Figure B4: Findings of Survey #3 – 10 May 2016

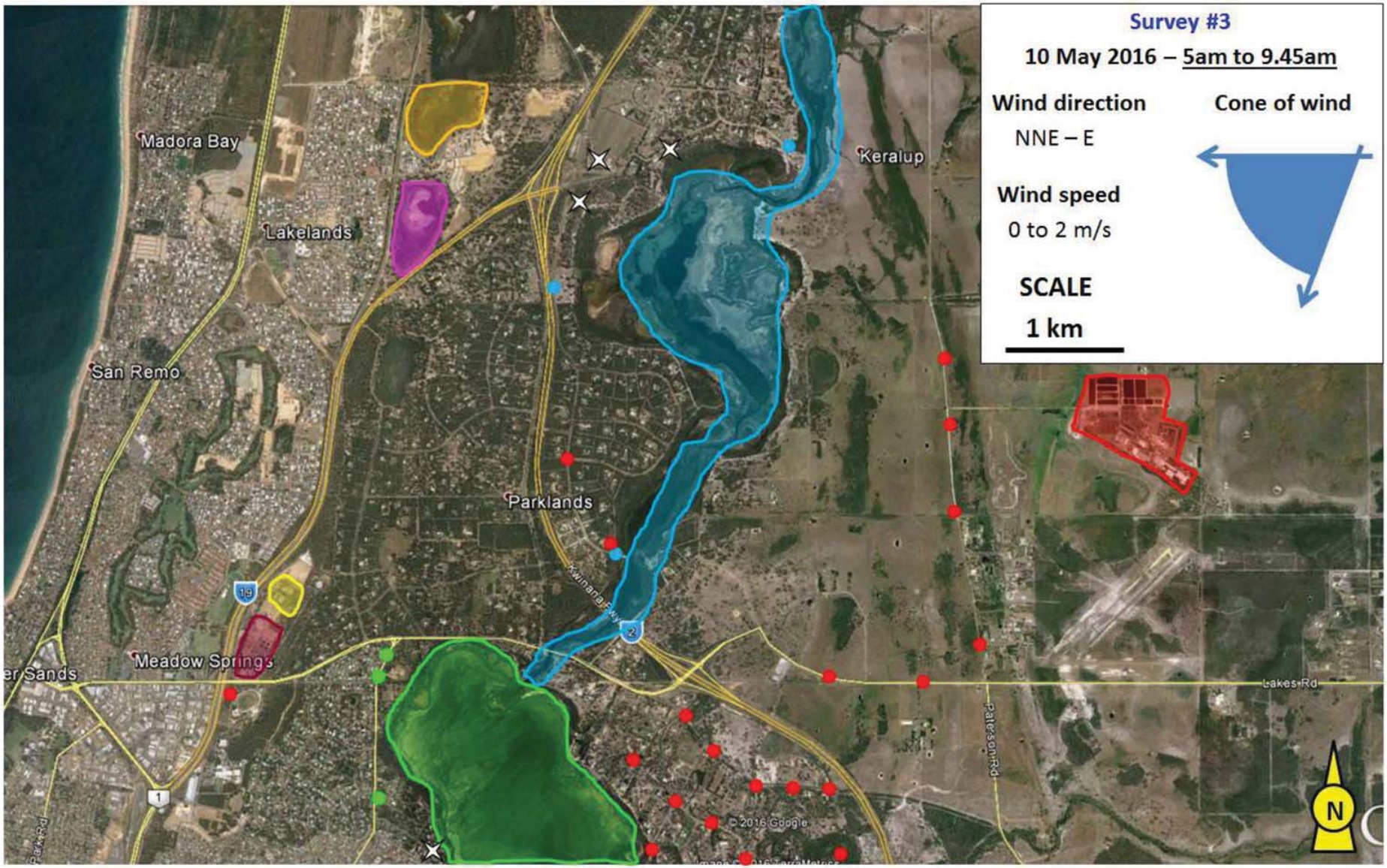


Figure B5: Findings of Survey #4 – 19 May 2016

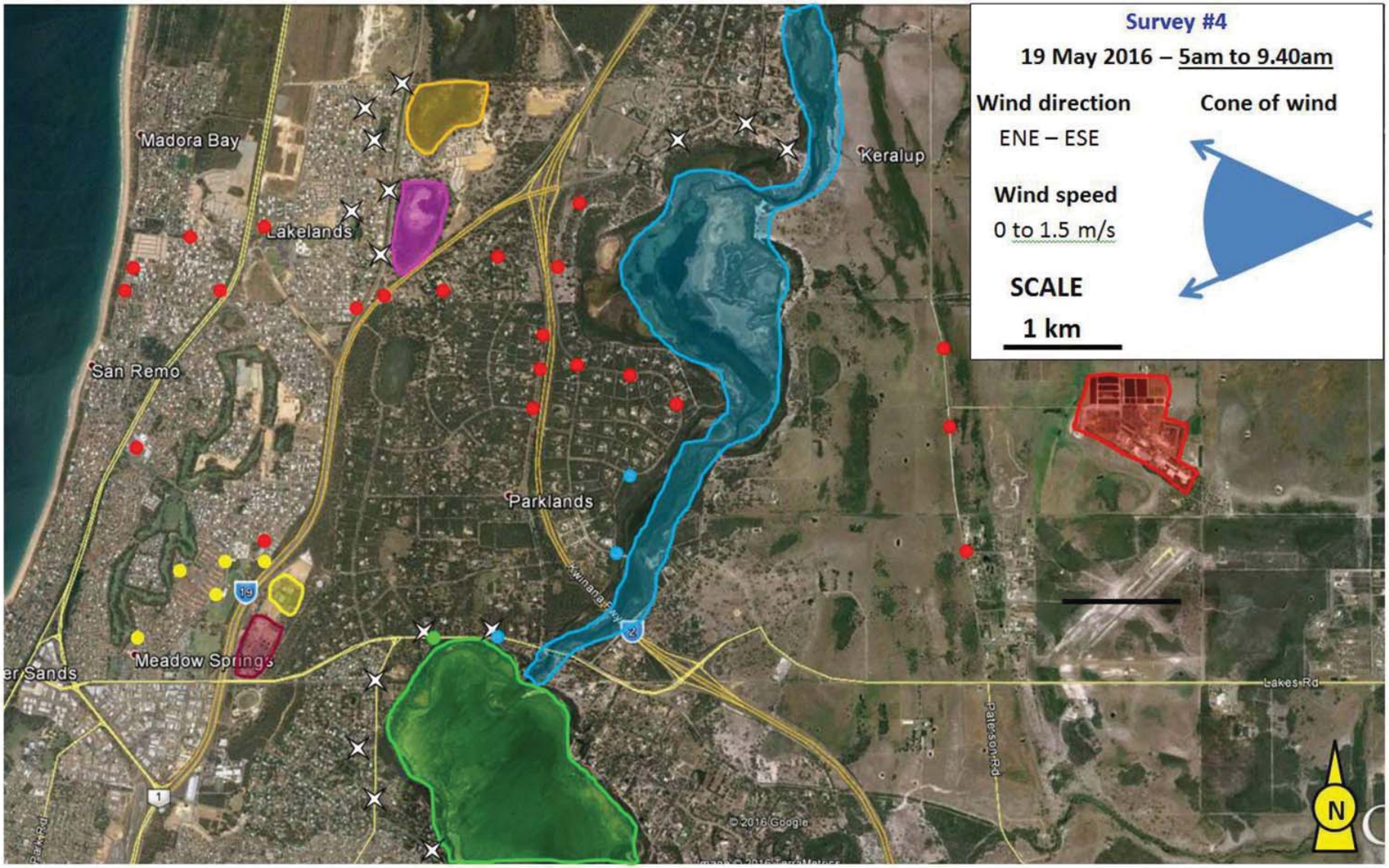


Figure B6: Findings of Survey #5 – 27 May 2016

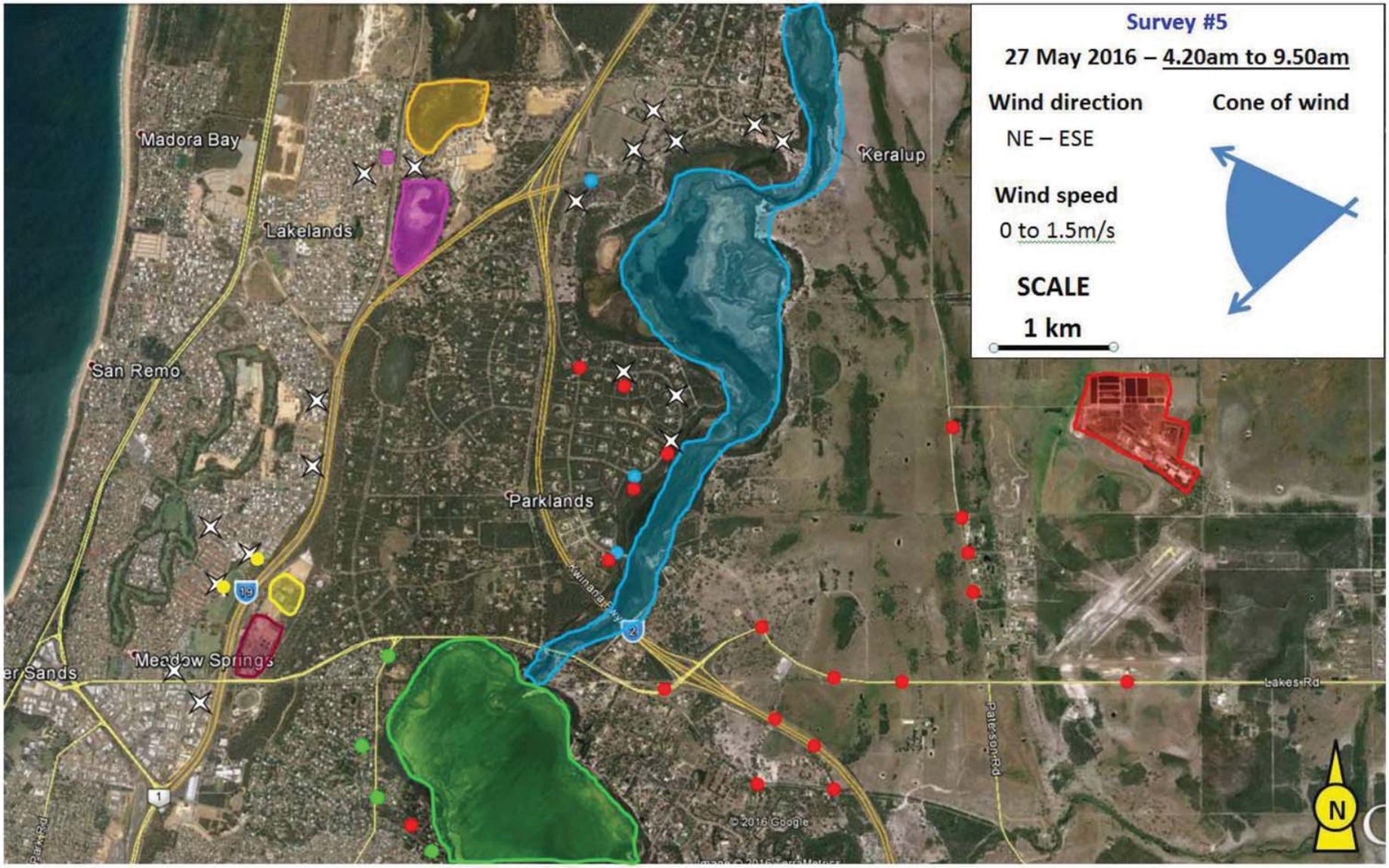


Figure B7: Findings of Survey #6 – 30 May 2016

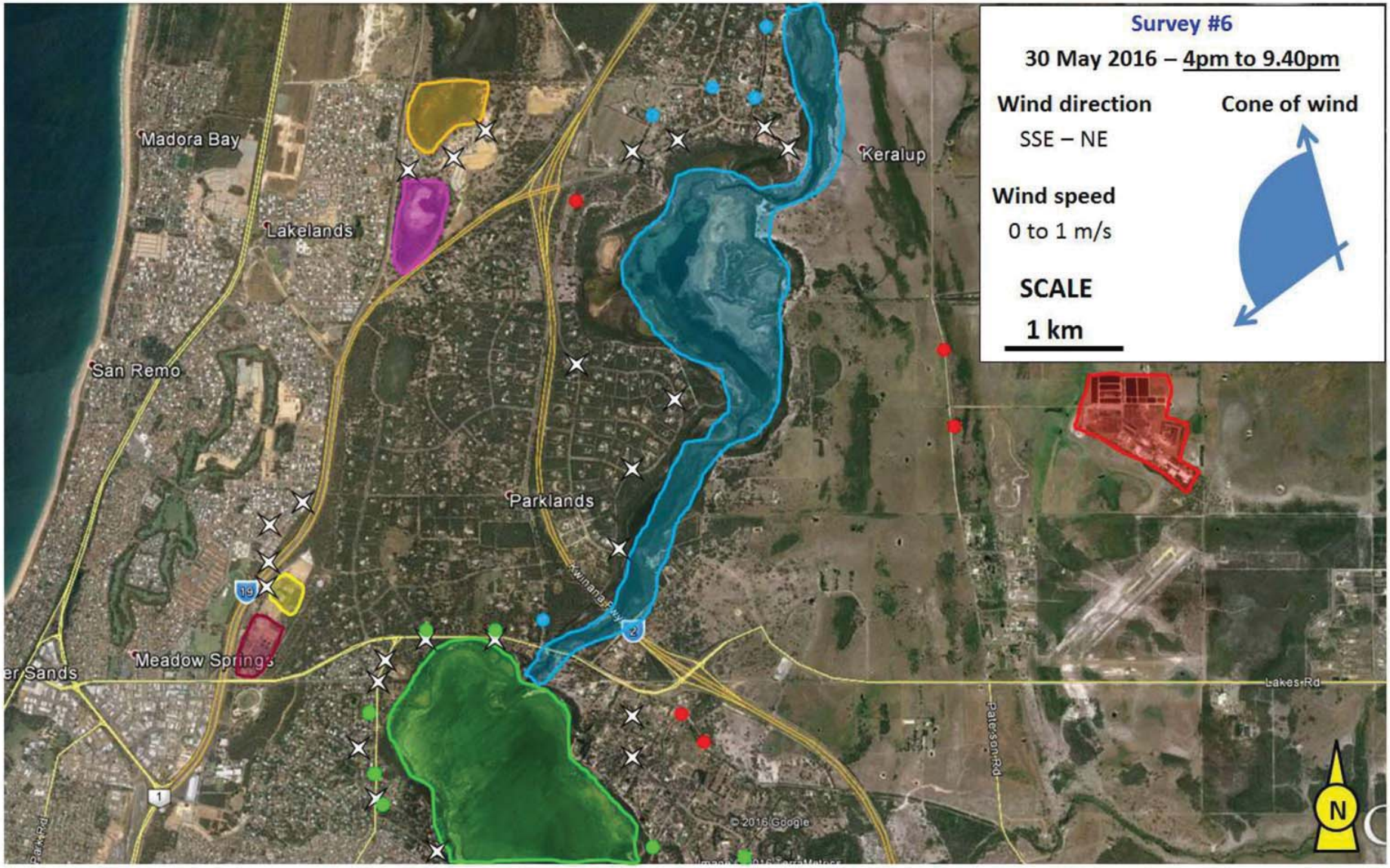
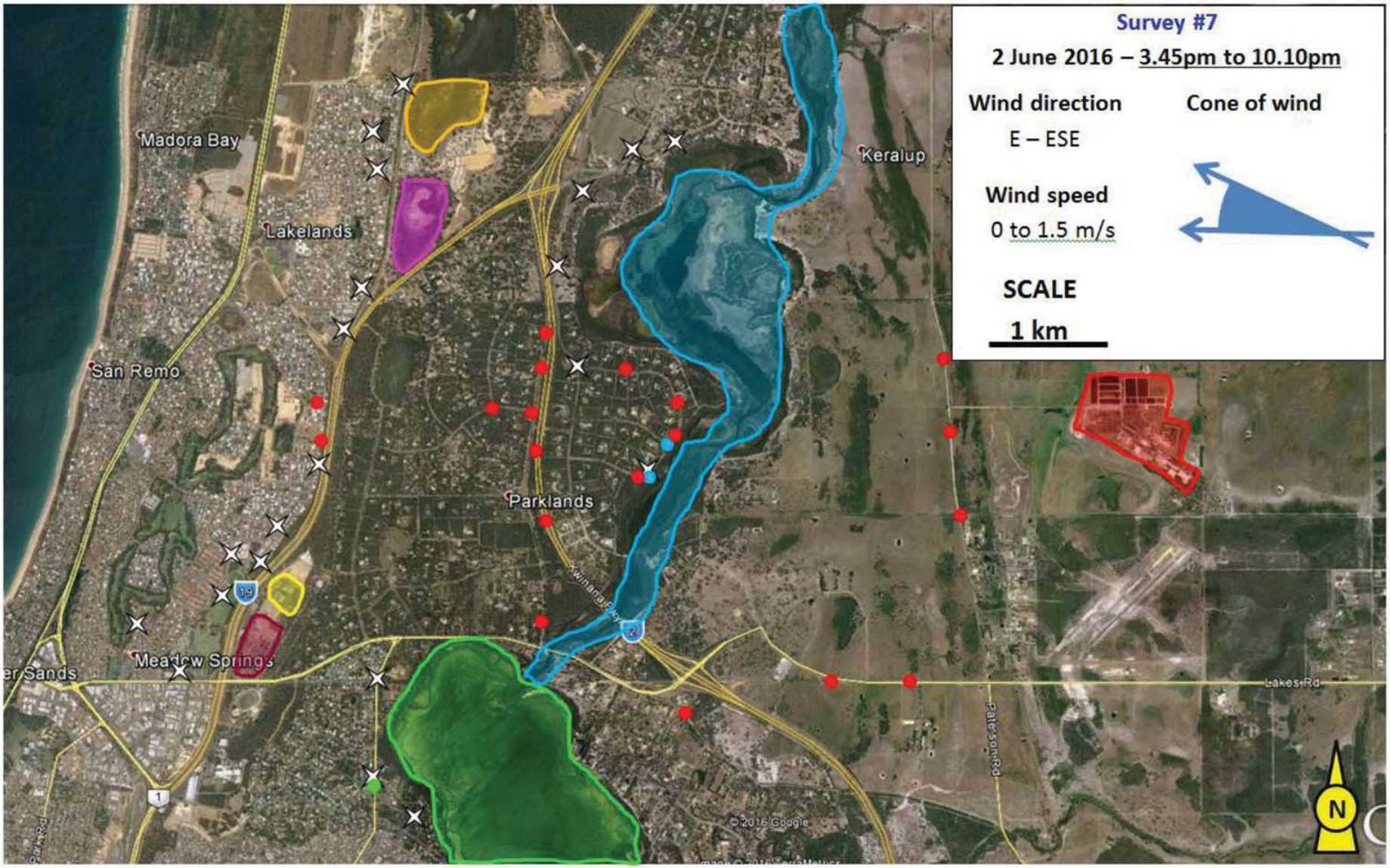


Figure B8: Findings of Survey #7 – 2 June 2016



Expert's details

Personal details: Reviewer

Name	K. David Griffiths
Employer	Department of Environment Regulation
Position title	Senior Air Quality Officer
Classification level	SC3
Recognised field of expertise	The reviewer has relevant training and expertise in odour impact assessment methodology and data analysis.

Qualifications and experience

The qualifications and experience and technical capability relevant to the provision of this advice is as follows:

Qualification

Qualification	Year obtained	Additional comments
Graduate Diploma in Computing Studies, U of Canberra	1990	
Bachelor of Science (Hons Physics), UWA	1982	

Professional experience

Employer	Position	Tenure
Department of Environment Regulation (DER) and predecessor agencies	Senior Air Quality Officer, and Environmental Officer, Air Quality Services	1995 - current
Department of Environmental Protection	Computing Scientist, Air Quality Management Branch	1992-1995

Other – Publications/memberships/associations etc

Peer reviewed papers

Air Quality

Griffiths, K.D., 2014. Disentangling the frequency and intensity dimensions of nuisance odour, and implications for jurisdictional odour impact criteria. Atmospheric Environment 90 125-132.

Griffiths, K. D., 2013. A risk-based procedure for broiler farm separation distance calculations. Proceedings of the 21st Clean Air & Environment Conference, Sydney, Australia.

Griffiths, K.D., 2009. Patterns in Odour Criterion Percentiles and Their Implications For Odour Regulation. Proceedings of the 19th International Clean Air and Environment Conference, Perth.

Forum and Conference Workshop presentations

Griffiths, K. D., 2013. Untangling the frequency and intensity dimensions of nuisance odour. *CASANZ Modelling Special Interest (ModSIG) Workshop, 21st Clean Air & Environment Conference, Sydney, Australia.*

Griffiths, D., 2012. A brief tour of Odour Regulation in WA. AQCC Air Quality Forum, Perth.

Griffiths, D., 2009. SRDM – A Statistics Reporting Dispersion Model written in the R language. Odour and Modelling Workshop, 19th International Clean Air and Environment Conference, Perth.

Griffiths, D., 2009. WA Odour Regulation – What Works and What Doesn't. Odour and Modelling Workshop, 19th International Clean Air and Environment Conference 2009, Perth.

Griffiths, D., 2007. An Efficient Method of Verifying S-Factor Formula Performance using Ausplume. Odour and Modelling Workshop, 18th International Clean Air and Environment Conference, Brisbane.

Professional Memberships:

Clean Air Society of Australia and New Zealand (CASANZ)

Signatures

Author Name Philippe Najean	Signature
Position Senior Air Quality Officer	Date 6/9/2016
Reviewer Name David Griffiths	Signature
Position Senior Air Quality Officer	Date 6/9/2016

Appendix 7: Technical Expert Report – Review of 'Investigation of Odour Emissions from Nambeelup Precinct Operations' and Nambeelup Farm precinct water quality laboratory report

Government of Western Australia
Department of Environment Regulation

REPORT

Technical Expert Report

Review of:

- *"Investigation of Odour Emissions from Nambeelup Precinct Operations"*
- *Nambeelup farm precinct water quality Laboratory Report*

Version: Final

November 2016

Document control

Document version history

Date	Name	Role
xx/xx/xx	David Griffiths: Senior Air Quality Officer Philippe Najean: Senior Air Quality Officer	Author
xx/xx/xx	Adrian Blockley: Principal Expert (Air Quality)	Reviewer

Corporate file information

File number and/or name	File owner or custodian	File location
DER2016/000819	Compliance and Enforcement	Atrium Level 4

Government of Western Australia
Department of Environment Regulation

Produced and published by
Department of Environment Regulation
168 St Georges Terrace, Perth, Western Australia

November 2016

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Accessibility This document is available in alternative formats and languages upon request.

Content

1. Purpose

This report documents a review by Air Quality Services (AQS) officers(the review) of the draft report *Investigation of Odour Emissions from Nambeelup Precinct Operations* (Environmental Alliances Pty Ltd, July 2016), prepared for C-Wise, Costa and Craig Mostyn Farms (the ENVALL report) and a C-Wise water quality Laboratory Report (the laboratory report) . This review was requested by A/ Executive Director Compliance and Enforcement on 2 September 2016 to inform the development of appropriate regulatory controls in the review of licences of each of the premises at the Nambeelup Farm precinct.

2. Documentation

In preparing this review, AQS has reviewed the following documents:

Table 2.1 Documentation

Document	Author	Date of document	Objective reference
Hard copy report: "Draft Investigation of Odour Emissions from Nambeelup Precinct Operations"	Environmental Alliances Pty Ltd (ENVALL)	July 2016	N/A – hard copy referral
Waste water quality Laboratory Report (ARL job number 16-03831 Revision 01) contained as attachment in hardcopy request for advice from A/ Executive Director Compliance and Enforcement.	Water quality report author: Analytical Reference Laboratory (ARL)	20 June 2016	N/A

3. Introduction

The Department of Environment Regulation (DER) has received intermittent odour complaints in the Mandurah area since 2014.

The three premises:

- Craig Mostyn Group piggery (hereinafter named as CM Farms)
- Costa Group – composting for mushroom growing substrate (hereinafter named as Costa)
- C-Wise WA Composts Pty Ltd (hereinafter named as C-Wise)

located at the Nambeelup Farm precinct (the Nambeelup precinct) were identified as likely contributors to odour impacts in the area following DER's Mandurah Odour Investigation Project 2016 .

The operators of these premises commissioned ENVALL to undertake a study to characterise odour emissions from the precinct. A primary focus of the study was to

delineate between the emissions of the three premises where possible using onsite measurements. A water quality laboratory report was also commissioned by C-Wise.

The resulting reports are the subject of this review by AQS officers. This review has been requested to support the licence review of the three Nambeelup precinct premises initiated by DER.

Particular advice was sought from AQS regarding:

- The findings of the commissioned odour survey.
- The potential for low oxidising reduction potential (ORP) or other characteristics of reused wastewater to contribute to odour emissions.

4. Summary of review findings

4.1. Investigation of odour emissions report

The key findings of this review of the ENVALL report are:

1. Estimates of the relative odour emission rate (OER) of the various sources were made by the ENVALL report. The largest sources, on an average emission rate basis, were identified as:
    a. the C-Wise quicken area receiving liquid waste and mortalities for processing,
    b. the Costa composting operation, and
    c. the Premium and Wandelup composting area of C-Wise (named "*PremMAF MAF Feed wet desp*" in the ENVALL report);
2. Due to the limited E-Nose sampling period, the possibility of other sources contributing significantly greater fractions of the total precinct odour emissions during particular times in operational cycles cannot be excluded. The influence of such emissions peaks and their relative contributions to overall impacts have not been captured in this study;
3. Large average total precinct emission rates were calculated in the report via two separate methods. Odour emission rates of the order of magnitude calculated in the report could potentially cause impacts at distances up to several kilometres from the precinct under some meteorological conditions.

4.2. Water Quality Laboratory Reports

4.2.1. Limitations and important note

The review of the submitted data does not assess whether the dams or ponds are working effectively for the task they have been designed for. The review of the data was performed with the purpose of evaluating the risk of production of odorous compounds according to the various parameters presented in the water quality laboratory reports. In this Technical Expert Report, the discussion about the level of the various parameters being low or high refers to their potential, on their own, or coupled with other parameters, to produce odorous compounds. As such, a low value of ORP refers to the risk of some odorous compounds production and not to a comparison with the targeted ORP set point designed for the pond. AQS experts have professional experience with odours produced by wastewater, but do not have formal

expertise in wastewater quality. This experience includes several cases involving odour emissions from ponds and dams and a review of key water quality parameters that can influence odour production. However, it is recommended that additional advice is sought from a wastewater expert on the laboratory report data.

There is limited information provided in the laboratory reports and the accompanying email about sampling locations and conditions, which may impact on the results and their interpretation. Interpretations provided in this document about the water quality parameters for the various dams of the Nambeelup precinct should be considered in light of the limited contextual information attached to the data. In addition, the presented data is only a snapshot of the water quality in the various dams; time series data, where temporal trends could be identified, would be more definitive.

4.2.2. Water Quality report review

A. C-Wise

In dams 21 and 22, the combined low levels of Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) represent a significant risk of odour emissions from those dams. This conclusion is supported by two additional pieces of information:

- The presence of sulfides and possible mercaptans measured in the air on the side of dam 22 by C-Wise (results provided by [redacted] C-Wise to DER by email on 2 June 2016 – see Appendix 1); and,
- The detection of strong odours (organic / manure / septic / sulphurous odours) while walking on the side and downwind of dams 21 and 22 during a site visit by AQS officer and author Philippe Najean on 27 May 2016.

In addition, the Biological Oxygen Demand (BOD) and Total Nitrogen levels are high in dam 22. The levels of Total Nitrogen and Ammonia are high in dam 21.

B. CM Farms

Based on the authors' understanding of the CM Farms dam network, it is assumed that "inflow" corresponds to dam 1 and "outflow" to dam 5 but this is not clear in the ENVALL report. Levels of ammonia and Total Nitrogen are significantly high in the outflow. Unfortunately, there were no measures of the ORP and DO in those dams.

During a site visit held on 27 May 2016, DER officers detected strong odours downwind of dams 2 and 5 of CM Farms. Release of biogas (large bubbling at the dam's surface) was also observed on this day from dam 2.

C. Mushroom Exchange (Costa)

Monitoring results of the leachate collection water pond from Costa show the potential for producing odour emissions. The pH for this type of pond would be expected to be alkaline; however, results show it is slightly acidic. The ORP value is very low (from an odour production point of view) and sulfide and fatty acid are likely to be produced at this level. All other parameters, i.e. Total Dissolved Solids (TDS), BOD, ammonia and total nitrogen are high

5. Detailed review findings

5.1. Odour emissions assessment

The odour emissions assessment documented in the ENVALL report comprised the following distinct components:

- an E-Nose concentration profiling combined with WindTrax back-calculation dispersion modelling to estimate relative and absolute odour emission rates of individual sources;
- dispersion modelling (CALPUFF) and a field survey to estimate the total facility emission rates;
- an estimation of piggery shed emissions from a literature review.

The main findings of the ENVALL report for the whole Nambeelup precinct are:

- the wastewater treatment ponds (Sub-total ponds in Table 8 of the ENVALL report) contribute 22.6% of the final total hourly average OER for the site while the material handling represents 74.3% (Sub-total Materials Handling in Table 8 of the ENVALL report). The piggery sheds only constitute a small percentage (3.1%) of total site emissions;
- The largest individual source was identified as the *Quicken MAF wet pond mort* (28.1 % of total average hourly emission rate). From DER site visits, this source is assumed to be the Quicken Area of composting of C-Wise receiving the Liquid Waste and animal and bird (poultry) mortalities for processing;
- Other large sources identified include the Costa composting operation (22.3%) and the Premium and Wandelup composting area (called "*PremMAF MAF Feed wet desp*" in the ENVALL report) (10%).

Key observations regarding the ENVALL report are:

a. DER officers visited the Nambeelup precinct prior to and during the Mandurah Odour Investigation Project in 2016. The C-Wise quicken area and Costa operations were identified as being among the largest odour sources in the precinct at the time of the visits.

b. During the visits, DER officers observed that the following dams were also the source of significant odour emissions:

    - Dam 2 and, to a lesser extent, dam 5 of CM Farms;
    - Dams 21 and 22 of C-Wise; and,
    - Leachate collection pond at the Costa facility

    The composting activities of C-Wise and Costa both reuse dam water. This water is reused in large quantities over wide surface areas. It results in odorous sources with large surface areas. The sizeable emissions from the quicken area source of C-Wise is also a likely consequence of the introduction of liquid waste within the composting process.

c. Due to the limited E-Nose sampling times, the possibility of other sources contributing significant fractions of the total precinct odour emissions during particular times in operational cycles cannot be excluded. Emissions peaks

during compost windrow aeration and compost stacking were discussed in Appendix 6 of the report. However, these emissions peaks, and their relative contributions to overall impacts, were not captured in the timeframe of this study;

d. Large uncertainties are expected with many of the calculations used in the report to estimate the total and relative OERs for the site. These uncertainties apply to E-Nose measurements, back calculation and modelling. The limitations are acknowledged in the report;

e. Notwithstanding these uncertainties, the reported site-wide odour emission rate estimates of 8.9 x 10^6 ou.m^3/s and 16.5 x 10^6 ou.m^3/s are very large. Odour emission rates of this order of magnitude could cause impacts at distances up to several kilometres from the precinct under some meteorological conditions;

Only limited detail was provided on the calculation methodology used to estimate total and relative site OERs. For this reason, detailed review of these calculations was unable to be undertaken.

5.2. Water quality data

5.2.1. C-Wise data

It is indicated that the reported data represent an average of the data provided to date. However, the period and number of sets of data are not indicated in the laboratory report.

Parameter	Dam 21	Dam 22
Dissolved Oxygen (mg/L)	0.56	0.56
pH	8.05	8.04
Total Dissolved Solids (ppt)	14,600	14588
ORP (mV)	-368	-369

C-Wise provided the following comments in regards to the table:

- Oxidation Reduction Potential (ORP): If the ORP value is below -380, daily monitoring is conducted. If the ORP has reached -450, a shock treatment using a combination of Sodium Percarbonate, Oceanic Bio Granular Shock and Oceanic Bio Tablet is implemented
- Dissolved Oxygen (DO): The dissolved oxygen should be at least 0.2 ppm. Below this value, the dam is considered to be "anoxic", further aeration / oxygenation shall be applied. Oxygen can be added mechanically (through pumping/recirculation) or chemically (through addition of Sodium Percarbonate).

Sulfides and methane production can potentially occur when ORP values are so low. However, the levels of DO indicate adequate oxygen within the waters to maintain aerobic conditions.

Anoxic conditions are generally reached for DO below 0.5mg/L although C-Wise claims that the DO value should be maintained above 0.2 ppm (equivalent to 0.2 mg/L). In addition, DO levels are very sensitive to temperature with a significant decrease of the DO when temperature only increases slightly. Therefore, it should also be noted that DO values can be lower than that recorded in the table above

during hotter periods of the year with warmer dam water. The water temperature is not reported.

The ORP is low. C-Wise indicates that -380mV is an internal target to trigger daily monitoring, i.e. where the company decides to closely and more frequently monitor this parameter. C-Wise also indicates that sulfides and methane may be produced at low ORP levels. ORP values for dam 21 and dam 22 are within the range where there is a risk of production of sulfides (H_2S), fatty acids and methane. Sulfides and fatty acids are two chemical families of odorous compounds, some of them with low odour detection threshold (ODT), for example mercaptans. Low ODT means that those compounds can be detected at very low concentrations in the air by human nose.

We do not concur with the view of C-Wise that the DO level is high enough to guarantee that aerobic conditions were maintained within the dams. From experience, those combined low DO and ORP values represent a significant risk of odour emissions from those dams which is corroborated by two additional pieces of information:

a. The presence of sulfides and possible mercaptans are confirmed by other data provided by [redacted] C-Wise, in an email sent to DER on 2 June 2016.

Compound / parameter formulation on Multirae	Compound / parameter name	Values
HCHO	Formaldehyde	0.1 - 0.2 ppm
ETO	Ethylene oxide	0.1 - 0.2 ppm
CO	Carbon monoxide	Nil ppm
LEL	Lower Explosive Limit	Nil for all Dams other than Dam 24 which has been measured at 0.5% (oily water)
NH3	Ammonia	0 - 1 ppm
H2S	Hydrogen Sulphide	Nil for all Dams other than Dam 22, which has been measured at 1 - 2 ppm

Those data have been measured using a portable gas detector on the side of C-Wise dams. Note the measurement of 1-2ppm of H_2S on the side of dam 22.

b. Following a site visit on 27 May 2016, DER officers indicated that: "*When walking downwind this dam (dam 21), I could smell a strong organic odour with a manure characteristic. This dam is possibly a source that I have experienced off-site. […] We then walked between dams 21 and 22. When we reached the SW (south-west) corner of dam 22, I experienced a strong organic / manure / septic / rancid and sulphurous odour from this dam. Dam 22 is a possible source that I may have smelt off-site according to the characteristic of the odour".*

Another table reproduced from the laboratory report showing water quality parameters is provided and attached below.

These data are a snapshot with limited information on the conditions and locations of sampling. The following comments are pertinent and raise concerns of the risk of some dams being odour sources:

- The BOD for dam 22 is very high and the ratio between the chemical and the biological demand in oxygen is close to 1 which indicates a large amount of organic material in the pond. This may be related to the high levels of total suspended solids in this dam.
- Total Nitrogen levels are high for both dams 21 and 22 and Ammonia is high in dam 21.

- Dams 23 and 24 receive additional waste that is not related to wastewater from the site.
- Dams 31 and 32 are the final treatment ponds and have lower values for most of the parameters than dams 21 and 22; it is not possible to comment further on those values.

Parameter	Dam 21	Dam 22	Dam 23	Dam 24	Dam 31	Dam 32	Organics outflow	Kerb up outflow
Total Nitrogen (mg/L)	1100	1400	970	1400	830	390	2300	850
Ammonia (mg/L)	900	110	290	570	450	25	1600	350
Total Suspended Solids (mg/L)	250	750	130	590	630	880	310	630
BOD (mg/L)	3100	7600	83000	120000	1800	390	1900	880
COD (mg/L)	8700	19000	16000	21000	9100	7600	28000	21000
Ratio C:B	2.8	1.7	1.9	1.8	5.1	19.5	14.7	23.9

In conclusion, the values of the parameters provided by C-Wise, plus DER officers' observations of odour downwind from those dams as well as the additional ambient air monitoring, appear to indicate that dams 21 and 22 present a clear risk of emitting odorous pollutants from the water and are two significant and clearly identified sources of odour on the site.

5.2.2. CM Farms data

The table of parameters provided for CM farm is the following:

Parameter	Inflow to treatment system (mg/L)	Outflow from treatment system for reuse (mg/L)
Ammonia	1000	600
BOD	6300	540
Total Dissolved Solids	4340	5040
Total Nitrogen	1400	760
Total Phosphorus	280	34
Total Suspended Solids	9370	358

As indicated previously, it is assumed that "inflow" corresponds to dam 1 and "outflow" to dam 5 but there is no clear indication in the ENVALL report.

Some points regarding the risk of some dams being odour sources are:

- Surprisingly, the level of total dissolved solids is higher in the outflow than in the inflow;
- The levels of ammonia and total nitrogen are still significantly high in the outflow;
- It is unfortunate that no ORP or DO have been measured as they would have most likely confirmed the poor water treatment achieved at this pond

As discussed in the ENVALL report, dam 1 is full of solids and does not have any water treatment capacity. Raw water running on the surface of the compacted sludge underneath creates a large surface area odour source. It should be noted that dam 1 has been decommissioned since those tests. A new dam (called dam 0) is now receiving the untreated water from the piggery before being directed to dam 2. However, during the site visit on 27 May 2016, DER officers witnessed that dam 1 was not isolated form the network. Dam 1 was still receiving the leachates from the Premium and Wandelup composting area of C-Wise and dam 1 outlet was still feeding dam 2.

Strong odours have been experienced by DER officers on the side and downwind of dams 2 and 5 of CM Farms during a site visit on 27 May 2016. Based on the observations of large biogas releases on dam 2, it is likely that this dam is operating under anaerobic conditions, at least in some of its sections.

In conclusion, the water quality parameters associated with dam operational conditions and odour observations downwind of some CM Farm dams by DER officers show a limited treatment of this water. Therefore, the risk of these dams being significant sources of odour is high. In addition, this water is reused in large quantities on composting areas of C-Wise.

5.2.3. Mushroom Exchange (Costa) data

The table of parameters provided for CM farm is the following:

Parameter	Leachate Pond
pH	6.8
ORP (mV)	-286
Total Dissolved Solids (mg/L)	7,600
Total Nitrogen (mg/L)	1525
Ammonia (mg/L)	730
BOD (mg/L)	5550

The set of values presented in the above table raise concerns regarding odour emissions from the leachate pond and from the composting activities re-using large quantities of this water. The reasons are the following:

- It is recommended a slightly alkaline pH is maintained in leachate ponds; the table above indicates that the pH is slightly acidic. Maintaining an alkaline pH would limit the release of hydrogen sulfide (H_2S);
- The large negative value of ORP is also indicative of increased risks of production of sulfides, fatty acids and even methane;
- The level of Total Dissolved Solids is very high and may be related to the highly elevated level of BOD;
- Total levels of ammonia and nitrogen are very high; in particular they are higher than those from dams 21 and 22 (except for ammonia for dam 21);
- It is unfortunate that no DO levels and water temperature values were provided as they would have most likely confirmed the poor water treatment achieved at this pond.

In conclusion, the water quality from this leachate pond appears to be very poor and the reuse of this water on various operations of Costa activities is likely to result in significant levels of odour emissions. In addition, during site visits on 9 March and 27 May 2016, DER officers observed some large surface areas of running water on the concrete pad of Costa, creating a very significant odour source.

6. Limitations

Please note the following important information relevant to the AQS review:

- Reported data are generally accepted as supplied. AQS does not attempt to verify emission rate data adopted for the modelling assessment, including parameters used in the estimation of emission rates such as measured emission concentrations;
- Pollutants of concern considered by the consultant are odorous compounds. There may be other pollutants emitted at trace levels or other atmospheric processes (e.g. particles associated with organic compounds, semi-volatile species, transient species, complex mixtures, etc.) that may contribute to cumulative concentrations and impacts in the regional airshed. AQS has no reason to believe that such emissions constitute a significant public health risk, but caution that there are few data available to make an assessment at this time;

7. Appendices

7.1. Appendix 1: Email [redacted]

From: [redacted]@cwise.com.au]
Sent: Thursday, 2 June 2016 4:36 PM
To: [redacted]
Subject: Information about personal gas monitors

Hello [redacted]

As requested when you visited our site on Friday 27 May 2016, attached is a photograph of the MultiRae Pro personal gas monitor that our technical staff wear when they are working around the dams. Below is a list of the parameters and typical data that they measure for each parameter when they are near the dams.

If you have any queries, please contact me.

Regards

[redacted]

Compound / parameter formulation on Multirae	Compound / parameter name	Values
HCHO	Formaldehyde	0.1 - 0.2 ppm
ETO	Ethylene oxide	0.1 - 0.2 ppm
CO	Carbon monoxide	Nil ppm
LEL	Lower Explosive Limit	Nil for all Dams other than Dam 24 which has been measured at 0.5% (oily water)
NH3	Ammonia	0 - 1 ppm
H2S	Hydrogen Sulphide	Nil for all Dams other than Dam 22, which has been measured at 1 - 2 ppm.

Figure A1: Photograph attached to email.

Signatures

Author Name David Griffiths	Signature David Griffith.
Position Senior Air Quality Officer Air Quality Services (Studies)	Date 18/11/2016
Author Name Philippe Najean	Signature [signature]
Position Senior Air Quality Officer Air Quality Services (Studies)	Date 18/11/2016
Reviewer Name Adrian Blockley	Signature [signature]
Position Air Quality Principal Expert	Date 18/11/2016

Attachment 1: Revised Licence L7210/1997/10

Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence Number	L7210/1997/10
Licence Holder	MushroomExchange Pty Ltd
ACN	004 527 440
Registered business address	271-279 Robinsons Rd RAVENHALL VIC 3023
File Number	DER2010/010225
Duration	26 April 2000 to 27 April 2020
Date of issue	16 August 2018
Prescribed Premises	Category 67A: Compost manufacturing and soil blending
Premises	Mushroom Exchange Pty Ltd 230 Gull Road NAMBEELUP WA 6207 SHIRE OF MURRAY Lot 89 on Deposited Plan 741 Certificate of Title Volume 1112 Folio 243

Bound by the coordinates:

	Easting	Northing
1	390978.80	6404489.63
2	390953.40	6404377.67
3	390980.97	6404369.87
4	390979.68	6404362.15
6	390895.00	6404377.44
7	390872.11	6404365.44
8	390905.79	6404300.95
9	391082.22	6404252.00

This Licence is granted to the Licence Holder, subject to the following conditions, on 15 August 2018, by:

Date signed: 15 August 2018

Ruth Dowd

Senior Manager Waste Industries

an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)

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The Department is the agency responsible for administering Part V of the *Environmental Protection Act 1986* (WA) (EP Act) for the regulation of Prescribed Premises. The Department also monitors and audits compliance with licences, takes enforcement action and develops and implements licensing and industry regulation policy.

Licence

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered or permitted to be altered from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA).

This Licence does not authorise any activity which may be a breach of another approval by another authority. For example, if the Premises have been assessed under Part IV of the EP Act, the Licence Holder is still required to comply with any conditions imposed by the Minister for Environment under Part IV.

It is the responsibility of the Licence Holder to ensure that any action or activity referred to in this Licence is permitted by, and is carried out in compliance with, statutory requirements.

The Licence Holder must comply with the Licence. Contravening a Licence Condition is an offence under section 58 of the EP Act.

Responsibilities of Licence Holder

Separate to the requirements of this Licence, general obligations of Licence Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Licence Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under section 61; and
- restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice (section 53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Licence Holder has a duty to report to the Department all Discharges of Waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with section 72 of the EP Act.

Offences and Defences

The EP Act and its regulations set out a number of offences including:

- Offence of emitting an Unreasonable Emission from any Premises under section 49;
- Offence of causing Pollution under section 49;

- Offence of dumping Waste under section 49A;
- Offence of discharging Waste in circumstances likely to cause pollution under section 50;
- Offence of causing Serious Environmental Harm (section 50A) or Material Environmental Harm (section 50B);
- Offence of causing Emissions which do not comply with prescribed standards (section 51);
- Offences relating to emissions or discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA);*
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA).*

Defences to certain offences may be available to a Licence Holder and these are set out in the EP Act.

Section 74A(b)(iv) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Licence Holder can prove that an Emission or Discharge occurred in accordance with a Licence.

This Licence specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of Specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

Section 56 of the EP Act provides that the occupier of any prescribed premises who -

(a) causes or increases, or permits to be caused or increased, an emission; or

(b) alters or permits to be altered the nature of the waste, noise, odour, or electromagnetic radiation emitted,

from the prescribed premises commits an offence unless he is the holder of a Licence issued in respect of the prescribed premises and so causes increases or permits or alters in accordance with any condition to which that Licence is subject.

The Specified and General Emissions and Discharges from Primary Activities conducted on the Prescribed Premises are authorised to be conducted in accordance with the Conditions of this Licence.

Emissions and Discharges caused from other activities not related to the Primary Activities at the Premises have not been Conditioned in this Licence. Emissions and Discharges from other activities at the Premises are subject to the general provisions of the EP Act.

Amendment of Licence

Section 53 of the EP Act provides that a Licence Holder commits an offence if Emissions are caused, or altered from a Prescribed Premises unless done in accordance with a Licence.

The Licence Holder can apply to amend the Conditions of this Licence under section 59 of the EP Act. An application form for this purpose is available from the Department.

The CEO may also amend the conditions of this Licence at any time on the initiative of the CEO without an application being made.

Duration of Licence

The Licence will remain in force for the duration set out on the first page of this Licence or until it is surrendered, suspended or revoked in accordance with section 59A of the EP Act.

Suspension or Revocation

The CEO may suspend or revoke this Licence in accordance with s59A of the EP Act.

Fees

The Licence Holder must pay an annual licence fee. Late payment of annual licence fees may result in the Licence ceasing to have effect.

Definitions and Interpretation

Definitions

In this Licence, the following terms have the following meanings:

Action Criteria/Action Criterion means the values/value within the Licence that requires the Licence Holder to take action.

AHD means Australian Height Datum.

Annual Audit Compliance Report means a report in a format approved by the CEO as presented by the Licensee or as specified by the CEO from time to time and published on the Department's website.

Annual Period means a 12 months period commencing from 1 January until 31 December in the same year.

Approved Policy has the same meaning given to that term under the EP Act.

AS 5667.1 means the Australian Standard AS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples.*

AS 5667.10 means the Australian Standard AS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters.*

AS 5667.11 means the Australian Standard AS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters.*

ASTM D6747 means Standard Guide for Selection of Techniques for Electrical Leak Location of Leaks in Geomembranes.

ASTM D7002 means Standard Practices for electrical methods for locating leaks on exposed geomembranes using the Water Puddle Method

ASTM D7003 means Standard Practice for electrical method of locating leaks on geomembrane using the Water Lance Method.

ASTM D7007 means Standard Practice for electrical method of locating leaks in geomembrane covered with water or Earth materials.

ASTM D7703 means Standard Practice for Electrical Leak Location on Exposed Geomembranes Using the Water Lance Method.

BOD_5 means the amount of dissolved oxygen consumed in five days by biological processes breaking down organic matter.

Books has the same meaning given to that term under the EP Act.

CEO means Chief Executive Officer of the Department of Water and Environmental Regulation.

CEO for the purposes of notification means:

Director General
Department Administering the *Environmental Protection Act 1986*
Locked Bag 33 Cloisters Square
PERTH WA 6850
info@dwer.wa.gov.au

Compost means the final composted material ready for dispatch from the Premises.

Condition means a Condition to which this Licence is subject under s 62 of the EP Act.

Department means the department established under section 35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Part V, Division 3 of the EP Act.

Department Request means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Licence Holder in writing and sent to the Licence Holder's address for notifications, as described at the front of this Licence, in relation to:

(a) compliance with the EP Act or this Licence;

(b) the Books or other sources of information maintained in accordance with this Licence; or

(c) the Books or other sources of information relating to Emissions from the Premises.

Discharge has the same meaning given to that term under the EP Act.

Emission has the same meaning given to that term under the EP Act.

Environmental Harm has the same meaning given to that term under the EP Act.

EP Act means the *Environmental Protection Act 1986* (WA).

EP Regulations means the *Environmental Protection Regulations 1987* (WA).

General Description means the description of activities and operations carried out on the Premises as set out in Schedule 2 of this Licence.

General Emission has the meaning set out in Condition 1 of this Licence.

Hardstand means the hardstand surface described in Table 2 and depicted in the Premises Layout Map in Schedule 1 of this Licence.

HDPE means high density polyethylene.

Inspector means an inspector appointed by the CEO in accordance with section 88 of the EP Act.

Implementation Agreement or Decision has the same meaning given to that term under the EP Act.

In-field measurement means a measurement taken in the field which does not require laboratory testing.

ISO 17289 means International Standard ISO 17289 *Water Quality – Determination of dissolved oxygen – Optical sensor method.*

Licence refers to this document, which evidences the grant of Licence by the CEO under s 57 of the EP Act, subject to the Conditions.

Licence Holder refers to the occupier of the Premises being the person to whom this Licence has been granted, as specified at the front of this Licence.

Material Environmental Harm has the same meaning given to that term under the EP Act.

Monthly means every calendar month with sampling carried out at least 15 days apart.

mV means millivolts.

NATA means the National Association of Testing Authorities, Australia.

NATA accredited means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis.

Pollution has the same meaning given to that term under the EP Act.

Premises refers to the Premises to which this Licence applies, as specified at the front of this Licence and as shown on the Premises Map in Schedule 1 to this Licence.

Primary Activities refer to the Prescribed Premises activities on the front of this Licence, at the locations provided in Schedule 1 and the description provided in Schedule 2 of this Licence**.**

Quarterly means four inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September, and 1 October to 31 December with sampling carried out at least 45 days apart.

Serious Environmental Harm has the same meaning given to that term under the EP Act.

Specified Emission has the meaning set out in Condition 1 of this Licence.

Spot sample has the same meaning given in AS5667.10:1998.

Standing Water Level means groundwater level measured from ground level (surveyed to Australian Height Datum (AHD).

Suitably qualified expert means a geotechnical or structural engineer.

Unreasonable Emission has the same meaning given to that term under the EP Act.

Waste has the same meaning given to that term under the EP Act.

Weekly means every seven day period beginning on Monday with sampling carried out at least 4 days apart.

Interpretation

In this Licence:

(a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a Condition, each row in a table constitutes a separate Condition; and

(d) any reference to an Australian or other standard, guideline or code of practice in this Licence means the version of the standard, guideline or code of practice in force at the time of granting of this Licence and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Licence; and

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

Conditions

Emissions

1. The Licence Holder must not cause any Emissions from the Premises except for Specified Emissions and General Emissions described in Column 1 of Table 1, subject to the exclusions, limitations or requirements specified in Column 2, of Table 1.

If the Licence Holder proves that it has acted in accordance with this Condition, it may be a defence under s 74A of the EP Act to proceedings for offences under the EP Act.

Table 1: Authorised Emissions Table

Column 1	**Column 2**
Emission Type	**Exclusions/Limitations/Requirements**
Specified Emissions	
Leachate Emissions	Subject to compliance with Conditions 2, 3, 4, 5, 8, 9, 10, 17, 0-23, 28-30.
Odour Emissions	Subject to compliance with Conditions 2, 3, 4, 6, 7, 11, 12, 13, 14-16, 18-20, 28-30.
General Emissions **(excluding Specified Emissions)**	
Emissions which arise from the Primary Activities set out in the General Description in Schedule 2	Emissions excluded from General Emissions are: • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or • Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy; or • Emissions or Discharges which do not comply with prescribed standard; or • Emissions or Discharges which do not comply with the Conditions in an Implementation Agreement or Decision; or • Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental *Protection (Unauthorised Discharges) Regulations 2004*.

Compost production limit

2. The Licence Holder must not produce greater than 37,000 tonnes of Compost per Annual Period.

Waste acceptance controls

3. The Licence Holder must only accept the following waste at the Premises:

(a) chicken manure.

Specified infrastructure and equipment controls

4. The Licence Holder must ensure that the infrastructure and equipment specified in Column 1 of Table 2, meets the corresponding operational requirements specified in Column 2 of Table 2.

Table 2: Infrastructure and equipment controls table

	Column 1	**Column 2**
	Premises infrastructure and equipment	**Operational requirements**
	Leachate Controls	
1	Hardstand area to encompass all composting activities and drainage channel to Pond 1	To direct leachate and rainfall runoff from the Hardstand area to Pond 1. Following the repairs required by Condition 5, achieves a hydrological conductivity of less than 1 x 10^{-9} m/s, including bunding and sealing between hardstand and bunds. Bunded and graded with a fall that prevents pooling. Following the repairs required by Condition 5, capable of accommodating the weight and movement of vehicles and equipment used on the Hardstand, without compromising the integrity of the Hardstand or altering the drainage.
2	Pond 1	1mm HDPE lined, 450m^3 capacity
3	Pond 2	1mm HDPE lined, 450m^3 capacity
4	Pond 3	1mm HDPE lined, 1000m^3 capacity
5	Monitoring bores	One bore at each of the locations MB1S, MB2, MB3, MB4 and MB5S as specified in the Premises Layout Map in Schedule 1 (total of 5 bores).
	Odour Controls	
6	Pond aerator (following the installation required by Condition 6)	Achieves aeration across the entire pond surface area to maintain an aerobic layer across the whole surface area of the pond. Operated continuously when the pond is sufficiently filled to allow for operation. Designed to prevent the generation of mist.
7	Concrete storage bunkers	Three-sided bunkers on the Hardstand area
8	Screen and trap	Maximum screen opening size of 5mm by 5mm.

	Column 1	Column 2
	Premises infrastructure and equipment	**Operational requirements**
	(following the installation required by Condition 6)	To screen solid material from runoff entering Pond 1.
9	Bale dunking apparatus (following the installation required by Condition 7)	Used to wet straw bales with leachate from Ponds 1, 2 or 3. Includes a drip tray which holds dunked straw bales and directs the runoff from the dunked bales back into the dunking bath. Overflow from the bale dunking bath is contained to prevent it from spilling onto the Hardstand and is directed back to Pond 1 via pipeline.
10	Bale line covers (following the installation required by Condition 7)	Full or partial covers installed to prevent the dispersion of leachate spray or chicken manure dust from the following areas of the bale line: • between the bale breaker and chicken manure hopper; • the chicken manure hopper; and • the output conveyor.

5. The Licence Holder must provide written confirmation to the CEO that the Infrastructure or Equipment specified in Row 1 of Table 2 has been repaired no later than 15 February 2019. The written confirmation is to include a report by a suitably qualified expert which verifies that the description in Row 1 of Column 2 of Table 2 has been met over the entirety of the Hardstand area.

6. The Licence Holder must provide written confirmation to the CEO that the Infrastructure or Equipment specified in Rows 6 and 8 of Table 2 has been installed and is operational by no later than 15 October 2018.

7. The Licence Holder must provide written confirmation to the CEO that the Infrastructure or Equipment specified in Rows 9 and 10 of Table 2 has been installed and is operational by no later than 15 February 2019.

Operational controls

8. The Licence Holder must immediately clean any spills of leachate outside of the Hardstand area.

9. The Licence Holder must undertake the following on the Hardstand area:

(a) storage of chicken manure, gypsum and urea/other nitrogen based fertilisers;

(b) wetting of straw bales and storage of wetted bales;

(c) bale breaking and feedstock mixing;

(d) composting; and

(e) Compost storage.

10. The Licence Holder must maintain a freeboard of at least 300mm within Pond 3 at all times.

11. The Licence Holder must only store chicken manure in a concrete storage bunker and ensure that the height of the chicken manure stockpile does not exceed the height of the bunker walls.

12. The Licence Holder must ensure leachate does not pool on the Hardstand.

13. The Licence Holder must by 15 February 2019:

(a) cease spray wetting of straw bales (with the exception of wetting within the bale line);

(b) only wet straw bales with leachate from Ponds 1, 2 or 3 within the bale dunking apparatus and the bale line.

14. The Licence Holder must, prior to ceasing the spray wetting of straw bales, use large droplet sprinklers for the application of leachate from Ponds 1, 2 or 3 to straw bales.

15. The Licence Holder must, immediately following dunking and prior to placement of the bales on the Hardstand;

(a) hold dunked straw bales above the dunking bath for no less than two minutes; or

(b) place dunked straw bales on the dunking bath drip tray for no less than two minutes.

16. The Licence Holder must maintain an aerobic state within all mixed feedstocks and the composting windrows by turning the material a minimum of every three days.

Groundwater monitoring

17. The Licence Holder must undertake groundwater monitoring:

(a) for the parameters specified in Column 1 of Table 3;

(b) at the locations specified in Column 2 of Table 3;

(c) at the frequency specified in Column 3 of Table 3; and

(d) using the methods specified in Column 4 and Column 5 of Table 3.

Table 3: Groundwater monitoring

Column 1	Column 2	Column 3	Column 4	Column 5
Parameter	**Location as shown on Premises Layout Map**	**Frequency**	**Sample**	**Method**
Standing water level[1]	MB1S MB2 MB3 MB4 MB5S	Quarterly (January, April, July, October)	In-field measurement	AS 5667.1 AS 5667.11
pH[1]				
Total dissolved solids (TDS)			Spot Sample	
Mercury				
Zinc				

[1] Condition 17 does not apply to in-field parameters

Column 1	Column 2	Column 3	Column 4	Column 5
Parameter	**Location as shown on Premises Layout Map**	**Frequency**	**Sample**	**Method**
Arsenic				
Nitrate-nitrogen				
Nitrite-nitrogen				
Ammonium-nitrogen				
Total nitrogen				
Total phosphorus				
Cadmium		Once off monitoring event to be completed by 15 November 2018		
Chromium				
Copper				
Iron				
Manganese				
Nickel				
Lead				

Pond monitoring and actions

18. The Licence Holder must undertake pond monitoring:

(a) for the parameters specified in Column 1 of Table 4;

(b) at the locations specified in Column 2 of Table 4;

(c) at the frequency specified in Column 4 of Table 4; and

(d) using the methods specified in Column 5 and Column 6 of Table 4.

Table 4: Pond monitoring

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Parameter	**Location as shown on Premises Layout Map**	**Pond Action Criteria**	**Frequency**	**Sample**	**Method**
Oxidation Reduction Potential[2]	Pond 1 Pond 2 Pond 3	N/A	Weekly	In-field measurement	Readings must be taken at a minimum of four points per pond per monitoring event. The monitoring points must be dispersed within each pond. ISO 17289 AS 5667.1 AS 5667.10
Dissolved Oxygen[2]					
pH[2]					
Temperature[2]					
Biochemical oxygen demand (BOD_5)		N/A	Quarterly	Spot Sample	AS 5667.1 AS 5667.10
Total nitrogen		N/A	Once off monitoring event to be completed prior to 17 September 2018		
Total phosphorus					
Volume of sludge[2]		30% of pond capacity (excluding freeboard)	Annually	N/A	None specified

19. The Licence Holder must ensure that if monitoring undertaken in accordance with Condition 18 demonstrates the volume of sludge in any pond exceeds the Pond Action Criterion, that pond is desludged within two calendar months of the monitoring event.

Specified actions

20. The Licence Holder must, by 15 October 2018:

(e) undertake a clean-up of Ponds 1, 2 and 3 by removing from the Premises the leachate and any sludge or floating solid matter within those Ponds at that time; and

(f) at least five working days prior to the clean-up being undertaken, provide written notification to the CEO of the date on which the clean-up will occur.

[2] Condition 24 does not apply to in-field parameters or volume of sludge

21. The Licence Holder must test the integrity of the ponds:

(g) for the parameter specified in Column 1 of Table 5;

(h) at the locations specified in Column 2 of Table 5;

(i) by the completion date specified in Column 3 of Table 5; and

(j) using the method specified in Column 4 and Column 5 of Table 5.

Table 5: Pond liner integrity testing requirements

Column 1	Column 2	Column 3	Column 4	Column 5
Parameter	**Location as shown on Premises Layout Map**	**Completion date**	**Test**	**Method**
Liner integrity testing	Pond 1 Pond 2 Pond 3	To be completed by 15 February 2019	Electrical testing of liner integrity	ASTM D6747, ASTM D7002, ASTM D7003, ASTM D7007, or ASTM 7703

22. The Licence Holder must, within 1 month of the completion of the liner integrity testing for each pond specified in Condition 21, submit to the CEO a report which includes the following information:

(a) the results of the liner integrity testing for that pond;

(b) estimations of the total volume of seepage from that pond per year based on the designed hydraulic conductivity of the pond liner and the hydraulic head pressure;

(c) estimations of the total mass of nitrogen and phosphorus emitted from that pond per year via seepage, based on the estimated annual seepage volume of the pond liner and the nitrogen and phosphorus concentrations measured within the pond as per Condition 18;

(d) a copy of the calculations/methods undertaken to produce the estimations required by parts (b) and (c) of this condition; and

(e) an upgrade plan for that pond to ensure all damage is repaired, where the results of the testing indicate that the liner of that pond is damaged.

23. The Licence Holder must provide to the CEO a depth to groundwater report by 15 November 2018 showing the estimated separation distance between the base of the ponds and the maximum groundwater level, based on standing water level monitoring results during the previous five annual periods. The report must include:

(a) the base of Ponds 1, 2 and 3 in AHD;

(b) a map showing the maximum groundwater level contours in AHD across the Premises; and

(c) a map showing the minimum groundwater depth in meters below ground level across the Premises.

Record-keeping

24. The Licence Holder must ensure that all laboratory samples taken in accordance with Conditions 17 and 18 are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

25. The Licence Holder must maintain accurate and auditable Books including the following records, information, reports and data required by this Licence:

(a) the calculation of fees payable in respect of this Licence;

(b) the type and volume for each load of Compost, waste and non-waste feedstocks incoming and outgoing from the Premises;

(c) the maintenance of infrastructure required to ensure that it is kept in good working order in accordance with Condition 4 of this Licence;

(d) the date of turning and identification of which windrows were turned for all turns required by Condition 16;

(e) monitoring undertaken in accordance with Conditions 17 and 18 of this Licence;

(f) actions taken in accordance with Condition 19 of this Licence; and

(g) complaints received under Condition 26 of this Licence;

and the Books must:

(k) be legible;

(l) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;

(m) be retained for at least 7 years from the date the Books were made; and

(n) be available to be produced to an Inspector or the CEO on demand.

26. The Licence Holder must record the number and details of any complaints received by the Licence Holder relating to its obligations under this Licence and its compliance with Part V of the EP Act at the Premises (excluding any summary of complaints provided to the Licence Holder from the Department), and any action taken by the Licence Holder in response to the complaint. Details of complaints must include:

(a) an accurate record of the concerns or issues raised, for example a copy of any written complaint or a written note of any verbal complaints made;

(b) the name and contact details of the complainant, if provided by the complainant;

(c) the date of the complaint; and

(d) the details and dates of the actions taken by the Licence Holder in response to the complaints.

27. The Licence Holder must comply with a Department Request, within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

Ongoing reporting

28. The Licence Holder must submit to the CEO by 28 April, 28 July and 28 October each year a Quarterly Report including the following information for the previous Quarterly period:

(a) the results of the groundwater monitoring required by Condition 17 containing the information and in the format specified in Schedule 3.

29. The Licence Holder must submit to the CEO by 1 March each year an Annual Report including the following information for the previous Annual Period:

(a) the results of the groundwater monitoring required by Condition 17 containing the information and in the format specified in Schedule 3;

(b) the results of the pond monitoring required by Condition 18 containing the information and in the format specified in Schedule 3;

(a) the pond monitoring results which triggered an action in accordance with Condition 19 containing the information and in the format specified in Schedule 3; and

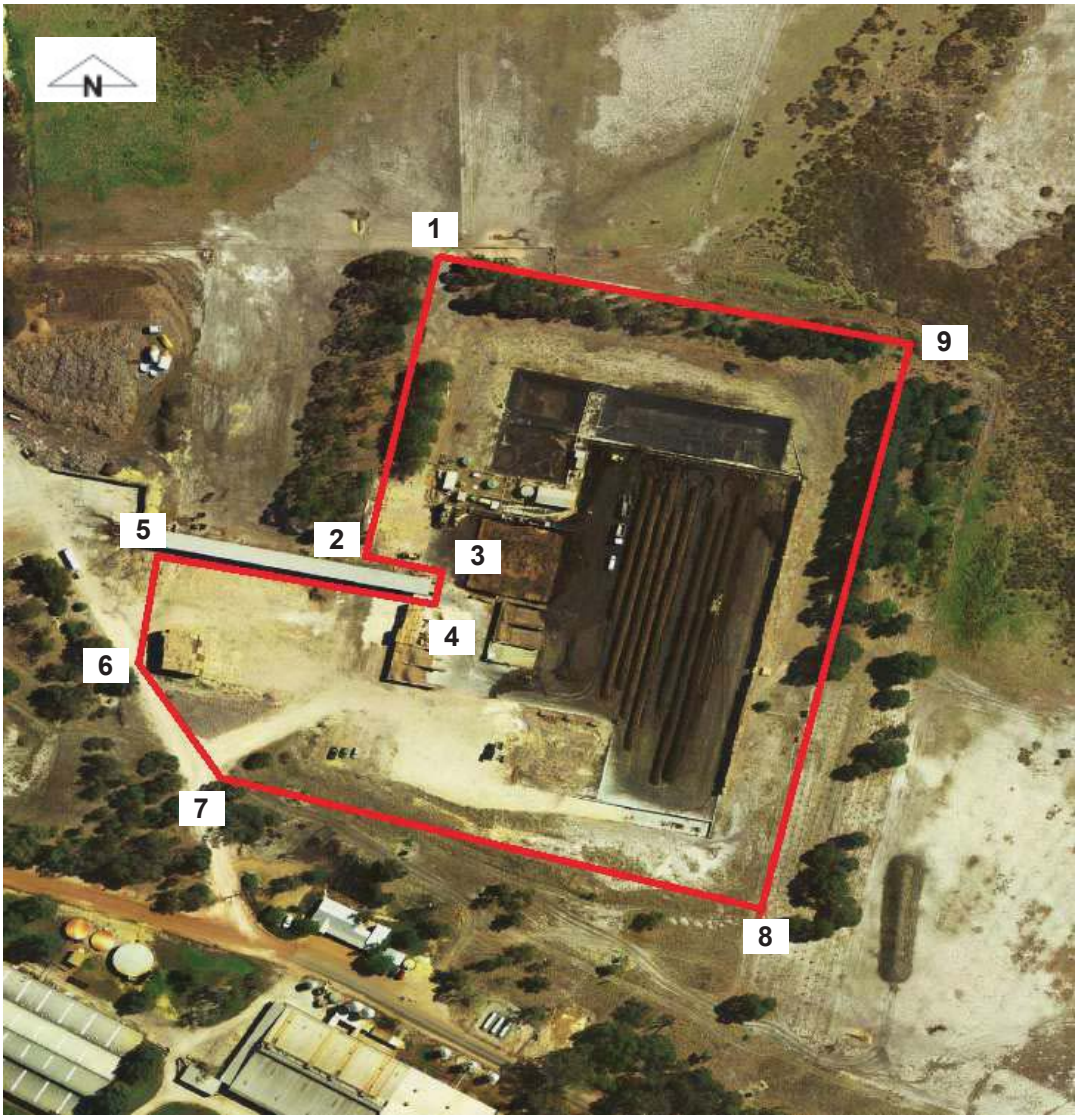
(b) a summary of the inputs and outputs data recorded in accordance with Condition 25.

30. The Licence Holder must submit to the CEO by 1 March each year, an Annual Audit Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for previous the Annual Period.

Schedule 1: Maps

Premises Map

The Premises is shown in the map below. The red line depicts the boundary of the Premises.



Premises Layout Map

The existing Premises Infrastructure and bore locations are shown in the map below. The red line depicts the boundary of the Premises. The yellow line depicts the boundary of the Hardstand.

Schedule 2: General Description

At the time of assessment, Emissions and Discharges from the following Primary Activities were considered in the determination of the risk and related Conditions for the Premises. The Primary Activities are listed in Table 6.

Table 6: Primary Activities

Primary Activity	Premises Production or Design Capacity
Category 67A – Compost manufacturing and soil blending: Premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils	37,000 tonnes per annual period

Infrastructure and equipment

The Infrastructure and equipment situated on the Premises is listed in Table 2 of Condition 4.

Site layout

The infrastructure and equipment are set out on the Premises in accordance with the site layout specified on the Premises Layout Map in Schedule 1.

Schedule 3: Reporting

Table 7: Summary of reporting requirements

Requirement	Report due date	Condition outlining requirements
Once off		
Installation of pond aerator, screen and trap	15 October 2018	6
Depth to groundwater report	15 November 2018	23
Repairs to Hardstand	15 February 2019	5
Installation of bale dunking apparatus and bale line covers.		7
Electrical testing of liner integrity – results, total seepage estimation and upgrade plan	Within 1 month after the completion of testing for each pond (testing to be completed by 15 February 2019)	22
Ongoing		
Groundwater monitoring	28 April, 28 July and 28 October each year	28
Groundwater monitoring	1 March each year	29
Pond monitoring		
Waste and non-waste feedstock and Compost volumes		
Annual Audit Compliance Report		30

Quarterly reporting requirements

Groundwater monitoring

The quarterly reporting of groundwater monitoring must contain the following information:

- A summary of any results above the following background levels for the latest monitoring event:
  - Total nitrogen: 8.11mg/L
  - Total phosphorus: 2.17mg/L
  - Total dissolved solids: 764mg/L
- The raw monitoring data in tabulated form in Excel format.

Annual reporting requirements

Groundwater monitoring

The annual reporting of groundwater monitoring must contain the following information:

- The raw monitoring data in tabulated form in Excel format for all previous monitoring data;
  - All parameters shall be reported as per Table 8 below for each bore and shall include all previous groundwater monitoring results;
  - Standing water level shall also be reported as per Table 9 below for each bore;
- Time series graphical plots for all previous monitoring data ;
- A comparison of data against the following background levels and the ANZECC guidelines livestock drinking water quality values (use the recommended water quality trigger levels where available, otherwise use the lowest values which may be hazardous for, or cause an impact for, any livestock)::
  - Total nitrogen: 8.11mg/L
  - Total phosphorus: 2.17mg/L
  - Total dissolved solids: 764mg/L
- The laboratory certificate of analyses; and
- Details of the quality assurance and quality control conducted during the sampling as per AS 5667.1.

Table 8: Template table for reporting groundwater results

Date	SWL	pH	TDS	Mercury	Zinc	Arsenic	Nitrate-N	Nitrite-N	Ammonium-N	Total N	Total P
-	mBGL	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

Table 9: Template table for reporting standing water level

Bore Reference number	Easting	Northing	Top of casing mAHD	Height of casing above ground level	Standing water level AHD	Standing water level below ground level

Pond monitoring

The annual reporting of pond monitoring must contain the following information:

- The raw monitoring data in tabulated form in Excel format for the previous Annual Period;
- Time series graphical plots for at least the previous three Annual Periods (where available);
- The location and depth of sampling;
- The laboratory certificate of analyses;
- Details of the quality assurance and quality control conducted during the sampling as per AS 5667.1;
- Confirmation that data received are correct (no instrument fault);
- A summary of any monitoring results which triggered an action in accordance with condition 19 for the previous Annual Period; and
- Details of any sludge removal undertaken due to an exceedance of the Pond Action Criteria for sludge levels, including the following:
    - Method of sludge volume measurement
    - Date of sludge removal
    - Total volume of sludge removed
    - Description of sludge removal actions and timeframes
    - Odour controls implemented during sludge removal
    - Fate of sludge.