaks, which place additional load on ventilation fans.	ProTen Site Management	On-going	• EIS
Lighting, temperature, humidity and static pressure within the poultry sheds will be continuously monitored and automatically adjusted to suit conditions. This will avoid unnecessary electricity and LPG usage.	ProTen Site Management	On-going	• EIS
Ventilation fans and heaters will be regularly maintained and serviced to ensure optimal performance and efficiency.	ProTen Site Management	On-going	• EIS

4.13 Pest Control

The environmental controls listed in **Table 24** will be implemented to minimise the potential for pest populations establishing residency within the Development Site.

Table 24 - Pest Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Baits will be installed and maintained as a preventative measure to prevent and control pest outbreaks.	ProTen Site Management	On-going	• EIS
Dead birds will be removed from the poultry sheds on a daily basis and stored in an on-site coolroom/chiller prior to removal off site.	ProTen Site Management	On-going	• EIS
At the end of each production cycle, poultry litter will be promptly removed from the poultry sheds and transported off site.	ProTen Site Management	On-going	• EIS
Waste streams will be managed in accordance with the <i>Waste Management Plan</i> in Appendix H to ensure no on-site stockpiling or disposal of waste materials.	ProTen Site Management	On-going	• <i>Waste Mgt Plan</i> • EIS
Any feed or grain spills will be promptly cleaned up.	ProTen Site Management	On-going	• EIS
The grass within the shed environs will be regularly slashed and/or mown.	ProTen Site Management	On-going	• EIS
Appropriate sanitising agents will be used during the cleanout phase.	ProTen Site Management	On-going	• EIS

4.14 Biosecurity and Mass Mortality

An *Emergency Disposal and Biosecurity Protocol* (SLR 2016d) has been prepared for the Development in accordance with condition B9 of Development Consent SSD 6882 and is contained in **Appendix L**. It has been prepared in consideration of various relevant guideline documents, including:

- *National Farm Biosecurity Manual for Chicken Growers* (Australian Chicken Meat Federation [ACMF] 2010);
- *Australian Veterinary Emergency Plan AUSVETPLAN: Enterprise Manual – Poultry Industry (chickens, ducks and turkeys), Version 3.0* (Animal Health Australia [AHA] 2013);
- *Australian Veterinary Emergency Plan AUSVETPLAN: Operational Manual – Destruction of Animals, Version 3.2* (AHA 2015a);
- *Australian Veterinary Emergency Plan AUSVETPLAN: Operational Manual – Disposal, Version 3.1* (AHA 2015b); and
- *Biosecurity of Mass Poultry Mortality Composting* (Rural Industries Research and Development Corporation [RIRDC] 2014).

ProTen Site Management will implement a range of proven biosecurity measures at the Development on a routine basis. Site Management will also ensure that all employees and contractors are provided with appropriate biosecurity training through the site inductions and regular toolbox talks. Monitoring and recording of flock health is undertaken on a daily basis by both ProTen and Baiada Poultry.

In the unlikely event that biosecurity is breached and there is an emergency animal disease (EAD) outbreak at the Development, a coordinated management approach, as outlined in the *Emergency Disposal and Biosecurity Protocol* (SLR 2016e) in **Appendix L**, will be implemented.

5 MONITORING, INSPECTIONS AND REPORTING

5.1 Monitoring and Inspections

Various environmental monitoring and site inspection activities will be undertaken to ensure on-going implementation and compliance with this OEMP and to identify any adverse impacts and required remedial actions. The environment monitoring and site inspection activities to be completed are listed in **Table 25**. The relevant management plans appended to this OEMP should be referred to for further details.

Table 25 - Environmental Monitoring and Site Inspections

Requirement	Monitoring Location / Method	Timing / Frequency	Performance Indicator	Responsibility	Reference
General					
Visual inspections to ensure all necessary environmental controls listed in this OEMP are in place and any required maintenance/remediation works are identified and undertaken.	Visual inspection.	Weekly.	N/A	ProTen Site Management	N/A
Meteorology					
Meteorological monitoring for the following parameters: <ul style="list-style-type: none"> • Wind speed and direction at 10 m; • Temperature at 10 m and 2 m; • Rainfall; and • Relative humidity. 	On-site meteorological station (see Figure 2).	Continuous.	N/A	ProTen Site Management	<ul style="list-style-type: none"> • EPL Condition M2.1 • Consent Condition B5
Odour					
Field observations of the intensity (strength) and character (what it smells like) of any significant odour emissions detected.	Field observations using Tables 5-1 and 5-2 and the field monitoring sheet in the AQMP in Appendix E .	When significant odour emissions are detected and/or an odour complaint is received..	No odour complaints.	ProTen Site Management	<ul style="list-style-type: none"> • AQMP
Surface Water					
Periodic sampling	One sediment dam at each PPU	<ul style="list-style-type: none"> • 6-monthly grab sample when water is available 	<ul style="list-style-type: none"> • Water quality (see Table 9 of WMP) • Water level • Photos 	ProTen Site Management	<ul style="list-style-type: none"> • WMP
Reactive sampling	Overflow from sediment dam	<ul style="list-style-type: none"> • Grab sample during overflow 	<ul style="list-style-type: none"> • Water quality (see Table 9 of WMP) • Photos 	ProTen Site Management	<ul style="list-style-type: none"> • WMP
	Any surface water impacted by a spill, discharge or other incident	<ul style="list-style-type: none"> • Immediately and/or as instructed by consulted government agencies 	<ul style="list-style-type: none"> • Targeted analytes selected based on the nature of the incident 	ProTen Site Management	<ul style="list-style-type: none"> • WMP

Requirement	Monitoring Location / Method	Timing / Frequency	Performance Indicator	Responsibility	Reference
Visual inspections and maintenance (as required) of the engineered surface water management systems to ensure continued integrity. Where identified to have reduced capacity due to excessive sediment build-up or scouring, rectification works (desilting, regrading and/or reshaping) will be undertaken to ensure the structures maintain their design capacity and can handle subsequent rainfall events.	Visual inspections of surface water management systems at each PPU.	<ul style="list-style-type: none"> Monthly; Prior to predicted significant rainfall events; and After significant rainfall events. 	<ul style="list-style-type: none"> No system discharges; and No decline in the quality of water contained within the systems. 	ProTen Site Management	<ul style="list-style-type: none"> WMP
Visual inspections and maintenance (as required) of ESC structures to ensure continued integrity. Where identified to have reduced capacity due to excessive sediment build-up or scouring, rectification works will be undertaken to ensure the structures maintain their design capacity and can handle subsequent rainfall events.	Visual inspection of all ESC structures.	<ul style="list-style-type: none"> Monthly; Prior to predicted significant rainfall events; and After significant rainfall events. 	<ul style="list-style-type: none"> No significant erosion from operational areas; and No sediment laden runoff from operational areas. 	ProTen Site Management	<ul style="list-style-type: none"> WMP
Groundwater					
Groundwater extraction.	Bores 1 and 2 (see Figure 2).	Six-monthly.	Annual extraction must not exceed the licensed allocation of 488 ML/year.	ProTen Site Management	<ul style="list-style-type: none"> WMP
Groundwater levels.	Shallow Aquifer – Piezo1 to 6 Shallow Piezo 1 to 6 Deep (see Figure 2).	Six-monthly.	See Section 8.2 of the WMP in Appendix G .	ProTen Site Management	<ul style="list-style-type: none"> WMP
	Deep Aquifer – Bores 1 and 2 (see Figure 2).				
Groundwater quality for the parameters listed in Table 21 of the WMP in Appendix G .	Shallow Aquifer – Piezo1 to 6 Shallow Piezo 1 to 6 Deep (see Figure 2).	Six-monthly.	See Section 8.2 of the WMP in Appendix G .	ProTen Site Management	<ul style="list-style-type: none"> WMP
	Deep Aquifer – Bores 1 and 2 (see Figure 2).				

Requirement	Monitoring Location / Method	Timing / Frequency	Performance Indicator	Responsibility	Reference
Biodiversity					
Inspections and maintenance of landscape plantings (noting plant condition, plant losses, threatening processes, weeds, feral animal activity and replacement tree planting requirements).	Visual inspection of all landscape plantings (see Figure 2).	<ul style="list-style-type: none"> Monthly during first 6 months after planting; and Quarterly thereafter for 18 months after planting or until the plantings are established and healthy (whichever is longer). 	See Section 4.2 of the BMP in Appendix J .	ProTen Site Management	<ul style="list-style-type: none"> BMP
Inspections and maintenance of Temporary Offset Area (noting fencing, vegetation condition, threatening processes, weeds and feral animal activity).	Visual inspection of the Temporary Offset Area (see Figure 4).	Quarterly during the 12 month "Credits Wanted" EOI period.	See relevant indicators in Section 4.2 of the BMP in Appendix J .	ProTen Site Management	<ul style="list-style-type: none"> BMP
Waste					
Monitoring of the volume of all waste materials transported off site for reuse, recycling and/or disposal.	Recording of waste trucks loads.	On-going	N/A	ProTen Site Management	<ul style="list-style-type: none"> <i>Waste Mgt Plan</i>

5.2 Reporting and Auditing

The reporting and auditing requirements for the Development, in accordance with Development Consent SSD 6882 and EPL 20748, are listed in **Table 26**.

Table 26 - Reporting and Auditing Requirements

Requirement	Timing / Frequency	Responsibility	Reference
Annual Review			
Prepare and submit an Annual Review to the DP&E that reviews the environmental performance of the Development over the previous 12 month period.	Annual. Reporting period - 22 Apr - 21 Apr. N.B. First Annual Review to cover 14 Dec - 21 Apr (to include construction period).	ProTen Site Management	<ul style="list-style-type: none"> Consent conditions C8 and C11
Annual Return			
Complete and submit an Annual Return to the EPA in the approved form comprising: <ul style="list-style-type: none"> (a) A Statement of Compliance; and (b) Summary of monitoring data; and (c) Summary of complaints. 	Annual (within 60 days of the reporting period). Reporting period - 22 Apr - 21 Apr.	ProTen Site Management	<ul style="list-style-type: none"> EPL condition R1
Incident Reporting			
Notify DP&E and other relevant agencies of any incident that causes (or may cause) material harm to the environment.	Within 24 hours of the incident.	ProTen Site Management	<ul style="list-style-type: none"> Consent condition C9
Prepare and submit a detailed report to DP&E and other relevant agencies on any incident that causes (or may cause) material harm to the environment.	Within 7 days of the incident.	ProTen Site Management	<ul style="list-style-type: none"> Consent condition C10
Water Impact Investigation			
Notify DPI Water if a surface water or groundwater trigger value is exceeded. See the WMP in Appendix G for further details.	Within 14 days of receiving monitoring results that indicate an exceedance.	ProTen Site Management	<ul style="list-style-type: none"> WMP
Prepare and submit a report outlining the investigation findings if a surface water or groundwater trigger level is exceeded then an investigation into the potential for environmental harm will be completed and sent to the regulatory authority within 3 months of receiving the analysis results.	Within 3 months of receiving monitoring results that indicate an exceedance.	ProTen Site Management	<ul style="list-style-type: none"> WMP
Auditing			
Commission an Independent Environmental Audit to assess the environment performance and compliance of the Development.	<ul style="list-style-type: none"> Within 2 years of consent (i.e. by 9 Nov 2017). Every 3 years thereafter. 	ProTen Site Management	<ul style="list-style-type: none"> Consent condition C12
Access to Information (ProTen Website)			
Upload all items of information listed under consent condition 14 to ProTen's website and keep this information up to date.	<ul style="list-style-type: none"> Upload by 9 May 2016. Review and, if necessary, update quarterly. 	ProTen Site Management	<ul style="list-style-type: none"> Consent condition C14
Review and, if necessary, update the complaints register on ProTen's website.	<ul style="list-style-type: none"> Monthly 	ProTen Site Management	<ul style="list-style-type: none"> Consent condition C14

6 EMERGENCY RESPONSE

6.1 Emergency Plan

An *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) has been prepared for the Development in accordance with condition B25 of Development Consent SSD 6882 and is contained in **Appendix I**. The *Emergency Plan* and *Addendum Report* also fulfils the need for a Pollution Incident Response Management Plan (PIRMP) as agreed to with the EPA.

The aim of the *Emergency Plan* and *Addendum Report* is to minimise the potential for adverse impacts on people, property and the environment as a result of an emergency or pollution incident at the Development. The key objectives of the *Emergency Plan* and *Addendum Report* are:

- To enable a quick and efficient response to any emergency or pollution incident to limit the potential impacts;
- To support emergency services and regulatory authorities with key information and knowledge; and
- To maintain a high level of preparedness.

The primary types of hazards identified for the Development in the *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) are:

- LPG leak or explosion;
- Fire in or around the poultry sheds;
- Spill of hazardous material (chemical or fuel); and
- Transport incident.

The *Emergency Plan* and *Addendum Report* outlines key pre-emptive actions (i.e. mitigation measures and management strategies) to be implemented in order to minimise the risk for such hazards (these are also listed above in **Section 4.9**), contains a chemical and fuel inventory, identifies the emergency equipment that will be available on site, key ProTen and regulatory authority contacts, and, importantly the site evacuation procedure. The *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) in **Appendix I** should be referred to for full details.

6.2 Flooding Emergency and Evacuation Plan

A *Flooding Emergency and Evacuation Plan* (SLR 2016b) has been prepared for the Development in accordance with condition B36 of Development Consent SSD 6882 and is contained in **Appendix M**.

The *Flooding Emergency and Evacuation Plan* (SLR 2016b) advises:

- Flood warnings are likely to be available via the SES at least several days prior to a mainstream flood occurring.
- Floodwaters are unlikely to take more than a few hours to reside with the exception of the two topographical depressions and ephemeral flow paths.

The *Flooding Emergency and Evacuation Plan* (SLR 2016b) lists the various development design, best management practices and mitigation measures to be implemented to safeguard infrastructure, livestock and staff from potential adverse impacts due to flooding. It also contained an *Operational Flood Management Plan* that aims to ensure the safety of farm workers, the survival of the birds on site that are too young for processing and the safe removal of birds that are ready for off site processing. The Plan in **Appendix M** should be referred to for full details.

7 COMMUNITY CONSULTATION

7.1 Surrounding Residents

Prior to commencing operation, ProTen will prepare and forward a letter to the owners/residents of the surrounding dwellings shown on **Figure 1** informing them of the commencement of operations. The letter will advise key dates and relevant site contact details, including ProTen's freecall environmental hotline number.

These owners/residents will also be informed of any changes to the operation and site management in writing.

7.2 Site Signage

A clearly visible sign will be installed at the site access on the Sturt Highway to advise the following:

- Site name;
- Relevant site contact details; and
- Any specific access requirements, such as reporting to a site office and biosecurity requirements.

7.3 Dispute Resolution

In accordance with condition A12 of Development Consent SSD 6882, in the case of a dispute between ProTen and any regulatory authority in relation to an applicable requirement in the consent or any relevant matter relating to the Development, either party may refer the matter to the DP&E for resolution. The DP&E's determination of any such dispute shall be final and binding on the parties.

In the case of a dispute between ProTen and a community member/complainant and ProTen, either party may refer the matter to the DP&E and/or relevant regulatory authority for consideration, advice and/or negotiation. If the matter escalates, a third party mediator may be required.

8 COMPLAINTS MANAGEMENT STRATEGY

8.1 Performance Objective

To ensure that all environmental complaints regarding the operation of the Development are promptly and effectively received, handled and addressed.

8.2 Responsibility

ProTen's Site Management is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of a complaint.

All employees and contractors who take receipt of a complaint, either verbal or written, are to immediately notify Site Management.

8.3 Receipt of Complaints

Complaints in relation to the construction activities may be received via any of the following ways:

- Any ProTen company or site office;
- ProTen Environmental Hotline – 1800 776 994;
- ProTen Internet enquiry – www.proten.com.au; and/or
- Through a government agency (for example, EPA).

8.4 Handling Procedure

Upon becoming aware of a complaint, Site Management is to undertake the following:

(1) Receive

In the normal course of events, the first contact for complaints will usually be made in person or by telephone. While this should instigate investigative action, a formal written complaint should be requested.

Where the initial contact reaches an employee or contractor who is not a representative of Site Management, the call should be directed to Site Management. If unavailable, the complainant's details should be taken with a view to returning the contact once Site Management is in a position to discuss the matter.

The complainant's name, address and contact details, along with the nature of the complaint, must be requested. If the complainant refuses to supply the requested information, a note should be made on the form and complainant advised of same.

(2) Assistance

Where assistance is required handling the situation, ProTen's Griffith Regional Manager and/or National Operations Manager (both based on Griffith) should be contacted.

Where the complaint is reported via a government agency (for example, EPA), ProTen's Griffith Regional Manager and/or National Operations Manager must be notified immediately (even if outside of normal business hours).

Relevant contact details are listed in **Section 3.1**.

(3) Investigate

A field investigation should be initiated in an attempt to establish the legitimacy of the complaint and the cause of the problem. Site Management should be consulted to identify any abnormality or incident that may have resulted in the complaint. Details may include stocking densities, flock ages, shed conditions, heavy vehicle activity, equipment and machinery activities, etc.

If the complaint is in relation to odour, meteorological conditions at and around the time of the complaint should also be obtained from the on-site meteorological station. It is particularly important that wind direction and speed are known.

If the complaint is due to an environmental incident, the management system outlined in **Section 9** should be followed, and if the incident has caused or threatens to cause material harm to the environment the relevant regulatory agencies must be immediately notified.

(4) Action

Once the legitimacy and cause of the complaint has been established, every possible effort must be made to undertake appropriate remedial action(s) to fix the cause of the complaint and mitigate any further impact.

(5) Inform

The investigative work and remedial action should be reported back to the complainant and, if necessary, the relevant regulatory agencies.

(6) Record

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded on ProTen's standard *Environmental Complaint Report Form* contained within **Appendix N**. A copy of the completed form should be maintained for at least four years.

8.5 Preventative Action

Once the complaint has been suitably handled, appropriate preventative measures should be identified and implemented to negate the possibility of re-occurrence.

9 ENVIRONMENTAL INCIDENTS MANAGEMENT SYSTEM

Development Consent SSD 6882 defines an “incident” as:

A set of circumstances that:

- *causes or threatens to cause material harm to the environment; and/or*
- *breaches or exceeds the limits or performance measures/criteria in this consent”.*

As such, any non-compliance with the conditions of SSD 6882 will instigate the implementation of *the Environmental Incidents Management System*.

9.1 Performance Objective

To ensure that any environmental incident caused by or relating to the operation of the Development is effectively responded to, and any resulting adverse environmental and/or community impact is promptly prevented or effectively managed.

9.2 Responsibility

Site Management is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental incident.

All employees and contractors are to:

- Notify Site Management about any hazard and potential hazard that may result in an environmental incident, regardless of the nature or scale;
- Take immediate action to notify ProTen Site Management of any environmental incident; and
- Take immediate action (where it is safe to do so) to prevent, stop, contain and/or minimise the environmental impact of the incident.

9.3 Notification Requirements

Notification responsibilities for incidents that have caused or threaten to cause material harm to the environment are detailed in section 148 of the POEO Act. In summary, these can be categorised broadly as:

- The duty of an employee or any person undertaking an activity:
Any person engaged as an employee or undertaking an activity must, immediately after becoming aware of the incident, notify Site Management of the incident and all relevant information about it. If Site Management cannot be contacted, the person is required to notify the relevant authorities.
- The duty of the employer or occupier of a premises to notify:
An employer or occupier of the premises (i.e. in this case, Site Management) on which the incident occurs, who is notified (or otherwise becomes aware of) of the incident, must immediately notify the relevant authorities about the incident and all relevant information.

Under the POEO Act, “relevant authority” means any of the following:

- The appropriate regulatory authority;
- If the EPA is the appropriate regulatory authority - the EPA;
- If the EPA is not the appropriate regulatory authority - the local authority for the area in which the pollution incident occurs (i.e. Council);

- NSW Health;
- WorkCover NSW; and
- Fire and Rescue NSW.

Condition C9 of Development Consent SSD 6882 also requires that the DP&E be notified within 24 hours of any incident that has caused or threatens to cause material harm to the environment.

Relevant contact details are listed in **Section 3.1**.

9.4 Handling Procedure

Upon becoming aware of an environmental incident, Site Management is to undertake the following:

(1) Preventative Action

Where possible and it is safe to do so, immediate action should be taken to prevent, stop, contain and/or minimise the environmental impact of the incident. The situation should be visually assessed and emergency response undertaken if required.

In the unlikely event that a pollution incident requires the evacuation of the Site, actions will be completed in accordance with the site evacuation procedure contained in the *Emergency Plan* (SLR 2021) and *Addendum Report* (GHD 2020) in **Appendix I**. All employees and contractors will be informed of the location of emergency assembly areas (see **Figure 3**) through site inductions, signage and toolbox talks.

(2) Assistance

Where assistance is required handling the situation, ProTen's Griffith Regional Manager and/or National Operations Manager (both based in Griffith) should be contacted.

Where the incident is reported via a government agency (for example, EPA), the ProTen's Griffith Regional Manager and/or National Operations Manager must be notified immediately (even if outside of normal business hours).

Relevant contact details are listed in **Section 3.1**.

If adequate resources are not available and the incident threatens public health or property, Fire and Rescue Service NSW should be contacted by telephoning "000" for emergency assistance. Contacting Fire and Rescue NSW does not negate the notification requirements in **Section 9.3**.

(3) Notify

Under the provisions of the POEO Act, there is a duty to notify any incident that has caused or threatens to cause material harm to the environment and all relevant information about the incident. The specific duties to notify are outlined above in **Section 9.3**. The contact details for authorities are listed in **Table 6**.

In the event of a serious pollution incident or emergency, it is more than likely that the EPA and/or Fire and Rescue NSW will take control and manage the required investigation and remedial activities. Any instructions issued must be strictly adhered to.

(4) Investigate

Undertake immediate investigative work to determine the cause of the incident.

(5) Remedial Action

Undertake appropriate remedial action to address the cause of the incident and mitigate any further environmental impact. In some instances, outside resources such as specialist contractors/consultants may be required.

(6) Record

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar events in the future. On this basis, every environmental incident is to be recorded on ProTen's standard *Environmental Incident Report Form* contained within **Appendix O**. A copy of all completed forms should be maintained for at least four years.

Condition C10 of Development Consent SSD 6882 requires that a detailed report be prepared and submitted to the DP&E and other relevant authorities on any incident that has caused or threatened to cause material harm to the environment within 7 days of the incident.

9.5 Preventative Action

Once the incident has been suitably handled, appropriate preventative measures should be identified and implemented to negate the possibility of re-occurrence.

10 REVIEW AND UPDATE

In accordance with condition C7 of Development Consent SSD 6882, this OEMP, including appended management plans, will be reviewed and, if necessary, revised to the satisfaction of the Secretary, within three months of the submission of:

- An annual review under condition C8;
- An incident report under condition C10; or
- An audit under condition C12.

Further, the OEMP will be reviewed and, if necessary, revised in the following circumstances:

- Development Modification, including any notable operational and/or management changes;
- Where it is identified that the environmental performance of the Development is not meeting the objectives of the OEMP;
- Changes to the conditions imposed by Development Consent SSD 6882 and/or Environmental Protection Licence EPL 20748; and/or
- At the request of the DP&E or relevant regulatory authority.

A minor amendment to the OEMP may be made by ProTen's engaged environmental consultancy (currently SLR) without the need to seek approval from DP&E. For the purpose of this OEMP a "minor" amendment is defined as:

- An amendment involving a minor error, misdescription or miscalculation; and/or
- An amendment that maintains compliance with the EIS (SLR 2015a), RTS (SLR 2015b) and Development Consent SSD 6882; and/or
- An amendment that is necessary to maintain consistency and/or compliance with changing legislative requirements (for example, an amendment to an Act).

All employees and contractors will be informed of any revisions to the OEMP by Site Management during a toolbox talk.

11 REFERENCES

- Australian Poultry CRC (2008) *National Animal Welfare Standards for the Chicken Meat Industry*
- Department of Infrastructure, Planning and Natural Resources (2004) *Guideline for the Preparation of Environmental Management Plans*
- Department of Natural Resources (1997) *Planning Guidelines Separating Agricultural and Residential Land Uses*
- Department of Primary Industries (2012) *Best Practice Management for Meat Chicken Production in NSW, Manual 2 - Meat Chicken Growing Management*
- Environment Protection Authority (2014) *Waste Classification Guidelines Part 1: Classifying Waste*
- GHD (2020) *Narrandera Poultry Production Farm, Emergency Plan Addendum Report*
- Landcom NSW (2004) *Managing Urban Stormwater: Soils & Construction – Volume 1, 4th Edition.*
- Office and Environment and Heritage (2012) *Erosion and Sediment Control on Unsealed Roads*
- OzArk Environment and Heritage (2016) *Narrandera Poultry Production Complex (SSD 6882), Aboriginal Cultural Heritage Management Plan*
- Pacific Environment Limited (2016) *Narrandera Poultry Production Complex (SSD 6882), Air Quality Management Plan*
- SLR Consulting Australia (2015a) *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement*
- SLR Consulting Australia (2015b) *Euroley Poultry Production Complex SSD 6882, Response to Submission*
- SLR Consulting Australia (2015c) *Narrandera Poultry Production Complex (SSD 6882), Landscape Management Plan*
- SLR Consulting Australia (2015d) *Euroley Poultry Production Facility, Biodiversity Offset Strategy*
- SLR Consulting Australia (2015e) *Euroley Poultry Production Facility, SEPP 33 - Preliminary Risk Screening & Hazard Assessment*
- SLR Consulting Australia (2016a) *Narrandera Poultry Production Complex (SSD 6882), Biodiversity Management Plan*
- SLR Consulting Australia (2016b) *Narrandera Poultry Production Complex (SSD 6882), Flooding Emergency and Evacuation Plan*
- SLR Consulting Australia (2016c) *Narrandera Poultry Production Complex (SSD 6882), Waste Management Plan*
- SLR Consulting Australia (2016d) *Narrandera Poultry Production Complex (SSD 6882), Emergency Disposal and Biosecurity Plan*
- SLR Consulting Australia (2020) *Narrandera Poultry Production Farm, Water Management Plan*
- SLR Consulting Australia (2021) *Narrandera Poultry Production Complex (SSD 6882), Emergency Plan*

Development Consent

Section 89E of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning under delegation executed on 14 September 2011, the Planning Assessment Commission of NSW (the Commission) approves the Development Application referred to in Schedule 1, subject to the conditions in Schedules 2 to 4.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the Development.

Garry West
Member of the Commission

Andrew Stoeckel
Member of the Commission

Sydney

9 November 2015

File: 15/01330

SCHEDULE 1

Application No.:	SSD 6882
Applicant:	ProTen Limited
Consent Authority:	Minister for Planning
Land:	Part lot 39 DP 750876, part lots 12 and 15 DP 750898, Lots 1, 41, 42, 44, 45 and 54 in Deposited Plan 750898, and Lot 1 in Deposited Plan 1054064, Euroley, Narrandera Local Government Area
Development:	Construction and operation of the Euroley Poultry Production Complex, including: <ul style="list-style-type: none">• five Poultry Production Units (PPU), consisting of 16 tunnel ventilated, fully enclosed, climate controlled poultry sheds (a total of 80 sheds);• a maximum operational capacity of 3.92 million broilers at any one time;• bulk earthworks;• internal access roads and construction pads;• 10 residential dwellings for farm manager accommodation;• on-site water detention dams;• four new groundwater bores, located in pairs;• stormwater management infrastructure;• intersection upgrade works along the Sturt Highway;• eight (8) above ground LPG storage tanks per PPU, with a capacity of 7,500 litres each (300,000 litres and 40 tanks in total);

- feed, bedding, chemical and dead broiler storage; and
- supporting infrastructure, services and utilities.

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DEFINITIONS

Act, the	<i>Environmental Planning and Assessment Act, 1979</i>
Applicant, the	ProTen Limited, or anyone else entitled to act on this consent
BCA	<i>Building Code of Australia</i>
Broiler	A breed of chicken bred and raised specifically for chicken meat production
CEMP	Construction Environmental Management Plan
Certifying Authority	Means a person who is authorised by or under section 109D of the <i>Environmental Planning and Assessment Act 1979</i> to issue certificates
Construction	The demolition of buildings or works, the carrying out of works, including bulk earthworks, and erection of buildings and other infrastructure covered by this consent
Council	Narrandera Shire Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment and its successors
Development	The Development to which this consent applies, the scope of which is described in Schedules 1, being for the construction and operation of an intensive livestock agriculture facility
DPI	NSW Department of Primary Industries
EEC	Endangered Ecological Communities
EIS	Environmental Impact Statement titled, “ <i>Euroley Poultry Production Complex – SSD 6882</i> ”, prepared by SLR Consulting Australia Pty Ltd, dated 20 May 2015
EPA	Environment Protection Authority
EPL	Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i>
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
Heavy vehicle	Any vehicle with a gross vehicle mass of 5 tonnes or more
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement such as a shared associations in pastoral landscapes as well as associations linked with the mission period
Heritage Item	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i>
ICNG	NSW Interim Construction Noise Guideline, DECC 2009
Incident	A set of circumstances that: <ul style="list-style-type: none"> • causes or threatens to cause material harm to the environment; and/or • breaches or exceeds the limits or performance measures/criteria in this consent
INP	NSW Industrial Noise Policy, EPA 2000
Management and Mitigation Measures	The Management and Mitigation Measures at Appendix 1 of this consent
Minister	Minister for Planning
Mitigation	Activities associated with reducing the impacts of the Development prior to or during those impacts occurring
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays

NOW	NSW Office of Water
OEH	Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PPU	Poultry Production Unit, a group of poultry sheds, feed and water storage, workshop, staff amenities, stormwater and wastewater infrastructure
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Regulation, the	<i>Environmental Planning and Assessment Regulation 2000</i>
RMS	Roads and Maritime Services
RTS	Response to Submissions titled, " <i>Euroley Poultry Production Complex (SSD 6882), Response to Submissions</i> ", prepared by SLR Consulting Australia Pty Ltd, dated 1 September 2015
Secretary	Secretary of the Department of Planning and Environment, or nominee
Site	Land referred to in Schedule 1

SCHEDULE 2

PART A: ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- A1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction or operation of the Development.

TERMS OF CONSENT

- A2. The Applicant shall carry out the Development in accordance with:
- (a) State Significant Development Application SSD 6882;
 - (b) Environmental Impact Statement, titled "*Euroley Poultry Production Complex – SSD 6882*" volumes one to three, prepared by SLR Consulting Australia Pty Ltd, dated 20 May 2015;
 - (c) Response to Submissions report, titled "*Euroley Poultry Production Complex (SSD 6882), Response to Submissions*" prepared by SLR Consulting Australia Pty Ltd dated 1 September 2015;
 - (d) the Management and Mitigation Measures located at Appendix 1; and
 - (e) the plans and drawings located at Appendix 2.
- A3. If there is any inconsistency between the plans and documentation referred to in Condition A2 above, the most recent document shall prevail to the extent of the inconsistency. However, conditions of this consent prevail to the extent of any inconsistency.
- A4. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
 - (b) the implementation of any actions or measures contained within these documents.

LIMITS OF CONSENT

- A5. This consent lapses five years after the date from which it operates, unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under Section 95 of the Act.

Farm Operations

- A6. The Applicant shall ensure that:
- (a) the Development does not exceed a maximum population of 3.92 million broilers at any one time;
 - (b) the stocking densities of the Development comply at all times with the standards detailed in *National Animal Welfare Standards for the Chicken Meat Industry* (Barnett et al, 2008), as amended;
 - (c) the Development is not populated with 3.92 million broilers in one day at the commencement of each production cycle;
 - (d) the commencement of broiler population for each PPU is separated by a minimum of 36 hours; and
 - (e) the time period for the population of the entire farm (all five PPUs) shall be a minimum of 10 days.

Farm manager accommodation

- A7. The ten residential dwellings for farm manager's accommodation as described in the EIS are only to be occupied by persons employed by the Applicant, their spouse and dependants for the operational life of the Development to manage poultry operations on-site and shall not be occupied or let for any other purpose.

STATUTORY REQUIREMENTS

- A8. The Applicant shall ensure that all licences, permits and approvals are obtained and kept up to date as required throughout the life of the Development. No condition of this consent removes the obligation the Applicant to obtain, renew or comply with such licences, permits or approvals.

STRUCTURAL ADEQUACY

- A9. The Applicant shall ensure that all new buildings and structures on the site are constructed in accordance with the relevant requirements of the *Building Code of Australia* (BCA).

Notes:

- *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

RESIDENTIAL WORKS

- A10. The Applicant shall ensure that any residential works work must be carried out:

- (a) in accordance with the requirements of the BCA; and
- (b) in accordance with Part 6, Division 8A of the Regulation.

STAGED SUBMISSION OF PLANS AND PROGRAMS

- A11. With the approval of the Secretary, the Applicant may:

- (a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
- (b) combine any strategy, plan or program required by this consent.

DISPUTE RESOLUTION

- A12. In the event of a dispute between the Applicant and a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.

SECTION 94A CONTRIBUTIONS

- A13. In accordance with Division 6 of Part 4 of the EP&A Act, the Applicant shall pay Narrandera Shire Council Section 94A contributions to the sum 0.5% of construction cost in the form of cash of bank cheque made out to Narrandera Shire Council. Evidence of payment to Council shall be submitted to the Certifying Authority prior to the issue of a Construction Certificate.

Note: The contributions shall be adjusted in accordance with the requirements of the current Narrandera Shire Council s94A Contributions Plan, February 2014, as amended.

UTILITIES AND SERVICES

- A14. Utilities, services and other infrastructure potentially affected by the construction and operation of the Development shall be identified prior to construction to determine requirements for access to, diversion, protection, and/or support. Consultation with the relevant owner and/or provider of services that are likely to be affected by the Development shall be undertaken to make suitable arrangements for access to, diversion, protection, and/or support of the affected infrastructure as required. The cost of any such arrangements shall be borne by the Applicant.

EASEMENTS

- A15. An easement for access to the Development site shall be created through the privately owned land described as lots 12 and 15 in Deposited Plan 750898 and Lot 39 in Deposited Plan 750876 between the Development site and the intersection with the Sturt Highway.
- A16. A section 88B restriction as to user shall be created so that the owner of the Development site shall be responsible for the construction and maintenance of the access road and any associated services such as drainage, within the easement for the life of the Development. The restriction as to user shall detail the required standard for maintenance including 50 m seal

extending from the Sturt Highway intersection and all weather gravel construction for the remainder in accordance with Austroads Guidelines.

- A17. Narrandera Shire Council shall be prescribed within the s88B instrument as an authority whose consent is required to release, vary or modify the burden/benefits.

BOUNDARY ADJUSTMENT

- A18. The Applicant is required to undertake boundary adjustments to ensure that each Poultry Production Unit and the associated ancillary manager's accommodation are wholly contained within its own allotment. Evidence of lodgement with the Lands Title Office to be submitted to the Certifying Authority prior to the issue of any Occupation Certificate for the development.

SCHEDULE 3

PART B: ENVIRONMENTAL PERFORMANCE

AIR QUALITY AND ODOUR

Air Quality Discharges

- B1. The Applicant shall install and operate equipment in line with best practice to ensure that the Development complies with all load limits, air quality criteria and air quality monitoring requirements as specified in the EPL for the site.

Odour

- B2. The Applicant shall ensure the Development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

Air Quality Management Plan

- B3. Prior to the commencement of operation, the Applicant shall prepare an **Air Quality Monitoring Program** (AQMP) for the Development, to the satisfaction of the Secretary. The AQMP shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6 and any other requirements of the EPL for the site. The AQMP shall:
- (a) be prepared in consultation with the EPA;
 - (b) detail and rank all emissions from all sources of the Development, including particulate emissions;
 - (c) describe a program that is capable of evaluating the performance of the operation and determining compliance with key performance indicators;
 - (d) identify the control measures that will be implemented for each emission source; and
 - (e) nominate the following for each of the proposed controls:
 - (i) key performance indicator;
 - (ii) monitoring method;
 - (iii) location, frequency and duration of monitoring;
 - (iv) record keeping;
 - (v) complaints register;
 - (vi) response procedures; and
 - (vii) compliance monitoring.

Odour Validation Audit

- B4. When directed by the EPA, the Applicant must submit an Odour Validation Report (OVR) to the EPA. The OVR must:
- (a) be carried out by a suitably qualified independent expert experienced in the characterisation and treatment of odours from chicken broiler farms from the Development;
 - (b) include a summary of any odour complaints received and actions taken to reduce odour emissions where complaints are verified;
 - (c) where possible include a field odour survey that characterises the frequency, intensity, duration, offensiveness, location and extent of off-site odours;
 - (d) benchmark the design and management practices at the premises against industry best practice for minimising odour emissions, including investigation of newly developed and emerging control technology;
 - (e) within six (6) weeks after being directed by the EPA, present a report to the EPA that determines compliance with S129 of the POEO Act and recommend if additional odour mitigation measures are required;
 - (f) consider odour generation associated with stocking densities and rates and PPU population practices outlined in Condition A6;

- (g) where additional odour measures are recommended or odour issues are identified as being from stocking densities, rates or PPU population practices, appropriate mitigation measures or management practices must be nominated to ensure that odour is minimised as far as practicable; and
- (h) any odour mitigation measures nominated must include a timetable for implementation.

Meteorological Monitoring

- B5. During the operational life of the Development, the Applicant shall ensure that there is a suitable meteorological station on the site that complies with the requirements in the latest version of the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline. The meteorological station must be maintained so as to be capable of continuously monitoring the following parameters: air temperature, wind direction, wind speed, rainfall and relative humidity and any other requirements specified in the EPL.

Dust Management

- B6. The Applicant shall carry out all reasonable and feasible measures to minimise dust generated by the Development.
- B7. During construction and operation of the Development, the Applicant shall ensure that:
- (a) all vehicles on-site do not exceed a speed limit of 60 kilometres per hour;
 - (b) all loaded vehicles entering or leaving the site have their loads covered;
 - (c) all loaded vehicles leaving the site are cleaned of dirt, sand and other materials before they leave the site, to avoid tracking these materials on public roads; and
 - (d) all heavy vehicles do not use engine brakes.

ANIMAL WELFARE AND BEST PRACTICE

- B8. The Applicant shall ensure that the Development complies with the relevant requirements for the welfare of the broilers, particularly health, housing, watering, feeding, handling and transport, including, but not limited to those contained within the:
- (a) National Animal Welfare Standards for the Chicken Meat Industry (Barnett et al. 2008)
 - (b) NSW DPI *Best Practice Management for Meat Chicken Production in NSW – Manual 2* (2012);
 - (c) National Farm Biosecurity Manual for Chicken Growers (ACMF, 2000);
 - (d) Model Code of Practice for the Welfare of Animals – Domestic Poultry, 4th Edition (PISC, 2002);
 - (e) Model Code of Practice for the Welfare of Animals, Land Transport of Poultry (PISC, 2006); and
 - (f) Management and Mitigation Measures located at Appendix 1.

Disease Management

- B9. Prior to the commencement of operation, the Applicant shall prepare an **Emergency Disposal and Bio-security Protocol**, detailing the disposal procedures for a mass mortality event, to the satisfaction of the Secretary. The protocol shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The protocol shall:
- (a) be prepared in consultation with Council, DPI and other relevant government agencies;
 - (b) be consistent with the relevant AUSTVETPLAN manuals and supporting documents;
 - (c) describe the notification procedures;
 - (d) detail all transport routes to be used in a mass mortality event;
 - (e) detail any requirements to stage the mass disposal of dead broilers;
 - (f) detail the burial location(s) for the disposal of dead broilers, including plans and drawings;
 - (g) detail the measures to maintain quarantine control; and

- (h) detail the mass mortality disposal procedures and options, consistent with section 6.12.2 of the EIS and section 2.1.10 of the RTS.

BIODIVERSITY

Biodiversity Offset Strategy

- B10. The Applicant shall implement the strategy for offsetting impacts as described in the *Biodiversity Offset Strategy* at Appendix K of the RTS prepared by SLR (dated 31 August 2015) and developed in accordance with the *Framework for Biodiversity Assessment* (OEH 2014) and the *NSW Biodiversity Offsets Policy for Major Projects* (OEH 2014). The advertisement period for the Expression of Interest on the Office of Environment and Heritage's 'Credit Wanted' register will be 12 months.
- B11. Within three months of the conclusion of the advertisement period, or as otherwise agreed to by the Secretary, the Applicant shall demonstrate to the satisfaction of the Secretary that the offset strategy actions set out in Section 4.3 of the *Biodiversity Offset Strategy* at Appendix K of the RTS prepared by SLR (dated 31 August 2015) have been completed.

Biodiversity Management Plan

- B12. Prior to the commencement of operation, the Applicant shall prepare a **Biodiversity Management Plan** (BMP) for the Development to the satisfaction of the Secretary. The Biodiversity Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6 and the *Biodiversity Offset Strategy* prepared by SLR, dated 31 August 2015 (Appendix K of the RTS) and in consultation with the OEH.

TRAFFIC AND TRANSPORT

Site Access, Internal Roads and Parking

- B13. The Applicant shall ensure that:
- (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the Development are constructed and maintained in accordance with the latest versions of AS 2890.1 and AS 2890.2;
 - (b) the sweep path of the longest vehicle entering and exiting the subject site, as well as manoeuvrability through the site, is in accordance with AUSTROADS;
 - (c) the Development does not result in any vehicles queuing on the public road network;
 - (d) heavy vehicles and bins associated with the Development do not park or stand on local roads or footpaths in the vicinity of the site;
 - (e) all vehicles are wholly contained on site before being required to stop;
 - (f) all loading and unloading of materials is carried out on site;
 - (g) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.
 - (h) all trucks entering or leaving the site with loads have their loads covered;
 - (i) trucks associated with the Development do not track dirt onto the public road network; and
 - (j) vehicles larger than B-Double class do not enter the site.

Road Works

- B14. Prior to the commencement of construction of any poultry shed, residential dwelling or structure on-site, the Applicant shall construct an intersection between the Sturt Highway and the proposed site access identified in the EIS to a Basic Right Turn (BAR) and Basic Left Turn (BAL) intersection treatment, in consultation with, and to the satisfaction of the RMS.
- B15. Any works associated with the proposed Development shall be at no cost to RMS.

Traffic Management Plan

- B16. Prior to the commencement of construction, the Applicant shall prepare a **Traffic Management Plan** (TMP) for the Development in consultation with Council and the RMS, to the satisfaction of the Secretary. The plan shall form part of the CEMP required under Condition C1. The TMP shall:
- (a) detail the measures that would be implemented to ensure road safety, network efficiency and access during construction;
 - (b) contain a drivers code of conduct to:
 - (i) minimise the impacts of construction on the local and regional road network; and
 - (ii) minimise conflicts with other road users.
 - (c) detail heavy vehicle routes, access and parking arrangements; and
 - (d) if necessary, detail procedures for notifying any nearby residents of any potential disruptions to routes.

WASTE MANAGEMENT

- B17. All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.
- B18. Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.
- B19. The Applicant shall not stockpile, store or utilise spent bedding material in any way within the Development site.
- B20. Broiler mortalities shall not be disposed to land by burial or any other method at the premises, for the life of the Development, unless otherwise permitted by a relevant authority during a bio-security emergency at the site (refer to Condition B9 for further requirements for broiler disposal).

Waste Management Plan

- B21. Prior to the commencement of operation, the Applicant shall prepare a **Waste Management Plan** for the Development to the satisfaction of the Secretary. The Waste Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The WMP shall:
- (a) detail the type and quantity of waste to be generated during construction and operation of the Development;
 - (b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the *Protection of the Environment Operations Act 1997*, *Protection of the Environment Operations (Waste) Regulation 2014* and the *Waste Classification Guideline* (Department of Environment, Climate Change and Water, 2009);
 - (c) detail the materials to be reused or recycled, either on or off site; and
 - (d) include the Management and Mitigation Measures included in Appendix 1.

HAZARD AND RISK

Dangerous goods

- B22. Dangerous goods, as defined by the *Australian Dangerous Goods Code*, shall be stored and handled strictly in accordance with:
- (a) all relevant Australian Standards;
 - (b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and

- (c) the *Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin* (Environment Protection Authority, 1997).

In the event of an inconsistency between the requirements listed from a) to c) above, the most stringent requirement shall prevail to the extent of the inconsistency.

- B23. The Applicant shall ensure that the storage and transport of LPG for the Development complies with AS/NZS 1596:2014 - The Storage and Handling of LP Gas.

Pre-construction

- B24. Prior to the commencement of construction of the Development, other than site preparation works, or as otherwise agreed by the Secretary, the following studies shall be prepared:

- (a) a **Fire Safety Study** for the Development, covering relevant aspects detailed in the Department's publication *Hazardous Industry Planning Advisory Paper No. 2 - Fire Safety Guidelines* and the New South Wales Government's *Best Practice Guidelines for Contaminated Water Retention and Treatment Systems*. The Study shall include a strict maintenance schedule for essential services and other safety measures. The Study shall meet the requirements of the NSW Fire Brigades; and
- (b) a **Final Hazard Analysis** prepared in accordance with the Department's *Hazardous Industry Advisory Paper No.6 – Guidelines for Hazard Analysis*.

Pre-commissioning

- B25. Prior to the commencement of commissioning of the Development, the Applicant shall prepare a comprehensive **Emergency Plan** and detailed emergency procedures for the Development. The Plan shall be prepared in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 1 - Industry Emergency Planning Guidelines*.

Pre-Startup

- B26. The Applicant shall submit to the Secretary a report detailing compliance with Condition B24 and Condition B25 one month prior to the commencement of operation of the development.

NOISE

Construction Noise

- B27. Construction activities associated with the Development shall be undertaken during the following construction hours:

- (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; and
(b) 8:00am to 1:00pm Saturdays; and
(c) at no time on Sundays or public holidays.

- B28. Construction works outside of the standard construction hours identified in Condition B27 may be undertaken in the following circumstances:

- (a) construction works that generate noise that is:
(i) no more than 5 dB(A) above rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009); and
(ii) no more than the noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009) at other sensitive receivers; or
- (b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- (c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm;

- (d) works approved through an EPL, or by the Secretary; and
- (e) works as approved through the out-of-hours work protocol outlined in the CEMP.

B29. Except as expressly permitted by the EPL, activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken:

- (a) between the hours of 8:00 am to 5:00 pm Monday to Friday;
- (b) between the hours of 8:00 am to 1:00 pm Saturday; and
- (c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.

For the purposes of this condition 'continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing any of the work the subject of this condition.

B30. The Development shall be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the CEMP.

Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5dB(A) to the predicted level before comparing to the construction NML.

B31. Where Feasible and Reasonable, operation noise mitigation measures shall be implemented at the start of Construction (or at other times during Construction) to minimise Construction noise impacts.

Operational Noise Limits

B32. The Applicant shall ensure that noise from the operation does not exceed the limits in Table 1 below

Table 1 – Noise Limits dB(A)

Location	Day	Evening	Night	
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{A1} (1 minute)
All privately owned residential premises	35	35	35	45

Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the INP. Appendix 9 of the INP sets out the meteorological conditions under which this criterion applies.

Noise Modifying Factors

B33. If noise from an activity is substantially tonal, intermittent or impulsive in nature or contains major components within the low frequency range (as described in Chapter 4 of the *NSW Industrial Noise Policy* (Environment Protection Authority, 2000)), 5 dB(A) shall be added to the measured noise level when comparing the measured noise with the limits specified in Table 4.1 of the INP.

Note: Low frequency noise is currently under review by the Environment Protection Authority and the Department of Planning and Environment.

SOIL, WATER QUALITY AND HYDROLOGY

Flooding

- B34. The design of the rice hull storage structures must incorporate flood proofing to ensure that broiler feed remains dry in the event of a 1 in 100 year flood event.
- B35. Minimum floor levels for habitable buildings should be based on protection from the 1 in 100 year flood event plus 500 mm freeboard.
- B36. Prior to the commencement of operation, the Applicant shall prepare an **Emergency and Evacuation Plan** to the satisfaction of the Secretary. The Emergency and Evacuation Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The Emergency and Evacuation Plan shall:
- (a) be prepared in consultation with Narrandera Shire Council and the NSW State Emergency Service;
 - (b) describe all reasonable flood recovery measures;
 - (c) detail assembly and evacuation points;
 - (d) detail transportation routes and procedures in a flood event;
 - (e) incorporate the Flood Management Plan at Section 6.5.6 of the EIS;
 - (f) detail the procedures for managing flood risks during construction and operation of the development, including procedures for the protection of infrastructure, staff and broilers; and
 - (g) detail the management measures for the supply of feed in a flood event.

Construction Soil and Water Management

- B37. Soil and water management measures consistent with *Managing Urban Stormwater - Soils and Construction Vol. 1* (Landcom, 2004) (the Blue Book) shall be employed during the construction of the Development to minimise soil erosion and the discharge of sediment and other pollutants to land and/or waters.

Surface Water Discharge Limits

- B38. The Applicant shall ensure that all licensed surface water discharges from the site comply with the discharge limits (volume and quality) set for the Development in any EPL or relevant provisions of the POEO Act.

Stormwater

- B39. The Applicant must design, construct, operate and maintain all stormwater and water storage facilities on site with the internal surfaces equivalent to, or better than, a clay liner of a minimum permeability of 1×10^{-9} metres per second and a clay liner thickness of no less than 600mm, or an equivalent alternative.

Groundwater

- B40. The groundwater bores for the Development shall be constructed in accordance with the *Minimum Construction Requirements for Water Bores in Australia, Third Edition, February 2012*, (National Uniform Drillers Licensing Committee, 2012).
- B41. Groundwater extracted from the bores shall be treated in accordance with the standards contained within the *National Water Biosecurity Manual – Poultry Production* (DAFF, 2009).
- B42. Groundwater extraction for the purposes of the Development shall be limited to the provisions of any water access licence(s) issued by the DPI.

Bunding

B43. The Applicant shall store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling Liquids: Environmental Protection – Participants Handbook*.

Domestic Effluent

B44. The Applicant shall obtain the relevant license/approval from Council under section 68 of the *Local Government Act 1996* prior to the commencement of construction for all domestic effluent disposal and management systems on-site.

Water Management Plan

B45. Prior to the commencement of operation, the Applicant shall prepare a **Water Management Plan** to the satisfaction of the Secretary. The Water Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The WMP shall:

- (a) be prepared in consultation with the DPI;
- (b) detail water use, metering, disposal and management on-site;
- (c) detail the number and location of piezometers on-site;
- (d) detail the water licence requirements for the Development;
- (e) detail the management of wastewater streams on-site;
- (f) contain a Surface Water Management Plan, including:
 - (i) a program to monitor:
 - surface water flows and quality;
 - surface water storage and use; and
 - sediment basin operation;
 - (ii) sediment and erosion control plans;
 - (iii) surface water impact assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts;
 - (iv) a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria; and
- (g) contain a Groundwater Management Plan, including:
 - (i) baseline data on groundwater levels and quality;
 - (ii) a program to monitor groundwater levels and quality;
 - (iii) groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts; and
 - (iv) a protocol for the investigation and mitigation of identified exceedances of the groundwater impact assessment criteria.
- h) contain a Contingency plan for the operation of the facility during extreme weather events such as heat wave or drought. Examples of contingency options may include (but are not limited to) securing sufficient additional water access licences to service the facility during inclement conditions, or adjusting the scale of the operation to meet the available water supply.

LANDSCAPE

External Lighting

B46. All external lighting associated with the Development shall be mounted, screened, and directed in such a manner so as not to create a nuisance to the surrounding environment, properties and roadways. The lighting shall be the minimum level of illumination necessary and shall comply with Australian Standard AS4282 1997 – *Control of the Obtrusive Effects of Outdoor Lighting*.

Landscape Management Plan

B47. Prior to the commencement of operation, the Applicant shall prepare a **Landscape Management Plan** (LMP) to manage the revegetation and landscaping works on-site, to the

satisfaction of the Secretary. The LMP shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The LMP shall:

- (a) detail the species to be planted on-site to achieve a vegetation buffer of 40 metres around each PPU;
- (b) describe the monitoring and maintenance measures to manage revegetation and landscaping works; and
- (c) be consistent with the Management and Mitigation Measures at Appendix 1.

GREENHOUSE GAS

B48. The Applicant shall implement all reasonable and feasible measures to minimise energy use on site and greenhouse gas emissions produced on-site.

HERITAGE

Protection of Aboriginal Heritage Items

B49. Prior to the commencement of construction of any poultry shed, residential dwelling or structure on-site, the Applicant shall undertake a pre-clearance pedestrian archaeological survey for linear alignments. Representatives from relevant Registered Aboriginal Parties are to be included in this assessment.

B50. Prior to the commencement of construction of any poultry shed, residential dwelling or structure on-site, the Applicant shall undertake a pre-clearance archaeological survey for the internal road alignment and impact area associated with the revised location of PPU5. Representatives from relevant Registered Aboriginal Parties should be included in this assessment.

B51. Any subsequent alterations to the Development footprint that are outside the study areas of the Aboriginal Heritage Impact assessment (prepared by OzArk, dated April 2015 at Appendix J of the EIS) and pre-clearance surveys, should be assessed in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH, 2010) as amended.

B52. The three known Aboriginal sites (EPPC-ST1, EPPC-ST2 and EPPC-H1) shall be fenced during construction and operation of the Development to exclude vehicles, pedestrians and animals from the sites.

Unexpected Finds Protocol

B53. If any archaeological relics are uncovered during the course of construction of the Development, then all works shall stop immediately in that area and the OEH Heritage Branch contacted. Depending on the possible significance of the relics, an archaeological assessment and an excavation permit under the *NSW Heritage Act 1977* may be required before further work can continue in that area.

B54. If any Aboriginal objects are uncovered during work, excavation or disturbance of the work area, work must stop immediately and the Regional Operations Group of the OEH is to be contacted. If Aboriginal objects/places are known to be directly or indirectly adversely affected, the Applicant will need to apply for, and be issued, an Aboriginal Heritage Impact Permit (AHIP) by OEH to comply with the *National Parks and Wildlife Act 1974*.

Aboriginal Cultural Heritage Management Plan

B55. Prior to the commencement of operation, the Applicant shall prepare an **Aboriginal Cultural Heritage Management Plan** to the satisfaction of the Secretary. The plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6 and shall:

- (a) describe the management actions, including fencing, for the three known Aboriginal sites (EPPC-ST1, EPPC-ST2 and EPPC-H1) during construction and operation; and

- (b) incorporate any additional sites found during pre-clearance surveys.

SCHEDULE 4

ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- C1. The Applicant shall prepare a **Construction Environmental Management Plan** to the satisfaction of the Secretary. The Plan must:
- (a) be approved by the Secretary prior to the commencement of construction;
 - (b) identify the statutory approvals that apply to the Development;
 - (c) outline all environmental management practices and procedures to be followed during construction works associated with the Development;
 - (d) describe all activities to be undertaken on the site during construction of the Development, including a clear indication of construction stages;
 - (e) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
 - (f) describe the roles and responsibilities for all relevant employees involved in construction works associated with the Development; and
 - (g) include the management plans under Condition C2 of this consent.
- C2. As part of the Construction Environmental Management Plan for the Development, required under condition C1 of this consent, the Applicant shall include the following:
- (a) Dust Management (see Condition B6 and B7);
 - (b) Traffic Management (see Condition B16);
 - (c) Construction Soil and Water Management (see Condition B37); and
 - (d) Community Consultation and Complaints Handling.
- C3. The Applicant shall carry out the construction of the Development in accordance with the CEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

- C4. The Applicant shall prepare an **Operational Environmental Management Plan (OEMP)** for the Development to the satisfaction of the Secretary. The OEMP must:
- (a) be submitted to the Secretary for approval prior to the commencement of operation;
 - (b) be consistent with the NSW DPIs *Best Practice Management for Meat Chicken Production in New South Wales – Manual 2 (Meat Chicken Growing Management)*;
 - (c) be prepared by a suitably qualified and experienced expert;
 - (d) provide the strategic framework for environmental management of the Development;
 - (e) identify the statutory approvals that apply to the Development;
 - (f) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Development;
 - (g) describe the procedures that would be implemented to:
 - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the Development;
 - (ii) receive, handle, respond to, and record complaints;
 - (iii) resolve any disputes that may arise;
 - (iv) respond to any non-compliance;
 - (v) respond to emergencies; and
 - (h) include the following environmental management plans:
 - (i) Air quality (see Condition B3, B4 and B5);
 - (ii) Emergency Disposal and Bio-security Protocol (see Condition B9);
 - (iii) Biodiversity (see Condition B10 to Condition B12 inclusive);
 - (iv) Waste (see Condition B21);
 - (v) Emergency and evacuation (see Condition B36);
 - (vi) Water (see Condition B45);

- (vii) Landscaping (see Condition B47); and
- (viii) Aboriginal Cultural Heritage (see Condition B55).

C5. The Applicant shall operate the Development in accordance with the OEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

MANAGEMENT PLAN REQUIREMENTS

C6. The Applicant shall ensure that the environmental management plans required under Condition C4 of this consent are prepared by a suitably qualified person or persons in accordance with best practice and include:

- (a) detailed baseline data;
- (b) a description of:
 - (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - (ii) any relevant limits or performance measures/criteria; and
 - (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures;
- (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
- (d) a program to monitor and report on the:
 - (i) impacts and environmental performance of the Development;
 - (ii) effectiveness of any management measures (see (c) above);
- (e) a contingency plan to manage any unpredicted impacts and their consequences;
- (f) a program to investigate and implement ways to improve the environmental performance of the Development over time;
- (g) a protocol for managing and reporting any:
 - (i) incidents;
 - (ii) complaints;
 - (iii) non-compliances with statutory requirements; and
 - (iv) exceedances of the impact assessment criteria and/or performance criteria; and
- (h) a protocol for periodic review of the plan.

Revision of Strategies, Plans and Programs

C7. Within 3 months of the submission of an:

- (a) annual review under Condition C8;
- (b) incident report under Condition C10; or
- (c) audit under Condition C12.

The Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Development.

ANNUAL REVIEW

C8. Each year, the Applicant shall review the environmental performance of the Development to the satisfaction of the Secretary. This review must:

- (a) describe the Development that was carried out in the previous calendar year, and the Development that is proposed to be carried out over the next year;

- (b) include a comprehensive review of the monitoring results and complaints records of the Development over the previous calendar year, which includes a comparison of these results against the:
 - (i) the relevant statutory requirements, limits or performance measures/criteria;
 - (ii) requirements of any plan or program required under this consent;
 - (iii) the monitoring results of previous years; and
 - (iv) the relevant predictions in the EIS;
- (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- (d) identify any trends in the monitoring data over the life of the Development;
- (e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and
- (f) describe what measures will be implemented over the next year to improve the environmental performance of the Development.

REPORTING

Incident Reporting

- C9. Within 24 hours of the occurrence of an incident that causes (or may cause) harm to the environment, the Applicant shall notify the Secretary and any other relevant agencies of the incident.
- C10. Within seven (7) days of the detection of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detail report on the incident.

Regular Reporting

- C11. The Applicant shall provide regular reporting on the environmental performance of the Development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

AUDITING

Independent Environmental Audit

- C12. Within 2 years of the date of this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the Development. This audit must:
- (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
 - (b) include consultation with the relevant agencies;
 - (c) assess the environmental performance of the Development and assess whether it is complying with the requirements in this consent, and any other relevant approvals, relevant EPL(s) (including any assessment, plan or program required under these approvals);
 - (d) review the adequacy of any approved strategy, plan or program required under the abovementioned consents; and
 - (e) recommend measures or actions to improve the environmental performance of the Development, and/or any strategy, plan or program required under these consents.

Note: This audit team must be led by a suitably qualified auditor, and include relevant experts in any other fields specified by the Secretary.

- C13. Within 3 months of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

- C14. Within 6 months of the date of this consent, the Applicant shall:

- (a) make copies of the following publicly available on its website:
 - (i) the documents referred to in Condition A2;
 - (ii) all current statutory approvals for the Development;
 - (iii) all approved strategies, plans and programs required under the conditions of this consent;
 - (iv) a comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
 - (v) a complaints register consistent with that provided in Appendix C of the EIS, updated on a monthly basis;
 - (vi) the annual reviews of the Development;
 - (vii) any independent environmental audit of the Development, and the Applicant's response to the recommendations in any audit;
 - (viii) any other matter required by the Secretary; and
- (b) keep this information up to date,

to the satisfaction of the Secretary.

ENVIRONMENTAL REPRESENTATIVE

- C15. Prior to the commencement of construction of the Development, or as otherwise agreed by the Secretary, the Applicant shall nominate for the approval of the Secretary a suitably qualified and experienced Environment Representative(s) that is independent of the design and construction personnel. The Applicant shall employ the Environment Representative(s) for the duration of construction through the life of the Development, or as otherwise agreed by the Secretary. The Environment Representative(s) shall:
- (a) be the principal point of advice in relation to the environmental performance of the Development;
 - (b) monitor the implementation of environmental management plans and monitoring programs required under this consent and advise the Applicant upon the achievement of these plans/ programs;
 - (c) have responsibility for considering and advising the Applicant on matters specified in the conditions of this consent, and other licences and approvals related to the environmental performance and impacts of the Development;
 - (d) be given the authority to approve / reject minor amendments to the OEMP. What constitutes a "minor" amendment shall be clearly explained in the Construction Environment Management Plan required under condition C1;
 - (e) be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur; and
 - (f) be consulted in responding to the community concerning the environmental performance of the Development where the resolution of points of conflict between the Applicant and the community is required.

APPENDIX 1: MANAGEMENT AND MITIGATION MEASURES (Source: EIS)

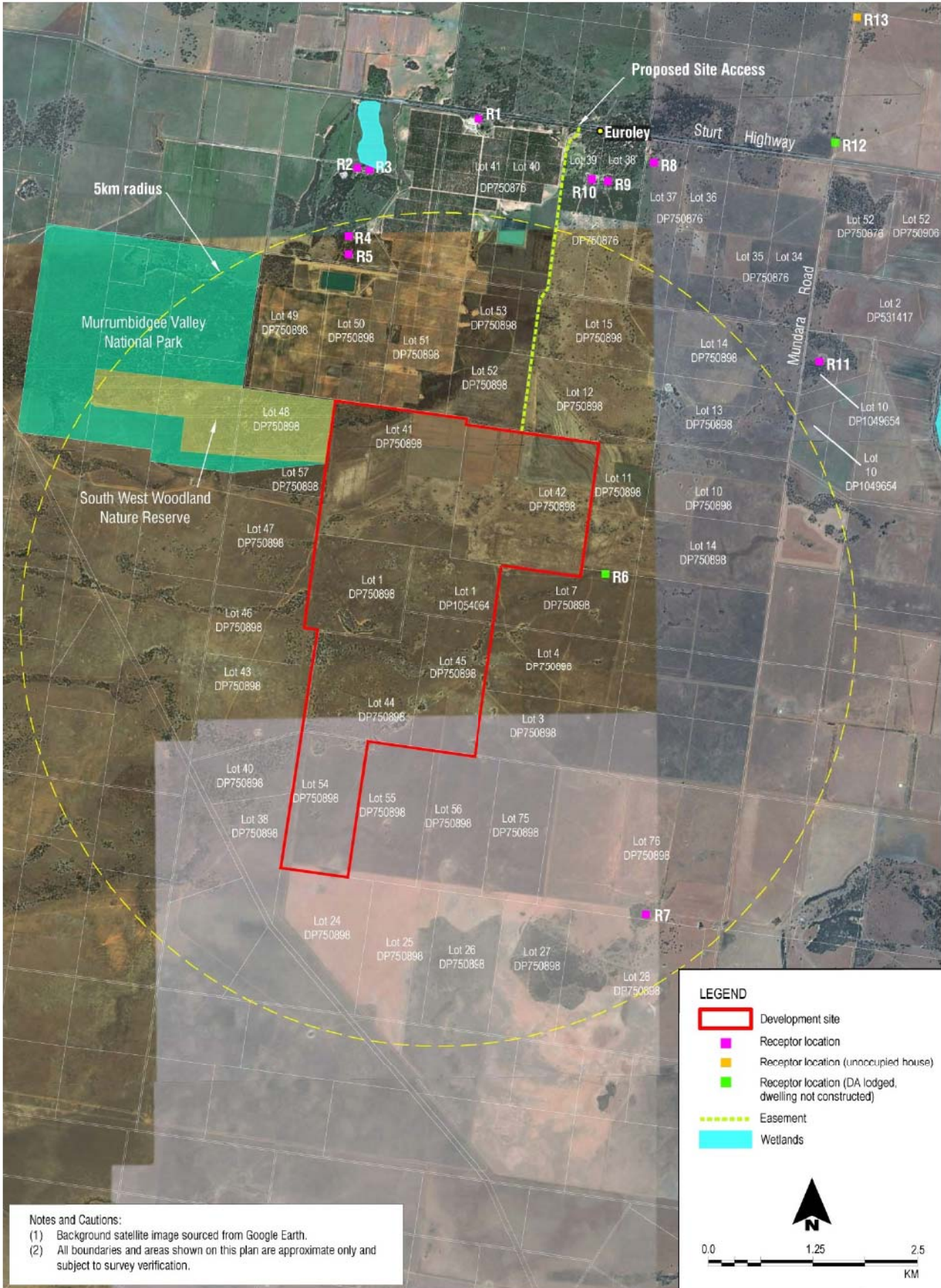
Aspect/Commitment	EIS Section
General	
<ul style="list-style-type: none"> • ProTen will carry out the Development at Euroley generally in accordance with the Development application and this EIS report. • The Development site will not accommodate more than 3.92 million birds at any one time. • Construction will be undertaken within the hours of: <ol style="list-style-type: none"> a. Monday to Friday, 7.00 am to 6.00 pm; b. Saturday, 8.00 am to 1.00 pm; and c. No construction work on Sunday and public holidays • The poultry Development will operate 24 hours a day, seven days a week, with the majority of activities carried out between 7.00 am and 7.00 pm. • The Complaints and Incident Management Strategy contained within Appendix C of the EIS will be implemented to ensure that all complaints and incidents relating to the poultry operation, if they occur, are promptly and effectively addressed. 	Section 3
Air Quality and Odour	
<p><u>During Construction</u></p> <ul style="list-style-type: none"> • No disturbance will occur outside of the nominated disturbance footprint, and disturbed areas will be promptly rehabilitated and revegetated to a stable landform to minimise dust emissions. • Dust will be minimised by ‘wetting’ down surfaces being worked or carrying traffic in dry periods. <p><u>During Operation</u></p> <ul style="list-style-type: none"> • A meteorological station will be installed within the Development site to collect on- going and up-to-date weather data. • The poultry sheds and feed silos will be fully enclosed to reduce the level of moisture and to minimise emissions of dust/particulate matter. • The insides of the poultry sheds and the surrounds will be maintained at all times to ensure a clean and sanitary environment, including regular monitoring and maintenance of the tunnel ventilation systems and bird drinkers to avoid spillage, leaks and uneven distribution. • Stocking densities and bird health within each of the poultry sheds will be regularly checked and, if necessary, appropriate corrective measures will be implemented. • Daily monitoring and maintenance of the bedding material will be undertaken to identify, remove and replace any caked material beneath drinking lines and/or areas with excessive moisture content. • Internal access roads will be appropriately maintained to minimise dust and noise emissions. 	Section 6.2.5
Noise	
<ul style="list-style-type: none"> • A 60 km/hr speed limit will be adopted on the site access road between the Development site and the Sturt Highway. • Plant and equipment will be maintained in good repair and operators will be appropriately instructed on how to minimise noise generation at all times. • Noise generating equipment purchased by the operator will comply with relevant occupational health and safety requirements. • Emergency standby diesel generators will only be used when power from the electricity grid is lost and they will be appropriately sited and housed to minimise noise emissions. • A unidirectional traffic movement system, via a one-way circulation road around each PPU site, will be established with appropriate signage to minimise the use of reversing alarms. 	Section 6.3.5

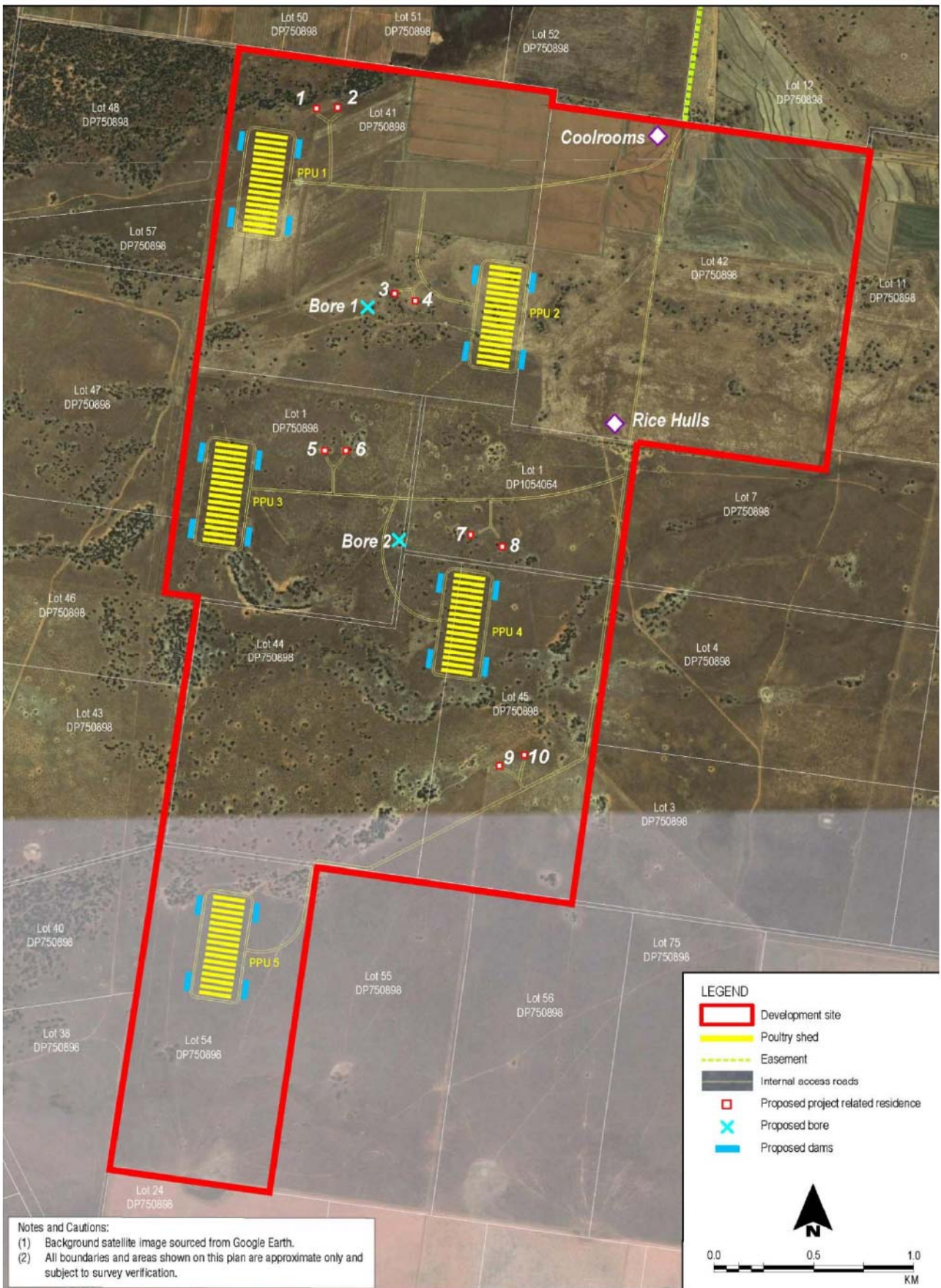
Traffic and Transport	
<ul style="list-style-type: none"> • An intersection between the Sturt Highway and the Development site access road will be constructed at the location shown on Figure 1.2 (in the EIS), with a basic right turn treatment (BAR) and basic left turn treatment (BAL) intersection in accordance with <i>Austrroads Guide to Road Design, Part 4A: Unsignalised and Signalised Intersections</i>. • The site access road from the Sturt Highway to the Development site will be constructed to a minimum width of 6.5 metres, with a pavement and road surface suitable for B-doubles. • The access road will be bitumen sealed for a minimum length of 50 metres from the Sturt Highway intersection. • Advance signposting on the approach to the Sturt Highway intersection will be erected in both directions warning of trucks turning. In addition, an intersection direction sign opposite the access will be erected to further help identify the access point. • The farm access will meet the minimum requirements of AS 2890.2, to accommodate the turning movements of the largest vehicles generated by the poultry Development. • The internal PPU access roads will be constructed as one-way circulation roads (ring roads) around the perimeter of each PPU to enable traffic to enter, exit and manoeuvre in a forward direction. The roads will be constructed as all-weather rural- type roads able to carry the anticipated heavy vehicle movements. • 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 and noise. • All internal roads will be maintained clear of obstruction and used exclusively for the purposes of transport, loading-unloading and parking. 	Section 6.4.4
Surface Water and Flooding	
<ul style="list-style-type: none"> • Temporary erosion and sediment control structures, such as hay bales and silt fencing, will be used during construction and regularly maintained to prevent soil loss and sediment-laden runoff. • All clean extraneous surface water from upslope will be diverted around areas of disturbance. • The stormwater management system described in Section 3.12 (of the EIS) will be constructed and appropriately maintained. • Staff members will be instructed in the proper use and handling of all chemicals used on-site. If appropriate, this will include completion of training such as SMARTtrain or ChemCert (or similar). • All chemical use will be undertaken in full compliance with the relevant statutory requirements, including the <i>Pesticides Act 1999</i>. • Wastewater generated by the on-site staff amenities and accommodation will be appropriately treated and disposed of via on-site wastewater management systems installed and operated in accordance with the requirements of Council and relevant standards/guidelines. 	Section 6.5.4
Flooding	
<ul style="list-style-type: none"> • Habitable finished floor levels within farm managers' accommodation will be set at a minimum of 500 mm above adjacent ground level to reduce the likelihood of floodwater ingress to buildings. • Finished floor levels of the poultry sheds will be set at a minimum of 300 mm above adjacent ground level to reduce the likelihood of floodwater ingress to buildings. • The flood management plan described in Section 6.5.6 (of the EIS) will be implemented where necessary. 	Section 6.5.5 and 6.5.6
Groundwater	
<ul style="list-style-type: none"> • Groundwater wells will be designed by a suitably qualified engineer or hydrogeologist, and the design and construction will be undertaken in accordance with the <i>Minimum Construction Requirements for Water Bores in Australia</i> (National Uniform Drillers Licensing Committee, 2012). The 	Section 6.6.3

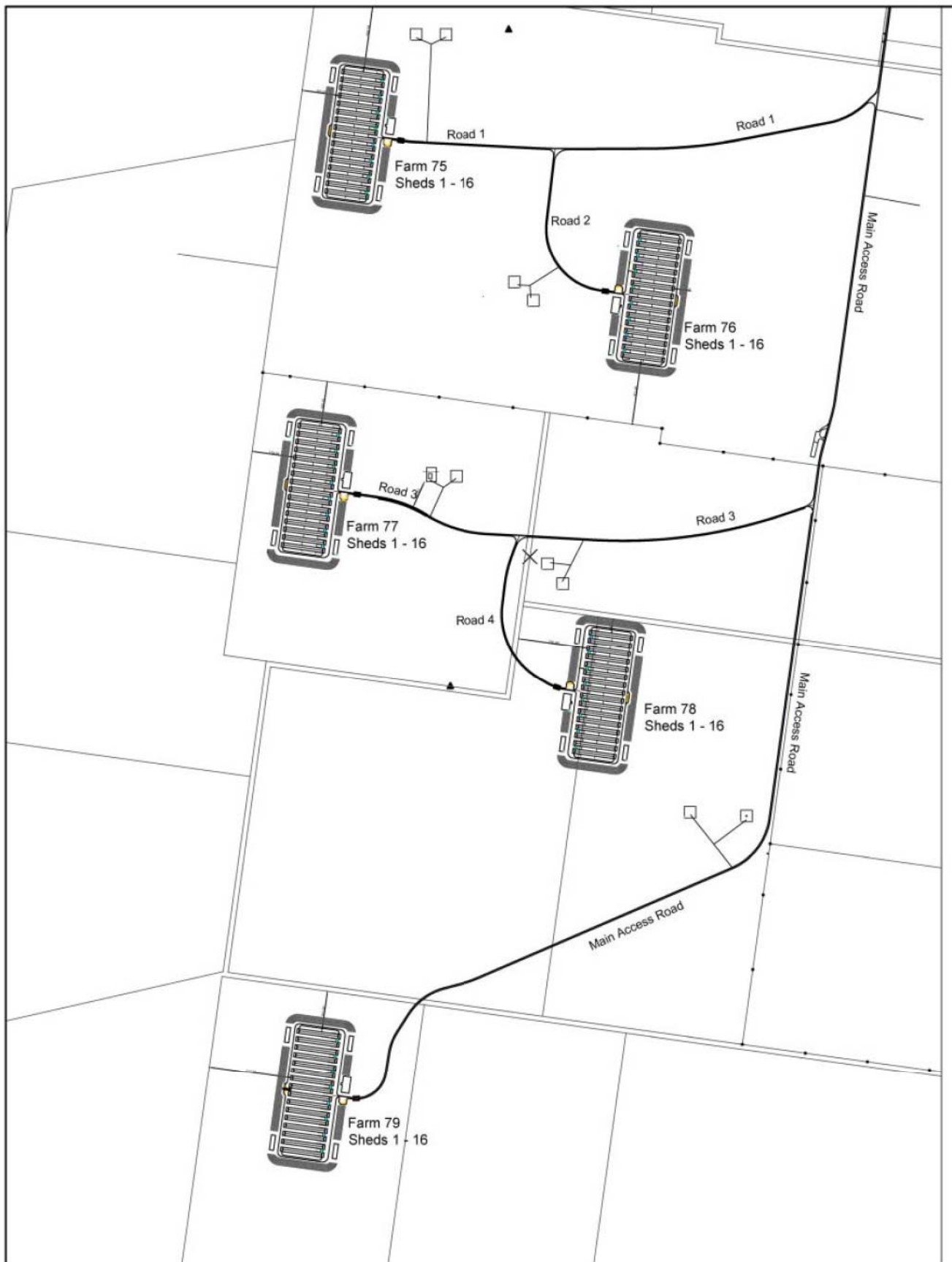
<p>installation of the wells should include normal Development practice, including a commissioning test on the well.</p> <ul style="list-style-type: none"> • Monitoring of wells will comply with the existing WAL conditions. • There will be no on-site disposal of bird carcasses or associated waste in the event of a mass-mortality, unless directed to do so by the DPI. 	
Biodiversity	
<ul style="list-style-type: none"> • No disturbance will occur outside of the nominated disturbance footprint. • Erosion and sediment control measures will be installed and maintained to prevent the erosion and sedimentation impact on any areas downstream supporting remnant vegetation. • Weed management practices will be implemented to minimise the spread of exotic species into natural areas within the site. • A biodiversity offset strategy for the Project will be finalised in accordance with the actions detailed in Section 6.7.5 (of the EIS), in consultation with OEH and within 12 months of gaining Project Approval. • Landscape plantings will be established in accordance with the Landscaping Strategy contained in Section 3.13 of the EIS, which will increase the total area under vegetation within the locality, create habitat and increase the local biodiversity. 	Section 6.7.5
Aboriginal Heritage	
<ul style="list-style-type: none"> • No disturbance will occur outside of the nominated disturbance footprint. • The three aboriginal sites identified on site will be fenced during construction activities. The hearth will remain fenced during operation of the poultry production complex. • Should any Aboriginal artefact be uncovered all works will cease in that locale and the OEH will be notified. Works will only recommence when an appropriate and approved management strategy has been agreed to by all of the relevant stakeholders. 	Section 6.8.4
Visual Amenity	
<ul style="list-style-type: none"> • The luminaires on each poultry shed will be aimed downwards and only switched on during loading-unloading and servicing activities outside of daylight hours and during heavy fog. • The landscaping strategy described in Section 3.13 (of the EIS) will be implemented and maintained in order to improve the visual and environmental amenity of the poultry Development. 	Section 6.10.3
Biosecurity and Poultry Disease	
<ul style="list-style-type: none"> • ProTen will meet all standards of care and management for animal health and welfare detailed in the <i>National Animal Welfare Standards for the Chicken Meat Industry</i> (Barnett et al, 2008). • ProTen will implement a suite of biosecurity measures in accordance with the <i>National Farm Biosecurity Manual for Chicken Growers</i> (Australian Chicken Meat Federation 2010). A copy of this manual will be kept at the Development site and staff will be provided with training in the relevant parts of the Manual. • In the unlikely event of a major disease outbreak, the EPA and DPI will be contacted as soon as the breakout is suspected. Immediate measures will be implemented to isolate the infected PPU site(s), effect strict quarantine procedures to prevent the spread of the disease, and notify all relevant stakeholders. Where permitted, urgent ring vaccination of flocks within the controlled area will be organised. • Upon confirmation that it is an exotic disease outbreak and immediate slaughter of farm stock is necessary, slaughter will be managed by the DPI in co-ordination with the EPA and technical service units of the poultry industry. The birds will be slaughtered within the poultry sheds. • If ProTen's preferred option of disposal of infected birds at Baiada's protein recovery plant cannot be realised for various reasons such as quarantine requirements, disposal of diseased poultry via in-shed composting, or offsite burial at Jeanella will be undertaken in consultation with the DPI and EPA. 	Section 6.12

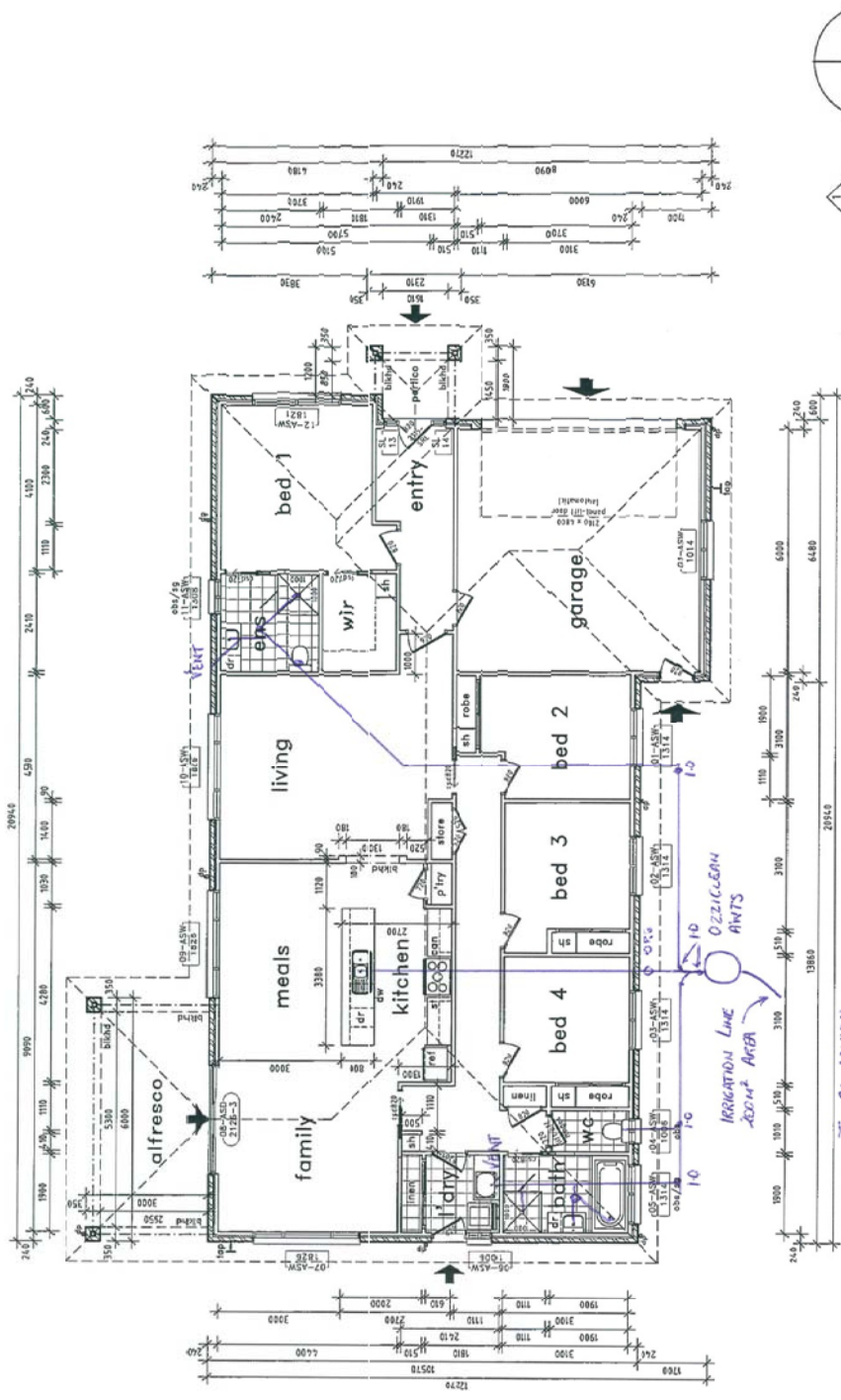
Waste Management	
<ul style="list-style-type: none"> • No on-site stockpiling or disposal of waste materials will occur. • Day to day general waste will be placed into enclosed skips and removed from each PPU site by a licensed contractor on a regular basis. • Chemical Containers - a chemical supply company will be engaged to provide a chemical delivery and pickup service direct to the Development site. At each delivery of new chemical supplies, empty chemical containers will be retrieved by the chemical company for recycling or appropriate disposal. • Poultry litter will be promptly removed from the sheds and transported off-site in covered trucks by an approved contractor at the end of each production cycle during the clean-out phase. • Dead birds will be collected from the poultry sheds on a daily basis and stored in on-site chillers for daily removal to Baiada's rendering plant near Hanwood on Kidman Way. 	Section 3.10
Greenhouse Gas and Energy Efficiency	
<ul style="list-style-type: none"> • Low lux internal shed lighting will be installed within the poultry sheds. • External shed 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 in order to identify and rectify any air leaks, which place additional load on ventilation fans. • Ventilation fans and heaters will be regularly maintained and serviced to ensure optimal performance and efficiency. • Automatic control systems will continuously monitor internal shed lighting, temperature, humidity and static pressure, and adjust the ventilation to suit conditions resulting in less energy to regulate the internal shed conditions. 	Section 6.11

APPENDIX 2: SITE PLANS









Working Drawing

Proposed dwellings for
 Proten Holdings Pty Ltd
 Lot 42 Sturt Highway
 Euroley, NSW 2700
 DP pending

**ground floor plan
 (dwelling 1 & 2)**
 floor area: 189.0m²
 garage area: 39.4m²
 porficio area: 4.0m²
 alfresco area: 16.0m²

Scale: 1:100
 Drawing Start: 20.10.14
 Signed off: P2260
 Project Number: 2 of 10
 Drawing Number: 16.07.15
 Plot date:



DAVIS SANDERS HOMES
 Davis Sanders Homes Pty Limited,
 ABN 85-00-370-822
 Licence No's NSW 41757C & Victoria DB-U25441
 21 Banna Circuit, Albury NSW 2640
 PO Box 7285, Albury East NSW 2640
 Telephone 02 6037 4777 Fax 02 6037 4778
 www.davisandershomes.com.au

Insulation: 32/Sheby187/Standard/modified revision 1: P03_303

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Our reference: EF16/1645; DOC16/59520-09

The Chief Executive Officer
ProTen Holdings Pty Ltd
PO Box 1746
NORTH SYDNEY NSW 2060

Dear Mr Bryant

Re Environment Protection Licence – Narrandera Poultry Production Complex

Thank you for your application received on 4 February 2016 by the Environment Protection Authority (EPA) for an environment protection licence for your poultry production complex on the Sturt Highway at Euroley.

We have carefully considered your application and have determined to issue a Scheduled Development Work and Scheduled Activity – Premises Based licence for the facility to accommodate a maximum of 3.92 million birds.

Environment Protection Licence No 20748 has been assigned to the facility and is enclosed. The licence has been prepared consistent with your development consent and various management plans.

Annual Return Requirement

The licence anniversary date is 22 April 2016. Each year from 2017 an Annual Return will be generated on the anniversary date by the EPA and sent to the licence holder for the purpose of reporting compliance with the licence conditions. Where monitoring is required by your licence, you must enter a summary of the results in the Annual Return.

Pollution Incident Response Management Plan

Prior to becoming operational, a Pollution Incident Response Management Plan (PIRMP) must be prepared in accordance with Part 5.7A of the *Protection of the Environment Operations Act 1997* (POEO Act). For more information about the PIRMP requirements please refer to the EPA's website at <http://www.epa.nsw.gov.au/legislation/20120227egpreppirmp.htm>.

Publishing of Pollution Monitoring Data

All licensees who undertake pollution monitoring data as part of a condition of their Environment Protection Licence must publish that monitoring data in accordance with Section 66 (6) of the POEO Act. If you operate a website you must publish that monitoring data on the website. If you do not

maintain a website then you must make the pollution monitoring data available when requested. For more information about the EPA's requirements for publishing pollution monitoring data please refer to the EPA's website at <http://www.epa.nsw.gov.au/licensing/pubmonitdata.htm>.

If you have any further enquiries about this matter please contact me by telephoning 02 6969 0700.

Yours sincerely



22.04.2016

JASON PRICE
Acting Head, Griffith Unit
Environment Protection Authority

Environment Protection Licence



Licence - 20748

Licence Details	
Number:	20748
Anniversary Date:	22-April

Licensee
PROTEN HOLDINGS PTY LIMITED
PO BOX 1746
NORTH SYDNEY NSW 2060

Premises
NARRANDERA POULTRY PRODUCTION COMPLEX
STURT HIGHWAY
UROLY NSW 2700

Scheduled Activity
Livestock intensive activities

Fee Based Activity	Scale
Bird accommodation	> 1000 T accommodation capacity

Region
South West
Suites 7-8, Level 1 Griffith City Plaza, 130-140 Banna Avenue
GRIFFITH NSW 2680
Phone: (02) 6969 0700
Fax: (02) 6969 0710
PO Box 397 GRIFFITH
NSW 2680

Environment Protection Licence



Licence - 20748

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Environment Protection Licence

Licence - 20748



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Environment Protection Licence

Licence - 20748



Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

Licence - 20748



The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

PROTEN HOLDINGS PTY LIMITED
PO BOX 1746
NORTH SYDNEY NSW 2060

subject to the conditions which follow.

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1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Livestock intensive activities	Bird accommodation	> 1000 T accommodation capacity

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
NARRANDERA POULTRY PRODUCTION COMPLEX
STURT HIGHWAY
UROLY
NSW 2700
LOT 1 DP 750898, LOT 41 DP 750898, LOT 42 DP 750898, LOT 44 DP 750898, LOT 45 DP 750898, LOT 54 DP 750898

A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

Ancillary Activity
Waste storage

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with

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the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

- P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.
- P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
2	Surface water quality monitoring		Sediment dam No 1 at PPU 1 identified in Figures 1 & 2 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
3	Surface water quality monitoring		Sediment dam No 3 at PPU 2 identified in Figures 1 & 2 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
4	Surface water quality monitoring		Sediment dam No 1 at PPU 3 identified in Figures 1 & 2 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
5	Surface water quality monitoring		Sediment dam No 3 at PPU 4 identified in Figures 1 & 2 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520

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6	Surface water quality monitoring	Sediment dam No 1 at PPU 5 identified in Figures 1 & 2 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
7	Groundwater quality monitoring	Piezometer labelled 'Piezo 1' identified in Figure 1 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
8	Groundwater quality monitoring	Piezometer labelled 'Piezo 2' identified in Figure 1 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
9	Groundwater quality monitoring	Piezometer labelled 'Piezo 3' identified in Figure 1 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
10	Groundwater quality monitoring	Piezometer labelled 'Piezo 4' identified in Figure 1 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
11	Groundwater quality monitoring	Piezometer labelled 'Piezo 5' identified in Figure 1 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
12	Groundwater quality monitoring	Piezometer labelled 'Piezo 6' identified in Figure 1 of the document titled "Narrandera Poultry Production Complex - Water Management Plan" dated March 2016, kept on EPA file EF16/1645 at DOC16/59520

P1.3 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

Noise

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EPA identification no.	Type of monitoring point	Location description
1	Meteorological Station	Meteorological Station is identified in Figure 2 of the Operational Environmental Management Plan dated 19 April 2016 prepared for the Narrandera Poultry Production Complex

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L2.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

L3 Noise limits

L3.1 Noise from the premises must not exceed an Leq (15 minute) noise emission criterion of 35dB(A), except as expressly provided by this licence.

L3.2 Noise from the premises is to be measured at the nearest sensitive receptor not associated with the premises to determine compliance with this condition.

L3.3 The noise emission limits identified in this licence apply under all meteorological conditions except:
 a) during rain and wind speeds (at 10m height) greater than 3m/s; and
 b) under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

L4 Other limit conditions

L4.1 The total number of birds accommodated at the premises, at any one time, must not exceed 3,920,000.

L4.2 All waste water treatment, storage and terminal ponds must have a minimum pond base and wall

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permeability of 1×10^{-9} metres per second or be artificially lined with an impermeable high density polyethylene liner.

- L4.3 All waste water collection ponds must be designed, constructed and maintained to accommodate the stormwater runoff volume generated in a 1 in 20 year, 24 hour rainfall event using a volumetric runoff coefficient of 0.8.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

- O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
- a) must be maintained in a proper and efficient condition; and
 - b) must be operated in a proper and efficient manner.

O3 Dust

- O3.1 Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.
- O3.2 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

O4 Processes and management

- O4.1 There must be a minimum of 36 hours between the commencement of broiler accommodation in each Poultry Production Unit.

O5 Waste management

- O5.1 The premises must:
- a) Have sufficient on site chillers to store all general bird mortalities (~1% of birds on site at any time);
 - b) Remove all mortalities found in the sheds immediately to the chillers; and
 - c) Ensure that when chillers are in use they are kept at ≤ 4 degrees Celsius.

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O5.2 Any bird mortalities generated at the premises are not permitted to be buried on site. Bird mortalities must be disposed or processed at a facility that can lawfully receive the waste

Note: This condition does not apply if the applicant is directed by the NSW Department of Primary Industries to bury the birds on site.

O5.3 All waste water and contaminated stormwater must be captured in a waste water collection system and be prevented from leaving the premises.

Note: This condition does not apply in rainfall events which create greater volumes of stormwater than an event with an average recurrence interval of a local 1 in 20 year, 24 hour rain event.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
 a) in a legible form, or in a form that can readily be reduced to a legible form;
 b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
 a) the date(s) on which the sample was taken;
 b) the time(s) at which the sample was collected;
 c) the point at which the sample was taken; and
 d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Water and/ or Land Monitoring Requirements

POINT 2,3,4,5,6

Pollutant	Units of measure	Frequency	Sampling Method
Electrical conductivity	microsiemens per centimetre	Yearly	Grab sample

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Nitrogen (total)	milligrams per litre	Yearly	Grab sample
pH	pH	Yearly	In situ
Phosphorus (total)	milligrams per litre	Yearly	Grab sample
Total suspended solids	milligrams per litre	Yearly	Grab sample

POINT 7,8,9,10,11,12

Pollutant	Units of measure	Frequency	Sampling Method
Ammonia	milligrams per litre	Yearly	Representative sample
Calcium	milligrams per litre	Yearly	Representative sample
Chloride	milligrams per litre	Yearly	Representative sample
Electrical conductivity	microsiemens per centimetre	Yearly	Representative sample
Magnesium	milligrams per litre	Yearly	Representative sample
Nitrate	milligrams per litre	Yearly	Representative sample
pH	pH	Yearly	Representative sample
Phosphorus	milligrams per litre	Yearly	Representative sample
Potassium	milligrams per litre	Yearly	Representative sample
Sodium	milligrams per litre	Yearly	Representative sample
Sulfate	milligrams per litre	Yearly	Representative sample
Total dissolved solids	milligrams per litre	Yearly	Representative sample

M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Weather monitoring

M4.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.

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POINT 1

Parameter	Sampling method	Units of measure	Averaging period	Frequency
Wind Speed at 10 metres	AM-2 & AM-4	metres per second	15 minutes	Continuous
Wind Direction at 10 metres	AM-2 & AM-4	Degrees	15 minutes	Continuous
Temperature at 10 metres	AM-4	degrees Celsius	15 minutes	Continuous
Temperature at 2 metres	AM-4	degrees Celsius	15 minutes	Continuous
Rainfall	AM-4	millimetres per hour	15 minutes	Continuous

M5 Recording of pollution complaints

- M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M5.2 The record must include details of the following:
- the date and time of the complaint;
 - the method by which the complaint was made;
 - any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - the nature of the complaint;
 - the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - if no action was taken by the licensee, the reasons why no action was taken.
- M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

- M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M6.3 The preceding two conditions do not apply until 3 months after the date of the issue of this licence.

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6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
1. a Statement of Compliance,
 2. a Monitoring and Complaints Summary,
 3. a Statement of Compliance - Licence Conditions,
 4. a Statement of Compliance - Load based Fee,
 5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
 6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data,
 7. a Statement of Compliance - Environmental Management Systems and Practices; and
 8. a Statement of Compliance - Environmental Improvement Works.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

- R1.3 Where this licence is transferred from the licensee to a new licensee:
- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
 - b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
 - b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

- R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

- R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

- R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
- a) the licence holder; or
 - b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

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R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:

- a) where this licence applies to premises, an event has occurred at the premises; or
- b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:

- a) the cause, time and duration of the event;
- b) the type, volume and concentration of every pollutant discharged as a result of the event;
- c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
- d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

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- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

8 Special Conditions

E1 Odour validation audit

- E1.1 When directed by the EPA, the licensee must submit an Odour Validation Report (OVR) to the EPA. The OVR must:
 - Be completed by a suitably qualified independent expert experienced in the characterisation and treatment of odours from chicken broiler farms;
 - Include a summary of any odour complaints received and actions taken to reduce odour emissions where complaints are verified;
 - Where possible include a field odour survey that characterises the frequency, intensity, duration, offensiveness, location and extent of off-site odours;
 - Benchmark the design and management practices at the premises against industry best practice for minimising odour emissions, including investigation of newly developed and emerging control technology;
 - Within six (6) weeks after being directed by the EPA, present a report to the EPA that determines compliance with Section 129 of the *Protection of the Environment Operations Act 1997* and recommend if additional mitigation measures are required;
 - Consider odour generation associated with stocking densities, rates and PPU population practices outlined in condition A6 of the development consent;
 - Where additional odour control measures are recommended, or odour issues are identified as being from stocking density, rates or PPU population practices, appropriate mitigation measures or management practices must be nominated to ensure that odour is minimised as far as practicable; and
 - Any odour mitigation measures nominated must include a timetable for implementation.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr Jason Price

Environment Protection Authority

(By Delegation)

Date of this edition: 22-April-2016

End Notes



Statement of Conditions

as at Wednesday, 8 April 2015
Issued under Water Management Act 2000

WAL number 11788

Reference number 40AL403630

Contact for service of documents

Name PROTEN HOLDINGS PTY LTD

Address PO Box 1746
NORTH SYDNEY NSW 2060

All holders

Name(s) PROTEN HOLDINGS PTY LTD

Licence details

Water source LOWER MURRUMBIDGEE DEEP GROUNDWATER SOURCE

Water sharing plan LOWER MURRUMBIDGEE GROUNDWATER SOURCES

Management zone

Category AQUIFER

Share component 488 units

Tenure type Continuing

Conditions

The water access licence with DWE Reference No 40AL403630 is subject to the following conditions:

Plan conditions

Water sharing plan

Lower Murrumbidgee Groundwater Sources

Take of water

MW0812-00001

This licence entitles its holder to the specified shares in the available water from the specified water source as described in this licence.

MW0697-00001

Where the licence holder is a member of a registered group formed under the plan, the licence holder must not cause or allow the combined restricted extraction calculated to apply to the group in any one year, to be exceeded.

MW0814-00001

The licence holder must only take water under this licence using the water supply work nominated by this licence, unless otherwise allowed by the Act or the plan.

MW0815-00001

The licence holder must comply with the terms of the extraction component specified on this licence, including the times, rates or circumstances in which, and the areas or locations from which, water may be taken under this licence, subject to any extraction restrictions in local impact areas.

MW0822-00001

The licence holder must not take water under this licence if the resulting debit from the water allocation account for this licence will exceed the volume of water in the account.

MW0820-00001

The licence holder must comply with all restrictions and reductions of extraction rates declared or ordered by the Minister to apply in a local impact area.

MW0818-00001

The licence holder must comply with all applicable available water determination(s).

MW0821-00001

The licence holder must comply with the water allocation account management rules established by the plan.

MW0824-00001

The licence holder must not take water through a water supply work located in areas where the extraction is likely to cause an adverse local impact on water levels, water quality, aquifer integrity or on groundwater dependent ecosystems.

MW0819-00001

The licence holder must not take more water than is allowed pursuant to an applicable AWD unless the taking is pursuant to a lawful transfer or assignment under Chapter 3 Part 2 of the Act.

Use of water

MW0686-00001

The licence holder must not take water for any purpose other than domestic consumption and stock watering purposes or other than in exercising native title rights, through a water supply work nominated on this licence, if the water supply work is within 1,000 m of any high priority groundwater dependent ecosystem listed in Schedule 4 of the plan, or within 1,000 m of any creek or river, unless the water supply work :

- (A) only draws water from an aquifer at depths approved by the Minister, and complies with all specifications of the Minister under clause 38 of the plan, or
- (B) was authorised by licence under the Water Act 1912.

Water management works

MW0813-00001

The water supply work nominated by this licence is the water supply work authorised by a works approval nominated by this licence.

Monitoring and recording

MW0636-00001

The licence holder must produce the logbook to the Minister for inspection, when requested.

Additional conditions

MW0698-00001

The licence holder must comply with the access licence dealing principles as gazetted under section 71Z of the Act and all other access licence dealing rules established by the plan.

MW0823-00001

The licence holder must pay any charge imposed by the Minister under section 114 of the Act or regulations, for the cost of activities or works under the plan.

Other conditions

No other conditions applicable

Glossary

available water determination - An Available water determination (AWD) is a water allocation which specifies the amount of water that can be taken during the water year. AWDs are made for each access licence category in each water source. AWDs are defined under the Water Management Act 2000, s. 59.

cease to take - Cease to take conditions means any condition on this approval, or on the access licence under which water is proposed to be taken, that prohibits the taking of water in a particular circumstance.

domestic consumption - Domestic consumption is the use of water for normal household purposes in domestic premises situated on the land.

high priority groundwater dependent ecosystem - High priority groundwater dependent ecosystems have their species composition and natural ecological processes wholly or partially determined by groundwater and are considered high priority for protection or restoration.

logbook - A logbook is a document, electronic or hard copy, that records specific required information.

share component - The share component is the specified shares in the available water within a particular water management area.

stock watering - Stock watering is the use of water for stock animals being raised on the land. It does not include the use of water for the raising of stock animals on an intensive commercial basis (kept in feedlots or buildings for all, or a substantial part, of the period during which the stock animals are being raised).

General Notes

All conditions on a water access licence require compliance. An appeal to the Land and Environment Court against a decision to impose certain conditions on an approval can be made within 28 days after the date the decision is made. Conditions identified with the first letter "D" are those that can be appealed during the appeal period.

Certain dealings and other matters relating to this water access licence or a holding in this water access licence must be registered in the Access Register in accordance with section 71A of the *Water Management Act 2000*. For information about the Access Register, contact Land and Property Information (<http://www.lpi.nsw.gov.au>).



Driver Code of Conduct

Narrandera Poultry Production Complex

Declaration

I, the undersigned, hereby agree to abide by ProTen Holdings Pty Ltd *Driver Code of Conduct* when driving to and from the Development Site and within the Development Site for the Narrandera Poultry Production Complex.

I have read and understand the requirements outlined in the attached document and will, to the best of my ability, comply and assist with their on-going implementation.

Driver

Full Name:

Company/Organisation:

Signature:

Date:

ProTen Holdings Pty Ltd

Company Witness:

Date:



Driver Code of Conduct

Narrandera Poultry Production Complex

General Requirements

Drivers must:

- Hold a valid driver's licence for the class of vehicle being operated.
- Operate the vehicle in a safe and professional manner within and external to the Development Site.
- Be respectful and courteous to other drivers, construction workers and traffic controllers within the Development Site, and also to the general public when driving on public roads to and from the Development Site.
- Comply with the direction of authorised site personnel when within the Development Site.
- Dispose of waste materials in a lawful manner and in compliance with the waste management systems established within the Development Site.

Safety

- Drivers shall wear a seat belt and abide by all road rules when travelling to and from the Development Site.
- Drivers are to wear the site PPE if required to leave their vehicle.

Vehicle Speed

Drivers are to observe the speed limits within the Development Site, which are set at:

- 60 kilometres per hour on access roads; and
- 30 kilometres per hour around work sites.

Designated Access Roads and Parking

- Where possible, drivers will ensure that vehicles remain on designated access roads within the Development Site.
- Drivers will park heavy vehicles along the internal designated access roads and/or within the disturbance/construction pads. No parking is permitted on undisturbed land within the Development Site or on the Sturt Highway.

Compression Braking

- Drivers are to refrain from using compression braking within the Development Site.

Loaded Vehicles

- Drivers of loaded vehicles entering or exiting the Development Site will ensure their loads are covered.
- Drivers of loaded vehicles leaving the Development Site will ensure their vehicle is clean of dirt, sand and other materials to avoid tracking these materials on to the public road network.

Alcohol, Narcotics and Controlled Substances

- Drivers will not use alcohol, narcotics or controlled substances, or be under their influence, while on duty.
- Drivers are to cooperate if requested to undertake testing to determine whether they are under the influence of alcohol, narcotics or controlled substances.



Air Quality Management Plan

NARRANDERA POULTRY PRODUCTION COMPLEX

PROTEN HOLDINGS

Job ID. 20198

16 March 2016

PROJECT NAME: Narrandera POULTRY PRODUCTION COMPLEX

JOB ID: 20198

DOCUMENT CONTROL NUMBER AQU-QD-003-21098

PREPARED FOR: ProTen Holdings

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1 INTRODUCTION

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds (a total of 80 sheds), with associated support infrastructure and staff amenities.

This Air Quality Management Plan (AQMP) has been prepared (on behalf of ProTen Holdings (ProTen)) to fulfil condition B3 of Development Consent SSD 6882, and to manage potential air quality (odour and dust) impacts associated with the operational phase of the Development. It will be operated in accordance with the Best Practice Guidelines for Meat Chicken Production in NSW – Manual 2 – Meat Chicken Growing Management (DPI NSW, 2012b) and in compliance with RSPCA accreditation.

1.1 Scope and Objective

One of the primary objectives for the Development is to minimise dust and odour generation during ongoing operations. This AQMP only applies to the Development as described in Section 1.

The objectives of the AQMP are to:

- comply with all relevant statutory requirements, conditions of development consent and ProTen standard operating procedures
- identify the major sources of dust and odour emissions and controls that will be implemented
- employ best practice air quality procedures to manage and minimise the impact of dust and odour on the environment and nearby sensitive receptors
- maintain an effective response mechanism for dealing with issues and complaints

This AQMP has been prepared as an appendix to the Development’s Operational Environmental Management Plan (OEMP) and is to be read in conjunction with the OEMP.

1.2 Relevant Documents and Standards

Documents relevant to the AQMP include:

- DEC. (2005). Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales. Sydney: Department of Environment and Conservation.
- DECC (2006). Approved methods for the sampling and analysis of air pollutants in New South Wales. Sydney: DECC.
- Pacific Environment Limited (2015a) Air Quality Impact Assessment – Euroley Poultry Project
- Pacific Environment Limited (2015b) EPA Review of Euroley Odour and Dust Assessment

2 MANAGEMENT OF ODOUR AND DUST

The operation of the poultry farm has the potential to generate dust and odour emissions which if not managed appropriately could impact nearby sensitive receptors. With good management practices the potential for impact is minimised.

2.1 Source identification

The following potential sources have been identified as primary sources of dust and odour:

- Dust emissions due to:
 - wheel generated dust from unsealed roadways
 - dust emissions from sheds
 - materials handling and transfer (i.e. litter placement and removal)
 - windblown dust from open areas
- Odour emissions due to:
 - shed operations during the growing phase
 - shed operations during shed cleanout
 - dead birds
 - spilt litter during cleanout

2.2 Management of Dust Emissions

While dust emissions from modern poultry farms are typically low, ProTen will take reasonable and practicable measures to prevent or minimise dust emissions from the Development. A range of design features, best management practices and mitigation measures are detailed below which will be applied to minimise and manage potential impacts.

Dust management for the Development will be achieved through observations, job planning (in relation to weather conditions) and standard routines for specific activities (dust controls).

Responding to parts (e)(i) to (e)(vii) of condition B3 of Development Consent SSD 6882 the dust controls, including key performance indicators (KPI), monitoring methods, etc., are presented in Table 2-1. Details of record keeping, complaints register, response procedures and compliance monitoring are presented in Sections 3, 4 and 5.

Table 2-1: Management methods for dust generating activities

Dust generating activities	Dust control activity	KPI	Monitoring methods	Inspection Location and frequency
Wheel generated dust from vehicle movements on internal roads	Adopt a 40 kilometre per hour (km/hr) speed limit on the access road from the Sturt Highway and the Development Site and within the Development Site	No dust observed leaving the site.	Visual	Daily around each PPU
	Restricting non essential vehicles access to unsealed areas			
	Maintain internal roads as appropriate			
	Water internal roads when necessary during dry periods			
Shed operation	Implement vegetation planting around each PPU	Effective vegetative buffer established in line with industry standards including RIRDC (2015).	Visual	Ongoing around the PPUs
	Manage litter moisture so the shed litter moisture does not drop below 15%	Shed litter stays above 15% to limit dust	Visually in line with DPI (2012)	Daily during batch
	Thoroughly clean sheds between batches with a focus on the fan end of the sheds			At the end of each batch
Litter placement	Limit drop heights	No dust observed leaving the site.	Visual	During litter placement at each shed
	Limit placement times to daytime hours (when possible) and to avoid adverse weather conditions (when possible)			
	Water the top of the litter prior to movement if dust generation is likely (e.g. during adverse weather conditions)			
Litter removal	Limit drop heights when loading spent litter into trucks	No dust observed leaving the site.	Visual	During cleanout at each shed being cleaned
	Limit removal times to daytime hours (when possible) and to avoid adverse weather conditions (when possible)			
	Ensure trucks are covered when leaving the site and the litter is removed from site as soon as practicable after removal from the sheds			

2.3 Management of Odour emissions

The management of odour from the Development is required to reduce the risk of adverse offsite impacts. The Best Practice Management for Meat Chicken Production in NSW Manual 2 (DPI, 2012) , states that odour emissions are a function of many interrelated factors, including:

- the nature, strength and offensiveness of the emissions, which depend on:
 - the total number and stocking density of birds
 - the age of the birds
 - disease and digestive upsets in the birds
 - the feed formulation (e.g. the nitrogen content)
 - the amount of faecal material in the litter and its moisture content.
- the frequency, intensity, duration and character of odour impacts, which are influenced by:
 - local meteorological conditions and topographical features that govern the transport and dispersion of odorous emissions
 - the distance of the receptor or sensitive land use from the odour source
 - the nature and sensitivity of the receptor.

Responding to parts (e)(i) to (e)(vii) of condition B3 of Development Consent SSD 6882, the odour controls, including key performance indicators (KPI), monitoring methods, etc., are presented in **Table 2-2**. Details of record keeping, complaints register, response procedures and compliance monitoring are presented in Sections 3, 4 and 5.

Table 2-2: Management measures for odour generating activities

Odour generating activities	Odour control activity	KPI	Monitoring method	Location and frequency
Shed emissions during bird growth period	Total bird numbers are not to exceed 3.92 million birds at any one time.	No odour complaints	Field odour observations ^a	Confirmed by batch records as required
	Farm staging - Each PPU is to be placed a minimum of 36 hours apart			Confirmed by batch records as required
	The ventilation system and evaporative cooling systems must be maintained to ensure air movement is at design level			Daily while birds are present in each shed
	Waterers must be maintained and repaired to minimise leakage that will result in wet patches in the shed litter.			Daily while birds are present in each shed
	Very wet and sticky litter associated with drinker spills is to be replaced with fresh litter as soon as practicable			Daily while birds are present in each shed
	Activities which may increase emissions such as wet litter replacement should occur during daytime hours only.			Daily during a batch in each shed
	Stormwater drains around the sheds are to be maintained to ensure that water does not pond around the sheds.			End of each batch in each shed
	Ensure a minimum depth of 45mm of uncompacted fresh litter is present throughout the shed at the start of the batch.			At start of batch in each shed
	Sheds must be stocked at densities consistent with the Animal Care and Protection Regulation 2002.			Daily while birds are present in each shed
	Shed stocking densities and bird health within the poultry sheds will be regularly checked and, if necessary, appropriate corrective measure implemented.			Daily while birds are present in each shed
	Litter moisture should be maintained to avoid becoming wet.			Daily while birds are present in each shed
	Shed walls and roofs must be maintained and leaks repaired immediately to prevent wet patches in the litter.			End of each batch in each shed
	Shed access points should remain closed at all times other than for the purposes of allowing access to the sheds.			Ongoing in each shed

^a See Section 5.1.

Table 2-2: Management measures for odour generating activities

Odour generating activities	Odour control activity	KPI	Monitoring method	Location and frequency
Emissions during cleanout	Avoid cleaning sheds when litter is excessively dry or wet to minimise dust and odour impacts.	No odour complaints	Field odour surveys	During cleanout
	Limit removal of spent litter is daylight hours (when possible) and to avoid adverse weather conditions (when possible).			During cleanout
	Ensure trucks are covered when leaving the site and the litter is removed from site as soon as practicable after removal from the sheds			During cleanout
	Provision is made to contain any spillages of litter and clean spillages up promptly.			Ongoing in each shed
	If short term litter stockpiles are formed (less than a week) these are to be covered with a suitable cover material.			During and after cleanout
	Spent litter is not to be spread on the site.			Ongoing
Dead Bird disposal	Dead birds are collected daily and placed in an enclosed chiller ready to be taken offsite.	No odour complaints	Field odour surveys	Ongoing
	Dead bird chillers must be kept closed while awaiting collection. These chillers should not be filled to overflowing.			Ongoing

3 INSPECTIONS AND RECORD KEEPING

3.1 Inspections

General environmental site inspections will be performed in accordance with the Development's OEMP, as listed in Table 3-1. These general site inspections will include visual inspections for dust emissions and field surveys for odour emissions.

Table 3-1 Environmental Site Inspections

Requirement	Timing/Frequency	Responsibility
Site inspection to ensure all necessary environmental management and mitigation measures are in place and any required maintenance/remediation works are identified and undertaken	Weekly	ProTen Site Management
The surface water management system will be visually inspected on a monthly basis and following significant rainfall events.	Monthly and following significant rainfall events	ProTen Site Management

3.2 Record keeping

3.2.1 Annual Review

Condition C8 of Development Consent SSD 6882 requires an Annual Review to be submitted to the Department of Planning and Environment (DP&E) each year of operation. The review must include (among other things) any monitoring results, complaints records and non-compliances. This Annual Review will include reporting on dust and odour.

3.2.2 Annual Return

The Environment Protection Licence (EPL) requires an Annual Return, comprising a statement of compliance, a summary of any monitoring activities and a summary of any complaints received, to be submitted to the Environment Protection Authority (EPA) within 60 days of the end of each annual reporting period. This Annual Return will address any dust and odour issues.

3.2.3 Incident Reporting

ProTen Site Management will:

- Notify relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment immediately; and
- Provide the same agencies with a detailed report on the incident once it has been appropriately dealt with.

The environmental incident management system is outlined in the Development's OEMP.

4 COMPLAINTS REGISTER

4.1 Responsibility

ProTen's Site Management is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of a complaint.

All employees and contractors, who take receipt of a complaint, are to immediately notify Site Management.

4.2 Receipt of Complaints

In accordance with the OEMP complaints in relation to the Development may be received via any of the following ways:

- Any ProTen company or site office;
- ProTen Environmental Hotline – 1800 776 994;
- ProTen Internet enquiry – www.proten.com.au; and/or
- Through a government agency (for example, Council or EPA).

4.3 Complaints Response Procedure

When a complaint is made the following should be recorded (using the format shown or a format similar to that shown in Appendix C):

- The date and time the complaint was made.
- The date and time the incident occurred (did it recently occur or is it occurring now).
- Where the complainant was when the incident occurred (i.e. where they were located when they detected the odour).
- Wind speed and direction prior to, and at the time the complaint was received (from the on-site weather station).
- Name of persons making and receiving complaint.
- Nature of the incident (e.g. dust or odour).
- Processes performed on site at the time of the complaint or the most likely source of the dust or odour associated with the complaint).
- Location of incident.
- Description of incident.
- Action/s taken and further action if required.

Where the complaint is related to odour the nature of the odour should be described using Table 5-1 and the perceived strength using Table 5-2 which are located in Section 5 below.

4.4 Complaint Validation Process

When the site manager becomes aware of a complaint the following action should occur:

- The site manager or other nominated and appropriately trained person will note the wind speed and direction in the period leading up to the complaint.
- The site manager or other nominated and appropriately trained person will travel to the boundary of the site closest to the complainant's location (if known) and identify whether odour or dust is leaving the site and is likely to impact offsite sensitive locations. If visible dust or distinct odour is observed at the site boundary which would impact offsite sensitive locations, measures within this AQMP will be reviewed and implemented to reduce emissions from the relevant source.
- If dust or odour is not observed or detected leaving the site, no further action will be required.
- The results of the two exercises above will be recorded on the Environmental Complaint Report Form.

- If the complaint is validated and the EPA is unaware of the complaint, Proten will notified the EPA of the complaint and the proposed/undertaken remedial actions. A copy of the Environmental Complaint Record Form will also be provided to the EPA.

Should the operator be made aware of a complaint after the fact, the details of the complaint will be recorded in line with Section 4.3 .

The environmental complaint management system is outlined the Development's OEMP.

5 MONITORING

5.1 Odour Observations

Where odour observations are made, the intensity (strength) of the odour and the character of the odour (what it smells like) shall be recorded using the ranking scale in Table 5-1 and the odour descriptors in Table 5-2. A monitoring field sheet can be found in Appendix A.

Table 5-1 Guideline for Interpreting and Recording Odour Intensity (Pitt, 2014)

Perceived odour strength	Intensity odour rating	Interpretation
Extremely strong	6	In normal circumstances, this should be very rare in a field situation. For an offensive type of odour, the reaction would be to immediately mitigate against further exposure. This remains the dominant thought and motivation until the exposure level is reduced. The odour cannot be tolerated.
Very strong	5	The odour character is clearly recognisable. For an offensive type of odour, exposure to this level is considered unpleasant/undesirable to the point that action to mitigate against further exposure is considered or taken.
Strong	4	The odour character is clearly recognisable. For an offensive type of odour, exposure to this level would be considered unpleasant/undesirable.
Distinct	3	The odour character is clearly recognisable. Note that this must still apply even if in a different context or situation - for example, not knowing or expecting what type of odour may be present. The odour is tolerable – even for an offensive odour.
Weak	2	The assessor is reasonably sure that odour is present but not 100% sure of the odour character.
Very weak	1	The odour character is not recognisable. There is probably some doubt whether the odour is actually present. A useful strategy where the odour is borderline between “not perceptible” and “very weak” is to alternate such observations between 0 and 1.
Not perceptible	0	No odour.

Table 5-2 Example Odour Character Descriptors

ID	Descriptor	ID	Descriptor	ID	Descriptor
01	Fragrant	14	Burnt, smoky	27	Sharp, pungent, acid
02	Perfumy	15	Soapy	28	Metallic
03	Sweet	16	Garlic, onion	29	Tar-like
04	Fruity	17	Cooked vegetables	30	Oily, fatty
05	Bakery (fresh bread)	18	Chemical	31	Like gasoline, solvent
06	Coffee-like	19	Etherish, anaesthetic	32	Fishy
07	Spicy	20	Sour, acrid, vinegar	33	Putrid, foul, decayed
08	Meaty (cooked, good)	21	Like blood, raw meat	34	Paint-like
09	Sea/marine	22	Rubbish	35	Rancid
10	Herbal, cut grass	23	Compost	36	Sulphidic
11	Bark-like, birch bark	24	Silage	37	Dead animal
12	Woody, resinous	25	Sickening	38	Faecal (like manure)
13	Medicinal	26	Musty, earthy, mouldy	39	Sewer odour

5.2 Compliance Monitoring

If requested by the EPA, a compliance monitoring program will be carried out in accordance with the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DECC, 2006). This manual provides guidance and recommends methods for measuring ambient air quality and emissions of contaminants into the atmosphere.

The methods and standards which may be relevant to the Development can be found in Table 5-3.

Table 5-3 Compliance monitoring methods and standards

Method number	Parameter measured	Method
AM-15	Particulate matter – TSP – high volume sampler method	AS/NZS 3580.9.3:2015 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method
AM-18	Particulate matter – PM ₁₀ – high volume sampler with size-selective inlet	AS/NZS 3580.9.3:2015 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM ₁₀ high volume sampler with size selective inlet - Gravimetric method
AM-19	Particulates – deposited matter – gravimetric method	AS 3580.10.1-2003 Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method
OM-7	Odour sampling from point sources or odour analysis using dynamic olfactometry	AS 4323.3-2001 Stationary source emissions - Determination of odour concentration by dynamic olfactometry
AM-4	Meteorological monitoring guidance for regulatory modelling applications	USEPA (2000) EPA 454/R-99-005
		AS 3580.14-2014 Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications

5.3 On Site Weather Station

Condition B5 of the development consent requires a meteorological station to be installed and maintained on site for the life of the Development. The station must comply with the latest version of the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* and continuously monitor air temperature, wind direction, wind speed, rainfall and relative humidity and any other requirements specified in the EPL.

The weather station should also be installed and operated in line with AM-4 as detailed in Table 5-3.

6 STAFF TRAINING

All new staff members shall be made aware of the object of this document. All senior or other nominated staff shall be familiar with the objectives of this document especially in dealing with complaints and complainants as well as responding to complaints (See Section 4).

The primary monitoring mechanism at the Development to prevent and manage any dust and odour emissions is observations.

ProTen Site Management will ensure that all employees and contractors involved with the operational phase of the Development are suitable inducted and trained prior to commencing any work on site. Training in relation to environmental responsibilities and implementation of the OEMP, including this AQMP, will take place initially through a site induction and then on an on-going basis through "toolbox talks" (or similar).

Specifically in relation to air quality, employees and contractors will be briefed on:

- The need to manage dust and odour emissions which have the potential to lead to offsite impacts occurring.
- Ensuring that observations are made and when odorous operations occur action is taken to ensure that the site is operating to best practice.

Ensuring that the objectives of the AQMP are met.

7 CONTINUOUS IMPROVEMENT

This AQMP will be reviewed and, if necessary, updated in response to any of the following:

- Development modification, including notable operational and/or management changes;
- Where is it identified that the success of the dust and/or odour management measures in Tables 3-1 and 3-2 are falling short (for example, adverse odour impacts beyond the site boundary);
- Changes to the conditions imposed by the Development Consent SSD 6882 and/or EPL; and/or
- At the request of a relevant regulatory authority.

All employees and contractors will be informed of any revisions to the AQMP by ProTen Site Management during toolbox talks.

8 REFERENCES

DEC, 2005. *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*, Sydney: Department of Environment and Conservation.

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DPI, 2012. *Best Practice Management for Meat Chicken Production in New South Wales - Manual 2 – Meat Chicken Growing Management*, Sydney: Department of Primary Industries.

Pitt, D., 2014. Field odour assessments for estimating odour concentrations. *Air Quality and Climate Change*, 48(1), pp. 24-32.

RIRDC, 2015. *Vegetative Environmental Buffers for Australian Meat Chicken Farms: A Guide for Growers 14/063*, Canberra: Rural Industries Research and Development Corporation.

Appendix A EXAMPLE FIELD ODOUR SURVEY SHEET

Field Odour Survey Sheet

Procedure: Record odour intensity at the location every 10 seconds for five minutes using the table below (based on Table 5-1).

Intensity	Level
Extremely Strong	6
Very Strong	5
Strong	4
Distinct	3
Weak	2
Very weak	1
Not perceptible	0

Name: _____

Wind Direction: _____

Date: _____

Location: _____

Start Time: _____

Field Survey Record																														
Observation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Intensity																														

Appendix B EXAMPLE DUST OBSERVATION SHEET

Dust observation sheet

Location	Date	Time	Wind Direction	Dust leaving site? (yes/no)

Appendix C **EXAMPLE COMPLAINT REGISTER SHEET**

Complaint Register

Date and time	Complainant	Nature of complaint	Time/Date of Complaint	Location Odour Detected	Possible Source?	If odour, character and intensity - from Table 5-1 and Table 5-2	Action taken	Follow up	Recorded by

Narrandera Poultry Production Complex (SSD 6882)

LANDSCAPE MANAGEMENT PLAN



Prepared by:

Narrandera Poultry Production Complex

Sturt Highway, Narrandera NSW

Landscape Management Plan

PREPARED BY:

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1 INTRODUCTION

1.1 Background

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities.

This Landscape Management Plan (LMP) has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the Narrandera Poultry Production Complex. For the purposes of this document, the Development is described in:

- The Environmental Impact Statement (EIS) (SLR 2015a) and the appendices contained within; and
- The Response to Submissions (RTS) (SLR 2015b) and the appendices contained within.

The layout of the Development is illustrated on **Figure 1**. It is intended to continue using the land outside of the disturbance footprint within the Development Site for continued agricultural production purposes under some form of lease or share farming arrangement.

1.2 Objectives

This LMP has been prepared to satisfy condition B47 of Development Consent SSD 6882:

Landscape Management Plan

B47. Prior to the commencement of operation, the Applicant shall prepare a Landscape Management Plan (LMP) to manage the revegetation and landscaping works on-site, to the satisfaction of the Secretary. The LMP shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The LMP shall:

- (a) detail the species to be planted on-site to achieve a vegetation buffer of 40 metres around each PPU;*
- (b) describe the monitoring and maintenance measures to manage revegetation and landscaping works; and*
- (c) be consistent with the Management and Mitigation Measures at Appendix 1.*

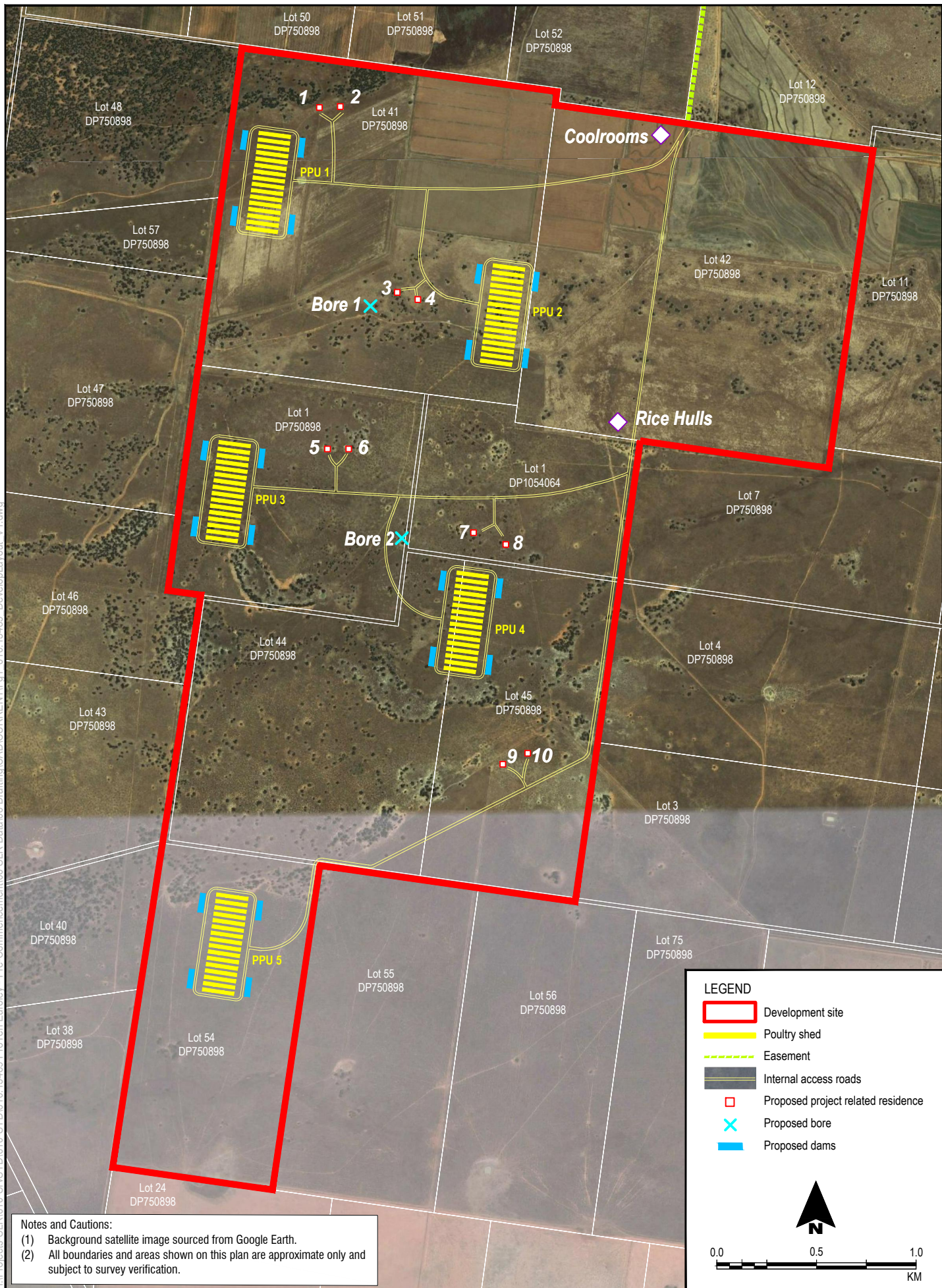
Given that landscaping is part of the Development’s construction phase, this LMP has actually been prepared as an appendix to the Construction Environmental Management Plan (CEMP) (SLR 2015c) and is to be read in conjunction with the CEMP.

The objectives of the landscape plantings include:

- Reducing the magnitude and frequency of any adverse air quality impacts by effectively filtering air movement, which will enhance dust deposition and odour dispersion;
- Protecting the poultry sheds against any spray drift or off-target applications of chemicals from neighbouring agricultural land users; and
- Providing a high level of light screening.

Increasing the “surface roughness” and providing some filtering effect, via the establishment of vegetation screens, assists to reduce dust and odour levels from poultry production operations. Vegetative screens set downwind of PPU’s act to induce additional turbulence as the ventilation air from the poultry sheds passes through this permeable barrier and also act to partially remove fine dust particles from the ventilation air giving a corresponding percentage reduction in odour levels.

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

LEGEND

- Development site
- Poultry shed
- Easement
- Internal access roads
- Proposed project related residence
- X Proposed bore
- Proposed dams

N

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0.5
1.0

 KM

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2 LANDSCAPING STRATEGY

2.1 Overview

As shown on **Figures 2 and 3**, the landscape plantings will comprise suitable tree and shrub species strategically planted around the perimeter of each PPU to improve the visual and environmental amenity of the Development. The plantings have been based on the relevant recommendations outlined in *Planning Guidelines Separating Agricultural and Residential Land Uses* (Queensland Department of Natural Resources 1997). These being:

- A biological buffer of approximately 40 metres wide around the poultry sheds;
- Contain consistent, yet random, plantings of a variety of tree and shrub species of differing growth habits, at spacings of around 4 to 7 metres;
- Include species with long, thin and rough foliage to facilitate the capture of spray droplets and dust particles;
- Provide a permeable barrier that allows air to pass through the buffer. The plantings will aim to achieve a porosity of around 0.5 (i.e. around 50 percent of the screen will be air space);
- Include species that are hardy and fast growing; and
- Foliage from base to crown (i.e. lower and upper storey vegetation) to ensure that the buffer is effective in slowing and filtering air movement at all levels.

ProTen will progressively establish the landscape plantings, as soon as practically possible, following bulk earthworks and construction of infrastructure at each PPU.

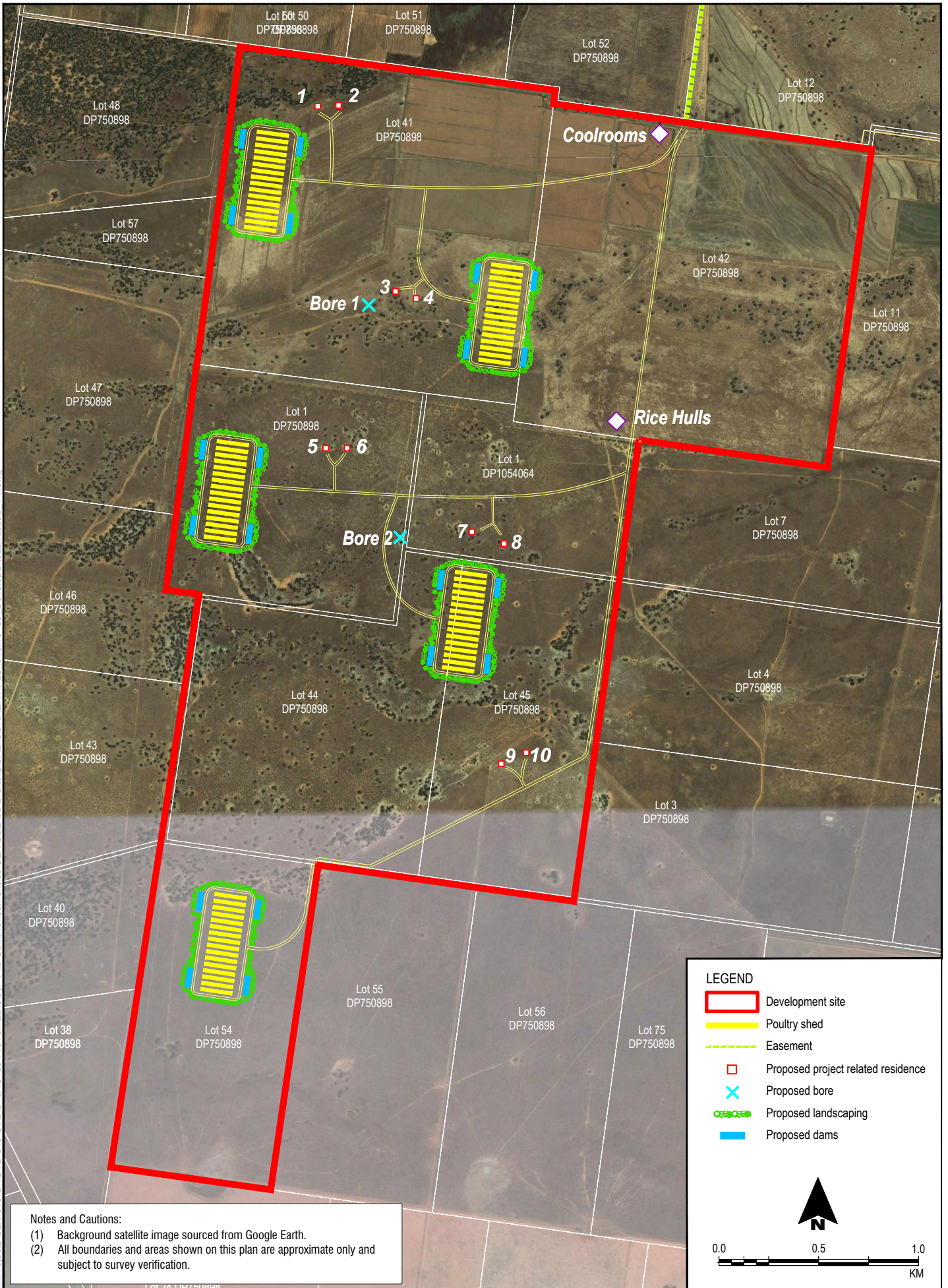
2.2 Species Selection

The following commitments were made in the RTS (SLR 2015b) and have been carried through in the CEMP (SLR 2015c):

- (a) Landscaping works within 100 metres of threatened ecological communities and remnant native vegetation identified in the Biodiversity Assessment Report (SLR 2015) prepared as part of the EIS or mapped in the Central-southern NSW vegetation dataset (Office of Environment and Heritage 2011) will be with species that naturally occur within the relevant community.
- (b) Landscaping undertaken within 100 metres of mapped threatened ecological communities and remnant native vegetation will be undertaken with species that are naturally occurring within the area.

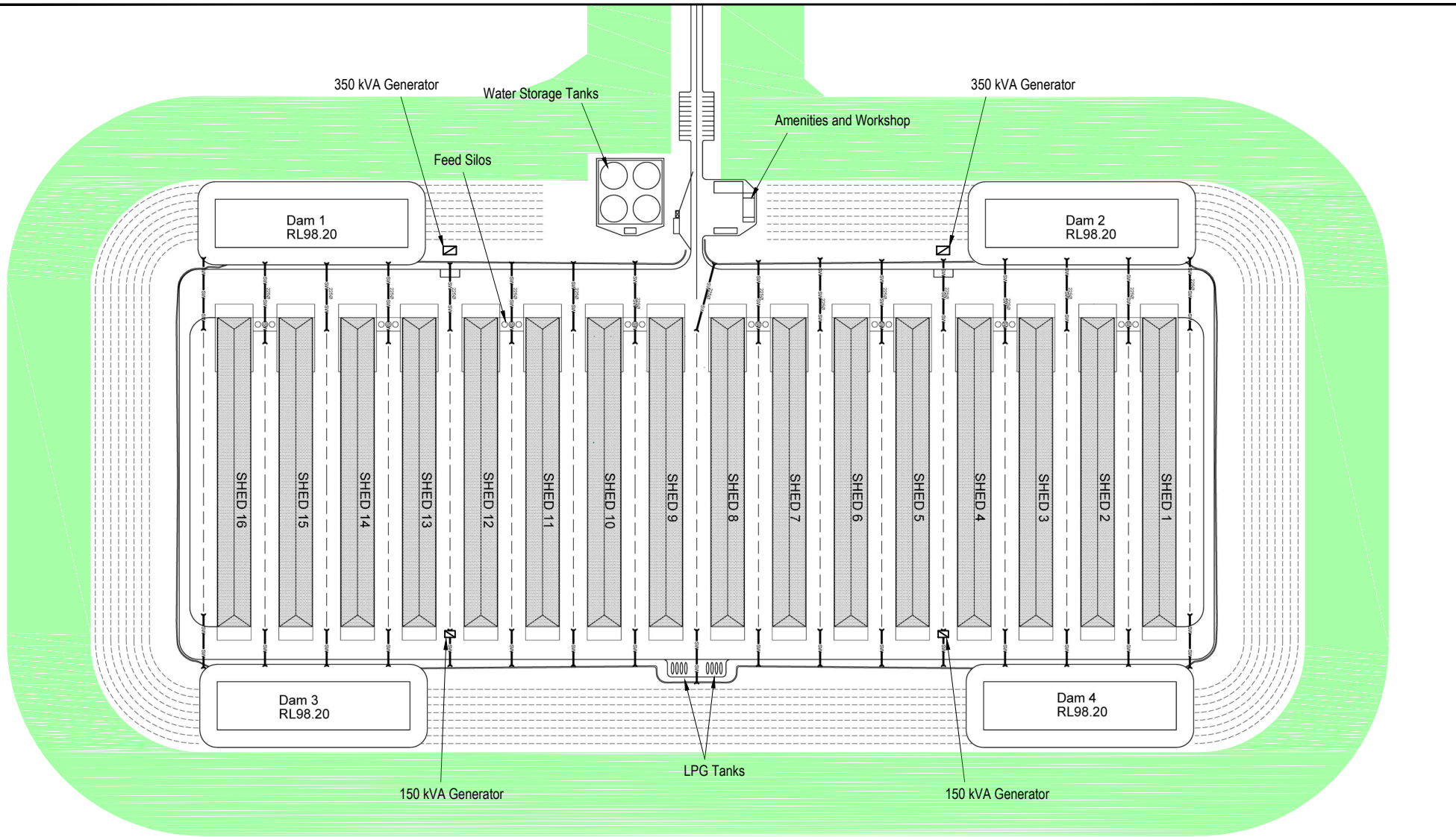
Table 1 lists the various tree and shrub species to be planted, as recommended by SLR's Principal Ecologist and Botanist who undertook the biodiversity assessment, in consideration of the above commitments and the points listed in **Section 2.1**. **Table 1** nominates the general location (i.e. respective PPU) where the recommended species should be planted in order to meet the requirements of commitments (a) and (c) above.

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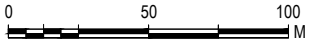
H:\Projects-SLR\610-Sydney\610-Sydney\610-Sydney\Pre-Comm\06-SLR_Dat\06_Drafting\CAD\CURRENT\LANDSCAPE MANAGEMENT PLAN\Fig3_610_15489_PPU_LandscapePlantings_V1.dwg



LEGEND

-  Proposed landscape plantings

0 50 100 M



Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

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PPU Landscape Plantings
FIGURE 3

Table 1 - Recommended Local Native Species for PPU Landscaping

Scientific Name	Common Name	Life Form	Mature Height	PCT (see below)
Landscaping around PPU 1				
(White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone)				
<i>Callitris glaucophylla</i>	White Cypress Pine	Tree	< 20 m	MR644
<i>Allocasuarina luehmannii</i>	Buloke	Tree	5 - 5 m	MR644
<i>Glycine clandestina</i>		Tree	1 m	MR644
<i>Geijera parviflora</i>	Wilga	Tree	5 - 8 m	MR644
<i>Myoporum platycarpum</i> subsp. <i>platycarpum</i>	Sugarwood	Tree	4 - 12 m	MR644
<i>Alectryon oleifolius</i> subsp. <i>Canescens</i> ; or <i>Alectryon oleifolius</i> subsp. <i>elongatus</i>	Boonaree	Small tree	< 9 m	MR644
<i>Hakea tephrosperma</i>	Hooked Needlewood	Small tree / shrub	3 -12 m	MR644
<i>Acacia oswaldii</i>	Miljee	Small tree / shrub	2 - 6 m	MR644 MR517
<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	Giant Hopbush	Shrub	< 6 m	MR644
<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub	1.5 m	MR644 MR518 MR517
<i>Enchylaena tomentosa</i>	Ruby Saltbush	Perennial	1 m	MR644
Landscaping around PPU 2 to 5				
(Black Box - Lignum woodland of the inner floodplains in the semi-arid (warm) climate zone; and Black Box grassy open woodland of rarely flooded depressions, south western NSW)				
<i>Eucalyptus largiflorens</i>	Black Box	Tree	10 - 20 m	MR517
<i>Eucalyptus camaldulensis</i> subsp. <i>camaldulensis</i>	River Red Gum	Tree	12 - 45 m	MR517
<i>Eucalyptus microcarpa</i>	Grey Box	Tree	10 - 25 m	MR517
<i>Eucalyptus melliodora</i>	Yellow Box	Tree	12 - 30 m	MR517
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	Kurrajong	Tree	5 - 10 m	MR517
<i>Acacia stenophylla</i>	River Coobah	Small tree	4 - 10 m	MR517
<i>Acacia pendula</i>	Boree	Small tree	5 - 10 m	MR517
<i>Acacia oswaldii</i>	Miljee	Small tree / shrub	2 - 6 m	MR644 MR517
<i>Acacia salicina</i>	Coobah	Small tree / shrub	3 - 12 m	MR517
<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub	1.5	MR644 MR518 MR517
<i>Myoporum montanum</i>	Western Boobialla	Shrub	1 - 4 m	MR517
<i>Duma florulenta</i>	Lignum	Shrub	1 - 3 m	MR517
<i>Hakea leucoptera</i> subsp. <i>leucoptera</i>	Silver Needlewood	Shrub	2 - 4 m	MR517
<i>Maireana enchylaenoides</i>	Wingless Bluebush	Perennial	0.2 m	MR517
<i>Sclerolaena muricata</i> var. <i>muricata</i>	Black Rolypoly	Perennial	1.2 m	MR517
<i>Einadia nutans</i> subsp. <i>nutans</i>	Twining Saltbush	Twiner	1 m	MR517

Plant community type (PCT) codes:

- MR517 - Black Box - Lignum woodland of the inner floodplains in the semi-arid (warm) climate zone.
- MR518 - Black Box grassy open woodland of rarely flooded depressions, south western NSW.
- MR644 - White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone.

A mixture of the tree and shrub species will ensure that the vegetation screens are established as quickly as possible. The shrubs will be planted between the trees in order to form a lower foliage screen.

It is estimated that approximately 16,000 trees and shrubs will be planted within the Development Site.

2.3 Tree and Shrub Siting

In order to allow maximum leaf area and room for future growth, large trees are to be planted at intervals of around 7 metres and smaller trees and large shrubs are to be planted at intervals of around 4 metres. As previously advised, shrubs are to be planted between the trees in order to form a lower foliage screen.

Species are to be randomly, yet consistently, planted in a band around 40 metres wide in order to allow air movement whilst trapping fine particulate matter and spray droplets on foliage.

2.4 Site Preparation

Good site preparation is critical to root development, tree/shrub survival and establishment of rapid growth rates. The landscaping areas will be sprayed out using a herbicide to remove grass and weeds, followed by deep ripping and cultivation. In newly ripped soil air pockets occur which may cause a seedling to die from lack of available water. On this basis, the rip lines will be left to settle and maintained in a weed free condition for approximately one month. This period can be shortened with good rain or irrigation.

Appropriate mulching will also help promote growth and reduce water requirements. Mulch retains soil moisture, increases soil temperature, reduces erosion, encourages earthworm activity and builds a humus layer that adds to and benefits the topsoil.

2.5 Planting

Following the site preparation described above in **Section 2.4**, the planting method will comprise the following key steps:

- If possible, planting will be undertaken during the autumn/early winter months to reduce moisture stress;
- The landscaping areas will be deep watered approximately one week prior to planting in order to ensure a good moisture base;
- Trees and shrubs will be randomly, yet consistently, planted in the rip lines;
- If necessary, appropriate fencing and/or tree guards will be installed to limit grazing animals such as rabbits and kangaroos;
- Each of the newly planted trees and shrubs will be deep-watered; and
- If necessary, an appropriate fertiliser will be applied.

2.6 Maintenance

A commitment to effective landscaping involves on-going monitoring and maintenance for a period of at least 12 to 18 months following planting. The vegetation plantings will be inspected and assessed for maintenance requirements on a fortnightly basis, including success of tree and shrub plantings and the presence/absence of weeds.

Where the health and/or growth of the plantings appear limited, maintenance activities will be initiated. These may include re-planting and where necessary, topdressing and/or the application of specialised treatments such as composted mulch to areas with poor vegetation establishment.

Tree guards will be replaced around planted stock if damaged and animal grazing is found to be excessive.

Watering of the landscaping plantings will occur, as required, in the formative years via surface irrigation.

3 REVEGETATION

The most effective means of controlling erosion and sedimentation is through the establishment and maintenance of a healthy vegetation cover. Vegetation provides surface protection against raindrop impact, binds the underlying soil to resist detachment by surface flows and improves the soil's infiltration capacity.

3.1 General Disturbance Areas

General disturbance areas will be promptly rehabilitated to a stable landform and revegetated following completion of the construction/disturbance activities. Broadcast seeding will be utilised as the preferred revegetation method for all disturbance areas requiring revegetation. For critical areas requiring quick revegetation or for areas where poor revegetation is identified, more intensive revegetation methods (i.e. hydromulching) may be warranted.

Broadcast seeding involves the spreading of a suitable pasture seed mix over the area to be revegetated and will be undertaken according to the following construction notes:

- Where possible, topsoil will be re-spread to a minimum depth of 100 millimetres in the reverse sequence to its removal so that the organic layer containing any seed or vegetation is returned to the surface. Re-spreading on the contour will aid runoff control and increase moisture retention for subsequent plant growth. The re-spread topsoil will be levelled to achieve an even surface (avoiding a compacted or an over-smooth finish) and tilled.
- After surface soil tillage is completed for any given area, revegetation will commence as soon as practicable; and
- An appropriate fertiliser such as Granulock 15 (or similar) will be applied during the seeding operation at a rate of approximately 250 kilograms per hectare.

The pasture grass and legume mix provided in **Table 2** will be applied.

Table 2 - Pasture Grasses and Legumes for Revegetation

Species	Rate (kilograms per hectare)	
	Spring / Summer	Autumn / Winter
Japanese Millet	20	5
Ryecorn/Oats	5	20
Couch Grass	10	8
Wimmera Ryegrass	5	10
White Clover	8	-
Lucerne	5	-
Sub Clover	-	8
Serradella	-	10
Consol	-	2

All legumes (clovers and lucerne) should be inoculated with Rhizobia and lime pelleted to promote nodulation and facilitate subsequent nitrogen fixation.

3.2 Topsoil Stockpiles

In accordance with the Blue Book (Landcom 2004), any longer term soil stockpiles (i.e. greater than 10 days) will be sown with a cover crop immediately after stockpile formation. The following cover crop specifications are recommended for temporary erosion control protection:

Autumn/Winter sowing:

- Oats/Ryecorn at 20 kilograms per hectare; and/or
- Japanese Millet at 10 kilograms per hectare.

Spring/Summer sowing:

- Japanese Millet at 20 kilograms per hectare; and/or
- Oats/Ryecorn at 10 kilograms per hectare.

Refer to the Construction Soil and Water Management Plan (CSWMP) (SLR 2015d), which is also appended to the CEMP (SLR 2015c), for further details on revegetation requirements.

4 REVIEW AND UPDATE

This LMP will be reviewed and, if necessary, revised in response to the following:

- Development modification, including notable operational and/or management changes;
- Where it is identified (via on-going inspections/monitoring) that the success and/or health of the landscape plantings is poor and/or adverse air quality impacts are identified at surrounding receptors; and/or
- Changes to the conditions imposed by the Development Consent SSD 6882 and/or the site's Environmental Protection Licence (EPL).

5 REFERENCES

Queensland Department of Natural Resources (1997) *Planning Guidelines Separating Agricultural and Residential Land Uses*

Landcom (2004) *Managing Urban Stormwater – Soils and Construction Vol. 1*

SLR Consulting Australia (2015a) *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement*

SLR Consulting Australia (2015b) *Euroley Poultry Production Complex SSD 6882, Response to Submissions*

SLR Consulting Australia (2015c) *Narrandera Poultry Production Complex Construction Environmental Management Plan*

SLR Consulting Australia (2015d) *Narrandera Poultry Production Complex Construction Soil and Water Management Plan*

NARRANDERA POULTRY PRODUCTION FARM

Water Management Plan

Prepared for:
ProTen Pty Ltd
PO Box 1746
NORTH SYDNEY NSW 2059

SLR Ref: 660.20048.00000-R01
Version No: -v3.0
May 2020



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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 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
660.20048.00000-R01-v3.0	20 May 2020	Louis Bouchet	Ines Epari	Angus McFarlane
660.20048.00000-R01-v2.0	17 March 2020	Louis Bouchet	Ines Epari	Angus McFarlane
660.20048.00000-R01-v1.0	17 March 2020 09 March 2020	Louis Bouchet	Ines Epari	Angus McFarlane
Revision 5	6 April 2017	Derwin Lyons	Nathan Archer	Nathan Archer
Revision 4	13 February 2017	Nathan Archer / John Leyland	Nathan Archer	Nathan Archer
Revision 3	17 May 2016	Eryn Bath	Eryn Bath	Eryn Bath
Revision 1	25 March 2016	Ben Latimore	Eryn Bath	Eryn Bath

Reference	Date	Prepared	Checked	Authorised
Draft 1	20 February 2016	Derwin Lyons and Ben Latimore	Brian Rask and Eryn Bath	Brian Rask and Eryn Bath

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Appendix C	Bore Logs for the Production Bores
Appendix D	Shallow Aquifer Piezometer Bore Logs

1 Introduction

1.1 Background

The Narrandera Poultry Production Farm (the "Development") was granted Development Consent 6882 on 9 November 2015 by the Planning Assessment Commission of NSW (now the Independent Planning Commission [IPC]) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in southwestern New South Wales (NSW). As shown on Figures 1 and 2, the Development comprises five poultry production units (PPUs) or farms where broiler birds are grown for human consumption. Each PPU comprises 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities.

For the purposes of this document, the Development is described in:

- The Environmental Impact Statement (EIS) (SLR 2015a) and the appendices contained within; and
- The Response to Submissions (RTS) (SLR 2015b) and the appendices contained within.

1.2 Purpose and Scope

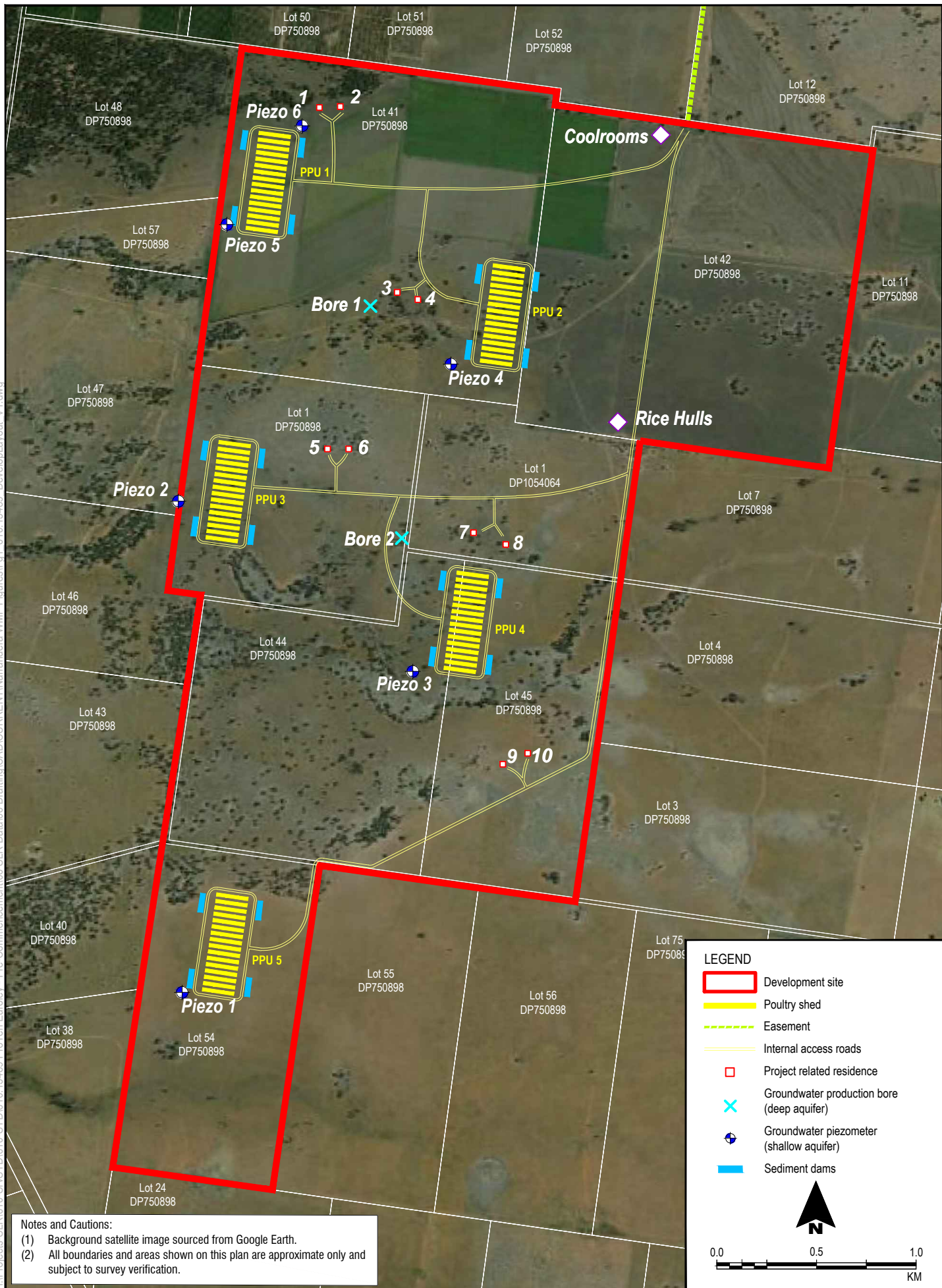
This Water Management Plan (WMP) has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the operational phase of the Development. It has been prepared to satisfy condition B45 of Development Consent SSD 6882, which is listed in Table 1.

Table 1 Development Consent Condition B45

Condition No.	Condition	WMP Section
B45.	Prior to the commencement of operation, the Applicant shall prepare a Water Management Plan to the satisfaction of the Secretary. The Water Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The WMP shall:	
(a)	Be prepared in consultation with DPI;	Section 1.3
(b)	Detail water use, metering, disposal and management on-site;	Section 5
(c)	Detail the number and location of piezometers on-site;	Section 8.1
(d)	Detail the water licence requirements for the Development;	Section 2.4
(e)	Detail the management of wastewater streams on-site;	Section 5
(f)	Contain a Surface Water Management Plan, including; <ul style="list-style-type: none"> (i) a program to monitor: <ul style="list-style-type: none"> • surface water flows and quantity; • surface water storage and use; and • sediment basin operation; (ii) sediment and erosion controls plans; (iii) surface water impact assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts; (iv) a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria; and 	Sections 6, 7 and 9
(g)	Contain a Groundwater Management Plan, including:	Sections 8 and 9

Condition No.	Condition	WMP Section
	(i) baseline data on groundwater levels and quality; (ii) a program to monitor groundwater levels and quality; (iii) groundwater impact assessment criteria, including trigger levels for investigating potentially adverse groundwater impacts; and (iv) a protocol for the investigation and mitigation of identified exceedances of the groundwater quality impact assessment criteria.	
(h)	Contain a Contingency plan for the operation of the facility during extreme weather events such as heat wave or drought.	Section 5.6

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

LEGEND

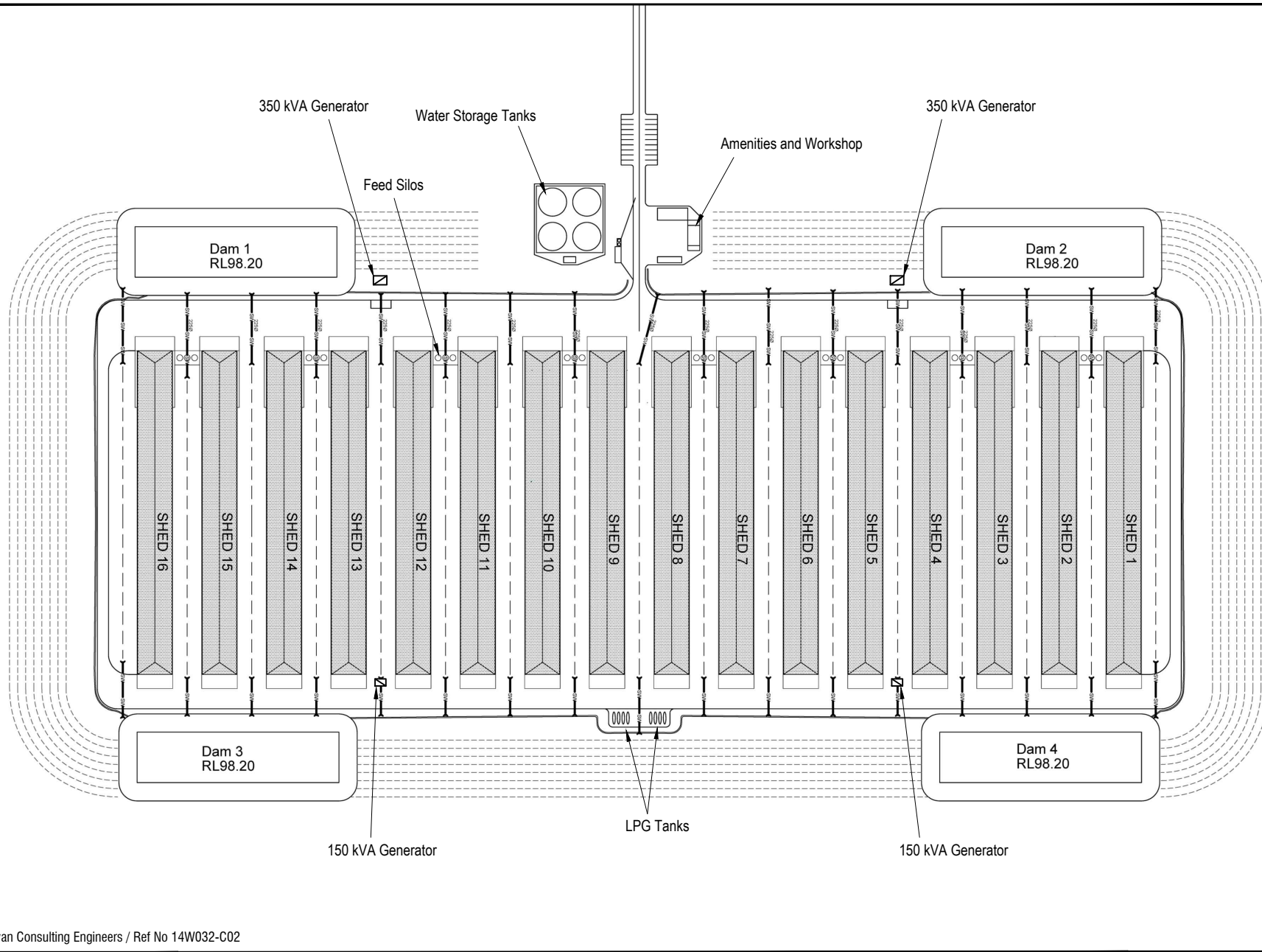
- Development site
- Poultry shed
- Easement
- Internal access roads
- Project related residence
- X Groundwater production bore (deep aquifer)
- ⊕ Groundwater piezometer (shallow aquifer)
- Sediment dams

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Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

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Poultry Production Unit Layout

FIGURE 2

This WMP has been prepared as an appendix to the Operational Environmental Management Plan (OEMP) and is to be read in conjunction with the latest version of the OEMP.

1.3 DPI Water Consultation

On the 15 November 2015 a letter was emailed to the Department of Primary Industries – Water (DPI Water) (now the Department of Planning, Industry and Environment – Water [DPIE Water] and the Natural Resources Access Regulator [NRAR]) presenting the proposed groundwater monitoring program for the Shallow and Deep aquifers and seeking their initial advice and comments. DPI Water responded via email on 6 January 2016 advising the hydrogeological staff had reviewed the proposed groundwater monitoring sites, water quality parameters and monitoring schedule and that these were supported by DPI Water.

DPI Water requested that one additional piezometer be installed at one of the proposed 10 residences, preferably in an area where there are lighter soils and shallower water tables. Responding to this, an additional piezometer was included near residences 1 and 2 (see Figure 1) where the soil is sandier than elsewhere in the Development Site. Further details are provided in Section 8.1.

The complete WMP was emailed to DPI Water for review and comment on 29 March 2016. Comments were received on 19 April 2016 and the WMP updated to address these comments prior to submission to the Department of Planning and Environment (now DPIE) for approval. The first version of the WMP was submitted to DPI Water on 13 February 2017 for final approval and comment. This version included a recommendation of re-assessing the monitoring and trigger values after two years of operations.

Based on this recommendation, a review of the groundwater and surface water data was conducted by SLR in February 2020 (SLR, 2020) and a letter report detailing the findings of the data analysis was sent to NRAR recommending that the WMP be updated in order to:

- Reduce the groundwater monitoring frequency to six-monthly;
- Derive local triggers for groundwater ammonia and bicarbonate;
- Derive local triggers for groundwater levels; and
- Stop regular monitoring of sediment dams and only monitor the dams in the event of overflow/release event.

NRAR confirmed in a letter dated 13 February 2020 that the first three recommendations were supported. NRAR subsequently confirmed in a follow-up email on 25 February 2020 that an amended proposal to reduce monitoring of the sediment dams to six-monthly was also supported.

This WMP version was prepared to include these updates.

2 Planning Requirements

2.1 Legislation and Guidelines

This WMP was prepared in consideration of relevant NSW legislation, policies and guidelines, including (but not limited to) the following:

- Protection of the Environment Operations Act 1997 (POEO Act);
- Water Management Act 2000 (WM Act) and Water Act 1912 where the WM Act is not yet in force;
- NSW Aquifer Interference Policy (NSW Office of Water [NOW] 2012);
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand Environment and Conservation Council [ANZECC] and Agriculture and Resource Management Council of Australia and New Zealand [ARMCANZ] 2000);
- Australian Drinking Water Guidelines (NHMRC, 2018);
- NSW State Groundwater Policy Framework Document (Department of Land and Water Conservation [DLWC] 1997);
- Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (Department of Environment and Conservation [DEC] 2004);
- Managing Urban Stormwater: Soils and Construction Volume 1, 4th edition (Landcom 2004); and
- Managing Urban Stormwater: Soils and Construction Volume 2C: Unsealed Roads (Department of Environment, Climate Change and Water [DECCW] 2008).

Note: The “Managing Urban Stormwater” publications are more commonly referred to as “the Blue Book”.

2.2 Development Consent

As outlined in Section 1.2, the WMP has been prepared to satisfy condition B45 of Development Consent SSD 6882. This condition and other relevant conditions relating to surface water and groundwater are listed in Table 2.

Table 2 Relevant Development Consent Conditions

Condition No.	Condition
Surface Water Discharge Limits	
B38	The Applicant shall ensure that all licensed surface water discharges from the site comply with the discharge limits (volume and quality) set for the Development in any EPL or relevant provisions of the POEO Act.
Stormwater	
B39	The Applicant must design, construct, operate and maintain all stormwater and water storage facilities on site with the internal surfaces equivalent to, or better than, a clay liner of a minimum permeability of 1×10^{-9} metres per second and a clay liner thickness of no less than 600mm, or an equivalent alternative.

Groundwater	
B40	The groundwater bores for the Development shall be constructed in accordance with the Minimum Construction Requirements for Water Bores in Australia, Third Edition, February 2012, (National Uniform Drillers Licensing Committee, 2012).
B41	Groundwater extracted from the bores shall be treated in accordance with the standards contained within the National Water Biosecurity Manual – Poultry Production (DAFF, 2009).
B42	Groundwater extraction for the purposes of the Development shall be limited to the provisions of the any water access licence(s) issued by the DPI.
Bunding	
B43	The Applicant shall store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's Storing and Handling Liquids: Environmental Protection – Participants Handbook.
Domestic Effluent Disposal	
B44	The Applicant shall obtain the relevant license/approval from Council under section 68 of the Local Government Act 1996 prior to the commencement of construction, for all domestic effluent disposal and management systems on-site.
Water Management Plan	
B45.	<p>Prior to the commencement of operation, the Applicant shall prepare a Water Management Plan to the satisfaction of the Secretary. The Water Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The WMP shall:</p> <ol style="list-style-type: none"> a. Be prepared in consultation with DPI; b. Detail water use, metering, disposal and management on-site; c. Detail the number and location of piezometers on-site; d. Detail the water licence requirements for the Development; e. Detail the management of wastewater streams on-site f. Contain a Surface Water Management Plan, including: <ol style="list-style-type: none"> (i) a program to monitor: <ul style="list-style-type: none"> • surface water flows and quantity; • surface water storage and use; and • sediment basin operation; (ii) sediment and erosion controls plans; (iii) surface water impact assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts; (iii) a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria; and g. Contain a Groundwater Management Plan, including: <ol style="list-style-type: none"> (i) baseline data on groundwater levels and quality; (ii) a program to monitor groundwater levels and quality; (iii) groundwater impact assessment criteria, including trigger levels for investigating potentially adverse groundwater impacts; and (iv) a protocol for the investigation and mitigation of identified exceedances of the groundwater quality impact assessment criteria h. Contain a Contingency plan for the operation of the facility during extreme weather events such as heat wave or drought.

2.3 Environment Protection Licence

The Development is considered to be a “scheduled activity” under Schedule 1 of the POEO Act requiring the occupier to hold an environment protection licence (EPL) administered by the Environment Protection Authority (EPA).

The Development operates under the provisions of EPL 20748, as issued by the EPA. A copy of EPL 20748 is appended to the OEMP. Relevant conditions in EPL 20748 with respect to surface water and groundwater management are listed in Table 3.

Table 3 Relevant EPL Conditions

Condition No.	Condition			
P1 Location of monitoring/discharge points and areas				
P1.1	The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.			
P1.2	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.			
	EPA Identification No.	Type of Monitoring Point	Type of Discharge Point	Location Description
	2	Surface water quality monitoring		Sediment dam No 1 at PPU 1 identified in Figures 1 and 2 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
	3	Surface water quality monitoring		Sediment dam No 3 at PPU 2 identified in Figures 1 and 2 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
	4	Surface water quality monitoring		Sediment dam No 1 at PPU 3 identified in Figures 1 and 2 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
	5	Surface water quality monitoring		Sediment dam No 3 at PPU 4 identified in Figures 1 and 2 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
	6	Surface water quality monitoring		Sediment dam No 1 at PPU 5 identified in Figures 1 and 2 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520

Condition No.	Condition			
7		Groundwater quality monitoring		Piezometer labelled 'Piezo 1' identified in Figures 1 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
8		Groundwater quality monitoring		Piezometer labelled 'Piezo 2' identified in Figures 1 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
9		Groundwater quality monitoring		Piezometer labelled 'Piezo 3' identified in Figures 1 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
10		Groundwater quality monitoring		Piezometer labelled 'Piezo 4' identified in Figures 1 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
11		Groundwater quality monitoring		Piezometer labelled 'Piezo 5' identified in Figures 1 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
12		Groundwater quality monitoring		Piezometer labelled 'Piezo 6' identified in Figures 1 of the document titled "Narrandera Poultry Production Complex" – Water Management Plan dated March 2016, kept on EPA file EF16/1645 at DOC16/59520
L1 Pollution of Waters				
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.			
L4 Other Limit Conditions				

Condition No.	Condition
L4.2	All waste water treatment, storage and terminal ponds must have a minimum pond base and wall permeability of 1×10^{-9} metres per second or be artificially lined with an impermeable high density polyethylene liner.
L4.3	All waste water collection ponds must be designed, constructed and maintained to accommodate the stormwater runoff volume generated in a 1 in 20 year, 24 hour rainfall event using a volumetric runoff coefficient of 0.8.
O5 Waste Management	
O5.3	All waste water and contaminated stormwater must be captured in a waste water collection system and be prevented from leaving the premises Note: This condition does not apply in rainfall events which create greater volumes of stormwater than an event with an average recurrence interval of a local 1 in 20 year, 24 hour rainfall event.

2.4 Water Licences

2.4.1 Surface Water Licences

The Water Act 1912 and WM Act contain provisions for the licensing of surface water capture and use. The sediment dams at each PPU are specifically intended to act as pollution control dams and are therefore exempt from requiring licensing. As outlined below, all operational water is sourced via licensed groundwater bores and, as such, no surface water licenses are required.

2.4.2 Groundwater Licences

The operational water requirements of the poultry farm are met via the extraction of groundwater from two licensed production bores within the Development Site (see Figure 1) under the provisions of the water access licence WAL 11788, which has an annual extraction limit of 488 units. These bores access the Deep Aquifer (Calivil Formation) in accordance with the WAL conditions. A copy of WAL 11788 is contained in Appendix A and further details regarding operational water requirements provided in Section 5.4.

3 Principles of Water Management

3.1 Water Management Classes

Under Section 120 of the POEO Act it is an offence to cause environmental harm or allow the pollution of waters unless specifically licensed to do so. For the purposes of clarifying allowable activities with respect to water management, different water classifications and objectives for water management have been identified.

Table 4 lists the classes of water within the Development Site, describes their source, the target design objectives/performance criteria and the way each class is to be managed.

Table 4 Water Management Classifications

Water Resource Classification	Description and Source of Water	Target Design Objective	Treatment
Dirty Water	Sediment laden runoff produced from exposed soils and disturbed surfaces. Generally characterised by a high turbidity and sediment load. Generally associated with temporary construction activities and unsealed access roads.	Based on Blue Book criteria (depends on the size and duration of the disturbance).	Dirty water runoff is to be contained within sediment basins or passed through sediment control devices to detain sediment and reduce turbidity before discharge to the natural environment.
Wash Down Water	Water produced from the cleaning and wash down of the PPUs. Characterised by elevated nutrient levels.	An engineered surface water management system at each PPU has been designed with the total storage on site equivalent to 170 percent of the storage capacity required to contain runoff from a 100 year annual recurrent interval (ARI), 72 hour flood event.	Wash down water will be directed to grassed swale drains between the poultry sheds designed to allow infiltration of the water into the topsoil for effective nutrient uptake by the grass. During heavy rainfall events, excess water from the swales will be conveyed via pipes under the PPU ring road and in to a table drain installed around the PPU perimeter. The table drain will convey the water to one of four small sediment dams located at the corners of each PPU.
Clean Water	Surface water runoff produced from undisturbed clean water catchments such as forested areas or open pastures. Characterised by low turbidity and low nutrient content.	Clean water diversions designed, installed and maintained to convey a 100 year ARI rainfall event.	Diverted around disturbance areas and released to the natural environment.
Groundwater	Groundwater contained within the aquifers.	N/A	Groundwater will be extracted to meet operational water requirements.
Sewage	Sewage produced from staff amenities and residences.	Designed, installed and managed in accordance with relevant council guidelines.	Treated and disposed of via on-site aerated wastewater management systems.

3.2 General Water Management Principles

The following general water management principles apply for the management of surface water and groundwater resources throughout the operational phase of the Development:

- Clean water will be diverted around all disturbance and operational areas;
- Dirty water will be contained within sediment basins or directed through appropriate sediment control structures before being released to the environment in a suitable area;
- Wash down waters will be contained within the engineered surface water management systems at each PPU;
- Where possible, wash down activities will be avoided during periods of high rainfall such as to minimise the potential for off site discharge of nutrient rich water;
- An erosion and sediment control plan (ESCP) will be developed for any new disturbance areas and appropriate ESC measures will be installed such as to contain and treat any dirty water runoff;
- All water management infrastructure will be subject to regular inspections to ensure their functionality and reduce the potential for uncontrolled overflow or release of potentially pollutant laden waters;
- Disturbed areas and rehabilitation areas will be managed to ensure the risk of erosion is minimised and rehabilitation is effective; and
- Groundwater will be used to meet the operational water requirements of the Development.

4 Water Management Environment

4.1 Meteorology

The Development Site is located within the Riverina region of southwestern NSW, which is generally dominated by a dry semi-arid climate and characterised by very warm to hot summers and cool to mild winters. Rainfall is, on average, relatively evenly distributed throughout the year. Summer rainfall tends to occur mainly from localised thunderstorms, with more consistent rainfall occurring in the winter months. The region is quite susceptible to periods of drought.

Evaporation exceeds mean monthly rainfall throughout the year. Evaporation is greatest during the warmer months of November to February (inclusive).

4.2 Soil Types

The majority of soils within the Development Site have been significantly modified by historic land clearing and long term agricultural production activities. In the absence of detailed soil landscape mapping data, general information on soil types has been sourced from the Land and Soil Capability (LSC) Mapping of NSW managed by DPIE – Biodiversity and Conservation Division (BCD).

The Development Site is broadly mapped as LSC Class 4 land (moderate capability land), which is defined as “land which has moderate to high limitations for high impact land use”. Based on this information it is anticipated that the soils across the Development Site may present an erosion hazard and are likely to be dispersive in nature (Type D/F Soils). Core samples extracted during drilling of the test groundwater bores for the EIS showed the top 10 metres (m) of soil comprised of silty clays.

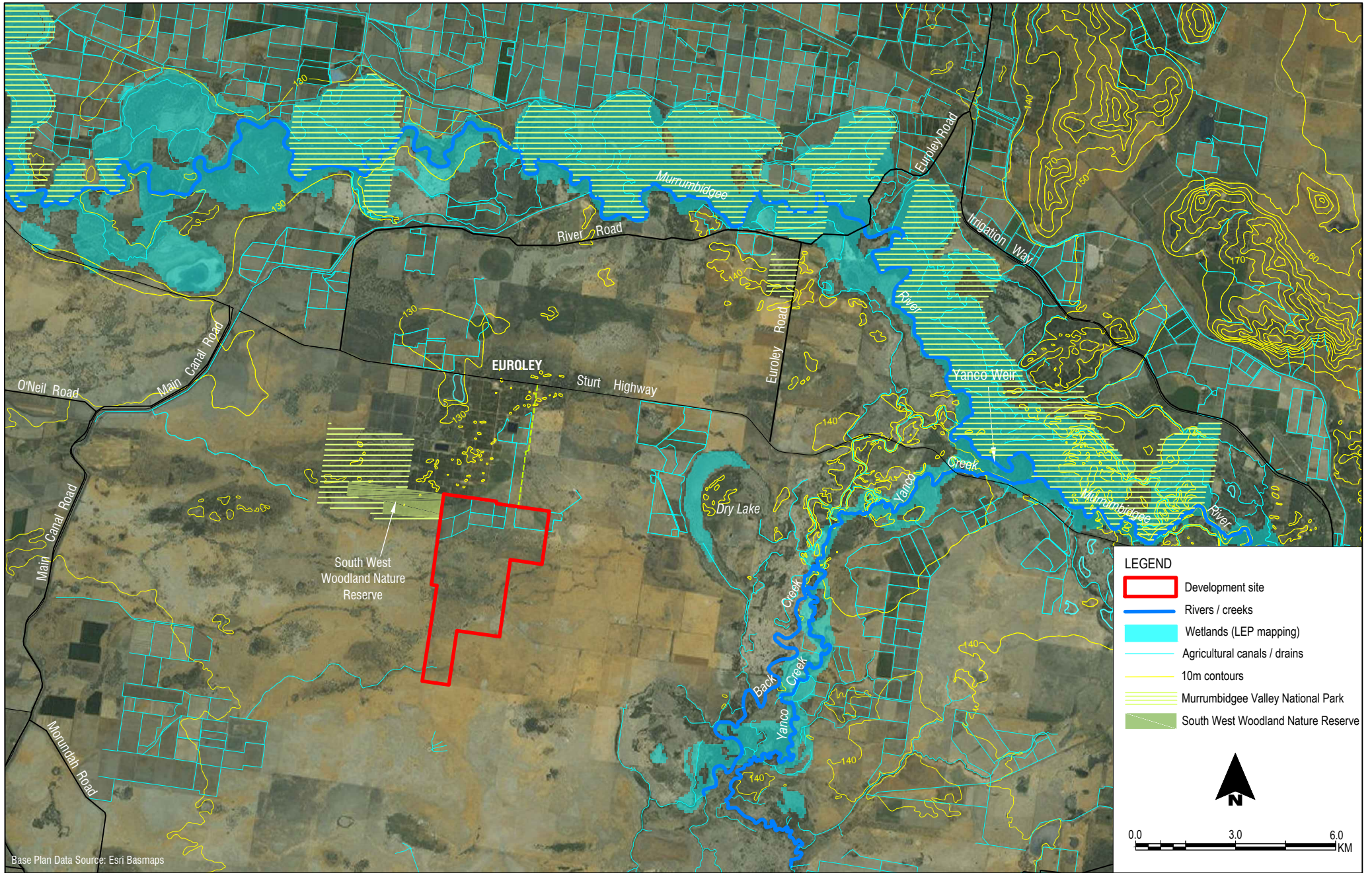
In the absence of detailed site-specific soil testing, the soils within the Site are assumed to be of Type D/F for the purposes of ESC management. If detailed soil assessment and characterisation is undertaken and the soils are determined to be of a lower erosion risk then a lower standard of ESC management may be adopted pending consultation with the relevant government agencies.

4.3 Surface Water Environment

The Development Site is located within the catchment of the Murrumbidgee River, which covers 84,000 square kilometres of southern NSW. The Murrumbidgee River flows to the north of the Development Site and is located approximately 9 km to the north of the Site at its nearest point. The nearest watercourse of significance is Yanco Creek, a regulated stream of the Murrumbidgee River system, flowing approximately 8 km to the east of the Development Site at its closest point.

The Development Site (and surrounding land) is very flat and slopes gently to the west. The majority of the Site is devoid of significant vegetation, primarily comprising paddocks that have been consistently cropped and grazed for a number of years. There are no natural surface water bodies or tributaries located within the bounds of the Development Site. Two minor topographical depressions that act as minor drainage features traverse the Development Site. These features do not have any formed banks and are only distinguishable as drainage features by their location topographically and vegetation present. There are also some constructed irrigation channels within the northern extent of the Site.

The nearest wetland to the Development Site is a small area identified as a wetland on the NSW Wetlands Database (DECCW 2006) and in the Narrandera Local Environmental Plan 2013 (Narrandera LEP), approximately 3.2 km north of the northern-most PPU. A site constraints plan showing relevant external and internal features, including topographical features and waterways, is provided as Figure 3.



Site Constraints Plan (Flooding)

FIGURE 3

4.4 Groundwater Environment

4.4.1 Principal Aquifers of Interest at the Development Site

The Development Site is located in the Lower Murrumbidgee Groundwater Management Area (GMA), which lies within the eastern Riverine Plains province of the Murray Geological Basin. The GMA is underlain by semi-consolidated to unconsolidated flat lying Cainozoic sediments of mainly continental origin. Deposition of these sediments began some 50 million years ago (middle Miocene to early Paleocene). The maximum thickness varies from 170 m in the east (at Narrandera) to about 400 m at Balranald (western end of the GMA). The sediments overlie Paleozoic and Mesozoic rocks that form the basement. Within the GMA the sedimentary deposits have been subdivided into three main units or layers. These are the Shepparton Formation, Calivil Formation and the Renmark Group. The Renmark Group lies at significant depth in relation to the Development Site and will not be discussed further.

Two aquifers have been identified as relevant to the Development Site; the Shepparton and Calivil Formation aquifers more commonly known as Shallow and Deep Aquifers, respectively. The Shallow Aquifer is defined as extending to a depth of 40 m or to the bottom of the Shepparton Formation, whichever is the greater. The Deep Aquifer is defined as extending from the bottom of Shepparton Formation down to bedrock.

4.4.2 Shallow Aquifer (Shepparton Formation)

The Shallow Aquifer, which is of Late Pliocene to Pleistocene age, directly overlies the Deep Aquifer. It is a complex assemblage of clays, silts and sands that were deposited in a fluvio-lacustrine environment. The proportion of sand is highly variable but mostly about 20 to 30 percent (%), with most occurring in the top 30 %. The thickness of sediments is variable and averages around 65 m.

Drilling results at the Development Site indicate that the top of the Shepparton Formation lies very close to ground surface, extending to around 46 m depth. It is noted to consist of interbedded clay, silty clay, and sand, with some gravelly beds. The shallowest intersection of permeable material considered to form an aquifer generally lies between around 10 and 15 m depth across the Development Site, with these shallow permeable horizons generally being 3 to 4 m thick.

Four private bores have previously been identified within 2 km of the Development Site that are authorised to take water from the Shallow Aquifer for stock and domestic purposes (pers comm Tim Baker, April 2017). The general water quality of the aquifer has been identified as good enough to suggest that there is potential for this usage to include human consumption.

Groundwater levels in the Shallow Aquifer recorded at the time of drilling the shallow piezometers at the Development Site (refer Figure 1) were recorded to be between 25 and 29 metres below ground level (mBGL).

Groundwater sampling and analysis from the piezometers was undertaken from April 2016 to September 2019 and the results are presented in Section 8.1.1.

4.4.3 Deep Aquifer (Calivil Formation)

The Deep Aquifer (Calivil Formation) is semi-confined to confined middle aquifer deposited 5 to 15 million years ago (Late to Middle Miocene). It is dominated by pale grey, coarse quartz sand with lenses of pale grey to white kaolinitic clay. The higher proportion of sand, typically 50 to 70 %, makes it the most productive aquifer within the GMA. Its thickness ranges between 50 to 70 m in the eastern part of the management area (i.e. within the Narrandera / Euroley area) with a maximum of about 90 m. The Calivil Formation is described (Wooley 1991 as cited in CSIRO 2002) as a poorly consolidated pale grey, poorly sorted coarse to granular quartz sand conglomerate with white kaolinitic matrix. The formation includes thick intercalations of kaolin, with thin lenses of carbonaceous clay.

Drilling results at the Development Site indicate the top of the Calivil Formation lies at around 55 m depth/BGL and is noted to be around 46 m thick. The interpreted depths of the formation intersections at the Development Site are consistent with depths identified in relevant literature (e.g. CSIRO 1997). In the two production bore locations at the Development Site, the Calivil Formation consisted of medium to coarse grained clean white quartzose sands, interbedded with thin clayey horizons.

Groundwater levels in the Deep Aquifer recorded at the time of drilling the two production bores at the Development Site were recorded to be around 24 mBGL, indicating that the Deep Aquifer is confined and sub-artesian at the Development Site.

The groundwater quality of the Deep Aquifer is generally of good quality, with electrical conductivity less than 1,000 microsiemens per centimetre ($\mu\text{S}/\text{cm}$), and water generally being suitable for domestic and stock irrigation purposes – the principal groundwater usages in the region. Monitoring from April 2016 to September 2019 shows groundwater quality mostly below the Australian Drinking Water Guidelines (NHMRC, 2018) for all parameters (Section 8.1.2).

4.4.4 Groundwater Use Surrounding the Development Site

The GMA plan identifies the following beneficial water uses for the two water sources:

- Ecosystem protection and agricultural water for shallow source; and
- Raw water for drinking, ecosystem protection and agricultural water for deep source.

A search of the Bureau of Meteorology Australian Groundwater Explorer indicates that there are 24 bores recorded within a 5 km radius of the Development Site. Groundwater bores within the area are primarily used for monitoring, irrigation, and stock and domestic uses.

The bore summaries for these 24 bores contain little information and are largely incomplete, however they indicate that 16 of the 24 bores are utilised for monitoring and the majority are located to the northwest, north and northeast of the Development Site. The minimum water bearing zone for these bores is not available in the groundwater summaries, however bore depth ranges from 21.5 m to 138.6 m with an average of 62.7 m.

5 Site Water Management System

5.1 Surface Water Management

5.1.1 Surface Water Production

The poultry farm is largely dry operation, with no effluent generated as a result of the poultry-rearing process itself. The main operational water sources are:

- Wash down water from within the poultry sheds at the end of each nine-week production cycle (approximately 5.7 times per year);
- Rainfall runoff from the shed roofs; and
- Rainfall runoff from the ground surfaces around the poultry sheds and additional improvements.

Approximately 12 kilolitres (kL) of water is used be in the wash down process for each poultry shed at the end of each production cycle. This amounts to a total volume of around 192 kL per PPU per production cycle for wash-down.

Analysis of wash down water from other similar facilities indicates the wash down water will have the following typical nutrient concentration:

- Total suspended solids - 2,500 milligrams per litre (mg/L);
- Total nitrogen - 65 mg/L;
- Total phosphorus - 45 mg/L.

When possible, wash down will not be undertaken during periods of high rainfall in order to limit the potential for overflow and off site discharge of nutrient laden water from the surface water management system.

5.1.2 Engineered Surface Water Management System

The engineered surface water management system for the Development is detailed on the civil design drawings prepared by Lance Ryan Consulting Engineers (LRCE) in Appendix B. In summary, the surface water management system for each PPU comprises grassed swale drains between the poultry sheds to capture wash down water and rainfall runoff and table drains to convey the water to one of four small sediment dams. There are also stormwater pipes to convey water under roads.

Given the topography surrounding each PPU, there is minimal/negligible clean water catchment and, as such, no clean water diversions are warranted. Additionally, the pads for each of the PPUs have been constructed above the 100 year ARI flood event depth at a minimum of 300 mm above the existing adjacent ground levels to reduce the likelihood of runoff and floodwater ingress.

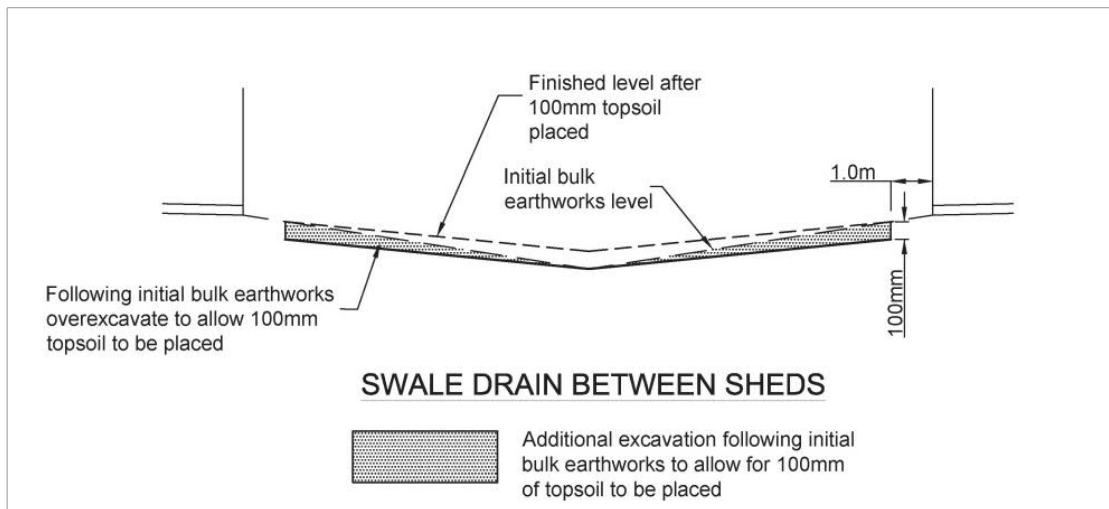
The typical "design event" for surface water management, in accordance with the Blue Book (Landcom 2004), is a 20 year ARI, 24-hour rainfall event. However, the surface water management system has been designed with the total storage on site equivalent to 170% of the storage capacity required to contain runoff from a 100 year ARI, 72 hour event.

Based on the design of the surface water management system, along with the quality and low volume of water to be managed, there is negligible risk of nutrient high runoff flowing off site. The potential for impact to local water resources by runoff of nutrients, chemicals or pathogens is considered negligible.

Swale Drains

Each poultry shed has fully sealed concrete flooring and is surrounded by a 400 mm high dwarf concrete bund wall to prevent rainwater and runoff entering the sheds and to allow for the controlled discharge of wash down water from the sheds. The concrete bunds have strategically located seepage holes to convey excess wash down water from the sheds into grassed swales between each of the sheds. Rainfall runoff from the shed roofs and from some of the surrounding surfaces is also directed into the grassed swales.

The swale drains between the sheds have a triangular cross-section and have a low grade to maximise infiltration potential. The typical arrangement of the swale drains is shown on Figure 4.



Source: LRCE 2015

Figure 4 Typical Swale Drain Construction

The swale drains have been designed to allow infiltration of the water into the topsoil for effective nutrient uptake by the grass, which is regularly slashed to promote continued growth. The typical annual pollutant load removal efficiencies for vegetated swales according to Australian Runoff Quality (Engineers Australia 2006) are:

- Total Suspended Solids 60-80% removal
- Total Nitrogen 25-40% removal
- Total Phosphorus 30-50% removal

Considering typical wash down quality as presented in section 5.1.1, analysis of surface water collected in the sediment dams within the Development Site (after nutrient removal by swale drains) shows the following actual removal rates (Table 5).

Table 5 Nutrient removal rate from swale drain

Parameter	Typical wash down water ¹	Average monitored in all sediment dams ²	% Removal
Total Suspended Solids (TSS)	2,500 mg/L	552 mg/L	78%
Total Nitrogen (TN)	65 mg/L	10 mg/L	85%
Total Phosphorus (TP)	45 mg/L	0.8 mg/L	98%

¹As presented in section 5.1.1

²Average from raw data provided in Section 7.1.1

Tables Drains

During heavy rainfall events, excess water from the grassed swales is conveyed via underground pipes under the PPU ring road and into a table drain around the perimeter of the PPU. The perimeter table drain ensures that all rainfall runoff from the ground surfaces within the PPU environs is contained within the controlled surface water management system.

The table drains have a trapezoidal cross-section with varying dimensions (depending upon the predicted runoff volume). The batter side slopes are approximately 1 vertical to 5 horizontal (1:5).

Sediment Dams

The table drain around the perimeter of each PPU convey the water to one of four small storage dams constructed at each corner of the PPU. Each dam has a capacity of approximately 7,000 cubic metres (m³), amounting to a combined capacity of 28,000 m³. As previously mentioned, the total water storage capacity at each PPU (including the swale drains and table drains) is equivalent to 170% of the capacity required to contain runoff from a 100 year ARI, 72 hour event. The internal side slope batters of the dams are approximately 1 vertical to 5 horizontal (1:5).

While the water captured in the sediment dams has some level of nutrients, the levels are predicted to be low given that the poultry sheds will be thoroughly blown and swept prior to being washed and the grassed swales provide an effective means of nutrient removal, as demonstrated by the data in Table 5. Collected data from April 2016 to September 2019 shows low levels of nutrient, as expected (Section 7.1, Table 10).

Given the design of the surface water management system and the typically high evaporation rates within the region (see Section 4.1), the sediment dams typically only receive runoff during large rainfall events. Water in the dams is allowed to dissipate through evaporation. Overflow from the dams and off-site discharge are not anticipated.

The internal surfaces of the sediment dams have been compacted to provide a minimum permeability.

5.1.3 PPU Roof Rainfall

Rainfall runoff from the poultry shed roofs is directed into the grassed swales drains (see Section 5.1).

5.2 Sewage Management

Sewage generated by the on-site residences and staff amenities at each PPU is treated and disposed of via on-site aerated wastewater treatment systems (one at each residence and one at each PPU) installed and operated in accordance with Council approvals and the relevant standards/guidelines.

5.3 Wheel Wash Units

The potential for mechanical transmission of disease pathogens is reduced through the operation of a wheel wash facility on the access road to each PPU. All vehicles entering a PPU site are required to pass through the wheel wash to remove dust particles from the wheels and chassis. On approach the driver is requested (via signage) to push a button, a small pump turn ons and the driver is requested (via signage) to proceed slowly through the wheel wash spray.

An appropriate chemical sanitiser, such as Microgard 755N or Micro-4, which are commonly used on poultry farms, is added to the wash water.

5.4 Operational Water Supply

The Development requires a long-term average water supply of around 460 ML/year (1.26 ML/day or 14.6 litres per second [L/s] averaged over a year) for shed ventilation, bird consumption, shed cleaning, landscaping and staff amenity requirements. This water is sourced from two groundwater bore located within the Development Site (labelled "Bore 1" and "Bore 2" on Figure 1), each location with two bores (a production bore and a backup bore).

As advised in Section 2.4, WAL 11788 permits the abstraction of 488 units annually from the two bores. These bores access the Deep Aquifer (Calivil Formation) in accordance with the WAL conditions (see Appendix A). Bore logs for the two production bores are presented in Appendix C, and summary information is presented in Table 6.

Table 6 Production Bore Information

Bore ID	Easting (GDA94)	Northing (GDA94)	Total Drilled Depth (mBGL)	Top of Calivil Formation (mBGL)	Base of Calivil Formation (mBGL)	Bore Screens (ss wire-wound)	
						Aperture	Setting (mBGL)
Bore 1	430623	6157517	78	54	Not drilled	0.050"	57-59
						0.060"	59-60
						0.040"	64-65
						0.050"	65-66
						0.060"	66-71
						0.070"	71-73
Bore 2	430780	6156352	107	54	100	0.060"	73-75
						0.070"	75-77
						0.040"	85-91
						0.050"	91-93

Water extracted from the bores is treated as per the recommendations by the National Water Biosecurity Manual – Poultry Production (Department of Agriculture, Fisheries and Forestry [DAFF] 2009). The water is pumped from the bore and filtered through sand media. The water pH is monitored and if it is found to be high, citric acid is added to maintain pH at approximately 7.0. The water is then chlorinated to deliver approximately 3 parts per million (ppm) in to four storage tanks located at each PPU (combined 1.4 ML storage capacity at each PPU). Water from the storage tanks is pumped to each poultry shed at the respective PPU, with chlorine dioxide dosed into the water delivery system supplying the sheds at 0.5 to 0.1 ppm.

The groundwater extraction from the two production bores is recorded from a single totaliser flow meter installed at each bore on a six-monthly basis.

5.5 Water Supply Contingency Plan

5.5.1 Operational Water Supply

The results of the groundwater pumping test undertaken for the RTS (SLR 2015b) indicate that the Calivil Formation aquifer has sufficient capacity to support the Development's long-term water supply requirements of approximately 1.26 ML/day and can support significantly higher rates of extraction. The pumped bore recorded a maximum drawdown of only 4.18 m after 2 days of pumping at 45 L/s (3.89 ML/day), with the observation bore located almost 1.2 km away recording a maximum of 0.44 m drawdown. The achieved yields demonstrate appropriate water supply security for the Development.

In the unlikely event that the operational water requirements of the Development cannot be provided, for example during an extended extreme drought, this is a commercial risk for ProTen. If this occurs, several options will be available including the purchase of water from off-site and/or reducing the operating capacity of the Development until the required water supply can be obtained. Should additional groundwater be required in extended extreme drought periods, groundwater trades will be sourced from the local area. On this basis, there should not be any impact or disadvantage to other local water users.

Due to biosecurity requirements, ProTen does not capture and re-use stormwater run-off from the roofs of the poultry sheds. While the captured roof water can be chlorinated, there is still an element of risk associated with introducing disease pathogens to the livestock and the possibility of spreading disease.

5.6 Mitigation and Management

The Development is managed in compliance with ProTen's standard operating procedures. This includes a regular site inspection and maintenance program in order to minimise the potential for adverse environmental impacts, extend the life of farm equipment, reduce operating costs and maximise operational efficiency.

The following best management practices and mitigation measures will continue to be implemented to safeguard local water resources and/or minimise and manage potential adverse impacts include:

- The surface water management systems will be visually inspected on a monthly basis, as well as prior to any predicted significant rainfall event and following significant rainfall events. Where water management or erosion and sediment control structures are identified to have reduced capacity due to excessive sediment build-up or scouring, rectification works (desilting, regrading and/or reshaping) will be undertaken to ensure the structures maintain their design capacity and can handle subsequent rainfall events.
- The grassed swale drains between the poultry sheds will be carefully managed to minimise soil disturbance and maximise infiltration of runoff, as well as 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, along with the amount of poultry litter (and associated sediments and nutrients) washed out of the sheds.
- The waste management systems described in the OEMP will be implemented to ensure that each waste stream generated by the Development is effectively managed and disposed of off site. There will not be any on-site stockpiling or disposal of waste materials.
- The best management practices and mitigation measures for chemical use and storage described in the OEMP will be implemented.

- Should an overflow or spill event occur, it will be dealt with according to the Environmental Incident Management Procedure in the OEMP. If the incident threatens to cause material harm to the environment, the relevant government agencies will be immediately notified and any instructions provided strictly adhered to. Based on the nature of the incident, sampling/additional may be considered necessary to characterise the possible impact of the incident.

5.7 Roles and Responsibilities

The key personnel responsible for environmental management, including surface water and groundwater management, throughout operation of the Development are listed in Table 7.

Table 7 Roles and Responsibilities

Role	Responsibilities
ProTen Site Management	<ul style="list-style-type: none"> • Overall responsibility for environmental management and compliance with the Development Consent and relevant legislation; • Coordinate environmental inspections, reporting and authority liaisons; • Record, notify, investigate and respond to any complaints and/or enquiries and, where necessary, develop and implement corrective actions; • Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; • Oversee the implementation of this WMP and provide adequate resources to enable implementation of this WMP; • Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this WMP; and • Report on the performance of the WMP to senior management for review and as a basis for improvement of the system.
All employees and contractors	<ul style="list-style-type: none"> • Ensure familiarity with this WMP and ensure appropriate and effective implementation and compliance; • Support ProTen's commitment to environmental management and compliance; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to ProTen Site Management without delay; and • Report any inappropriate operational and/or environmental management practices to ProTen Site Management without delay.

5.8 Inductions and Training

ProTen Site Management will ensure that all employees and contractors are suitably inducted and trained prior to commencing any work on site. Training in relation to the OEMP, including implementation of the management strategies and mitigation measures in this WMP, will take place initially through the site induction and then on an on-going basis through "toolbox talks" (or similar).

6 Erosion and Sediment Control

6.1 Erosion Potential

All operational surface water runoff from within the PPU environs is directed into the grassed swale drains (see Section 5.1.2). Possible areas of concern with respect to erosion and sedimentation during the operational phase include:

- Unsealed access roads;
- Soil stockpiles;
- Unsealed and/or hardstand laydown areas;
- Any additional construction areas; and
- Revegetation areas.

However, the potential for erosion and sedimentation is considered to be low during the operational phase due to limited disturbance activities and untreated disturbance areas.

6.2 Erosion and Sediment Control

Appropriate ESC structures and management measures will be maintained during the operational phase of the Development in accordance with the Blue Book (Landcom 2004) and Erosion and Sediment Control on Unsealed Roads (Office of Environment and Heritage [OEH] 2012). Some of these measures will include:

- Appropriate shaping and grading of unsealed roads and laydown areas;
- Regular maintenance of unsealed roads, laydown areas and vehicle parking areas;
- Where necessary, use of spoon drains and swale drains to manage runoff from unsealed roads and other disturbed surfaces;
- Where necessary, clean extraneous surface water from upslope will be diverted around areas of disturbance;
- Vehicular access will be restricted (as much as possible) to the designated access roads;
- Soil and other material stockpiles will be located in areas away from roadways and surface water management features;
- Temporary ESC structures, such as silt fences, will be installed prior to the commencement of any disturbance activities;
- Disturbed areas will be promptly rehabilitated and revegetated to a stable landform following the completion of disturbance activities; and
- An on-going maintenance program to ensure the continued integrity of surface water management and ESC structures.

6.3 Revegetation

The most effective means of controlling erosion and sedimentation is through the establishment and maintenance of a healthy vegetation cover. Vegetation provides surface protection against raindrop impact, binds the underlying soil to resist detachment by surface flows and improves the soil's infiltration capacity.

6.3.1 General Disturbance Areas

General disturbance areas will be promptly rehabilitated to a stable landform and revegetated following completion of the construction/disturbance activities. Broadcast seeding will be utilised as the preferred revegetation method for all disturbance areas requiring revegetation. For critical areas requiring quick revegetation or for areas where poor revegetation is identified, more intensive revegetation methods (i.e. hydromulching) may be warranted. Broadcast seeding involves the spreading of a suitable pasture seed mix over the area to be revegetated and will be undertaken according to the following construction notes:

- Where possible, topsoil will be re-spread to a minimum depth of 100 millimetres in the reverse sequence to its removal so that the organic layer containing any seed or vegetation is returned to the surface. Re-spreading on the contour will aid runoff control and increase moisture retention for subsequent plant growth. The re-spread topsoil will be levelled to achieve an even surface (avoiding a compacted or an over-smooth finish) and tilled;
- After surface soil tillage is completed for any given area, revegetation will commence as soon as practicable; and
- An appropriate fertiliser such as Granulock 15 (or similar) will be applied during the seeding operation at a rate of approximately 250 kilograms per hectare.

The pasture grass and legume mix provided in Table 8 will be applied.

Table 8 Pasture Grasses and Legumes for Revegetation

Species	Rate (kilograms per hectare)	
	Spring / Summer	Autumn / Winter
Japanese Millet	20	5
Ryecorn/Oats	5	20
Couch Grass	10	8
Wimmera Ryegrass	5	10
White Clover	8	-
Lucerne	5	-
Sub Clover	-	8
Serradella	-	10
Consol	-	2

All legumes (clovers and lucerne) should be inoculated with Rhizobia and lime pelleted to promote nodulation and facilitate subsequent nitrogen fixation.

6.3.2 Topsoil Stockpiles

In accordance with the Blue Book, any long term soil stockpiles (i.e. greater than 10 days) will be sown with a cover crop immediately after stockpile formation. The cover crop specifications in Table 9 are recommended for temporary erosion control protection.

Table 9 Topsoil Stockpile Cover Crop

Species	Rate (kilograms per hectare)	
	Spring / Summer	Autumn / Winter
Ryecorn/Oats	10	20
Japanese Millet	20	10

7 Surface Water Monitoring Program

7.1 Baseline Data

There are no notable surface water bodies within or adjacent to the Development Site and, as such, no historical baseline surface water quality data is available. As outlined in Section 4.3, the Development Site is well removed from any notable surface water features with only two minor drainage depressions traversing the Site.

7.1.1 Surface Water Monitoring

Surface water quality monitoring is undertaken in order to:

- Establish the quality of water collected in the sediment dams;
- Characterise the nature of wash down waters;
- Establish baseline criteria for on-going improvements to water management;
- Provide data for long term comparison and assessment purposes; and
- Review and monitor the effectiveness of ESC structures and drainage control infrastructure.

The surface water monitoring data from April 2016 to September 2019 in the sediment dams is presented in Table 10.

Table 10 Surface Water (Sediment dams) Quality Baseline Data Summary

Site	Date Sampled	General			Nutrients			
		pH (pH Units)	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Nitrate/Nitrite as N (mg/L)	Total Phosphorus (mg/L)
<u>ANZECC Criteria Limits</u>		6.5 - 8.0	125 - 2,200	-	-	0.5	0.04	0.05
<u>NSW Water Quality Objectives</u>		6.5 - 8.5	125 - 2,200	-	-	0.5	-	0.05
Entry	14 July 2016	7.2	141	277	2	3	0.9	0.3
Freezer Room Table Drain		7.2	125	193	2	3	1.1	0.4
Farm 77 Sth Table Drain		7.3	103	657	2	3	1.1	0.3
Farm 77 Nth Table Drain		7.4	140	347	2	3	0.9	0.3
Farm 78 SE Dam		7.6	137	1,360	2	4	1.6	0.6

Site	Date Sampled	General			Nutrients			
		pH (pH Units)	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Nitrate/Nitrite as N (mg/L)	Total Phosphorus (mg/L)
Farm 79 SE Dam		7.8	170	1,330	4	6	1.7	0.6
Farm 78 SW Dam		7.7	155	1,330	<2	2	2.0	0.5
Farm 79 NW Dam		7.4	140	287	2	3	1.0	0.3
Farm 78 Sediment Dam	29 September 2016	7.6	146	796	2	3	1.1	0.7
Farm 78 Swale Drain		7.8	139	2,560	2	3	1.1	1.2
Farm 79 Sediment Dam		7.4	160	230	2	7	5.3	0.9
Farm 79 Swale Drain		6.9	145	1,260	4	4	0.5	1.3
Farm 75 Roadside table	17 March 2017	7.8	133	6,160	6	7	0.9	1.7
Farm 78 Sediment Dam		7.5	213	604	2	5	2.7	0.8
Farm 79 Sediment Dam		7.7	275	89	<2	<2	0.9	0.2
Concrete batch plant table drain		7.5	230	3,350	5	5	<0.1	1.2
S1	17 June 2017	7.3	146	238	2	-	<0.5	0.2
S2		7.2	301	688	5	-	<0.5	0.2
S3		7.6	113	56	3	-	<0.5	0.1
PPU1		7.7	272	744	2	-	<0.5	0.2
PPU2		7.5	67	732	2	-	<0.5	0.3
PPU3		7.4	266	288	3	-	0.9	0.4
PPU4		7.5	246	13	2	-	3.5	0.3
PPU5		7.4	187	88	2	-	4.6	0.6

Site	Date Sampled	General			Nutrients			
		pH (pH Units)	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Nitrate/Nitrite as N (mg/L)	Total Phosphorus (mg/L)
PPU1	28 September 2017	7.8	360	116	<2	<2	0.6	<0.01
PPU2		7.3	361	345	15	16	1.4	2.7
PPU3		7.6	327	10	3	7	3.6	0.5
PPU4		8.2	303	9	2	8	5.9	0.2
PPU1	11 January 2018	7.5	268	1,000	2	4	1.8	0.1
PPU2		7.2	213	510	9	9	0.2	0.6
PPU3		9.2	374	221	3	3	0.1	0.1
PPU4		9.1	258	218	5	5	0.1	0.3
PPU5		8.2	222	115	2	6	4.5	0.4
PPU1	5 March 2018	9.7	493	29	2	2	<0.5	0.3
PPU2		8.7	388	1,280	10	14	3.8	2.1
PPU3		8.5	729	1,660	14	14	<0.5	2.2
PPU4		8.1	514	454	10	10	<0.5	1.2
PPU5		8.2	301	87	<2	2	2.5	0.7
PPU1	3 June 2018	9.4	677	28	19	19	0.2	0.2
PPU2		7.9	479	1,100	21	21	0.3	2.8
PPU3		9.0	833	39	4	5	1.4	0.3
PPU4		8.5	456	13	2	3	0.9	0.8
PPU5		8.3	370	129	<2	3	3.1	0.9
PPU1	4 September 2018	8.0	720	69	78	79	0.8	1.2
PPU2		7.9	389	27	79	80	1.2	1.7
PPU3		8.2	407	32	4	4	0.2	0.9
PPU4		9.0	573	390	25	25	0.4	2
PPU5		8.1	395	49	3	6	3	1.1
PPU1	18 December 2018	7.0	708	12	4	4	<0.5	0.6
PPU2		7.2	388	117	5	5	<0.5	1.6
PPU3		7.2	701	106	7	8	0.5	1.2
PPU4		7.6	411	15	2	2	<0.5	1.0
PPU5		8.6	482	21	2	3	0.8	0.7
PPU1	19 March 2019	8.3	862	129	6	6	<1	0.6
PPU2		7.4	447	1,220	18	18	<1	3.7
PPU3		7.9	249	330	46	46	<1	0.5
PPU4		7.4	434	11	2	2	<1	0.7

Site	Date Sampled	General			Nutrients			
		pH (pH Units)	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Nitrate/Nitrite as N (mg/L)	Total Phosphorus (mg/L)
PPU5		7.4	636	55	7	7	<1	1.0
PPU1	19 June 2019	7.6	271	-	3	3	<0.5	0.4
PPU2		7.4	253	-	3	3	<0.5	0.4
PPU3		7.4	202	-	5	8	2.8	1.4
PPU4		7.7	318	-	<2	<2	<0.5	0.6
PPU5		8.0	400	-	4	5	0.6	0.7
SW		6.9	366	-	3	3	<0.5	0.2
PPU1	19 September 2019	7.2	293	124	5	5	<1	0.2
PPU2		7.0	317	677	6	20	14	0.2
PPU3		7.5	268	301	4	6	2	0.6
PPU4		7.5	397	54	4	11	7	2.4
PPU5		7.4	410	45	4	8	4	1.8
	MIN	6.9	67	9	<2	<2	<0.1	<0.01
	MAX	9.7	862	6,160	79	80	14	3.7
	AVERAGE	7.8	339	552	8	10	1.5	0.8

7.1.2 Visual Inspections

Visual inspections of the engineered surface water management systems and ESC structures shall be undertaken on the following basis:

- Monthly;
- Prior to any predicted significant rainfall events; and
- Following any significant rainfall events.

Inspections shall focus on the capacity and condition of the surface water management system structures and ESC structures, water retention within the sediment dams, condition of vegetation (grass) within swale drains and general water management practices across the Site. Where water management or ESC structures are identified to have reduced capacity or are in poor condition remediation works will be undertaken without delay. If the structures have excessive sediment build-up or scouring, they will be desilted, regraded and/or reshaped to ensure the structures maintain their design capacity and can handle subsequent rainfall events.

The results of any visual inspections and any remediation works required/undertaken shall be recorded in an inspection checklist and retained for future reference.

7.1.3 Surface Water Quality Monitoring

The surface water quality monitoring parameters to be analysed are listed in Table 11. This analytical suite was devised to detect any potential environmental impact to downstream water resources as a result of the Development.

Field measurement of water quality parameters will be undertaken using appropriate field equipment maintained and calibrated in accordance with the manufacturer’s recommendations. Analytical testing is to be undertaken by an NATA accredited laboratory. Sampling will be undertaken by suitably qualified personnel.

Table 11 Surface Water Quality Monitoring Analytical Suite

Analytical Suite
<ul style="list-style-type: none"> pH (field) Electrical conductivity (EC) (field and laboratory) Total suspended solids (TSS) Nitrogen Phosphorus

Surface water quality sampling will be undertaken according to the Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales (DEC 2004).

The reactive surface water quality monitoring regime for the Development is listed in Table 12.

Table 12 Surface Water Quality Monitoring Schedule

Monitoring Site	Parameters	Frequency
Periodic Sampling		
One sediment dam at each PPU	<ul style="list-style-type: none"> Water quality (see Table 9); Water level; and Photos 	6-monthly grab sample when water is available
Reactive Sampling		
Overflow from sediment dam	<ul style="list-style-type: none"> Water quality (see Table 9); and Photos 	Grab sample during overflow
Any surface water impacted by a spill, discharge or other incident	Targeted analytes selected based on the nature of the incident	Immediately and/or as instructed by consulted government agencies

7.1.4 Surface Water Flow Monitoring

As there are no flowing watercourses within or near the Development Site, no surface water flow monitoring shall be undertaken.

7.2 Surface Water Monitoring Trigger Values

Surface water quality impact assessment trigger values have been developed based on ANZECC (2000) for water quality and NSW's Water Quality Objectives. The following triggers will be used to determine if the impact investigation procedure should be initiated:

- Occurrence of an overflow or spill event which may impact surface waters;
- Breaching of relevant surface water quality or quantity triggers; and/or
- When a legitimate complaint is received from a local landholder.

7.2.1 Surface Water Quality Trigger Values

ANZECC Guidelines

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000) have been developed to protect environmental values relating to water uses such as irrigation and stock use. The trigger values are not assessment criteria but are used to initiate investigations into the surface water quality as reported by the monitoring program.

ANZECC (2000) recommends that wherever possible, site-specific data should be used to define trigger values for physical and chemical factors which can adversely impact the environment. Trigger levels developed in accordance with the guidelines are statistically-based, accommodate site-specific anomalies and use a statistical measure to represent the variability of natural conditions.

A minimum of two years of monthly data at the reference site is required before a valid trigger value can be established. The absence of any surface water features on or near to the Development Site means there was insufficient data available to develop site-specific trigger values and as such, the default ANZECC (2000) trigger values have been adopted. The Development Site is situated at elevations between roughly 133 and 138 m Australian Height Datum (AHD) and as such, the default trigger values for Lowland Rivers (<150 m AHD) have been adopted.

ANZECC (2000) provides surface water quality impact assessment criteria for "slightly disturbed ecosystems" (high conservation value) as presented in Table 13. The receiving environments for any overflow from the on-site sediment dams are considered to be "moderately disturbed ecosystems" implying that the adopted criteria for slightly disturbed ecosystems are conservative.

NSW's Water Quality Objectives

NSW's Water Quality Objectives (WQOs) include protection of the following environmental values:

- Aquatic ecosystems;
- Visual amenity;
- Secondary recreation; and
- Primary contact recreation.

Meeting water quality trigger levels suitable for local aquatic ecosystems is generally the basis for protecting the other environmental values, which are the uses people have for water (DEC 2006). A detailed description of the water quality objectives and trigger levels for the other environmental values is provided in DEC (2006).

The WQOs are presented in Table 13 alongside the water assessment criteria from ANZECC (2000) for reference. In this instance, the WQOs provide the applicable trigger values.

Table 13 Surface Water Quality Impact Assessment Criteria and Water Quality Objectives

Analyte	Units	ANZECC Impact Assessment Criteria for Slightly Disturbed Ecosystems		NSW Water Quality Objectives	
		Lower Limit	Upper Limit	Lower Limit	Upper Limit
Total Phosphorous	µg/L	-	50	-	50
Chlorophyll	µg/L	-	5	-	5
Total Reactive Phosphorous	µg/L	-	20	-	-
Total Nitrogen	µg/L	-	500	-	500
Oxides of Nitrogen (NOx)	µg/L	-	40	-	-
Ammonia (NH ₄ ⁺)	µg/L	-	20	-	-
Dissolved Oxygen Saturation	% Saturation	85	110	85	110
pH	-	6.5	8.0	6.5	8.5
Salinity (EC)	µS/cm	125	2,200	125	2,200
Turbidity	NTU	6	50	6	50

Where the surface water monitoring activities (see Table 12) reveal a result outside the above trigger levels, the Surface Water and Groundwater Response Plan detailed in Section 9 will be activated.

7.2.2 Surface Water Quantity Trigger Values

In the absence of prescriptive trigger values for surface water flow criteria, a risk based approach will be adopted for the management of further investigation into surface water quantity issues based on the potential impact to the receiving environment.

Surface water runoff and wash down water will be managed as outlined in Section 5.1. There will not be any harvesting of surface water, and rainfall runoff from within the PPU environs or on the poultry shed roofs will be directed to the engineered surface water management system.

On this basis, the potential impact to surface water flows is considered negligible. Surface water quantity issues that will trigger additional investigation and mitigation include:

- Overflow of sediment dams;
- Off-site discharge;
- Significant erosion of land surfaces and/or surface water management structure.

8 Groundwater Monitoring Program

8.1 Baseline Data

Baseline groundwater conditions for the Development Site were established in mid-2015 (Deep Aquifer groundwater levels) and early 2016 (Deep Aquifer groundwater quality, and Shallow Aquifer groundwater levels and quality).

8.1.1 Shallow Aquifer

Twelve piezometers have been installed into the Shallow Aquifer at the Development Site, as shown in Figure 1 and detailed in Table 14. The twelve piezometers are installed in six individual locations in a nested configuration to monitor different depths within the Shallow Aquifer. The shallower of the two piezometers at any one location were installed into the shallowest permeable horizon encountered and for the most part are noted to be dry. The deeper of the two piezometers at any one location were installed into the shallowest water bearing permeable horizon encountered. The ten piezometers located near the PPU's are to monitor any impact on the Shallow Aquifer as a result of the engineered surface water drainage systems managing rainfall runoff within the bounds of the respective PPU and wash down water. The remaining two piezometers are located near residences 1 and 2 is to monitor any impact on the Shallow Aquifer as a result of domestic effluent (sewage) irrigation. The site for these nested piezometers, which was requested by DPI Water (see Section 1.3), was selected given that the soil in this area is sandier than elsewhere within the Development Site.

Table 14 Shallow Aquifer Piezometer Information

Piezometer ID	Easting (GDA94)	Northing (GDA94)	Top of Screen Interval (mBGL)	Base of Screen Interval (mBGL)
Piezo 1 shallow	429678	6154073	19	22
Piezo 1 deep	429652	6154073	42	45
Piezo 2 shallow	429659	6156568	19	22
Piezo 2 deep	429659	6156537	40	42
Piezo 3 shallow	430835	6155683	19	22
Piezo 3 deep	430810	6155622	36	39
Piezo 4 shallow	431027	6157225	13	16
Piezo 4 deep	431052	6157225	25	28
Piezo 5 shallow	429903	6157925	5	8
Piezo 5 deep	429877	6157925	32	38
Piezo 6 shallow	430280	6158421	10	13
Piezo 6 deep	430306	6158421	30	31

Bore logs for the twelve piezometers are presented in Appendix D.

Shallow Aquifer Groundwater Levels

Initial groundwater levels and quality from the six (deeper) piezometers that were found to contain water were collected in April 2016. The shallower of the two piezometers at each nested site were found to be dry. Table 15 presents the groundwater levels established for the six deeper Shallow Aquifer piezometers in between February 2016 and September 2019.

Table 15 Shallow Aquifer Water Levels

Date	Standing Water Level (mTOC ¹)											
	Piezo 1 shallow	Piezo 1 deep	Piezo 2 shallow	Piezo 2 deep	Piezo 3 shallow	Piezo 3 deep	Piezo 4 shallow	Piezo 4 deep	Piezo 5 shallow	Piezo 5 deep	Piezo 6 shallow	Piezo 6 deep
Feb 2016	n/a ²	27.1	n/a ²	25.9	n/a ²	26.0	n/a ²	25.7	n/a ²	25.6	n/a ²	25.6
Apr 2016	n/a ²	25.9	n/a ²	25.9	n/a ²	25.9	n/a ²	25.7	n/a ²	25.7	n/a ²	25.7
Oct 2016	n/a ²	24.4	n/a ²	n/a ³	n/a ²	24.9	n/a ²	n/a ³	n/a ²	n/a ³	n/a ²	n/a ³
Mar 2017	n/a ²	25.8	n/a ²	25.4	n/a ²	25.5	n/a ²	25.6	n/a ²	25.3	n/a ²	25.3
Jun 2017	n/a ²	24.1	n/a ²	24.8	n/a ²	24.7	n/a ²	25.5	n/a ²	25.0	n/a ²	25.0
Sep 2017	n/a ²	25.0	n/a ²	24.6	n/a ²	24.7	n/a ²	25.4	n/a ²	24.6	n/a ²	24.6
Dec 2017	n/a ²	25.9	n/a ²	25.5	n/a ²	25.5	n/a ²	25.4	n/a ²	25.4	n/a ²	25.4
Mar 2018	n/a ²	27.9	n/a ²	26.1	n/a ²	26.2	n/a ²	25.7	n/a ²	25.8	n/a ²	25.8
Jun 2018	n/a ²	27.4	n/a ²	25.9	n/a ²	26.1	n/a ²	25.9	n/a ²	25.8	n/a ²	25.8
Sep 2018	n/a ²	26.4	n/a ²	25.8	n/a ²	25.8	n/a ²	26.0	n/a ²	25.8	n/a ²	25.7
Dec 2018	n/a ²	27.9	n/a ²	26.3	n/a ²	26.4	n/a ²	26.1	n/a ²	26.0	n/a ²	26.0
Mar 2019	n/a ²	28.4	n/a ²	26.9	n/a ²	27.2	n/a ²	26.3	n/a ²	26.3	n/a ²	26.5
Jun 2019	n/a ²	26.7	n/a ²	27.4	n/a ²	26.9	n/a ²	26.4	n/a ²	26.3	n/a ²	26.5
Sep 2019	n/a ²	26.2	n/a ²	26.3	n/a ²	26.3	n/a ²	26.4	n/a ²	26.4	n/a ²	26.3
Average	n/a	26.4	n/a	25.9	n/a	25.8	n/a	25.8	n/a	25.6	n/a	25.7
Max	n/a	28.4	n/a	27.4	n/a	27.2	n/a	26.4	n/a	26.4	n/a	26.5
Min	n/a	24.1	n/a	24.6	n/a	24.7	n/a	25.4	n/a	24.6	n/a	24.6

¹ - metres below the top of the casing (mTOC)

² - piezometer not monitored due to not being a component of the WMP at the time (historically dry)

³ - not monitored due to lack of access (flooding)

Shallow Aquifer Groundwater Quality

Table 16 presents the groundwater quality parameter concentrations recorded for the deeper six Shallow Aquifer piezometers for the period April 2016 through September 2019. Note that sampling was not undertaken at the shallower six piezometers due to a lack of groundwater within the piezometers. A review of the quarterly monitoring data from 2016 to 2019 shows that most parameters are compliant with the Australian Drinking Water Guidelines (NHMRC, 2018) except for:

- pH at Piezo 1 (deep) in March 2018;
- Bicarbonate for several sampling events; and
- Ammonia for several events.

Table 16 Shallow Aquifer Water Quality Concentrations

Piezo ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Australian Drinking Water Guidelines		6.5 - 8.5	-	1,200	180	-	-	-	250	250	200	200	0.5	50	-	-
Piezo 1 Deep	Apr 2016	7.1	253	215	39	8.7	3	4.7	13	<5	<2	116	<0.1	<1	0.11	11
	Oct 2016	7.2	190	148	33.3	4.4	2.3	3.2	13.3	<5	<2	167	<0.1	<1	0.04	0.7
	Mar 2017	7.1	190	135	31.6	4.8	1.1	3.7	15.6	4.6	<2	91	<0.1	<0.1	0.16	4.4
	Jun 2017	7	181	152	24.8	5.3	0.8	2.7	11.6	2.5	<2	76	<0.1	<0.5	0.01	0.6
	Sep 2017	7.2	186	133	24.6	4.7	1.6	4	11.5	<2.5	<2	76	1.1	<0.5	<0.01	0.7
	Jan 2018	7.5	196	79	26.6	4.2	1.4	4	18.3	8	<2	75	<0.1	<0.5	<0.01	0.5
	Mar 2018	9.1	191	140	30.9	5.2	1.6	2.9	12	9.3	<2	-	<0.1	<1	0.09	1
	Jun 2018	7.4	191	141	27.7	2.7	0.6	2.2	20.8	3.8	-	77	<0.1	<0.1	0.09	<0.5
	Sep 2018	7.5	182	119	31	2.6	2	0.7	11.6	4.1	<2	80	<0.1	<0.5	0.11	0.7
	Dec 2018	8.2	244	137	38.8	4.7	1.2	3.9	14.9	4.8	<2	76	<0.1	<0.5	0.09	0.9
	Mar 2019	7.7	200	170	36.5	2.8	2.1	2.3	20	5.9	<2	369	0.3	<1	0.18	0.6
	Jun 2019	8.1	175	149	39.6	5.1	1.7	2.8	11.2	3.2	-	77	22	<0.5	0.19	0.7
	Sep 2019	7.5	189	142	40.8	3.9	1.7	2.3	13	6	<2	81	<0.1	<1	<0.01	0.8
Avg	7.6	198	143	32.7	4.5	1.6	3	14.4	5.2	<2	113	1.9	<1	0.08	1.8	
Piezo 2 Deep	Apr 2016	7.1	305	220	49	9.2	3.4	5.7	22	<5	<2	122	<0.1	<1	0.12	5
	Oct 2016	6.9	179	141	17.2	-	1.1	3.5	69.1	-	<2	71	<0.1	<0.5	0.08	<0.5
	Mar 2017	7.2	276	172	48.7	5.9	1.3	4.6	19.2	5.5	<2	126	<0.1	<0.1	0.02	0.8
	Jun 2017	7	266	190	36.8	7.9	1.6	4.3	16.4	4.1	<2	110	<0.1	<0.5	0.05	1.4

Piezo ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Sep 2017	7.1	269	200	35.4	6.9	1.7	5.6	20.5	4.8	<2	104	0.3	<0.5	<0.01	0.8
	Jan 2018	7.3	293	205	35.6	6.9	1.9	5.3	24.9	6.9	<2	104	<0.1	<0.5	<0.01	0.8
	Mar 2018	8.5	281	204	45.5	7.7	2.4	4.8	19	11.2	<2	-	<0.1	<1	0.04	0.8
	Jun 2018	7.2	271	193	38.7	4.4	1	3.7	12.5	2.4	-	105	<0.1	<0.1	0.12	<0.5
	Sep 2018	7.3	283	200	48.8	3.6	2.8	1.8	21.1	6.4	<2	111	<0.1	<0.5	0.08	0.7
	Dec 2018	8	301	191	48.7	6.4	1.6	4.8	17.6	5.8	<2	104	<0.1	<0.5	0.06	0.8
	Mar 2019	7.5	275	222	49.9	4.8	2.6	3.6	18	6.1	<2	110	<0.1	<1	0.09	<0.5
	Jun 2019	7.4	271	204	52	6.9	2	4.7	19.3	4.1	-	108	34	<0.5	0.09	0.6
	Sep 2019	7.3	281	219	61.1	6.5	2.8	4.5	19	7	<2	115	<0.1	<1	<0.01	0.8
	Avg	7.4	273	197	43.6	6.4	2	4.3	23	5.8	<2	108	2.9	<1	0.06	1
Piezo 3 Deep	Apr 2016	7.2	278	194	41	11.4	4.9	6.7	17	<5	<2	131	<0.1	<1	0.35	5.9
	Oct 2016	6.8	224	154	31.2	7.3	2.8	5.6	21.1	9	<2	74	<0.1	<1	0.03	6.5
	Mar 2017	7	182	132	27.2	5.7	1.2	4.6	14	3.4	<2	72	<0.1	0.1	0.09	0.7
	Jun 2017	7.4	192	165	21.9	7.9	1.8	4.7	13.1	2.5	<2	76	<0.1	<0.5	0.09	0.8
	Sep 2017	7.2	182	157	19.2	6.7	1.6	5.4	13.2	<2.5	<2	70	1.3	<0.5	<0.01	0.6
	Jan 2018	7.2	182	117	18.2	6.6	1.8	5.2	13.4	6.1	<2	66	<0.1	<0.5	<0.01	0.7
	Mar 2018	8.3	182	122	22	6.7	1.8	4	14	7.5	<2	-	<0.1	<1	0.06	0.5
	Jun 2018	7.1	180	139	21.7	5.1	1.1	4.1	15.6	2.8	-	65	0.1	<0.1	0.13	<0.5
	Sep 2018	7.2	181	124	20.8	3.2	2.3	1.5	13.6	3.6	<2	70	<0.1	<0.5	0.1	0.6
	Dec 2018	8	177	137	25	5.9	1.4	4.6	12.6	3.8	<2	65	<0.1	<0.5	0.07	0.6
Mar 2019	7.4	189	161	27.2	4.6	2.6	3.4	13	4.1	<2	71	0.1	<1	<0.01	0.6	

Piezo ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Jun 2019	7.2	174	149	29.3	7.3	2.6	5.1	12.6	3	-	66	0.1	<0.5	0.14	0.6
	Sep 2019	7.2	173	137	30.2	5.8	2.3	3.9	13	<5	<2	70	<0.1	<1	<0.01	0.5
	Avg	7.3	192	145	25.7	6.5	2.2	4.5	14.3	4	<2	75	0.2	0.3	0.08	1.6
Piezo 4 Deep	Apr 2016	7.3	590	716	100	17.4	7.2	12.9	50	7	<2	248	<0.1	<1	2.35	11
	Oct 2016	6.7	250	188	24.6	-	2	5.9	13	-	<2	192	<0.1	<0.5	0.07	0.9
	Mar 2017	7	566	372	96	17.6	8.5	15.5	57.6	10.2	<2	210	0.5	<0.1	1.85	2
	Jun 2017	7	618	405	87.5	21	3.4	12.1	53	8.2	<2	242	<0.1	<0.5	1.13	1.6
	Sep 2017	6.9	600	341	79.4	17.1	3.9	14.6	60.2	10.2	<2	212	<0.1	<0.5	0.94	1
	Jan 2018	7	554	355	71.8	14.9	3.1	11.7	58.9	8.7	<2	183	<0.1	<0.5	0.17	1
	Mar 2018	7.9	538	307	80.6	23.1	3.9	14.1	58	27.7	<2	-	<0.1	<1	0.69	0.6
	Jun 2018	7	469	353	67.5	9.4	2.2	7.5	55.4	8.4	-	146	2	0.3	1.11	<0.5
	Sep 2018	7.2	481	245	80	7.5	5.8	6.9	56.3	9.8	<2	155	1.8	<0.5	0.93	0.7
	Dec 2018	7.7	460	317	78.7	11.3	2.6	8.4	52.8	9.9	<2	141	0.1	<0.5	1.71	0.7
	Mar 2019	7.6	427	288	84.3	9.5	7.8	7.2	56	10.7	<2	133	0.7	<1	1.27	0.5
	Jun 2019	7	489	303	93.3	15.4	6.3	11.8	54.3	12.7	-	165	0.6	<0.5	2.39	0.8
	Sep 2019	7.2	526	378	114	15.6	5.8	11.3	62	10	<2	178	<0.1	<1	<0.01	0.9
	Avg	7.2	505	351	81.4	15	4.8	10.8	52.9	11.1	<2	184	0.5	0.3	1.12	1.7
	Piezo 5 Deep	Apr 2016	6.9	273	214	37	11.7	3.3	7.9	12	<5	<2	122	<0.1	<1	0.07
Oct 2016		6.7	178	139	17.7	-	1.2	3.7	13.7	-	<2	68	<0.1	<0.5	0.08	<0.5
Mar 2017		6.9	246	174	38.7	9.3	1.8	7.1	15.2	5.4	<2	108	<0.1	0.1	0.07	1.2
Jun 2017		6.9	236	184	26.3	10.5	1.2	5.9	11.9	2.5	<2	105	<0.1	<0.5	0.03	1

Piezo ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Sep 2017	6.6	239	190	25.1	9.3	1.7	7.5	12.9	3	<2	103	<0.1	<0.5	<0.01	0.6
	Jan 2018	7	241	191	23.5	9.2	1.8	6.9	12.5	6.3	<2	100	<0.1	<0.5	<0.01	0.7
	Mar 2018	7.8	234	79	30.1	9.8	2	6	13	17.9	<2	-	<0.1	<1	0.03	<0.5
	Jun 2018	6.9	234	162	28.6	7.5	1.2	5.8	15.2	3.2	-	98	0.1	0.1	0.13	<0.5
	Sep 2018	7	266	190	35.8	5	3.1	3.5	17.8	7.2	<2	108	0.8	<0.5	0.12	0.9
	Dec 2018	7.6	232	168	32.8	9.2	1.5	6.7	11.2	4.1	<2	100	<0.1	<0.5	0.05	0.6
	Mar 2019	7.5	272	220	43.1	7.7	2.6	5.4	21	8.4	<2	104	<0.1	<1	0.08	0.5
	Jun 2019	6.7	236	171	35.7	9.6	2.2	6.3	13.3	4.4	-	100	<0.1	<0.5	0.16	1
	Sep 2019	7.1	238	173	42.2	9.2	2.7	5.9	14	<5	<2	102	<0.1	<1	<0.01	0.9
	Avg	7.0	240	174	32	9	2	6	14.1	5.6	<2	102	0.1	0.3	0.06	0.8
Piezo 6 Deep	Apr 2016	7	409	276	56	18.5	4.8	11.5	35	<5	<2	210	<0.1	<1	0.15	5.2
	Oct 2016	6.6	252	179	24.8	-	2	6.1	12.6	-	<2	140	0.2	<0.5	0.09	1.1
	Mar 2017	6.8	347	271	50.6	13	2.3	9.2	36.1	6	<2	119	<0.1	0.2	0.08	1.1
	Jun 2017	6.8	326	206	35.8	12	1.4	7.2	32.1	3.8	<2	112	<0.1	<0.5	<0.01	<0.5
	Sep 2017	6.7	391	253	43.7	13.4	3.2	11.2	43.6	8.2	<2	122	1	<0.5	<0.01	1.1
	Jan 2018	6.8	360	269	37.3	12.6	2.4	9.8	41	7.2	<2	109	<0.1	<0.5	<0.01	0.6
	Mar 2018	7.5	347	213	43	12.9	2.5	8.1	38	15	<2	-	<0.1	<1	0.02	<0.5
	Jun 2018	6.8	332	188	36.6	10.2	1.4	7.2	28.9	3.1	-	109	0.1	0.1	0.13	<0.5
	Sep 2018	7	339	174	45.6	7.5	3.1	5.9	37.8	6.6	<2	114	<0.1	<0.5	0.1	0.8
	Dec 2018	6.8	338	218	45.9	13	1.9	8.9	35	6.7	<2	109	<0.1	<0.5	0.07	0.8

Piezo ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Mar 2019	7	344	240	48.3	10.4	3	6.3	36	7.1	<2	107	<0.1	<1	0.13	0.5
	Jun 2019	6.8	339	237	60.7	14.7	2.9	10.9	35.5	5.8	-	100	0.9	<0.5	0.12	0.7
	Sep 2019	7	338	220	56.9	12.6	2.9	8.3	43	<5	<2	111	<0.1	<1	<0.01	0.7
	Avg	6.9	343	226	45	12.6	2.6	8.5	35	6.2	<2	122	0.2	0.3	0.07	1

8.1.2 Deep Aquifer

Two production bores have been installed into the Deep Aquifer at the Development Site, as shown on Figure 1 and detailed in Table 17.

Table 17 Deep Aquifer Production Bore Information

Bore ID	Easting (GDA94)	Northing (GDA94)	Top of Screen Interval (mBGL)	Base of Screen Interval (mBGL)
Bore 1	430623	6157517	57	73
Bore 2	430780	6156352	73	93

Initial groundwater levels from the two production bores were collected in August 2015 and initial groundwater quality was collected in April 2016, and the results are presented below.

Deep Aquifer Groundwater Levels

Table 18 presents the initial groundwater levels established for the two production bores in August 2015. The August 2015 groundwater levels were established after drilling and construction of the two production bores, and immediately prior to pumping tests undertaken on the bores. These results were presented in the Response to Submissions (SLR, 2015).

Table 18 Deep Aquifer Initial Water Levels (August 2015)

Bore ID	Standing Water Level (mBGL)
	August 2015
Bore 1	24.5
Bore 2	24.2

Deep Aquifer Groundwater Quality

Table 19 presents the groundwater quality parameter concentrations recorded for the two Deep Aquifer production bores for the period April 2016 through September 2019.

A review of the quarterly monitoring data from 2016 to 2019 shows that most parameters are compliant with the Australian Drinking Water Guidelines (NHMRC, 2011) groundwater quality except for:

- Ammonia at Bore 2 in June 2018.

Table 19 Deep Aquifer Initial Water Quality Concentrations

Bore ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
<u>Australian Drinking Water Guidelines</u>		6.5 - 8.5	-	1,200	180	-	-	-	250	250	200	200	0.5	50	-	-
Bore 1	Aug 2015	6.6	685	-	84.3	29.7	1.9	22	144	19	-	-	<0.1	<0.5	0.04	<0.5
	Apr 2016	6.8	149	104	14	6.7	1.9	5.1	9	<5	<2	70	<0.1	<1	0.11	<0.5
	Oct 2016	7.3	145	122	16	5.9	2	5	9.7	3.4	<2	67	<0.1	<0.1	<0.01	<0.5
	Jun 2017	6.8	149	120	12.6	7.2	0.7	4.7	8.8	2.1	<2	63	<0.1	<0.5	<0.01	<0.5
	Sep 2017	PB1 not sampled due to maintenance at the time of sampling.														
	Jan 2018	7	152	129	11.4	6.1	1.2	5.5	8.6	2.4	<2	61	<0.1	<0.5	<0.01	<0.5
	Jun 2018	6.9	154	109	22.1	4.7	1.4	5.1	14.4	1	<2	64	<0.1	<0.1	0.05	0.7
	Dec 2018	6.9	153	107	18.8	6.5	1.1	5.4	8.5	3.3	<2	61	<0.1	<0.5	0.02	<0.5
	Jun 2019	7	135	125	21.3	6.8	1.2	5.5	10.7	<2.5	-	55	<0.1	<0.5	0.12	<0.5
	Avg	6.9	215	117	25.1	9.2	1.4	7.3	26.7	4.4	<2	63	<0.1	<1	0.04	0.3
Bore 2	Apr 2016	6.8	138	124	13.7	5.5	1.9	4.4	9.9	<5	<2	55	<0.1	<1	<0.1	<0.5
	Oct 2016	7	132	117	15.7	5.4	2	4.6	9.5	2.3	<2	56	<0.1	0.3	<0.01	<0.5
	Jun 2017	7	139	107	11.3	6.3	0.6	4.2	9.3	1.8	<2	56	<0.1	<0.5	<0.01	<0.5
	Sep 2017	6.7	139	128	11	5.9	1.1	5.4	9.2	<2.5	<2	55	0.3	<0.5	<0.01	<0.5
	Jan 2018	7	140	114	9.9	5.9	1.1	5	8.7	2.2	<2	53	<0.1	<0.5	<0.01	<0.5
	Jun 2018	6.9	139	94	19	4.8	1.3	4.8	19.4	6.6	<2	57	1.2	0.3	0.07	1
	Dec 2018	6.9	140	94	15.3	5.7	1	4.7	8.7	2.9	<2	53	<0.1	<0.5	0.02	<0.5
	Jun 2019	6.8	138	117	22	6.8	1.2	5.4	9.3	<2.5	-	55	<0.1	<0.5	0.08	<0.5

Bore ID	Date	General Parameters			Major Ions								Nutrients			Misc
		pH	Electrical Conductivity	Total Dissolved Solids	Sodium	Calcium	Potassium	Magnesium	Chloride	Sulphate	Carbonate as CaCO ₃	Bicarbonate as CaCO ₃	Ammonia as N	Nitrate as N	Phosphorus	Total organic carbon
		-	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Avg	6.9	138	112	14.7	5.8	1.3	4.8	10.5	2.6	<2	55	0.2	0.3	0.03	0.3

8.2 Groundwater Monitoring

8.2.1 Groundwater Use Monitoring

Groundwater extraction from the two production bores is to be recorded from a single totaliser flow meter installed at each bore on a six-monthly basis.

8.2.2 Groundwater Level Monitoring

Groundwater levels are to be measured manually via an e-tape “dipper” in the two production bores accessing the Deep Aquifer and the twelve piezometers accessing the Shallow Aquifer according to the schedule outlined in Table 20.

Table 20 Groundwater Level Monitoring Schedule

Aquifer	Monitoring Point	Frequency
Shallow Aquifer	Piezo 1 to 6 Shallow Piezo 1 to 6 Deep	Six-monthly
Deep aquifer	Bores 1 and 2	Six-monthly

8.2.3 Groundwater Quality Monitoring

The water quality monitoring parameters to be tested for are listed in Table 21. The analytical suite has been devised to detect any environmental impact to groundwater resulting from operation of the Development.

Table 21 Groundwater Quality Monitoring Analytical Suite

Aquifer	Analytical Suite	
Shallow Aquifer and Deep aquifer	<ul style="list-style-type: none"> pH (field) Electrical conductivity (EC) (field and laboratory) Total dissolved solids (TDS) Sodium (dissolved) Calcium (dissolved) Potassium (dissolved) Magnesium (acid extractable) 	<ul style="list-style-type: none"> Sulphate Chloride Carbonate as HCO₃ Bicarbonate as HCO₃ Total organic carbon (TOC) Ammonia as N Nitrate as N Phosphorus

Field measurement of water quality parameters will be undertaken using appropriate field equipment maintained and calibrated in accordance with the manufacturer’s recommendations. Analytical testing will be undertaken by an NATA accredited laboratory. Sampling will be undertaken by suitably qualified personnel.

Groundwater quality sampling will be undertaken according to the following relevant guidelines:

- Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales (DEC 2004);
- Groundwater Sampling and Analysis - A Field Guide (Geoscience Australia, 2009); and
- AS/NZS 5667.11:1998 Water Quality - Sampling - Guidance on Sampling of Groundwaters.

Groundwater quality is to be sampled from the two production bores accessing the Deep Aquifer and the twelve piezometers accessing the Shallow Aquifer according to the schedule outlined in Table 22.

Table 22 Groundwater Quality Monitoring Schedule

Aquifer	Monitoring Point	Frequency
Shallow Aquifer	Piezo 1 to 6 Shallow Piezo 1 to 6 Deep	Six-monthly
Deep aquifer	Bores 1 and 2	Six-monthly

8.3 Groundwater Monitoring Trigger Values

Impact assessment criteria for groundwater levels and quality have been developed using statistical analysis of the baseline data and the predicted impacts presented in the EIS (SLR 2015a) and RTS (SLR 2015b). The following triggers will be used to determine if the impact investigation procedure should be initiated:

- Breaching of relevant groundwater water quality or level triggers; and/or
- When a legitimate complaint is received from a local landholder

8.3.1 Groundwater Level Trigger Values

Statistically defined groundwater level triggers for the twelve Shallow Aquifer piezometers have been defined based on the data collected to date (Table 13). The trigger values are presented in Table 23 below.

Table 23 Groundwater Level Trigger Values

	Piezometer ID	Baseline average (mTOC)	Trigger Level
Aquifer	Piezo 1 Deep	26.4	±2m from baseline average
	Piezo 2 Deep	25.9	
	Piezo 3 Deep	25.8	
	Piezo 4 Deep	25.8	
	Piezo 5 Deep	25.6	
	Piezo 6 Deep	25.7	

Note that, in accordance with DPI Water advice, no trigger levels are established for the Deep Aquifer bores.

8.3.2 Groundwater Quality Trigger Values

Quality triggers have been established for each analyte at each monitoring point based on the Australian Drinking Water Guidelines in accordance with DPI Water (now DPIE Water/NRAR) advice regarding the existing water quality and uses of the Shallow Aquifer (refer Section 4.4.2). As ammonia and bicarbonate exceed Australian Drinking Water Guidelines periodically for some bores, specific triggers have been developed for these bores based on the 95th percentile of historical data. It is noted that the Guidelines do not provide a health trigger value for bicarbonate (hardness) or ammonia. Instead the trigger value is based on aesthetic considerations. These trigger values are shown in Table 24.

Table 24 Interim Groundwater Quality Trigger Values (Shallow and Deep Aquifers)

Parameter	Units	Trigger Type	Trigger value
pH	-	Upper Limit	8.5 ¹
		Lower Limit	6.5 ¹
Electrical Conductivity	µS/cm	Upper Limit	-
Total Dissolved Solids	mg/L	Upper Limit	1200 ¹
Sodium	mg/L	Upper Limit	-
Calcium	mg/L	Upper Limit	-
Potassium	mg/L	Upper Limit	-
Magnesium	mg/L	Upper Limit	-
Sulphate	mg/L	Upper Limit	250 ¹
Chloride	mg/L	Upper Limit	250 ¹
Carbonate as HCO ₃	mg/L	Upper Limit	200 ¹
Bicarbonate as HCO ₃ (Piezo 2 Deep, Piezo 3 Deep, Piezo 5 Deep, Piezo 6 Deep, Bore 1 and Bore 2)	mg/L	Upper Limit	200 ¹
Bicarbonate as HCO ₃ (Piezo 1 Deep)	mg/L	Upper Limit	258 ²
Bicarbonate as HCO ₃ (Piezo 4 Deep)	mg/L	Upper Limit	244 ²
Total Organic Carbon	mg/L	Upper Limit	-
Ammonia as N (Bore 1 and Bore 2)	mg/L	Upper Limit	0.5 ¹
Ammonia as N (Piezo 1 Deep)	mg/L	Upper Limit	9.5 ²
Ammonia as N (Piezo 2 Deep)	mg/L	Upper Limit	13.8 ²
Ammonia as N (Piezo 3 Deep)	mg/L	Upper Limit	0.6 ²
Ammonia as N (Piezo 4 Deep)	mg/L	Upper Limit	1.9 ²
Ammonia as N (Piezo 5 Deep, Piezo 6 Deep)	mg/L	Upper Limit	0.5 ¹
Nitrate as N	mg/L	Upper Limit	50 ¹
Phosphorus	mg/L	Upper Limit	-

¹ Australian Drinking Water Guidelines (NHMRC, 2018)

² 95th Percentile of historical data

9 Surface Water and Groundwater Response Plan

9.1 Impact Investigation Procedure

If any of the surface water or groundwater quality or quantity/level triggers identified in Sections 7.3 and 8.3 are triggered, the following impact investigation procedure will be activated:

- If a trigger or trend is identified in a data set the Environmental Incident Management System in the latest version of the OEMP will be followed. If it has caused or threatens to cause material harm to the environment, the relevant regulatory agencies (including DP&E, EPA and DPI Water) will be immediately notified and any instructions will be strictly adhered to.
- If a complaint is received, the Environmental Complaint Management System in the latest version of the OEMP will be followed.
- Where a sediment dam overflows or an off-site surface water discharge is identified, sampling will be initiated to characterise the quality and quantity of waters discharged.
- If a trigger or trend is identified in a data set:
 - a. The first step will be to verify the data if it appears anomalous. The relevant data set will be reviewed by an appropriately qualified person who will determine if further investigation is necessary and/or additional sampling is necessary.
 - b. Where monitoring results indicate that a trigger value has been breached, the regulatory agency will be notified within 14 days of completion of monitoring.
 - c. If a surface water or groundwater contaminant trigger level is exceeded then an investigation into the potential for environmental harm will be completed and sent to the regulatory authority within 3 months of receiving the analysis results.
 - d. Once the validity of the breach is established or a landholder complaint has been verified, a preliminary investigation will be undertaken by an appropriately qualified specialist involving the evaluation of the monitoring results/complaint in conjunction with Development activities being undertaken at the time, baseline water data, local water use, the prevailing and preceding meteorological conditions and other any relevant factors.
 - e. The preliminary investigation may deem that further additional investigation and monitoring is required to determine the cause of the breach and whether or not it is directly related to Development activities.
 - f. If the investigations deem that triggers have been breached as a result of the Development, contingency measures may need to be implemented, and additional monitoring may be deemed necessary to measure the effectiveness of any contingency measure implemented.
- In the event that trigger levels or impact assessment criteria continue to be exceeded, further investigations may be undertaken (i.e. a process of continual improvement or adjustment of the relevant triggers if warranted).
- If regular exceedances occur, an action plan (corrective actions) will be developed in consultation with the relevant regulatory agencies.
- The results of any breaches of trigger levels and investigations will be documented for reporting and audit purposes.

9.2 Impact Mitigation

In the event that the preliminary and any follow-up investigations conclusively identify that the Development has adversely impacted a neighbouring water user (affected groundwater user or surface water resource), ProTen will work with the impacted user and the relevant regulatory agencies and attempt in “good faith” to negotiate suitable mitigation measures in a timely manner to rectify the identified problem.

ProTen may involve an appropriately qualified environmental specialist to assist with development of the mitigation measures. The development of suitable mitigation measures will be based on the outcomes of an appropriate scientific investigation.

10 Reporting and Data Management

10.1 Data Management

The data gathered from the surface water and groundwater monitoring programs will be collated into a database which will include:

- A site plan showing sample locations;
- Periodic inspection reports and photos;
- Tabulated results of the monitoring compared with applicable background/trigger levels;
- All data collected during each monitoring round;
- A record of chain of custody of the samples from sampling through to analysis;
- Laboratory analysis certificates; and
- A description of the procedures, methods and calculations used.

10.2 Reporting

10.2.1 Impact Investigation

As outlined in Section 9.1, where monitoring results indicate that a trigger value has been breached, the regulatory agency will be notified within 14 days of completion of monitoring.

If a surface water or groundwater level or contaminant trigger is exceeded then an investigation into the potential for environmental harm will be completed as detailed in Section 9.1 and sent to the regulatory authority within 3 months of receiving the analysis results.

10.2.2 Annual Review

Condition C8 of Development Consent SSD 6882 requires an Annual Review to be submitted to DPIE each year of operation. The review must include (among other things) any monitoring results, complaints records and non-compliances. This Annual Review will include reporting on surface water and groundwater monitoring, trigger breaches and any additional investigations and/or mitigation measures implemented.

10.2.3 Annual Return

EPL 20748 requires an Annual Return, comprising a statement of compliance, a summary of any monitoring activities and a summary of any complaints received, to be submitted to the EPA within 60 days of the end of each annual reporting period. This Annual Return will include reporting on surface water and groundwater monitoring, trigger breaches and any additional investigations and/or mitigation measures implemented.

10.3 Review and Update

This WMP will be reviewed and, if necessary, revised in response to the following:

- Development modification, including notable operational and/or management changes;
- Where is it identified (via on-going inspections/monitoring) that the water management system is not meeting the objectives of this WMP and/or adverse environmental impacts are identified within the Development Site and/or downstream;
- Changes to the conditions imposed by the Development Consent and/or the site's EPL; and/or
- At the request of a relevant regulatory agency.

11 References

- AS 1940-2004 Storage and Handling of Flammable and Combustible Liquids.
- Department of Land & Water Conservation (2002) NSW State Groundwater Dependent Ecosystem Policy
- Department of Environment and Conservation NSW (2006). Local planning for healthy waterways using NSW Water Quality Objectives.
- Department of Environment and Climate Change (2008) Managing Urban Stormwater: Soils & Construction – Volume 2B, Waste Landfills.
- Department of Infrastructure, Planning and Natural Resources (2004) Guideline for the Preparation of Environmental Management Plans.
- Environment Protection Authority (2008) Waste Classification Guidelines.
- Environment Protection Authority (1997) Environmental Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin.
- NHMRC (2018), Australian Drinking Water Guidelines 6. 2011. Version 3.5 updated August 2018.
- GHD (2007) Drainage and Nutrient Management Plan, Report for Lot 107 Henderson Road, Hopelands.
- Lance Ryan Consulting Engineers (2015) Construction Design Detail Plans Narrandera Chicken Farm.
- Landcom NSW (2004) Managing Urban Stormwater: Soils & Construction – Volume 1, 4th Edition.
- National Uniform Drillers Licensing Committee (2012) Minimum Construction Requirements for Water Bores in Australia, Third Edition.
- SLR Consulting Australia (2015a) Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement.
- SLR Consulting Australia (2015b) Euroley Poultry Production Complex SSD 6882, Response to Submissions.
- SLR Consulting Australia (2015c) Euroley Poultry Production Facility Biodiversity Offset Strategy.
- SLR Consulting Australia (2020) ProTen Narrandera - Monitoring requirements review, Letter prepared for ProTen, dated February 2020.
- Watson Drilling (2016) Bore Logs for Piezometers 1 – 6, Narrandera Chicken Farm.
- Watson Drilling (2016) Bore Logs for deeper Piezometers 1 – 6, Narrandera Chicken Farm.
- Watson Drilling (2015) Bore Logs for Bores 1 and 2, Narrandera Chicken Farm.

APPENDIX A

Water Access Licence 11788



Statement of Conditions

as at Wednesday, 8 April 2015
Issued under Water Management Act 2000

WAL number 11788

Reference number 40AL403630

Contact for service of documents

Name PROTEN HOLDINGS PTY LTD

Address PO Box 1746
NORTH SYDNEY NSW 2060

All holders

Name(s) PROTEN HOLDINGS PTY LTD

Licence details

Water source LOWER MURRUMBIDGEE DEEP GROUNDWATER SOURCE

Water sharing plan LOWER MURRUMBIDGEE GROUNDWATER SOURCES

Management zone

Category AQUIFER

Share component 488 units

Tenure type Continuing

Conditions

The water access licence with DWE Reference No 40AL403630 is subject to the following conditions:

Plan conditions

Water sharing plan

Lower Murrumbidgee Groundwater Sources

Take of water

- MW0812-00001** This licence entitles its holder to the specified shares in the available water from the specified water source as described in this licence.
- MW0697-00001** Where the licence holder is a member of a registered group formed under the plan, the licence holder must not cause or allow the combined restricted extraction calculated to apply to the group in any one year, to be exceeded.
- MW0814-00001** The licence holder must only take water under this licence using the water supply work nominated by this licence, unless otherwise allowed by the Act or the plan.
- MW0815-00001** The licence holder must comply with the terms of the extraction component specified on this licence, including the times, rates or circumstances in which, and the areas or locations from which, water may be taken under this licence, subject to any extraction restrictions in local impact areas.
- MW0822-00001** The licence holder must not take water under this licence if the resulting debit from the water allocation account for this licence will exceed the volume of water in the account.
- MW0820-00001** The licence holder must comply with all restrictions and reductions of extraction rates declared or ordered by the Minister to apply in a local impact area.
- MW0818-00001** The licence holder must comply with all applicable available water determination(s).
- MW0821-00001** The licence holder must comply with the water allocation account management rules established by the plan.
- MW0824-00001** The licence holder must not take water through a water supply work located in areas where the extraction is likely to cause an adverse local impact on water levels, water quality, aquifer integrity or on groundwater dependent ecosystems.
- MW0819-00001** The licence holder must not take more water than is allowed pursuant to an applicable AWD unless the taking is pursuant to a lawful transfer or assignment under Chapter 3 Part 2 of the Act.

Use of water

MW0686-00001

The licence holder must not take water for any purpose other than domestic consumption and stock watering purposes or other than in exercising native title rights, through a water supply work nominated on this licence, if the water supply work is within 1,000 m of any high priority groundwater dependent ecosystem listed in Schedule 4 of the plan, or within 1,000 m of any creek or river, unless the water supply work :

- (A) only draws water from an aquifer at depths approved by the Minister, and complies with all specifications of the Minister under clause 38 of the plan, or
- (B) was authorised by licence under the Water Act 1912.

Water management works

MW0813-00001

The water supply work nominated by this licence is the water supply work authorised by a works approval nominated by this licence.

Monitoring and recording

MW0636-00001

The licence holder must produce the logbook to the Minister for inspection, when requested.

Additional conditions

MW0698-00001

The licence holder must comply with the access licence dealing principles as gazetted under section 71Z of the Act and all other access licence dealing rules established by the plan.

MW0823-00001

The licence holder must pay any charge imposed by the Minister under section 114 of the Act or regulations, for the cost of activities or works under the plan.

Other conditions

No other conditions applicable

Glossary

available water determination - An Available water determination (AWD) is a water allocation which specifies the amount of water that can be taken during the water year. AWDs are made for each access licence category in each water source. AWDs are defined under the Water Management Act 2000, s. 59.

cease to take - Cease to take conditions means any condition on this approval, or on the access licence under which water is proposed to be taken, that prohibits the taking of water in a particular circumstance.

domestic consumption - Domestic consumption is the use of water for normal household purposes in domestic premises situated on the land.

high priority groundwater dependent ecosystem - High priority groundwater dependent ecosystems have their species composition and natural ecological processes wholly or partially determined by groundwater and are considered high priority for protection or restoration.

logbook - A logbook is a document, electronic or hard copy, that records specific required information.

share component - The share component is the specified shares in the available water within a particular water management area.

stock watering - Stock watering is the use of water for stock animals being raised on the land. It does not include the use of water for the raising of stock animals on an intensive commercial basis (kept in feedlots or buildings for all, or a substantial part, of the period during which the stock animals are being raised).

General Notes

All conditions on a water access licence require compliance. An appeal to the Land and Environment Court against a decision to impose certain conditions on an approval can be made within 28 days after the date the decision is made. Conditions identified with the first letter "D" are those that can be appealed during the appeal period.

Certain dealings and other matters relating to this water access licence or a holding in this water access licence must be registered in the Access Register in accordance with section 71A of the *Water Management Act 2000*. For information about the Access Register, contact Land and Property Information (<http://www.lpi.nsw.gov.au>).

APPENDIX B

Civil Design Drawings for PPU Surface Water Management



1	Issued for Information	28.04.2015	L.V.R.	L.V.R.	L.V.R.	
Revision	Amendment or reason for issue	Issue date	Drawing completed by	Designed & dwg. checked by	Verified by	Issue authorised (*)
					X = Not verified	

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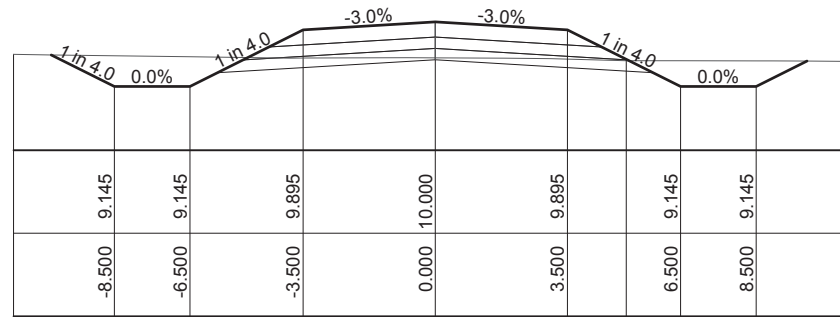
Project
ProTen Chicken Sheds
 ProTen Narrandera
 Lot 42, Sturt Highway
 Euroley NSW 2700

Client
ProTen
 Architect / Project Manager

Drawing Title Overall Site Plan		Client Project No.
Scales 1:10000		
Project Number 15W013	Dwg. No. C01	Sheet 01 of 76
		Revision 1

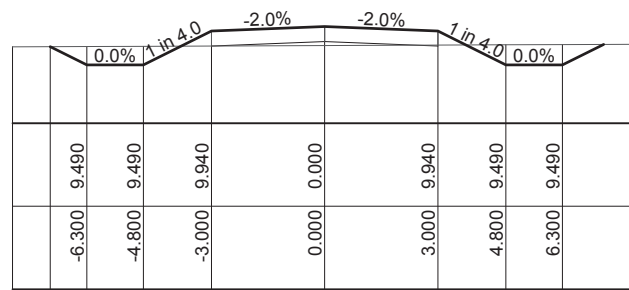
A1 SHEET





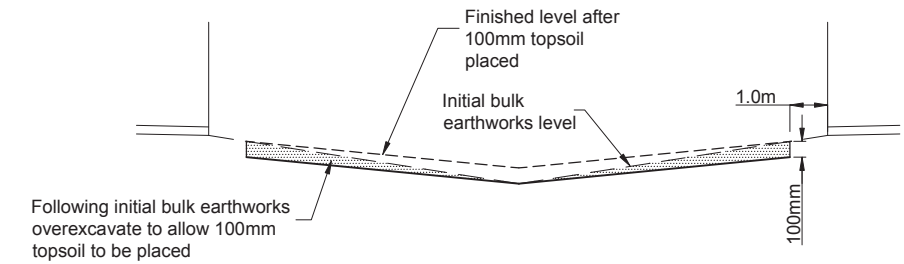
Typical Road Cross from Sturt Highway to first Intersection Ch 0 to Ch 3900

Pavement to consist of 300mm fill compacted in two layers from material won from table drains and 200mm of Road base Gravel. Through the sand hills (Ch 200 to 800) the top 200mm layer of fill to stabilised with slag lime as per Geotechnical recommendations.



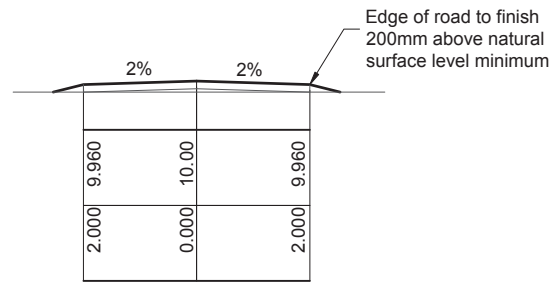
Typical Road Cross for all Internal Roads including main access road from CH 3900 to End

Pavement to consist of 200mm of Road base Gravel.



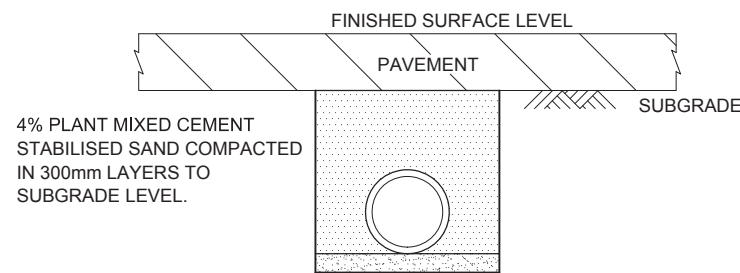
SWALE DRAIN BETWEEN SHEDS

Additional excavation following initial bulk earthworks to allow for 100mm of topsoil to be placed



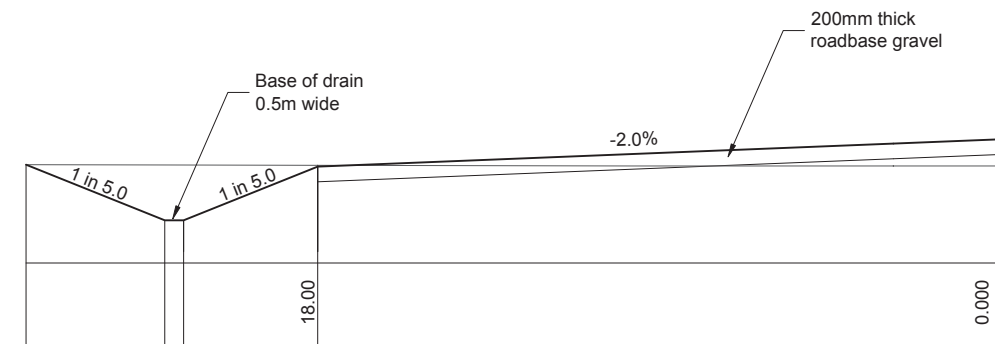
Scale Horizontal 1:100 Vertical 1:100

Typical Road Cross Section to Houses

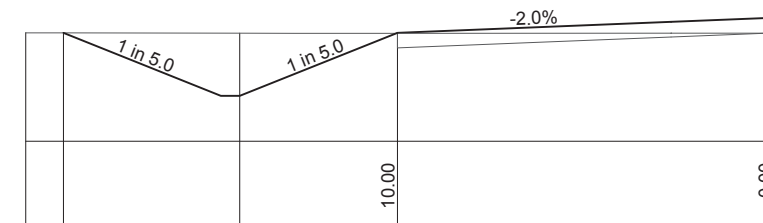


STORMWATER UNDER ROADS

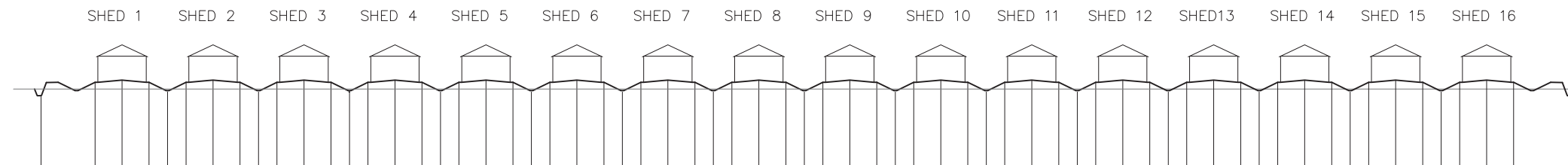
SCALE 1:20




TYPICAL CROSS SECTION RING ROAD AT FRONT



TYPICAL CROSS SECTION RING ROAD AT BACK



TYPICAL SECTION THROUGH SHEDS

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1	Issued for information	20.05.2015	L.V.R.	L.V.R.	L.V.R.	* Drawing Status Warning: Unless there is an authorised Lance Ryan Consulting Engineers Pty. Ltd. signature at * , this drawing is not authorised for issue.			Client ProTen	Scales As Shown	Client Project No.		
Revision	Amendment or reason for issue	Issue date	Drawing completed by	Designed & dwg. checked by	Verified by X = Not verified	Issue authorised (*)	Architect / Project Manager	Project Number 15W013	Dwg. No. C02	Sheet 02 of 76	Revision 1		

A1 SHEET

0 100mm 200mm 300mm

APPENDIX C

Bore Logs for the Production Bores

Water Bore Drilling Summary Report

Bore 1

Spudded: 07-04-2015	Report Date: 21-07-2015
TD Reached: 07-04-2015	Job: ProTen - Euroley
Rig Release	Job No: 610.14072
Well Name.: Bore 1	Co-ordinates (GDA94): 430623 e
Tenure: n/a	6157517 n
Target Formation: Calivil Formation	Elevation:
Predicted TD (m GL): 90	Logging hydrogeologist: Derwin Lyons
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 78

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	54	53	Shepparton Formation
54	78	24	Calivil Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	CLAY, brown; some fine-medium grained sand
1.0	3.0	2.0	CLAY, medium grey/brown and orange mottled, firm
3.0	4.0	1.0	SILTY CLAY, brown, some sand
4.0	7.0	3.0	CLAYEY SAND, red-brown, fine to medium grained
7.0	8.0	1.0	SILTY SAND, fine grained, orange-brown
8.0	9.0	1.0	CLAY, light grey and orange, firm
9.0	11.0	2.0	SAND, medium to coarse grained, moderately well sorted, moderately well rounded, lithic, orange-brown
11.0	12.0	1.0	SAND, medium grained, clean, well sorted, orange-brown
12.0	13.0	1.0	CLAYEY SAND, fine grained, orange
13.0	15.0	2.0	SILTY CLAY, orange and grey mottled, firmer with less silt towards base
15.0	16.0	1.0	SAND, fine to coarse grained, poorly sorted, lithic, orange
16.0	17.0	1.0	CLAYEY SAND, medium to coarse grained, orange-brown
17.0	31.0	14.0	CLAY, firm, orange-brown, some light grey clay. Occasional stiff red clay and siltier clay horizons
31.0	35.0	4.0	SILTY CLAY, orange-brown
35.0	36.0	1.0	CLAYEY SAND, medium grained, orange
36.0	37.0	1.0	GRAVELLY SAND, loose, angular lithic grains
37.0	39.0	2.0	SAND, fine to coarse grained, poorly sorted, moderately angular, light brown
39.0	41.0	2.0	GRAVELLY CLAY, dark orange-brown with up to 1cm diameter moderately rounded lithics. Gravel decreases with depth
41.0	43.0	2.0	SANDY CLAY, coarse grained sand in stiff dark orange-brown clay matrix
43.0	44.0	1.0	CLAYEY SAND, firm, orange-brown
44.0	46.0	2.0	CLAY, stiff, brown
46.0	49.0	3.0	CLAY, stiff, brown, mottled with red & grey clay
49.0	51.0	2.0	CLAY, stiff, brown
51.0	54.0	3.0	CLAY, stiff, brown, mottled with grey clay, minor sand 52-53m
54.0	57.0	3.0	SAND, medium grained, clean, well sorted, angular grains, orange. Coarsening with depth
57.0	58.0	1.0	SAND, coarse grained, clean, sub-rounded, moderate sorting, orange and white
58.0	60.0	2.0	GRAVELLY SAND, coarse grained, clean, sub-rounded, orange and white
60.0	62.0	2.0	GRAVELLY SAND, clayey, sub-angular gravels up to 5mm diameter, orange. Lithic. Gravel decreasing with depth
62.0	63.0	1.0	CLAY, gravelly, orange
63.0	64.0	1.0	SAND, fine to medium grained, clean, orange
64.0	65.0	1.0	SAND, medium to coarse grained, moderately sorted, clean, orange-white
65.0	67.0	2.0	SAND, coarse to gravelly, quartz rich, clean, sub-angular, orange
67.0	68.0	1.0	SAND and GRAVEL, poorly sorted, clean, sub-rounded gravels, white-orange
68.0	69.0	1.0	SAND, medium to coarse grained, quartz rich, moderate sorting, clean, orange-white
69.0	70.0	1.0	SAND, coarse to gravelly, clean, sub-angular, white
70.0	71.0	1.0	SAND, fine to coarse grained, poorly sorted, some sub-rounded gravels to 5mm diameter, clean, orange
71.0	72.0	1.0	SAND, medium to coarse grained, white-orange
72.0	73.0	1.0	SANDY GRAVEL, quartz rich, angular, clean, white-orange
73.0	75.0	2.0	SAND, medium to coarse grained, some fine quartz gravels, white-orange
75.0	76.0	1.0	CLAYEY SAND, medium to coarse grained, orange
76.0	78.0	2.0	CLAY, with some rounded gravels, white

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-78	6" blade	0-78	Bentonite mud (Aus-gel)	0-57	uPVC CI 18	225 mm DN	Bore Casing
0-73	12" blade			57-59	SS wedge-wire	225mm DN, 0.05" slot	Well Screen
				59-60	SS wedge-wire	225mm DN, 0.06" slot	Well Screen
				60-64	uPVC CI 18	225 mm DN	Bore Casing
				64-65	SS wedge-wire	225mm DN, 0.04" slot	Well Screen
				65-66	SS wedge-wire	225mm DN, 0.05" slot	Well Screen
				66-71	SS wedge-wire	225mm DN, 0.06" slot	Well Screen
				71-73	SS wedge-wire	225mm DN, 0.07" slot	Well Screen
				52	Cement basket	12"	Cement plug
				73-78	Cuttings backfill (natural)		Rathole backfill
				0-52	Cement	5% bentonite	Annular seal
				52-73	Natural development		Filter pack

Testing				

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations



Water Bore Drilling Summary Report

Bore 2

Spudded: 22-07-2015	Report Date: 22-07-2015
TD Reached: 29-07-2015	Job: ProTen - Euroley
Rig Release	Job No: 610.14072
Well Name: Bore 2	Co-ordinates (GDA94): 430780 e
Tenure: n/a	6156352 n
Target Formation: Calivil Formation	Elevation:
Predicted TD (m GL): 90	Logging hydrogeologist: Derwin Lyons
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 107

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	5	5	Topsoil & weathering
5	54	49	Shepparton Formation
54	100	46	Calivil Formation
100	107	>7	Renmark Group

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	SILTY CLAY, dark brown and light grey mottled
1.0	2.0	1.0	CLAY, firm, light brown to dark grey
2.0	4.0	2.0	SILTY CLAY, light brown to grey
4.0	5.0	1.0	SANDY CLAY, fine grained sand in light brown to grey mottled clay matrix
5.0	6.0	1.0	SILTY CLAY, light brown to grey
6.0	16.0	10.0	CLAY, firm to stiff, grey. Some light brown-orange fine sand and silt with depth
16.0	17.0	1.0	SILTY SAND, fine grained, light brown to orange
17.0	18.0	1.0	GRAVEL, very coarse. Up to 2cm diameter pebbly lithics, moderately well rounded, poorly sorted.
18.0	19.0	1.0	GRAVEL, fine to coarse, lithics up to 1cm diameter, Poorly sorted, well rounded.
19.0	20.0	1.0	GRAVEL, medium to coarse lithics, clean, well rounded.
20.0	21.0	1.0	CLAY, firm, orange. 50% gravel inclusions likely hole fall-in from above
21.0	23.0	2.0	CLAY, firm, orange, with 50% very stiff red clay
23.0	24.0	1.0	CLAYEY SAND, coarse grained, well sorted, orange
24.0	25.0	1.0	SILTY SAND, coarse grained, well sorted, orange
25.0	27.0	2.0	SAND, coarse, clean, orange. Some rounded fine gravel
27.0	29.0	2.0	SANDY CLAY, firm, orange-brown and grey
29.0	30.0	1.0	SILTY SAND, coarse grained, with some fine to medium gravels. Orange
30.0	33.0	3.0	GRAVEL, fine to medium grading to coarse with depth, moderately rounded lithics, poorly sorted. Orange
33.0	37.0	4.0	CLAY, firm to stiff, light grey
37.0	38.0	1.0	SANDY CLAY, orange-brown
38.0	39.0	1.0	CLAYEY SAND, medium to coarse grained, orange-brown
39.0	40.0	1.0	SILTY SAND, medium to coarse grained, lithic. Orange-brown
40.0	41.0	1.0	GRAVELLY SAND, coarse grained, clean, orange.
41.0	43.0	2.0	SILTY SAND, medium to coarse grained, becoming clayey towards base. Light brown
43.0	44.0	1.0	SANDY CLAY, coarse grained sand grains, orange-brown
44.0	47.0	3.0	CLAY, stiff, red-brown to light brown. Thin hard dark grey to black laminations up to 3mm thick
47.0	49.0	2.0	CLAY, stiff, red-brown to light brown.
49.0	52.0	3.0	CLAY, firm, light brown & grey
52.0	53.0	1.0	CLAYEY SAND, coarse grained, quartzose, well sorted, light brown-orange
53.0	54.0	1.0	SAND, very coarse grained, moderately well sorted, quartzose and lithic, clean, orange-grey
54.0	58.0	4.0	SAND, coarse to very coarse grained, moderately well sorted, quartzose and lithic, clean, light grey to white
58.0	59.0	1.0	SANDY CLAY, firm, orange-brown. Coarse well sorted quartzose sand grains.
59.0	63.0	4.0	CLAY, firm to stiff, orange to light orange
63.0	64.0	1.0	CLAY, soft, orange to light orange
64.0	65.0	1.0	CLAY, firm, orange to light orange
65.0	66.0	1.0	SILTY SAND, medium grained, dark orange
66.0	67.0	1.0	CLAYEY SILTY SAND, medium grained, dark orange
67.0	68.0	1.0	CLAYEY SILTY SAND, coarse grained, dark orange
68.0	69.0	1.0	SAND, coarse to gravelly, quartzose, poorly sorted, moderately rounded, clean, orange
69.0	70.0	1.0	GRAVELLY SAND, quartzose with minor lithics, moderately well sorted, clean, white
70.0	71.0	1.0	SAND, medium to coarse grained with minor gravels, quartzose with minor lithics, moderately well sorted, clean, white-orange
71.0	73.0	2.0	GRAVELLY SAND, coarse grained, well sorted, moderately well rounded, clean, orange
73.0	75.0	2.0	GRAVELLY SAND, coarse grained, well sorted, moderately well rounded, clean, white-orange to white
75.0	76.0	1.0	GRAVELLY SAND, very coarse grained, well sorted, moderately well rounded, clean, white
76.0	77.0	1.0	GRAVELLY SAND, very coarse grained, well sorted, moderately well rounded, clean, orange
77.0	79.0	2.0	CLAYEY GRAVEL, well sorted, well rounded, white-orange
79.0	80.0	1.0	SANDY GRAVEL, coarse grained, clean, white-orange
80.0	83.0	3.0	CLAYEY SAND, coarse grained, quartzose and lithic, orange-brown
83.0	84.0	1.0	SAND, fine to gravelly, poorly sorted, angular, quartzose, clean, white
84.0	86.0	2.0	SAND, medium grained, poorly sorted, angular, quartzose, clean, white
86.0	89.0	3.0	SAND, medium to coarse grained, poorly sorted, angular, quartzose, clean, white
89.0	90.0	1.0	SAND, medium grained, poorly sorted, angular, quartzose with some lithics, clean, orange-white
90.0	91.0	1.0	SAND, medium to coarse grained, poorly sorted, angular, quartzose, clean, white
91.0	92.0	1.0	SAND, coarse grained, poorly sorted, angular, quartzose, clean, white
92.0	93.0	1.0	SAND, coarse grained, poorly sorted, angular, quartzose with some lithics, clean, orange-white
93.0	96.0	3.0	CLAYEY SAND, coarse grained, well sorted, well rounded, orange-white
96.0	98.0	2.0	CLAYEY SAND, silty, coarse grained, well sorted, well rounded, orange-white
98.0	100.0	2.0	CLAYEY SAND, coarse grained, well sorted, well rounded, dark orange-white
100.0	101.0	1.0	CLAYEY SAND, fine to medium grained, carbonaceous with some coal flecks, quartzose, well sorted, dark grey
101.0	102.0	1.0	SILTY SAND, medium grained, quartzose, well sorted, dark grey
102.0	103.0	1.0	SAND, medium grained, well sorted, quartzose, grey
103.0	104.0	1.0	SAND, fine to coarse grained, poorly sorted, quartzose, carbonaceous with some coal flecks, dark grey
104.0	106.0	2.0	SAND, medium to coarse grained, poorly sorted, quartzose, some carbonaceous flecks, dark grey
106.0	107.0	1.0	SAND, coarse grained, quartzose, moderately sorted, grey

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-107	6" blade	0-107	Bentonite mud (Aus-gel)	0-73	uPVC CI 18	225 mm DN	Bore Casing
0-93	12" blade			73-75	SS wedge-wire	225mm DN, 0.06"	Well Screen
				75-77	SS wedge-wire	225mm DN, 0.07"	Well Screen
				77-85	uPVC CI 18	225 mm DN	Bore Casing
				85-91	SS wedge-wire	225mm DN, 0.04"	Well Screen
				91-93	SS wedge-wire	225mm DN, 0.05"	Well Screen
				68	Cement basket	12"	Cement plug
				93-107	Cuttings backfill (natural)		Rathole backfill
				0-68	Cement	5% bentonite	Annular seal
				68-93	Natural development		Filter pack

Testing				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

APPENDIX D

Shallow Aquifer Piezometer Bore Logs

Water Bore Drilling Summary Report

Piezometer 1 Deep

Spudded: 28-02-2016	Report Date:
TD Reached: 28-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 1 Deep	Co-ordinates (GDA94): 34 45 11 S
Tenure:	146 13 53 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 46

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	46	45	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, brown
1.0	16.0	15.0	CLAY, cream and brown
16.0	22.0	6.0	SAND & GRAVEL
22.0	42.0	20.0	CLAY, brown and red
42.0	45.0	3.0	SAND, orange
45.0	46.0	1.0	CLAY, red

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-46	4" blade	0-46	Bentonite mud (Aus-gel)	0-42	uPVC CI 12	50 mm DN	Bore Casing
				42-45	uPVC CI 12 slotted	50 mm DN	Bore Screens
				45-46	uPVC CI 12	50 mm DN	Casing Sump
				36-38	Cement grout		Annular seal
				38-40	Bentonite pellets		Annular seal
				40-46	Gravel		Filter pack

Testing

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations
	0.5	100 ppm	27.1	

Water Bore Drilling Summary Report

Piezometer 1 Shallow

Spudded: 05-02-2016	Report Date:
TD Reached: 05-02-2016	Job: ProTen - Euroley
Rig Release:	Job No:
Well Name.: Piezometer 1 Shallow	Co-ordinates (GDA94): 34 45 11 S
Tenure:	146 13 54 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 23

Stratigraphy

Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	23	22	Shepparton Formation

Cuttings Description

Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, red
1.0	4.0	3.0	CLAY, dark brown
4.0	8.0	4.0	CLAY, red
8.0	17.0	9.0	CLAY, light brown
17.0	22.0	5.0	SAND & GRAVEL
22.0	23.0	1.0	CLAY, cream

Bit log

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-23	4" blade	0-23	Bentonite mud (Aus-gel)	0-19	uPVC CI 12	50 mm DN	Bore Casing
				19-22	uPVC CI 12 slotted	50 mm DN	Bore Screens
				22-23	uPVC CI 12	50 mm DN	Casing Sump
				0-14.5	Cement grout		Annular seal
				14.5-16	Bentonite pellets		Annular seal
				16-23	Gravel		Filter pack

Testing

Observations

Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

Water Bore Drilling Summary Report

Piezometer 2 Deep

Spudded: 27-02-2016	Report Date:
TD Reached: 27-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 2 Deep	Co-ordinates (GDA94): 34 43 51 S
Tenure:	146 13 54 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 43

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	43	42	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, brown
1.0	17.0	16.0	CLAY, light brown
17.0	21.0	4.0	SAND & GRAVEL
21.0	40.0	19.0	CLAY, brown and red
40.0	42.0	2.0	SAND, yellow
42.0	43.0	1.0	CLAY, brown and red

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-43	4" blade	0-43	Bentonite mud (Aus-gel)	0-40	uPVC CI 12	50 mm DN	Bore Casing
				40-42	uPVC CI 12 slotted	50 mm DN	Bore Screens
				42-43	uPVC CI 12	50 mm DN	Casing Sump
				34-36	Cement grout		Annular seal
				36-38	Bentonite pellets		Annular seal
				38-43	Gravel		Filter pack

Testing

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations
	0.5	100 ppm	25.9	

Water Bore Drilling Summary Report

Piezometer 2 Shallow

Spudded: 06-02-2016	Report Date:
TD Reached: 06-02-2016	Job: ProTen - Euroley
Rig Release:	Job No:
Well Name.: Piezometer 2 Shallow	Co-ordinates (GDA94): 34 44 50 S
Tenure:	146 33 10 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 23

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	23	22	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, red
1.0	4.0	3.0	CLAY, red and brown
4.0	17.0	13.0	CLAY, light brown
17.0	22.0	5.0	SAND & GRAVEL
22.0	23.0	1.0	CLAY, brown

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-23	4" blade	0-23	Bentonite mud (Aus-gel)	0-19	uPVC CI 12	50 mm DN	Bore Casing
				19-22	uPVC CI 12 slotted	50 mm DN	Bore Screens
				22-23	uPVC CI 12	50 mm DN	Casing Sump
				0-14.5	Cement grout		Annular seal
				14.5-16	Bentonite pellets		Annular seal
				16-23	Gravel		Filter pack

Testing				
Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

Water Bore Drilling Summary Report

Piezometer 3 Deep

Spudded: 26-02-2016	Report Date:
TD Reached: 26-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 3 Deep	Co-ordinates (GDA94): 34 44 21 S
Tenure:	146 14 39 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 41

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	41	40	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, brown
1.0	11.0	10.0	CLAY, light brown
11.0	12.0	1.0	SAND, light brown
12.0	16.0	4.0	CLAY, light brown
16.0	21.0	5.0	SAND & GRAVEL
21.0	34.0	13.0	CLAY, red and brown
34.0	39.0	5.0	SAND, orange
39.0	41.0	2.0	CLAY, brown

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-41	4" blade	0-41	Bentonite mud (Aus-gel)	0-36	uPVC CI 12	50 mm DN	Bore Casing
				36-39	uPVC CI 12 slotted	50 mm DN	Bore Screens
				39-41	uPVC CI 12	50 mm DN	Casing Sump
				30-32	Cement grout		Annular seal
				32-34	Bentonite pellets		Annular seal
				34-41	Gravel		Filter pack

Testing				

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations
	0.25	100 ppm	26	

Water Bore Drilling Summary Report

Piezometer 3 Shallow

Spudded: 06-02-2016	Report Date:
TD Reached: 06-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 3 Shallow	Co-ordinates (GDA94): 34 44 19 S
Tenure:	146 14 40 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 23

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	23	22	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, red
1.0	15.0	14.0	CLAY, light brown and orange
15.0	22.0	7.0	SAND & GRAVEL
22.0	23.0	1.0	CLAY, red

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-23	4" blade	0-23	Bentonite mud (Aus-gel)	0-19	uPVC CI 12	50 mm DN	Bore Casing
				19-22	uPVC CI 12 slotted	50 mm DN	Bore Screens
				22-23	uPVC CI 12	50 mm DN	Casing Sump
				0-14.5	Cement grout		Annular seal
				14.5-16.0	Bentonite pellets		Annular seal
				16-23	Gravel		Filter pack

Testing

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Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

Water Bore Drilling Summary Report

Piezometer 4 Deep

Spudded: 24-02-2016	Report Date:
TD Reached: 24-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 4 Deep	Co-ordinates (GDA94): 34 43 29 S
Tenure:	146 14 49 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 41

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	41	40	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, red
1.0	13.0	12.0	CLAY, light brown
13.0	15.0	2.0	GRAVEL, brown
15.0	24.0	9.0	CLAY, brown
24.0	28.0	4.0	SAND, red
28.0	41.0	13.0	CLAY, brown

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-41	4" blade	0-41	Bentonite mud (Aus-gel)	0-25	uPVC CI 12	50 mm DN	Bore Casing
				25-28	uPVC CI 12 slotted	50 mm DN	Bore Screens
				28-29	uPVC CI 12	50 mm DN	Casing Sump
				19-21	Cement grout		Annular seal
				21-23	Bentonite pellets		Annular seal
				23-29	Gravel		Filter pack
				29-41	Gravel		Backfill

Testing				
Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations
	nil		25.7	

Water Bore Drilling Summary Report

Piezometer 4 Shallow

Spudded: 06-02-2016	Report Date:
TD Reached: 06-02-2016	Job: ProTen - Euroley
Rig Release:	Job No:
Well Name.: Piezometer 4 Shallow	Co-ordinates (GDA94): 34 43 29 S
Tenure:	146 14 48 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 17

Stratigraphy

Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	17	16	Shepparton Formation

Cuttings Description

Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, red
1.0	13.0	12.0	CLAY, brown and cream
13.0	16.0	3.0	SAND & GRAVEL
16.0	17.0	1.0	CLAY, cream

Bit log

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-17	4" blade	0-17	Bentonite mud (Aus-gel)	0-13	uPVC CI 12	50 mm DN	Bore Casing
				13-16	uPVC CI 12 slotted	50 mm DN	Bore Screens
				16-17	uPVC CI 12	50 mm DN	Casing Sump
				0-8.5	Cement grout		Annular seal
				8.5-10	Bentonite pellets		Annular seal
				10-17	Gravel		Filter pack

Testing

Observations

Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

Water Bore Drilling Summary Report

Piezometer 5 Deep

Spudded: 25-02-2016	Report Date:
TD Reached: 25-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 5 Deep	Co-ordinates (GDA94): 34 43 06 S
Tenure:	146 14 03 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 40

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	40	39	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, red
1.0	4.0	3.0	CLAY, brown
4.0	8.0	4.0	SAND, brown
8.0	11.0	3.0	CLAY, light brown
11.0	21.0	10.0	SAND & GRAVEL
21.0	32.0	11.0	CLAY, brown
32.0	38.0	6.0	SAND, orange
38.0	40.0	2.0	CLAY, brown

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-40	4" blade	0-40	Bentonite mud (Aus-gel)	0-32	uPVC CI 12	50 mm DN	Bore Casing
				32-38	uPVC CI 12 slotted	50 mm DN	Bore Screens
				38-39	uPVC CI 12	50 mm DN	Casing Sump
				26-28	Cement grout		Annular seal
				28-30	Bentonite pellets		Annular seal
				30-39	Gravel		Filter pack
				39-40	Gravel		Backfill

Testing				

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations
	0.05	300 PPM	25.6	

Water Bore Drilling Summary Report

Piezometer 5 Shallow

Spudded: 09-02-2016	Report Date:
TD Reached: 09-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 5 Shallow	Co-ordinates (GDA94): 34 43 6 S
Tenure:	146 14 4 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 9

Stratigraphy

Depth (m GL)			Unit
From	To	Thickness	
0	9	9	Shepparton Formation

Cuttings Description

Depth (m GL)			Description
From	To	Thickness	
0.0	5.0	5.0	CLAY, brown
5.0	8.0	3.0	SAND, red
8.0	9.0	1.0	CLAY, brown

Bit log

Mud Log

Well Construction log

Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-9	4" blade	0-9	Bentonite mud (Aus-gel)	0-5	uPVC CI 12	50 mm DN	Bore Casing
				5-8	uPVC CI 12 slotted	50 mm DN	Bore Screens
				8-9	uPVC CI 12	50 mm DN	Casing Sump
				0-1.5	Cement grout		Annular seal
				1.5-3	Bentonite pellets		Annular seal
				3-9	Gravel		Filter pack

Testing

Observations

Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

Water Bore Drilling Summary Report

Piezometer 6 Deep

Spudded: 26-02-2016	Report Date:
TD Reached: 26-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 6 Deep	Co-ordinates (GDA94): 34 42 50 S
Tenure:	146 14 20 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 47

Stratigraphy			
Depth (m GL)			Unit
From	To	Thickness	
0	1	1	Topsoil
1	47	46	Shepparton Formation

Cuttings Description			
Depth (m GL)			Description
From	To	Thickness	
0.0	1.0	1.0	TOPSOIL, brown
1.0	9.0	8.0	CLAY, light brown
9.0	15.0	6.0	CLAY & SAND, light brown
15.0	18.0	3.0	GRAVEL
18.0	30.0	12.0	CLAY, brown
30.0	31.0	1.0	SAND, orange
31.0	47.0	16.0	CLAY, red and orange

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-47	4" blade	0-47	Bentonite mud (Aus-gel)	0-30	uPVC CI 12	50 mm DN	Bore Casing
				30-31	uPVC CI 12 slotted	50 mm DN	Bore Screens
				31-32	uPVC CI 12	50 mm DN	Casing Sump
				24-26	Cement grout		Annular seal
				26-28	Bentonite pellets		Annular seal
				28-32	Gravel		Filter pack
				32-47	Blue Metal gravel		Backfill

Testing				
Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations
	0.05	200 ppm	25.6	

Water Bore Drilling Summary Report

Piezometer 6 Shallow

Spudded: 09-02-2016	Report Date:
TD Reached: 09-02-2016	Job: ProTen - Euroley
Rig Release	Job No:
Well Name.: Piezometer 6 Shallow	Co-ordinates (GDA94): 34 42 50 S
Tenure:	146 14 19 E
Target Formation: Shepparton Formation	Elevation:
Predicted TD (m GL):	Logging: Watson Drilling
Drilling Co./Rig: Watson Drilling	TD Reached (m GL): 14

Stratigraphy

Depth (m GL)			Unit
From	To	Thickness	
0	14	14	Shepparton Formation

Cuttings Description

Depth (m GL)			Description
From	To	Thickness	
0.0	10.0	10.0	CLAY, dark and light brown
10.0	13.0	3.0	SAND & GRAVELS
13.0	14.0	1.0	CLAY, light brown

Bit log

Bit log		Mud Log		Well Construction log			
Depth (m GL)	Type	Depth (m GL)	Description	Depth (m GL)	Material/grade	Diameter/size/type	Purpose
0-14	4" blade	0-14	Bentonite mud (Aus-gel)	0-10	uPVC CI 12	50 mm DN	Bore Casing
				10-13	uPVC CI 12 slotted	50 mm DN	Bore Screens
				13-14	uPVC CI 12	50 mm DN	Casing Sump
				0-6.5	Cement grout		Annular seal
				6.5-8	Bentonite pellets		Annular seal
				8-14	Gravel		Filter pack

Testing

Observations				
Water Strike (m GL)	Airlift yield (L/s)	Salinity	SWL (mTOC)	Other observations

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Narrandera Poultry Production Complex (SSD 6882)

WASTE MANAGEMENT PLAN



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Reference	Status	Date	Prepared	Checked	Authorised
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1 INTRODUCTION

1.1 Background

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities.

This *Waste Management Plan* (Waste MP) has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the Narrandera Poultry Production Complex. For the purposes of this document, the Development is described in:

- The Environmental Impact Statement (EIS) (SLR 2015a) and the appendices contained within; and
- The Response to Submissions (RTS) (SLR 2015b) and the appendices contained within.

1.2 Objectives

The principal objective of this Waste MP is to identify the wastes materials likely to be generated during the operation of the Development and identify how each will be managed to avoid any on-site stockpiling or disposal of waste materials.

The Waste MP has been prepared as an appendix to the *Operational Environmental Management Plan* (OEMP) (SLR 2016a) and is to be read in conjunction with the OEMP. It has been prepared to satisfy condition B21 of Development Consent SSD 6882, the requirements of which are listed below in **Table 1**.

Table 1 - Consent Condition B21

Condition No.	Condition	Waste MP Section
B21.	Prior to the commencement of operation, the Applicant shall prepare a Waste Management Plan for the Development to the satisfaction of the Secretary. The Waste Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The WMP shall:	
(a)	detail the type and quantity of waste to be generated during construction and operation of the Development;	Section 4.1 and the approved CEMP
(b)	describe the handling, storage and disposal of all waste streams generated on site, consistent with the <i>Protection of the Environment Operations Act 1997</i> , <i>Protection of the Environment Operations (Waste) Regulation 2014</i> and the <i>Waste Classification Guideline</i> (Department of Environment, Climate Change and Water, 2009);	Section 4
(c)	detail the materials to be reused or recycled, either on or off site; and	Section 4.1
(d)	include the Management and Mitigation Measures included in Appendix 1.	Sections 4.1 and 4.2

The waste materials to be generated during the construction phase of the Development have been addressed within the approved *Construction Environmental Management Plan* (CEMP) (SLR 2015c).

The management of operational wash down water is addressed in the *Water Management Plan* (SLR 2016b) appended to the OEMP (SLR 2016a). The management of bird mortalities in the unlikely event of an emergency animal disease (EAD) is addressed in the *Emergency Disposal and Biosecurity Protocol* (SLR 2016c) appended to the OEMP (SLR 2016a).

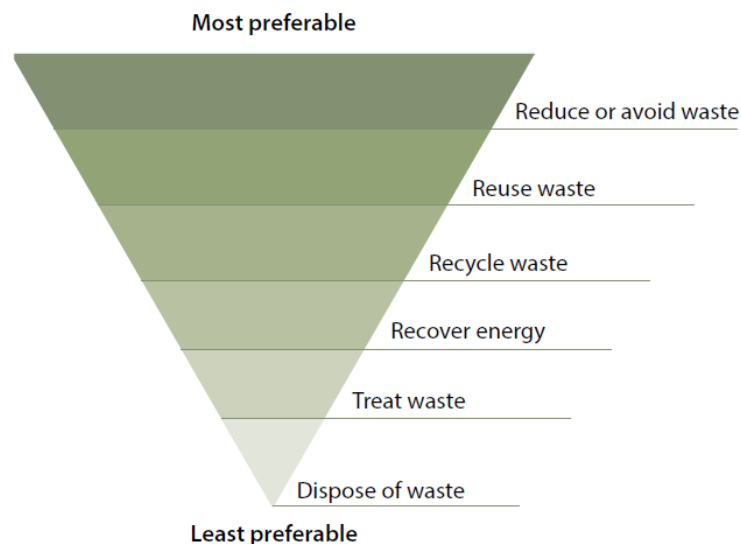
2 BETTER PRACTICE MANAGEMENT

2.1 Waste Management Hierarchy

Where possible, this Waste MP aims to meet the principles of the waste management hierarchy shown in **Figure 1** by promoting waste as a resource through the following in order of preference:

- Waste avoidance through prevention or reduction of waste generation, which is best achieved through better design and purchasing choices;
- Waste reuse, without substantially changing the form of waste;
- Waste recycling through the treatment of waste that is no longer usable in its current form to produce new products;
- Energy recovery through thermal treatment of residual waste materials and from green waste processing; and
- Waste disposal, in a manner that causes the least harm to the natural environment.

The waste hierarchy shown on **Figure 1** ranks the waste management options in order of their environmental impacts, as established under the *Waste Avoidance and Resource Recovery Act 2001*.



Source: *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (EPA 2014)

Figure 1 – Waste Hierarchy

2.2 Benefits of Implementing Better Practice for Waste Management and Recycling

The benefits of implementing better practices for waste management and recycling include:

- Enhanced social and environmental reputation of an organisation;
- Reduced costs associated with waste disposal;
- Benefits to all stakeholders and the wider community; and
- Improved environmental outcomes.

3 STATUTORY REQUIREMENTS

3.1 Waste Legislation and Guidance

The legislation and guidance listed in **Table 2** is relevant to waste management during the operation of the Development.

Table 2 - Key NSW Waste Legislation and Guidance

Legislation	Objectives
<i>Waste Avoidance and Resource Recovery Act 2001</i>	To promote extended producer responsibility in place of industry waste reduction plans. Specific objectives include: <ul style="list-style-type: none"> • Encourage efficient use of resources. • Minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste. • Ensure that industry shares with the community the responsibility for reducing and dealing with waste. • Ensure the efficient funding of waste and resource management planning, programs and service delivery.
<i>Protection of the Environment Operations Act 1997 (POEO Act) and Protection of the Environment Legislation Amendment Act 2011</i>	Administered by the Environment Protection Authority (EPA). The POEO Act defines “waste” for regulatory purposes, establishes management and licensing requirements for waste, defines offences relating to waste and sets penalties, and establishes the ability to set various waste management requirements via the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> (see below). Note: The owner of a premises, the employer or any person carrying on the activity which causes a pollution incident is to <i>immediately</i> notify the relevant authorities when material harm to the environment is caused or threatened. A list of each relevant authority is provided in the OEMP (2016a) and <i>Emergency Plan</i> (2016b) prepared for the Development.
<i>Protection of the Environment Operations (Waste) Regulation 2014 (POEO (Waste) Regulation)</i>	The POEO (Waste) Regulation contains provisions relating to the waste levy, waste tracking, management requirements for certain waste types, payment schemes for Councils, consumer packaging recycling and various other provisions.
<i>Waste Classification Guidelines Part 1: Classifying Waste (EPA 2014)</i>	These Guidelines aim to assist waste generators to effectively manage, treat and dispose of waste to ensure the associated environmental and human health risks are managed appropriately and in accordance with the POEO Act and its associated regulations.
<i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA 2014) (WARR Strategy)</i>	The WARR Strategy is a key component of the NSW Government's vision for the environmental and economic future of the State that will be supported financially by the <i>Waste Less, Recycle More</i> funding initiative providing long-term targets for six key result areas, including reduced illegal dumping.
<i>Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities (EPA 2012)</i>	The Better Practice Guidelines encourage efficient waste minimisation and resource recovery for commercial and industrial facilities and is used as a benchmark document when assessing waste production rates within Australia and details a range of waste management provisions.

3.2 Development Consent Requirements

As outlined in **Section 1.2**, this Waste MP has been prepared to satisfy condition B21 of Development Consent SSD 6882. This condition and other relevant conditions relating to operational waste management are listed in **Table 3**.

Table 3 – Relevant Development Consent Conditions

Condition No.	Condition
Waste Management	
B17.	All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.
B18.	Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the <i>Protection of the Environment Operations Act 1997</i> , if such a licence is required in relation to that waste.
B19.	The Applicant shall not stockpile, store or utilise spent bedding material in any way within the Development Site.
B20.	Broiler mortalities shall not be disposed to land by burial or any other method at the premises, for the life of the development, unless otherwise permitted by a relevant authority during a biosecurity emergency at the site (refer to Condition B9 [see note below table] for further requirements for broiler disposal).
Waste Management Plan	
B21.	<p>Prior to the commencement of operation, the Applicant shall prepare a Waste Management Plan for the Development to the satisfaction of the Secretary. The Waste Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The WMP shall:</p> <ul style="list-style-type: none"> detail the type and quantity of waste to be generated during construction and operation of the Development; describe the handling, storage and disposal of all waste streams generated on site, consistent with the <i>Protection of the Environment Operations Act 1997</i>, <i>Protection of the Environment Operations (Waste) Regulation 2014</i> and the <i>Waste Classification Guideline</i> (Department of Environment, Climate Change and Water, 2009); detail the materials to be reused or recycled, either on or off site; and include the Management and Mitigation Measures included in Appendix 1.

Note: condition B9 requires the preparation of an *Emergency Disposal and Biosecurity Protocol*. This plan has been prepared by SLR (2016c) and is appended to the OEMP (SLR 2016a).

3.3 EPL Requirements

The Development is considered to a “scheduled activity” under Schedule 1 of the POEO Act requiring the occupier to hold an environment protection licence (EPL) administered by the Environment Protection Authority (EPA).

The Development will operate under the provisions of EPL 20748, as issued by the EPA. A copy of EPL 20748 is appended to the OEMP (SLR 2016a). Relevant conditions in EPL 20748 with respect to operational waste management are listed in **Table 4**.

Table 4 - Relevant EPL Conditions

Condition No.	Condition
L2 Waste	
L2.1	The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.
L2.2	This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.
O5 Waste Management	
O5.1	The premises must: a) Have sufficient on site chillers to store all general bird mortalities (~1% of birds on site at any time); b) Remove all mortalities found in the sheds immediately to the chillers; and c) Ensure that when chillers are in use they are kept at < 4 degrees Celsius.
O5.2	Any bird mortalities generated at the premises are not permitted to be buried on site. Bird mortalities must be disposed or processed at a facility that can lawfully receive the waste. Note: This condition does not apply if the applicant is directed by the NSW Department of Primary Industries to bury the birds on site.
O5.3	All waste water and contaminated stormwater must be captured in a waste water collection system and be prevented from leaving the premises. See note below the table Note: This condition does not apply in rainfall events which create greater volumes of stormwater than an event with an average recurrence interval of a local 1 in 20 year, 24 hour rain event.

Note: in relation to condition O5.3, the management of surface water, including operational wash down water and stormwater runoff, is addressed in the *Water Management Plan* (SLR 2016b) appended to the OEMP (2016a).

4 OPERATIONAL WASTE MANAGEMENT

Ineffective waste management for commercial premises can lead to environmental pollution, offensive odours, litter, attraction of vermin and occupational safety and hygiene problems. Effective waste management reduces costs through the reuse of resources and minimisation of fees associated with removal, transportation and disposal of waste, and improves environmental outcomes locally, regionally and globally.

4.1 Waste Streams, Classifications and Management Systems

The operation of the Development will generate the following primary waste streams:

- **General daily waste** – day-to-day general waste, including waste from the on-site managers housing, will be placed in to enclosed skip bins (or other enclosed waste receptacle) and removed from the Development Site by a licenced contractor on a regular basis for disposal at a local landfill facility. It is estimated that the Development will generate approximately 10 cubic metres (m³) of general waste per month (120 m³ per year).
- **Chemical containers** – the only chemicals that will be used at the Development Site will be for sanitisation and disinfection purposes, along with pest and weed control. Chemicals will be purchased from a local supply company and/or delivered to the site by Baiada Poultry (Baiada). Empty chemical containers will be returned to the local supply company and/or Baiada for reuse, recycling or appropriate disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or appropriate disposal. Any non-returnable chemical containers will be collected and managed via the *drumMUSTER* program.
- **Poultry litter** – at the end of each production cycle a typical poultry shed of the size to be established at the Development will have around 225 m³ of poultry litter, comprising around 135 m³ of bedding material (soft wood shavings, rice hulls or chopped straw) and 90 m³ of poultry manure accumulated over the eight weeks of bird occupation. Cumulative, this amounts to approximately 102,600 m³ per year (based on 80 poultry sheds and 5.7 production cycles per year).

The feed and water lines will be raised to the roof of the poultry sheds (see **Plate 1**) to allow the poultry litter to be removed by a contractor using a front-end loader or bobcat and loaded in to trucks for transport off site. Poultry litter is highly sought after as an organic fertiliser and/or rehabilitation agent for agricultural lands. On this basis, the litter collected from the sheds will likely be sold as a commercial raw product and/or sold directly to regional farmers. ProTen will make every effort to ensure truck loads leaving the Development Site are covered to minimise emissions of odour and particulate matter.



Plate 1 - Poultry Litter Being Removed Using a Front-End Loader

For sound farm management and biosecurity reasons, the litter will not be stockpiled or disposed of within the bounds of the Development Site under any circumstances. Furthermore, ProTen prefers not to see the spreading of litter within a 5 kilometre radius of a poultry shed. However this is largely out of ProTen's control, with the destination and safe handling of the litter is the responsibility of the transport contractor and/or end-user. The product does not pose a health threat to the community.

- **Dead birds** – dead birds will be collected from the poultry sheds on a daily basis and stored in on-site chillers. A rigid truck will visit the site on a regular basis to collect the dead birds and transport them to Baiada's rendering plant near Hanwood on Kidman Way. Dead birds will not be allowed to stockpile within the Development site for biosecurity reasons. It is estimated that the Development will generate approximately 1,700 tonnes of dead birds per year.

These primary waste streams, along with other potential waste streams, are listed in **Table 5** with their classifications under the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA 2014) and intended reuse/recycling/disposal method.

Table 5 - Operational Waste Types, Classifications and Management

Waste Type	NSW Classification	Reuse / Recycling / Disposal
General daily waste	General solid waste (putrescible and non-putrescible).	Disposal at landfill. See above detail.
Empty chemical and fuel containers	Hazardous waste if containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid waste (non-putrescible) if the containers have been cleaned by washing or vacuuming.	Off site recycling or disposal at licensed facility. See above detail. (N.B. transport to comply with the <i>Australian Code for the Transport of Dangerous Goods by Road & Rail</i>)
Poultry litter	General solid waste (putrescible).	Off site reuse for beneficial application on rural/agricultural land and/or off site treatment to produce a commercial product (i.e. value-added product). See above detail.
Dead birds	General solid waste (putrescible).	Off site treatment in Baiada's rendering plant to produce tallow and poultry offal meal (i.e. value-added products). See above detail.
Sewage (from staff amenities and residences)	Liquid waste	Treated and disposed of via on-site aerated wastewater treatment systems (one at each residence and one at each PPU) installed and operated in accordance with Council requirements and the relevant standards/guidelines.
Green waste	General solid waste (non-putrescible)	Composting and/or direct reuse on site.
Tyres	Special waste	Off site recycling or disposal at licensed facility.
Air and oil filters and rags	General solid waste (non-putrescible)	Off site recycling or disposal at licensed facility.
Batteries	Hazardous waste	Off site recycling.
Light bulbs / fluorescent tubes	Hazardous waste	Off site recycling.
Mass bird mortalities	General solid waste (putrescible)	Various options exist for the disposal of bird carcasses and fomites in the event of an EAD. Refer to the <i>Emergency Disposal and Biosecurity Protocol</i> (SLR 2016c).

As previously advised, the management of operational wash down water is addressed in the *Water Management Plan* (SLR 2016b) appended to the OEMP (SLR 2016a).

4.2 Mitigation and Management Measures

The management and mitigation measures listed in **Table 6** will be implemented to minimise waste generation and ensure waste is effectively managed and disposed of off site.

Table 6 - Waste Management and Mitigation Measures

Control	Responsibility	Timing / Frequency	Reference / Notes
Waste streams will be managed in accordance with the reuse / recycling / disposal methods nominated in Table 5 .	ProTen Site Management	On-going	EPA's <i>Waste Classification Guidelines 2008</i>
No stockpiling or disposal of waste materials will occur within the bounds of the Development Site.	ProTen Site Management	On-going	SSD 6882 Condition B19 SSD 6882 Appendix 1
Waste materials removed from the Site for reuse, recycling, treatment or disposal will be directed to a facility or premises lawfully permitted to accept the materials.	ProTen Site Management	On-going	SSD 6882 Condition B17
Waste generated outside the Site will not be received at the Site for any purpose.	ProTen Site Management	On-going	SSD 6882 Condition B18 EPL Condition L2.1
Only wastes that cannot be cost effectively reused or recycled will be sent for disposal.	ProTen Site Management	On-going	-
General waste skips will be checked on a weekly basis. If the skips are reaching capacity, removal and replacement will be organised for the next 24 hours.	ProTen Site Management	On-going	-
All waste skips leaving the Site will be suitably covered to avoid waste spillage while in transit.	ProTen Site Management	On-going	-
Poultry litter will not be stockpiled, stored or utilised within the Site in any way.	ProTen Site Management	On-going	SSD 6882 Condition B19
Every effort will be made to ensure truckloads of poultry litter leaving the Site are covered to minimise emissions of odour and particulate matter.	ProTen Site Management	On-going	<i>Air Quality Management Plan</i> (Pacific Environment Limited 2016)
When possible, the removal of poultry litter from the sheds will be limited to daylight hours and will be avoided during adverse climatic conditions (e.g. cold air drainage during early morning or towards nights and strong winds).	ProTen Site Management	On-going	<i>Air Quality Management Plan</i> (Pacific Environment Limited 2016)
Dead birds will not be disposed to land by burial or any other method at the premises (unless otherwise permitted by a relevant authority during an EAD event)	ProTen Site Management	On-going	SSD 6882 Condition B20 EPL Condition O5.2

4.3 Hazardous Materials

The Development will operate under an *Emergency Plan* (SLR 2016d) prepared in accordance with condition B25 of Development Consent SSD 6882, the *Hazardous Industry Planning Advisory Paper No. 1 - Industry Emergency Planning Guidelines* (Department of Planning 2011) (HIPAP No. 1) and Section 153A of the POEO Act. This document contains an inventory of potential pollutants (hazardous substances), the controls in place to reduce the likelihood of a pollution incident to a negligible level, incident management protocol and staff training requirements.

As advised in **Section 4.1**, empty chemical containers will be returned to the local supply company and/or Baiada for reuse, recycling or appropriate disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or appropriate disposal. Any non-returnable chemical containers will be collected and managed via the *drumMUSTER* program.

4.4 Inductions and Training

ProTen Site Management will ensure that all employees and contractors are suitable inducted and trained prior to commencing any work on site. Training in relation to the OEMP, including implementation of the management strategies and mitigation measures in this Waste MP, will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar).

5 MONITORING AND REPORTING

5.1 Monitoring

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.

Monitoring and maintenance activities relating to waste management include:

- Daily inspection and removal of dead birds from within the sheds;
- Weekly inspection of the general waste skips. If the skips are reaching capacity, removal and replacement will be organised for the next 24 hours; and
- The volume of all waste materials being transported off site for reuse, recycling and/or disposal will be recorded.

5.2 Reporting

5.2.1 Annual Review

Condition C8 of Development Consent SSD 6882 requires an Annual Review to be submitted to the Department of Planning and Environment (DP&E) each year of operation. The review must include (among other things) any monitoring results, complaints records and non-compliances. This Annual Review will include reporting on waste volumes, waste management systems utilised (i.e. reuse, recycling, disposal) and any waste-related incidents.

5.2.2 Annual Return

EPL 20748 requires an Annual Return, comprising a statement of compliance, a summary of any monitoring activities and a summary of any complaints received, to be submitted to the EPA within 60 days of the end of each annual reporting period. This Annual Return will include reporting on any complaints or incidents relating to waste management.

5.3 Review and Update

This Waste MP will be reviewed and, if necessary, revised in response to the following:

- Development modification, including notable operational and/or management changes;
- Where it is identified (via on-going inspections/monitoring) that the waste management systems are not effectively servicing the Development and/or adverse environmental impacts are identified;
- Changes to the conditions imposed by the Development Consent and/or the site's EPL; and/or
- At the request of a relevant regulatory agency.

All employees and contractors will be informed of any revisions to the Waste MP by ProTen Site Management during toolbox talks.

6 REFERENCES

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 1 - Industry Emergency Planning Guidelines*

Environment Protection Authority (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*

Environment Protection Authority (2014) *Waste Classification Guidelines Part 1: Classifying Waste*

SLR Consulting Australia (2015a) *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement*

SLR Consulting Australia (2015b) *Euroley Poultry Production Complex SSD 6882, Response to Submissions*

SLR Consulting Australia (2015c) *Narrandera Poultry Production Complex, Construction Environmental Management Plan*

SLR Consulting Australia (2016a) *Narrandera Poultry Production Complex, Operational Environmental Management Plan*

SLR Consulting Australia (2016b) *Narrandera Poultry Production Complex, Water Management Plan*

SLR Consulting Australia (2016c) *Narrandera Poultry Production Complex, Emergency Disposal and Biosecurity Protocol*

SLR Consulting Australia (2016d) *Narrandera Poultry Production Complex, Emergency Plan*

NARRANDERA POULTRY PRODUCTION FARM

Emergency Plan

Prepared for:

ProTen Holdings Pty Limited
Sturt Highway
Narrandera NSW

SLR Ref: 610.15489
Version No: v6
February 2021



PREPARED BY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with ProTen Holdings Pty Limited (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

Issue	Date	Description
1	October 2016	Update of PIRMP testing history
2	September 2017	Update of PIRMP testing history
3	September 2018	Update of PIRMP testing history
4	September 2019	Update of PIRMP testing history
5	September 2020	Update of PIRMP testing history and addition of Appendix C
6	February 2021	Update of PIRMP testing history, authority contacts and update to Appendix B

Testing of The Emergency Plan History

Test	Date	Issue
1	September 2016	Emergency Plan handout to all farm staff detailing what classifies as an emergency and the correct procedure to follow in the event of an emergency at the Narrandera Farm. Emergency Plan quiz completed by all farm staff with signoff by the Farm Manager.
2	September 2017	Emergency Plan handout to all farm staff detailing what classifies as an emergency and the correct procedure to follow in the event of an emergency at the Narrandera Farm. Emergency Plan quiz completed by all farm staff with signoff by the Farm Manager.
3	September 2018	Emergency Plan handout to all farm staff detailing what classifies as an emergency and the correct procedure to follow in the event of an emergency at the Narrandera Farm. Emergency Plan quiz completed by all farm staff with signoff by the Farm Manager.
4	September 2019	Emergency Plan handout to all farm staff detailing what classifies as an emergency and the correct procedure to follow in the event of an emergency at the Narrandera Farm. Emergency Plan quiz completed by all farm staff with signoff by the Farm Manager.
5	September 2020	Emergency Plan handout to all farm staff detailing what classifies as an emergency and the correct procedure to follow in the event of an emergency at the Narrandera Farm. Emergency Plan quiz completed by all farm staff with signoff by the Farm Manager.
6	February 2021	Emergency Plan handout to all farm staff detailing what classifies as an emergency and the correct procedure to follow in the event of an emergency at the Narrandera Farm. Emergency Plan quiz completed by all farm staff with signoff by the Farm Manager.

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APPENDICES

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Narrandera Poultry Production Farm

Emergency Services Information Package

Facility Subject to this Emergency Plan	
Facility	Narrandera Poultry Production Farm
Location	Sturt Highway, Narrandera NSW Lots 1, 41, 42, 44, 45 and 54 in DP 750898, and Lot 1 in DP 1054064 Local Government Area of Narrandera
Operator	ProTen Holdings Level 2, 66 Berry St, North Sydney NSW 2060 (PO Box 1746 North Sydney NSW 2060)

ProTen Emergency Contacts	
ProTen CEO	Bill Williams Ph: 02 9458 1701 Mob: 0407 936 896 Email: bwilliams@proten.com.au
Operations Manager – Griffith and Narrandera	Graham Kirby Ph: 02 6962 1770 Mob: 0438 842 459 Email: graham@proten.com.au
Regional Operations Manager Farms 75-79	David Baxter Mob: 0411 832 290 Email: davidb@proten.com.au

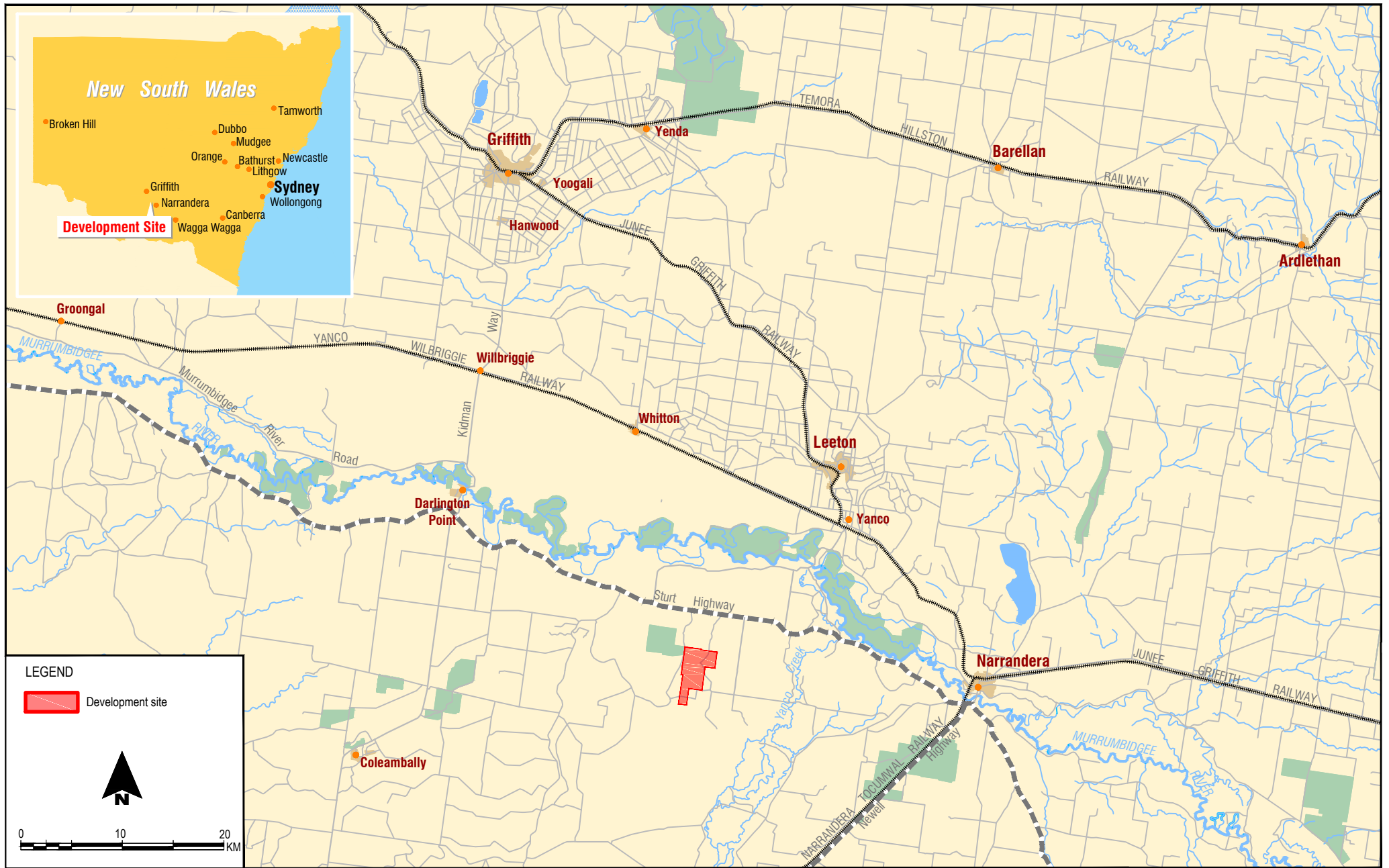
Location of Emergency Plan, Emergency Resource Package and Safety Data Sheets (SDSs)	
Emergency Plan	Each PPU / Farm Site Office
Emergency Resource Package	Each PPU / Farm Site Office
SDSs	Each PPU / Farm Site Office Chemical Storage Facilities

Inventory of Hazardous Materials, Chemical and Fuels					
Substance	Hazardous Class	UN No.	HAZCHEM Code	Storage Location(s)	Maximum Quantity*
LPG	Class 2.1	1075	2YE	8 x 7,500 litre tanks at each PPU	Each PPU - 60,000 litres (60 m ³)
Sodium Hypochlorite (10-30%) (bleach, disinfectant)	Class 8	1791	2X	2 x 200 litre drums at each PPU	Each PPU - 400 litres
Diesel	C1	3082	3Z	2 x 2,000 litre tank at each PPU	Each PPU – 4,000 litres
Agri-Quat (disinfectant, sanitiser)	N/A			2 x 25 litre drums at each PPU	Each PPU - 50 litres
Ditrac (rodenticide)	N/A	-	-	20 kilograms at each PPU	Each PPU - 20 kilograms
Glister (herbicide)	N/A	1950	-	20 kilograms at each PPU	Each PPU - 20 kilograms
Microgard 755N or Micro-4 (sanitiser)	Class 9	3082	-	25 litre drum at each PPU	Each PPU - 25 litres
Chlorine dioxide (water supply treatment)	Class 8	1789	2R	8 x 30 litre drums at each PPU	Each PPU - 240 litres
Unicide (sanitiser)	N/A	-	-	100 litre drum at each PPU	Each PPU - 100 litres
Unicide d (sanitizer)	N/A	-	-	100 litre drum at each PPU	Each PPU - 100 litres
Roundup (Glyphosate, herbicide)	N/A	-	-	25 litre drum at each PPU	Each PPU - 25 litres
Goal (herbicide)	Class 9	3082	2X	10 litre drum at each PPU	Each PPU - 10 litres

- Denotes normal fire extinguishing procedures and equipment are appropriate and chemical will not react with the firefighting material.

* Each PPU is located over 1km apart therefore the storage for each PPU has been considered on their own and not as one facility (see Table 6 for more details)

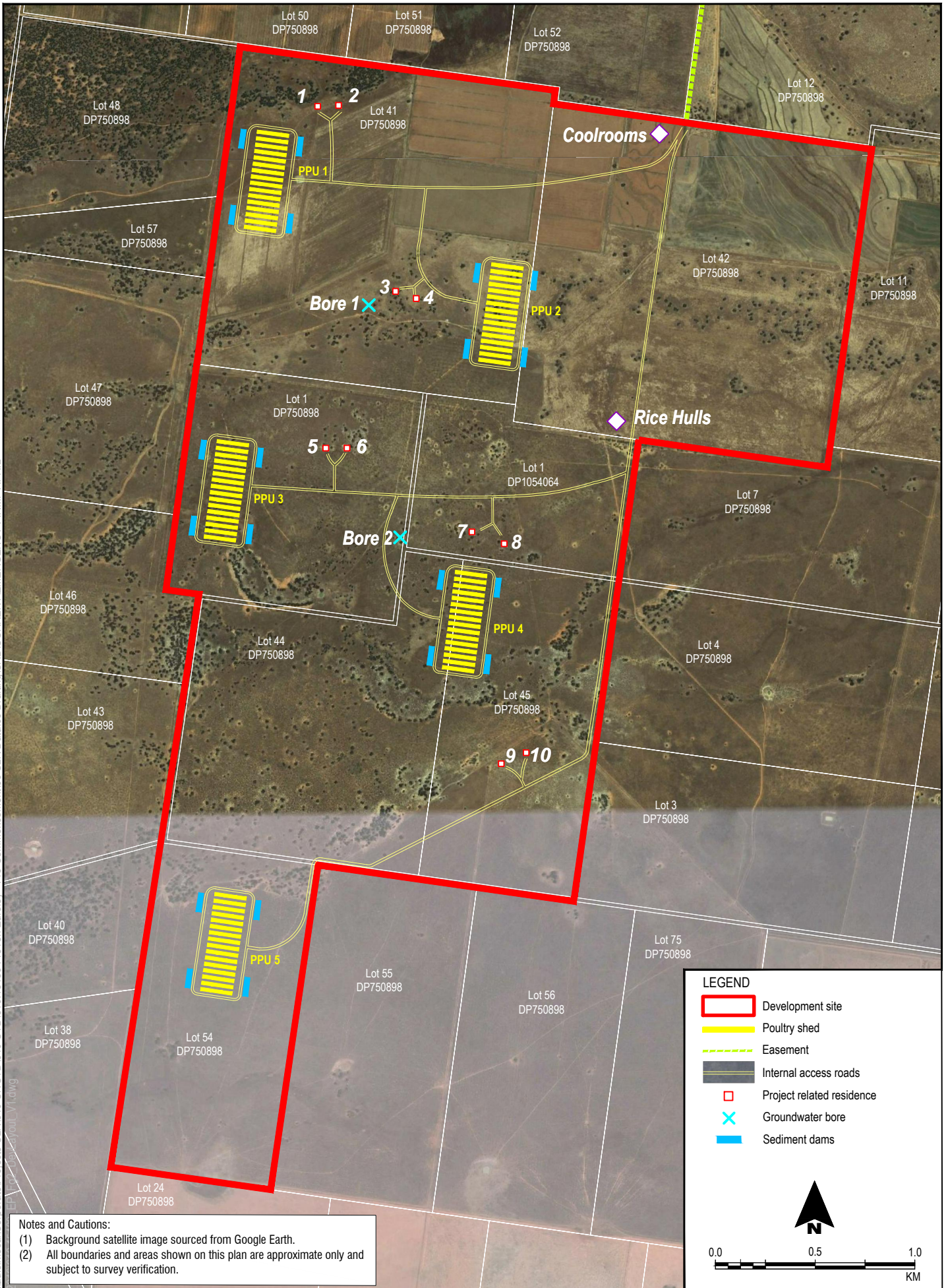
Site Plans Included	
Figure 1	Development Site Location
Figure 2	Development Layout
Figure 3	Poultry Production Unit Layout (showing storage locations for chemicals and fuels, and emergency assembly area)



Development Site Location

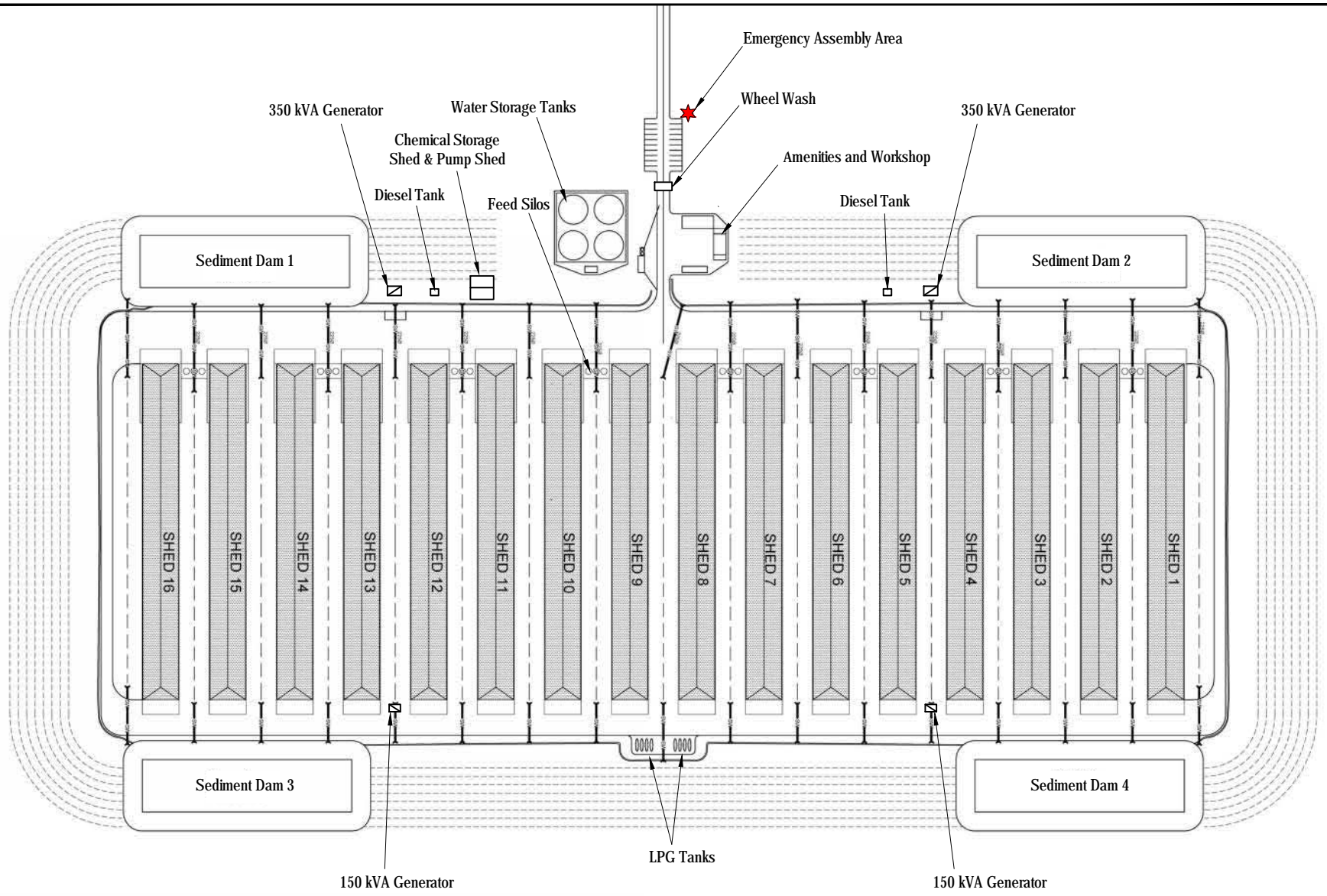
FIGURE 1

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Note:
Symbols depicting generators, fuel tanks, wheel wash
and chemical storage shed, are conceptual only.

Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

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Poultry Production Unit Layout

FIGURE 3

1 Introduction

1.1 Background

The Narrandera Poultry Production Farm (the “Development”) was granted Development Consent SSD 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. The location of the Development Site and layout of the Development are illustrated on **Figures 1** and **2**, respectively, and the layout of the individual PPUs is shown on **Figure 3**.

For the purposes of this document, the Development is described in:

- The *Environmental Impact Statement* (EIS) (SLR 2015a) and the appendices contained within; and
- The *Response to Submissions* (RTS) (SLR 2015b) and the appendices contained within.

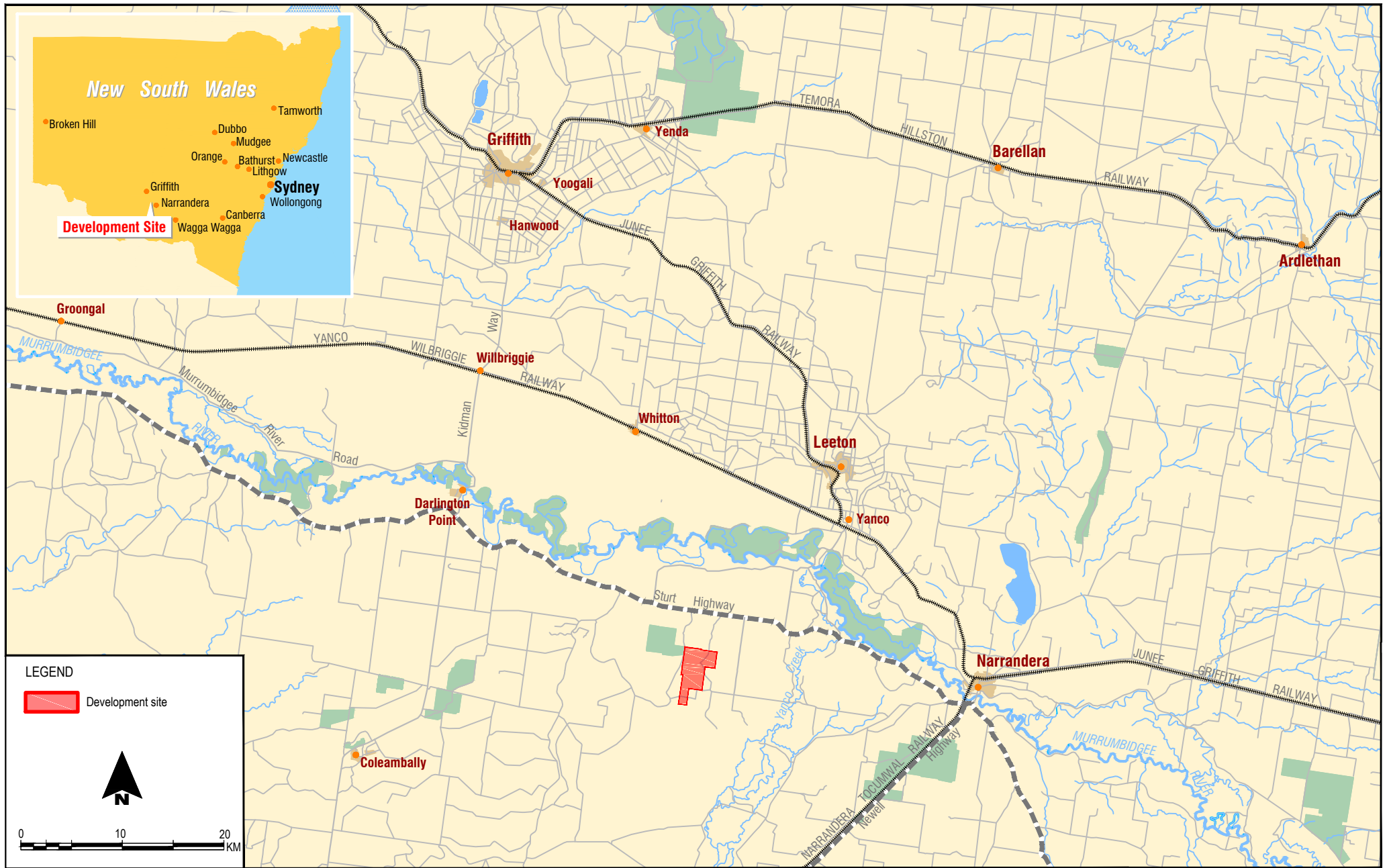
This *Emergency Plan* has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the Narrandera Poultry Production Farm.

Table 1 Facility Subject to this Emergency Plan

Facility	Narrandera Poultry Production Farm
Location	Sturt Highway, Narrandera NSW Lots 1, 41, 42, 44, 45 and 54 in DP 750898, and Lot 1 in DP 1054064 Local Government Area of Narrandera
Operator	ProTen Holdings
Contact Details	ProTen CEO – 0407 936 896 Operations Manager – Griffith and Narrandera – 0438 842 459 Regional Operations Manager Farms 75-79 – 0411 832 290 Company Head Office – 02 9458 1700

It has been prepared as an appendix to the *Operational Environmental Management Plan* (OEMP) (SLR 2017) and is to be read in conjunction with the OEMP. The contents of this document should be read by all employees and contractors working at the Development, along with contract drivers.

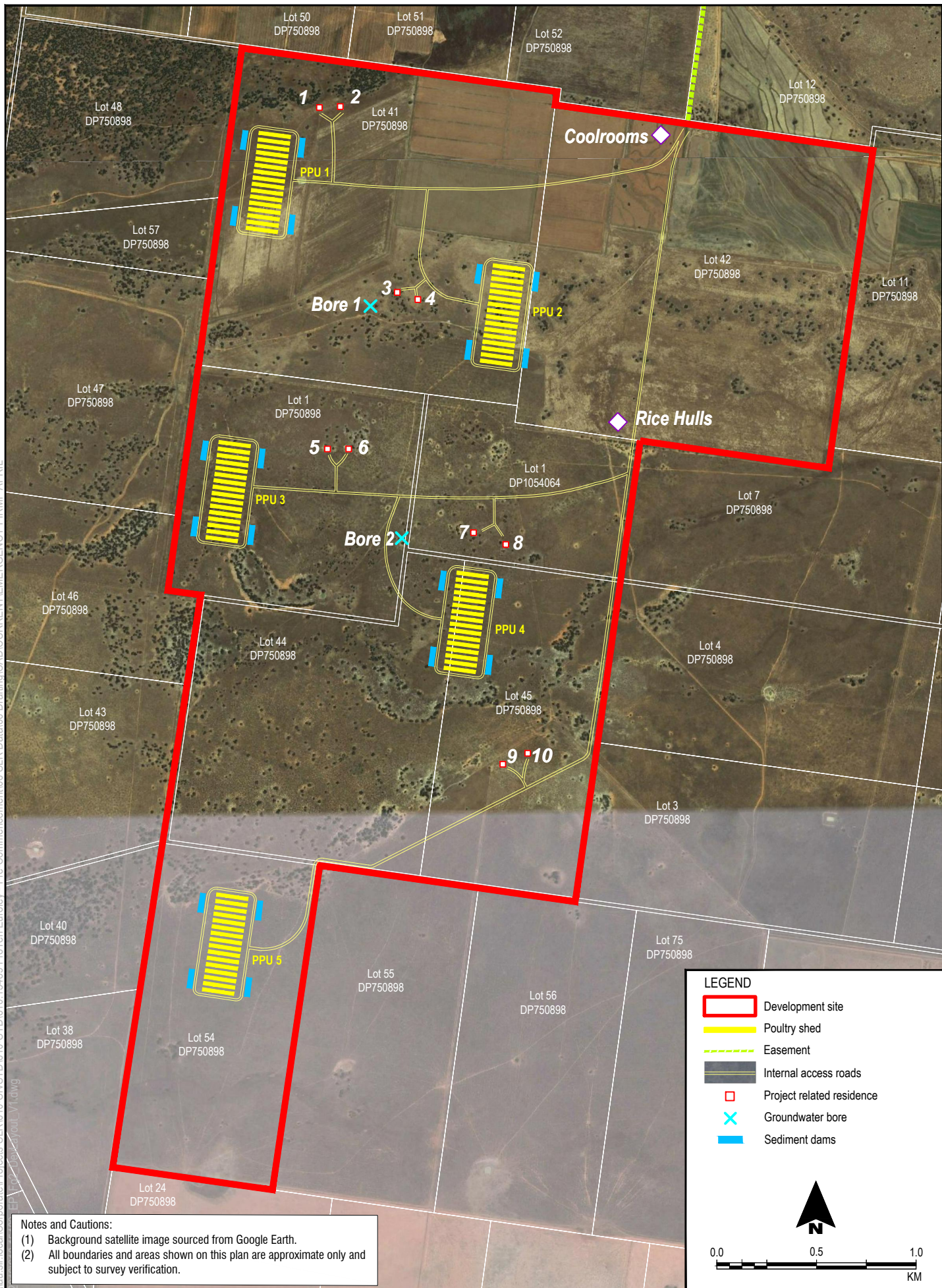
Where any doubt exists about any aspect of safety or procedure, it is essential that Site Management be consulted without delay.



Development Site Location

FIGURE 1

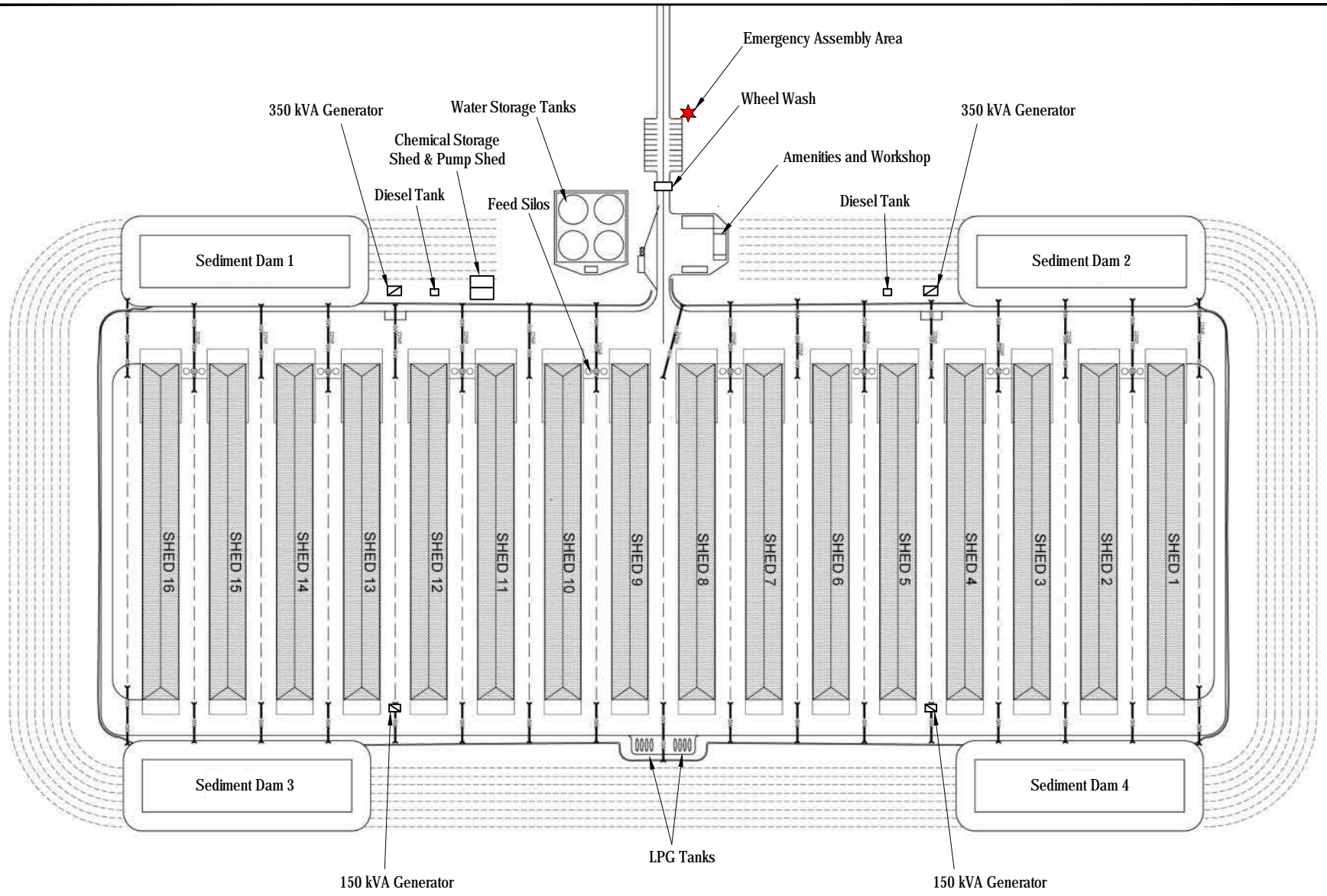
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Notes and Cautions:
 (1) Background satellite image sourced from Google Earth.
 (2) All boundaries and areas shown on this plan are approximate only and subject to survey verification.

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Note:
Symbols depicting generators, fuel tanks, wheel wash
and chemical storage shed, are conceptual only.

Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

To be printed A4



Poultry Production Unit Layout

FIGURE 3

1.2 Aims and Objectives

This *Emergency Plan* aims is to minimise the potential for adverse impacts on people, property and the environment as a result of an emergency or pollution incident at the Development. The key objectives of the *Emergency Plan* are:

- To enable a quick and efficient response to any emergency or pollution incident to limit the potential impacts;
- To support emergency services and regulatory authorities with key information and knowledge; and
- To maintain a high level of preparedness.

1.3 Regulatory Requirements

1.3.1 Emergency Plan

This *Emergency Plan* has been prepared to satisfy condition B25 of Development Consent SSD 6882, which states that:

*Prior to the commencement of commissioning of the Development, the Applicant shall prepare a comprehensive **Emergency Plan** and detailed emergency procedures for the Development. The Plan shall be prepared in accordance with the Department’s publication Hazardous Industry Planning Advisory Paper No.1 – Industry Emergency Planning Guidelines.*

The general format and content of this *Emergency Plan* is in accordance with the requirements of the *Hazardous Industry Planning Advisory Paper No.1 – Emergency Planning Guideline* (Department of Planning [DoP] 2011) (HIPAP 1) to a level of detail commensurate with the nature of the Development and level of risk for an emergency situation.

Given the nature of the poultry production development, the isolated and rural location of the Development Site, the significant separation distances to the surrounding populace and the mitigation controls to be implemented, the Development poses a low level of risk for emergencies. On this basis, an abbreviated plan is considered suitable. **Table 2** lists the key features of emergency plans in accordance with HIPAP 1 and where each of these requirements have been addressed in this document.

Table 2 HIPAP 1 Key Information Requirements

Detail Required	Emergency Plan Section
Formal document control procedures	Page i
Clear aims and objectives	Section 1.2
Identification of hazards and the types and levels of emergencies covered by the plan	Sections 2 and 3
Details of emergency roles and responsibilities	Section 4
Communication arrangements, including internal and external notification of activation of the plan and termination of an emergency	Section 4
Procedures for specific emergencies	N/A
Supporting information, such as emergency telephone numbers, site layout and location drawings/maps, and information about emergency equipment and other resources	Sections 4 and 5; and Figures 1, 2 and 3

1.3.2 Pollution Incident Response Management Plan

The *Protection of the Environment Legislation Amendment Act 2011* (PELA Act) received assent on the 16 November 2011 resulting in changes to the POEO Act. The intent of the PELA Act is to improve the way pollution incidents are reported and managed. The specific requirements for a *Pollution Incident Response Management Plan* (PIRMP) are set out in part 5.7A of the POEO Act and the *Protection of the Environment Operations (General) Regulation 2009* (POEO(G) Regulation). In summary, this legislation requires the following:

- All holders of an Environment Protection Licence (EPL) must prepare a PIRMP (section 153A, POEO Act);
- The PIRMP must include the information detailed in the POEO Act (section 153C) and the POEO(G) Regulation (clause 98C) and be in the form required by the POEO(G) Regulation (clause 98B);
- Licensees must keep the PIRMP at the premises to which the EPL relates, or, in the case of trackable waste transporters and mobile plant, where the relevant activity takes place (section 153D, POEO Act);
- Licensees must test the PIRMP at least every 12 months and after a pollution incident in accordance with the POEO(G) Regulation (clause 98E); and
- If a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened within the meaning of Part 5.7 of the POEO Act, licensees must immediately implement the PIRMP (section 153F, POEO Act).

As the holder of an EPL, the Development is required to comply with the POEO Act and have a PIRMP. On the 20 January 2016, the EPA agreed that the *Emergency Plan* could be used to satisfy the requirements for a PIRMP providing the specific information requirements of a PIRMP are incorporated into the Emergency Plan. On this basis, this document has been developed to satisfy the requirements for both an Emergency Plan and PIRMP.

This *Emergency Plan* covers the key actions to minimise the occurrence of a pollution incident and manage a pollution incident if one occurs (both during and after the incident). It also details the procedures for notification of pollution incidents resulting in or having the potential to cause material harm to the environment.

While this *Emergency Plan* has been prepared for managing the impact to human health (employees and nearby neighbours) and the surrounding environment (on-site and off-site), it does not have procedures for the treatment of injured persons or the remediation of the environment following a pollution incident.

Table 3 lists the content requirements of a PIRMP in accordance with the POEO Act and where each of these requirements have been addressed within this *Emergency Plan*.

Table 3 POEO Act Key Information Requirements

Section 153C	Detail Required	Emergency Plan Section
(a)	The procedures to be followed by the holder of the relevant EPL in notifying a pollution incident to: (i) The owners or occupiers of premises in the vicinity of the premises to which the EPL relates; (ii) The local authority for the area in which the premises to which the EPL relates; and (iii) Any persons or authorities required to be notified by Part 5.7 (of the POEO Act).	Sections 4.3, 4.5 and 6.1
(b)	A detailed description of the action to be taken immediately after a pollution incident, by the holder of the relevant EPL to reduce or control any pollution.	Section 6.4
(c)	The procedures to be followed for coordinating, with the authorities or persons that have been notified, any action taken in combating the pollution caused by the incident and, in particular, the persons through whom all communications are to be made.	Sections 4 and 6
(d)	Any other matter required by the POEO(G) Regulation (as set out below): <i>98C(1)(a) A description of the hazards to human health or the environment associated with the activity to which the licence relates (the relevant activity),</i>	Section 2.2
	<i>98C(1)(b) The likelihood of any such hazards occurring, including details of any conditions or events that could, or would, increase that likelihood,</i>	Sections 2.2 and 2.4
	<i>98C(1)(c) Details of the pre-emptive action to be taken to minimise or prevent any risk of harm to human health or the environment arising out of the relevant activity,</i>	Section 2.4
	<i>98C(1)(d) An inventory of potential pollutants on the premises or used in carrying out the relevant activity,</i>	Section 2.3
	<i>98C(1)(e) The maximum quantity of any pollutant that is likely to be stored or held at particular locations (including underground tanks) at or on the premises to which the licence relates,</i>	Section 2.3
	<i>98C(1)(f) A description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident,</i>	Section 4.1
	<i>98C(1)(g) The names, positions and 24-hour contact details of those key individuals who:</i> <i>(i) are responsible for activating the plan, and</i> <i>(ii) are authorised to notify relevant authorities under section 148 of the Act, and</i> <i>(iii) are responsible for managing the response to a pollution incident,</i>	Section 4.3.1
	<i>98C(1)(h) The contact details of each relevant authority referred to in section 148 of the Act,</i>	Section 4.3.2
	<i>98C(1)(i) Details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on,</i>	Sections 4.4 and 4.6
	<i>98C(1)(j) The arrangements for minimising the risk of harm to any persons who are on the premises or who are present where the scheduled activity is being carried on,</i>	Sections 2.4 and 5

Section 153C	Detail Required	Emergency Plan Section
(d)	98C(1)(k) A detailed map (or set of maps) showing the location of the premises to which the licence relates, the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises and the location of any stormwater drains on the premises,	Figures 1, 2 and 3
	98C(1)(l) A detailed description of how any identified risk of harm to human health will be reduced, including (as a minimum) by means of early warnings, updates and the action to be taken during or immediately after a pollution incident to reduce that risk,	Sections 4.4, 5 and 6
	98C(1)(m) The nature and objectives of any staff training program in relation to the plan,	Section 7.1
	98C(1)(n) The dates on which the plan has been tested and the name of the person who carried out the test,	Page i
	98C(1)(o) The dates on which the plan is updated,	Page i
	98C(1)(p) The manner in which the plan is to be tested and maintained.	Section 7.2

1.4 Definitions

For the purposes of this document, the following definitions are provided:

“Emergency” is defined as a hazardous situation (or threat of a hazardous situation) which requires action to control, correct and return the site to a safe condition and also requires the timely action to protect people, property and the environment from harm.

The level at which a hazardous situation should be regarded an emergency is when the situation endangers, or threatens to endanger, the safety or health of persons or animals and/or destroys or damages, or threatens to destroy or damage, property.

Examples of emergencies include fire, explosion, hazardous materials spill, gas leak, structural failure, natural event (for example, flooding) and transport incident. The likelihood of these emergencies occurring at the Development is discussed in **Section 2**.

“Pollution incident” is defined in the POEO Act as:

an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

A licensee is required to notify the relevant regulatory authorities of a pollution incident if there is a risk of “material harm to the environment”.

“**Material harm to the environment**” is defined in the POEO Act as:

(a) harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

Harm to the environment includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution.

1.5 Availability

In addressing the requirements of section 153D of the POEO Act and clauses 98B(1) and 98D of the POEO(G) Regulation, a copy of this *Emergency Plan* shall be kept in written form at the Development Site and shall be made readily available to all personnel responsible for implementing the *Emergency Plan* and to any authorised officer (as defined in the POEO Act) on request.

A copy of the *Emergency Plan* will be made publicly available within 14 days of finalisation (taken to be authorisation of the *Emergency Plan* by the Site Manager) via the ProTen website www.proten.com.au.

2 Hazards

2.1 Facility Description

2.1.1 Site Location

The Development Site comprises approximately 1,160 hectares of rural land positioned approximately 4 km off the Sturt Highway approximately 26 km west of Narrandera and 48 km southeast of Griffith in south-western NSW (see **Figure 1**). It is identified as Lots 1, 41, 42, 44, 45 and 54 in DP 750898 and Lot 1 in DP 1054064, and is located within the Parish of Ourendumbee, County of Boyd and the Local Government Area (LGA) of Narrandera.

2.1.2 Surrounding Residences and Land Use

The Development Site is removed from any urban areas, with the nearest populated area identified as the Narrandera township located approximately 26 km to the east of the Site. As evident on **Figure 4**, there is a very low density of surrounding residential dwellings, with 13 privately-owned residences (including two proposed dwellings) located within the neighbouring and nearby properties. The nearest residences are R5 and R4, which are located approximately 2.1 km and 2.3 km, respectively, to the north of the northern-most PPU (PPU 1).

The primary surrounding land use is traditional agriculture, primarily dry land grazing. An almond farm owned and operated by Select Harvest is located to the north-west and five of the surrounding residences are located within this farm.

The north-west corner of the Development Site abuts the “Banandra” portions of the South West Woodland Nature Reserve and Murrumbidgee Valley National Park.

2.1.3 Development Overview

The Narrandera Poultry Production Farm will be operated in accordance with industry best practice guidelines, in particular the *Best Practice Management for Meat Chicken Production in NSW* (Department of Primary Industries [DPI] 2012), and will comprise five PPUs where broiler birds will be grown for human consumption.

As shown on **Figures 2** and **3**, each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. Each shed will have the capacity to house 49,000 birds, equating to a total Development population of up to 3,920,000 birds. There will be 10 new dwellings constructed to accommodate the farm managements and assistance farm managers.

The Development will be relatively small, with a combined disturbance footprint of less than 10 percent of the Development Site. The commercial activity associated with the Development will be largely confined to the PPU areas (see **Figure 2**). It is intended to continue using the land outside of the disturbance footprint within the Development Site for continued agricultural production purposes under some form of lease or share farming arrangement.

While the Development will operate 24 hours a day, seven days a week, the majority of activity will be carried out between 7.00 am and 7.00 pm. For reasons of livestock welfare, as the birds reached their desired processing (slaughter) weight they will be removed from the sheds and transported off site between 12.00 am and 12.00 pm, when it is cooler and the birds are more settled.

The cycle of a broiler production Farm typically lasts about nine weeks, with a maximum bird occupation of eight weeks and a “down-time” of close to one week for cleaning in preparation for the next batch of birds. There will be approximately 5.7 production cycles per year.

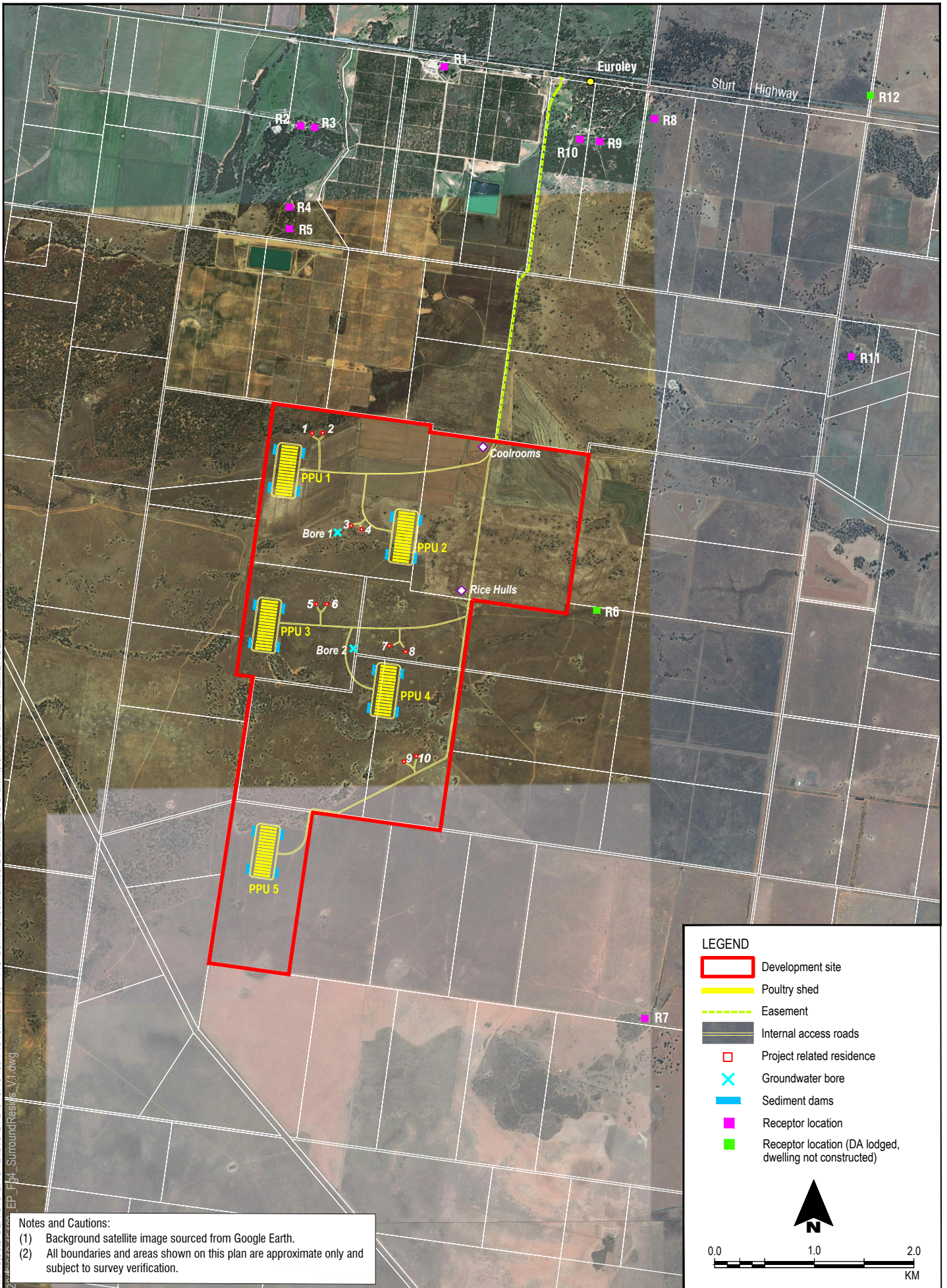
2.1.4 Separation Distances

Separation distances are used to reduce the potential for adverse impacts upon the environment and surrounding receptors, including odour, noise and biosecurity, and traditionally extend across adjoining properties that are not owned by the poultry Farm operator.

Table 4 lists the minimum separation distances afforded between the PPU and notable surrounding features in the natural and built environments. The separation distances are approximate only and have been scaled from satellite imagery and topographic mapping.

Table 4 Separation Distances

Feature	Minimum Distance from PPUs	Comments
Urban / residential area	26,000 metres	Narrandera township
Surrounding residences	2,100 metres	Dwelling to the north of the northern-most PPU
Property boundaries	100 metres	
Public road	4,000 metres	Sturt Highway
Other poultry farm	20,000 metres	Breeder farms on Donald Ross Drive, south-east of Darlington Point. Nearest broiler farm is 35 km to the north-west.
Watercourse	9,700 metres	Yanco Creek to the east
Remnant vegetation	100 metres	Banandra portion of the South West Woodland Nature Reserve
Farm manager / assistant managers accommodation	150 m	House 8 to PPU 4 (refer Figure 2)



Notes and Cautions:

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

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2.2 Hazards Identification

SLR undertook a Preliminary Risk Screening in accordance with Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines (DoP 2011) (SEPP 33) and also a Preliminary Hazard Analysis in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DoP 2011) (HIPAP 6) as part of the EIS (SLR 2015a). The procedure adopted for assessing hazardous impacts involved:

1. Hazard identification;
2. Hazard analysis (consequence and probability estimations); and
3. Risk evaluation and assessment against specific criteria.

The only potential hazard identified for the Development was the storage and transport of LPG, specifically the risk of an LPG fire.

Based on these preliminary assessments and other development documentation, the primary types of hazards identified for the Development in this *Emergency Plan* are:

- LPG leak or explosion;
- Fire in or around the poultry sheds;
- Spill of hazardous material (chemical or fuel); and
- Transport incident.

Flooding hazards have been addressed within the *Flooding Emergency and Evacuation Plan* (SLR 2016a), which is also appended to the OEMP (SLR 2017). The *Flooding Emergency and Evacuation Plan* contains a flood management plan aimed at ensuring the safety of farm workers, the survival of the birds on site that are too young for processing and the safe removal of birds that are ready for off site processing. On this basis, this *Emergency Plan* does not address flooding hazards and the reader is directed to the *Flooding Emergency and Evacuation Plan* (SLR 2016a).

2.2.1 LPG Leak or Explosion

The Development will include eight 7,500 litre LPG tanks at each PPU. This amounts to 60,000 litres at each PPU and a combined total of 300,000 litres at the Development Site. The locations of the LPG tanks at each PPU can be seen on **Figure 3**.

The *Preliminary Risk Screening* (SLR 2015c) concluded that the total quantity of liquid petroleum gas (LPG) to be stored on site is above the SEPP 33 screening threshold. The only other dangerous goods on site will be sodium hypochlorite, petrol and diesel, all of which will be quantities below the respective SEPP 33 threshold.

The conclusions of the *Preliminary Hazard Analysis* (SLR 2015c) undertaken for LPG include:

- The LPG total storage will be separated into five areas (i.e. the five PPUs) and these areas are approximately 1 kilometre apart.
- The surrounding area is lightly populated with the closest potential residence over 2 km from the Development Site boundary and the nearest population centre, being Narrandera, is approximately 26 km away.

- The operation of the proposed development meets the criteria laid down in *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning* (DoP 2011) (HIPAP 4) and would not cause any risk, significant or minor, to the community.
- Other spill, fire and incident events are not likely to extend significantly beyond the boundary of the Site, with the exception of a major facility fire where, regardless of the type of operation there will always be a risk of potentially harmful smoke plumes downwind from a fire. In the majority of large fires the buoyant nature of a smoke plume means any potentially harmful materials are rapidly dispersed.
- LPG storage at each PPU is well within the storage and handling requirements of *AS/NZS 1596:2014 The Storage and Handling of LP Gas*, both for public places and protected places, including on-site residences and work areas.
- The development meets all the requirements stipulated by the Department of Planning and Environment (DP&E) and given the suitable engineering and design controls to be implemented (as per *AS/NZS 1596:2014*), along with the significant separation distances, it is not considered to be an offensive or hazardous development on site and does not pose a significant off-site risk.

On the basis of these conclusions, further consequence analysis was not considered necessary.

Under the current design there have not been any changes to the development infrastructure or layout since preparation of the *Preliminary Hazard Analysis* (SLR 2015c), with the exception of relocations of the on-site dwellings numbered 4, 7, 8, 9 and 10 and groundwater bore 2. These relocations were undertaken to reduce the flood risk, improve access and/or reduce potential environment impacts upon the dwellings (i.e. greater separation from the poultry sheds). These relocations do not change the hazard assessment findings.

Under the current design there have not been any changes to the development safeguards, including in relation to LPG. The *Preliminary Hazard Analysis* (SLR 2015c) noted that the proposed LPG storage facilities have been designed by Elgas (long-standing and reputable LPG supplier) and conform to *AS/NZS 1596:2014*. The design criteria have been subsequently confirmed by Elgas as set out in the Elgas Vapour Tank Layout contained in **Appendix A**.

2.2.2 Other Potential Site Fires

As identified in the *Fire Safety Study* (SLR 2106c), **Table 5** provides an assessment of lower risk fire hazards that may be present on site.

Table 5 Lower Risk Fire Hazard Assessment

Facility/ Event	Cause/ Comment	Possible results/ Consequences	Prevention/ Detection/ Protection Required
Leak of diesel into bund and subsequent ignition	Overfilling tank Corrosion of tank Pressure vent fails External ignition sources	Leak or rupture of tank Ignition of diesel and resulting fire	All installations are compliant with AS1940-2004 and are maintained regularly. Ensure a good maintenance program in accordance with Sections 2.4.3 and 9.8 AS1940-2004. No ignition sources within 3m of storage and decanting facilities. The locations of other chemical stores are greater than 15m from the diesel tank. The use of appropriate signage “DANGER – FLAMMABLE LIQUIDS – NO SMOKING – KEEP FIRE AWAY’ will be displayed. Additional caution is needed around the diesel tanks when temperatures are above 40°C where diesel can act similar to that of Flammable liquids.
Arcing/ Sparks/ Explosion of High voltage transformers (including power poles)	High voltage transformer breakdown Adverse weather conditions	Arcing/Sparks/Explosion causing fires Network power grid offline Localised fires (could spread to become lager fires) Disruptions to site operations	Annual inspections (and maintenance where required) of transformers. Maintenance of ground coverage, trees, shrubs, grass from power sources
Failure of High voltage electrical lines	High winds and external debris causing electrical supply lines to break	Electrical supply lines contact with ground (earthing) causing sparks and localised fires Network power grid offline Disruption of operations	Maintenance of ground coverage, trees, shrubs, grass from areas surrounding incoming power lines
Fires in chemical store	Mixing of incompatible materials Electrical ignition sources causing fire	Localised fires inside workshop Localised fires could spread to outside areas Damage to plant, equipment, buildings etc. Loss of production/ operation	Incompatible materials kept separate from each other. No decanting or mixing of chemicals inside the store. No ignition sources in store with the exception of lighting. Provision of firefighting equipment and appropriate training for staff.
Small fires in workshop	Ignition of combustible/ flammable material arising from hot works (welding, grinding etc.) being undertaken	Localised fires inside workshop Localised fires could spread to outside areas Damage to plant, equipment, buildings etc. Loss of production/ operation	Hot works to be undertaken under a permit to work system and properly risk assessed. Good housekeeping removing refuse and/or other combustible material for working areas. Provision of firefighting equipment and appropriate training for staff.

Facility/ Event	Cause/ Comment	Possible results/ Consequences	Prevention/ Detection/ Protection Required
Bushfires/ grass fires	Arson Lightning strike/adverse weather conditions Human error/stupidity	Introduction of ignition sources within the hazard zones. Ignition of flammable and combustible material. Loss of infrastructure and livestock.	Maintain vegetation to a minimum on site. No combustible material within 3m of the diesel tanks (Section 2.2.5(d) AS1940). No Combustible materials within 6m of the LPG facility (Section 6.2.5(e) AS/NZS 1596). Appropriate firefighting equipment is available, operational and staff are trained to use it (see Sections 8-10 for more details).

2.2.3 Spill of Hazardous Material

The only chemicals that will be used at the Development will be for the following purposes:

- Sanitation of the poultry sheds during the cleaning phase at the end of each production cycle;
- Sanitation of vehicles passing through the wheel wash;
- Disinfection of the water supply;
- Pest and vermin control (when necessary); and
- Weed control (when necessary).

Section 2.3 contains an inventory of hazardous substances, chemicals and fuels, including storage locations and volumes. The storage locations for these pollutants are shown on **Figure 3**. The *Preliminary Hazard Analysis* (SLR 2015c) concluded that the Development will not store chemicals at quantities to be classified as an “industrial” or “commercial” site.

A chemical supply company will be engaged to provide a chemical delivery and pick up service direct to the Development. It is the usual practice for sanitisation chemicals to be delivered to the Site only a few days prior to the commencement of the cleaning phase in order to minimise on-site chemical storage. Appropriate chemical storage facilities will be provided at each PPU for the short-term storage of the limited volumes of chemicals delivered to the Site. At each delivery of new chemical supplies, all empty chemical containers will be retrieved by the chemical company for reuse, recycling or appropriate disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or appropriate disposal. Any non-returnable chemical containers can be collected and managed via the *drumMUSTER* program.

Given the limited applications and management practices, the potential for significant spills is considered relatively low.

2.2.4 Transport Incident

The Development is a poultry production farm requiring on-going traffic movements, including heavy vehicles, in and out of the Site. While the internal speed limit for all vehicles will be limited to 60 kilometres per hour (km/hour) along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour in the vicinity of all work sites, there will still be the potential for vehicle incidents.

2.3 Inventory of Hazardous Materials, Chemical and Fuels

Table 6 provides a summary of the hazardous materials, chemicals and fuels to be stored and/or used at the Development. The storage locations for these materials are shown on **Figure 3**.

Table 6 Inventory of Hazardous Materials, Chemical and Fuels

Substance	Hazardous Class	UN No.	HAZCHEM Code	Storage Location(s)	Maximum Quantity*
LPG	Class 2.1	1075	2YE	8 x 7,500 litre tanks at each PPU	Each PPU - 60,000 litres (60 m ³)
Sodium Hypochlorite (10-30%) (bleach, disinfectant)	Class 8	1791	2X	2 x 200 litre drums at each PPU	Each PPU - 400 litres
Diesel	C1	3082	3Z	2 x 2,000 litre tank at each PPU	Each PPU – 4,000 litres
Agri-Quat (disinfectant, sanitiser)	N/A			2 x 25 litre drums at each PPU	Each PPU - 50 litres
Ditrac (rodenticide)	N/A	-	-	20 kilograms at each PPU	Each PPU - 20 kilograms
Glister (herbicide)	N/A	1950	-	20 kilograms at each PPU	Each PPU - 20 kilograms
Microgard 755N or Micro-4 (sanitiser)	Class 9	3082	-	25 litre drum at each PPU	Each PPU - 25 litres
Chlorine dioxide (water supply treatment)	Class 8	1789	2R	8 x 30 litre drums at each PPU	Each PPU - 240 litres
Unicide (sanitiser)	N/A	-	-	100 litre drum at each PPU	Each PPU - 100 litres
Unicide d (sanitizer)	N/A	-	-	100 litre drum at each PPU	Each PPU - 100 litres
Roundup (Glyphosate, herbicide)	N/A	-	-	25 litre drum at each PPU	Each PPU - 25 litres
Goal (herbicide)	Class 9	3082	2X	10 litre drum at each PPU	Each PPU - 10 litres

- Denotes normal fire extinguishing procedures and equipment are appropriate and chemical will not react with the firefighting material.

* Each PPU is located over 1km apart therefore the storage for each PPU has been considered on their own and not as one facility (see Table 6 for more details).

2.4 Mitigation Measures and Management Strategies

The following sub-sections outline some of the key pre-emptive actions (i.e. mitigation measures and management strategies) that ProTen has committed to implementing in order to minimise the risk for emergency situations and pollution incidents.

2.4.1 LPG Management

The requirements of AS/NZS 1596:2014 regarding the handling of a fire emergency involving LP Gas storages are based on the following elements:

- I. Rapid evaluation of the nature of the fire is imperative.
- II. If it is an adjacent fire in some other structure or material, then the problem is whether the heat radiation to the tank is sufficient to require remedial action.
- III. If gas is escaping the priority tasks are to prevent escalation, to stabilize, then to terminate. The twin needs are to shut off the gas flow and, in the meantime, to cool any areas that may need it.
- IV. If stability can be achieved, there is nothing wrong with letting the gas burn if it is doing no harm, even to the extent of burning off all the stored gas if this is the safest thing to do.
- V. If the situation appears to be escalating, evacuation needs to be considered. The required distance for evacuation will vary with the size of the tank.
- VI. Spray systems can protect against incident radiation, but should not be relied upon to cope with a concentrated flame impingement.

As outlined in **Section 3.3**, SLR undertook a *Preliminary Risk Screening* (SLR 2015c) in accordance with SEPP 33 and also a *Preliminary Hazard Analysis* (SLR 2015c) in accordance with HIPAP 6 as part of the EIS (SLR 2015a). The following mitigation measures and management strategies for LPG were identified:

- The storage of LPG will be separated into five areas (i.e. the five PPUs) and these areas are approximately 1 kilometre apart.
- The location of the above-ground LPG storage tanks will comply with the following requirements for ventilation, access and set up:
 - Above-ground storage tanks will be in the open air, outside buildings;
 - Nearby buildings, fences and the like will permit free access around the tanks and cross-ventilation for the tanks (no walls or vapour barriers are present in this area);
 - The largest LPG storage tanks will have a diameter of 1.2 metres and, as such, adjacent LPG tanks will be separated by 1.2 metres; and
 - As there are 8 x 7,500L tanks these will be positioned in two groups of 4 tanks. The two groups will be separated by a minimum of 10m (Section 6.2.2(a) AS1596: 2014).
- LPG storage at each PPU will be well within the storage and handling requirements of *AS/NZS 1596:2014 The Storage and Handling of LP Gas* for both public places (i.e. South West Woodland Nature Reserve, Murrumbidgee Valley National Park and residences) and private places (i.e. buildings where people are employed or reside within the Development Site). Importantly, the location of the storage tanks will readily exceed the 10 metre minimum separation distance from a public place and the 17 metre minimum separating distance from a protected place.
- The operation of the Development will meet the criteria laid down in *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning* (DoP 2011) (HIPAP 4).
- The LPG storage facilities have been designed by Elgas (long-standing and reputable LPG supplier) and conform to AS/NZS 1596:2014. The design criteria have been subsequently confirmed by Elgas as set out in the Elgas Vapour Tank Layout.

- LPG will be delivered to the Development Site in specific-purpose rigid trucks at a frequency of less than once per week.

SLR (2015c) concluded that the Development meets all the requirements stipulated by the DP&E and given the suitable engineering and design controls to be implemented (as per AS/NZS 1596:2014), along with the significant separation distances, it is not considered to be an offensive or hazardous development on site and does not pose a significant off-site risk.

2.4.2 Fire Management

In accordance with the recommendations of the *Fire Safety Study* (SLR 2016b), the following fire prevention strategies will be implemented in order to minimise the likelihood of a fire and/or reduce a fire's sensitivity or extent:

- The buildings have been designed and will be installed compliant with the requirements of the *Building Code of Australia* (BCA).
- Electrical installations will be installed and maintained compliant with relevant Australian Standards, including *AS 3000:2007 - Electrical Wiring Rules*.
- Fire extinguishers, fire blankets and hose reels will be installed at designated locations compliant with relevant Australian Standards. The extinguishers will be determined by fuel source, with water extinguishers installed for combustible materials and ABE powder extinguishers installed for wide coverage of combustible and electrically-generated fires.
- Due to the need to connect fire hydrants and hose reels, on-site water storage will be compliant with *Australian Standards 2419.1 2005 – Fire Hydrant Installations*.
- Appropriate warning/identification signs will be installed for fuels and fire protection equipment.
- Certified diesel, petrol and LPG tanks will be installed.
- Foam extinguishers will be installed with the capacity to cover the surface area of the diesel/petrol bund area.
- Fuel tank bund design will include minimum capacities for the applicable storage size of the fuel tank(s).
- The diesel, petrol and LPG storage (i.e. dissimilar fuels) will be separated from each other and located at equidistant points from one another while still be within safe working distance to the poultry sheds.
- Annual maintenance and testing will be undertaken for high voltage electricity infrastructure.
- General housekeeping procedures will be regularly undertaken to ensure any trees/shrubs in the vicinity of electrical installations are adequately pruned or removed to maintained clearance and the areas around electrical installations are kept clear of any combustible materials.
- Site-specific training for employees and contractors in the use of fire extinguishing/protection equipment.

2.4.3 Hazardous Materials Management

As outlined in **Section 2.2.3**, the only chemicals that will be used at the Development will be for sanitation and disinfection purposes, pest and vermin control (when necessary) and weed control (when necessary). The *Preliminary Hazard Analysis* (SLR 2015c) concluded that the Development will not store chemicals at quantities to be classified as an "industrial" or "commercial" site.

Given the limited applications and management practices, the potential for an incident from chemical use and storage within the Site is considered relatively low. The following mitigation measures and management practices will be employed to further minimise the potential for an incident at the Development Site:

- Employees and contractors will be instructed in the proper use and handling of all chemicals used on site, as well as incident management procedures. If appropriate, this will include completion of training such as *SMARTtrain* or *ChemCert* (or similar).
- Spill kits will be provided and maintained at strategic locations within the Development Site.
- All chemical use will be undertaken in full compliance with the relevant statutory requirements, including the *Pesticides Act 1999*.
- Where appropriate, chemicals used will be approved by the Australian Pesticide and Veterinary Medicine Authority as safe and fit for that particular use.
- A chemical storage container/shed that is appropriately sealed and bunded, and with appropriate signage, will be installed for the limited volumes of chemicals to be stored on site.
- The diesel and petrol tanks will be stored within bunded areas with a minimum bund volume of 110 percent of the volume of the largest single stored volume within the bund.
- Copies of the Safety Data Sheet (SDS) for each chemical and fuel used on site will be kept within each chemical storage facility and each PPU Site Office.
- It is the usual practice for sanitisation chemicals to be delivered to the Site only a few days prior to the commencement of the cleaning phase in order to minimise on-site chemical storage.
- Empty chemical containers will be retrieved by/returned to the chemical supply company for recycling, reuse or appropriate disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or appropriate disposal. Any non-returnable chemical containers can be collected and managed via the *drumMUSTER* program.

Chemical or Fuel Spill:

- The actions specified on the relevant SDS will be implemented in the event of a minor chemical spill.
- In the event of a major spill, which is considered highly unlikely given the relatively low volumes of chemicals and fuels to be stored on site and the above management measures, the following procedure will be implemented:
 - The EPA and/or other appropriate regulatory authority will be contacted and advised of the nature of the chemical spill or incident, and any instructions issued by the authority will be strictly adhered to.
 - Where possible, spilled material will be contained used vermiculite or similar absorbing material, and/or recovered into suitable containers.
 - Any contaminated soil and/or absorption material will be collected, managed and disposal of as advised by the regulatory authority.
 - Clean soil will be brought in once all contaminated material has been removed.

The *Environmental Incident Management Protocol* in **Section 6**, including notification requirements, will be followed in the event of a spill/incident.

2.4.4 Transport Incident

The following traffic controls will be implemented to minimise the potential for a traffic incident at the Development Site:

- All operational traffic will enter and exit the Development Site via the Sturt Highway intersection and access road.
- 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.
- Where possible, vehicles (in particular heavy vehicles) will be confined to the designated internal site access roads.
- The ring roads around the perimeter of each PPU will be maintained as one-way circulation roads to enable heavy vehicles to enter, exit and manoeuvre in a forward direction.
- Internal roads will be maintained clear of obstruction and used exclusively for the purposes of transport, loading-unloading and parking.
- Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour in the vicinity of all work sites.
- All drivers will read and sign a “driver’s code of conduct”.

3 Types and Levels of Emergencies

3.1 Types of Emergency

As discussed above in **Section 2**, the primary types of hazards identified for the Development in this *Emergency Plan* are:

- LPG leak or explosion;
- Other potential site fires;
- Spill of hazardous material (chemical or fuel); and
- Transport incident.

Flooding hazards have been addressed within the *Flooding Emergency and Evacuation Plan* (SLR 2016a), which is also appended to the OEMP (SLR 2017). The *Flooding Emergency and Evacuation Plan* contains a flood management plan aimed at ensuring the safety of farm workers, the survival of the birds on site that are too young for processing and the safe removal of birds that are ready for offsite processing.

3.2 Levels of Emergency

With reference to HIPAP 1, the three levels of emergency are defined in **Table 7**.

Table 7 Levels of Emergency

Local Alert	Site Alert	External Alert
<p>An emergency where the potential impacts to people, property and the environment:</p> <ul style="list-style-type: none"> • are expected to be confined to a specific location within the Development Site 	<p>An emergency where the potential impacts to people, property and the environment:</p> <ul style="list-style-type: none"> • are expected to spread to or affect other locations within the Development Site 	<p>An emergency where the potential impacts to people, property and the environment:</p> <ul style="list-style-type: none"> • are expected to spread to or affect areas beyond the boundary of the Development Site
<p>Minor Emergency Emergency services:</p> <ul style="list-style-type: none"> • May be required 	<p>Minor / Major Emergency Emergency services:</p> <ul style="list-style-type: none"> • Likely required 	<p>Major Emergency Emergency services:</p> <ul style="list-style-type: none"> • Will be required
<p>Examples:</p> <ul style="list-style-type: none"> • Ruptured chemical drum in chemical storage facility • Minor on-site vehicle collision 	<p>Examples:</p> <ul style="list-style-type: none"> • Petrol tank/bund fire 	<p>Examples:</p> <ul style="list-style-type: none"> • LPG tank explosion • High voltage electrical infrastructure fire

4 Resources and Responsibilities















4.1 Emergency Equipment

Table 8 lists the key safety equipment to be maintained at the Development Site.

Table 8 Key Safety Equipment

Item	Location(s)	Maintenance Requirement
Fire extinguishers	Designated locations compliant with relevant AS	Maintenance and testing every 6 months
Fire blankets		
Hose reels		
SDSs	Chemical storage facility and PPU Site Office	Checked for currency every 12 months
First Aid Kits	PPU Site Office	Checked for currency every 12 months
Spill Kits	Chemical storage facility	Checked for currency every 2 years
Personal Protective Equipment (PPE)	PPU Site Office	As required and needed

Figure 5 illustrates the various types of fire extinguishers.

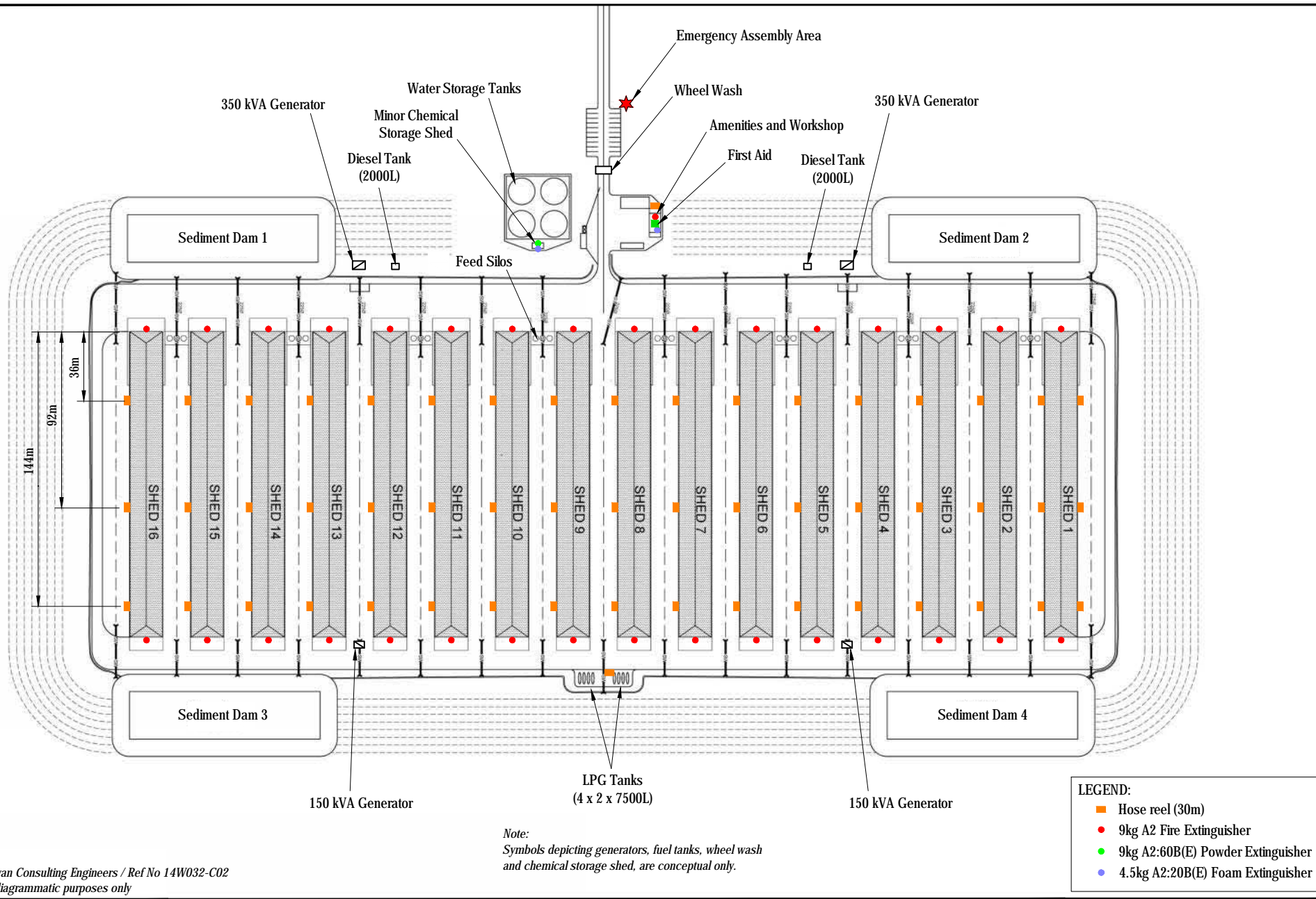
Pre 1997	Current	Extinguishing Agent	A	B	C	E	F	Comments	D Metal Fires
			Water Paper Plastic	Flammable & Combustible Liquids	Flammable Gases	Electrically Energised Equipment	Cooking Oils and Fats		
		Water	✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires	Use only special purpose extinguishers and seek expert advice.
		Wet Chemical	✓	✗	✗	✗	✓	Dangerous if used on energised electrical equipment	
		Foam ¹	✓	✓	✗	✗	LIMITED	Dangerous if used on energised electrical equipment	
		Powder	(ABE)	✓	✓	✓	✓	Look carefully at the extinguisher to determine if it is a BE or ABE unit as the capability is different	
			(BE)	✗	✓	✓	✓		
		Carbon Dioxide	LIMITED	LIMITED	✗	✓	✗	Not suitable for outdoor use or smouldering deep seated A Class Fires	
		Vaporising Liquid	✓	LIMITED	LIMITED	✓	✗	Check the characteristics of the specific extinguishing agent. 5 Yearly servicing must be done by ODS & SGG licenced persons	
		Fire Blanket	LIMITED ²	LIMITED	✗	✗	✓	² Fire Blankets may be used as a thermal barrier against radiated heat and to control a fire on clothes being worn by a person	

LEGEND ✓ = the class or classes in which agent is most affective, ✗ = not recommended for these class of fires, LIMITED = indicates that the Extinguishant is not the agent of choice for the class of fire, but it may have a limited extinguishing capacity. ¹ Solvents such as alcohol or acetone mix with water and therefore require special foam

Figure 5 Types of Fire Extinguishers

The location of the firefighting equipment at the site is presented in Figure 6.

H:\Projects\SLR\610-Site\SYD\610-15489-Pro\Ten_Embley - Pre-Commencement\06_SLR_Data\06_Draughting\CAD\CURRENT\FIRE SAFETY FIGURES\610_15489_ES_Fig6a_PPU Layout & ES Equip_V2.dwg



Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02
 Not to scale - for diagrammatic purposes only

Note:
 Symbols depicting generators, fuel tanks, wheel wash
 and chemical storage shed, are conceptual only.

LEGEND:	
	Hose reel (30m)
	9kg A2 Fire Extinguisher
	9kg A2:60B(E) Powder Extinguisher
	4.5kg A2:20B(E) Foam Extinguisher

To be printed A4

4.2 Emergency Control Centre

The Site Office at each PPU will act as an Emergency Control Centre in the event of an emergency. An *Emergency Resource Pack* containing up-to-date copies of the following information will be maintained at each Site Office as a resource to Site Management, the Site Warden and emergency service personnel as required:

- The quantity and location of LPG being stored (this should include details of the emergency shutoff for LPG)
- The *Emergency Plan*, including the upfront *Emergency Services Information Package*.
- A separate one pager containing the ProTen and regulatory authority contact details; and
- A manifest (e.g. ChemAlert printout) of chemicals and quantities being stored. The SDS for all chemicals and fuel on site (including a plan of where the chemicals are being stored).

4.3 Key Contacts

4.3.1 ProTen

The management and implementation of this Emergency Plan is to be undertaken by the key individuals listed in **Table 9**. These individuals are responsible for activating the Emergency Plan and managing the response to the incident. It is the responsibility of the CEO to authorise who will notify the relevant authorities following an incident.

Table 9 ProTen Key Contacts

Key Contact	Company Position	Contact Details
Bill Williams	ProTen CEO	Ph: 02 9458 1701 Mob: 0407 936 896 Email: bwilliams@proten.com.au
David Baxter	Narrandera Regional Operations Manager (Farm 75-79)	Ph: 0411 832 290 Email: davidb@proten.com.au
Matthew Arman	PPU 1 Farm Manager (Farm 75)	Ph: 0432 514 202 Email: matthewa@proten.com.au
Tim Talent	PPU 2 Farm Manager (Farm 76)	Ph: 0439 136 020 Email: timt@proten.com.au
Liza Hore	PPU 3 Farm Manager (Farm 77)	Ph: 0418 859 652 Email: lizah@proten.com.au
Cory Hutchison	PPU 4 Farm Manager (Farm 78)	Ph: 0438 308 807 Email: coryh@proten.com.au
Jade Sluggett	PPU 5 Farm Manager (Farm 79)	Ph: 0447 034 475 Email: jades@proten.com.au

Whilst personal contact details are listed in the controlled version of the *Emergency Plan* maintained on site, they do not appear in the public document under provision of the *Privacy and Personal Information Protection Act 1998*.

4.3.2 Relevant Authorities

Table 10 lists the contact details for the relevant authorities that should be notified in the event of a pollution incident at the Development. **Table 10** also lists the contact details for emergency services.

Table 10 Relevant Authorities Contacts

Appropriate Authority	Key Contact	Contact Details
Environment Protection Authority	Environmental Line	Ph: 131 555 <i>This will result in the incident being recorded and the appropriate person being contacted.</i>
	Griffith Regional Office	Ph: 02 6969 0700
NSW Health	Central Office	Ph: 1800 020 103
	Albury Public Health Unit	Ph: 02 6053 4800
SafeWork NSW	Incident Notification Hotline (Response Management Team)	Ph: 131 050 <i>Select Option 3 to report a 'Serious Incident or Fatality' - this will result in the incident being recorded and the appropriate person being contacted.</i>
Local Authority (Council)	Narrandera Shire Council – Development and Environmental Services Department	Ph: 02 6959 5510 (8.15 am to 4.30 pm weekdays) <i>After hours and emergency contacts: Council Ranger – 0429 043719</i>
Emergency Services (Fire and Rescue NSW, NSW Ambulance and NSW Police)		Emergency - Ph: 000 Fire and Rescue - Ph: 1300 729 579

4.4 Activation and Termination of the Emergency Plan

Any person that becomes aware of an incident/situation that is likely to give rise to an emergency or a pollution incident will:

- **Consider** if they are able to control the incident/situation alone;
- If safe do to so, undertake reasonable actions to **control** the incident/situation;
- Raise the **alarm** by contacting the Site Warden (or other staff member nominated by the Warden in his/her absence) who will decide on the level of emergency and required actions, including activation of this *Emergency Plan* and contacting emergency services; and
- **Assist** others in immediate danger.

If in doubt, the alarm should be activated by contacting the Site Warden (or other staff member nominated by the Warden in his/her absence).

Once the incident/situation no longer presents a potential emergency/pollution incident or the resulting emergency/pollution incident has been successfully handled, the Site Warden (or other staff member nominated by the Warden in his/her absence) can decide to terminate the use of the *Emergency Plan*. For this to occur, the role of the emergency services (if called) must be complete and site control handed back to the Site Warden.

Various remedial action may be necessary to address the cause of the emergency/pollution incident and mitigate any further environmental impact, along with address any damaged equipment, contaminated soil, etc. In some instances, outside resources such as specialist contractors/consultants may be required.

Employees will only return to work once the Site Warden (or other staff member nominated by the Warden in his/her absence) gives the "all clear".

Every emergency and pollution incident (including cause, actions and notifications) is to be recorded by ProTen, with the completed report/form provided to the relevant regulatory authorities (as required) and maintained for at least four years.

4.5 Immediate Notification of an Emergency

In the event of an emergency, the emergency services must be contacted immediately by telephoning "000" if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, NSW Police and NSW Ambulance Service are the first responders, as they are responsible for controlling and containing emergencies.

4.6 Immediate Notification of a Pollution Incident

All employees and contractors at the Development are responsible for notifying Site Management (see **Table 9**) to hazards and potential hazards that may result in an emergency or pollution incident, regardless of the nature or scale.

Notification responsibilities for incidents that have caused or threaten to cause material harm to the environment (see **Section 1.4**) are detailed in section 148 of the POEO Act. In summary, these can be categorised broadly as:

- **The duty of an employee or any person undertaking an activity:**

Any person engaged as an employee or undertaking an activity must, immediately after becoming aware of the incident, notify Site Management (see **Table 9**) of the incident and all relevant information about it. If Site Management cannot be contacted, the person is required to notify the Regional Operations Manager.

- **The duty of the employer or occupier of a premises to notify:**

An employer or occupier of the premises (i.e. in this case, Site Management with prior authorisation from ProTen CEO) on which the incident occurs, who is notified (or otherwise becomes aware of) of the incident, must notify the relevant authorities (see **Table 9**) about the incident and all relevant information.

4.7 Communication with Neighbours and the Local Community

As outlined in **Section 2.1.2**, the Development Site is removed from any urban areas and there is a low density of surrounding residential dwellings. The nearest populated area is identified as the Narrandera township located approximately 26 km to the east of the Site.

In the event of an emergency or pollution incident, ProTen has established the following processes for contacting the local community:

- When an incident occurs, the Warden (or other staff member nominated by the Warden in his/her absence) will immediately contact emergency services (listed in **Table 10**) if required.
- If an evacuation is required, Site Management will follow the procedure outlined in **Section 5**.
- When an incident occurs, Site Management (with prior authorisation from the ProTen CEO) will immediately contact the relevant authorities (EPA, NSW Health, SafeWork NSW and Council, listed in **Table 10**).
- Site Management will consult with these authorities to determine if the community is to be notified of the emergency/pollution incident. Site Management will discuss the most appropriate communication strategy with the authorities (for example, media release, local radio, direct contact with those potentially impacted).
- When determining the appropriate response and notification process for a particular emergency/pollution incident, all aspects of the event will be taken into consideration (for example, type and extent of pollution). Notification strategies may include door knocking, letter drop, phone calls, SMS or email (where contact details are available), notifications on the ProTen website and/or other forms of social and mass media as appropriate to the circumstances.

A list of community contact details will be maintained on-site should notification be required.

5 Site Evacuation Procedure

Minimising the impact to persons at the Development Site during an emergency or pollution incident must be the highest priority.

All employees and contractors are inducted and trained prior to completing any work on site. The induction covers procedures for minimising the chance of an emergency and pollution incident, notification processes, managing an emergency/pollution incident and actions required following an emergency/pollution incident.

In the event that an emergency requires the evacuation of the Development Site, the following site evacuation procedure will be followed:

- The alarm system will be sounded;
- The Site Warden (see **Table 9**) (or other staff member nominated by the Warden in his/her absence) will contact emergency services by telephoning “000” if the incident presents an immediate threat to human health or property;
- Any instructions provided by the emergency services will be strictly followed;
- All employees and contractors on site at the time will promptly stop work and move to the nearest emergency assembly area (as shown on **Figure 3**) and remain there until instructed to leave;
- The Site Warden (or other staff member nominated by the Warden in his/her absence) will perform a role call;
- If evacuation from the site is necessary, the Site Warden will lead/direct evacuation via the site’s primary access to the Sturt Highway or, if necessary, via an adjoining property (subject to instructions from Emergency Services);
- Employees will only return to work once the Site Warden gives the “all clear”; and
- ProTen’s Regional Operations Manager (see **Table 9**) is to be notified as soon as possible following the emergency event.

All employees and contractors will be informed of the location of emergency assembly areas through site inductions, signage and on-going training.

6 Incident Management Protocol

6.1 Notification Requirements

All employees and contractors at the Development are responsible for notifying Site Management (see **Table 9**) to hazards and potential hazards that may result in an emergency or pollution incident, regardless of the nature or scale.

Notification responsibilities for incidents that have caused or threaten to cause material harm to the environment (see **Section 1.4**) are detailed in section 148 of the POEO Act. In summary, these can be categorised broadly as:

- **The duty of an employee or any person undertaking an activity:**

Any person engaged as an employee or undertaking an activity must, immediately after becoming aware of the incident, notify Site Management (see **Table 9**) of the incident and all relevant information about it. If Site Management cannot be contacted, the person is required to notify the Regional Operations Manager.

- **The duty of the employer or occupier of a premises to notify:**

An employer or occupier of the premises (i.e. in this case, Site Management with prior authorisation from ProTen CEO) on which the incident occurs, who is notified (or otherwise becomes aware of) of the incident, must notify the relevant authorities (see **Table 10**) about the incident and all relevant information.

6.2 Actions During an Emergency or Pollution Incident

ProTen aims to effectively respond to any emergency or pollution incident and promptly prevent or reduce any adverse environmental impact. Site Management is responsible for coordinating this *Emergency Plan* in the event of an emergency or pollution incident and ensure that all employees and contractors are appropriately trained.

Upon becoming aware of a pollution incident, Site Management is required to follow these steps:

(1) Preventative Action

Where possible and safe to do so, immediate action should be taken to prevent, stop, contain and/or minimise the environmental impact of the incident. The situation should be visually assessed and emergency response undertaken if required.

In the event that a pollution incident requires the evacuation of the site, actions will be completed in accordance with the site evacuation procedure outlined in **Section 5**. All employees and contractors will be informed on the location of emergency assembly areas (see **Figure 3**) through site inductions, signage and on-going training.

(2) Assistance

Where assistance is required in handling the situation, ProTen's Regional Operations Manager should be contacted (see **Table 9**).

Where the incident is reported via a regulatory authority (for example, the EPA), the Regional Operations Manager must be notified immediately (even if outside of normal business hours).

The person reporting the pollution incident should provide the following key details:

- Location of the pollution incident;
- Nature of the pollution incident;
- Their name and contact details; and
- Details of any assistance required.

If adequate resources are not available and the incident threatens human health or property, Fire and Rescue NSW should be contacted by telephoning “000” for emergency assistance. Contacting Fire and Rescue NSW does not negate the notification requirements in **Section 6.1**.

(3) Notify

Under the provisions of the POEO Act, there is a duty to notify any incident that has caused or threatens to cause material harm to the environment and all relevant information about the incident. The specific duties to notify are outlined above in **Section 6.1**. The relevant authorities required to be notified are listed in **Table 10**.

In the event of a serious pollution incident or emergency, it is more than likely that the EPA and/or Fire and Rescue NSW will take control and manage the required investigation and remedial activities. Any instructions issued must be strictly adhered to.

(4) Investigate

Investigate work must be undertaken to determine the cause of the incident.

(5) Remedial Action

Appropriate remedial action must be undertaken to address the cause of the incident and mitigate any further environmental impact. In some instances, outside resources such as specialist contractors/consultants may be required.

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar events in the future. On this basis, every environmental incident is to be recorded on ProTen’s standard *Environmental Incident Report Form* contained within **Appendix B**. A copy of the completed form will be maintained for at least four years.

6.3 Chemical or Fuel Spill

In the event of a minor chemical spill, Site Management will implement the actions specified on the relevant SDS.

In the event of a major spill, which is considered highly unlikely given the relatively low volumes of chemicals and fuels to be stored on site and the management measures to be implemented (see **Sections 2.3** and **2.4**), Site Management will implement the following procedure:

- The EPA and/or other appropriate regulatory authority will be contacted and advised of the nature of the spill or incident, and any instructions issued by the authority will be strictly adhered to.
- Where possible, spilled material will be contained using vermiculite or similar absorbing material, and/or recover into suitable containers.
- Any contaminated soil and/or absorption material will be collected, managed and disposal of as advised by the regulatory authority.
- Clean soil will be brought in once all contaminated material has been removed.

6.4 Actions Following an Emergency or Pollution Incident

Following a pollution incident, a detailed incident investigation will be completed by Site Management and the *Environmental Incident Report Form* and, if necessary, a separate investigation report, will be issued to the EPA and any other relevant regulatory authority. A copy of the completed *Environmental Incident Report Form* and investigation report (if prepared) will be maintained for at least four years.

Depending on the nature and/or extent of the pollution incident, and as outlined in **Section 4.7**, ProTen will consult with the relevant authorities when determining whether the community will be notified. If the community is to be notified, ProTen will decide the most appropriate consultation/notification strategy with the relevant authorities.

Within a month following a pollution incident, this *Emergency Plan* will be reviewed and tested. ProTen will liaise with the relevant authorities to reduce the likelihood of the pollution incident re-occurring.

All employees and contractors will receive the necessary refresher training, and the key outcomes of the incident investigation will be reported to employees and contractors.

7 Training and Testing

7.1 Inductions and Training

ProTen Site Management will ensure that all employees and contractors are suitably inducted and trained prior to commencing any work on site.

Training in relation to this *Emergency Plan* will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar). The objective of this training is to ensure all employees and contractors are aware of the key steps required to respond to and manage an emergency or pollution incident. In the event of an emergency or pollution incident, refresher training will be delivered to employees and contractors.

Employees and contractors will also be provided with the following specific training (as needed);

- The location and use of fire safety and first aid equipment;
- The location of emergency assembly areas; and

The proper use and handling of all hazardous materials, chemicals and fuels used on site, as well as incident management procedures. If appropriate, this will include completion of training such as *SMARTtrain* or *ChemCert* (or similar).

7.2 Emergency Plan Testing and Review

This *Emergency Plan* will be reviewed and tested every 12 months as per the requirement of the POEO(G) Regulation. Review and testing is to be carried out in such a manner as to ensure that the information included in the *Emergency Plan* is accurate and up to date, and that the *Emergency Plan* is capable of being implemented in a workable and effective manner.

The *Emergency Plan* was last tested from 12 to 17 February 2021 following an incident which occurred at Farm 79 Shed 3 on 18 January 2021. If necessary, revisions to the document will be made to ensure currency. Testing will involve employees and contractors reviewing and discussing a factsheet outlining key elements of the *Emergency Plan*, followed by the completion of a two-page quiz on the requirements for various emergency and/or pollution incident scenarios. ProTen will record each test and those that completed the test, and will maintain this record for at least four years.

The *Emergency Plan* will also be reviewed and tested within one month of any emergency or pollution incident. This is to assess, in the light of that emergency/incident, whether the information included in the *Emergency Plan* is accurate and current, and the *Emergency Plan* is still capable of being implemented in a workable and effective manner.

All employees and contractors will be informed of any revisions to the *Emergency Plan* by ProTen Site Management during toolbox talks.

8 References

Environment Protection Authority (2012) *Guideline for the Preparation of Pollution Incident Response Management*

Department of Planning (2011) *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines*

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 1 – Emergency Planning Guidelines*

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning*

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis*

SLR Consulting Australia (2015a) *Euroley Poultry Production Farm SSD 6882, Environmental Impact Statement*

SLR Consulting Australia (2015b) *Euroley Poultry Production Farm SSD 6882, Response to Submissions*

SLR Consulting Australia (2015c) *SEPP 33 – Preliminary Risk Screening and Hazard Assessment, Intensive Livestock Agriculture, Euroley Poultry Production Farm*

SLR Consulting Australia (2016a) *Narrandera Poultry Production Farm (SSD 6882), Flooding Emergency and Evacuation Plan*

SLR Consulting Australia (2016a) *Narrandera Poultry Production Farm (SSD 6882), Fire Safety Study*

SLR Consulting Australia (2017) *Narrandera Poultry Production Farm (SSD 6882), Operational Environmental Management Plan*

APPENDIX A

Elgas LPG Tank Layout

PUBLIC PLACE

Any place, other than private property, open to the public and including a street or road. Public areas for commercial and public buildings are not treated as public places.

PROTECTED PLACE

Any of the following:

- a) A dwelling, place of worship, public building, school or college, hospital, theatre or any building or open area in which persons are accustomed to assemble in large numbers, whether within or outside the boundary of the installation.
- b) A factory, office, workshop, store, warehouse, shop or building where people are employed, except a building used for the storage and handling of LPGas.
- c) A vessel lying at permanent berthing facilities
- d) Any storage facility for dangerous goods outside the property boundary of the installation, except those defined as minor storage in other standards or regulations

SPECIFICATIONS:

TANK FOOTINGS are to be of minimum crushed rock that will support the total mass of the tank when filled with water

DAMAGE AVOIDANCE if a tank is susceptible to impact is shall be protected by:

- Bollards,
- 'W' guard rails (Armco), or
- Fenced Compound

All to be positioned greater than 1.5m from edge of any Tank

BOLLARDS, if used, must be minimum 75mm steel pipe a max of 1.3m apart, filled with and set in concrete to a minimum height of 1.2 m and minimum depth of 500 mm

FENCE COMPOUNDS are to 1.8 m chain link fence with tension wires and 50 mm diam steel poles set in concrete

ADDITIONAL TANKS can be added; parallel to each other with tank diameter separation between each one

MANIFOLDS for additional Tanks must be made of steel, copper pig-tails to the Manifold are acceptable. Tanks must be fitted with excess flow valve

NOTES:

All clauses of AS1596 are to be observed when planning a Tank Location

Always consider the safe access to the Tank by a Road Tanker when planning a location

No Drains, Pits or Stumps within 3m of the edge of the Tank

Tanks shall not be installed in or above a ground depression

Overhead Electricity lines shall not cross the tank compound

For the use of Vapour Barriers, Firewalls and Thermal check with Elgas Technical Staff

For Tank locations near other Flammable, Combustible or Dangerous Goods check with Elgas Technical Staff

TYPICAL TANK DIMENSIONS		
Tank Size	Length	Diameter
1.35 kl	2.2 m	0.9 m
2.2 kl	2.7 m	1.1 m
2.75 kl	3.3 m	1.1 m
4.3 kl	3.9 m	1.2 m
5.1 kl	4.6 m	1.2 m
7.5 kl	6.6 m	1.2 m

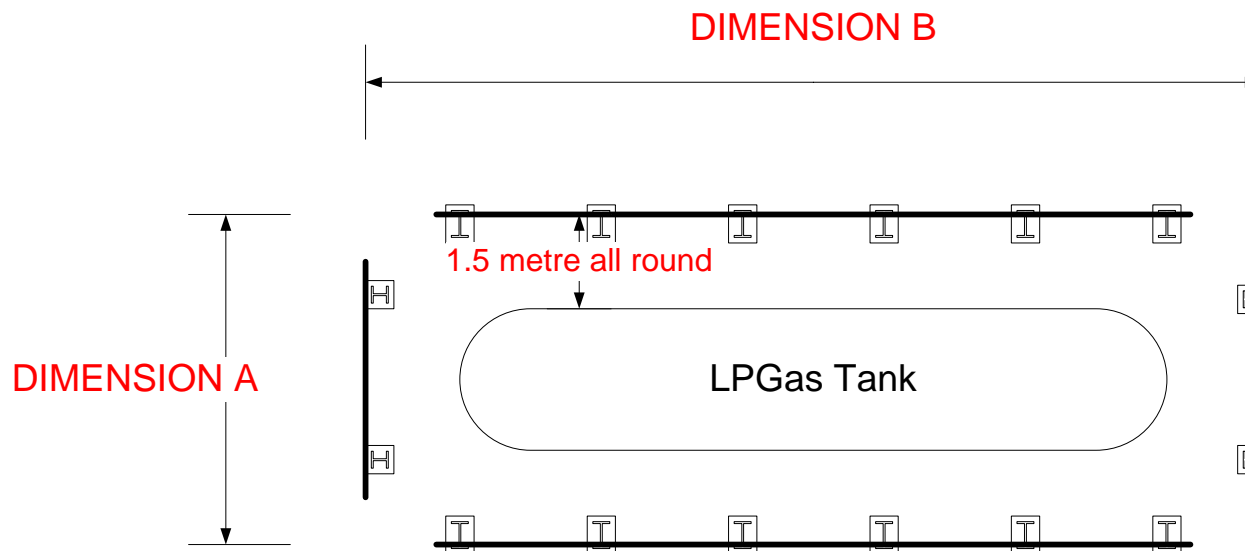
Note: Tank Dimensions in this table are indicative only - ensure correct dimensions for the tank to be installed are used

TYPICAL SPACE REQUIREMENTS		
Tank Size	DIMENSION A	DIMENSION B
1.35 kl	3.9 m	5.2 m
2.2 kl	4.1 m	5.7 m
2.75 kl	4.1 m	6.3 m
4.3 kl	4.2 m	6.9 m
5.1 kl	4.2 m	7.6 m
7.5 kl	4.2 m	9.6 m

Note: Space Requirements in this table are indicative only - ensure correct dimensions for the tank to be installed are used

TYPICAL SEPARATION REQUIREMENTS		
Tank Size	Public Place	Protected Place
1.35 kl	2.3 m	3.4 m
2.2 kl	4.0 m (3.1 m)	6.1 m (4.6 m)
2.75 kl	4.3 m (3.3 m)	6.3 m (4.8 m)
4.3 kl	4.6 m (3.4 m)	7.2 m (4.7 m)
5.1 kl	5.0 m (3.5 m)	8.0 m (5.0 m)
7.5 kl	6.0 m (4.0 m)	10.0 m (6.0 m)

Note: Distances in Brackets are for single Tanks used for vapour only - no other Tank within 8m. Distances to be taken from edge of Tank



Version 2
 Drawn: 27 February 2008 – tfd
 © Elgas Ltd Not to Scale

TYPICAL VAPOUR TANK REQUIREMENTS

ELGAS

APPENDIX B

Environmental Incident Report Form

PROTEN HOLDINGS PTY LTD
Narrandera Poultry Production Complex
ENVIRONMENTAL INCIDENT REPORT FORM

INCIDENT DETAILS

Date of incident:- Time of incident:-am/pm

Location:-

Description:-
.....
.....

NOTIFICATION TO REGULATORY AUTHORITY

Has the incident caused or does it threaten to cause material harm to the environment:- Yes / No If yes, the relevant authorities (as listed in the CEMP) must be notified immediately.

EPA

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

EPA – Local Office

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

NSW Health

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

Safework NSW

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

Council – Narrandera Shire council

Date:- **Time:-**am/pm
Person Spoken to:-
Instructions:-
.....
.....

Emergency Services – Fire/Police/Ambulance

Date:- **Time:-**am/pm
Person Spoken to:-
Instructions:-
.....
.....

DPIE

Date:- **Time:-**am/pm
Person Spoken to:-
Instructions:-
.....
.....

REMEDIAL ACTION

Remedial action undertaken:- Yes / No (if no, give reason)
Description:-
.....
.....
.....

Any further corrective action required:- Yes / No
If yes, describe:-
.....
.....
.....

SIGN OFF

Name:- **Title:-**
Signature:- **Date:-**

APPENDIX C

Emergency Plan Addendum Report



ProTen Holdings Pty Ltd

Narrandera Poultry Production Farm
Emergency Plan Addendum Report

Revision: 1
28 January 2020
Project Number: 2128372

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Appendices

Appendix A – SLR Emergency Plan (Primary EP)

1. Introduction

1.1 Purpose of this report

GHD has been appointed by ProTen Holdings Pty Ltd (ProTen) to provide an addendum Emergency Plan for the site known as Narrandera Poultry Production Farm, Narrandera NSW.

The purpose of the engagement and this report is to provide clarification, where requested, to the existing Emergency Plan prepared by SLR Consulting Australia (SLR) in April 2016 to address feedback from Fire and Rescue NSW (FRNSW) and the Department of Planning, Industry and Environment (DPIE).

1.2 Background & Terms of Reference

1.2.1 Site Description

The Narrandera Poultry Production Farm, owned and operated by ProTen, comprises five poultry production units (PPUs) located approximately 26 km west of Narrandera in south-western New South Wales. Each PPU consists of 16 fully-enclosed poultry sheds, as well as associated support infrastructure and staff amenities.

1.2.2 Project Background

Condition B25 of Development Consent SSD 6882 pertaining to the Narrandera Poultry Production Farm requires a comprehensive Emergency Plan to be prepared to the satisfaction of DPIE. Following a meeting between DPIE, FRNSW and representatives of ProTen in April 2019 regarding the Fire Safety Study (FSS) for the development, DPIE requested that the approved Emergency Plan (SLR 2016) be updated.

1.2.3 Terms of Reference

Following the 18 April 2019 meeting between DPIE, FRNSW and representatives of ProTen regarding the outstanding FSS approval for Narrandera, an agreed path forward was understood to need clarification type updates to the 2016 FSS and 2016 Emergency Plan, to address elements not currently integrated and also include additional elements in the Emergency Plan.

GHD has been engaged to provide the updates to the Emergency Plan to address the new items raised in the meeting.

1.2.4 Methodology

The following methodology was employed during the development of this addendum report:

- Attend 18 April 2019 meeting between DPIE, FRNSW and representatives of ProTen.
- Receive relevant documentation from ProTen.
- Review requests from DPIE and FRNSW regarding clarifications to the Emergency Plan.
- Preparation of this addendum report.

1.2.5 Scope and objectives

We, GHD, have been commissioned by ProTen to provide an addendum to the Emergency Plan that details a response to a structure fire of a PPU shed. The walls of the PPU sheds are constructed of steel frames with concrete and insulated sandwich panels (ISPs), specifically Expanded Polystyrene with fire resistant core (EPS-FR).

While the 2016 Emergency Plan (*Narrandera Poultry Production Complex (SSD 6682) Emergency Plan*, SLR Consulting, Version 1, April 2016) details a response to a fire in and around the poultry sheds, it did not specifically detail the response to a fire affecting the EPS-FR panels. The objective of this addendum is to address queries posed by FRNSW regarding the current emergency plan and provide details relating to an EPS-FR fire, as well as addressing FRNSW and DPIE's request to:

- Contain actions to enable practical exercises with RFS and FRNSW (Section 7.2);
- Address the hazards associated with the toxic gases released by an EPS fire (Section 2.5 and Section 5); and
- Address the containment/management of fire-fighting water on-site (Section 2.5).

This report does not replace the 2016 Emergency Plan but is an addendum to it.

Starting with Section 2, this report follows the section numbering of the 2016 Emergency Plan to assist in understanding where the additions of this addendum fit.

1.2.6 Stakeholders

The relevant stakeholders of this development are listed below.

Table 1: Relevant Stakeholders

Stakeholder (organisation)	Role	Named representative
ProTen Holdings Pty Ltd	Client / Site Operator	Bill Williams
EME Advisory	Project consultant	Eryn Bath
GHD Pty Ltd	Fire Engineering	Chris Bishop Colin Thomson Carl Voss
Department of Planning, Industry & Environment	Approval Authority	Sally Munk Chris Ritchie
Fire & Rescue NSW	Fire Brigade	John Hawes Nathan Everett

1.3 Key definitions

- BCA – Building Code of Australia, the current version of which is 2019
- RFS – Rural Fire Service
- FRNSW – Fire and Rescue New South Wales
- NCC – National Construction Code
- PPU – poultry production unit, consisting of sixteen (16) poultry sheds and associated support and servicing infrastructure on a site in the case of the ProTen Narrandera development.

1.4 Key Assumptions and Limitations of Scope

- This report has been prepared by GHD for ProTen and may only be used and relied on by ProTen for the purpose agreed between GHD and ProTen .

- GHD otherwise disclaims responsibility to any person other than ProTen arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.
- The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.
- The documentation relied upon has been reviewed only to the degree reasonable as pertaining to GHD's scope, as defined through contract and design intent. It is expressly not GHD's responsibility to,
 - Familiarise ourselves with all information or documentation relating to the project, or the potential fire safety aspect derivatives thereof,
 - Conduct a 'full fire engineering assessment' in any way defined, implied or assumed, for matters outside of GHD's scope,
 - Prepare a holistic fire safety strategy for the building or carry out a full fire engineering assessment of all information and documentation relating to the project, or the potential fire safety aspect derivatives thereof.
- The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.
- The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (detailed in this section of the report). GHD disclaims liability arising from any of the assumptions being incorrect.
- GHD accepts no liability for information provided by ProTen's other third parties used to prepare this document or as the basis of the analysis.
- This report references other existing documentation. The existing documentation analysis, results and findings remain the responsibility of the original authors. GHD disclaims liability arising from these prior documents if they are incorrect.
- This report is not a compliance or conformance audit for any fire safety system. For example, operational checks of fire safety equipment, verification of construction techniques, fire resistance levels or the witnessing of fire drills or exercises are specifically excluded from the scope of this report.
- The recommendations, data and methodology apply to the subject building and must not be utilised for any other purpose. Any modifications or changes to the building, fire safety management system, or building usage from that described in this report may invalidate the findings, necessitating a re-assessment.
- GHD has prepared this report on the basis of information provided by ProTen, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.
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- GHD undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document.

- This document has been prepared based on ProTen's description of its requirements and GHD's experience, having regard to assumptions that GHD can reasonably be expected to make in accordance with sound professional principles.
- Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

2. Hazards

2.1 Facility Description

2.1.5 Insulated Panel Certification

Documentation provided by 'Thermal Panel Solutions' states that the sandwich panels provided for the Narrandera Poultry Production Farm were 'Thermloc Panels EPS-FR' and hold an IPCA certification. This statement provided by Thermal Panel Solutions, as well as their reference documentation and IPCA certification is provided in the FSS Addendum Report.

2.2 Hazard Identification

FRNSW identified a hazard not previously detailed in the Emergency Plan. The hazard posed by a fire impacting upon the EPS-FR panels used for wall construction was required to be addressed and added to the 2016 Emergency Plan. The following is numbered as an addition to Section 2.2 of the Emergency Plan, and should be read as a continuation of the plan.

2.2.5 Poultry Production Unit (PPU) Shed Fire

2.2.5.1 Poultry Shed Construction and use of EPS-FR

As detailed in the FSS Addendum Report, each of the poultry sheds at Narrandera is a consistent design. Each shed is constructed from the ground up with:

- 400 mm high dwarf concrete bund wall and slab.
- Sandwich panel external walls (Expanded Polystyrene or EPS with fire resistant core)
- External steel columns
- Zincalume corrugated iron roofing

The sheds are constructed with a concrete slab, with approximately 400 mm concrete perimeter 'rat wall' or dwarf concrete bund wall at the slab edge, which the sandwich panels sit above. Detail of the dwarf concrete bund wall design is provided in Figure 1 below.

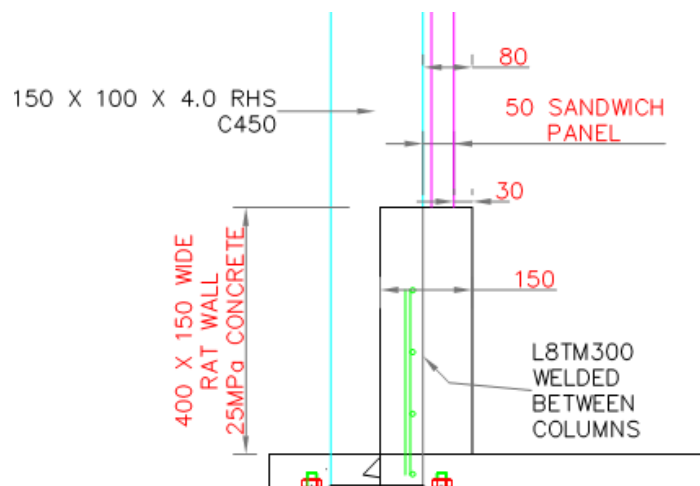


Figure 1: Excerpt from Design Drawings showing concrete dwarf/rat wall

EPS-FR sandwich panels are installed above the concrete bund, forming the external walls of the shed, and installed to the roof. There are external steel columns supporting the roof and portal frame. See Figure 2 below for an example of this design, with the full drawings provided in the FSS Addendum Report.

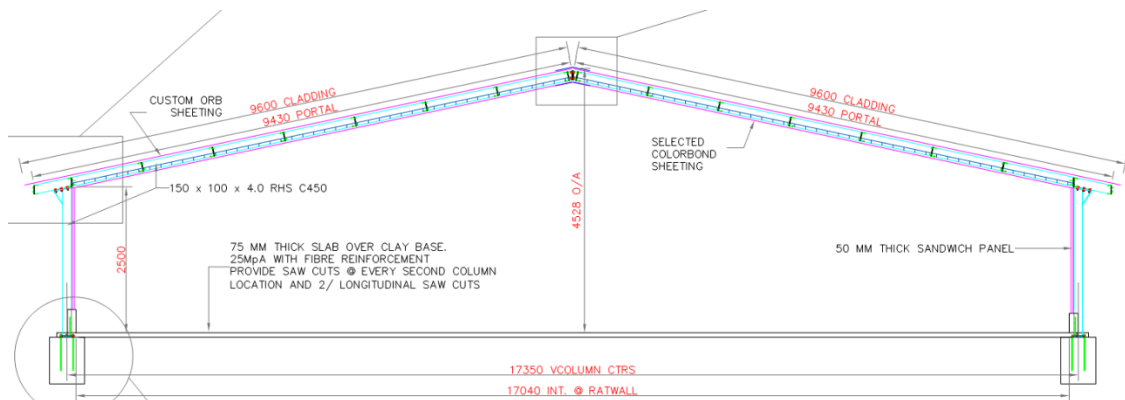


Figure 2: Section through Shed construction design

2.2.5.2 Hazards of an ISP/EPS fire

The construction of each EPS-FR panel is internal and external steel skins that are laminated to the EPS core. While the manufacturer documents a fire resistant core of the Thermloc Panels, there are particular hazards associated with a fire in a structure with both ISP construction in general, and the EPS core specifically.

In a general sense, a fire involving ISPs has the potential to spread rapidly and therefore, the structure is more likely to suffer from early collapse. This collapse could also result in fire spread to adjoining structures if they are located close to the fire affected structure. As noted in the FSS Addendum, fire spread to adjoining structures is considered to be very unlikely given separation distances of at least 15 m.

The reason for the rapid spread and structure collapse is due to the fire spread within the core of the panels. Typically, there are no voids in ISPs, which allows rapid fire spread once a fire penetrates the core. The other factor involved in fire spread and structural collapse is the panel delamination which is a feature of ISP fires. The structural strength of the panels is due to the lamination of the core to the steel skins. The metal skins bow out and open when subject to fire and this delamination can lead to a sudden loss of structural integrity.

The EPS core is regarded as a hazard in itself and recognised by FRNSW as the most dangerous of the core materials used in ISP panels. Despite the certification provided by Thermal Panel Solutions, FRNSW treat all ISP panels with EPS core with extreme caution. While a fire retardant will inhibit a fire from starting in the EPS core, it will not reduce fire severity or characteristics of EPS in fire once it does catch alight.

EPS is highly flammable and melts and flows like a liquid when alight – this includes EPS panels with fire retardant cores. Even when not subject to direct flame, EPS will shrink and melt when heated. As this occurs, voids are created and the steel skin loses its structural strength with subsequent buckling and opening at the joints. This buckling and opening can result in the core being exposed to the fire with the potential for subsequent rapid fire spread, delamination of the panels and structural collapse.

The potential for rapid fire spread is associated with a corresponding risk of rapid flashover. Not only does EPS present a risk of rapid fire spread but this spread might reach areas remote from the fire origin due to the flow of melted EPS. While all fires produce toxic smoke, EPS fires are characterised by large volumes of thick, acrid, toxic black smoke.

Therefore, avoidance of the smoke is paramount for occupants and intervening firefighters. As the overall site, as well as each shed, is provided with open space and freedom of movement in all four primary directions, it is anticipated that:

- Occupant evacuation can take place, moving away from the smoke plume; and

- Intervention activities can be staged from a direction which minimises exposure to the smoke.

This overview of the hazards associated with ISP panels with EPS cores highlight the risks posed to firefighters (i.e. rapid fire spread, flashover, delamination of panels and structural collapse) and provides an understanding of firefighters' concerns when developing strategies for these fires.

While the risk of rapid flashover is recognised as a general risk for a fire involving ISP with EPS core, the risk is regarded as being reduced in the PPU sheds due to combination of the factors of volume and fuel load. Each shed is 160 m in length, 17 m in width, 2.5 m high under the eaves and 4.5 m high to the ridge of the roof, with a low internal fuel load. These are not regarded as conducive to flashover. The significant internal volume of the compartment (i.e. shed) means that the likelihood of the heat development of the low fuel load to the point of flashover within the compartment is regarded as unlikely.

A fire in the panels is one that could develop a significant degree of heat. However, this fire is one that involves the wall structure. In a severe fire, the wall panels could delaminate (as described above) and fail with subsequent structural collapse and external venting of the heat. This venting would also be expected to reduce the prospect of flashover in a severe fire.

2.2.5.3 Shed response in the event of a fire

The anticipated structural response in a fire by a building is a complex and multi-faceted engineering discipline that can have many variables including fire location, wind, or other elements outside the scope of this summary document. However, there are elements of the building design that assist with the expectation that the building would be more likely to collapse inwards rather than outwards in the event of a fire:

- The EPS-FR panels forming the majority of the external wall are affixed on top of a concrete bund wall by metal brackets on the *interior* side of the shed. By fixing on the interior, the brackets are likely to be exposed to an internal fire, which would be expected to weaken the internal fixtures earlier than the external fixtures, increasing the likelihood of an internal failure.



Figure 3: View of EPS support clip internal to shed

- A fire in the panels is one that could develop a significant degree of heat. However, this fire is one that involves the wall structure. In a severe fire, the wall panels could delaminate (as described above) and fail with subsequent structural collapse and external venting of the heat. This venting would also be expected to reduce the prospect of flashover in a severe fire.
- The roofing is sheet and insulation, which in the event of a significant enough fire to affect the roofing, would collapse downwards. However, the columns supporting the roof are on

the exterior of the EPS-FR panels, therefore to a degree shielded from a fire (until the failure of the EPS-FR panels). This delayed exposure is anticipated to increase the likelihood of an internal collapse, as the columns are more fire protected than the roof structure (Moss, Dhakal, Bong, & Buchanan, 2006)



Figure 4: Example of steel columns on the external face of the EPS panels

2.3 Inventory of Hazardous Materials, Chemicals and Fuels

Refer to Section 2.3 of the Emergency Plan.

2.4 Mitigation Measures and Management Strategies

The following mitigation measures and measurement strategies should be read in conjunction with the measures detailed in *Section 2.4.2 Fire Management* in the Emergency Plan.

2.4.2 Fire Management

The following fire safety measures will be implemented in order to reduce the likelihood of a fire and/or reduce a fire's severity and extent.

- The walls of the PPU sheds shall be inspected at annual intervals to verify the structural integrity of the panels.
If any delamination of or damage to the skins of the panels are found, they are to be repaired or replaced.
- Housekeeping procedures shall include the grassed area around each shed to be maintained and regularly mowed. Grass and weeds will not be permitted to reach an overgrown state.
- Site specific training shall include instruction in the dangers of fire in ISPs with EPS cores and the appropriate response to an ISP fire, as identified in this Emergency Plan (Section 5).

2.5 Fire-fighting water containment

The following detail has been provided by ProTen and was observed by GHD during a site inspection:

The surface water management system at each of the five poultry production units (PPUs) operates as a closed water system. Each system comprises swale drains between the poultry sheds to capture wash down water and rainfall runoff, a perimeter table drain and four detention dams with a combined storage of around 28,000 cubic metres (m³). Each system is designed for a 20 year annual recurrence interval (ARI), 24-hour design event.

The surface water management system at each PPU ensures that runoff from within the PPU environs is captured and does not compromise downstream environments. On this basis, firefighting water would be captured in the controlled system.

These detention dams are highlighted in Figure 5 which shows the general design of the detention dams at the four corners of a site, and Figure 6, which is a photographed example from one site.

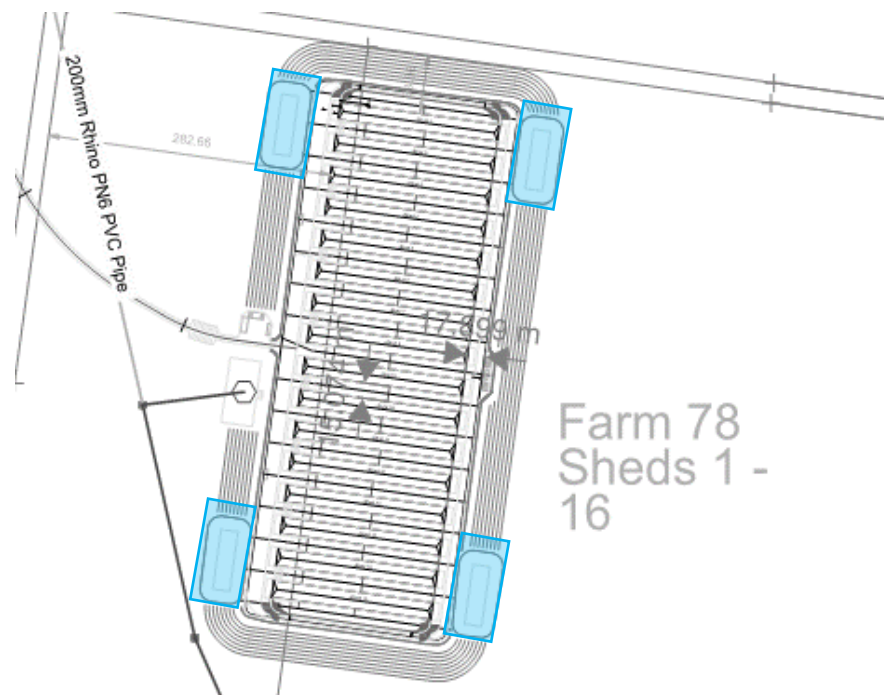


Figure 5: Identification of Detention Dam locations at a PPU



Figure 6: Example of Detention Dam at a PPU

3. Types and Levels of Emergency

3.1 Types of Emergency

The following hazard is recognised as an addition to the hazards detailed in the Emergency Plan:

- ISP/EPS fire

3.2 Levels of Emergency

The three emergency levels are detailed in Table 6 of the Emergency Plan. This table has been reproduced in Table 2 below with additional examples relating to the PPU sheds added for each emergency level.

Table 2: Table 6 of the Emergency Plan

Local Alert	Site Alert	External Alert
<p>An emergency where the potential impacts to people, property and the environment:</p> <ul style="list-style-type: none"> • are expected to be confined to a specific location within the Development Site 	<p>An emergency where the potential impacts to people, property and the environment:</p> <ul style="list-style-type: none"> • are expected to spread to or affect other locations within the Development Site 	<p>An emergency where the potential impacts to people, property and the environment:</p> <ul style="list-style-type: none"> • are expected to spread to or affect areas beyond the Development Site
<p>Minor Emergency</p> <p>Emergency services:</p> <ul style="list-style-type: none"> • may be required 	<p>Minor / Major Emergency</p> <p>Emergency services:</p> <ul style="list-style-type: none"> • likely required 	<p>Major Emergency</p> <p>Emergency services:</p> <ul style="list-style-type: none"> • will be required
<p>Examples:</p> <ul style="list-style-type: none"> • ruptured chemical drum in chemical storage facility • minor on-site vehicle collision • minor grass fire around PPU shed • fire in electrical equipment in PPU shed 	<p>Examples:</p> <ul style="list-style-type: none"> • petrol tank/bund fire • fire within PPU shed • fire affecting small percentage of wall of PPU shed 	<p>Examples:</p> <ul style="list-style-type: none"> • LPG tank explosion • High voltage electrical infrastructure fire • fire affecting significant percentage of wall of PPU shed

4. Resources and Responsibilities

Refer to Section 4 of the Emergency Plan.

5. Site Evacuation Procedure

NB: This addendum adds to the Site Evacuation Procedure contained in the Emergency Plan and should take precedence. It includes all the details contained in the Emergency Plan and adds steps for an ISP/EPS fire.

Minimising the impact to persons at the Development Site during an emergency or pollution incident must be the highest priority.

All employees and contractors are inducted and trained prior to completing any work on site. The induction covers procedures for minimising the chance of an emergency and pollution incident, notification processes, managing an emergency/pollution incident and actions required following an emergency/pollution incident.

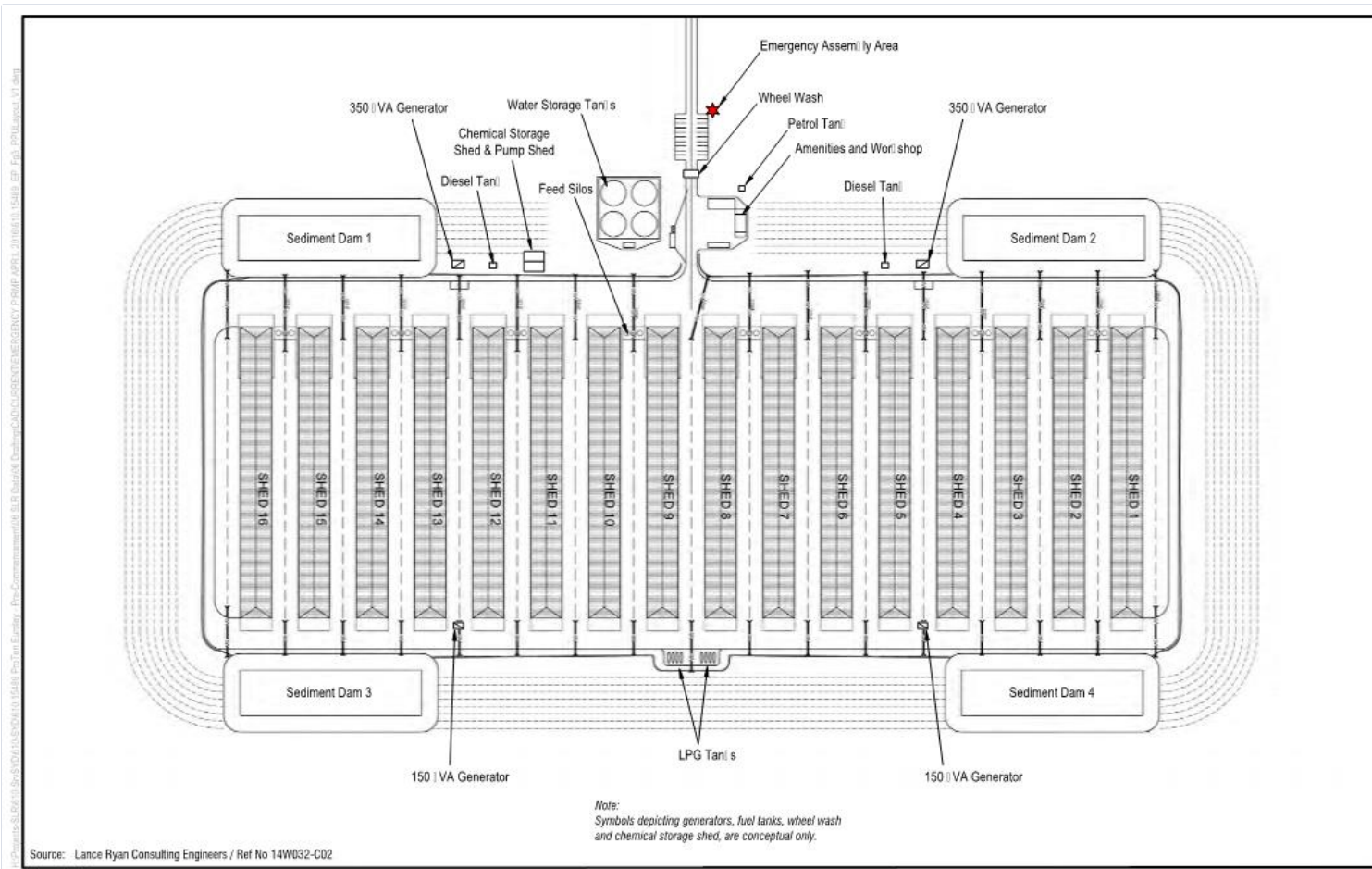
In the event than an emergency requires the evacuation of the Development Site, the following site evacuation procedure will be followed:

- The alarm system will be sounded;
- The Site Warden (See Table 8 of the Emergency Plan) (or other staff member nominated by the Warden in his/her absence) will contact emergency services by telephoning “000” if the incident presents an immediate threat to human health or property;
- If a fire occurs in or spreads to an EPS-FR wall panel of a shed, it should be anticipated that fire spread through the EPS-FR panels of that shed will occur very quickly. There should be no delay in telephoning FRNSW on “000”.

When informing FRNSW of a fire in a shed, the following details should be included:

- if the fire has impacted the walls of the shed, and
- the walls of the shed are ISP/EPS panels;
- Any instructions provided by the emergency services will be strictly followed;
- All employees and contractors on site at the time will promptly stop work and move to the nearest emergency assembly area as long as it has not been impacted by the incident (eg in the smoke plume).
 - Due to the potentially toxic nature of the smoke/gases released by an EPS fire, occupants shall make themselves aware of the smoke plume as they move towards the nearest emergency assembly area.
 - Under no circumstances should occupants enter a smoke plume.
- The location of the emergency assembly area in relation to a shed in a PPU is shown in Figure 3 of the Emergency Plan which has been reproduced in Figure 7 below.
- If the closest emergency assembly area has been impacted by the incident (eg in the smoke plume), the Site Warden will direct everyone to a different emergency assembly area. Everyone is to remain at the emergency assembly area until instructed to leave;
- The Site Warden (or other staff member nominated by the Warden in his/her absence) will perform a role call;
- If evacuation from the site is necessary, the Site Warden will lead/direct evacuation via the site’s primary access to the Sturt Highway or, if necessary, via an adjoining property (subject to instructions from emergency services);
- Employees will only return to work once the Site Warden gives the “all clear”; and
- ProTens’ National Operations Manager (See Table 8 of the Emergency Plan) is to be notified as soon as possible following the emergency event.

All employees and contractors will be informed of the location of the emergency assembly areas through site inductions, signage and on-going training.



Poultry Production Unit Layout
FIGURE 3

Figure 7: Figure 3 of the Emergency Plan showing location of the emergency assembly area in a PPU

6. Incident Management Protocol

Refer to Section 6 of the Emergency Plan.

7. Training and Testing

Refer to Section 7 of the Emergency Plan.

7.1 Inductions and Training

The following shall be included in the specific training to be given to employees and contractors:

- Site specific training shall include instruction in the dangers of fire in ISPs with EPS cores (see Section 2.2.5.2) and the appropriate response to an EPS-FR fire (Section 5).

7.2 Emergency Plan Testing and Review

The following shall be included during the annual review and test period of the Emergency Plan:

At least four (4) weeks prior to the review and testing of the Emergency Plan, an invitation, either by email or registered mail, shall be made to:

- The closest FRNSW unit; and
- The closest RFS brigade.

The email/mail shall invite local FRNSW and RFS members to attend the test session of the Emergency Plan. Attendance by FRNSW and RFS members is at the discretion of the local offices.

The annual review and test, in the event of FRNSW/RFS attendance, shall also include discussion with the local FRNSW/RFS members about the onsite capabilities of the site. At the request of FRNSW/RFS, any onsite exercises and simulated activities may be undertaken at this time.

This annual invitation, and any onsite exercises that result from the invitation, will be recorded by ProTen, and will be maintained for at least four years.

8. References

ABC. (2019). *National Construction Code 2019: Volume 1*. Canberra: ABC.

Moss, P., Dhakal, R., Bong, M., & Buchanan, A. (2006). *Structural fire performance of steel portal frame buildings*. Christchurch: University of Canterbury.

Appendices

Appendix A – SLR Emergency Plan (Primary EP)

The appended SLR 2016 Emergency Plan forms the primary emergency plan for the site. The inclusion here is for reference and to collate all pertinent documents under a single file.

The content of the following report remains the responsibility of the original authors and GHD has not independently verified the findings.

Narrandera Poultry Production Complex (SSD 6882)

EMERGENCY PLAN



Prepared by:

Narrandera Poultry Production Complex

Sturt Highway, Narrandera NSW

Emergency Plan

PREPARED BY:

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This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with 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.

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 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
610.15489	Version 1	April 2016	Sophie Nicholas	Eryn Bath	Eryn Bath

TESTING OF THE EMERGENCY PLAN HISTORY

Test	Date	Tested By	Description
1			
2			
3			

Narrandera Poultry Production Complex

Emergency Services Information Package (April 2016)

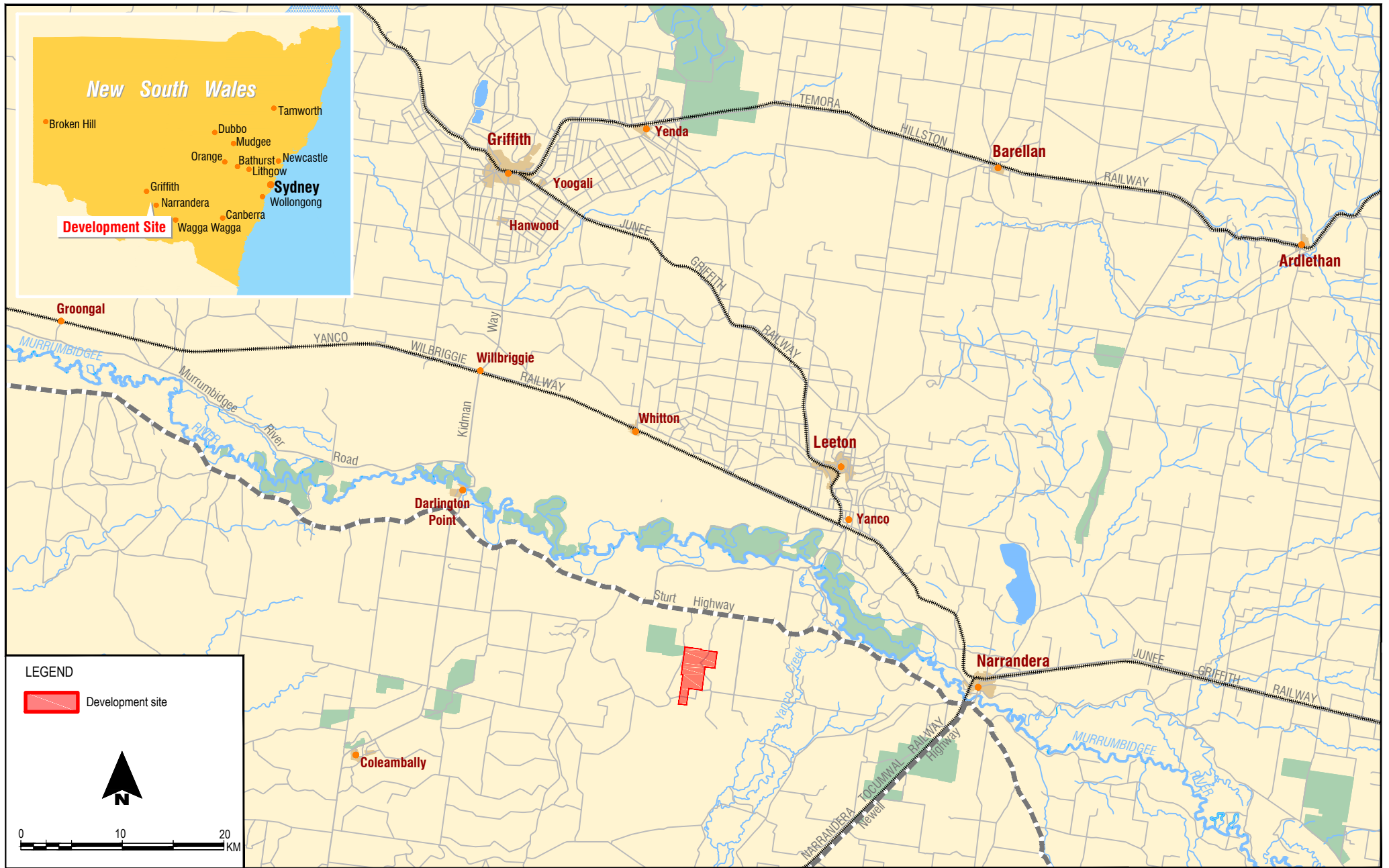
Facility Subject to this Emergency Plan	
Facility	Narrandera Poultry Production Complex
Location	Sturt Highway, Narrandera NSW Lots 1, 41, 42, 44, 45 and 54 in DP 750898, and Lot 1 in DP 1054064 Local Government Area of Narrandera
Operator	ProTen Holdings Level 2, 66 Berry St, North Sydney NSW 2060 (PO Box 1746 North Sydney NSW 2060) Ph: 02 9458 1700

ProTen Emergency Contacts	
Narrandera Site Warden	Daniel McCoustra Ph: TBA Email: TBA
Griffith Regional Manager	Craig Harpur Ph: 0428 255 428 Email: craigh@proten.com.au
National Operations Manager	Bill Williams Ph: 02 6964 2346 / 0447 062 339 Email: bwilliams@proten.com.au

Location of Emergency Plan, Emergency Resource Package and Safety Data Sheets (SDSs)	
Emergency Plan	Each PPU / Farm Site Office
Emergency Resource Package	Each PPU /Farm Site Office
SDSs	Each PPU /Farm Site Office Chemical Storage Facilities

Inventory of Hazardous Materials, Chemicals and Fuels			
Substance	Dangerous Goods Class	Storage Location(s)	Maximum Quantity
LPG	Class 2.1	8 x 7,500 L tanks at each PPU	Each PPU - 60,000 L (60 m ³) Total - 300,000 L (300 m ³)
Sodium Hypochlorite (10-30%) (bleach, disinfectant)	Class 8	2 x 200 L drums at each PPU	Each PPU - 400 L Total - 2,000 L
Petrol	Class 3	1 x 700 L tank at each PPU	Each PPU - 700 L Total - 3,500 L
Diesel	N/A or Class 3 if stored with flammable liquids	1 x 2,500 L tank at each PPU	Each PPU - 2,500 L Total - 12,500 L
Agri-Quat (disinfectant, sanitiser)	N/A	2 x 25 L drums at each PPU	Each PPU - 50 L Total - 250 L
Ditrac (rodenticide)	N/A	20 kg at each PPU	Each PPU - 20 kg Total - 100 kg
Glister (herbicide)	Class 2.1 if an aerosol; Class 9 if other	20 kg at each PPU	Each PPU - 20 kg Total - 100 kg
Microgard 755N or Micro-4 (sanitiser)	Class 9	25 L drum at each PPU	Each PPU - 25 L Total - 125 L
Chlorine dioxide (water supply treatment)	N/A if less than 3% aqueous solution	8 x 30 L drums at each PPU	Each PPU - 240 L Total - 1,200 L
Unicide (sanitiser)	N/A	100 L drum at each PPU	Each PPU - 100 L Total - 500 L
Unicide d (sanitizer)	N/A	100 L drum at each PPU	Each PPU - 100 L Total - 500 L
Roundup (Glyphosate, herbicide)	N/A	25 L drum at each PPU	Each PPU - 25 L Total - 125 L
Goal (herbicide)	N/A (given less than 500 L receptacles)	10 L drum at each PPU	Each PPU - 10 L Total - 50 L

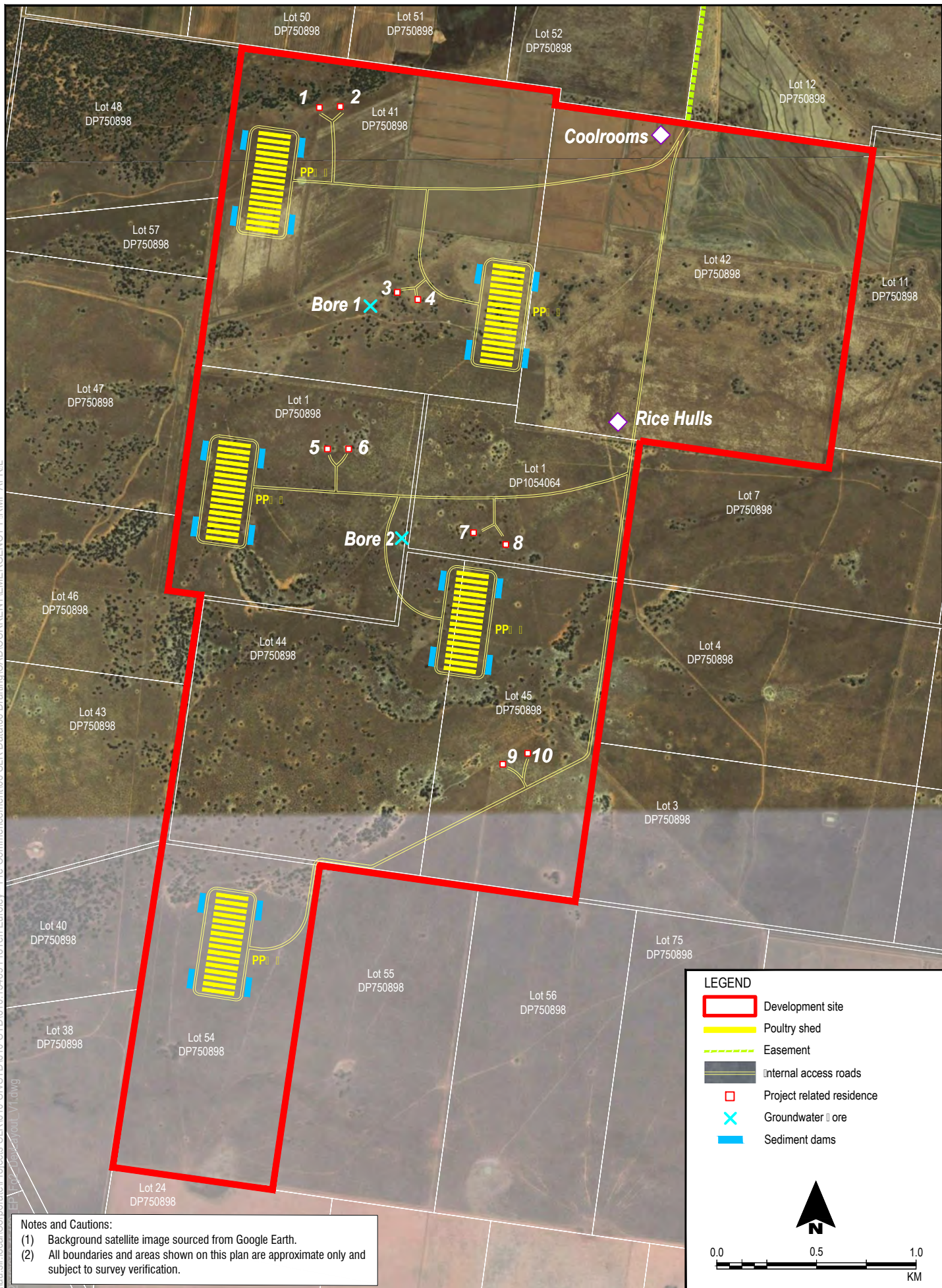
Site Plans Included	
Figure 1	Development Site Location
Figure 2	Development Layout
Figure 3	Poultry Production Unit Layout (showing storage locations for chemicals and fuels, and emergency assembly area)



Development Site Location

FIGURE 1


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

LEGEND

- Development site
- Poultry shed
- Easement
- Internal access roads
- Project related residence
- X Groundwater bore
- Sediment dams



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KM

To be printed A4

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APPENDICES

- Appendix A - Elgas LPG Tank Layout
- Appendix B - Environmental Incident Report Form

1 INTRODUCTION

1.1 Background

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent SSD 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. The location of the Development Site and layout of the Development are illustrated on **Figures 1 and 2**, respectively, and the layout of the individual PPUs is shown on **Figure 3**.

For the purposes of this document, the Development is described in:

- The *Environmental Impact Statement (EIS)* (SLR 2015a) and the appendices contained within; and
- The *Response to Submissions (RTS)* (SLR 2015b) and the appendices contained within.

This *Emergency Plan* has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the Narrandera Poultry Production Complex.

Table 1 - Facility Subject to this Emergency Plan

Facility	Narrandera Poultry Production Complex
Location	Sturt Highway, Narrandera NSW Lots 1, 41, 42, 44, 45 and 54 in DP 750898, and Lot 1 in DP 1054064 Local Government Area of Narrandera
Operator	ProTen Holdings
Contact Details	Site Management – TBA ProTen Griffith Regional Manager – 0428 255 428 ProTen National Operations Manager – 0447 062 339 Company Head Office – 02 9458 1700

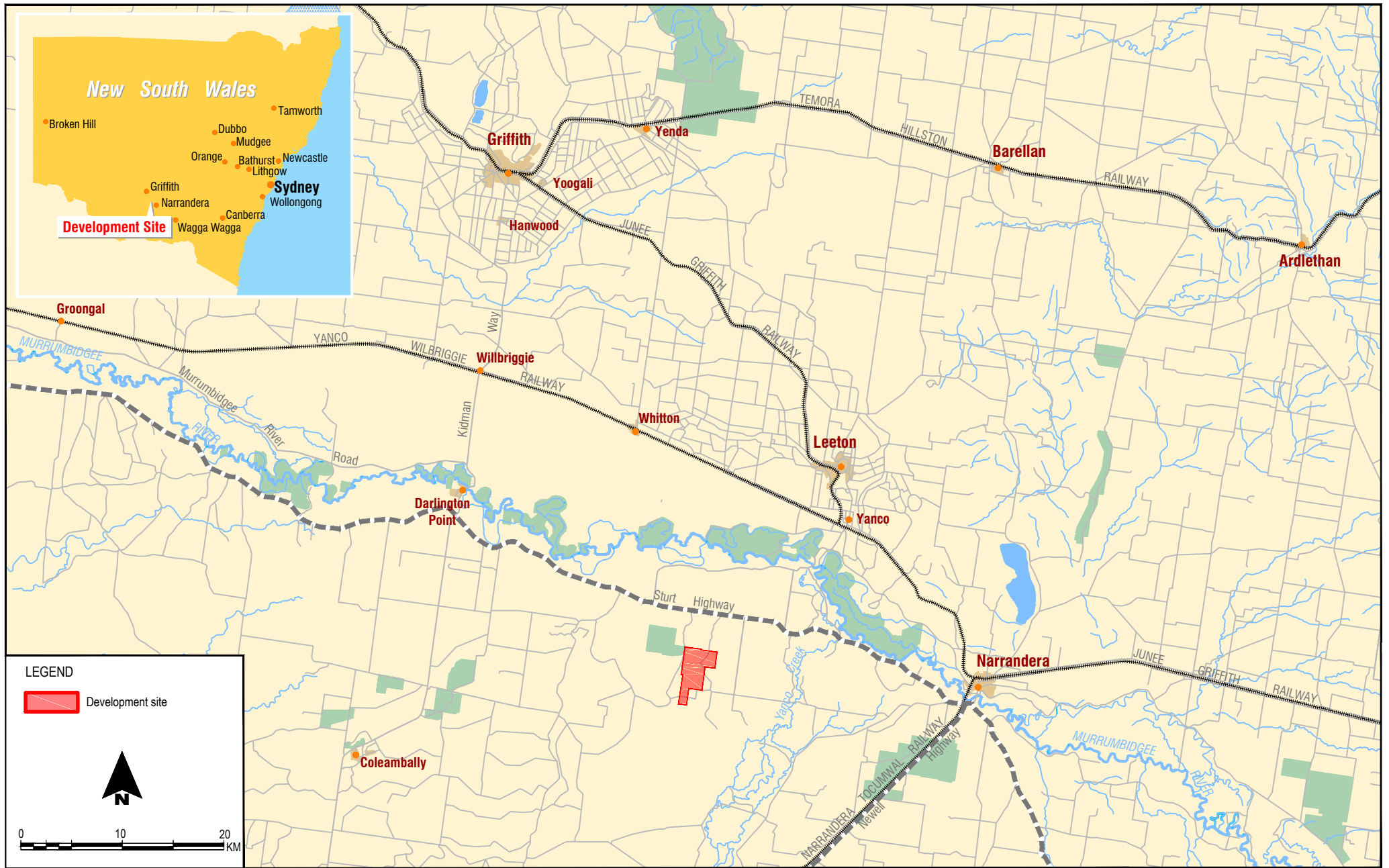
It has been prepared as an appendix to the *Operational Environmental Management Plan (OEMP)* (SLR 2016a) and is to be read in conjunction with the OEMP. The contents of this document should be read by all employees and contractors working at the Development, along with contract drivers.

Where any doubt exists about any aspect of safety or procedure, it is essential that Site Management be consulted without delay.

1.2 Aims and Objectives

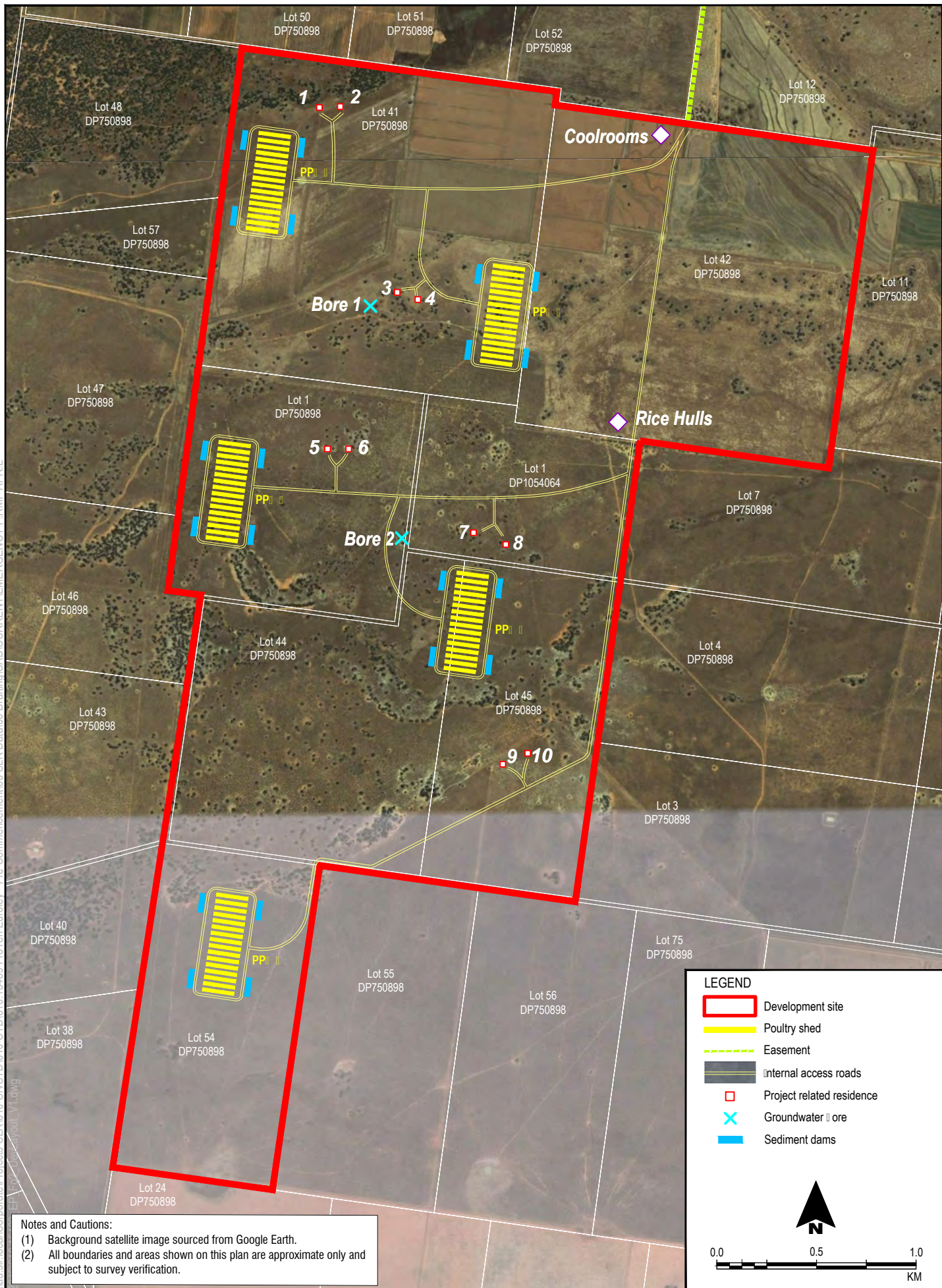
This *Emergency Plan* aims is to minimise the potential for adverse impacts on people, property and the environment as a result of an emergency or pollution incident at the Development. The key objectives of the *Emergency Plan* are:

- To enable a quick and efficient response to any emergency or pollution incident to limit the potential impacts;
- To support emergency services and regulatory authorities with key information and knowledge; and
- To maintain a high level of preparedness.



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

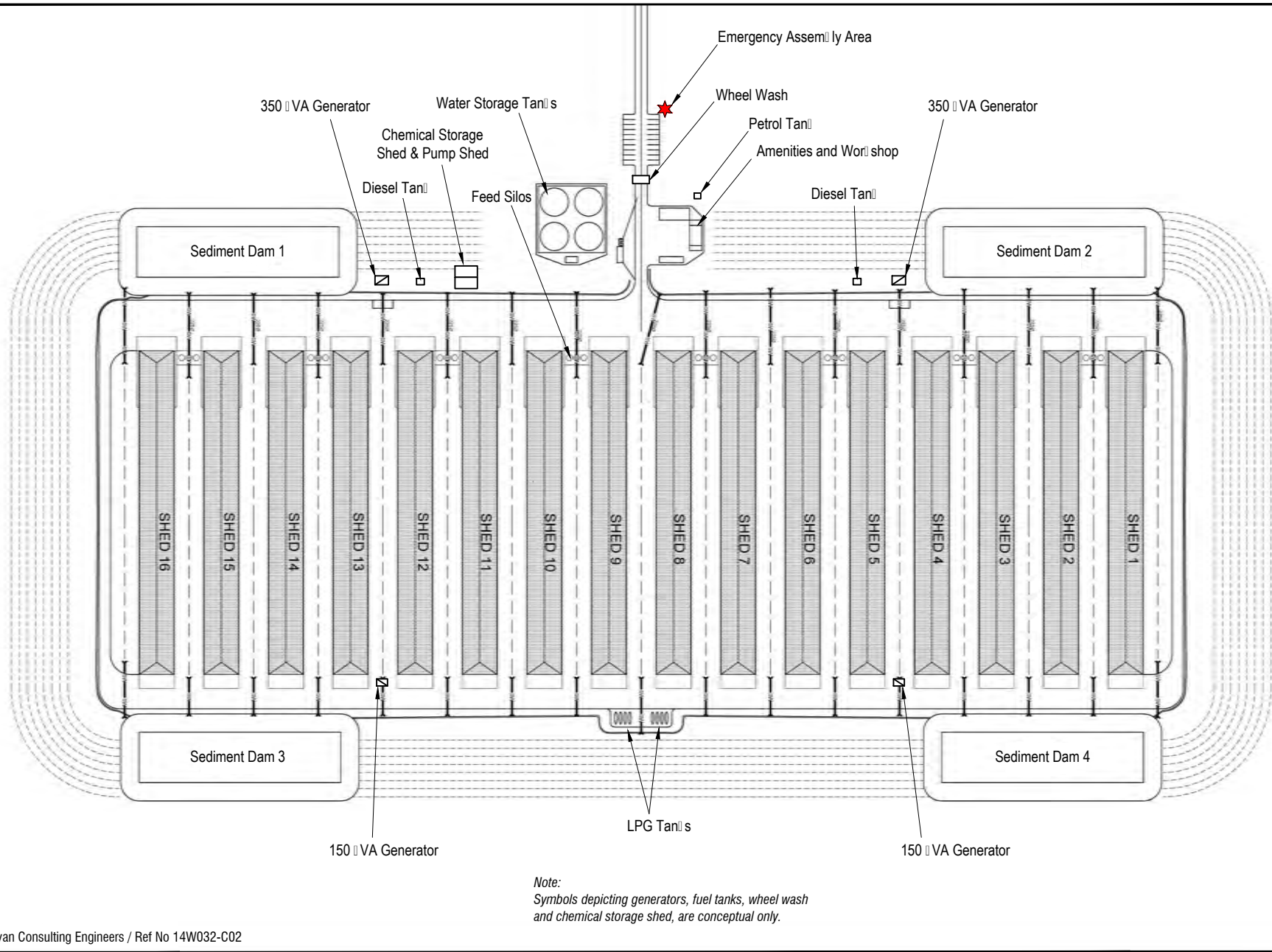
LEGEND

- Development site
- Poultry shed
- Easement
- Internal access roads
- Project related residence
- X Groundwater bore
- Sediment dams



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Note:
Symbols depicting generators, fuel tanks, wheel wash and chemical storage shed, are conceptual only.

Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

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Poultry Production Unit Layout
FIGURE 3

1.3 Regulatory Requirements

1.3.1 Emergency Plan

This *Emergency Plan* has been prepared to satisfy condition B25 of Development Consent SSD 6882, which states that:

*Prior to the commencement of commissioning of the Development, the Applicant shall prepare a comprehensive **Emergency Plan** and detailed emergency procedures for the Development. The Plan shall be prepared in accordance with the Department's publication Hazardous Industry Planning Advisory Paper No.1 – Industry Emergency Planning Guidelines.*

The general format and content of this *Emergency Plan* is in accordance with the requirements of the *Hazardous Industry Planning Advisory Paper No.1 – Emergency Planning Guideline* (Department of Planning [DoP] 2011) (HIPAP 1) to a level of detail commensurate with the nature of the Development and level of risk for an emergency situation.

Given the nature of the poultry production development, the isolated and rural location of the Development Site, the significant separation distances to the surrounding populace and the mitigation controls to be implemented, the Development poses a low level of risk for emergencies. On this basis, an abbreviated plan is considered suitable. **Table 2** lists the key features of emergency plans in accordance with HIPAP 1 and where each of these requirements have been addressed in this document.

Table 2 - HIPAP 1 Key Information Requirements

Detail Required	Emergency Plan Section
Formal document control procedures	Page i
Clear aims and objectives	Section 1.2
Identification of hazards and the types and levels of emergencies covered by the plan	Sections 2 and 3
Details of emergency roles and responsibilities	Section 4
Communication arrangements, including internal and external notification of activation of the plan and termination of an emergency	Section 4
Procedures for specific emergencies	N/A
Supporting information, such as emergency telephone numbers, site layout and location drawings/maps, and information about emergency equipment and other resources	Sections 4 and 5; and Figures 1, 2 and 3

1.3.2 Pollution Incident Response Management Plan

The *Protection of the Environment Legislation Amendment Act 2011* (PELA Act) received assent on the 16 November 2011 resulting in changes to the POEO Act. The intent of the PELA Act is to improve the way pollution incidents are reported and managed. The specific requirements for a *Pollution Incident Response Management Plan* (PIRMP) are set out in part 5.7A of the POEO Act and the *Protection of the Environment Operations (General) Regulation 2009* (POEO(G) Regulation). In summary, this legislation requires the following:

- All holders of an Environment Protection Licence (EPL) must prepare a PIRMP (section 153A, POEO Act);
- The PIRMP must include the information detailed in the POEO Act (section 153C) and the POEO(G) Regulation (clause 98C) and be in the form required by the POEO(G) Regulation (clause 98B);

- Licensees must keep the PIRMP at the premises to which the EPL relates, or, in the case of trackable waste transporters and mobile plant, where the relevant activity takes place (section 153D, POEO Act);
- Licensees must test the PIRMP at least every 12 months and after a pollution incident in accordance with the POEO(G) Regulation (clause 98E); and
- If a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened within the meaning of Part 5.7 of the POEO Act, licensees must immediately implement the PIRMP (section 153F, POEO Act).

As the holder of an EPL, the Development is required to comply with the POEO Act and have a PIRMP. On the 20 January 2016, the EPA agreed that the *Emergency Plan* could be used to satisfy the requirements for a PIRMP providing the specific information requirements of a PIRMP are incorporated in to the Emergency Plan. On this basis, this document has been developed to satisfy the requirements for both an Emergency Plan and PIRMP.

This *Emergency Plan* covers the key actions to minimise the occurrence of a pollution incident and manage a pollution incident if one occurs (both during and after the incident). It also details the procedures for notification of pollution incidents resulting in or having the potential to cause material harm to the environment.

While this *Emergency Plan* has been prepared for managing the impact to human health (employees and nearby neighbours) and the surrounding environment (on-site and off-site), it does not have procedures for the treatment of injured persons or the remediation of the environment following a pollution incident.

Table 3 lists the content requirements of a PIRMP in accordance with the POEO Act and where each of these requirements have been addressed within this *Emergency Plan*.

Table 3 - POEO Act Key Information Requirements

Section 153C	Detail Required	Emergency Plan Section
(a)	The procedures to be followed by the holder of the relevant EPL in notifying a pollution incident to: (i) The owners or occupiers of premises in the vicinity of the premises to which the EPL relates; (ii) The local authority for the area in which the premises to which the EPL relates; and (iii) Any persons or authorities required to be notified by Part 5.7 (of the POEO Act).	Sections 4.3, 4.5 and 6.1
(b)	A detailed description of the action to be taken immediately after a pollution incident, by the holder of the relevant EPL to reduce or control any pollution.	Section 6.4
(c)	The procedures to be followed for coordinating, with the authorities or persons that have been notified, any action taken in combating the pollution caused by the incident and, in particular, the persons through whom all communications are to be made.	Sections 4 and 6
(d)	Any other matter required by the POEO(G) Regulation (as set out below): <i>98C(1)(a) A description of the hazards to human health or the environment associated with the activity to which the licence relates (the relevant activity),</i>	Section 2.2
	<i>98C(1)(b) The likelihood of any such hazards occurring, including details of any conditions or events that could, or would, increase that likelihood,</i>	Sections 2.2 and 2.4
	<i>98C(1)(c) Details of the pre-emptive action to be taken to minimise or prevent any risk of harm to human health or the environment arising out of the relevant activity,</i>	Section 2.4
	<i>98C(1)(d) An inventory of potential pollutants on the premises or used in carrying out the relevant activity,</i>	Section 2.3

Section 153C	Detail Required	Emergency Plan Section
	<i>98C(1)(e) The maximum quantity of any pollutant that is likely to be stored or held at particular locations (including underground tanks) at or on the premises to which the licence relates,</i>	Section 2.3
	<i>98C(1)(f) A description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident,</i>	Section 4.1
	<i>98C(1)(g) The names, positions and 24-hour contact details of those key individuals who: (i) are responsible for activating the plan, and (ii) are authorised to notify relevant authorities under section 148 of the Act, and (iii) are responsible for managing the response to a pollution incident,</i>	Section 4.3.1
	<i>98C(1)(h)The contact details of each relevant authority referred to in section 148 of the Act,</i>	Section 4.3.2
	<i>98C(1)(i)Details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on,</i>	Sections 4.4 and 4.6
	<i>98C(1)(j)The arrangements for minimising the risk of harm to any persons who are on the premises or who are present where the scheduled activity is being carried on,</i>	Sections 2.4 and 5
	<i>98C(1)(k)A detailed map (or set of maps) showing the location of the premises to which the licence relates, the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises and the location of any stormwater drains on the premises,</i>	Figures 1, 2 and 3
	<i>98C(1)(l) A detailed description of how any identified risk of harm to human health will be reduced, including (as a minimum) by means of early warnings, updates and the action to be taken during or immediately after a pollution incident to reduce that risk,</i>	Sections 4.4, 5 and 6
	<i>98C(1)(m) The nature and objectives of any staff training program in relation to the plan,</i>	Section 7.1
	<i>98C(1)(n) The dates on which the plan has been tested and the name of the person who carried out the test,</i>	Page i
	<i>98C(1)(o) The dates on which the plan is updated,</i>	Page i
	<i>98C(1)(p) The manner in which the plan is to be tested and maintained.</i>	Section 7.2

1.4 Definitions

For the purposes of this document, the following definitions are provided:

“Emergency” is defined as a hazardous situation (or threat of a hazardous situation) which requires action to control, correct and return the site to a safe condition and also requires the timely action to protect people, property and the environment from harm.

The level at which a hazardous situation should be regarded an emergency is when the situation endangers, or threatens to endanger, the safety or health of persons or animals and/or destroys or damages, or threatens to destroy or damage, property.

Examples of emergencies include fire, explosion, hazardous materials spill, gas leak, structural failure, natural event (for example, flooding) and transport incident. The likelihood of these emergencies occurring at the Development is discussed in **Section 2**.

“Pollution incident” is defined in the POEO Act as:

an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

A licensee is required to notify the relevant regulatory authorities of a pollution incident if there is a risk of “material harm to the environment”.

“Material harm to the environment” is defined in the POEO Act as:

(a) *harm to the environment is material if:*

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

Harm to the environment includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution.

1.5 Availability

In addressing the requirements of section 153D of the POEO Act and clauses 98B(1) and 98D of the POEO(G) Regulation, a copy of this *Emergency Plan* shall be kept in written form at the Development Site and shall be made readily available to all personnel responsible for implementing the *Emergency Plan* and to any authorised officer (as defined in the POEO Act) on request.

A copy of the *Emergency Plan* will be made publically available within 14 days of finalisation (taken to be authorisation of the *Emergency Plan* by the Site Manager) via the ProTen website www.proten.com.au.

2 HAZARDS

2.1 Facility Description

2.1.1 Site Location

The Development Site comprises approximately 1,160 hectares of rural land positioned approximately 4 km off the Sturt Highway approximately 26 km west of Narrandera and 48 km southeast of Griffith in south-western NSW (see **Figure 1**). It is identified as Lots 1, 41, 42, 44, 45 and 54 in DP 750898 and Lot 1 in DP 1054064, and is located within the Parish of Ourendumbee, County of Boyd and the Local Government Area (LGA) of Narrandera.

2.1.2 Surrounding Residences and Land Use

The Development Site is removed from any urban areas, with the nearest populated area identified as the Narrandera township located approximately 26 km to the east of the Site. As evident on **Figure 4**, there is a very low density of surrounding residential dwellings, with 13 privately-owned residences (including two proposed dwellings) located within the neighbouring and nearby properties. The nearest residences are R5 and R4, which are located approximately 2.1 km and 2.3 km, respectively, to the north of the northern-most PPU (PPU 1).

The primary surrounding land use is traditional agriculture, primarily dry land grazing. An almond farm owned and operated by Select Harvest is located to the north-west and five of the surrounding residences are located within this farm.

The north-west corner of the Development Site abuts the “Banandra” portions of the South West Woodland Nature Reserve and Murrumbidgee Valley National Park.

2.1.3 Development Overview

The Narrandera Poultry Production Complex will be operated in accordance with industry best practice guidelines, in particular the *Best Practice Management for Meat Chicken Production in NSW* (Department of Primary Industries [DPI] 2012), and will comprise five PPUs where broiler birds will be grown for human consumption.

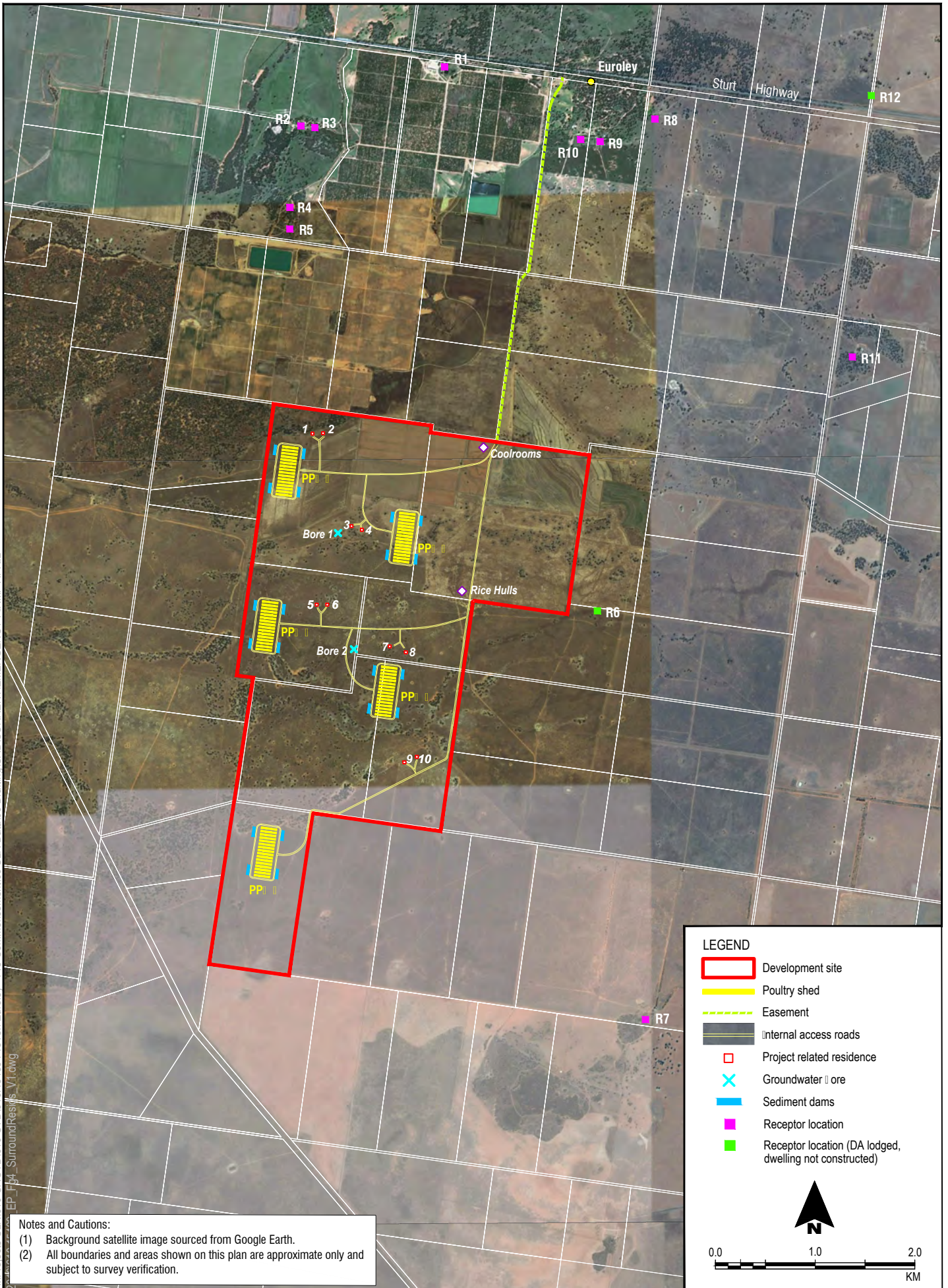
As shown on **Figures 2 and 3**, each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. Each shed will have the capacity to house 49,000 birds, equating to a total Development population of up to 3,920,000 birds. There will be 10 new dwellings constructed to accommodate the farm managements and assistance farm managers.

The Development will be relatively small, with a combined disturbance footprint of less than 10 percent of the Development Site. The commercial activity associated with the Development will be largely confined to the PPU areas (see **Figure 2**). It is intended to continue using the land outside of the disturbance footprint within the Development Site for continued agricultural production purposes under some form of lease or share farming arrangement.

While the Development will operate 24 hours a day, seven days a week, the majority of activity will be carried out between 7.00 am and 7.00 pm. For reasons of livestock welfare, as the birds reached their desired processing (slaughter) weight they will be removed from the sheds and transported off site between 12.00 am and 12.00 pm, when it is cooler and the birds are more settled.

The cycle of a broiler production complex typically lasts about nine weeks, with a maximum bird occupation of eight weeks and a “down-time” of close to one week for cleaning in preparation for the next batch of birds. There will be approximately 5.7 production cycles per year.

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

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2.1.4 Separation Distances

Separation distances are used to reduce the potential for adverse impacts upon the environment and surrounding receptors, including odour, noise and biosecurity, and traditionally extend across adjoining properties that are not owned by the poultry complex operator.

Table 4 lists the minimum separation distances afforded between the PPUs and notable surrounding features in the natural and built environments. The separation distances are approximate only and have been scaled from satellite imagery and topographic mapping.

Table 4 - Separation Distances

Feature	Minimum Distance from PPUs	Comments
Urban / residential area	26,000 metres	Narrandera township
Surrounding residences	2,100 metres	Dwelling to the north of the northern-most PPU
Property boundaries	100 metres	
Public road	4,000 metres	Sturt Highway
Other poultry farm	20,000 metres	Breeder farms on Donald Ross Drive, south-east of Darlington Point. Nearest broiler farm is 35 km to the north-west.
Watercourse	9,700 metres	Yanco Creek to the east
Remnant vegetation	100 metres	Banandra portion of the South West Woodland Nature Reserve

2.2 Hazards Identification

SLR undertook a *Preliminary Risk Screening* in accordance with *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* (DoP 2011) (SEPP 33) and also a *Preliminary Hazard Analysis* in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011) (HIPAP 6) as part of the EIS (SLR 2015a). The procedure adopted for assessing hazardous impacts involved:

1. Hazard identification;
2. Hazard analysis (consequence and probability estimations); and
3. Risk evaluation and assessment against specific criteria.

The only potential hazard identified for the Development was the storage and transport of LPG, specifically the risk of an LPG fire.

Based on these preliminary assessments and other development documentation, the primary types of hazards identified for the Development in this Emergency Plan are:

- LPG leak or explosion;
- Fire in or around the poultry sheds;
- Spill of hazardous material (chemical or fuel); and
- Transport incident.

Flooding hazards have been addressed within the *Flooding Emergency and Evacuation Plan* (SLR 2016b), which is also appended to the OEMP (SLR 2016a). The *Flooding Emergency and Evacuation Plan* contains a flood management plan aimed at ensuring the safety of farm workers, the survival of the birds on site that are too young for processing and the safe removal of birds that are ready for off site processing. On this basis, this *Emergency Plan* does not address flooding hazards and the reader is directed to the *Flooding Emergency and Evacuation Plan* (SLR 2016b).

2.2.1 LPG Leak or Explosion

The Development will include eight 7,500 litre LPG tanks at each PPU. This amounts to 60,000 litres at each PPU and a combined total of 300,000 litres at the Development Site. The locations of the LPG tanks at each PPU can be seen on **Figure 3**.

The *Preliminary Risk Screening* (SLR 2015c) concluded that the total quantity of liquid petroleum gas (LPG) to be stored on site is above the SEPP 33 screening threshold. The only other dangerous goods on site will be sodium hypochlorite, petrol and diesel, all of which will be quantities below the respective SEPP 33 threshold.

The conclusions of the *Preliminary Hazard Analysis* (SLR 2015c) undertaken for LPG include:

- The LPG total storage will be separated into five areas (i.e. the five PPUs) and these areas are approximately 1 kilometre apart.
- The surrounding area is lightly populated with the closest potential residence over 2 km from the Development Site boundary and the nearest population centre, being Narrandera, is approximately 26 km away.
- The operation of the proposed development meets the criteria laid down in *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning* (DoP 2011) (HIPAP 4) and would not cause any risk, significant or minor, to the community.
- Other spill, fire and incident events are not likely to extend significantly beyond the boundary of the Site, with the exception of a major facility fire where, regardless of the type of operation there will always be a risk of potentially harmful smoke plumes downwind from a fire. In the majority of large fires the buoyant nature of a smoke plume means any potentially harmful materials are rapidly dispersed.
- LPG storage at each PPU is well within the storage and handling requirements of *AS/NZS 1596:2014 The Storage and Handling of LP Gas*, both for public places and protected places, including on-site residences and work areas.
- The development meets all the requirements stipulated by the Department of Planning and Environment (DP&E) and given the suitable engineering and design controls to be implemented (as per *AS/NZS 1596:2014*), along with the significant separation distances, it is not considered to be an offensive or hazardous development on site and does not pose a significant off-site risk.

On the basis of these conclusions, further consequence analysis was not considered necessary.

Under the current design there have not been any changes to the development infrastructure or layout since preparation of the *Preliminary Hazard Analysis* (SLR 2015c), with the exception of relocations of the on-site dwellings numbered 4, 7, 8, 9 and 10 and groundwater bore 2. These relocations were undertaken to reduce the flood risk, improve access and/or reduce potential environment impacts upon the dwellings (i.e. greater separation from the poultry sheds). These relocations do not change the hazard assessment findings.

Under the current design there have not been any changes to the development safeguards, including in relation to LPG. The *Preliminary Hazard Analysis* (SLR 2015c) noted that the proposed LPG storage facilities have been designed by Elgas (long-standing and reputable LPG supplier) and conform to *AS/NZS 1596:2014*. The design criteria have been subsequently confirmed by Elgas as set out in the Elgas Vapour Tank Layout contained in **Appendix A**.

2.2.2 Fire In or Around the Poultry Sheds

Fires could be the result of an LPG leak or explosions (see above) or other event, such as:

- Diesel or petrol incident;
- Chlorine storage incident;
- High voltage electrical infrastructure incident; or
- Incident involving combustible materials.

The *Fire Study Report* (EACOM 2016) prepared for the Development addressed the potential for fires from the other potential sources listed above. It deemed all fire hazards as “possible” or “remotely possible” (no “likely” or “almost certain” hazards) and ranked them as “medium” and “low” risks (no “high” risks). A number of fire prevention strategies/measures were recommended to further reduce the likelihood of fires and/or reduce their extent (see **Section 2.4.2**).

2.2.3 Spill of Hazardous Material

The only chemicals that will be used at the Development will be for the following purposes:

- Sanitation of the poultry sheds during the cleaning phase at the end of each production cycle;
- Sanitation of vehicles passing through the wheel wash;
- Disinfection of the water supply;
- Pest and vermin control (when necessary); and
- Weed control (when necessary).

Section 2.3 contains an inventory of hazardous substances, chemicals and fuels, including storage locations and volumes. The storage locations for these pollutants are shown on **Figure 3**. The *Preliminary Hazard Analysis* (SLR 2015c) concluded that the Development will not store chemicals at quantities to be classified as an “industrial” or “commercial” site.

A chemical supply company will be engaged to provide a chemical delivery and pick up service direct to the Development. It is the usual practice for sanitisation chemicals to be delivered to the Site only a few days prior to the commencement of the cleaning phase in order to minimise on-site chemical storage. Appropriate chemical storage facilities will be provided at each PPU for the short-term storage of the limited volumes of chemicals delivered to the Site. At each delivery of new chemical supplies, all empty chemical containers will be retrieved by the chemical company for reuse, recycling or appropriate disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or appropriate disposal. Any non-returnable chemical containers can be collected and managed via the *drumMUSTER* program.

Given the limited applications and management practices, the potential for significant spills is considered relatively low.

2.2.4 Transport Incident

The Development is a poultry production farm requiring on-going traffic movements, including heavy vehicles, in and out of the Site. While the internal speed limit for all vehicles will be limited to 60 kilometres per hour (km/hour) along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour in the vicinity of all work sites, there will still be the potential for vehicle incidents.

2.3 Inventory of Hazardous Materials, Chemical and Fuels

Table 5 provides a summary of the hazardous materials, chemicals and fuels to be stored and/or used at the Development. The storage locations for these materials are shown on **Figure 3**.

Table 5 - Inventory of Hazardous Materials, Chemical and Fuels

Substance	Hazardous Class	Storage Location(s)	Maximum Quantity
LPG	Class 2.1	8 x 7,500 litre tanks at each PPU	Each PPU - 60,000 litres (60 m ³) Total - 300,000 litres (300 m ³)
Sodium Hypochlorite (10-30%) (bleach, disinfectant)	Class 8	2 x 200 litre drums at each PPU	Each PPU - 400 litres Total - 2,000 litres
Petrol	Class 3	1 x 700 litre tank at each PPU	Each PPU - 700 litres Total - 3,500 litres
Diesel	N/A or Class 3 if stored with flammable liquids	1 x 2,500 litre tank at each PPU	Each PPU - 2,500 litres Total - 12,500 litres
Agri-Quat (disinfectant, sanitiser)	N/A	2 x 25 litre drums at each PPU	Each PPU - 50 litres Total - 250 litres
Ditrac (rodenticide)	N/A	20 kilograms at each PPU	Each PPU - 20 kilograms Total - 100 kilograms
Glister (herbicide)	Class 2.1 if an aerosol; Class 9 if other	20 kilograms at each PPU	Each PPU - 20 kilograms Total - 100 kilograms
Microgard 755N or Micro-4 (sanitiser)	Class 9	25 litre drum at each PPU	Each PPU - 25 litres Total - 125 litres
Chlorine dioxide (water supply treatment)	N/A if less than 3% aqueous solution	8 x 30 litre drums at each PPU	Each PPU - 240 litres Total - 1,200 litres
Unicide (sanitiser)	N/A	100 litre drum at each PPU	Each PPU - 100 litres Total - 500 litres
Unicide d (sanitizer)	N/A	100 litre drum at each PPU	Each PPU - 100 litres Total - 500 litres
Roundup (Glyphosate, herbicide)	N/A	25 litre drum at each PPU	Each PPU - 25 litres Total - 125 litres
Goal (herbicide)	N/A (given less than 500 L receptacles)	10 litre drum at each PPU	Each PPU - 10 litres Total - 50 litres

2.4 Mitigation Measures and Management Strategies

The following sub-sections outline some of the key pre-emptive actions (i.e. mitigation measures and management strategies) that ProTen has committed to implementing in order to minimise the risk for emergency situations and pollution incidents.

2.4.1 LPG Management

As outlined in **Section 2.2**, SLR undertook a *Preliminary Risk Screening* (SLR 2015c) in accordance with SEPP 33 and also a *Preliminary Hazard Analysis* (SLR 2015c) in accordance with HIPAP 6 as part of the EIS (SLR 2015a). The following mitigation measures and management strategies for LPG were identified:

- The storage of LPG will be separated into five areas (i.e. the five PPUs) and these areas are approximately 1 kilometre apart.
- The location of the above-ground LPG storage tanks will comply with the following requirements for ventilation, access and set up:
 - Above-ground storage tanks will be in the open air, outside buildings;
 - Nearby construction, fences, walls, vapour barriers and the like will permit free access around the tanks and cross-ventilation for the tanks; and
 - The largest LPG storage tanks will have a diameter of 1.2 metres and, as such, adjacent LPG tanks will be separated by 1.2 metres.
- LPG storage at each PPU will be well within the storage and handling requirements of *AS/NZS 1596:2014 The Storage and Handling of LP Gas* for both public places (i.e. South West Woodland Nature Reserve, Murrumbidgee Valley National Park and residences) and private places (i.e. buildings where people are employed or reside within the Development Site). Importantly, the location of the storage tanks will readily exceed the 10 metre minimum separation distance from a public place and the 17 metre minimum separating distance from a protected place.
- The operation of the Development will meet the criteria laid down in *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning* (DoP 2011) (HIPAP 4).
- The LPG storage facilities have been designed by Elgas (long-standing and reputable LPG supplier) and conform to *AS/NZS 1596:2014*. The design criteria have been subsequently confirmed by Elgas as set out in the Elgas Vapour Tank Layout contained in **Appendix A**.
- LPG will be delivered to the Development Site in specific-purpose rigid trucks at a frequency of less than once per week.

SLR (2015c) concluded that the Development meets all the requirements stipulated by the DP&E and given the suitable engineering and design controls to be implemented (as per *AS/NZS 1596:2014*), along with the significant separation distances, it is not considered to be an offensive or hazardous development on site and does not pose a significant off-site risk.

2.4.2 Fire Management

In accordance with the recommendations of the *Fire Study Report* (EACOM 2016), the following fire prevention strategies will be implemented in order to minimise the likelihood of a fire and/or reduce a fire's sensitivity or extent:

- The buildings have been designed and will be installed compliant with the requirements of the *Building Code of Australia* (BCA).
- Electrical installations will be installed and maintained compliant with relevant Australian Standards, including *AS 3000:2007 - Electrical Wiring Rules*.
- Fire extinguishers, fire blankets and hose reels will be installed at designated locations compliant with relevant Australian Standards. The extinguishers will be determined by fuel source, with water extinguishers installed for combustible materials and ABE powder extinguishers installed for wide coverage of combustible and electrically-generated fires.
- Due to the need to connect fire hydrants and hose reels, on-site water storage will be compliant with *Australian Standards 2419.1 2005 – Fire Hydrant Installations*.
- Appropriate warning/identification signs will be installed for fuels and fire protection equipment.
- Certified diesel, petrol and LPG tanks will be installed.
- Foam extinguishers will be installed with the capacity to cover the surface area of the diesel/petrol bund area.

- Fuel tank bund design will include minimum capacities for the applicable storage size of the fuel tank(s).
- The diesel, petrol and LPG storage (i.e. dissimilar fuels) will be separated from each other and located at equidistant points from one another while still be within safe working distance to the poultry sheds.
- Annual maintenance and testing will be undertaken for high voltage electricity infrastructure.
- General housekeeping procedures will be regularly undertaken to ensure any trees/shrubs in the vicinity of electrical installations are adequately pruned or removed to maintained clearance and the areas around electrical installations are kept clear of any combustible materials.
- Site-specific training for employees and contractors in the use of fire extinguishing/protection equipment.

EACOM (2016) deemed all fire hazards as “possible” or “remotely possible” (no “likely” or “almost certain” hazards) and ranked them as “medium” and “low” risks (no “high” risks).

2.4.3 Hazardous Materials Management

As outlined in **Section 2.2.3**, the only chemicals that will be used at the Development will be for sanitation and disinfection purposes, pest and vermin control (when necessary) and weed control (when necessary). The *Preliminary Hazard Analysis* (SLR 2015c) concluded that the Development will not store chemicals at quantities to be classified as an “industrial” or “commercial” site.

Given the limited applications and management practices, the potential for an incident from chemical use and storage within the Site is considered relatively low. The following mitigation measures and management practices will be employed to further minimise the potential for an incident at the Development Site:

- Employees and contractors will be instructed in the proper use and handling of all chemicals used on site, as well as incident management procedures. If appropriate, this will include completion of training such as *SMARTtrain* or *ChemCert* (or similar).
- Spill kits will be provided and maintained at strategic locations within the Development Site.
- All chemical use will be undertaken in full compliance with the relevant statutory requirements, including the *Pesticides Act 1999*.
- Where appropriate, chemicals used will be approved by the Australian Pesticide and Veterinary Medicine Authority as safe and fit for that particular use.
- A chemical storage container/shed that is appropriately sealed and bunded, and with appropriate signage, will be installed for the limited volumes of chemicals to be stored on site.
- The diesel and petrol tanks will be stored within bunded areas with a minimum bund volume of 110 percent of the volume of the largest single stored volume within the bund.
- Copies of the Safety Data Sheet (SDS) for each chemical and fuel used on site will be kept within each chemical storage facility and each PPU Site Office.
- It is the usual practice for sanitisation chemicals to be delivered to the Site only a few days prior to the commencement of the cleaning phase in order to minimise on-site chemical storage.
- Empty chemical containers will be retrieved by/returned to the chemical supply company for recycling, reuse or appropriate disposal. Alternatively a licensed contractor will be engaged to provide a chemical container pickup service for recycling, reuse or appropriate disposal. Any non-returnable chemical containers can be collected and managed via the *drumMUSTER* program.

Chemical or Fuel Spill:

- The actions specified on the relevant SDS will be implemented in the event of a minor chemical spill.
- In the event of a major spill, which is considered highly unlikely given the relatively low volumes of chemicals and fuels to be stored on site and the above management measures, the following procedure will be implemented:
 - The EPA and/or other appropriate regulatory authority will be contacted and advised of the nature of the chemical spill or incident, and any instructions issued by the authority will be strictly adhered to.
 - Where possible, spilled material will be contained used vermiculite or similar absorbing material, and/or recovered into suitable containers.
 - Any contaminated soil and/or absorption material will be collected, managed and disposal of as advised by the regulatory authority.
 - Clean soil will be brought in once all contaminated material has been removed.
- The *Environmental Incident Management Protocol* in **Section 6**, including notification requirements, will be followed in the event of a spill/incident.

2.4.4 Transport Incident

The following traffic controls will be implemented to minimise the potential for a traffic incident at the Development Site:

- All operational traffic will enter and exit the Development Site via the Sturt Highway intersection and access road.
- 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.
- Where possible, vehicles (in particular heavy vehicles) will be confined to the designated internal site access roads.
- The ring roads around the perimeter of each PPU will be maintained as one-way circulation roads to enable heavy vehicles to enter, exit and manoeuvre in a forward direction.
- Internal roads will be maintained clear of obstruction and used exclusively for the purposes of transport, loading-unloading and parking.
- Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour in the vicinity of all work sites.
- All drivers will read and sign a “driver’s code of conduct”.

3 TYPES AND LEVELS OF EMERGENCIES

3.1 Types of Emergency

As discussed above in **Section 2**, the primary types of hazards identified for the Development in this *Emergency Plan* are:

- LPG leak or explosion;
- Fire in or around the poultry sheds;
- Spill of hazardous material (chemical or fuel); and
- Transport incident.

Flooding hazards have been addressed within the *Flooding Emergency and Evacuation Plan* (SLR 2016b), which is also appended to the OEMP (SLR 2016a). The *Flooding Emergency and Evacuation Plan* contains a flood management plan aimed at ensuring the safety of farm workers, the survival of the birds on site that are too young for processing and the safe removal of birds that are ready for off site processing.

3.2 Levels of Emergency

With reference to HIPAP 1, the three levels of emergency are defined in **Table 6**.

Table 6 - Levels of Emergency

Local Alert	Site Alert	External Alert
An emergency where the potential impacts to people, property and the environment: <ul style="list-style-type: none"> • are expected to be confined to a specific location within the Development Site 	An emergency where the potential impacts to people, property and the environment: <ul style="list-style-type: none"> • are expected to spread to or affect other locations within the Development Site 	An emergency where the potential impacts to people, property and the environment: <ul style="list-style-type: none"> • are expected to spread to or affect areas beyond the boundary of the Development Site
Minor Emergency Emergency services: <ul style="list-style-type: none"> • May be required 	Minor / Major Emergency Emergency services: <ul style="list-style-type: none"> • Likely required 	Major Emergency Emergency services: <ul style="list-style-type: none"> • Will be required
Examples: <ul style="list-style-type: none"> • Ruptured chemical drum in chemical storage facility • Minor on-site vehicle collision 	Examples: <ul style="list-style-type: none"> • Petrol tank/bund fire 	Examples: <ul style="list-style-type: none"> • LPG tank explosion • High voltage electrical infrastructure fire

4 RESOURCES AND RESPONSIBILITIES














4.1 Emergency Equipment

Table 7 lists the key safety equipment to be maintained at the Development Site.

Table 7 - Key Safety Equipment

Item	Location(s)	Maintenance Requirement
Fire extinguishers	Designated locations compliant with relevant AS	Maintenance and testing every 6 months
Fire blankets		
Hose reels		
SDSs	Chemical storage facility and PPU Site Office	Checked for currency every 12 months
First Aid Kits	PPU Site Office	Checked for currency every 12 months
Spill Kits	Chemical storage facility	Checked for currency every 2 years
Personal Protective Equipment (PPE)	PPU Site Office	As required and needed

Figure 5 illustrates the various types of fire extinguishers.

Pre 1997	Current	Extinguishing Agent	A	B	C	E	F	Comments	D	
			Wood Paper Plastic	Flammable & Combustible Liquids	Flammable Gases	Electrically Energised Equipment	Cooking Oils and Fats			Metal Fires
		Water	✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires	Use only special purpose extinguishers and seek expert advice.	
		Wet Chemical	✓	✗	✗	✗	✓	Dangerous if used on energised electrical equipment		
		Foam*	✓	✓	✗	✗	LIMITED	Dangerous if used on energised electrical equipment		
		Powder	(ABE)	✓	✓	✓	✓	✗		Look carefully at the extinguisher to determine if it is a BE or ABE unit as the capability is different
			(BE)	✗	✓	✓	✓	✓		
		Carbon Dioxide	LIMITED	LIMITED	✗	✓	✗	Not suitable for outdoor use or smouldering deep seated A Class Fires		
		Vaporising Liquid	✓	LIMITED	LIMITED	✓	✗	Check the characteristics of the specific extinguishing agent. 5 Yearly servicing must be done by ODS & SGG licenced persons.		
		Fire Blanket	LIMITED*	LIMITED	✗	✗	✓	* Fire Blankets may be used as a thermal barrier against radiated heat and to control a fire in clothes being worn by a person.		

LEGEND
 ✓ = the class or classes in which agent is most effective
 ✗ = not recommend for these class of fires
 For more information go to: www.fpa.com.au
 LIMITED = indicates that the Extinguishant is not the agent of choice for the class of fire, but it may have a limited extinguishing capability
 * Solvents such as alcohol or acetone mix with water and therefore require special foam
 © FPA Australia ABN 30 005 368 576

Figure 5 - Types of Fire Extinguishers

4.2 Emergency Control Centre

The Site Office at each PPU will act as an Emergency Control Centre in the event of an emergency. An *Emergency Resource Pack* containing up-to-date copies of the following information will be maintained at each Site Office as a resource to Site Management, the Site Warden and emergency service personnel as required:

- This *Emergency Plan*, including the upfront *Emergency Services Information Package*.
- A separate one pager containing the ProTen and regulatory authority contact details listed in **Tables 8** and **9**, respectively.
- The SDS for each chemicals and fuel on site.

4.3 Key Contacts

4.3.1 ProTen

The management and implementation of this *Emergency Plan* is to be undertaken by the key company individuals listed in **Table 8**. These individuals are responsible for activating the *Emergency Plan*, managing the response to the incident and are authorised to notify relevant authorities.

Table 8 - ProTen Key Contacts

Key Contact	Company Position	Contact Details
<Name>	PPU 1 Farm Manager	TBA
<Name>	PPU 2 Farm Manager	TBA
<Name>	PPU 3 Farm Manager	TBA
<Name>	PPU 4 Farm Manager	TBA
Daniel McCoustra	PPU 5 Farm Manager Site Warden	TBA
Craig Harpur	Griffith Regional Manager	Ph: 0428 255 428 Email: craigh@proten.com.au
Bill Williams	National Operations Manager	Ph: 02 6964 2346 / 0447 062 339 Email: bwilliams@proten.com.au
ProTen Head Office (Sydney)	-	Ph: 02 9458 1700

Whilst personal contact details are listed in the controlled version of the *Emergency Plan* maintained on site, they do not appear in the public document under provision of the *Privacy and Personal Information Protection Act 1998*.

4.3.2 Regulatory Authorities

Table 9 lists the contact details for the regulatory authorities that should be notified in the event of a pollution incident at the Development.

Table 9 - Regulatory Authorities Contacts

Appropriate Regulatory Authority	Key Contact	Contact Details
Environment Protection Authority	Environmental Line	Ph:- 131 555 <i>This will result in the incident being recorded and the appropriate person being contacted.</i>
	Griffith Regional Office	Ph: 02 6969 0700
NSW Health	Central Office	Ph: 1800 020 103
WorkCover NSW	Incident Notification Hotline (Response Management Team)	Ph: 131 050 <i>Select Option 3 to report a 'Serious Incident or Fatality' - this will result in the incident being recorded and the appropriate person being contacted.</i>
Local Authority (Council)	Narrandera Shire Council – Development and Environmental Services Department	Ph: 02 6959 5510 (8.15 am to 4.30 pm weekdays) <i>After hours and emergency contacts: Council Ranger – 0429 043719</i>
Emergency Services (Fire and Rescue NSW, NSW Ambulance and NSW Police)		Emergency - Ph: 000 Fire and Rescue - Ph: 1300 729 579

4.4 Activation and Termination of the Emergency Plan

Any person that becomes aware of an incident/situation that is likely to give rise to an emergency or a pollution incident will:

- **Consider** if they are able to control the incident/situation alone;
- If safe do to so, undertake reasonable actions to **control** the incident/situation;
- Raise the **alarm** by contacting the Site Warden who will decide on the level of emergency and required actions, including activation of this *Emergency Plan* and contacting emergency services; and
- **Assist** others in immediate danger.

If in doubt, the alarm should be activated by contacting the Site Warden.

Once the incident/situation no longer presents a potential emergency/pollution incident or the resulting emergency/pollution incident has been successfully handled, the Site Warden can decide to terminate the use of the *Emergency Plan*. For this to occur, the role of the emergency services (if called) must be complete and site control handed back to the Site Warden.

Various remedial action may be necessary to address the cause of the emergency/pollution incident and mitigate any further environmental impact, along with address any damaged equipment, contaminated soil, etc. In some instances, outside resources such as specialist contractors/consultants may be required.

Employees will only return to work once the Site Warden gives the “all clear”.

Every emergency and pollution incident (including cause, actions and notifications) is to be recorded by ProTen, with the completed report/form provided to the relevant regulatory authorities (as required) and maintained for at least four years.

4.5 Immediate Notification of an Emergency

In the event of an emergency, the emergency services must be contacted immediately by telephoning “000” if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, NSW Police and NSW Ambulance Service are the first responders, as they are responsible for controlling and containing emergencies.

4.6 Immediate Notification of a Pollution Incident

All employees and contractors at the Development are responsible for notifying Site Management (see **Table 8**) to hazards and potential hazards that may result in an emergency or pollution incident, regardless of the nature or scale.

Notification responsibilities for incidents that have caused or threaten to cause material harm to the environment (see **Section 1.4**) are detailed in section 148 of the POEO Act. In summary, these can be categorised broadly as:

- The duty of an employee or any person undertaking an activity:
Any person engaged as an employee or undertaking an activity must, immediately after becoming aware of the incident, notify Site Management (see **Table 8**) of the incident and all relevant information about it. If Site Management cannot be contacted, the person is required to notify the relevant authorities.
- The duty of the employer or occupier of a premises to notify:
An employer or occupier of the premises (i.e. in this case, Site Management) on which the incident occurs, who is notified (or otherwise becomes aware of) of the incident, must notify the relevant authorities (see **Table 9**) about the incident and all relevant information.

4.7 Communication with Neighbours and the Local Community

As outlined in **Section 2.1.2**, the Development Site is removed from any urban areas and there is a low density of surrounding residential dwellings. The nearest populated area is identified as the Narrandera township located approximately 26 km to the east of the Site.

In the event of an emergency or pollution incident, ProTen has established the following processes for contacting the local community:

- Site Management will immediately contact the relevant regulatory authorities as listed in **Section 4.3.2** and outlined in **Sections 4.5** and **4.6**.
- Site Management will consult with these authorities to determine if the community is to be notified of the emergency/pollution incident. Site Management will discuss the most appropriate communication strategy with the regulatory authorities (for example, media release, local radio, direct contact with those potentially impacted).
- When determining the appropriate response and notification process for a particular emergency/pollution incident, all aspects of the event will be taken into consideration (for example, type and extent of pollution). Notification strategies may include door knocking, letter drop, phone calls, SMS or email (where contact details are available), notifications on the ProTen website and/or other forms of social and mass media as appropriate to the circumstances.

A list of community contact details will be maintained on-site should notification be required.

5 SITE EVACUATION PROCEDURE

Minimising the impact to persons at the Development Site during an emergency or pollution incident must be the highest priority.

All employees and contractors are inducted and trained prior to completing any work on site. The induction covers procedures for minimising the chance of an emergency and pollution incident, notification processes, managing an emergency/pollution incident and actions required following an emergency/pollution incident.

In the event that an emergency requires the evacuation of the Development Site, the following site evacuation procedure will be followed:

- The alarm system will be sounded;
- The Site Warden (see **Table 8**) (or other staff member nominated by the Warden in his/her absence) will contact emergency services by telephoning “000” if the incident presents an immediate threat to human health or property;
- Any instructions provided by the emergency services will be strictly followed;
- All employees and contractors on site at the time will promptly stop work and move to the nearest emergency assembly area (as shown on **Figure 3**) and remain there until instructed to leave;
- The Site Warden (or other staff member nominated by the Warden in his/her absence) will perform a role call;
- If evacuation from the site is necessary, the Site Warden will lead/direct evacuation via the site’s primary access to the Sturt Highway or, if necessary, via an adjoining property (subject to instructions from Emergency Services);
- Employees will only return to work once the Site Warden gives the “all clear”; and
- ProTen’s National Operations Manager (see **Table 8**) is to be notified as soon as possible following the emergency event.

All employees and contractors will be informed of the location of emergency assembly areas through site inductions, signage and on-going training.

6 INCIDENT MANAGEMENT PROTOCOL

6.1 Notification Requirements

All employees and contractors at the Development are responsible for notifying Site Management (see **Table 8**) to hazards and potential hazards that may result in an emergency or pollution incident, regardless of the nature or scale.

Notification responsibilities for incidents that have caused or threaten to cause material harm to the environment (see **Section 1.4**) are detailed in section 148 of the POEO Act. In summary, these can be categorised broadly as:

- The duty of an employee or any person undertaking an activity:
Any person engaged as an employee or undertaking an activity must, immediately after becoming aware of the incident, notify Site Management (see **Table 8**) of the incident and all relevant information about it. If Site Management cannot be contacted, the person is required to notify the relevant authorities.
- The duty of the employer or occupier of a premises to notify:
An employer or occupier of the premises (i.e. in this case, Site Management) on which the incident occurs, who is notified (or otherwise becomes aware of) of the incident, must notify the relevant authorities (see **Table 9**) about the incident and all relevant information.

6.2 Actions During an Emergency or Pollution Incident

ProTen aims to effectively respond to any emergency or pollution incident and promptly prevent or reduce any adverse environmental impact. Site Management is responsible for coordinating this *Emergency Plan* in the event of an emergency or pollution incident and ensure that all employees and contractors are appropriately trained.

Upon becoming aware of a pollution incident, Site Management is required to follow these steps:

(1) Preventative Action

Where possible and safe to do so, immediate action should be taken to prevent, stop, contain and/or minimise the environmental impact of the incident. The situation should be visually assessed and emergency response undertaken if required.

In the event that a pollution incident requires the evacuation of the site, actions will be completed in accordance with the site evacuation procedure outlined in **Section 5**. All employees and contractors will be informed on the location of emergency assembly areas (see **Figure 3**) through site inductions, signage and on-going training.

(2) Assistance

Where assistance is required in handling the situation, ProTen's National Operations Manager should be contacted (see **Table 8**).

Where the incident is reported via a regulatory authority (for example, the EPA), the National Operations Manager must be notified immediately (even if outside of normal business hours).

The person reporting the pollution incident should provide the following key details:

- Location of the pollution incident;
- Nature of the pollution incident;
- Their name and contact details; and
- Details of any assistance required.

If adequate resources are not available and the incident threatens human health or property, Fire and Rescue NSW should be contacted by telephoning “000” for emergency assistance. Contacting Fire and Rescue NSW does not negate the notification requirements in **Section 6.1**.

(3) Notify

Under the provisions of the POEO Act, there is a duty to notify any incident that has caused or threatens to cause material harm to the environment and all relevant information about the incident. The specific duties to notify are outlined above in **Section 6.1**. The relevant authorities required to be notified are listed in **Table 9**.

In the event of a serious pollution incident or emergency, it is more than likely that the EPA and/or Fire and Rescue NSW will take control and manage the required investigation and remedial activities. Any instructions issued must be strictly adhered to.

(4) Investigate

Investigate work must be undertaken to determine the cause of the incident.

(5) Remedial Action

Appropriate remedial action must be undertaken to address the cause of the incident and mitigate any further environmental impact. In some instances, outside resources such as specialist contractors/consultants may be required.

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar events in the future. On this basis, every environmental incident is to be recorded on ProTen’s standard *Environmental Incident Report Form* contained within **Appendix B**. A copy of the completed form will be maintained for at least four years.

6.3 Chemical or Fuel Spill

In the event of a minor chemical spill, Site Management will implement the actions specified on the relevant SDS.

In the event of a major spill, which is considered highly unlikely given the relatively low volumes of chemicals and fuels to be stored on site and the management measures to be implemented (see **Sections 2.3** and **2.4**), Site Management will implement the following procedure:

- The EPA and/or other appropriate regulatory authority will be contacted and advised of the nature of the spill or incident, and any instructions issued by the authority will be strictly adhered to.
- Where possible, spilled material will be contained using vermiculite or similar absorbing material, and/or recover into suitable containers.
- Any contaminated soil and/or absorption material will be collected, managed and disposal of as advised by the regulatory authority.
- Clean soil will be brought in once all contaminated material has been removed.

6.4 Actions Following an Emergency or Pollution Incident

Following a pollution incident, a detailed incident investigation will be completed by Site Management and the *Environmental Incident Report Form* and, if necessary, a separate investigation report, will be issued to the EPA and any other relevant regulatory authority. A copy of the completed *Environmental Incident Report Form* and investigation report (if prepared) will be maintained for at least four years.

Depending on the nature and/or extent of the pollution incident, and as outlined in **Section 4.7**, ProTen will consult with the relevant authorities when determining whether the community will be notified. If the community is to be notified, ProTen will decide the most appropriate consultation/notification strategy with the relevant authorities.

Within a month following a pollution incident, this *Emergency Plan* will be reviewed and tested. ProTen will liaise with the relevant authorities to reduce the likelihood of the pollution incident re-occurring.

All employees and contractors will receive the necessary refresher training, and the key outcomes of the incident investigation will be reported to employees and contractors.

7 TRAINING AND TESTING

7.1 Inductions and Training

ProTen Site Management will ensure that all employees and contractors are suitably inducted and trained prior to commencing any work on site.

Training in relation to this *Emergency Plan* will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar). The objective of this training is to ensure all employees and contractors are aware of the key steps required to respond to and manage an emergency or pollution incident. In the event of an emergency or pollution incident, refresher training will be delivered to employees and contractors.

Employees and contractors will also be provided with the following specific training (as needed);

- The location and use of fire safety and first aid equipment;
- The location of emergency assembly areas; and
- The proper use and handling of all hazardous materials, chemicals and fuels used on site, as well as incident management procedures. If appropriate, this will include completion of training such as *SMARTtrain* or *ChemCert* (or similar).

7.2 Emergency Plan Testing and Review

This *Emergency Plan* will be reviewed and tested every 12 months as per the requirement of the POEO(G) Regulation. Review and testing is to be carried out in such a manner as to ensure that the information included in the *Emergency Plan* is accurate and up to date, and that the *Emergency Plan* is capable of being implemented in a workable and effective manner.

The *Emergency Plan* will be reviewed and tested each year in September. If necessary, revisions to the document will be made to ensure currency. Testing will involve employees and contractors reviewing and discussing a factsheet outlining key elements of the *Emergency Plan*, followed by the completion of a two-page quiz on the requirements for various emergency and/or pollution incident scenarios. ProTen will record each test and those that completed the test, and will maintain this record for at least four years.

The *Emergency Plan* will also be reviewed and tested within one month of any emergency or pollution incident. This is to assess, in the light of that emergency/incident, whether the information included in the *Emergency Plan* is accurate and current, and the *Emergency Plan* is still capable of being implemented in a workable and effective manner.

All employees and contractors will be informed of any revisions to the *Emergency Plan* by ProTen Site Management during toolbox talks.

8 REFERENCES

EACOM (2016) *Fire Study Report, ProTen Holdings, Proposed Development Site, Sturt Highway, Euroley NSW*

Environment Protection Authority (2012) *Guideline for the Preparation of Pollution Incident Response Management*

Department of Planning (2011) *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines*

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 1 – Emergency Planning Guidelines*

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning*

Department of Planning (2011) *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis*

SLR Consulting Australia (2015a) *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement*

SLR Consulting Australia (2015b) *Euroley Poultry Production Complex SSD 6882, Response to Submissions*

SLR Consulting Australia (2015c) *SEPP 33 – Preliminary Risk Screening and Hazard Assessment, Intensive Livestock Agriculture, Euroley Poultry Production Complex*

SLR Consulting Australia (2016a) *Narrandera Poultry Production Complex (SSD 6882), Operational Environmental Management Plan*

SLR Consulting Australia (2016b) *Narrandera Poultry Production Complex (SSD 6882), Flooding Emergency and Evacuation Plan*

APPENDIX A

PUBLIC PLACE

Any place, other than private property, open to the public and including a street or road. Public areas for commercial and public buildings are not treated as public places.

PROTECTED PLACE

Any of the following:

- a) A dwelling, place of worship, public building, school or college, hospital, theatre or any building or open area in which persons are accustomed to assemble in large numbers, whether within or outside the boundary of the installation.
- b) A factory, office, workshop, store, warehouse, shop or building where people are employed, except a building used for the storage and handling of LPGas.
- c) A vessel lying at permanent berthing facilities
- d) Any storage facility for dangerous goods outside the property boundary of the installation, except those defined as minor storage in other standards or regulations

SPECIFICATIONS:

TANK FOOTINGS are to be of minimum crushed rock that will support the total mass of the tank when filled with water

DAMAGE AVOIDANCE if a tank is susceptible to impact is shall be protected by:

- Bollards,
- 'W' guard rails (Armco), or
- Fenced Compound

All to be positioned greater than 1.5m from edge of any Tank

BOLLARDS, if used, must be minimum 75mm steel pipe a max of 1.3m apart, filled with and set in concrete to a minimum height of 1.2 m and minimum depth of 500 mm

FENCE COMPOUNDS are to 1.8 m chain link fence with tension wires and 50 mm diam steel poles set in concrete

ADDITIONAL TANKS can be added; parallel to each other with tank diameter separation between each one

MANIFOLDS for additional Tanks must be made of steel, copper pig-tails to the Manifold are acceptable. Tanks must be fitted with excess flow valve

NOTES:

All clauses of AS1596 are to be observed when planning a Tank Location

Always consider the safe access to the Tank by a Road Tanker when planning a location

No Drains, Pits or Stumps within 3m of the edge of the Tank

Tanks shall not be installed in or above a ground depression

Overhead Electricity lines shall not cross the tank compound

For the use of Vapour Barriers, Firewalls and Thermal check with Elgas Technical Staff

For Tank locations near other Flammable, Combustible or Dangerous Goods check with Elgas Technical Staff

TYPICAL TANK DIMENSIONS		
Tank Size	Length	Diameter
1.35 kl	2.2 m	0.9 m
2.2 kl	2.7 m	1.1 m
2.75 kl	3.3 m	1.1 m
4.3 kl	3.9 m	1.2 m
5.1 kl	4.6 m	1.2 m
7.5 kl	6.6 m	1.2 m

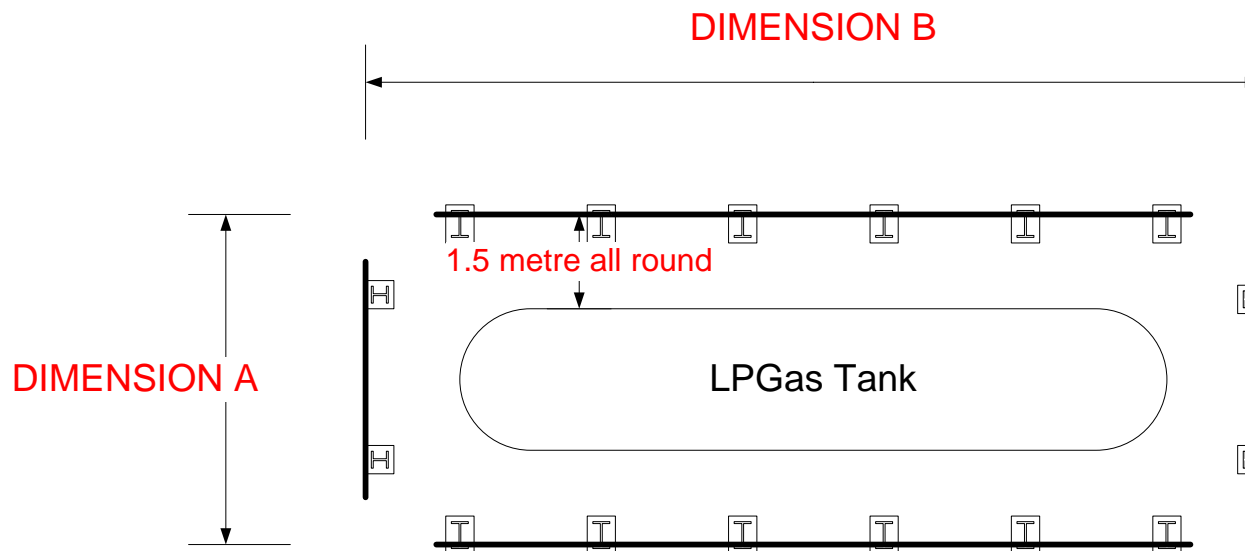
Note: Tank Dimensions in this table are indicative only - ensure correct dimensions for the tank to be installed are used

TYPICAL SPACE REQUIREMENTS		
Tank Size	DIMENSION A	DIMENSION B
1.35 kl	3.9 m	5.2 m
2.2 kl	4.1 m	5.7 m
2.75 kl	4.1 m	6.3 m
4.3 kl	4.2 m	6.9 m
5.1 kl	4.2 m	7.6 m
7.5 kl	4.2 m	9.6 m

Note: Space Requirements in this table are indicative only - ensure correct dimensions for the tank to be installed are used

TYPICAL SEPARATION REQUIREMENTS		
Tank Size	Public Place	Protected Place
1.35 kl	2.3 m	3.4 m
2.2 kl	4.0 m (3.1 m)	6.1 m (4.6 m)
2.75 kl	4.3 m (3.3 m)	6.3 m (4.8 m)
4.3 kl	4.6 m (3.4 m)	7.2 m (4.7 m)
5.1 kl	5.0 m (3.5 m)	8.0 m (5.0 m)
7.5 kl	6.0 m (4.0 m)	10.0 m (6.0 m)

Note: Distances in Brackets are for single Tanks used for vapour only - no other Tank within 8m. Distances to be taken from edge of Tank



Version 2
 Drawn: 27 February 2008 – tfd
 © Elgas Ltd Not to Scale

TYPICAL VAPOUR TANK REQUIREMENTS



APPENDIX B

PROTEN HOLDINGS PTY LTD

Narrandera Poultry Production Complex

ENVIRONMENTAL INCIDENT REPORT FORM

INCIDENT DETAILS

Date of incident:- **Time of incident:-**am/pm

Location:-

Description:-
.....
.....

NOTIFICATION TO REGULATORY AUTHORITY

Has the incident caused or does it threaten to cause material harm to the environment:- Yes / No
If yes, the relevant authorities (as listed in the CEMP) must be notified immediately.

Relevant authorities notified:- Yes / No

Who:-

Date:- **Time:-**am/pm

Instructions:-
.....
.....

REMEDIAL ACTION

Remedial action undertaken:- Yes / No (if no, give reason)

Description:-
.....
.....
.....

Any further corrective action required:- Yes / No

If yes, describe:-
.....
.....
.....

SIGN OFF

Name:- **Title:-**

Signature:- **Date:-**



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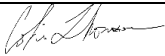

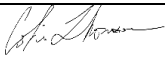

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https://projects.ghd.com/oc/sydney3/narranderapoultry/Delivery/Documents/2128372_ProTen Narrandera Poultry_Emergency Plan Addendum Report.docx

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Draft A	Chris Bishop	Colin Thomson		Carl Voss		23/08/19
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Narrandera Poultry Production Complex (SSD 6882)

BIODIVERSITY MANAGEMENT PLAN



Prepared by:

Narrandera Poultry Production Complex

Sturt Highway, Narrandera NSW

Biodiversity Management Plan

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This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with 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.

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
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1 INTRODUCTION

1.1 Background

Development Consent SSD 6882 was granted by the Planning Assessment Commission of NSW (PAC) on the 9 November 2015 to construct and operate the Narrandera Poultry Production Complex (hereafter the 'Development') within a rural property approximately 26 kilometres (km) west of Narrandera in southwestern New South Wales (NSW). The Development comprises five poultry production units (PPUs) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. The approved Development layout is presented in **Figure 1**. Further details regarding the Development are available in the Environmental Impact Statement (EIS) (SLR 2015a) and Response to Submissions (RTS) (SLR 2015b).

1.2 Scope of the BMP

This Biodiversity Management Plan (BMP) has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), to satisfy condition B12 of Development Consent SSD 6882, which states:

*"Prior to the commencement of operation, the Applicant shall prepare a **Biodiversity Management Plan** (BMP) for the Development to the satisfaction of the Secretary. The Biodiversity Management Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6 and the Biodiversity Offset Strategy prepared by SLR, dated 31 August 2015 (Appendix K of the RTS) and in consultation with the OEH."*

This BMP has been prepared in consultation with the NSW Office of Environment and Heritage (OEH) as an appendix to the *Operational Environmental Management Plan* (OEMP) for the Development (SLR 2016) and is to be read in conjunction with the CEMP, along with:

- *Biodiversity Assessment Report* (SLR 2015c) prepared as part of the EIS (SLR 2015a); and
- The revised *Biodiversity Offset Strategy* (SLR 2015d) prepared as part of the RTS (SLR 2015b).

The purpose of this BMP is to provide the biodiversity management strategies and impact mitigation measures applicable to the Development throughout its operational phase.

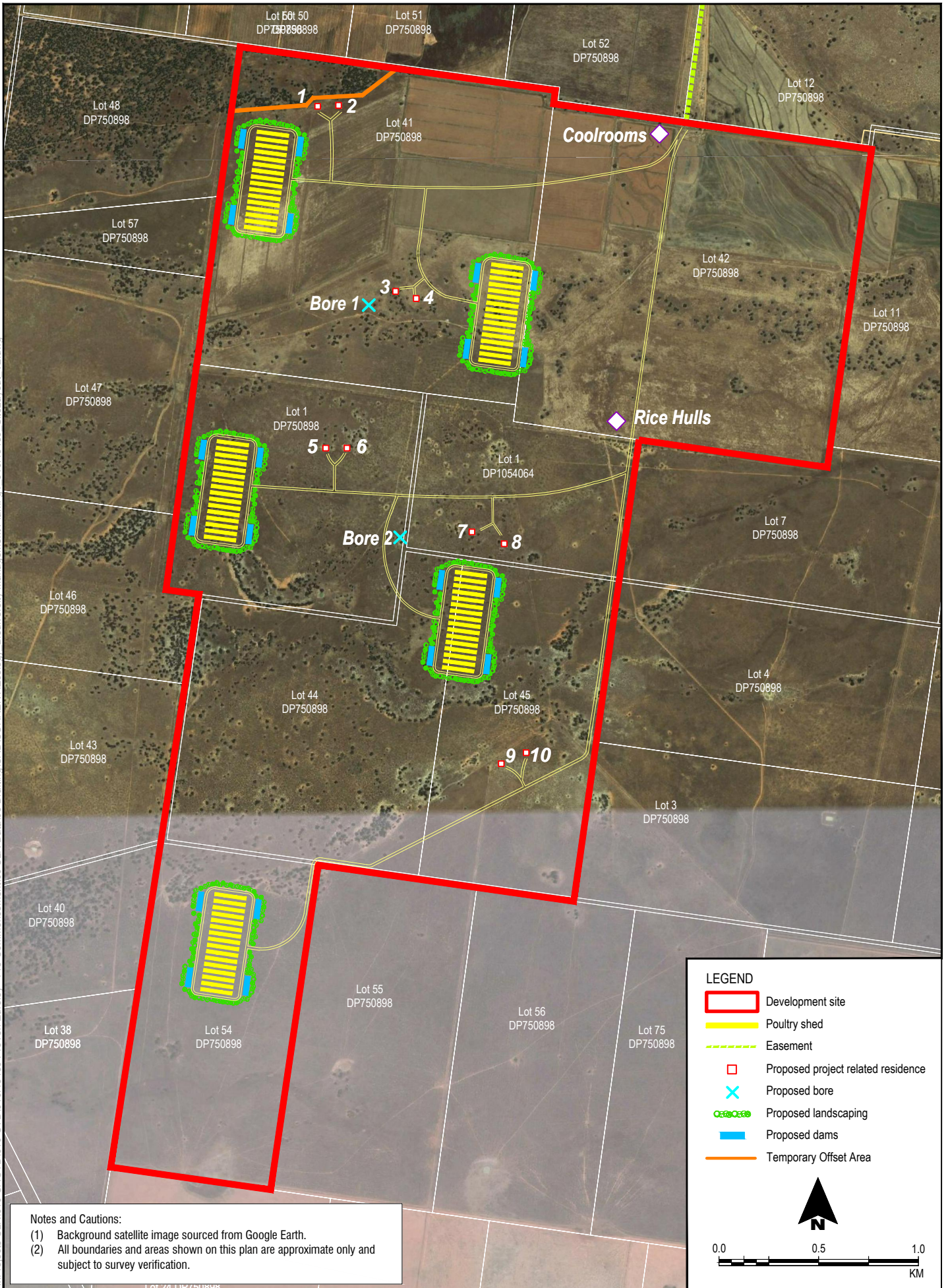
Biodiversity management during construction was addressed within the *Construction Environmental Management Plan* (CEMP) (SLR 2015e) prepared for the Development and approved by the Secretary prior to the commencement of construction activities. Refer to the CEMP for construction-related biodiversity management measures.

1.3 Objectives

The specific objectives of the BMP are to:

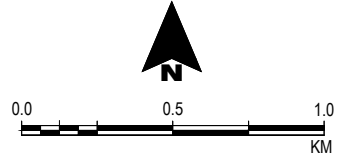
- Identify likely impacts to native biodiversity (or flora and fauna) resulting from operational activities;
- Provide measures to protect native flora and fauna within the Development Site and within the Temporary Offset Area from any impacts associated with operational activities;
- Ensure the protection and care of native wildlife through protocols to assist with native animal capture and care following disturbances or encounters; and
- Ensure the protection of native vegetation, particularly threatened ecological communities present within the Development Site.

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

- LEGEND**
- Development site
 - Poultry shed
 - Easement
 - Proposed project related residence
 - X Proposed bore
 - Proposed landscaping
 - Proposed dams
 - Temporary Offset Area



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Site Layout
FIGURE 1

2 EXISTING BIODIVERSITY VALUES

This chapter briefly describes the existing flora and fauna of the Development Site, and represents a summary of information presented in the *Biodiversity Assessment Report* (SLR 2015c).

2.1 Flora and Vegetation

The majority of the Development Site has been historically cleared and used for agricultural purposes and is consequently composed of modified (and often bare) soils and exotic pastures. There are a few patches of native vegetation remaining associated with sandhills in the north adjacent to the Sturt Highway and with a band of low lying terrain (which might act as a periodic floodplain) in the south (**Figure 2**).

Widely scattered paddock trees are distributed intermittently across the Site, with generally limited shrub cover and low diversity and cover of native groundcover vegetation. The groundcover across most of the open portions on the Development Site is subject to sheep grazing and is dominated by exotic agricultural pasture and weed species typical of the locality.

The following plant community types were identified and mapped by SLR (2015c) within the Development Site:

- Black Box Lignum Woodland – present along a low lying area in the south of the Site;
- Black Box Grassy Open Woodland – present on drier slightly more elevated land in the south of the Site; and
- White Cypress Pine Open Woodland – present on sandy hills and rises in the northwestern corner of the Development Site and near the Sturt Highway in the far north of the study area. This community type is also listed as a threatened ecological community under the *Threatened Species Conservation Act 1995* (TSC Act) (refer Section **2.3.3**).

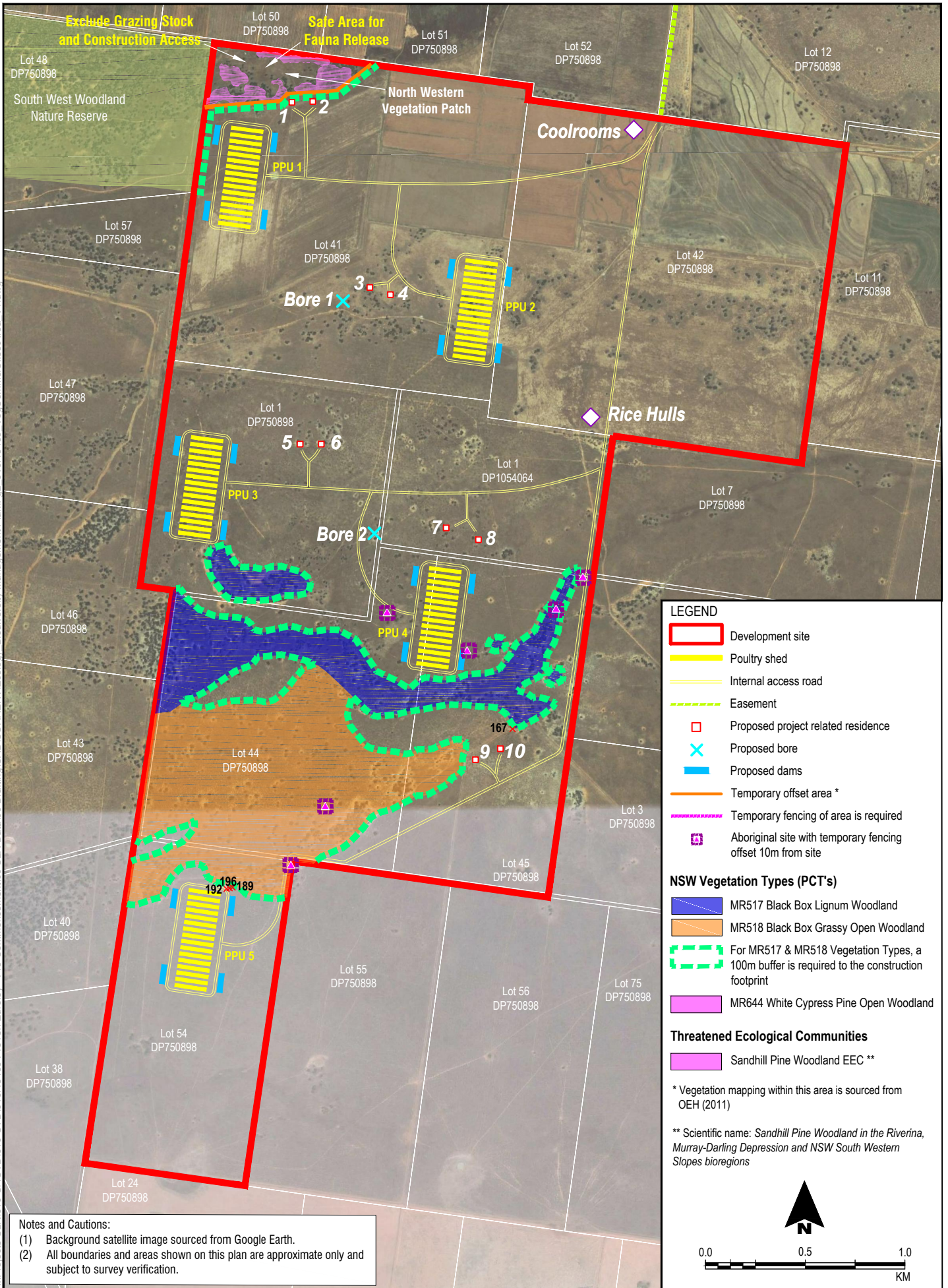
The distribution of plant community types across the Development Site is shown in **Figure 2**.

2.2 Fauna

The few remaining patches of native vegetation of the Development Site provide habitat for a range of common native fauna species. The grassland and sparse woodland habitat provides foraging opportunities for terrestrial mammals such as macropods (i.e. kangaroos and/or wallabies) and the scattered paddock trees provide shelter and perches for an array of native bird species. Numerous hollows in these trees provide roosting habitat for birds as well as arboreal or flying mammals (including some threatened microchiropteran bats - see Section **2.3**). Habitat for ground mammals and reptiles is of low quality due to a history of clearing and grazing activities.

Low lying areas across the Development Site provide habitat for amphibians, particularly during times of higher rainfall.

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LEGEND

- Development site
- Poultry shed
- Internal access road
- Easement
- Proposed project related residence
- X Proposed bore
- Proposed dams
- Temporary offset area *
- Temporary fencing of area is required
- Aboriginal site with temporary fencing offset 10m from site

NSW Vegetation Types (PCT's)

- MR517 Black Box Lignum Woodland
- MR518 Black Box Grassy Open Woodland
- For MR517 & MR518 Vegetation Types, a 100m buffer is required to the construction footprint
- MR644 White Cypress Pine Open Woodland

Threatened Ecological Communities

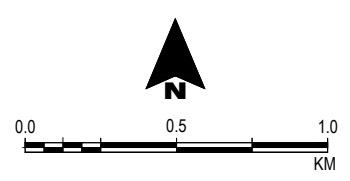
- Sandhill Pine Woodland EEC **

* Vegetation mapping within this area is sourced from OEH (2011)

** Scientific name: *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions*

Notes and Cautions:

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



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2.3 Threatened Biota

2.3.1 Threatened Species

Five fauna species listed as vulnerable under the TSC Act have been recorded within the Development Site by SLR (2015c). These species comprise:

- Grey crowned Babbler (*Pomatostomus temporalis*)
- Superb Parrot (*Polytelis swainsonii*)
- Inland Forest Bat (*Vespadelus baverstocki*)
- Little Pied Bat (*Chalinolobus picatus*)
- Yellow-bellied Sheath-tail bat (*Saccolaimus flaviventris*)

It is likely that each of these species will continue to occur on the Site (at least on an occasional basis) and it is important that they are not adversely affected by operational activities. Impact mitigation for these species is detailed in Chapter 3 of this BMP.

Due to the degraded state of most of the groundcover within the Development Site, habitat for threatened flora species is predominantly absent. No threatened flora species were recorded within the Site.

2.3.2 Endangered Populations

While no endangered populations listed in the TSC Act were recorded by SLR within the Development Site, the endangered population of the Glossy Black-Cockatoo Riverina (*Calyptorhynchus lathami*) is relevant to the Development. This population occurs on hills and ridges containing stands of Drooping Sheoak (*Allocasuarina verticillata*) and feeds almost exclusively on the fruits of Drooping Sheoak. This population is found in the Narrandera Range and to the north-west in the Brobenah Hills, McPhersons Range, Cocoparra Range, Lachlan Range and Jimberoo State Forests, and the Naradhan Range. The Glossy Black-Cockatoo nests in large tree hollows, often along drainage lines. Due to an overall lack of suitable foraging and nesting habitat for this species, it is considered unlikely to occur on the Development Site.

2.3.3 Threatened Ecological Communities

One threatened ecological community was recorded and mapped within the Development Site. Patches of vegetation mapped as White Cypress Pine Open Woodland were recorded in the northern part of the study area, immediately south of the Sturt Highway. This patch, although lying outside of the Development Site, lies within the area proposed for the site entrance and access road. Another patch of this vegetation type has been mapped in the northwestern corner of the Development Site, and lies within the area proposed for the 'Temporary Offset Area' (**Figure 2**).

White Cypress Pine Open Woodland constitutes a form of *Sandhill Pine Woodland in the Riverina and Murray-Darling Depression Regions and NSW Western Slopes bioregions*, which is listed as an endangered ecological community ('Sandhill Pine Woodland EEC') under Schedule 1 (Part 3) of the TSC Act. Construction of the site entrance from the Sturt Highway and access road required the removal of 0.28 hectares (ha) of this EEC. Construction of the PPUs and associated internal roads and ancillary facilities will not require any further clearing of this EEC. The removal of native vegetation, including the small patch of Sandhill Pine Woodland EEC as part of the construction of the Development, is to be offset according to the terms of the approved *Biodiversity Offset Strategy* (SLR 2015d).

Operational impacts on this EEC are discussed briefly in Section 3.2 and are expected to be minor.

2.4 Temporary Offset Area

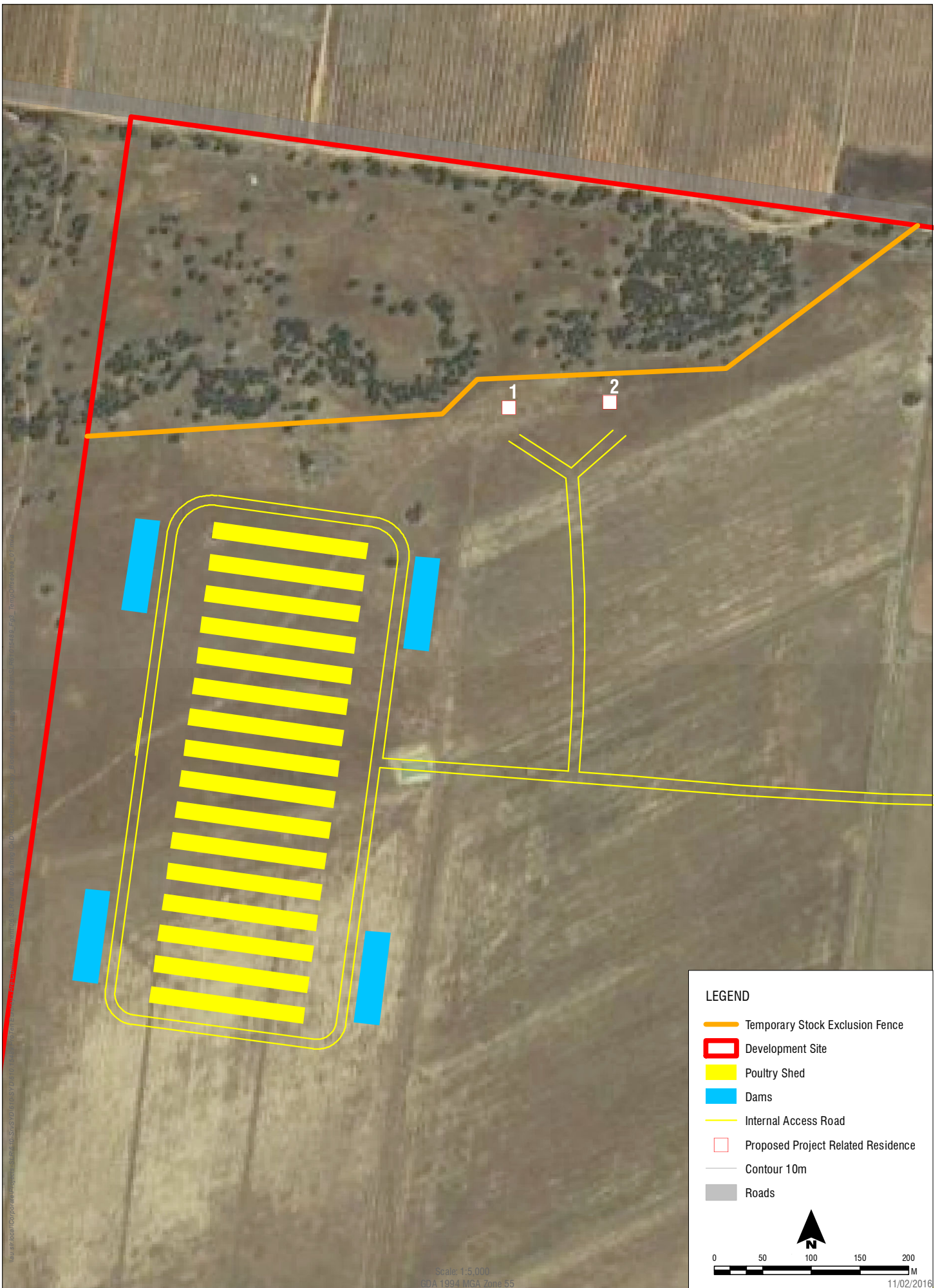
As described in Section 4.2 of the *Biodiversity Offset Strategy* (SLR 2015d), the removal of native vegetation associated with construction of the Development will be offset partially by the establishment of a 'Temporary Offset Area', located in the northwestern corner of the Development Site (see **Figure 1**). The South West Woodland Nature Reserve lies immediately to the west of the Area (**Figure 1**). According to regional scale vegetation mapping (OEH 2011), the Temporary Offset Area contains approximately 7 ha of White Cypress Pine open woodland (ie Sandhill Pine Woodland EEC), as well as around 10 ha of Native Grassland Complex and 0.3 ha of Black Box grassy open woodland. Although no detailed surveys have been conducted in this Area, observations indicate that the area contains a mix of native woodland trees and cleared and grazed pasture (**Figure 3**).

This area was, until recently, subject to sheep grazing, which is likely to have had a debilitating effect on any native vegetation present, through soil compaction, suppression of native seed germination, suppression of native seedling growth (through herbivory), and the spread of exotic grasses and herbaceous weeds. Hence the removal of grazing stock from this area will no doubt realise a substantial improvement in the condition of the native vegetation during the temporary offset period.

In accordance with the *Biodiversity Offset Strategy* (SLR 2015d), a stock exclusion fence was recently installed along the southern perimeter of the Temporary Offset Area, with the aim of excluding sheep (and any other stock) from the Area (see **Photo 1**). The area is now fully enclosed by stock proof fencing and all sheep have been removed from the area.

Photo 1 Stock exclusion fence recently installed around Temporary Offset Area





LEGEND

- Temporary Stock Exclusion Fence
- Development Site
- Poultry Shed
- Dams
- Internal Access Road
- Proposed Project Related Residence
- Contour 10m
- Roads

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Temporary Offset Area

FIGURE 3

A preliminary inspection of the Temporary Offset Area was conducted by the Site's approved Environment Representative (see condition C15 of Development Consent SSD 6882) on 31 March 2016. The following features were noted during the inspection:

- Widespread evidence of European Rabbit burrows (see **Photo 2**) and numerous scats;
- Sightings of kangaroos and emus;
- Presence of White Cypress Pine *Callitris glaucophylla* (noting that no detailed surveys or mapping of this vegetation have been conducted in the Area);
- A mix of native and exotic grass in the groundlayer; and
- Low numbers of larger woody weeds, such as African Box-thorn.

Photo 2 Rabbit warren observed within the Temporary Offset Area



As detailed in Section 3.3.3, an expression of interest (EOI) was uploaded on the OEH's 'Credits Wanted' register on the 15 October 2015 for a period of 12 months. At the end of this advertisement period, and in accordance with the approved *Biodiversity Offset Strategy* (SLR 2015d), if suitable credits are not available for purchase, ProTen will engage a suitably qualified consultancy to undertake a detailed baseline ecological survey of the Temporary Offset Area (including establishment of one BioBanking plot) to confirm that the vegetation is Sandhill Pine Woodland EEC. ProTen will then:

- Identify appropriate management actions (in consultation with OEH) for the Offset Area; and
- Apply supplementary measures and calculate suitable monetary fund deposit; or
- Consult with National Parks and Wildlife Service (NPWS) on whether the land could be dedicated to the national park estate (i.e. potentially added to the South West Woodland Nature Reserve).

2.5 EPBC Act Matters

A Protected Matters Search was performed on the Department of the Environment website as part of the *Biodiversity Assessment Report* (SLR 2015c) to ascertain if any matters of national environmental significance protected by the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) had been identified as occurring in, or relating to, the proposed development site. A summary of the relevant matters of national environmental significance, as they relate to the Development Site, is presented below.

Wetlands of International Significance (RAMSAR Wetlands)

There are no RAMSAR wetlands protected by international treaty (RAMSAR Convention) within the Development Site or surrounding search area. The search results identified four RAMSAR wetlands protected by the RAMSAR Convention located downstream of the Development Site. These wetlands are:

- Banrock Station Wetland Complex;
- Coorong and Lakes Alexandrina and Albert;
- NSW Central Murray State Forests; and
- Riverland.

All of these wetlands are located large distances away from the Development Site and, therefore, will not be impacted by the Project. Three of these wetlands, namely Banrock Station Wetland Complex, Coorong and Lakes Alexandrina and Albert, and Riverland, are all located in South Australia at distances of greater than 500 km from the development site, and as such the Project will not have any impact on these wetlands. The NSW Central Murray State Forests wetlands are the closest to the development site; however these are over 150 km away and therefore will not be impacted upon by the Development.

Threatened Ecological Communities and Threatened Species

The Protected Matters Search identified the following:

- Four threatened ecological communities; and
- Thirteen threatened species.

No threatened ecological communities listed under the EPBC Act are present on the Development Site.

Of the 13 threatened species identified, one, the Superb Parrot, was recorded in the Development Site. Individuals were recorded within woodland habitats in the central parts of the Site and it is possible that this species utilises the Site as part of its wide ranging foraging activities.

With regard to other EPBC Act listed species that appear in the search results, such as the Koala, Malleefowl and Australian Bittern, habitat for these species is not present in the Development Site. Similarly, there are no watercourses available on the Development Site for threatened fish species, namely the Silver Perch, Murray Cod and Macquarie Perch.

Taking into consideration all stages and components of the Development, and all related activities and infrastructure, it is highly unlikely that any of these threatened species will be adversely impacted by the Development.

3 OPERATIONAL BIODIVERSITY MANAGEMENT

3.1 Overview

This chapter summarises the potential impacts on biodiversity values of the Development Site that could arise as a result of operational activities, and provides mitigation measures required to control or minimise these potential impacts.

While the majority of the Development Site has been historically cleared and used for agricultural production purposes, there are patches of native vegetation present. Construction of the Development will include minor impacts to native vegetation within the Development Site, including a small area of Sandhill Pine Woodland EEC to allow construction of the site entrance and internal access road and a small area of low condition Black Box Grassy Open Woodland in the south of the Development Site. The revised *Biodiversity Offset Strategy* (SLR 2015d) prepared as part of the RTS (SLR 2015b) includes appropriate biodiversity credit and offsetting provisions to compensate for vegetation and habitat loss.

Site landscaping will be undertaken in accordance with the approved *Landscape Management Plan* (SLR 2015f). ProTen will progressively establish the landscape plantings, as soon as practically possible, following bulk earthworks and construction of infrastructure at each PPU.

Tables 1 and 2 list the management and mitigation measures that will be implemented throughout the operational phase of the Development to minimise direct and indirect impacts on biodiversity.

3.2 Potential Impacts on Biodiversity during Operation

The operational activities that could potentially affect native flora and fauna within the Development Site include:

- Vehicle movements, which could result in vehicle strike of native birds and ground fauna (mainly reptiles and mammals, including macropods);
- Introduction or spread of weeds and/or plant pathogens (e.g. *Phytophthora cinnamomi*), primarily via vehicle movements;
- Dust generation, which can adversely affect plant growth;
- Excessive noise, which can inhibit or modify behaviour of certain native animals or cause dispersal from the noise source; and
- Lighting, which can adversely affect nocturnal fauna through eye-shine and exposure to predators.

The potential impacts associated with dust, noise and lighting were addressed in detail in the EIS (SLR 2015a). A brief summary of the EIS assessments is provided below.

The air quality impact assessment included in the EIS (see Chapter 6.2) predicted that that maximum 24 hour and annual average PM₁₀ levels as a result of the Development will be below the respective assessment criterion at all of the sensitive receptors. It also advised that dust emissions from the internal access roads will not be significant due to a lower silt loading on the constructed road surface. In summary, the air quality impact assessment concluded that the poultry complex will operate site without significant adverse effects on local amenity with respect to air quality. On this basis, it is expected that dust levels on the Development Site will be below any levels that would affect flora and fauna species.

The noise impact assessment included in the EIS (see Chapter 6.3) concludes that construction, operational and sleep disturbance noise levels will comply with project-specific noise criteria at all nearest sensitive receptors for all modelled scenarios. Furthermore, an assessment of road traffic noise showed no discernible impact. On this basis, it is expected that the noise levels generated by the Development will unlikely cause any impact or disturbance to local fauna species.

All external lights will be aimed downwards and will only be when necessary during times of low light and/or heavy fog. It is therefore unlikely that lighting on the Development Site would be intrusive to local fauna species or disrupt breeding or foraging activities of any locally occurring nocturnal fauna.

Fauna strikes by vehicles operating on access roads are a potential threat to terrestrial fauna groups, particularly at dusk or dawn (and nocturnal hours) when foraging macropods are more active. Drivers should be warned of this via inductions. Vehicles on site must stick to the reduced speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hr in the vicinity of work sites.

As committed to in the EIS (SLR 2015a), the potential for mechanical transmission of disease pathogens and weeds will be reduced through the installation of a wheel wash facility on the access road to each PPU. All vehicles entering and exiting a PPU site will be required to pass through the wheel wash. Each wheel wash facility will be designed as a self-contained unit in order to minimise the potential for runoff. It is anticipated that a chemical sanitiser, such as Microgard 755N or Micro-4 (commonly used on poultry farms), will be added to the wash water. A turkey nest dam will be constructed below each wheel wash facility to contain the full volume of water in the wash basin. The dams will be used to hold water resulting from excessive rainfall, accidental overflow and/or periodic cleanouts. The dam's capacity will be approximately twice that of the wheel wash unit. The internal surfaces of the dams will be constructed of compacted clay material to provide a minimum permeability of 1×10^{-9} m/s. If this cannot be achieved, a suitable membrane liner will be used as an alternative.

Other facilities within the Development Site, such as the dead bird coolrooms/chillers and rice hull/bedding material storage shed, will be located on the main internal access road. There should not be any need for operational vehicles to be driving through paddocks or areas of native vegetation.

As also committed to in the EIS (SLR 2015a), waste and rubbish from the operations should be removed off site to eliminate environmental pollution, offensive odours, litter and presence of vermin (such as introduced mice or rats). If vermin are attracted to the Development there would be a greater chance of attacks to native fauna.

One of the threatened fauna species recorded previously on the Site, the Little Pied Bat, uses various types of roosting habitat including caves, mine shafts and buildings. Whilst unlikely, there is potential for this species to attempt to roost in poultry sheds if access is gained. It is recommended that all attempts are made to exclude bats from the sheds. In the unlikely event that microchiropteran bats are discovered in the poultry sheds, and are exposed to potential danger, it is advised that WIRES are contacted to remove the animals from the buildings.

3.3 Biodiversity Management Measures

3.3.1 General Biodiversity Measures

The Development includes the creation of 40 metre wide vegetation buffers surrounding each of the PPUs. Each buffer is to be planted with native flora species characteristic of the existing plant community types and is therefore likely to attract native fauna species searching for foraging resources or possible nesting sites. This process, however, will happen progressively over several years as plants grow, mature and provide flower, nectar and seed.

Aside from the vegetation buffers, all other native vegetation and ecosystem features occurring in the Development Site will need to be managed appropriately. Specific mitigation measures to be implemented during the operational phase within the Development Site are listed in **Table 1**.

Table 1 Biodiversity Management Measures for the Development Site – Operational Phase

Control	Responsibility	Timing / Frequency
A minimum 100 m buffer will be maintained between any construction or disturbance activities (including revegetation sites and vehicle access tracks) and the boundary of areas of remnant vegetation and the South West Woodland Nature Reserve.	ProTen Site Management	On-going
Erosion and sediment control measures will be checked and maintained in accordance with the <i>Blue Book</i> (Landcom 2004) and the <i>Water Management Plan</i> (SLR 2015g)	ProTen Site Management	On-going
If any native fauna are injured during operations, WIRES will be contacted to arrange proper care for the animal (02 8977 3309 / 1300 094 737). WIRES will also be contacted to remove any bats discovered within the poultry sheds.	ProTen Site Management	On-going
A fauna management procedure (refer Section 3.3.2) will be followed (as required) for the identification and management of any rescued fauna.	All employees and contractors	On-going
Rubbish (such as food scraps and waste) will be properly managed and will not be stockpiled within areas of native vegetation.	All employees and contractors	On-going
Suitable signage will be erected to direct traffic, limit traffic speed and minimise night time noise levels.	ProTen Site Management	Commencement of operation
Vehicles will not exceed a general speed limit of 60 km/hour along the access road from the Sturt Highway and within the Development Site, with a reduced speed limit of 40 km/hour to be adopted in the vicinity of work sites/PPUs.	All employees and contractors	On-going
Internal access roads will be appropriately maintained to minimise dust and noise emissions and provide safe driving conditions.	ProTen Site Management	On-going
All internal traffic will be restricted to designated access roads. There should not be any need for vehicles to drive through paddocks or areas of native vegetation.	All employees and contractors	On-going
Emergency standby diesel generators will only be used when power from the electricity grid is lost and they will be appropriately housed to minimise noise emissions.	ProTen Site Management	On-going
A unidirectional traffic movement system, via a one-way circulation road around the PPU, will be maintained to minimise the use of reversing alarms and potential traffic conflicts.	All employees and contractors	On-going
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.	ProTen Site Management	On-going
Waste management systems will be implemented to ensure that each waste stream generated by the Development is effectively managed and disposed of off site.	ProTen Site Management	On-going
Each outdoor light fixture will be aimed downwards and will only be used when necessary during times of low light and/or heavy fog.	ProTen Site Management	On-going
Wheel wash facility to be installed on the access road to each PPU, in order to minimise risk of spread of plant pathogens and weeds. All vehicles entering and leaving a PPU site will be required to pass through the wheel wash (see Section 3.2).	All employees and contractors	On-going
Appropriate pest/vermin control measures will be implemented to prevent and control pest/vermin populations and outbreaks.	ProTen Site Management	On-going
Landscape plantings		
All revegetation works within 100 m of native vegetation (including EEC vegetation) to be locally indigenous species as per Table 1 in the approved <i>Landscape Management Plan</i> (SLR 2015f).	ProTen Site Management	On-going

Control	Responsibility	Timing / Frequency
Revegetation of disturbed areas using exotic sterile grass seed (see Section 3 of the approved <i>Landscape Management Plan</i> [SLR 2015f]) is not to be undertaken within areas of existing native vegetation or within 100 m of native vegetation.	ProTen Site Management	On-going
Conduct regular inspections of landscaping works, noting plant losses, threatening processes, vegetation condition, weeds and replacement tree planting requirements (see Section 4).	ProTen Site Management	Monthly during first 6 months after planting; quarterly thereafter for 18 months from date of final planting or until the plantings are observed to be well established and healthy (whichever is the longer time period).
Temporary Offset Area		
Install stock proof fencing along southern (unfenced) perimeter.	ProTen Site Management	Completed late 2015; prior to construction
Conduct baseline inspection (note presence of weeds, feral animals and EEC vegetation).	Site Environment Representative or Qualified Ecologist	Completed March 2016
Conduct regular inspections of offset area fencing, and conduct repairs as necessary.	Site Environment Representative or ProTen Site Management	Quarterly for 12 months from installation (i.e. the 'Credits Wanted' EOI period)
Conduct targeted weed control for any new records of weed infestation/noxious weed species recorded during inspections.	ProTen Site Management	As required during the 12 month 'Credits Wanted' EOI period
If the Temporary Offset Area is to become a more permanent offset area (i.e. if suitable credits have not been identified for purchase at the end of the 12 month EOI period), conduct detailed ecological survey (including establishment of one BioBanking plot) to confirm vegetation is Sandhill Pine Woodland EEC (or other vegetation type).	Qualified Ecologist	At completion of the 12 month 'Credits Wanted' EOI period if suitable credits have not been identified for purchase
If the Temporary Offset Area is to become a more permanent offset area (i.e. if suitable credits have not been identified for purchase at the end of the 12 month EOI period), identify appropriate management actions (in consultation with OEH)	Qualified Ecologist	At completion of the 12 month 'Credits Wanted' EOI period if suitable credits have not been identified for purchase
If the Temporary Offset Area is to become a more permanent offset area (i.e. if suitable credits have not been identified for purchase at the end of the 12 month EOI period): <ul style="list-style-type: none"> Apply supplementary measures and calculate suitable monetary fund deposit; or Consult with NPWS on whether the land could be dedicated to the national park estate (i.e. potentially added to the South West Woodland Nature Reserve). 	Qualified Ecologist	At completion of the 12 month 'Credits Wanted' EOI period if suitable credits have not been identified for purchase

3.3.2 Fauna Management Protocol

If any native fauna are by chance injured or impacted during operations, ProTen Site Management will contact NSW Wildlife Information Rescue and Education Service (WIRES) to arrange proper care for the animal.

In the event that any native fauna is injured or impacted upon during operation of the farm, the following *Fauna Management Protocol* will be followed:

- WIRES will be contacted (02 8977 3309 / 1300 094 737) to care for any injured animals (if required and available).
- If possible, any fauna fleeing an operational area will be directed to a safe area outside the Development's operational footprint or, if necessary, captured and relocated to a safe area.
- All fauna will be handled in a way as to prevent injury and unnecessary stress to the animal (and to the handler).
- All fauna that are required to be captured, and are uninjured, will be captured in a hessian bag (see note below) or ventilated box and relocated to a safe and appropriate location within the north western vegetation area, which is to be protected from any disturbance. Relocation is to be undertaken on the same day as capture.
- Any fauna that is injured will be contained in a warm, dark and quiet place. The animal will be wrapped in a towel (or similar) and placed in a ventilated box. Site management will call WIRES (02 8977 3309 / 1300 094 737) for advice on the best course of action. This may include transporting the injured animal to the nearest vet or waiting for a rescuer to arrive at site.
- Wildlife captured, relocated and/or treated will be reported to WIRES.

Note: hessian bags are not suitable for birds or any animals with claws that could become stuck in the small holes or entangled in the fibres. If required, WIRES will be contacted for advice and/or to provide appropriate equipment for wildlife capture and care.

3.3.3 Biodiversity Offset Strategy

Condition B10 of Development Consent SSD 6882 imposes the following:

The Applicant shall implement the strategy for offsetting impacts as described in the Biodiversity Offset Strategy at Appendix K of the RTS prepared by SLR (dated 31 August 2015) and developed in accordance with the Framework for Biodiversity Assessment (OEH 2014) and the NSW Biodiversity Offsets Policy for Major Projects (OEH 2014). The advertisement period for the Expression of Interest on the Office of Environment and Heritage's 'Credits Wanted' register will be 12 months.

In accordance with the *Biodiversity Offset Strategy* (SLR 2015d), the actions to be completed to fulfil the offset requirements for the Development are:

- Uploading an EOI for the required ecosystem credits on the 'Credits Wanted' register of the BioBanking Credit Register. The EOI was submitted on the 15 October 2015 for a period of 12 months¹.
- Monitor the availability of matching ecosystem credits during the 12-month advertisement period, including regularly checking the credit register for ecosystem credits that match the required type and number of credits, including 'variation credits' from the same vegetation formations;
- Consult regularly with the OEH BioBanking Team and the Albury office of OEH on the availability of suitable credits during the advertisement period;
- During, or at the end of, the advertisement period, either:
 - Purchase like-for-like credits or if not available purchase 'variation credits'; or if both credit types not available, then:

¹ Note: the advertisement period has been changed from five years, as reported in the *Biodiversity Offset Strategy*, to 12 months, as imposed by condition B10 of Development Consent SSD 6882.

- Conduct a detailed ecological survey of the Temporary Offset Area (including establishment of one BioBanking plot), as necessary, to confirm that the vegetation is Sandhill Pine Woodland EEC; and
- Identified appropriate management actions (in consultation with OEH) for the Temporary Offset Area; and
- Apply supplementary measures and calculate suitable monetary fund deposit; or
- Consult with NPWS on whether the land could be dedicated to the national park estate (i.e. potentially added to the South West Woodland Nature Reserve).

3.4 Inductions and Training

ProTen Site Management will ensure that all employees and contractors are suitably inducted and trained prior to commencing any work on site. Training in relation to environmental responsibilities and implementation of the OEMP (SLR 2016), including the biodiversity management measures covered in this BMP, will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar).

4 MONITORING AND MAINTENANCE

4.1 General

Provided that the mitigation measures listed in **Table 1** are implemented, it is unlikely that flora or fauna will be adversely affected during the operational phase. On this basis, monitoring of potential or actual impacts on biodiversity during operation is not required. However, monitoring of on-ground landscape works and the Temporary Offset Area will be conducted, as described below.

The approved *Landscape Management Plan* (SLR 2015f) commits to on-going monitoring and maintenance of the landscape plantings for a period of at least 12 to 18 months following planting. As an update to the *Landscaping Management Plan*, ProTen commits to a maintenance period for the landscape plantings of 18 months from the date of final planting or until the plantings are observed to be well established and healthy (whichever is the longer time period, and according to the performance indicators listed in Section 4.2). Landscape plantings will be inspected and assessed for maintenance requirements on a monthly basis during the first six months after planting, then quarterly thereafter, including success of tree and shrub plantings and the presence/absence of weeds.

Where the health and/or growth of the plantings appear limited, maintenance activities will be initiated. These may include:

- Replacement of plant losses (i.e. planting of tubestock) to maintain at least 80 % of the original planting number;
- Top-dressing and/or the application of specialised treatments, such as composted mulch to areas with poor vegetation establishment;
- Replacement of tree guards if damaged and animal grazing is found to be excessive; and
- Watering of plantings, as required, via surface irrigation, weekly (or more frequently as required) during the first weeks after planting and as required during dry and hot conditions during the maintenance period.

In addition, monitoring inspections of the Temporary Offset Area will be conducted on a quarterly basis during the 12 month 'Credits Wanted' EOI period. The following will be noted:

- Presence of any new weed infestations, or previously unrecorded noxious weeds and/or weeds of national significance ('WONS');
- Evidence of new feral animal presence, such as direct sightings, tracks, nests or burrows; and
- Evidence of erosion or any other processes that might threaten the viability of the vegetation.

4.2 Performance Indicators

The following performance indicators have been nominated to provide quantitative measures against which monitoring results can be compared to determine the progress and success of the landscaping works. The indicators are to apply for the duration of the maintenance period, and are listed as follows:

- Survival of at least 80 % of the total number of original plantings at the termination of the maintenance period;
- Achievement of minimum plant densities (averaged across each PPU planting area) in each vegetation layer:
 - 1 canopy tree species per 16m²;
 - 1 shrub species per 4m²; and
 - 4 groundcover species per 1m².
- Use of only local native species (as evidenced by proof of purchase of plant stock); and
- Presence of less than 5 % weed cover in any landscape areas (as estimated for each PPU planting area);

- No evidence of new weed clumps;
- No new records of noxious weeds or 'Weeds of National Significance' (WONS); and
- Evidence of herbivory (from rabbit or other fauna) limited to less than 10 % of all plantings (as estimated for each PPU planting area).

Where one or more of the above performance indicators is not achieved, the contingency measures listed below will be implemented.

4.3 Monitoring Programme

A summary of monitoring tasks, including performance indicators, responsibilities and timing, to be implemented during the maintenance period is listed in **Table 2**. Monitoring inspections will cease at the end of the maintenance period or until such time that evidence can be provided that all performance indicators are being achieved, and/or as agreed with OEH.

Table 2 Monitoring Actions – Operational Phase

Action	Performance Indicator	Timing / Frequency
Landscape plantings		
Conduct regular inspections of landscaping works, noting plant losses, threatening processes, vegetation condition, weeds and replacement tree planting requirements.	Inspections conducted as stated in BMP	Monthly during first 6 months after planting; quarterly thereafter for 18 months from date of final planting or until the plantings established and healthy (whichever is longer time period)
Landscape planting species (within 100 m of native vegetation) are locally indigenous	<ul style="list-style-type: none"> • Purchase order or tax invoice showing species ordered for planting, prior to commencement of planting. • Species to be planted are locally indigenous and sourced from local provenance stock (as listed in Table 1 of <i>Landscape Management Plan</i>); • Qualified Ecologist to confirm species are locally indigenous and in accordance with BMP. 	Prior to commencement of planting.
Planting densities maintained throughout maintenance period	<ul style="list-style-type: none"> • 1 tree/16m² • 1 shrub/4m² • 4 groundcovers/m² 	At completion of maintenance period
Planting quantity maintained throughout maintenance period	> 80 % of original planting numbers surviving	At completion of maintenance period
Weed cover	< 5% weed cover (foliage projective cover at each PPU)	At completion of maintenance period
Weed growth	No new weed clumps	At completion of maintenance period
Weeds of ecological importance	No new records of noxious weeds or WONS ² within landscape areas	At completion of maintenance period

² Weeds of national significance.

Action	Performance Indicator	Timing / Frequency
Feral animal activity	<5 % of plantings affected by rabbit herbivory	At completion of maintenance period
Temporary Offset Area		
Conduct baseline inspection (note presence of weeds, feral animals and EEC vegetation). See performance indicators below:	Completed March 2016	Completed March 2016
Weed growth	No new weed clumps or infestations	Quarterly for 12 months from installation (i.e. the 'Credits Wanted' EOI period)
Weeds of ecological importance	No new records of noxious weeds or WONS ³	Quarterly for 12 months from installation (i.e. the 'Credits Wanted' EOI period)
Feral animal activity	No new rabbit warrens or evidence of new feral animal species	Quarterly for 12 months from installation (i.e. the 'Credits Wanted' EOI period)
Conduct regular inspections of offset area fencing, and conduct repairs as necessary.	<ul style="list-style-type: none"> Stock exclusion fence in good repair; No grazing stock within Temp. Offset Area 	Quarterly for 12 months from installation (i.e. the 'Credits Wanted' EOI period)

4.4 Contingency Actions

In accordance with the principals of 'adaptive management', in the case where performance indicators (as listed in Section 4.2) are not being met, the following contingency actions will be implemented (in consultation with OEH):

- Increase frequency of weed control works, in the case where weed growth and diversity is not being reduced to stated performance criteria (see Section 4.2);
- Change weed control techniques to suit weed species presence, as required, in the case where previously unrecorded weed species are present;
- Implement rabbit control works, or other feral animal controls, in consultation with OEH (specifically the relevant NPWS regional office), in the case where plant losses from herbivory are unsustainably high;
- Replace plant losses within one month of monitoring inspection (to maintain 80 % of original planting volume);
- Replace damaged or lost tree guards within one month of monitoring inspection (applies to all plantings);
- Consider changing the selection of species for replacement plantings, in the case where particular species are not thriving or surviving; and
- Extend maintenance period beyond 18 months until such time as performance indicators are being achieved or as otherwise agreed with OEH, based on the results of monitoring inspections.

³ Weeds of national significance.

5 REVIEW AND UPDATE

This BMP shall be reviewed and revised and, if necessary, updated in response to any of the following:

- Development modification, including notable operational and/or management changes;
- Where is it identified (via on-going inspections/monitoring) that the success of the biodiversity management measures in **Table 1** are falling short (for example, increased presence of weeds, too high vehicle strike incidents);
- Changes to the conditions imposed by the Development Consent SSD 6882; and/or
- At the request of a relevant regulatory authority.

All employees and contractors will be informed of any revisions to the BMP by ProTen Site Management during toolbox talks.

6 REFERENCES

OEH (2011) *OEH (2011) Vegetation mapping by 3-D digital aerial photo interpretation: vegetation of central-southern New South Wales*. Technical Report. NSW Office of Environment and Heritage, Queanbeyan.

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SLR Consulting Australia (2015c) *Euroley Poultry Production Complex Biodiversity Assessment Report*. SLR Consulting, Newcastle.

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SLR Consulting Australia (2015e) *Narrandera Poultry Production Complex Construction Environmental Management Plan*, SLR Consulting, Sydney.

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SLR Consulting Australia (2015g) *Narrandera Poultry Production Complex Water Management Plan* SLR Consulting, Sydney.

SLR Consulting Australia (2016) *Narrandera Poultry Production Complex Operational Environmental Management Plan*. SLR Consulting, Sydney.

Narrandera Poultry Production Complex (SSD 6882)

ABORIGINAL CULTURAL HERITAGE MANAGEMENT PLAN



Prepared by:



Landscape of the ProTen Narrandera Poultry Production Complex



Environmental and
Heritage Management P/L

Aboriginal Cultural Heritage Management Plan

Narrandera Poultry Production Complex

Narrandera Local Government Area

Report Prepared by
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1 Introduction

This Aboriginal Cultural Heritage Management Plan (ACHMP) was commissioned by SLR Consulting Australia (SLR) on behalf of ProTen Holdings (ProTen, the Proponent). The purpose of this document is to synthesise the recommendations pertinent to the management of recorded Aboriginal heritage sites over the Development Site during the construction and operation of the Narrandera Poultry Production Complex. It consolidates the appropriate responsibilities and actions that the Proponent shall undertake in terms of managing the identified heritage resource over the approximately 1,160 hectare (ha) area of the Development Site for the Narrandera Poultry Production Complex, located approximately 26 km west of Narrandera, NSW (Figures 1–1 and 1-2).

Figure 1-1: Location of the Development (Source: SLR).

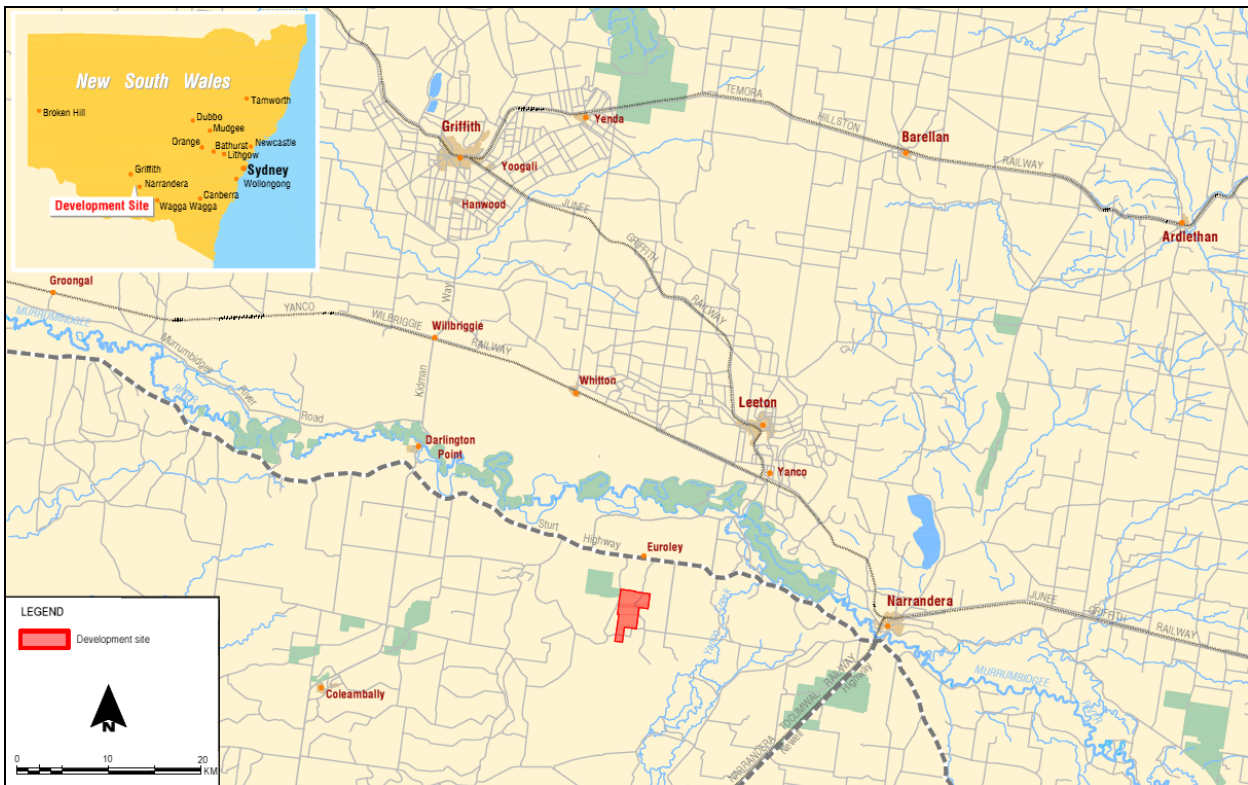
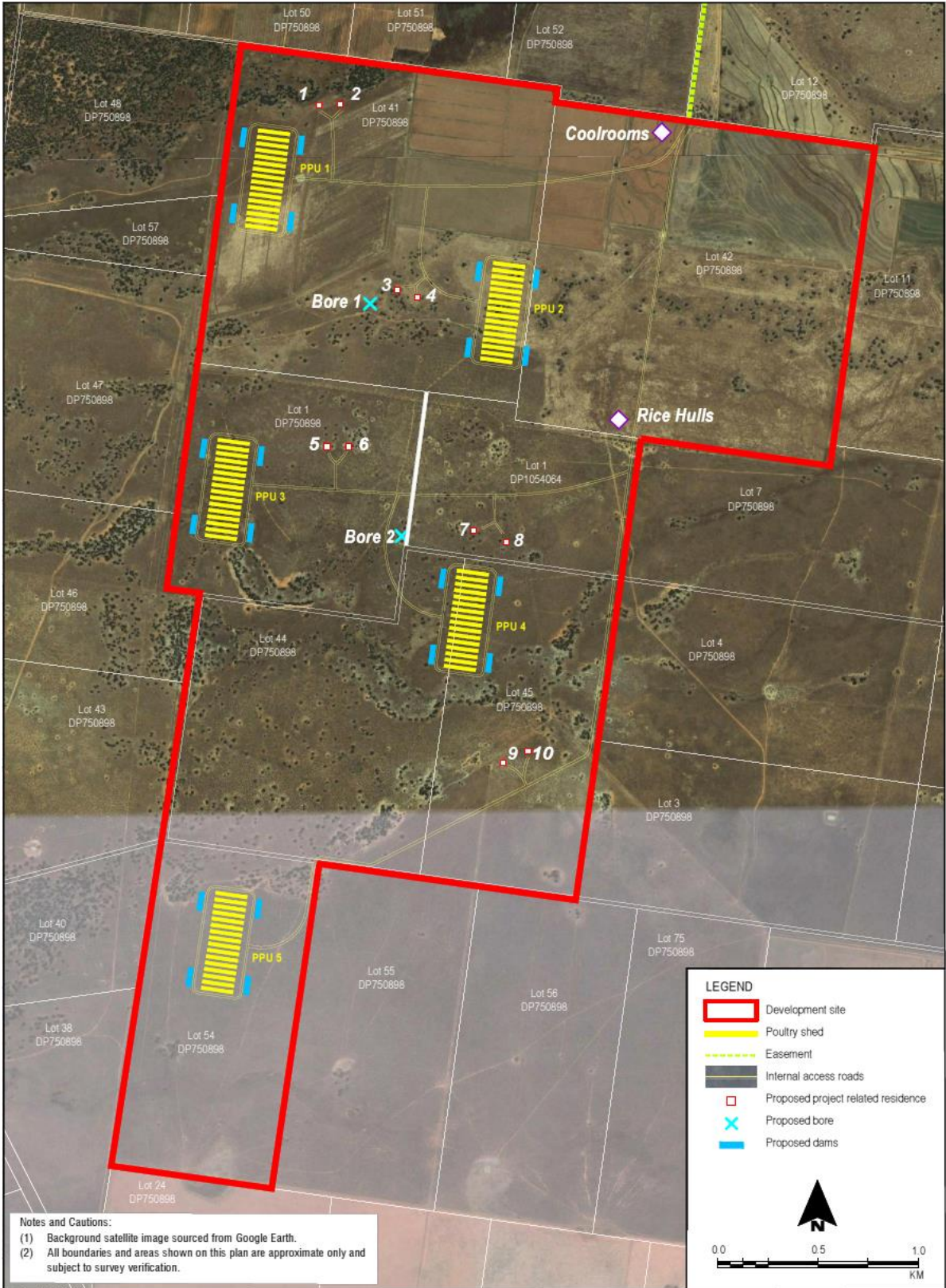


Figure 1-2: The Development Site and Development Layout (source SLR).



1.1 Legislative Framework

This State Significant Development (SSD) was afforded Development Consent SSD 6882, under Part 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Condition B55 of the Development Consent requires:

Aboriginal Cultural Heritage Management Plan

*B55. Prior to the commencement of operation, the Applicant shall prepare an **Aboriginal Cultural Heritage Management Plan** to the satisfaction of the Secretary. The plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6 and shall:*

- (a) describe the management actions, including fencing, for the three known Aboriginal sites (EPPC-ST1, EPPC-ST2 and EPPC-H1) during construction and operation; and*
- (b) incorporate any additional sites found during pre-clearance surveys.*

Further, Condition C4 (h) viii of the Development Consent requires that:

The Applicant shall prepare an Operational Environmental Management Plan (OEMP) for the Development to the satisfaction of the Secretary.

which is required to include an Aboriginal Cultural Heritage Plan.

Development of this document is in accordance with Conditions B55, C4(h)viii and C6; and provides the basis for managing Aboriginal heritage over the Development Site. This ACHMP is based on the recommendations of the *Aboriginal Heritage Impact Assessment* (OzArk 2015a) prepared as part of the Environmental Impact Statement (EIS) for the Development and the *Addendum to the Euroley Poultry Production Complex Aboriginal Archaeological Assessment* (OzArk 2015b), as well as the results of Aboriginal community stakeholder consultation undertaken throughout both of these assessments. This ACHMP provides mechanisms for the management of the six known Aboriginal heritage sites, as well as any previously unidentified items of Aboriginal heritage within the Development Site (in line with Conditions B53-54 of the Development Consent) should they be revealed as the Development progresses.

1.2 ACHMP Review

This plan contains measures for construction and operational phases of the Narrandera Poultry Production Complex. It should not require review unless there is substantive alteration to the impact of the Narrandera Poultry Production Complex within the landscape. A desktop review may occur every three years to check for potential legislative changes that may be pertinent.

2 Aboriginal Community Consultation

2.1 Aboriginal Community Consultation Towards The EIS

Consultation with the Aboriginal community was undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (ACHCRs) (DECCW, 2010). Stage 1 advertising for expressions of interest in the Development began on 6 January 2015. The following organisations were contacted in order to identify Registered Aboriginal Parties (RAPs):

- Office of the Registrar (ALRA);
- Native Title Services Corporation (NTSCORP);
- Office of Environment & Heritage (OEH), Southwest Region;
- National Native Title Tribunal (NNTT);
- Local Lands Services;
- Narrandera Shire Council;
- Narrandera Local Aboriginal Land Council (NLALC); and
- Leeton & District Local Aboriginal Land Council (L&DLALC)

An advertisement was also placed in the Narrandera Argus on 8 January 2015. The deadline for the expressions of interest was set at 23 January 2015 in all communications.

The OEH recommended contacting L&DLALC. NLALC expressed interest in the project on the conditions that L&DLALC did not express interest and that L&DLALC gave permission to NLALC to be consulted.

No expressions of interest in the Development were received by the closing date of 23 January. L&DLALC submitted a late expression of interest to OzArk on 3 February 2015. An information package and details of fieldwork were sent to L&DLALC on 5 and 6 February 2015. L&DLALC confirmed that they would send a representative for the scheduled fieldwork on 10 and 11 February 2015.

OzArk sent L&DLALC a draft version of the report on 24 February 2015 with a request for feedback. In reply, L&DLALC agreed to the recommendations but requested that they be contacted in the event that any unexpected finds of Aboriginal heritage. This request is included in the management. L&DLALC also offered feedback regarding the significance of the sites.

L&DLALC were sent a second draft of the report on 17 April 2015 to comment on the redesign of the southernmost PPU and associated infrastructure. As yet no response has been obtained.

A log and copies of correspondence with Aboriginal community stakeholders is presented in Appendix 1 of OzArk 2015a.

2.2 Aboriginal Community Consultation Post EIS

After EIS submission, some minor amendments were made to the internal layout of the Development. This, and a requirement for full survey of linear alignments, necessitated some additional survey work, as described in Conditions B49 and B50.

As required in these Conditions, Aboriginal community representatives were included in the field assessment, with David Watts of the L&D LALC in attendance for the survey.

A log of correspondence with Aboriginal community stakeholders is presented in OzArk 2015b, Appendix 1.

2.3 Protocol for Continued Aboriginal Community Consultation

Under this ACHMP no Aboriginal cultural heritage sites will be impacted by the Development. All will be protected via fencing, signage and workforce inductions (**Section 4**).

For the purpose of any further consultation, it is suggested that the L&D LALC be the primary point of contact.

In the event that any of the following incidents occur, ProTen will contact OEHL as per Condition B54, and the L&D LALC should also be informed:

1. If any previously unrecorded Aboriginal sites/ objects are located during construction; or
2. If any areas are to be impacted that have not as yet been surveyed for the presence of Aboriginal sites.

Contact names and details for the L&D LALC are presented in **Appendix 1**.

3 The Aboriginal Heritage Resource

3.1 Identified Aboriginal Cultural Heritage

The Aboriginal heritage assessment components (see Section 1.1) of the Narrandera Poultry Production Complex environmental assessment) recorded six (6) Aboriginal sites (EPPC-ST1 to EPPC-ST5 and EPPC-H1). All are located in proximity of the Development infrastructure for the Narrandera Poultry Production Complex (**Figure 3-1**).

These sites are located in predominantly cleared agricultural paddocks, with occasional remnant trees. Detailed descriptions and images of each site are provided in OzArk 2015a & b, however a summary of site information is presented here in **Table 3-1**.

Table 3-1: Aboriginal sites.

Site Number	Feature	Species	GDA Zone 55 Easting	GDA Zone 55 Northing	Basic information	Location Data
EPPC-ST1	Scarred Tree	Blackbox	430534	6154983	ST1 has an elongated scar on the south side of the tree. The scar is approximately 1.5m in length and 0.35m in width, with 5cm to 10cm of regrowth. The base of the scar is approximately 0.60m above the ground. The scar is weathered but a possible axe mark is discernible at the southern end of the scar	The site is located within a farming property, approximately 27km to the west of Narrandera). Access is along public and private farm tracks from the Sturt Highway which is around 7.5km to the north of the site
EPPC-ST2	Scarred Tree	Blackbox	430843	6155957	The full details of this scar were not recorded as it was not recorded by the archaeological team. However, the photograph suggests that this is likely a cultural scar	The site is located on a farming property, 26km to the west of Narrandera. Access is along public and private farm tracks from the Sturt Highway which is around 6.5km to the north of the site
EPPC-ST3	Scarred Tree	Blackbox	430362	6154687	ST3 exhibits one Aboriginal elongated scar facing west. The scar measures approximately 1.35m long by 0.34m wide by 0.11m depth and is in good condition.	The site is located 14m east of the proposed access track to PPU 5 in a partially disturbed area near a fence line and agricultural land.
EPPC-ST4	Scarred Tree	Blackbox	431691	6155971	ST4 exhibits one Aboriginal elongated scar facing northwest. The scar measures 1.07m long by 0.37m wide by 0.14m depth and is in good condition. Steel axe marks are visible on the upper scarred	The site is located in partially cleared land 120m west of the proposed access track to PPU 5 on the eastern boundary of the Development Site.

Site Number	Feature	Species	GDA Zone 55 Easting	GDA Zone 55 Northing	Basic information	Location Data
					portion of the trunk possibly as a result of making the scar.	
EPPC-ST5	Scarred Tree	Blackbox	431825	6156131	ST5 exhibits one Aboriginal elongated scar facing southeast. The scar measures approximately 0.33m wide by 0.05m depth and is in good condition.	The site is located in partially cleared land 10m west of the proposed access track to PPU 5 on the eastern boundary of the Development Site.
EPPC-H1	Hearth	-	431234	6155751	EPPC-H1 is a hearth of fired clay c. 40m northwest of an ephemeral 'floodway'. The site was recorded in an exposure on the edge of a cleared, ploughed paddock. The hearth consists of a concentration of fired clay nodules over a 50cm by 50cm area. No stone artefacts were observed nearby.	The site is located approximately 26km west of Narrandera. Access is along public and private farm tracks from the Sturt Highway which is around 6.5km to the north of the site.

3.2 Cultural Values

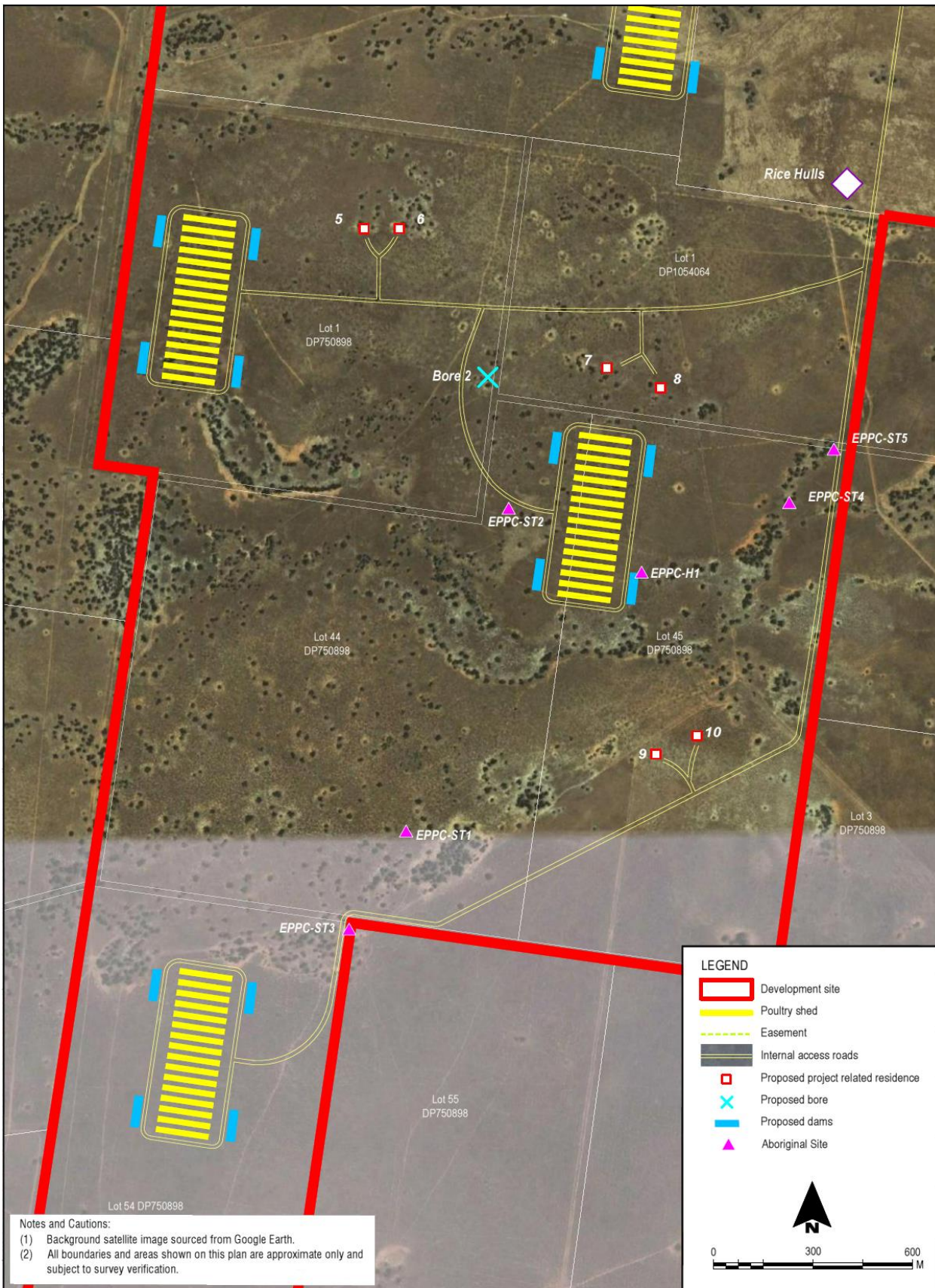
The cultural significance of the Aboriginal sites identified over the Development Site to the local Aboriginal community was documented during the assessments. The following statement was provided by L&DLALC:

All sites are significant to Aboriginal people and as such should be managed, maintained and respected as such. The area that was inspected was void of any identifying landscape due to the clearing and farming that had been undertaken over the years.

Although it is impossible to say for sure what type of Scarred tree is on the site it could have been used for shelter, coolamons or could have been for ceremony. A common practice for Wiradjuri people when identifying scarred trees was by painting them to identify their significance and use. Due to the landscape of most of Wiradjuri country most painting/artwork around the country was done on scarred trees. Over the years though due to weather conditions and other significant impacts most of the artwork is no longer visible.

The hearth's significance is because of its location and because of the visible water line which could have been a creek in the area originally which could indicate it was possibly a campsite with traditional hunting and gathering been undertaken in the area.

Figure 3-1: Aboriginal Site Locations (source SLR).



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3.3 Summary of Impacts

No Aboriginal sites will be impacted as a result of the construction or operation of the Narrandera Poultry Production Complex.

4 Management of the Aboriginal Heritage Resource

4.1 Mitigation / Management Measures for Site Avoidance

To ensure that the Aboriginal sites present in the landscape of the Narrandera Poultry Production Complex are not inadvertently impacted during construction or operation of the Complex, the following mitigation measures, which were included in the Construction Environmental Management Plan (CEMP), should be employed:

- 1) The six identified Aboriginal sites will be permanently fenced with a 10 m buffer. This will cover both the construction and operational phases of the Complex. The fencing will be clearly visible and signed with “Do Not Enter”.
- 2) The following alternative mitigation measures are to be implemented in the vicinity of the EPPC-ST5 scar tree to ensure the protection of the tree where road batters encroach within the 10 m buffer zone:
 - a) No ground surface disturbing works (digging) will occur within the 10 m buffer zone.
 - b) If the batter of a road needs to encroach within 10 m buffer zone, the batter will sit on the ground surface and will not be dug in, and it will be kept as far from the trunk of the tree as practicable
 - c) Sediment control measures will be put in place at the base of the batter to prevent any sediment run-off from the batter from accumulating at the base of the trunk.
 - d) The material to be used in the batter will not chemically change the pH/acidity of the soils in the area such the tree may suffer poor health as a result.
- 3) ProTen employees and contractors will be made aware of the presence of the six identified Aboriginal heritage sites during site inductions and training.
- 4) Any alterations to the Development footprint that are outside of the study areas of the Aboriginal heritage field surveys will be assessed in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*.
- 5) If the scarred trees naturally fall over, the Leeton and District Local Aboriginal Land Council (L&DLALC) will be contacted to discuss if further management is required and, if so, what the appropriate management would be.
- 6) If any Aboriginal objects are uncovered during work, excavation or disturbance of the work area, work will stop immediately and the *Unexpected Finds Protocol* in Section 4.7.1 will be followed.
- 7) If an Aboriginal object/place is known to be directly or indirectly adversely affected, ProTen will need to apply for, and be issued, an Aboriginal Heritage Impact Permit (AHIP) by OEH to comply with the *National Parks and Wildlife Act 1974*.

4.2 General Management Measures

4.2.1 Unanticipated Finds Protocol

Protocol to be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered:

1. All ground surface disturbance in the area of the find(s) will cease immediately after the find(s) are uncovered.
 - a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and
 - b. The site supervisor will be informed of the find(s).
2. If there is substantial doubt regarding an Aboriginal origin for the find(s), then a qualified opinion from an archaeologist will be gained as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be archaeological. If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.
3. Immediately notify the following authorities or personnel of the discovery:
 - a. OEH; and
 - b. L&D LALC.
4. Facilitate, in co-operation with the appropriate authorities and relevant Aboriginal community representatives:
 - a. The recording and assessment of the find(s);
 - b. Fulfilling any legal constraints arising from the find(s). This will include complying with OEH directions; and
 - c. The development and conduct of appropriate management strategies. Strategies will depend on consultation with L&D LALC and the assessment of the significance of the find(s);
5. Where the find(s) are determined to be Aboriginal objects, any re-commencement of construction/operation related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements.

Should suspected ancestral human remains be encountered, the following process will be adhered to:

- Do not further disturb or move the remains;
- Immediately cease work in the vicinity and cordon area off;
- Notify the NSW Police;

- Notify the OEH's Environment Line on 131555 as soon as practicable and provide available details of the remains and their location; and
- Do not re-commence work in the area unless authorised in writing by OEH.

4.2.2 Aboriginal Heritage Inductions for Work Crew Members

Members of the construction and operation teams, including sub-contractors, machine operators and truck drivers, etc. should undergo site induction concerning Aboriginal cultural heritage issues, prior to working on the site. This induction should inform workers / contractors of the location of Aboriginal sites within the Development Site, and of their legislative protection under Section 90 of the *NSW National Parks and Wildlife Act 1974*, along with the controls that are in place to protect the Aboriginal sites. Such inductions assist greatly in avoiding inadvertent impact to Aboriginal sites.

5 References

- OzArk 2015a OzArk Environmental & Heritage Management Pty Limited 2015. *Euroley Poultry Production Complex Aboriginal Archaeological Assessment, Narrandera LGA*. A report to SLR Consulting Australia Pty Limited.
- OzArk 2015a OzArk Environmental & Heritage Management Pty Limited 2015. *Addendum to the Euroley Poultry Production Complex Aboriginal Archaeological Assessment, Narrandera LGA*. A report to SLR Consulting Australia Pty Limited.
- NSW DoP 2015 NSW Government Department of Planning: Development Consent for Application No. SSD 6882, Euroley Poultry Production Complex, dated 9.11.2015.

Appendix 1: Contact List of Aboriginal Stakeholders

ORGANISATION	CONTACT
Leeton & Districts LALC	Karen Davy PO Box 994 Leeton NSW 2705 admin@ldlalc.com.au 6953 4344

Narrandera Poultry Production Complex (SSD 6882)

EMERGENCY DISPOSAL AND BIOSECURITY PROTOCOL



Prepared by:

Narrandera Poultry Production Complex

Sturt Highway, Narrandera NSW

Emergency Disposal and Biosecurity Protocol

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DOCUMENT CONTROL

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610.15489	Version 3	11 May 2016	Eryn Bath	Eryn Bath	Eryn Bath
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APPENDICES

Appendix A - ProTen Farm Biosecurity Manual

Appendix B - Draft Standard Operating Procedures for In-Shed Composting (RIRDC 2014)

1 INTRODUCTION

1.1 Background

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres (km) west of Narrandera in south western New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. The layout of the Development is illustrated on **Figures 1 and 2**.

This *Emergency Disposal and Biosecurity Protocol* has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the Narrandera Poultry Production Complex. For the purposes of this document, the Development is described in:

- The Environmental Impact Statement (EIS) (SLR 2015a) and the appendices contained within; and
- The Response to Submissions (RTS) (SLR 2015b) and the appendices contained within.

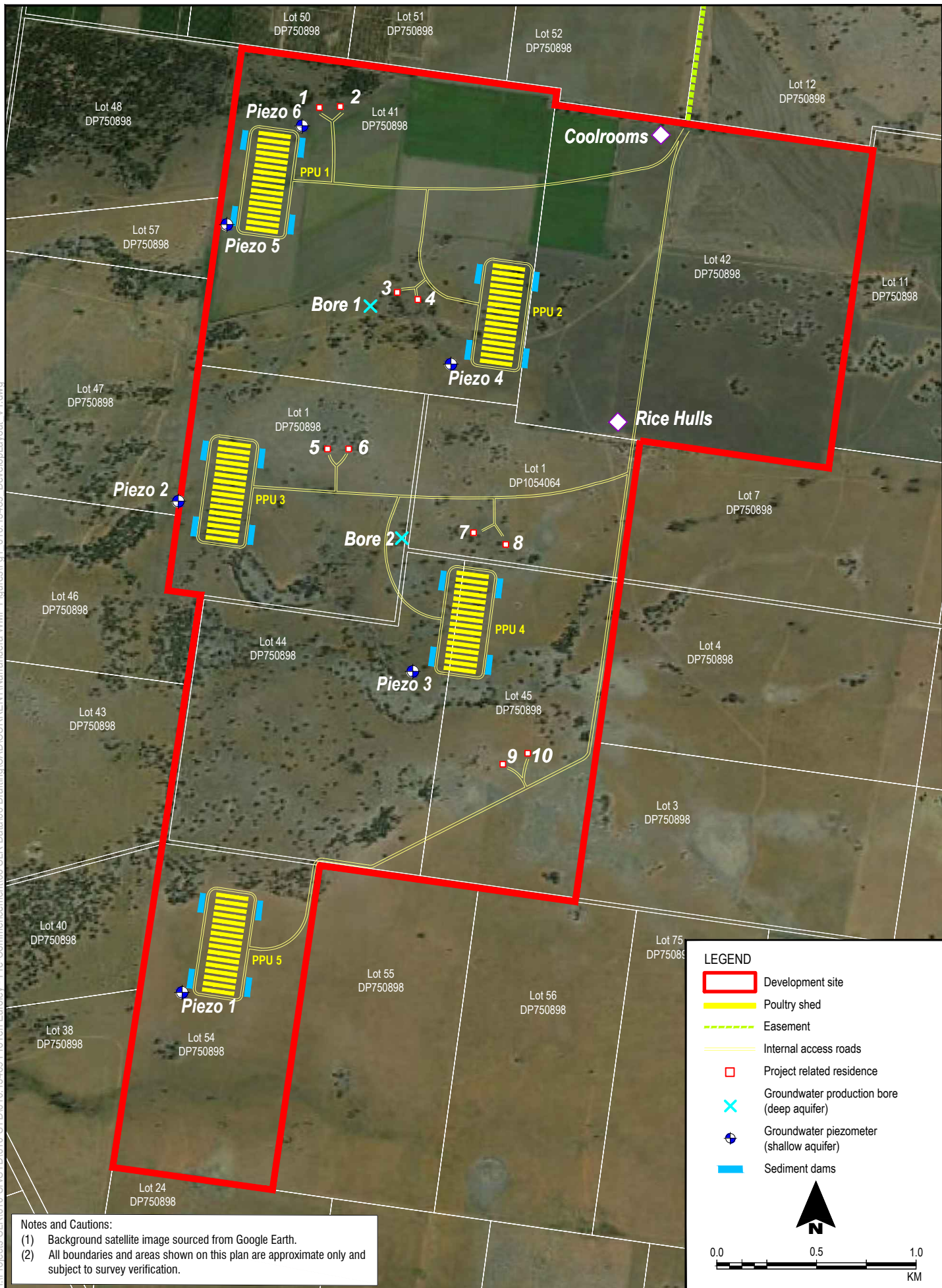
1.2 Objectives

This *Emergency Disposal and Biosecurity Protocol* has been prepared as an appendix to the *Operational Environmental Management Plan* (OEMP) (SLR 2016a) prepared for the Development and is to be read in conjunction with the OEMP. It has been prepared specifically to satisfy condition B9 of Development Consent SSD 6882, the requirements of which are listed in **Table 1**.

Table 1 - Consent Condition B9

Condition No.	Condition	Section Addressed
B9.	<i>Prior to commencement of operation, the Applicant shall prepare an Emergency Disposal and Biosecurity Protocol, detailing the disposal procedures for a mass mortality event, to the satisfaction of the Secretary. The protocol shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The protocol shall:</i>	
(a)	<i>Be prepared in consultation with Council, DPI and other relevant government agencies;</i>	Section 1.3
(b)	<i>Be consistent with the relevant AUSTVETPLAN manuals and supporting documents;</i>	Sections 1.2, 2 and 3
(c)	<i>Describe the notification procedures;</i>	Sections 3.1 and 3.2
(d)	<i>Detail all transport routes to be used in a mass mortality event;</i>	Section 3.5
(e)	<i>Detail any requirements to stage the mass disposal of dead broilers;</i>	Section 3.6
(f)	<i>Detail the burial location(s) for the disposal of dead broilers, including plans and drawings;</i>	Section 3.5
(g)	<i>Detail the measures to maintain quarantine control; and</i>	Section 2
(h)	<i>Detail the mass mortality disposal procedure and options, consistent with section 6.12.2 of the EIS and section 2.1.10 of the RTS.</i>	Section 3.5

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

LEGEND

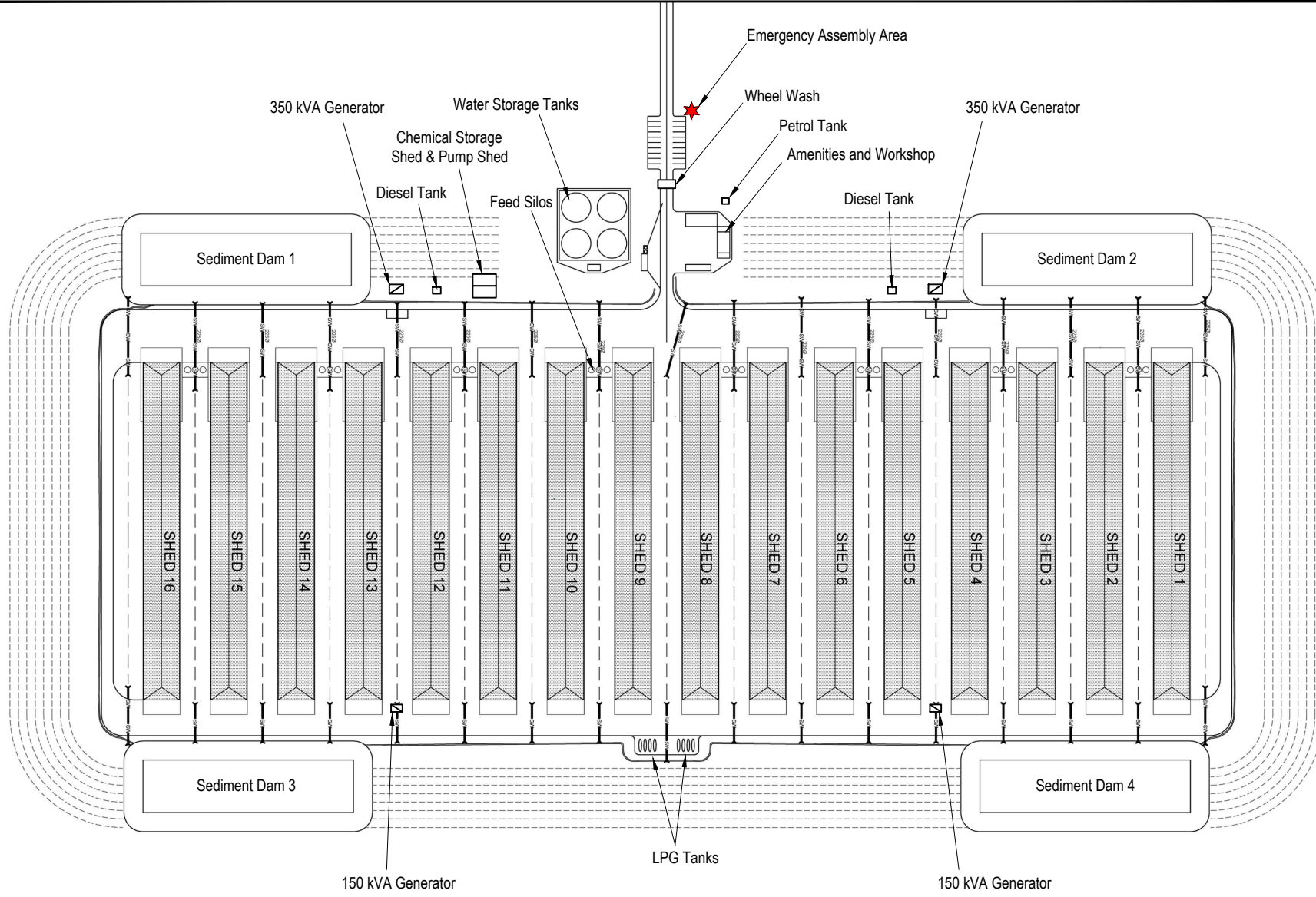
- Development site
- Poultry shed
- Easement
- Internal access roads
- Project related residence
- X Groundwater production bore (deep aquifer)
- ⊕ Groundwater piezometer (shallow aquifer)
- Sediment dams

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Note:
 Symbols depicting generators, fuel tanks, wheel wash
 and chemical storage shed, are conceptual only.

Source: Lance Ryan Consulting Engineers / Ref No 14W032-C02

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Poultry Production Unit Layout

FIGURE 2

The *Emergency Disposal and Biosecurity Protocol* has been prepared in consideration of:

- *National Farm Biosecurity Manual for Chicken Growers* (Australian Chicken Meat Federation [ACMF] 2010);
- *ProTen Farm Biosecurity Manual* (ProTen 2011), a copy of which is contained in **Appendix A**;
- *Best Practice Management for Meat Chicken Production in NSW – Manual 2 Meat Chicken Growing Management* (Department of Primary Industries [DPI] 2012);
- *National Water Biosecurity Manual – Poultry Production* (Department of Agriculture, Fisheries and Forestry [DAFF] 2009);
- *Australian Veterinary Emergency Plan AUSVETPLAN: Enterprise Manual – Poultry Industry (chickens, ducks and turkeys), Version 3.0* (Animal Health Australia [AHA] 2013);
- *Australian Veterinary Emergency Plan AUSVETPLAN: Operational Manual – Destruction of Animals, Version 3.2* (AHA 2015a);
- *Australian Veterinary Emergency Plan AUSVETPLAN: Operational Manual – Disposal, Version 3.1* (AHA 2015b); and
- *Biosecurity of Mass Poultry Mortality Composting* (Rural Industries Research and Development Corporation [RIRDC]) 2014).

There is a major economic incentive for ProTen to ensure flocks are kept disease free. As well as affecting bird health and welfare, disease can significantly reduce production efficiency and product quality. If a flock requires depopulating, the economic gain from the flock is immediately lost. In addition there is considerable cost associated with euthanasia and removal of birds, carcass disposal, shed disinfection and remediation activities. On this basis, ProTen places a high importance on maintaining flock health through vaccination, farm hygiene and biosecurity.

ProTen has demonstrated a strict biosecurity commitment at its various other facilities over the years and will implement a range of proven biosecurity measures at the Development. However, in the unlikely event that biosecurity is breached and there is an emergency animal disease (EAD) outbreak, a coordinated management approach, as outlined in this *Emergency Disposal and Biosecurity Protocol*, will be implemented.

1.3 Stakeholder Consultation

A draft version of this *Emergency Disposal and Biosecurity Protocol* was provided to Narrandera Shire Council (Council), Department of Primary Industries (DPI) and Environment Protection Authority (EPA) for review and comment on the 24 March 2016. Comments were received from these agencies on <date>, 15 April 2016 and 1 April 2016, respectively, and the Protocol updated to address these comments prior to submission to the Department of Planning and Environment (DP&E) for approval.

1.4 Roles and Responsibilities

1.4.1 General

The key personnel responsible for biosecurity and EAD management during the operation of the Development are listed in **Table 2**.

Table 2 - Roles and Responsibilities

Role	Responsibilities
ProTen Site Management	<ul style="list-style-type: none"> • Ensure appropriate biosecurity measures are implemented on a routine basis in accordance with the <i>National Farm Biosecurity Manual for Chicken Growers</i> (ACMF 2010) and <i>ProTen Farm Biosecurity Manual</i> (ProTen 2011). • Ensure that all staff members (employees and contractors) are appropriately inducted, trained and aware of their obligations for biosecurity, environmental protection and the health and safety of fellow workers through site inductions and regular toolbox talks. • Ensure flock health is monitored and recorded on a daily basis in conjunction with Baiada Poultry (Baiada). • Oversee the implementation of this <i>Emergency Disposal and Biosecurity Protocol</i> and provide adequate resources to enable implementation of this Protocol. • If an EAD is suspected, immediately implement strict quarantine procedures to prevent the spread of the disease and contact DPI (see Section 1.4.2) and follow all instructions provided.
All employees and contractors	<ul style="list-style-type: none"> • Ensure familiarity, implementation and compliance with the <i>ProTen Farm Biosecurity Manual</i> (ProTen 2011) and this <i>Emergency Disposal and Biosecurity Protocol</i>. • Take immediate action to notify Site Management of any biosecurity breach and/or suspected disease amongst the birds. • Work in a manner that will not breach site biosecurity.

ProTen's *Employee Induction Booklet*, which is provided and discussed during the company's standard induction when commencing work for ProTen, clearly advises that everyone is responsible for maintaining biosecurity and refers to the *ProTens Farm Biosecurity Manual* (ProTen 2011).

1.4.2 Inductions and Training

ProTen Site Management will ensure that all employees and contractors involved in the operation of the Development are suitable inducted and trained, including in relation to biosecurity, prior to commencing any work on site. Training will take place initially through the site induction and then on an on-going basis through "toolbox talks" (or similar).

Specifically in relation to animal disease, poultry workers will be trained to recognise the clinical signs of respiratory disease in poultry so that sick or dead birds can be reported and immediate action can be taken. Signs of illness may include sudden death, lack of coordination, purple discoloration of the wattles, combs and legs, lack of energy and appetite, diarrhea, swelling of the head, eyelids, comb, wattles and hocks, nasal discharge and coughing or sneezing. Some infected birds may not show any clinical signs.

Poultry workers will also receive training on the proper use, care and maintenance of personal protective equipment (PPE).

1.4.3 Duty to Notify

All employees and contractors at the Development are responsible for alerting Site Management to hazards and potential hazards that may result in an environmental incident, regardless of the nature or scale. This extends to biosecurity breaches and poultry disease.

Notification responsibilities are detailed in Section 148 of the *Protection of the Environment Operation Act 1997* (POEO Act). These are broadly categorised as:

The duty of an employee or any person undertaking an activity

Any person engaged as an employee or undertaking an activity must, immediately after becoming aware of any potential incident, notify Site Management of the incident and all relevant information about it.

The duty of the employer or occupier of a premises to notify

An employer or occupier of a premises who is notified (or otherwise becomes aware of) a potential incident that threatens material harm to the environment, must notify the appropriate regulatory authority and all relevant information about the incident.

A suspected EAD must be reported immediately to DPI in one of the following ways:

- Phone the Emergency Animal Disease Watch Hotline on 1800 675 888 (monitored 24 hours a day, 365 days a year); or
- Phone Local Land Services on 1300 795 299; or
- Phone a DPI veterinarian or regulatory officer at the district office at Goulburn on 02 4824 3700.

Notifications for non-emergency animal diseases to DPI can be made in one of the following ways:

- Phone Local Land Services on 1300 795 299; or
- Phone a DPI veterinarian or regulatory officer at the district office at Goulburn on 02 4824 3700; or
- Complete and submit the Animal Disease Form at - <http://www.dpi.nsw.gov.au/content/agriculture/livestock/health/general/notifiable-animal-diseases-nsw/animal-disease-form>; or
- Print, complete and email the Animal Disease Form to – biosecurity@dpi.nsw.gov.au.

2 BIOSECURITY

Biosecurity refers to those measures taken to prevent or control the introduction and spread of infectious agents to a flock. It aims to prevent the introduction of infectious diseases and prevent the spread of disease from an infected area to an uninfected area. Biosecurity plays a vital role in the incidence of disease and is an integral part of any successful poultry production system.

The nature of each avian influenza outbreak that has occurred in Australia suggests that one or more biosecurity deficiencies were involved in the spread of the virus. Improving biosecurity is the most important way that poultry producers can prevent the spread of virus (Primary Industries Ministerial Council 2011).

The key biosecurity measures that will be implemented at the Development Site include, but will not be limited to, the following:

2.1 Separation Distances

The *Best Practice Management for Meat Chicken Production in NSW* (DPI 2012) recommends that intensive poultry farms should be located a minimum of 1,000 metres apart, and 500 metres when there are extenuating circumstances such as farms with a common owner or farms supplying the same processor. The greater the separation distance, the less opportunity there is for disease spread.

The Development is located approximately 20 kilometres to the nearest other intensive poultry operation, which is well in excess to that recommended by DPI (2012). In addition, the layout of the Development affords approximately 1,000 metres between each of the five PPU's (see **Figure 1**), which, again, is in excess to that recommended by DPI 2012. Each of the five PPU's is owned and operated by ProTen and supplying the same processor (i.e. Baiada).

2.2 Signage

Appropriate signage will be erected at the entrance to the Development Site to notify visitors of the biosecurity zone and direct them to contact ProTen prior to proceeding, along with any other requirements.

2.3 PPU Fencing

Each PPU will have a perimeter fence or otherwise well-defined boundary (for example, vegetation corridor) establishing a clearly defined biosecurity zone. If livestock graze the property, the PPU will have stock proof fencing.

2.4 Wheel Wash

The potential for mechanical transmission of disease pathogens will be reduced through the installation of a wheel wash facility on the access road to each PPU. All vehicles wishing to enter a PPU will be required to pass through the wheel wash to remove dust particles from the wheels and chassis. On approach the driver is requested (via signage) to push a button, a small pump will turn on and the driver is requested (via signage) to proceed slowly through the wheel wash spray.

An appropriate chemical sanitiser, such as Microgard 755N or Micro-4, which are commonly used on poultry farms, will be added to the wash water.



ProTen's Jeanelle Poultry Production Complex (Goolgowi NSW)

Plate 1 – Example Site Signage and Wheel Wash

2.5 Single Age Farm

Vaccinated stock can become infected and show no clinical signs of disease, yet can transfer the disease to younger and/or more susceptible birds. To reduce the risk of disease transfer and outbreak, whole flock units with minimum age difference will be placed into each PPU. On this basis, each PPU will operate on an “all in – all out” placement and depopulation program.

2.6 Closed Flock

Birds on other sites may be exposed to different strains of organisms to which other flocks may not have developed immunity to. In addition, birds may have been exposed to a disease organism and not have developed clinical signs of the disease. Moving apparently healthy birds into a disease-free flock could mean introducing disease to a clean farm site. For these reasons, once a flock is placed, no new birds will be introduced from any other source.

2.7 Water Supply Treatment

The Development's operational water requirement will be sourced via groundwater production bores (see **Figure 1**). Water from the groundwater bores will be pumped to storage tanks at each PPU for treatment and storage prior to use in the poultry sheds for water supply and cleaning purposes.

Water extracted from the bores will be treated as per the recommendations by the *National Water Biosecurity Manual – Poultry Production* (DAFF 2009). Water will be pumped from the bore and filtered through sand media. The water pH will be monitored and if it is found to be high, citric acid will be added to maintain pH at approximately 7.0. The water will then be chlorinated to deliver approximately 3 ppm (parts per million total dissolved solids) into the storage tanks. Finally, chlorine dioxide will be dosed into the water delivery system supplying the sheds at between 0.5 and 0.1 ppm.

Due to the biosecurity risk, stormwater run-off from the roofs of the poultry sheds will not be captured and used to supplement water supply. While captured roof water could be chlorinated, there is still an element of risk associated with introducing disease pathogens to the livestock and the possibility of spreading disease.

2.8 Other Measures

Various additional biosecurity measures will be implemented on a routine basis in accordance with the *ProTen Farm Biosecurity Manual* (ProTen 2011) (see **Appendix A**) and *National Farm Biosecurity Manual for Chicken Growers* (ACMF 2010). These include:

- The poultry sheds and equipment will be sanitised and disinfected at the end of each production cycle.
- Dead birds will be removed from the poultry sheds on a daily basis and stored in an on-site chiller prior to removal off site.
- At the end of each production cycle, poultry litter will be promptly removed from the poultry sheds and transported off site.
- Appropriate waste management practices/systems will be implemented (see the *Waste Management Plan*, SLR 2016b) to ensure no on-site stockpiling or disposal of waste materials.
- Under no circumstances will poultry litter or dead birds be allowed to stockpile within the Development Site.
- Implementation of ProTen's standard pest control program, which primarily comprises the installation and maintenance of baits as a preventative measure to prevent and control outbreaks.
- The poultry sheds will be maintained to prevent the entry of wild birds and limit the access of vermin as far as is practical.
- The shed environs will be kept free from debris and grass will be regularly slashed/mown.
- Staff members working in direct contact with livestock will not be permitted to keep other bird species or pigs at their place of residence.
- Staff members and visitors will not be permitted to travel between poultry farms without changing clothes and foot wear, and washing face and hands.
- Any equipment being moved between PPU's or coming on site from another poultry farm will be cleaned and disinfected prior to operation.
- Records will be maintained for visitors (not farm staff or Baiada contractors) entering and exiting each PPU.
- The surface water management system at each PPU will ensure the area around the poultry sheds is adequately drained to prevent the accumulation and stagnation of water likely to attract waterfowl.
- If wild birds become an issue, culling will be undertaken by a local gun club (operating under appropriate licenses and permits).

3 MASS MORTALITY DISPOSAL STRATEGY

3.1 Workplace Health and Safety

All activities during a suspected EAD outbreak must comply with all relevant workplace health and safety requirements. ProTen understands that it has “duty of care” obligations under the *Work Health and Safety Act 2011* (and its associated Regulation).

3.1.1 Personal Protective Equipment

Appropriate personal protective equipment (PPE) must be maintained on site at all times, this is particularly important for any staff or contractors entering a shed with a suspected EAD.

This PPE should aim to prevent skin contact with virus-contained materials or environments, and should include gloves, aprons, outer garments or coveralls, boots or boot covers, a disposable head cover or hair cover and unvented safety goggles (eye protection is important to prevent eye contact with virus-contaminated dusts, droplets and aerosols and to keep workers from touching their eyes with potentially-contaminated fingers or gloves). Although disposable PPE is preferred, reusable outer garments that can be effectively disinfected are suitable.

If the EAD is potentially transmitted by breather contaminated dusts, droplets or areoles (for example, avian influenza), appropriate respirators should be worn when in the sheds.

3.2 ProTen Resources

Everyday staffing at the Development Site will number between 25 and 30, including 10 farm managers/assistant farm managers that will live on site. In the unlikely event of an EAD, and in addition to the regular farm staff, ProTen will be able to mobilise additional assistance from its Griffith-based resources. This includes 10 on-call staff and around 60 staff members based at other farms in the Griffith area.

Baiada will also direct resources are any suspected EAD. Baiada has veterinary and laboratory resources available, along with heavy machinery (if needed).

3.3 Initial Response

In the unlikely event of an EAD outbreak at the Development Site, Site Management will immediately implement strict quarantine procedures to isolate the potentially infected PPU site(s) and contact DPI (see **Section 1.4.2**) and follow all instructions provided. These agencies will likely assume control of the Site.

The response will depend on what the disease is. If it is an EAD under *Emergency Animal Disease Response Agreement* (EADRA) (for example, highly pathogenic avian influenza) an emergency animal disease response plan (EADRP) will be agreed to by the Consultative Committee on Emergency Animal Disease (CCEAD).

3.4 Quarantine Procedures

ProTen’s quarantine procedures in the event of a suspected EAD include the following:

- All movement of birds and poultry litter will immediately cease, and all other movements on and off the Site will be limited to an absolute minimum.
- Site and/or PPU gates will be kept closed and locked.
- The doors of the poultry sheds with potentially infected birds will be kept closed and locked at night.

- No visitors will be permitted to enter the Site unless absolutely essential. Company personnel will discontinue routine visits except on suspicion of problems, and only emergency repairs and maintenance will be permitted (i.e. no routine work).
- Essential visitors will be required to have a head-to-toe shower before and after the visit. A complete change of clothes, footwear, hair covering and breathing protection will be required. Used clothing and all used personal protection equipment will remain on Site.
- Any vehicle that must enter the Site (for example, feed and gas delivery trucks) will be washed and disinfected at the wheel wash before and after the visit.
- Records will be maintained on the movement of vehicles, equipment, people, dead birds and litter on and off site. This information will be required by DPI.
- ProTen will work with DPI and follow all instructions provided during the quarantine period and until the EAD situation is fully dealt with.

Provisions for the cleaning and disinfection of equipment coming on and off the Site/PPU will already be available on site.

3.5 Euthanasia of Infected Stock

Upon confirmation that it is indeed an EAD outbreak and immediate slaughter of farm stock is necessary, slaughter will be managed by DPI.

In accordance with the *AUSVETPLAN: Operational Manual – Destruction of Animals, Version 3.2* (AHA 2015a), the preferred available method for the euthanasia of large numbers of birds in commercial poultry units is gassing with carbon dioxide (CO₂) within the poultry sheds. This method reduces the exposure of personnel to infected material, eliminates the need to handle large numbers of live birds, reduces dispersal of dust, provides the opportunity for disposal by composting in the shed, and should be more cost-effective than methods that require birds to be caught individually (AHA 2015a).

AHA (2015a), and also DPI's *Procedure – Destruction of birds using carbon dioxide gas (CO₂) in the shed* (DPI 2008), provides the following procedure:

Planning

Preparation of sheds must not begin until it has been confirmed that sufficient bulk gas is available to complete the task.

Where possible, the procedure should be carried out in cool, still weather conditions (temperature <15 to 20 degrees Celsius wind speed <5 to 10 kilometres per hour), which will help contain the gas in the shed.

Shed preparation

- If necessary, a minimum number of suitably dressed personnel should enter the shed and turn off any necessary services, such as electricity, water and feed. Most, if not all, services should be able to be turned off external to the sheds.
- Drinking and feed systems should be raised to their maximum height.
- Place CO₂ warning devices to show gas levels one metre above bird height.
- The ventilation system should be shut down when the CO₂ is ready for injection into the sheds.
- While wrapping the shed in plastic should not be required for “controlled-environment sheds” (i.e. fully-enclosed ventilated sheds), the shed should be inspected for any openings where the gas may leak out.
- Position gas delivery hoses one metre above the floor.
- Post warning signs on the shed and access ways.

Gas supply

Gas injection must not commence until adequate supplies of CO₂ gas to complete the task have been confirmed.

Calculation of the CO₂ required should be based on the size of the poultry sheds, which each measure approximately 160 metres long by 17 metres wide, with a bird space of approximately 2,720 square metres. They measure approximately 4.2 metres to the ridge of the roof and approximately 2.4 metres to under the eaves.

Gas injection

Begin injecting gas only when:

- Adequate supplies of CO₂ gas to complete the task have been confirmed;
- The current and predicted weather for the duration of the task is within the limits mentioned above (where possible);
- The team leader or site supervisor is satisfied that the shed is free from large openings where the gas may leak out and/or is adequately wrapped;
- All personnel are outside the shed, present and accounted for; and
- Suitably qualified breathing apparatus personnel are in attendance.

When gas injection begins, the time should be recorded so that the minimum injection period is completed. Gas injection should fill the shed in 30 to 60 minutes. The following points need attention:

- Deliver the gas quietly to prevent birds packing up.
- Deliver the gas one metre above the birds, so that it flows down to the floor and across it.
- At start-up of gas flow, the delivery valves should be closed and the vaporiser open. The valve from the tank to the vaporiser is then rapidly opened three-quarters of the way.
- Monitor leakage from the shed with a portable CO₂ monitor. The terrain of the site and surrounding lands, which is very flat, should not influence the direction of any escaping gas.
- Once the injection time is completed, check audible alarms and candles to confirm that the gas has reached the desired level.
- Close the gas flow from the tank to the vaporiser while the delivery valve is open, so that pressure is released.
- Leave the shed closed for at least two hours. The birds can then be inspected by personnel in breathing apparatus to confirm that all birds are dead. Where small numbers of birds (<100) are still alive, these can be killed by an alternative method, such as neck dislocation.
- Ventilate the shed (open exhaust vents) for at least four hours to allow gas to escape from the feathers of the birds. Sensor readings must be checked for clearance of CO₂ before personnel without breathing apparatus enter the shed. Personnel with breathing apparatus must stand by until it is established that the shed is clear of CO₂.

AHA (2015a) advises that consideration should be given to composting the carcasses in the shed after euthanasia.

3.6 Disposal Options

A number of options exist for the disposal of bird carcasses and fomites. The *AUSVETPLAN: Operational Manual – Disposal, Version 3.1* (AHA 2015b) lists the following mass disposal options:

- Burial;
- Burning;
- Rendering;
- Composting; and
- Anaerobic digestion.

The most appropriate option in the event of a mass mortality event will depend on a number of factors, including the scale of the outbreak, the ability of a rendering plant to accept the bird carcasses, the logistics and cost associated with transportation of carcasses off site, and a site's suitability for burial. While on-farm burial has traditionally been the predominant disposal option in the poultry industry, this practice is now discouraged on the basis of significant environmental risks including potential groundwater impacts.

In consideration of the above, and pending the scale of the EAD event and instructions provided by DPI, the following options in order of preference will be implemented for the disposal of bird carcasses and fomites in the event of an EAD outbreak at the Development Site.

3.6.1 Option 1 – In-Shed Composting

The preferred option for mass bird disposal is in-shed composting (as previously advised to ProTen by DPI). Composting is a natural biological process that transforms organic materials, in a predominantly aerobic environment, into a useful and biologically stable end product. The process, if carefully implemented and monitored, generates sufficient heat to destroy most pathogenic organisms (AHA 2015b).

Emergency management agencies throughout Australia have now identified on-farm composting as a preferred method of carcass disposal. The *Biosecurity of Mass Poultry Mortality Composting* (RIRDC 2014) investigated the feasibility of on-farm composting and the effectiveness of this disposal method in eliminating avian diseases in bird carcasses and litter. The investigation found that composting effectively restricts the spread of the disease and the composting can be undertaken in the poultry sheds or on the farm using poultry litter as a bulking agent. RIRDC (2014) advises that poultry carcasses rapidly decompose, usually within 14 days, and after a further period of composting the compost can be safely applied to land.

Studies were also conducted on the survival of the V4 vaccine strain of Newcastle disease virus during composting, finding that the virus was killed within the first five days of composting. Conditions monitored during the composting process suggested there is a wide safety margin and that the Newcastle disease virus and other EADs, such as avian influenza, are unlikely to survive for long (RIRDC 2014).

RIRDC (2014) advised that the successful implementation of composting as a disposal method during an EAD outbreak has been repeatedly demonstrated in the United States of America (USA) and Canada.

Although composting can be undertaken both inside and outside the poultry shed, in-shed composting is the preferred method since it provides better security and protection from wind, rain and scavengers. In-shed composting also holds an advantage over other options involving sending the bird carcasses off site for rendering or burial in that it does not require transport of the carcasses and limits the potential spread of the disease.

In-shed composting would occur under the supervision of DPI and in accordance with the procedures outlined in latest versions of *AUSVETPLAN: Operational Manual – Disposal* (AHA 2015b) and *Biosecurity of Mass Poultry Mortality Composting* (RIRDC 2014), and also *Procedure – Disposal of birds by composting* (DPI 2008). The draft standard operating procedures (SOPs) for mass poultry mortality composting provided by RIRDC (2014) are contained in **Appendix B**. These were originally developed in consultation with Biosecurity Victoria and the Victorian DPI's Animal Health Branch. RIRDC (2014) advises that these SOPs can be modified to suit the needs of the individual agencies around the country.

There are three separate SOPs covering the main operations involved in in-shed windrow composting:

- SOP No. 1 - setting up composting windrows using both the mixing and layering methods;
- SOP No. 2 - process control and monitoring, including temperature monitoring, troubleshooting and key performance criteria for composting; and
- SOP No. 3 - turning windrows and compost sampling for physical, chemical and microbiological testing.

All carcasses, poultry litter and uneaten feed in the shed must be composted. When the quantity of poultry litter is insufficient to requirements for co-composting material, additional material may need to be imported from off-site. Green (i.e. not kiln dried) sawdust is the preferred co-compost since it has good moisture content (it is not too dry and dusty), is highly absorbent (low risk of runoff from leachate) and it is easy to handle. When green sawdust is not available, other suitable compost substrates include pine shavings (can be dusty), sawdust/shavings mixes (often used as bedding material in the poultry industry), poultry litter (from unaffected farms), hammer-milled green waste (can be variable in particle size and moisture content), rice hulls and straw. Given the wide range of suitable materials, including unaffected poultry litter and rice hulls, sourcing should not be an issue. The Development Site includes a rice hull storage shed and Baiada has a poultry bedding material storage facility near Hanwood (6 kilometres south of Griffith).

When undertaken properly, in-shed composting should not result in environmental impact. While odour emissions are possible during turning of compost, peak emissions usually settle down quickly and they will be largely confined by being undertaken within the enclosed poultry shed. Furthermore, given that the poultry sheds have fully sealed concrete flooring, the composting will not pose any risk to groundwater. If any leakage of fluids from the compost is identified additional absorbent co-compost material can be added.

3.6.2 Option 2 – Off-Site Rendering

Whilst in-shed composting has a number of significant advantages as a mass disposal option, a disadvantage is that the affected shed(s) can be out of operation for weeks as the composting process takes place. This is where rendering as a disposal option has an advantage, enabling the affected shed(s) to be cleaned, decontaminated and brought back into production in a much shorter period of time.

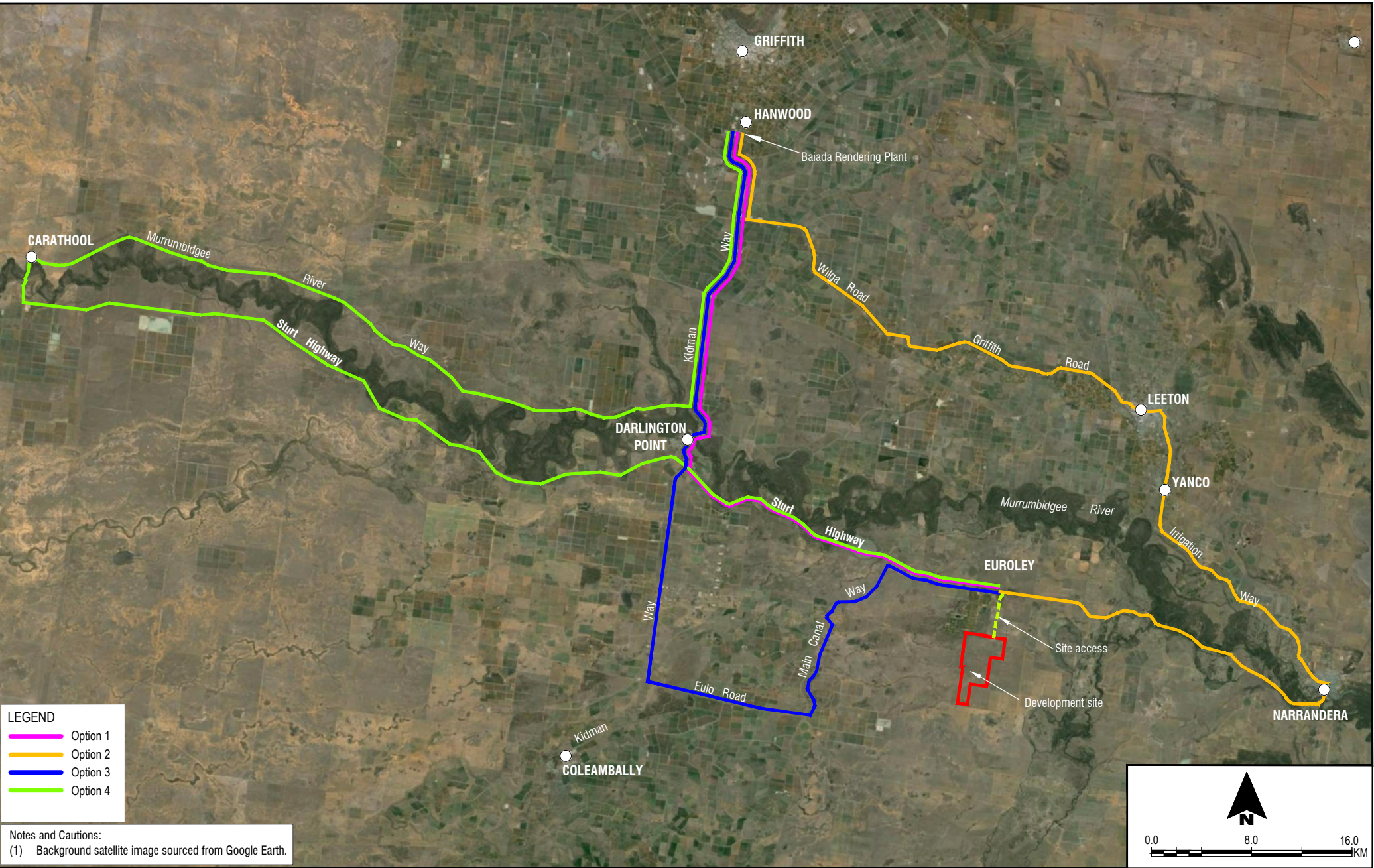
If in-shed composting is not possible or not preferred on the basis of commercial considerations, the birds could be transported to Baiada's rendering plant located approximately 1 kilometre south of Hanwood on the corner of Kidman Way and Murphy Road. **Figure 3** shows the location of the rendering plant and available transport routes. Rendering is the process by which materials are treated to remove moisture content and produce relatively dry edible and inedible by-products, such as meat meal and tallow. There are generally three primary processes involved in rendering, being the removal of moisture via evaporation, separation of fat and the drying of the meal.

Importantly rendering would only be an option if:

- The volume of the material would not exceed the rendering plant's daily processing capacity and would not significantly impact on the plant's ability to undertake normal operation and continue to service the local poultry industry (although shifts could be extended and/or prioritised to process diseased birds ahead of routine operations); and
- The off-site transport of the infected birds is not a risk in terms of potentially spreading the disease to other poultry farms; and
- Transportation vehicles and routes are available.

Rendering would occur under the supervision of DPI and in consideration of the key points raised in the latest version of *AUSVETPLAN: Operational Manual – Disposal* (AHA 2015b).

Carcasses and fomites would be loaded in to leak-proof containers within the poultry sheds and these containers would be transported in appropriate trucks disinfected on exit from the Development Site. The truck and operator should be independent from normal ProTen and Baiada operations in order to minimise the risk of disease transfer to other poultry operations. All vehicles will be thoroughly cleaned and disinfected after unloading.



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3.6.3 Option 3 – Off-Site Landfill Disposal

If in-shed composting or rendering are not possible or preferred, a third option is the transportation of carcasses and fomites to Carrathool Shire Council's landfill facility. **Figure 4** shows the location of the landfill and available transport routes.

Council, in conjunction with Baiada, has designated a portion of the landfill for the mass disposal of chickens from Baiada's various contract production farms in the area. Council has advised that this landfill area has been appropriately sectioned and quarantined, providing a safe disposal option in an EAD outbreak when the scale of the outbreak is such that the rendering plant (option 2) cannot manage the volume of birds affected.

Importantly off-site landfill disposal would only be an option if:

- The designated portion of the landfill has the capacity to cater for the amount of material to be disposed of;
- Landfilling would not significantly impact on the landfill's ability to undertake normal operation and service the other requirements of the local government area;
- The off-site transport of the infected birds is not a risk in terms of potentially spreading the disease to other poultry farms; and
- Transportation vehicles and routes are available.

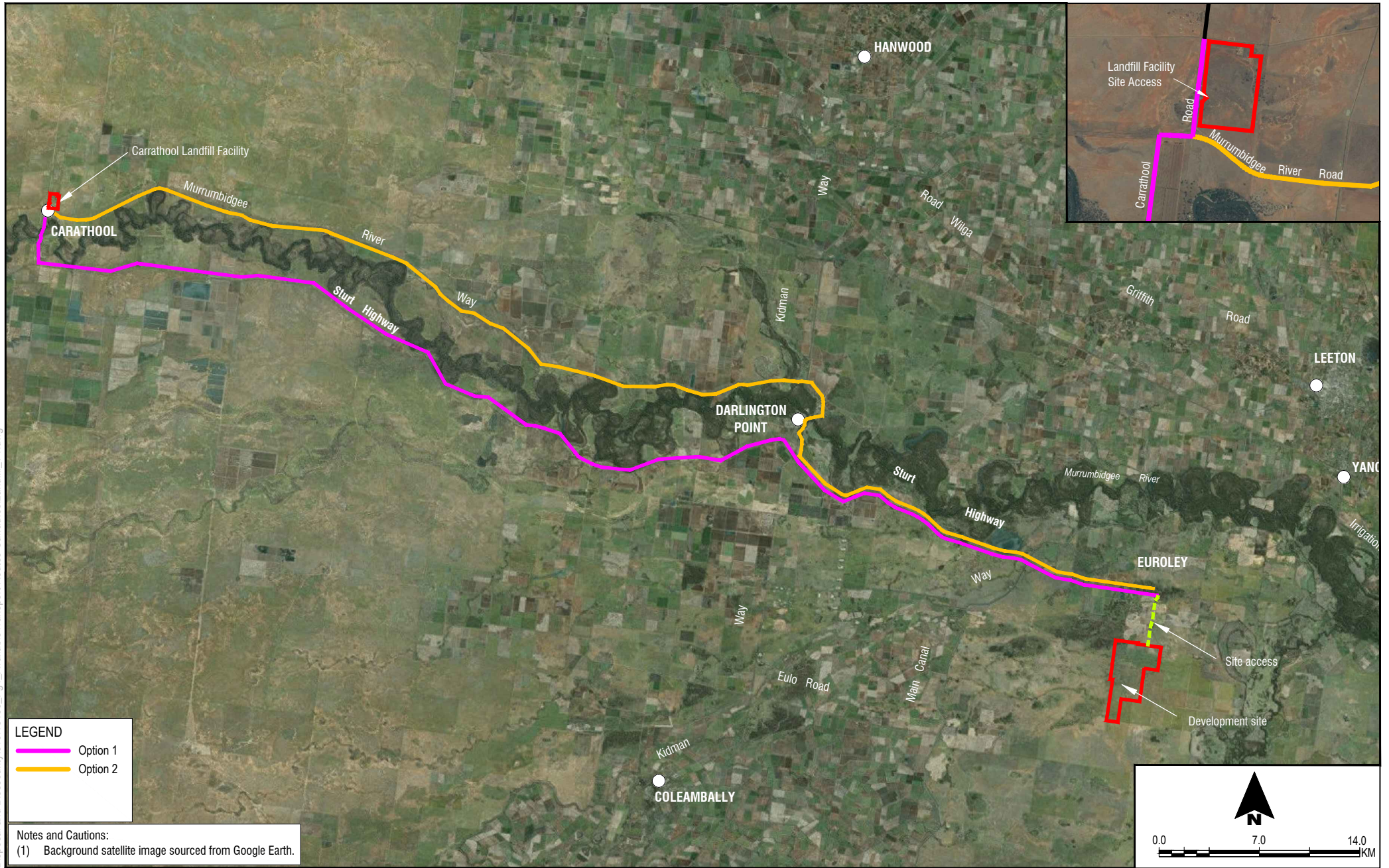
Landfilling would occur under the supervision of DPI and in consideration of the key points raised in the latest version of *AUSVETPLAN: Operational Manual – Disposal* (AHA 2015b).

Carcasses and fomites would be loaded in to leak-proof containers within the poultry sheds and these containers would be transported in appropriate trucks disinfected on exit from the Development Site. The truck and operator would be independent from normal ProTen and Baiada operations in order to minimise the risk of disease transfer to other poultry operations. All vehicles would be thoroughly cleaned and disinfected after unloading.

To reduce the likelihood of leachates permeating the subsoil, appropriate synthetic liner(s) may need to be used to seal and enclose the landfill area depending on the EAD (not necessary for certain EADs). Expert advice on the management and treatment of leachate would need to be obtained.

Baiada and Carrathool Shire Council have entered into a 2 year agreement for this quarantined portion of the landfill from mid-2015 to mid-2017. During this time Baiada has committed to investigating other long term disposal options for their contract growers (including ProTen) in the event of a mass mortality.

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Available Transport Routes to Carrathool Landfill

FIGURE 4

3.6.4 Option 4 – Off-Site Mass Burial

If in-shed composting or rendering are not possible or preferred, a fourth option is the transportation of carcasses and fomites to ProTen's Jeanella property near Goolgowi for mass burial. Burial at the Narrandera site is not considered suitable due to the presence of a shallow groundwater source (Shepparton Formation aquifer).

Figure 5 shows the location of the Jeanella property and available transport routes. This property has been chosen given its separation from any notable surface water, including approximately 50 kilometres from the Murrumbidgee River, and favourable groundwater conditions. While the groundwater works summaries for bores within the surrounding area contain very little information and are largely incomplete, the minimum water bearing zone recorded is 24 metres below ground level.

Importantly off-site burial at Jeanella would only be an option if:

- The selected burial site(s) has the capacity to cater for the amount of material to be disposed of;
- Burial would not significantly impact on the Jeanella Poultry Production Complex's ability to undertake normal operation;
- The off-site transport of the infected birds is not a risk in terms of potentially spreading the disease to other poultry farms; and
- Transportation vehicles and routes are available.

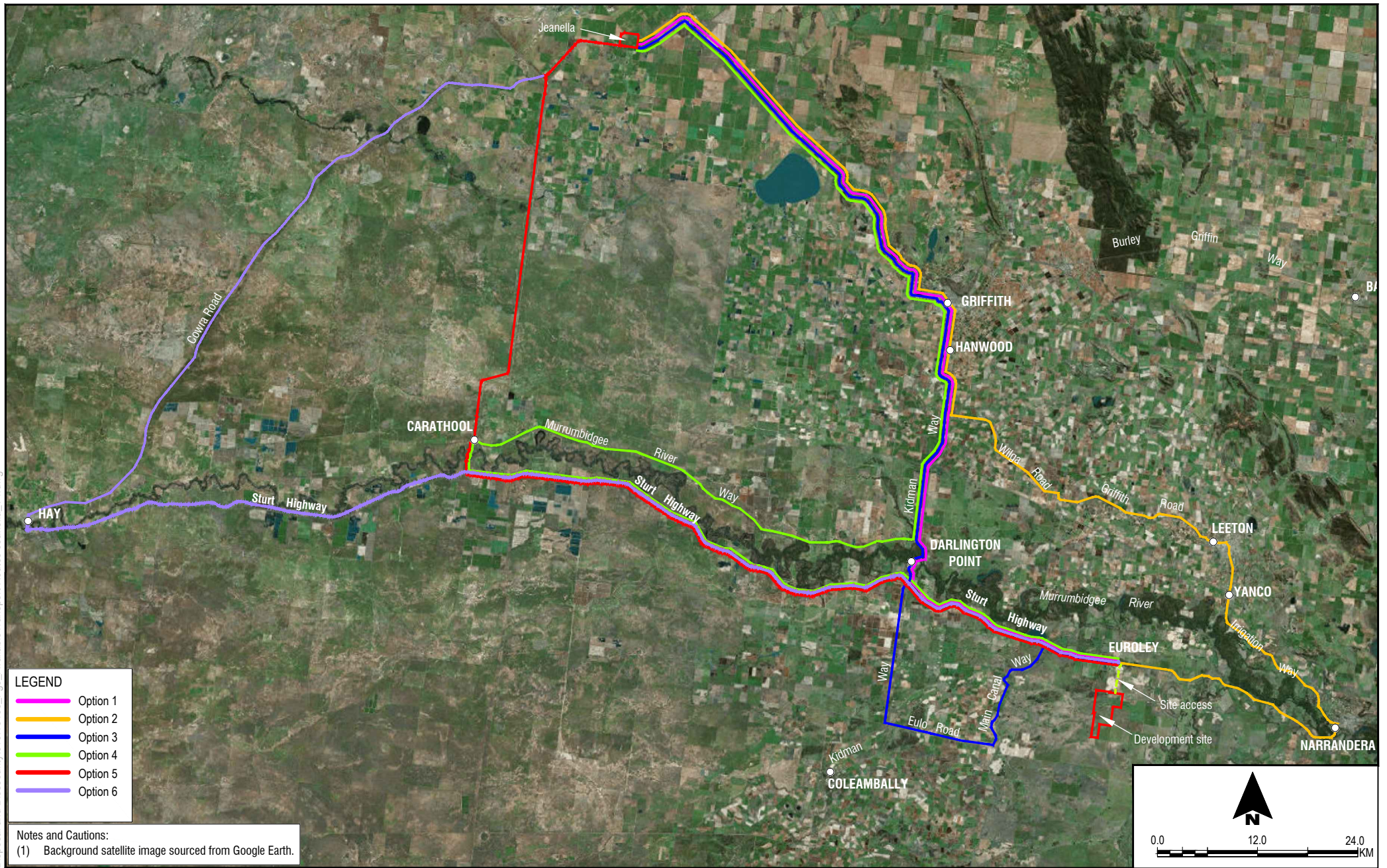
Burial would occur under the supervision of DPI and in consideration of the key points raised and the burial pit construction procedures provided in the latest version of *AUSVETPLAN: Operational Manual – Disposal* (AHA 2015b).

The amount of material to be buried and selection of an appropriate site(s) for burial are both critical considerations in this option. Where necessary, appropriately qualified personnel would be engaged to confirm the most-favourable site(s) in consideration of environmental constraints, including groundwater depth, soil permeability and separation distances, along with access provisions and construction requirements.

Carcasses and fomites would be loaded in to leak-proof containers within the poultry sheds and these containers would be transported in appropriate trucks disinfected on exit from the Development Site. The truck and operator should be independent from normal ProTen and Baiada operations in order to minimise the risk of disease transfer to other poultry operations. All vehicles will be thoroughly cleaned and disinfected after unloading.

The design and construction of the burial pits will be largely dependent on the amount of material to be buried and selected burial site(s). A series of long and relatively narrow burial pits is likely to be preferred to enable straightforward excavation and fill, with around three to five metres between each pit to enable the excavation equipment adequate manoeuvring area. Soil depth and other characteristics will be ascertained prior to burial site excavation by way of test drill holes. Again, the burial pit construction procedures provided in the latest version of *AUSVETPLAN: Operational Manual – Disposal* (AHA 2015b) will be referred to.

To reduce the likelihood of leachates permeating the subsoil, appropriate synthetic liner(s) may need to be used to seal and enclose the burial pit(s) depending on the EADS (not necessary for certain EADs). Expert advice on the management and treatment of leachate would need to be obtained. To reduce the likelihood of soil dispersing when wet, appropriate applications of lime would be added during burial activities.



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When closing the burial pits, surplus soil would be mounded over the pits as overfill. The weight of the soil will act to stop the material rising out due to gas entrapment, prevent scavengers digging up buried material, help filter odour, and assist in absorbing the fluids of decomposition.

An appropriate diversion bank(s) may be required to divert upstream run-off around the burial pit area, and expert advice on the management and treatment of leachate would need to be obtained. Appropriate fencing and signage will likely be necessary to ensure soil disturbance does not occur within the burial area.

Regular inspections of the closed burial site will be undertaken in order to ensure that any problems are promptly identified and remedied.

The economic implementations of off-site burial would require careful consideration in comparison to the preferred option of in-shed composting (option 1) and also rendering (option2). In addition, approval for off-site burial at ProTen's Jeanella property would be required via development consent and potentially a variation to Jeanella's environment protection licence (EPL). Prior consultation with Carrathool Shire Council and the EPA would need to be undertaken in this regard.

3.7 Staging

It may be necessary to stage the mass disposal of bird carcasses and fomites, however this will be dependent on the scale of the EAD outbreak and the mass disposal option selection (see **Section 3.5**). Any staging requirements will be identified and formalised in early consultation with DPI.

4 REVIEW AND UPDATE

This *Emergency Disposal and Biosecurity Protocol* will be reviewed and, if necessary, revised in response to the following:

- If an alternative/additional option for mass disposal is identified as a viable option by ProTen, Baiada and/or government agencies; or
- At the request of a relevant regulatory authority.

All employees and contractors will be informed of any revisions to the Protocol by ProTen Site Management during toolbox talks.

5 REFERENCES

Animal Health Australia (2013) *Australian Veterinary Emergency Plan AUSVETPLAN: Enterprise Manual – Poultry Industry (chickens, ducks and turkeys), Version 3.0*

Animal Health Australia (2015a) *Australian Veterinary Emergency Plan AUSVETPLAN: Operational Manual – Destruction of Animals, Version 3.2*

Animal Health Australia (2015b) *Australian Veterinary Emergency Plan AUSVETPLAN: Operational Manual - Disposal, Version 3.1*

Australian Chicken Meat Federation (2010) *National Farm Biosecurity Manual for Chicken Growers*

Department of Fisheries, Forestry and Agriculture (2009) *National Water Biosecurity Manual – Poultry Production*

Department of Primary Industries (2008) *Procedure – Destruction of birds using carbon dioxide gas (CO₂) in the shed*

Department of Primary Industries (2008) *Procedure – Disposal of birds by composting*

Department of Primary Industries (2012) *Best Practice Management for Meat Chicken Production in NSW - Manual 2 Meat Chicken Growing Management*

ProTen Holdings (2011) *ProTen Farm Biosecurity Manual*

Rural Industries Research and Development Corporation (2014) *Biosecurity of Mass Poultry Mortality Composting*

SLR Consulting Australia (2015a) *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement*

SLR Consulting Australia (2015b) *Euroley Poultry Production Complex SSD 6882, Response to Submissions*

SLR Consulting Australia (2016a) *Narrandera Poultry Production Complex, Operational Environmental Management Plan*

SLR Consulting Australia (2015b) *Narrandera Poultry Production Complex, Waste Management Plan*

APPENDIX A



ProTen

***FARM BIOSECURITY
MANUAL***

Level 1 Routine Biosecurity

1 Documentation and training

1.1 Each production facility must keep a copy of the National Farm Biosecurity Manual (the manual) that is readily accessible to staff.

1.2 Staff must be provided with training in the relevant parts of the manual and such training is to be recorded.

2 Facility standards

2.1 The production area must have a perimeter fence or otherwise well defined boundary (e.g. creek, vegetation) establishing a clearly defined biosecurity zone.

2.2 If livestock graze the property then the production area must have a stock proof fence. Grazing near is only permitted where the grazing area is separated by a stock proof barrier from the area used by poultry, effectively preventing transmission of contaminants from grazing livestock to poultry, and the grazing area is not used for access to other parts of the production area. Drainage from livestock pastures or holding areas must not enter poultry enclosures or areas that can be accessed by poultry

2.3 A sketch or map of the layout of the property, showing the production area, sheds, ranges, access roads and gates must be kept up-to-date.

2.4 The main entrance to the production area must be capable of being closed to vehicle traffic (e.g. lockable gate) and must display appropriate signage including Biosecure Area No Entry Unless Authorised or similar wording. In addition, signage must direct visitors to contact the manager before proceeding i.e. telephone number and/or enquire at house.

2.5 There must be a parking area for vehicles not entering the production area. There must be a change area away from sheds with clean protective clothing and boots provided.

2.6 Entry to sheds must only be made through entrances with a footbath containing a suitable disinfectant used in accordance with manufacturer's instructions and changed on a weekly basis. There must be provision for scraping the soles of boots before dipping to ensure the sanitiser makes contact with the soles of the boots. Facilities for hand sanitation must also be placed at the entry to each shed.

2.7 Dead bird disposal method must conform to the following requirements –

2.7.1 Dead birds must be collected regularly from the property. Dead birds should be stored in a freezer if the frequency of collection is likely to cause environmental impacts or increased biosecurity risk.

2.7.2 If used, the freezer must have sufficient capacity to adequately handle carcasses between collections and must be cleaned and sanitised between batches.

2.7.3 Collection area must be as far as practical away from the production area so that the collection vehicle does not enter the site. For example a shed could be

provided on a concrete base with doors on both sides, one for birds in, the other for birds out. Dead birds must not be left in the public view.

2.7.4 All containers used for collecting dead birds must be washed and disinfected before returning them to the production area.

2.8 All poultry housing must be designed and maintained so as to prevent the entry of wild birds and limit the access of vermin as far as is practical.

2.9 Landscape—The area around sheds must be kept free from debris and vegetation should be mown regularly. Vegetation buffers for environmental compliance should not be compromised. Trees may be used as shelter belts along fence lines.

2.10 Drainage—the production area should be adequately drained to prevent accumulation and stagnation of water likely to attract water fowl, especially in the areas around sheds and range areas.

2.11 An appropriate vermin control plan must be developed and implemented, including rodents, foxes, and wild dogs and cats.

2.12 A baiting program for rodents must be implemented where a risk assessment deems this necessary (e.g. live rodents, droppings, nests). Such a baiting program must include the following features:

2.12.1 bait stations must be numbered and a map kept of their location.

2.12.2 bait stations must be placed at regular intervals around the sheds. The number of bait stations should be increased in areas where there are signs of increased rodent activity.

2.12.3 bait stations must be designed to minimise the opportunity for other mammals and birds to access the bait.

2.13 Drinking water for poultry, as well as cooling water used in poultry sheds, must meet appropriate water standards. The poultry drinking water standard can be found in the manual. Water that does not meet the standard must be treated (e.g. chlorination, ultraviolet, iodine) to ensure that the standard is met. Treated water supply must be kept in a closed system from the point of treatment to the drinker.

2.15 Only commercially produced avian species are to be kept in the production area and no other avian species (including aviary birds and pet birds) or pigs are to be kept on the property.

2.17 Feeding systems must wherever possible be closed to ensure that feed in silos and feed delivery systems are protected from access and contamination by wild birds and rodents. Feed spills should be cleaned up without delay to prevent the congregation of wild birds.

2.18 Where bird weighing is practised, it must be carried out using the production area's own weighing frames and scales. Biada service personnel can use their own scales provided they are cleaned and disinfected when moved between production areas.

3 Personnel standards and procedures

3.1 Production personnel

3.1.1 Production area personnel or any person residing on the property must not have contact with any other poultry, cage birds, racing pigeons or pigs unless they have a complete head-to-toe shower and change into new protective footwear and clothing prior to entering the production area.

3.1.2 Production area personnel must wear laundered clean clothes each day at the commencement of their work. Personnel must ensure that they do not become contaminated by contact with avian species or pigs on their way to work. It is critical that boots worn in sheds are not worn or taken outside the production area. They are the most likely method for disease spread by personnel.

3.2 Biada service personnel

3.2.1 Service personnel by necessity make multiple production area visits on a single day. Protective clothing and footwear, as approved by the production facility manager, should be worn in the production area. Hands must be sanitised before entering sheds.

3.2.2 Visits should always be made from 'clean' areas i.e. home, younger or healthy production area. In an emergency, visits may be made from production areas with lower standards of biosecurity after a shower and complete change of clothing.

3.3 Repair and maintenance

3.3.1 Repair and maintenance contractors who have had contact with poultry or other birds that day or keep birds at their home must not enter sheds and/or ranges populated or ready to be populated with birds unless (a) it is an emergency and (b) they have showered from head-to-toe and changed clothes and boots and wear a hair covering.

3.3.2 Routine maintenance should be conducted, where possible, between batches prior to final disinfection where a batch system is practiced.

3.3.3 Tools taken into the production area must be cleaned before entry into sheds and must be free of dust and organic matter.

3.4 Contractors, suppliers, other service personnel and visitors

3.4.1 Conditions of entry to poultry sheds and poultry ranges—all personnel (other than those farm personnel covered by the Personnel Quarantine Declaration (Appendix 1)) must agree to comply with the entry conditions as stipulated in Appendix 2 (which must be displayed prominently near the visitors' log) by signing the visitors' log and such visits must be approved by the manager before visitors may enter sheds and ranges.

3.4.2 Visitors' log—a record must be kept of all visitors (non-production area staff) to the poultry sheds including company personnel

3.4.3 Any authorised visitor, including neighbours, friends, other producers or equipment suppliers, likely to have been exposed that day to poultry, other birds or pigs must not enter the sheds unless they have had a head-to-toe shower and changed clothes.

3.4.4 All visitors should park their vehicles outside the production area unless it is essential that the vehicle be taken on site e.g. some maintenance contractors. Visitors entering sheds or ranges must complete and sign the visitors' log (see Appendix 2).

3.5 Requirements for specified movements

3.5.1 Litter delivery and collection of used litter—trucks carrying new or old litter must be cleaned and disinfected between production areas.

3.5.2 Other deliveries (e.g. gas and feed drivers)—drivers must not enter sheds and thus are not required to sign the visitors' log.

3.5.3 There must be a system for tracing movements of delivery personnel (e.g. through delivery dockets and feed company records).

3.6 Entry procedures for bird sheds and ranges

Any person entering sheds must sanitise hands and use footbaths before entering each shed.

3.6.1 Soles of boots must be scraped before disinfecting in the footbaths.

3.6.2 A hand sanitiser must be available at all shed entrances and must be used before entering.

3.6.3 Facilities should be available for the cleaning and disinfection of equipment before entry

Level 2 Emergency Biosecurity

1 Action plan for suspected emergency animal disease

1.1 Should a manager observe an unusual increase in mortality or a significant drop in production they are required to report this immediately to the Operations Manager.

1.2 The Operations Manager is required to discuss the facts with the CEO

1.3 The CEO is the only company employee that is empowered to order the implementation Level 2 Biosecurity procedures.

1.4 This decision will be made in consultation with Biada

1.5 If an emergency animal disease alert is raised the following action plan must be followed.

1.6 If an alert is raised, movement of birds must cease immediately, other movements on and off the property must be limited to the absolute minimum, and special precautions must be taken as outlined below.

2 Facilities

2.1 Gates must be kept locked.

2.2 Shed doors must be locked at night.

2.3 Facilities for the cleaning and disinfection of equipment coming on and off the production area must be in place.

3 Personnel

3.1 No visitors are to enter the production area unless absolutely essential. Company personnel will discontinue routine visits except on suspicion of problems.

3.2 Repairs and maintenance—no routine work, only emergency work to be carried out.

4 Operational

4.1 Essential visits—head-to-toe shower before and after visit. A complete change of clothes, footwear, hair covering and breathing protection is required. Used clothing and all used personal protection equipment must remain on the property.

4.2 Any vehicle which must enter the property must be washed and disinfected at the wash pad before and after going onto the property (e.g. feed trucks, gas). Vehicle driver cabins must also be sanitised inside.

4.3 No birds or litter to be moved on or off properties until disease status is clarified.

4.4 If a major outbreak should occur, further measures will be stipulated by the processor and/or the state's Chief Veterinary Officer.

5 Standard operating procedures (SOPs)

Standard operating procedures will be available for any specific outbreak of an emergency animal disease from Animal Health Australia in accordance with AUSVETPLAN (see www.animalhealthaustralia.com.au)



Personnel Quarantine Declaration

(Production Area Employee)

I,hereby agree to abide by Protén’s
BIOSECURITY rules and standards.

I understand that the following quarantine rules/standards apply at all times:

1. No avian species are to be kept at my place of residence i.e. no poultry or birds of any type (e.g. ostriches, aviary birds or racing pigeons). If any exemptions to this are approved by the employer, I must shower and change clothes before entering the production area.
2. No pigs are to be kept at my place of residence.
3. No untreated poultry manure from other properties is to be used at my place of residence.
4. No member of my household is to work in any area where contact can be made with poultry or pigs. For example, on other properties or at hatcheries, processing plants, by-product plants, laboratories or with pick-up crews, unless I shower and change clothes before commencing work.
5. I will not visit poultry abattoirs, pig production areas or poultry shows unless approved by my employer and appropriate quarantine measures are taken.

SignatureDate

Residential Address.....
.....



ProTen


Appendix 2

Entry Conditions for Visitors to Poultry Sheds

Entry to poultry sheds is subject to the following conditions:

- ✓ Visitors must not keep poultry, caged birds or pigs at home
- ✓ Visitors must not have been in contact with any avian species or untreated poultry manure on the same day, unless a full head-to-toe shower and a change of protective clothing has been carried out.
- ✓ Visitors must wear protective clothing provided.
- ✓ Visitors must wear protective boots.
- ✓ Visitors must sanitise boots in the footbath provided on entering production area/shed.
- ✓ Visitors must sanitise hands before entering sheds.

APPENDIX B

	Department of Primary Industries, Victoria Standard Operating Procedure:			
	Mass Poultry Mortality Composting in Emergency Disease Outbreaks: No. 1 of 3, Setting-Up Windrows			
Version No:	Author:	Reviewed by:	Approved by:	Date:
Version 1.0	Kevin Wilkinson	Duncan Worsfold	Malcolm Ramsay	18 January 2012

1. SCOPE

- 1.1. This is the first SOP in this series on mass poultry mortality composting. It outlines processes for setting up compost windrows inside broiler sheds following depopulation (euthanasia). The second SOP in this series covers process monitoring and control. The third SOP covers turning and compost sampling.
- 1.2. In one method of composting, carcasses are thoroughly mixed with poultry litter, feed and (if required) other co-composting material ('co-compost'; e.g. sawdust). Windrows are formed from this mixture on an absorbent base-layer of co-compost. The windrow is then capped with clean (uncontaminated) co-compost. This is the preferred method for windrow construction.
- 1.3. An alternative method is to construct windrows in layers of carcass and co-compost on the base-layer with capping over the top.
- 1.4. Where in-shed composting is not feasible, outdoor composting may be considered. The process for outdoor composting is similar to in-shed composting but it poses extra management controls, including exclusion of scavengers, vectors (birds, insects), protection from strong wind and rain, and odour control. Outdoor composting may allow sheds to be decontaminated earlier, bringing sheds back into operation more quickly.

2. RESOURCES AND EQUIPMENT

LABOUR

- 2.1. Two skilled, licensed skid-steer loader operators are required per poultry shed plus 5-6 personnel.

EQUIPMENT

- 2.2. Two medium sized skid-steer loaders (bucket capacity at least 1m³). The loaders must have the reach to safely build piles 1.8 m high.
- 2.3. A source of water (e.g. a high-pressure hose is ideal), for wetting the pile during construction.
- 2.4. Hand-tools: pitchforks, rakes, square point long handle shovels, stick brooms for cleaning up spills, and repairing holes in the capping.
- 2.5. Personal protective equipment: hard hats, fluorescent vests, coverall suits, boots, gloves, respirators, goggles for dust protection.
- 2.6. Equipment for securing the site, e.g. warning signs, witches hats etc.

- 2.7. Personal supplies (toilet facilities, disinfectant hand wipes, food, drinks, paper towels, mobile phone)
- 2.8. Cleaning and commercial-grade disinfectant supplies (large garbage bags, bucket, brush, soap).
- 2.9. Rodenticide and Insecticide.

3. PRECAUTIONS & WARNINGS

- 3.1. Because HPAI is a zoonotic disease, staff should read, understand and apply SOP 'Protecting workers from zoonotic avian influenza'. This SOP details the precautions and protective clothing necessary to prevent human infection.
- 3.2. Be vigilant in avoiding collisions in confined spaces between skid-steer, building and personnel.
- 3.3. Hygiene—dust inhalation, ingestion and rubbing eyes to remove dust are the main issues. The shed should be adequately ventilated during set-up.
- 3.4. Consider access to showers for decontamination and a change of clothes.
- 3.5. Consider quarantine exclusion periods for personnel who may attempt to enter unaffected premises.

4. INGREDIENTS

- 4.1. All carcasses, poultry litter and uneaten feed in the shed must be composted.
- 4.2. When the quantity of poultry litter is insufficient to requirements, additional co-compost may need to be brought onto the farm prior to set-up in order to complete the process.
- 4.3. Green (i.e. not kiln dried) sawdust is the preferred co-compost since it has good moisture content (it is not too dry and dusty), is highly absorbent (low risk of runoff from leachate) and it is easy to handle.
- 4.4. When green sawdust is not available, other suitable compost substrates include pine shavings (can be dusty), sawdust/shavings mixes (often used as bedding material in the poultry industry), poultry litter (from unaffected farms), hammer-milled greenwaste (can be variable in particle size and moisture content), rice hulls and straw.

CALCULATING CO-COMPOST REQUIREMENTS

- 4.5. A few cubic metres of co-compost must be retained for repairs to the capping during the first week of composting, as holes will form as the windrow settles down. Co-compost will also be required for capping after turning.
- 4.6. Determine the mass of carcass in kg in the shed and calculate total co-compost requirement. Total co-compost requirement (m^3) = mass of carcass (kg) \times 0.0062.

- 4.7. Determine the depth of litter on the floor of the shed in mm. From this, calculate the volume of litter in the shed: $\text{Litter vol (m}^3\text{)} = \text{floor area (m}^2\text{)} \times \text{litter depth (mm)} / 1000$.
- 4.8. Identify other materials that need composting such as stockpiles of litter or feed (m^3).
- 4.9. Calculate additional co-compost requirement (m^3): $\text{Total co-compost requirement (m}^3\text{)} - \text{litter vol (m}^3\text{)} - \text{other materials (m}^3\text{)}$.
- 4.10. Example calculation:

a	Shed size (m^2)	2250
b	Litter depth (mm)	50
c	Litter volume (m^3) $= a \times b / 1000$	113
d	Mass of carcass in shed (kg)	75000
e	Other materials, e.g. feed (m^3)	3
Calculation of co-compost requirement:		
f	Total co-compost (m^3) $= d \times 0.0062$	465
g	Minus litter and other materials (m^3) $= c + e$	116
h	Additional requirement (m^3)	349

5. PROCEDURE

Site Preparation

- 5.1. Consider shed construction and layout, position of dead birds and co-compost when deciding where to build the windrow. A 3-m distance from shed structures (e.g. walls and posts) is recommended around the windrow to enable the skid-steer to operate safely. Usually the windrow is constructed in the middle of the shed.
- 5.2. Loosen up poultry litter on the shed floor by scraping or cultivation. This material should be used in the compost mix rather than in the base layer or cover.
- 5.3. Mark out windrow location. The windrow in a shed fully stocked with mature birds is likely to take up nearly the entire length of the shed.
- 5.4. Construct a base layer of co-compost about 25 cm thick and 4 m wide. Use only clean, uncontaminated co-compost.

Windrow construction – mixing method

- 5.5. Mix the dead birds where they are located with any underlying litter. Transfer additional litter and other co-compost as necessary to this area to create a mix of co-compost to carcass of approximately 2:1 by volume.
- 5.6. Transfer the mix to one end of the windrow and place on the base layer. Build the windrow to a maximum height of 1.6 m.

- 5.7. Supplementing the mix with additional water can greatly improve carcass decomposition provided that care is taken not to apply too much. It is better to have a drier mix than one that is too wet. A good rule of thumb is 1 L of water per kg of carcass. The ideal time for adding additional water is during the mixing process.
- 5.8. Cap the windrows with 15–20 cm of clean, uncontaminated co-compost, ensuring that no carcass is left exposed. The capped windrow should be about 1.8 m high (maximum).

Windrow construction – layering method

- 5.9. With the base layer in place, alternate layers of carcass (15 cm thick) and co-compost (20–30 cm) on top of one another until a max height of 1.6 m is reached. Three to 4 layers of carcass can be included in the windrow.
- 5.10. Add water (1 L per kg carcass) if required to each carcass layer.
- 5.11. Cap the windrows with 15–20 cm of clean, uncontaminated co-compost, ensuring that no carcass is left exposed. The capped windrow should be about 1.8 m high (maximum).

Operation of loaders and personnel

- 5.12. While one loader is constructing and/or mixing the compost ingredients, the other loader can perform complimentary tasks. E.g. gathering and stockpiling poultry litter from along the side-walls of the shed, transporting additional co-compost to the mixing area. Both loaders can also be used in windrow construction.
- 5.13. Personnel tasks include: directing traffic, picking up poultry litter from parts of the shed that are inaccessible to the loader, removal of caked litter from the floor, picking up carcasses and remains that roll off windrows or that are run-over by the loader, operation of water hose.

Process control and monitoring

- 5.14. Once the windrow has been set up, it is largely left undisturbed until it is ready to be turned.
- 5.15. Process control and monitoring of windrows is covered in the next SOP in this Series.

6. FINISHING UP

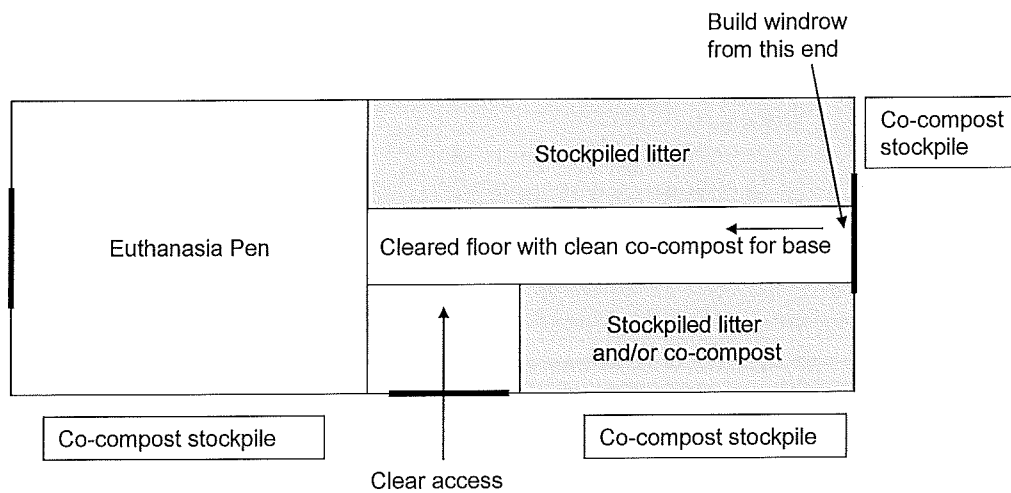
- 6.1. Ensure all materials to be composted are incorporated into compost piles. Sweep up as much poultry litter as possible from around the shed. Pools of water should be mopped up with dry co-compost and incorporated into windrows.
- 6.2. Ensure that any remains of carcass are picked up and incorporated into the windrows. Some carcasses get run over with the constant movement of loaders and many carcasses roll off windrows during construction.
- 6.3. Ensure that sufficient co-compost is still available on site to fill in cracks or holes as the compost settles during the first week of composting.

- 6.4. Pressure-clean and decontaminate equipment and personnel, install rodent traps and secure the site.

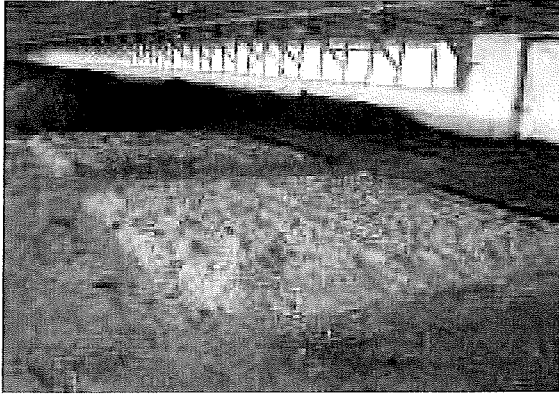
7. FURTHER INFORMATION

- 7.1. The Biosecurity of Mass Poultry Mortality Composting, Final Report. Available for free downloading at www.rirdc.gov.au

8. POSSIBLE WINDROW LAYOUT



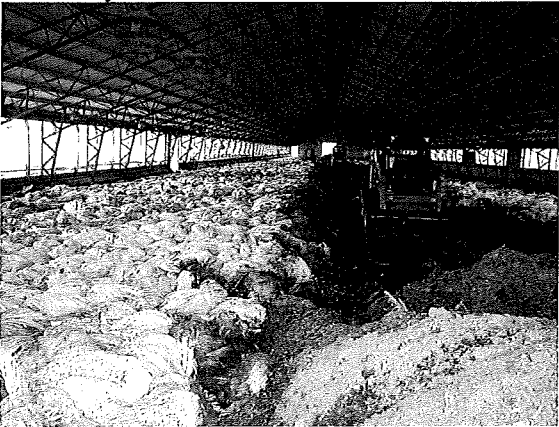
9. PHOTOS



Base layers.



Layering method – the first layer of birds.



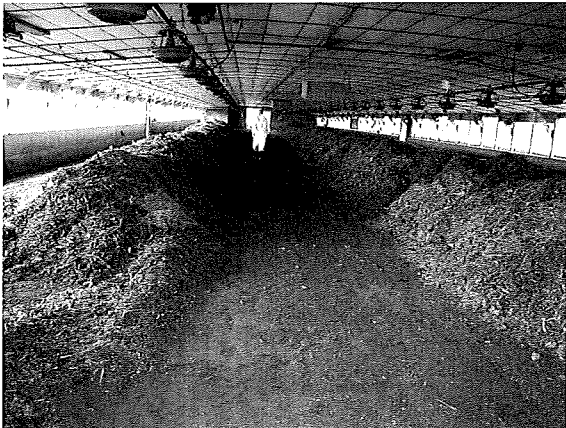
Mixing birds with underlying litter.



Constructing windrows.




Working inside a shed with pillars.



Completed windrows.

Photos courtesy of Mr Gary A. Flory, Virginia Department of Environmental Quality.

	Department of Primary Industries, Victoria			
	Standard Operating Procedure: Mass Poultry Mortality Composting in Emergency Disease Outbreaks: No. 2 of 3, Process Monitoring and Control			
Version No:	Author:	Reviewed by:	Approved by:	Date:
<i>Version 1.0</i>	<i>Kevin Wilkinson</i>	<i>Duncan Worsfold</i>	<i>Malcolm Ramsay</i>	<i>18 January 2012</i>

1. SCOPE

- 1.1. This is the second SOP in this series on mass poultry mortality composting. It outlines processes for managing a successful operation during Stage 1 composting after windrow construction. The first SOP in this series covered the set up of compost windrows and the third covers turning and sampling.
- 1.2. The first stage of composting should last between 10 and 14 days duration. During this period, the windrows are left largely undisturbed (unless remedial action is required). However, during the first week of composting, the windrow must be monitored regularly to ensure no carcasses become exposed.
- 1.3. It is critical to monitor temperature during the first stage of composting to a) confirm that the composting process is working as expected, b) help with decision making and troubleshooting, and c) determine when the compost has achieved the required time/temperature conditions for inactivation of pathogens.

2. RESOURCES AND EQUIPMENT

LABOUR

- 2.1. During the first stage of composting, windrows must be monitored about every 1 to 2 days for the first 8 days and every 3 to 4 days thereafter until turning. The monitoring process for a large windrow will take about 4 hours.

EQUIPMENT

- 2.2. Stainless steel temperature probe, 1.5 to 1.8 m long. Some probes have a built-in dial or digital reader at the top, others come with a lead that plugs into a digital reader (See photos).
- 2.3. One medium-sized skid-steer loader (bucket capacity at least 1m³) may be required from time to time during the first week to repair cracks that open up in the windrow. The loader must be able to safely reach 1.8 m high.
- 2.4. Hand-tools: pitchforks, rakes, square point long handle shovels, stick brooms for cleaning up spills, and repairing holes in the capping.
- 2.5. Personal protective equipment: hard hats, fluorescent vests, coverall suits, boots, gloves, respirators, goggles for dust protection.
- 2.6. Cleaning and commercial-grade disinfectant supplies (large garbage bags, bucket, brush, soap).

3. PRECAUTIONS & WARNINGS

- 3.1. Because HPAI is a zoonotic disease, staff should read, understand and apply SOP 'Protecting workers from zoonotic avian influenza'. This SOP details the precautions and protective clothing necessary to prevent human infection.
- 3.2. Hygiene—dust inhalation, ingestion and rubbing eyes to remove dust are the main issues. The shed should be adequately ventilated.
- 3.3. Consider access to showers for decontamination and a change of clothes.
- 3.4. Consider quarantine exclusion periods for personnel who may attempt to enter unaffected premises.

4. ROUTINE MONITORING

- 4.1. Inspect the windrow daily during the first week for exposed carcasses and excessive insect activity. Use insecticides for control of flies and darkling beetles as necessary.
- 4.2. Pile height can decrease rapidly in the first week as the birds break down and holes can form in the cap. If carcasses become exposed, recover these with additional co-compost.
- 4.3. A little odour may be associated with poultry litter on the floor or in the capping but strong odour from decaying carcass should never be evident. If this does occur, consider topping up the cover material over the compost.
- 4.4. If any liquids flow from the base of the pile, use co-compost material to mop it up.
- 4.5. Record all observations and remedial actions on an approved form.

5. TEMPERATURE MONITORING PROCEDURE

Principles

- 5.1. The positions where the windrow temperature is monitored are marked with spots of spray paint. These spots are revisited on each day of monitoring.
- 5.2. Both sides of the windrow are monitored at a spacing of no more than 4 m, with the first and last sampling sites 1 m from each end of the windrow.
- 5.3. Temperature is monitored on the first day after windrow construction, then every two days for the first eight days of composting and then every three to four days thereafter.
- 5.4. Temperature is also monitored twice a week during Stage 2 composting.

Procedure

- 5.5. At each position, take four readings: two heights above ground level (40 cm from the floor and mid-way between the floor and the top of the pile) and two depths within the pile (40 cm from the pile face and in the centre of the pile: about 140 to 180 cm).

- 5.6. Allow the reading to stabilise before recording the temperature. This may take several minutes if the temperature gradient between readings is large.
- 5.7. Record the temperature on a suitable form with the date and time.

6. KEY PERFORMANCE INDICATORS FOR SUCCESSFUL COMPOSTING

Characteristics of Stage 1 composting

- 6.1. Prolonged exposure to temperatures $>45^{\circ}\text{C}$ is very important for pathogen inactivation. Peak temperatures well over 55°C should be expected after about 7–10 days composting.
- 6.2. Windrows heat up first in the outside layers; the edge should reach $>45^{\circ}\text{C}$ within the first 2 to 3 days of composting. The centre of the pile can take a few days to a week longer. Temperatures tend to converge after about 7–10 days composting.
- 6.3. The compost just above the base layer will nearly always be cooler than the upper layers of windrow. The coolest part of the pile is therefore typically at the base in the centre of the pile; this region may take 10 days to reach $>45^{\circ}\text{C}$.
- 6.4. Temperatures may fall gradually in the upper layers of the pile after about 7–10 days composting, even before the base layer temperatures begin to plateau.

Criteria for end of Stage 1 composting

- 6.5. Stage 1 composting finishes with the first turning of the compost after 10 to 14 days composting. Stage 1 may need to be extended beyond 14 days when turning has been necessary because of troubleshooting.
- 6.6. Stage 1 composting is not complete until 95% of all temperature recordings are equal to or above 37°C for 5 consecutive days.
- 6.7. More than 85% of temperature readings should exceed 45°C for at least one day before the end of Stage 1 composting. If this is not met within 16 days then the windrow should be turned anyway and an additional turn should be incorporated in the process during Stage 2 composting (i.e. a minimum of three turns by end of Stage 2).

7. TROUBLESHOOTING

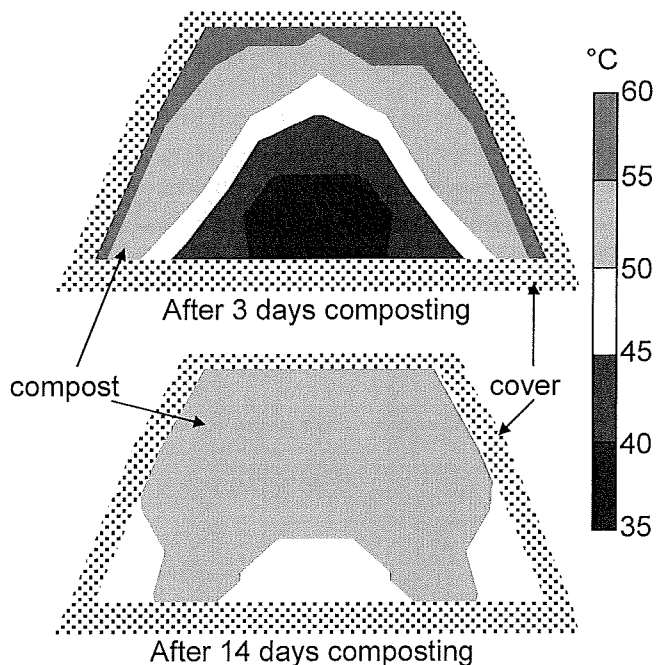
- 7.1. Provided that the selection of co-composting materials was appropriate and sufficient care is taken in constructing the windrow, major problems are unlikely to occur. Therefore avoid interventions particularly in the first week of composting.
- 7.2. If low temperatures ($<40^{\circ}\text{C}$) persist after one week in the upper regions of the windrow, the compost could be too dry. Add water during turning.
- 7.3. If temperatures are low because the compost is too wet, significant leakage should be seen at the base of the pile. Add dry co-compost material at turning.

- 7.4. Temperatures may not rise if too much low-energy co-compost materials are used in the mix (e.g. soil or coarse wood chips). Incorporate a high energy co-compost material like fresh poultry litter at turning.
- 7.5. If temperatures $>45^{\circ}\text{C}$ are achieved on time everywhere except in the base level, wait for 14 days to elapse then turn the compost. An additional turn (i.e. at least three in total) should be considered during Stage 2.

8. FURTHER INFORMATION

- 8.1. The Biosecurity of Mass Poultry Mortality Composting, Final Report. Available for free downloading at www.rirdc.gov.au


9. FIGURES



Schematic showing what a typical temperature profile could look like at different stages of composting. These profiles were derived from intensive temperature monitoring data conducted during DPI Victoria research trials.



Various commercially available temperature probes.

	Department of Primary Industries, Victoria			
	Standard Operating Procedure:			
Mass Poultry Mortality Composting in Emergency Disease Outbreaks: No. 3 of 3, Turning and Sampling Compost				
Version No:	Author:	Reviewed by:	Approved by:	Date:
<i>Version 1.0</i>	<i>Kevin Wilkinson</i>	<i>Duncan Worsfold</i>	<i>Malcolm Ramsay</i>	<i>18 January 2012</i>

1. SCOPE

- 1.1. This is the third SOP in this series on mass poultry mortality composting. It outlines the process for turning windrows and for compost sampling. The first SOP in this series covered the set up of compost windrows and the second covered process monitoring and control.
- 1.2. The first turn of the compost usually marks the beginning of the second stage of composting (Stage 2). Turning breaks open the pile which is frequently compacted and helps to speed up the process of decomposition. It also ensures that cooler parts of compost are subjected to temperatures high enough to kill pathogens.
- 1.3. It is recommended that the second stage of composting also be completed inside the poultry shed. It can be completed outdoors provided that extra precautions are taken to control odour, exclude scavengers, vectors (birds, insects), and to provide protection from strong wind and rain.
- 1.4. The sampling procedure is designed to obtain a representative sample for determining physical, chemical and/or microbiological properties of the compost. This sampling procedure may not be applicable for the detection of avian virus in carcass or compost. It was developed primarily for determining the physical and chemical properties of compost. For this latter purpose, sampling can be undertaken at any time after the end of Stage 2 composting.

2. RESOURCES AND EQUIPMENT

LABOUR

- 2.1. For the turning procedure, a skilled, licensed skid-steer loader operator is required per site plus 2-3 personnel.
- 2.2. For sampling, a skilled, licensed skid-steer loader operator is required per site plus one additional person.

EQUIPMENT

- 2.3. One medium-sized skid-steer loader (bucket capacity at least 1m³) that is able to safely reach 1.8 m high.
- 2.4. Hand-tools: pitchforks, rakes, square point long handle shovels, stick brooms for cleaning up spills, and repairing holes in the capping.
- 2.5. Personal protective equipment: hard hats, fluorescent vests, coverall suits, boots, gloves, respirators, goggles for dust protection.

- 2.6. Cleaning and commercial-grade disinfectant supplies (large garbage bags, bucket, brush, soap).
- 2.7. Sampling equipment: sharp spade, plastic tubs, strong plastic, clear sealable bags (around 2 L) and a permanent marker.

3. PRECAUTIONS & WARNINGS

- 3.1. Because HPAI is a zoonotic disease, staff should read, understand and apply SOP 'Protecting workers from zoonotic avian influenza'. This SOP details the precautions and protective clothing necessary to prevent human infection.
- 3.2. Be vigilant in avoiding collisions in confined spaces between skid-steer, building and ground-crew.
- 3.3. Hygiene—dust inhalation, ingestion and rubbing eyes to remove dust are the main issues. The shed should be adequately ventilated.
- 3.4. Personnel need to be aware that opening up the windrow exposes carcass remains in the compost. These could still be clearly recognisable and will to be highly odorous.
- 3.5. Prevailing wind and the proximity of sensitive sites should be considered when compost is turned.
- 3.6. Consider access to showers for decontamination and a change of clothes.
- 3.7. Consider quarantine exclusion periods for personnel who may attempt to enter unaffected premises.

4. WINDROW TURNING PROCESS

- 4.1. Facing one side of the windrow with the skid-steer loader, roll the windrow over, ensuring that the base layer and capping are incorporated into the rest of the composting mix. Be sure to loosen-up the compost as much as possible by raising the bucket of the loader above 2 m prior to letting the compost fall.
- 4.2. Reconstruct the windrow to approximately the same dimensions as before, e.g. 4 m wide, 1.8 m high.
- 4.3. Add water during turning since the heat generated during composting causes it to dry out. Around 200-300 litres can be applied to every cubic metre of compost
- 4.4. Recap and allow composting to continue for about another 14–21 days.

5. MONITORING THE PROGRESS OF COMPOSTING DURING STAGE 2

- 5.1. Temperatures during Stage 2 must be monitored twice a week: Refer to SOP No. 2 of this Series: Process Monitoring and Control.
- 5.2. Temperatures after turning should reach a new peak above 55°C and remain there for at least 14 days. Temperatures will then gradually decline until the compost is turned again.
- 5.3. The temperature in the windrow during Stage 2 should be more uniform than in Stage 1 composting since carcass decomposition is well advanced by this point and a more homogeneous mix is made possible through the turning process.

6. END OF STAGE 2 COMPOSTING

- 6.1. The end of Stage 2 composting will be reached after 14 to 21 days composting. The compost can then be moved out of the poultry shed.
- 6.2. At the end of Stage 2 composting, examine the temperature records for both Stage 1 and Stage 2 against the Key Performance Indicators outlined in SOP No. 2 to determine whether the primary objective of safe carcass disposal has been met.
- 6.3. At the end of Stage 2 composting, the compost will still be undergoing intensive decomposition, i.e. it will continue to reheat after turning (provided that there is sufficient moisture). The compost itself would greatly benefit from an extended period (3–6 months) of maturation in windrows.
- 6.4. If bacterial pathogens are a cause for concern in the compost, they can be effectively controlled by incorporating additional turns during the extended maturation period.

7. SAMPLING PROCEDURES

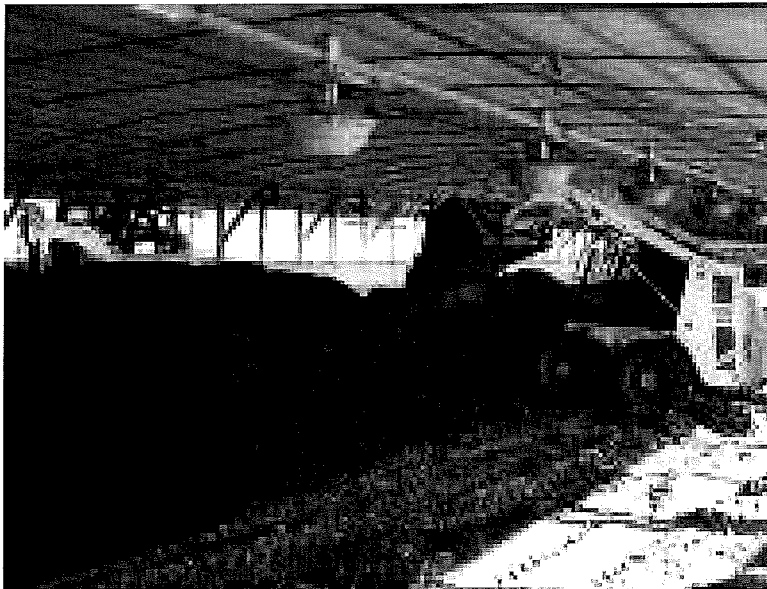
- 7.1. The end of Stage 2 is the earliest point at which it is worthwhile to sample compost for physical, chemical and bacteriological testing.
- 7.2. Samples should be taken every 10 to 15 metres along the length of the windrow.
- 7.3. Scrape away the capping (if present) from where the sample is to be collected and drive the loader into the side of the windrow to expose a cross-section of compost.
- 7.4. Use a sharp spade to cut down through the exposed face from top to bottom. Perform at least 3 cuts, down the exposed face. Avoid sampling cap material. Aim for a uniform thickness of cut, from top to bottom of the heap.
- 7.5. Shovel sample into a large plastic tub. Use the spade to chop up clumps then pour contents into a second tub and chop again to remove clumps. A 60L plastic tub (depth, width, length: 30 x 40 x 50cm) is a practical size for this purpose. Repeat the process a third time. Then fill 3 plastic bags with the compost. Collect at least one litre of compost per bag.

- 7.6. Label the bags with windrow details (site/shed/windrow number), sampling date, sampler's name, bag number and destination laboratory. Store at 4°C or place samples in esky on cool bricks.
- 7.7. Transport samples to the laboratory(s) within 24 hours. Retain one sample in storage in case repeat or additional analyses are required.

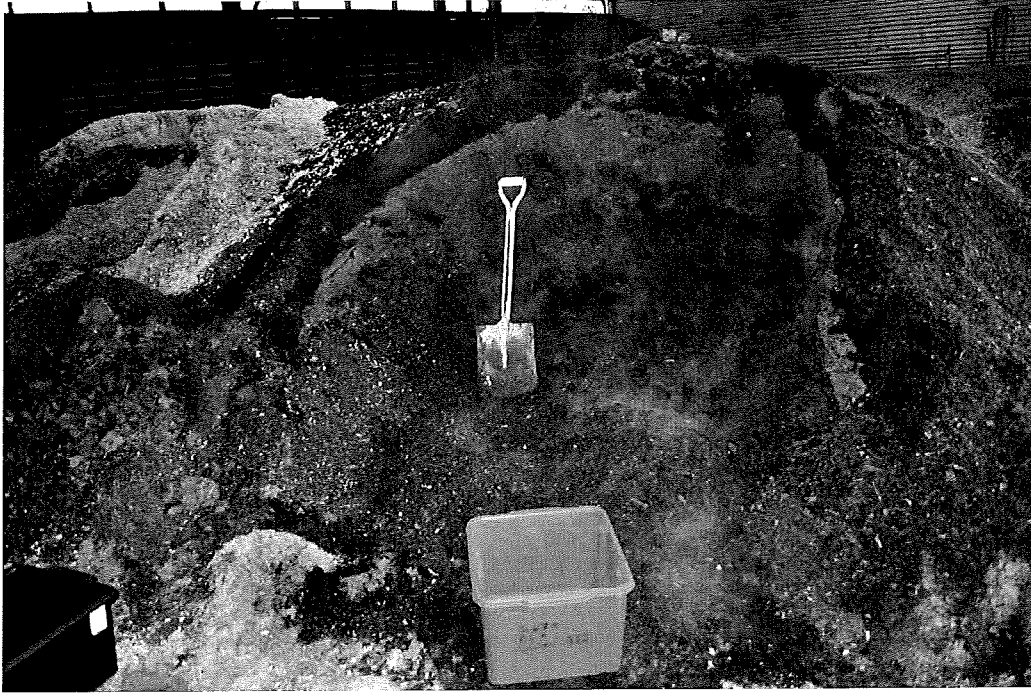
8. FURTHER INFORMATION

- 8.1. The Biosecurity of Mass Poultry Mortality Composting, Final Report. Available for free downloading at www.rirdc.gov.au

9. PHOTOS



Turning a windrow.



Exposed face of windrow in preparation for compost sampling.

Narrandera Poultry Production Complex (SSD 6882)

FLOOD EMERGENCY AND EVACUATION PLAN



Prepared by:

Narrandera Poultry Production Complex

Sturt Highway, Narrandera NSW

Flooding Emergency and Evacuation Plan

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This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with 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.

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
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1 INTRODUCTION

1.1 Background

The Narrandera Poultry Production Complex (the “Development”) was granted Development Consent 6882 on the 9 November 2015 by the Planning Assessment Commission of NSW (PAC) to be established within a rural property approximately 26 kilometres west of Narrandera in southwestern New South Wales (NSW). The Development comprises five poultry production units (PPU) or farms, where broiler birds will be grown for human consumption. Each PPU will comprise 16 tunnel-ventilated fully-enclosed climate-controlled poultry sheds, with associated support infrastructure and staff amenities. The Development Layout is presented in **Figure 1**.

This *Flooding Emergency and Evacuation Plan* (FEEP) has been prepared by SLR Consulting Australia (SLR), on behalf of ProTen Holdings (ProTen), for the Narrandera Poultry Production Complex. For the purposes of this document, the Development is described in:

- The *Environmental Impact Statement* (EIS) (SLR 2015a) and the appendices contained within; and
- The *Response to Submissions* (RTS) (SLR 2015b) and the appendices contained within.

1.2 Objectives

This FEEP has been prepared to satisfy condition B36 of Development Consent SSD 6882, which is listed below in **Table 1**.

Table 1 - Consent Condition B36

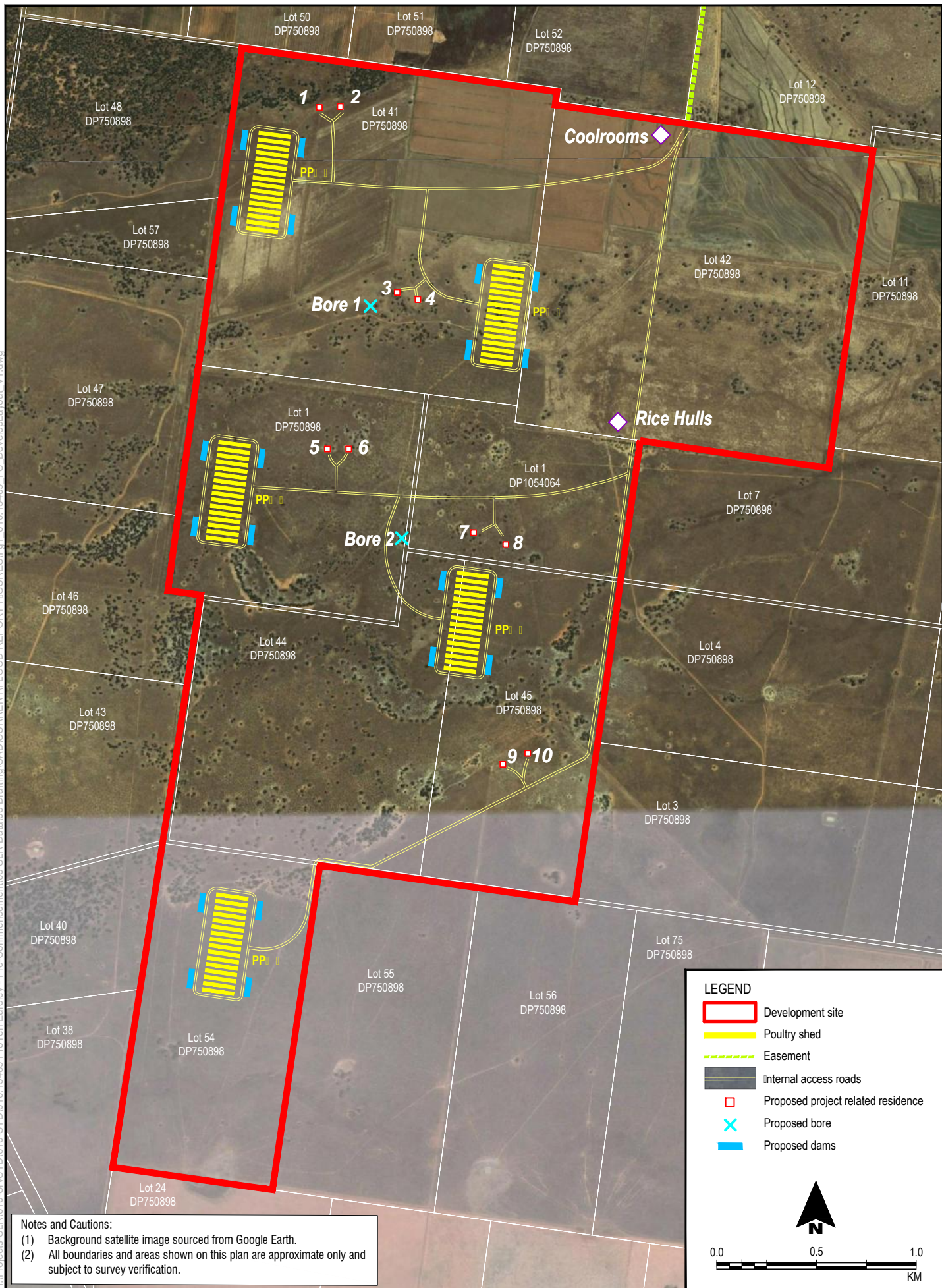
Condition No.	Condition	FEEP Section
B36.	Prior to the commencement of operation, the Applicant shall prepare an Emergency and Evacuation Plan to the satisfaction of the Secretary. The Emergency and Evacuation Plan shall form part of the OEMP in Condition C4 and be prepared in accordance with Condition C6. The Emergency and Evacuation Plan shall:	
(a)	be prepared in consultation with Narrandera Shire Council and the NSW State Emergency Service;	Section 1.3
(b)	describe all reasonable flood recovery measures;	Section 3
(c)	detail assembly and evacuation points;	Section 5.6 and Figure 4
(d)	detail transportation routes and procedures in a flood event;	Section 5.4 and Figure 3
(e)	incorporate the Flood Management Plan at Section 6.5.6 of the EIS;	Section 5
(f)	detail the procedures for managing flood risks during construction and operation of the development, including procedures for the protection of infrastructure, staff and broilers; and	Sections 3 and 5
(g)	detail the management measures for the supply of feed in a flood event.	Section 5.2

This FEEP has been prepared as an appendix to the *Operational Environmental Management Plan* (OEMP) for the Development (SLR 2015c) and is to be read in conjunction with the OEMP.

1.3 Stakeholder Consultation

A draft version of the FEEP was provided to Narrandera Shire Council (Council) and the NSW State Emergency Service (SES) for review and comment on the 15 March 2016. Comments were received from Council and the SES on **<date>** and 15 March 2016, respectively, and the FEEP updated to address these comments prior to submission to the Department of Planning and Environment (DP&E) for approval. Of note, the SES responded by advising that they are opposed to the use of private evacuation plans as a condition of development consent and, as such, did not provide any feedback in relation to the FEEP.


H:\Projects\SLR\610-SyD\610-SyD\610-15489-ProTan Euroley - Pre-Commencement\06_SLR_Data\06_Draft\06_CAD\CURRENT\FLOOD REPORT FIGURES\Fig1_610_15489_ES_Develplayout_V1.dwg



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

LEGEND

- Development site
- Poultry shed
- Easement
- Internal access roads
- Proposed project related residence
- X Proposed bore
- Proposed dams



0.0 0.5 1.0
 KM

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2 POTENTIAL FLOOD IMPACTS

2.1 Local Surface Waters

The Development Site is located within the catchment of the Murrumbidgee River, which covers 84,000 square kilometres of southern NSW. The Murrumbidgee River flows to the north of the Development Site from Narrandera through to Darlington Point. At its closest point the river flows approximately 9 kilometres to the north of the Site.

There are no notable surface water bodies or tributaries within the bounds of the Development Site. Two minor depressions, which act as minor drainage features, traverse the Site. These depressions do not have any formed banks and are only distinguishable as drainage features by their location topographically.

The nearest waterway to the Development Site is Yanco Creek, a regulated stream of the Murrumbidgee River system, flowing approximately 8 kilometres to the east of the Site boundary at its closest point. Although inflows to Yanco Creek are controlled by Yanco Weir under normal conditions, during large floods the Murrumbidgee River breaks out of its banks before the Yanco Weir and flows directly to Yanco Creek (SKM 2000).

A site constraints plan showing relevant external and internal features, including Dry Lake, topographical features and waterways, is provided as **Figure 2**.

2.2 Mainstream Flooding

Council's existing flood mapping developed as part of the *Narrandera Flood Study* (SKM 2000) terminates at Yanco Weir. As such, flood extents for Murrumbidgee River and Yanco Creek have not been defined adjacent to the Development Site. However, based upon observations and historical flooding anecdotal evidence, the Development Site is considered unlikely to be flooded as a result of the Murrumbidgee River / Yanco Creek floodplain at Dry Lake overtopping its banks in events up to and including the 100 year ARI event. Observations of the *Flooding Assessment* (SLR 2015d) prepared as part of the EIS indicates that an overland flow route does not exist between the extreme flood extent at Dry Lake and the Development Site.

SLR (2015d) concluded that mainstream flooding presents a lower flood risk to the Development Site than local overland flooding. Due to the size of the Murrumbidgee catchment, mainstream extreme events will not coincide with the local overland flooding events. Measures to manage local overland flooding (see **Section 5**) will therefore safeguard the Development from main stream flooding.

2.3 Historical Flooding

Two large flood events have occurred in the region in recent history, these being in 1974 and 2012. The 1974 flood event was estimated to be a 1 in 99 year annual recurrence interval (ARI) event (SKM 2000). Aerial photographs of the 1974 event (SKM 2000) taken within hours of the flood peak do not show the Development Site to be flood affected, with floodwaters identified in areas closer to the waterways.

No relevant aerial photographs were available for review of the March 2012 flood event in the vicinity of the Development. There were several road closures during the 2012 event in the area (Irrigator 2012). Anecdotal evidence indicates that the Development Site itself was not flood affected, however floodwater did cut off a section of the Sturt Highway to the east and a section to the west of Main Canal Road for several days. Importantly, ingress/egress to the Site remained opened and usable during the entire period of flooding from the south.

2.4 Flood Modelling

The conclusions of the *Flooding Assessment* (SLR 2015d) prepared as part of the EIS included:

- The Development Site is unlikely to be flood affected during mainstream flood events up to and including the 1 in 100 year ARI event. In addition, it is considered unlikely that the Site will be flood affected by Murrumbidgee River or Yanco Creek out of bank flows during an extreme flood event such as the probable maximum flood (PMF).
- Flood warnings are likely to be available via the SES at least several days prior to a mainstream flood occurring. Where a flood warning is issued, the flood management plan documented in the EIS (SLR 2015a) will be implemented to effectively manage the flood risk to the development.

As part of the RTS, a *Flooding Addendum* (SLR 2015e) was prepared in order to:

- Undertake one dimensional hydraulic modelling of local overland flood flows for the post-development scenario (the pre-development scenario was modelled previously in the *Flooding Assessment* [SLR 2015d]); and
- Compare flooding behaviour between pre-development and post-development scenarios to identify the impact of the Development.

In summary, the conclusions of the *Flooding Addendum* (SLR 2015e) included:

- The Development Site is affected by overland flooding.
- Floodwaters are unlikely to take more than a few hours to reside with the exception of the two topographical depressions and ephemeral flow paths.
- The maximum flood afflux as a result of the Development is predicted to be experienced upstream of PPU 2 at 90 millimetres (mm) for the 100 year ARI flood event and 110 mm for the PMF event. The flood afflux impacts upstream of the Development at the Site's eastern boundary are predicted to be less than 50 mm for a 100 year ARI event and 80 mm during a PMF event. No flood afflux impacts are predicted to occur downstream of the Development towards the Site's western boundary.
- The maximum average flood flow velocity increase is predicted to be 0.08 metres per second (m/s) during a 100 year ARI event and 0.11 m/s during a PMF event.
- There are no existing buildings or infrastructure items on properties surrounding the Development Site that will to be adversely affected by the construction of the Development in terms of flooding. As the flood afflux is predicted to be relatively minor within the Development Site and at the Site boundaries and flood velocities did not increase significantly within the Development Site or at the Site boundaries, agricultural practices in neighbouring properties are also unlikely to be affected by the flood impacts associated with the Development.

2.5 Isolation During a Flood Event

Local flooding is known to block several roads in the area. The blocking of roads could lead to the Development being isolated for several days until floodwaters subside. If this was to occur, possible consequences include inadequate food supply for the accommodated poultry and/or workers and birds due for off site processing having to remain on site. The risk of these consequences occurring as a result of flooding and isolation is considered low due to the flood warning the Site will be afforded and the capacity to store significant food supplies on site. In addition, given the size of the catchment and local topography, the depths of floodwaters across the majority of the Development Site (with the exception of localised topographical depressions) are likely to reside to safe levels relatively quickly (within hours).

3 FLOOD WARNINGS

SKM (2009) reported that the Murrumbidgee River has a long time to peak flow at Narrandera, which means that Narrandera usually has in excess of one week until a flood may occur. SKM (2009) also reports that the location of Wagga Wagga upstream of Narrandera also provides information on warning time as typically the flood peak is 5 days ahead of Narrandera. This flood warning time is relevant to the Development Site.

On this basis, advanced warnings of mainstream flooding are likely to be available via the SES at least several days prior to the floodwaters arriving. This would provide sufficient time to stockpile feed and other necessary supplies on site, and also to transport the birds that are close to their required weight for off site processing prior to flood waters reaching the area.

Limited warning is likely to be available in the case of localised overland or flash flooding due to significant storm events. It is important to be aware of natural indicators of potential flash flooding, including very heavy rainfall and rushing or quickly pooling water.

Where a flood warning is issued, the flood management plan documented in **Section 5** will be implemented to effectively manage the flood risk.

4 FLOOD MITIGATION MEASURES

4.1 General

The following development design, best management practices and mitigation measures will be implemented to safeguard infrastructure, livestock and staff from potential adverse impacts due to flooding:

Building Design

- The design of the rice hull storage shed will be constructed above the 100 year ARI event flood depth at 600 mm above the existing adjacent ground levels to ensure that poultry feed remains dry during flooding events up to the 100 year ARI event (consent condition B34).
- The minimum flood levels of the 10 on-site farm managers' houses provide a 500 mm freeboard above the 100 year ARI flood event (consent condition B35).
- The pads for each of the PPUs will be constructed above the 100 year ARI event flood depth at a minimum of 300 mm above the existing adjacent ground levels, and the poultry sheds will be constructed with concrete perimeter bund walls 400 mm high and swale drains between the sheds. On this basis, the ingress of floodwaters in to the poultry sheds during a 100 year ARI event is not anticipated. Whilst topographical depressions exist in the northern corner of the PPU 2, the southern corner of PPU 3 and the southern fringe of PPU 4, appropriate earthworks will be undertaken to fill in these depressions during site establishment works to ensure the risk of floodwater ingress is minimised.

Internal Access Roads

- Internal access roads have been raised above the 100 year ARI flood level (up to 900 mm above existing adjacent ground levels in some locations) to prevent farm traffic disruption during the majority of rainfall events.

Engineered Surface Water Management System

- An engineered surface water management system will be implemented at each PPU to provide long-term structural controls and management measures to mitigate the impact of surface water runoff throughout the life of the Development. These systems have been designed with the total storage on site equivalent to 170 percent of the storage capacity required to contain runoff from a 100 year ARI, 72 hour flood event.

Flood Management Plan

- Where a flood warning is issued, the flood management plan documented in **Section 5** will be implemented to effectively manage the flood risk.

4.2 Inductions and Training

ProTen Site Management will ensure that all employees and contractors are suitably inducted and trained prior to commencing any work on site. Training in relation to the OEMP, including implementation of the mitigation measures and flood management plan covered in this FEEP, will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar).

5 OPERATIONAL FLOOD MANAGEMENT PLAN

5.1 Overview

To ensure the risk of flooding is appropriately planned for, this site-specific *Operational Flood Management Plan* (FMP) has been prepared for the Development Site. The purpose of the FMP is to ensure the safety of farm workers, the survival of the birds on site that are too young for processing and the safe removal of birds that are ready for off site processing.

The specific objectives of the FMP are to:

- Provide processes for the collection and storage of surplus food on site for birds and workers when a flood event is anticipated;
- Identify operational procedures to reduce the rate of bird growth during a flood event (and thereby the need to be transported off site for processing);
- Provide alternative routes for the off-site transportation of birds during flood events; and
- Detail on-site assembly/safe refuge areas.

5.2 On-Site Feed Storage

As discussed in **Section 3**, flood warnings are likely to be available several days prior to floodwaters reaching the Development Site. If a flood warning is issued, extra feed will be brought to site and stored in the large on-site rice hull shed (see **Figure 1**), and/or under alternative cover within the Development Site. The rice hull shed will be capable of holding approximately 3,272 cubic metres of feed which, including silo capacity, will provide at least eight days of feed.

As advised in **Section 4**, the design of the rice hull storage shed incorporates flood proofing to ensure that poultry feed remains dry during flooding events up to the 100 year ARI event.

If food supplies are exhausted, then birds will be transported offsite as detailed below.

5.3 Operational Processes

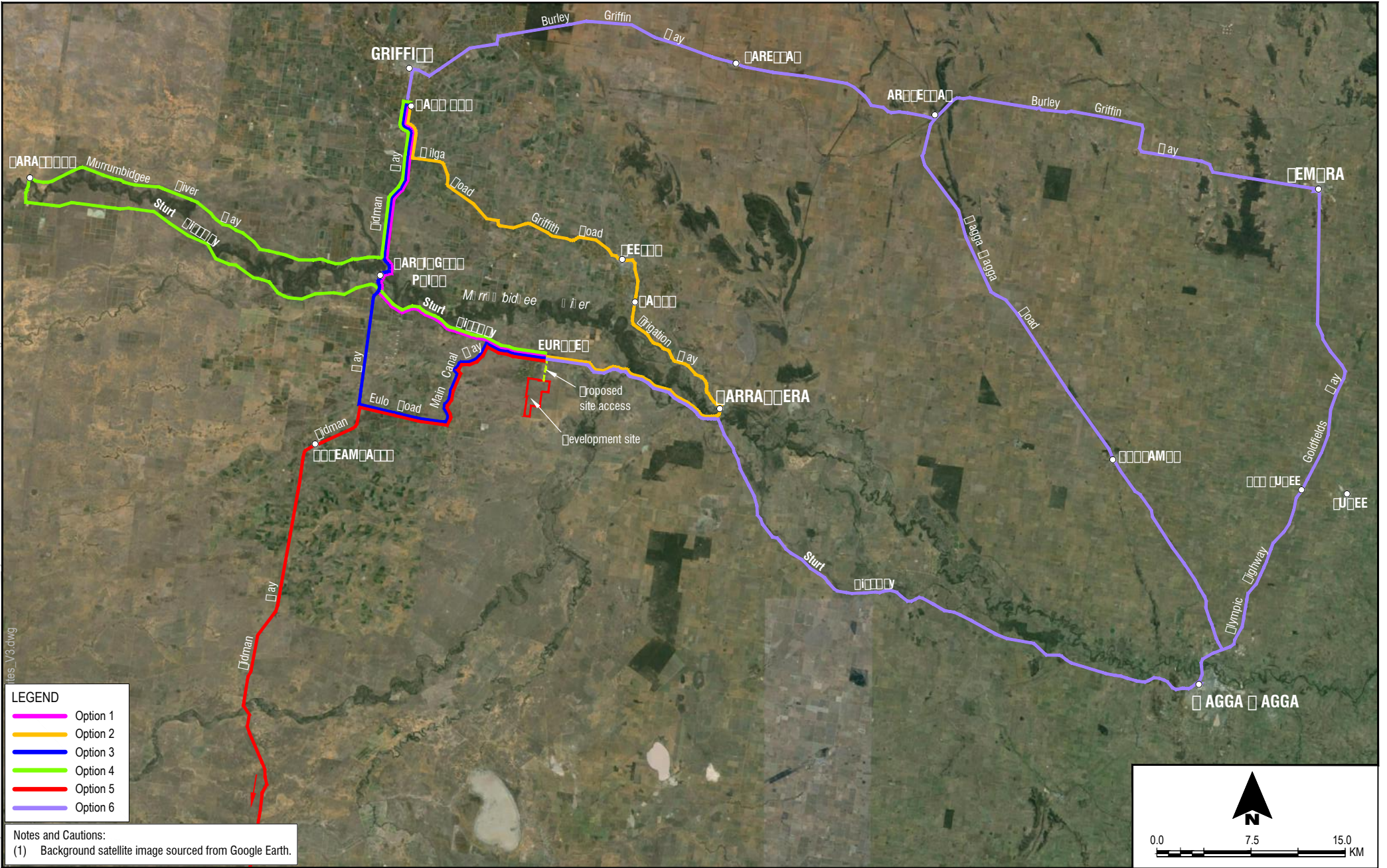
The following modifications to the Development's operational procedures will be implemented during a flood event:

- The environmental conditions within the poultry sheds will be altered to reduce the food consumption rate and thereby bird growth; and
- Feeding frequency and duration will be altered to reduce the rate of bird growth.

5.4 Transport of Live Birds Off Site

A number of transport route options exist for the transportation of birds from the Development Site to processing facilities. Each option is shown on **Figure 3** and described below.

Under normal conditions the birds will be transported to the poultry processing complex in Hanwood (approximately 35 kilometres to the northwest of the Development Site) via Option 1. Alternative routes (i.e. Options 2 to 6) will be utilised if/when required subject to road closures in the area. It is noted that Option 5 was available throughout the 2012 flood event and is therefore considered a reliable egress route during a large flood event.



LEGEND

- Option 1
- Option 2
- Option 3
- Option 4
- Option 5
- Option 6

Notes and Cautions:
 (1) Background satellite image sourced from Google Earth.

Transport Options During a Flood Event
FIGURE 3

- Option 1** - travel via Darlington point to the poultry processing complex at Hanwood (approximately 35 kilometres northwest of the Development Site). Travel west on the Sturt Highway and then north on Kidman Way to Hanwood.
- Option 2** - travel via Narrandera and Leeton to the poultry processing complex at Hanwood. Travel east on the Sturt Highway to Narrandera then northwest on Irrigation Way through Yanco and Leeton and continue northwest on Griffith Road and Wilga Road until turning north on to Kidman Way to Hanwood.
- Option 3** - travel via North Coleambally and Darlington Point to the poultry processing complex at Hanwood. Travel west on the Sturt Highway, turning south on to Main Canal Road and west on to Eulo Road before travelling north on Kidman Way to Hanwood.
- Option 4** - travel via Carrathool to the poultry processing complex at Hanwood. Travel west on the Sturt Highway until the river crossing towards Carrathool and continue east on Murrumbidgee River Road and then north on Kidman Way to Hanwood.
- Option 5** - travel south to alternative poultry processing facilities in Victoria or South Australia. Travel west on Sturt Highway, turning south on to Main Canal Road and west on to Eulo Road before travelling south through Coleambally on Kidman Way.
- Option 6** - travel via Wagga Wagga to the poultry processing complex at Hanwood. Travel east on the Sturt Highway to the east beyond Narrandera towards Wagga Wagga before travelling north or northwest to Hanwood via Griffith.

It is likely that the roads to the east (i.e. Options 2 and 6) will be blocked first during a flood event, however will become available again as floodwaters reside and the roads to the west (i.e. Options 3, 4 and 5) become blocked.

5.5 Removal of Dead Birds

Dead birds will be collected from the poultry sheds on a daily basis and stored in on-site chillers (see **Figure 1**). A rigid truck will visit the site on a regular basis to collect the dead birds and transport them to the poultry processing complex, which includes a rendering plant, at Hanwood on Kidman Way.

The Development will have three times the amount of on-site chiller capacity for the storage of dead birds than other similar ProTen poultry production farms, which will enable the storage of dead birds for an extended period of time prior to transport off site.

If the normal transport route to Hanwood via Option 1 (see **Section 5.4**) is still restricted during an extreme flood event when the chiller is at full capacity, the alternative routes via Options 2 to 6 would be considered and utilised as appropriate.

Given that flood warning are likely to be available several days before floodwaters reach the area, ProTen will have adequate time to ensure the chiller is emptied so that maximum storage capacity is available should site ingress/egress be restricted as a result of flooding.

5.6 Evacuation and Safe Refuge Areas

As outlined in **Section 3**, advanced warning is likely to be available via the SES at least several days prior to mainstream floodwaters reaching the area. In this event, and if considered necessary or advised by the SES, the Development Site will be evacuated well before road ingress/egress is possibly blocked.

The Development Site is affected by overland flooding, and overland flooding is likely to have also impacted the Sturt Highway. The worst-case overland flooding relates to short duration storms and, therefore, it will be safer for farm employees to remain on site during significant rainfall events until flood waters have resided. Floodwaters are unlikely to take more than a few hours to reside with the exception of the two topographical depressions and ephemeral flow paths.

On-site safe refuge areas for farm employees, contractors and visitors, have been identified as areas which will be inundated by less than 50 mm of floodwater during a 100 year ARI event (as modelled by SLR 2015e). Safe egress routes for pedestrian wading and vehicle movement are based on the criteria provided in *Floodplain Management in Australia, Best Practice Principles and Guidelines* (CSIRO, 2000), as outlined in **Table 2**.

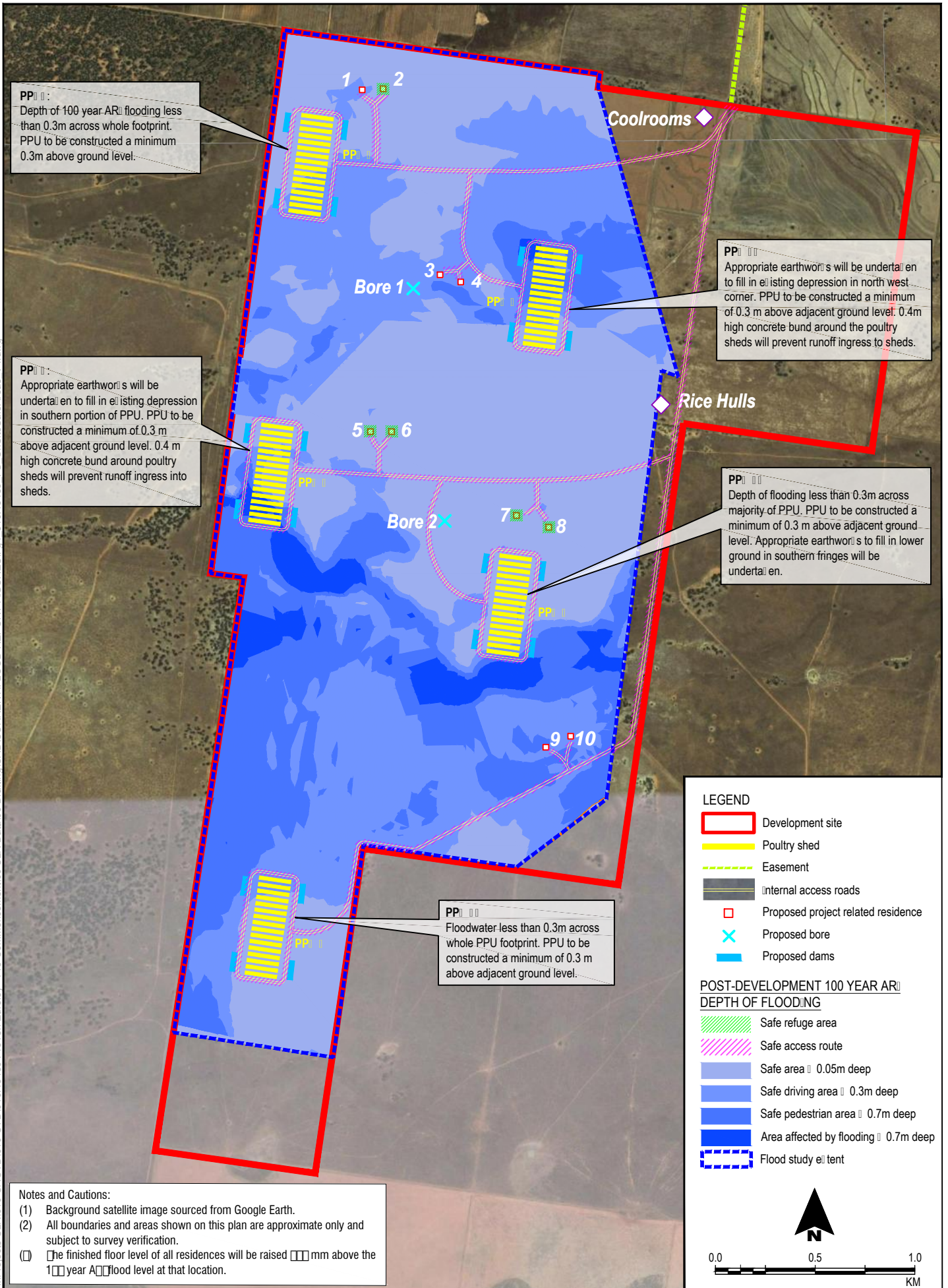
Table 2 – Safe Access and Egress

Egress Method	Safe Flood Depth For Route To Safe Refuge Area	Reference
Pedestrian	0.7 metres	Based upon safe child wading depth documented in the <i>Floodplain Management in Australia, Best Practice Principles and Guidelines</i> (CSIRO, 2000)
Vehicle	0.3 metres	Based upon small vehicle safe driving depth documented in the <i>Floodplain Management in Australia, Best Practice Principles and Guidelines</i> (CSIRO, 2000)

The nominated on-site safe refuge areas and areas identified as safe for pedestrian wading and vehicle movements during a 100 year ARI flood event are shown in **Figure 4**.

Site occupants should relocate to the farm managers' residences numbers 2, 5, 6, 7 and/or 8 within a reasonable time or within the time advised by the SES and remain there until floodwaters recede and/or advised safe by the SES. Given that the internal access roads have been raised above the 100 year ARI flood level, all internal roads will be safe to use for egress purposes.

Given the size of the catchment and local topography, the depths of floodwaters across the majority of the Site (with the exception of localised topographical depressions) are likely to recede to safe levels relatively quickly (within hours).



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6 EMERGENCY CONTACT DETAILS

The contact details for emergency help in floods and storms are listed in **Table 3**.

Table 3 - Emergency Contact Details

Authority	Contact Details
NSW Police Fire and Rescue NSW NSW Ambulance Service	Ph: 000
NSW State Emergency Service	Ph: 132 500

7 REVIEW AND UPDATE

This FEEP will be reviewed and, if necessary, revised in response to any of the following:

- Development modification, including notable operational and/or management changes;
- Following any flooding event where it is identified that the success of the mitigation measures in **Section 4** and/or FMP in **Section 5** are inadequate;
- Changes to the conditions imposed by the Development Consent SSD 6882; and/or
- At the request of a relevant regulatory authority.

All employees and contractors will be informed of any revisions to the FEEP by ProTen Site Management during toolbox talks.

8 REFERENCES

Queensland Department of Natural Resources (1997) *Planning Guidelines Separating Agricultural and Residential Land Uses*

CSIRO (2000) *Floodplain Management in Australia, Best Practice Principles and Guidelines*

Landcom (2004) *Managing Urban Stormwater – Soils and Construction Vol. 1*

SLR Consulting Australia (2015a) *Euroley Poultry Production Complex SSD 6882, Environmental Impact Statement*

SLR Consulting Australia (2015b) *Euroley Poultry Production Complex SSD 6882, Response to Submissions*

SLR Consulting Australia (2015c) *Narrandera Poultry Production Complex Operation Environmental Management Plan*

SLR Consulting Australia (2015d) *Euroley Poultry Production Complex, Flooding Assessment*

PROTEN HOLDINGS PTY LTD

Narrandera Poultry Production Complex

ENVIRONMENTAL COMPLAINT REPORT FORM

STAFF MEMBER CONTACTED

Name:-

Date:- **Time:-**am/pm

COMPLAINANT DETAILS

Name:-

Address:-

Contact No.:-

COMPLAINT DETAILS

Date of event:- **Approx. time:-**am/pm

Description:-
.....
.....
.....

FIELD INVESTIGATION

Investigation undertaken:- Yes / No (if no, give reason)

Findings:-
.....
.....
.....

Is complaint related to an environmental incident:- Yes / No

If yes, complete the Environmental Incident Report Form and, if the incident has caused or threatens to cause material harm to the environment, notify the relevant authorities (as listed in the CEMP).

REMEDIAL ACTION

Remedial action undertaken:- Yes / No (if no, give reason)

Description:-
.....
.....
.....

PROTEN HOLDINGS PTY LTD

Narrandera Poultry Production Complex

ENVIRONMENTAL COMPLAINT REPORT FORM

Any further corrective action required:- Yes / No

If yes, describe:-
.....
.....
.....

COMPLAINANT INFORMED

Complainant informed:- Yes / No **Via:-** Phone / Fax / Email / Letter / In Person

By whom:-

SIGN OFF

Name:- **Title:-**

Signature:- **Date:-**

PROTEN HOLDINGS PTY LTD
Narrandera Poultry Production Complex
ENVIRONMENTAL INCIDENT REPORT FORM

INCIDENT DETAILS

Date of incident:- Time of incident:-am/pm

Location:-

Description:-
.....
.....

NOTIFICATION TO REGULATORY AUTHORITY

Has the incident caused or does it threaten to cause material harm to the environment:- Yes / No If yes, the relevant authorities (as listed in the CEMP) must be notified immediately.

EPA

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

EPA – Local Office

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

NSW Health

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

Safework NSW

Date:- Time:-am/pm

Person Spoken to:-

Instructions:-
.....
.....

Council – Narrandera Shire council

Date:- **Time:-**am/pm
Person Spoken to:-
Instructions:-
.....
.....

Emergency Services – Fire/Police/Ambulance

Date:- **Time:-**am/pm
Person Spoken to:-
Instructions:-
.....
.....

DPIE

Date:- **Time:-**am/pm
Person Spoken to:-
Instructions:-
.....
.....

REMEDIAL ACTION

Remedial action undertaken:- Yes / No (if no, give reason)
Description:-
.....
.....
.....

Any further corrective action required:- Yes / No
If yes, describe:-
.....
.....
.....

SIGN OFF

Name:- **Title:-**
Signature:- **Date:-**