global environmental solutions

Erskine Park Resource Management Facility

Staged SSD (SSD 7075)

Concept Plan and Stage 1 Waste Transfer Station

Response to Submissions

Report Number 610.14324

24 February 2016

Cleanaway

85-87 Quarry Road

Erskine Park NSW 2759

Version: FINAL

Erskine Park Resource Management Facility

Staged SSD (SSD 7075)

Concept Plan and Stage 1 Waste Transfer Station

Response to Submissions

24 February 2016

PREPARED BY:

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
2 Lincoln Street
Lane Cove NSW 2066 Australia
(PO Box 176 Lane Cove NSW 1595 Australia)
T: +61 2 9427 8100 F: +61 2 9427 8200
sydney@slrconsulting.com www.slrconsulting.com

ON BEHALF OF:

Cleanaway Waste Management Ltd
85-87 Quarry Road
Erskine Park NSW 2759 Australia
T: 02 9834 3411
www.cleanaway.com.au

TABLE OF CONTENTS

1 INTRODUCTION 3
1.1 Background 3
1.2 Document Purpose and Structure 4
1.3 Summary of Submissions 4

2 SUMMARY OF MAIN CHANGES IN RESPONSE TO SUBMISSIONS 6

3 GOVERNMENT AGENCIES 7
3.1 Department of Planning and Environment 7
3.2 Environment Protection Authority 9
3.2.1 Staged Construction and Operation 9
3.2.2 Roller Doors 10
3.2.3 Operation of the Emission Control System 11
3.2.4 Assessment of meteorological modelling 12
3.2.5 Cumulative assessment 21
3.2.6 Odour assessment criteria 22
3.2.7 Dispersion Results 22
3.2.8 Location of OEH monitoring stations 23
3.2.9 Modelling of alternative operating scenario 24
3.3 Department of Primary Industries - Water 31
3.4 Penrith City Council 34
3.5 Transport for NSW 38
3.6 Roads and Maritime Services 39
3.7 Office of Environment and Heritage 40
3.8 NSW Rural Fire Service 41

4 BUSINESS AND PUBLIC SUBMISSIONS 42
4.1 Local Businesses 42
4.2 General Public 44

5 REFERENCES 51

TABLES

Table 1 Development Assessment Milestones 4
Table 2 Submissions Received 5
Table 3 Comparison of St Mary's AWS as Observation Data in the Dispersion Modelling – WITHOUT APPLICATION OF ADDITIONAL AIR POLLUTION CONTROLS 14
Table 4 Updated Table 11 from AQIA 23
Table 5 Results – Predicted 1-Second Odour Concentrations associated with Alternative Operating Scenario (200 tonnes per hour) 25
Table 6 Council Comments and Responses 34
Table 7 Issues Raised in the Public Submissions 45

FIGURES

Figure 1 Comparison – Predicted Ground Level 1-Second Odour Concentrations - Normal Operations, 99th Percentile (Criterion 1) 18
Figure 2 Comparison – Predicted Ground Level 1-Second Odour Concentrations - Normal Operations, 100th Percentile (Criterion 2), 40% Control....19
Figure 3 Comparison – Predicted Ground Level 1-Second Odour Concentrations - Emergency Operations, 100th Percentile, 70% Control 20
Figure 4 Predicted Ground Level 1-Second Odour Concentrations - Alternative Operations, 99th Percentile (Criterion 1) 29
Figure 5 Predicted Ground Level 1-Second Odour Concentrations - Alternative Operations, 100th Percentile (Criterion 2), 70% Control....30

1 INTRODUCTION

1.1 Background

Cleanaway Waste Management Ltd (Cleanaway) is seeking development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to develop the Erskine Park Resource Management Facility, located approximately 11 kilometres south-east of Penrith in western Sydney, New South Wales (NSW).

Cleanaway is seeking approval for the proposed Resource Management Facility through a Staged State Significant Development involving two stages:

- Stage 1 - Waste Transfer Station (WTS); and
- Stage 2 - Resource Recovery Facility (RRF).

The two stages are integrated through a Resource Management Facility Concept Plan ('Concept Plan'). Cleanaway is seeking approval for both the Concept Plan and the Stage 1 Waste Transfer Station ('the Development'), in accordance with the Staged State Significant Development provisions of Division 2A of Part 4 of the EP&A Act. The area which is the subject of the Concept Plan and the Development is referred to as 'the site'. A second EIS for the Resource Recovery Facility, representing Stage 2 of the Concept Plan, will be brought forward at a later date. For clarity, the submitted EIS does not encompass an assessment of the Stage 2 RRF.

The WTS would receive commercial and household waste from the Western Sydney region which would subsequently be transported to a licenced waste management facility outside of the region. A proportion of the waste received at the WTS would be diverted through the RRF for recycling and recovery of saleable products. The design capacity of the completed Resource Management Facility is 300,000 tonnes per annum, inclusive of both stages.

Pursuant to Section 89C of the EP&A Act, projects are classified as SSD if they are declared to be as such by the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). Clause 23 of Schedule 1 of the SRD SEPP identifies the following types of developments to be SSD:

> *(2) Development for the purpose of waste or resource transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.*
>
> *(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.*

Based on the intended handling capacities, both the Stage 1 Waste Transfer Station and Stage 2 Resource Recovery Facility, are classified as SSD.

The assessment of environmental issues associated with the Development was multi-disciplinary and involved an environmental risk assessment and consultation with relevant State and local government agencies. On behalf of Cleanaway, SLR Consulting Australia Pty Ltd (SLR) prepared the Environmental Impact Statement (EIS) (SLR 2015a), with the following specialist studies undertaken to assist in the assessment of the Project:

- Air Quality Assessment (SLR, 2015b);
- Noise Assessment (SLR, 2015c);
- Hazards and Risk (SLR, 2015d);
- Waste Assessment (SLR, 2015e);
- Traffic and Transport Assessment (Traffix, 2015);
- Soils, Geology and Contamination Assessment (SLR, 2015f);
- Surface Water Assessment (SLR, 2015g);
- Ecology Assessment (SLR, 2015h);

- Visual Assessment (Green Bean Design, 2015); and
- Community and Stakeholder Engagement (ID Planning, 2015).

Key milestones in the development assessment process (to date) are listed in **Table 1** below:

Table 1 Development Assessment Milestones

Date	Milestone
20 May 2015	Project Briefing Paper and application for the Secretary's Environmental Assessment Requirements (SEARs) submitted to the Department of Planning and Environment (DP&E)
30 June 2015	SEARs (SSD 7075) issued by the DP&E
1 September 2015	Draft EIS submitted to the DP&E for Adequacy Review
14 September 2015	DP&E requests that the EIS be submitted for exhibition
16 October 2015	Revised EIS submitted to the DP&E for public exhibition
4 November to 31 December 2015	EIS was on public exhibition
14 December 2015	DP&E provided its response to the EIS exhibition and requested that each of the issues raised in the submissions received following the exhibition of the EIS be addressed in a Response to Submissions report
24 February 2016	Formal Response to Submissions report (i.e. this document) submitted to the DP&E

72 public submissions were received via the DP&E website following the exhibition of the EIS. An additional 277 signatures were received attached to proforma letters, and one submission from a local business was also received. Eight submissions were also received from government agencies (including DP&E's issues letter).

1.2 Document Purpose and Structure

This Response to Submissions report has been prepared by SLR on behalf of Cleanaway to respond to all submissions received following public exhibition of the EIS for the proposed Erskine Park Waste Transfer Station (SSD 7075). This report is structured as follows:

- Section 1 - Background information on the Project and a summary of the submissions;
- Section 2 - Comprehensive response to the issues raised by government agencies;
- Section 3 - Comprehensive response to the issues raised by the general public; and
- Section 4 - References.

1.3 Summary of Submissions

The submissions received in relation to the Development are summarised below, and can be viewed in full on the DP&E's website at the following address:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7075

A summary of the submissions received from government agencies and the general public are provided in **Table 2**. The majority of public submissions were received from residents within the local communities of St Clair and Erskine Park.

Table 2 Submissions Received

Submission Source	Objection/Comments
Government Agencies	
Department of Planning and Environment (DP&E)	Comments
Environment Protection Authority (EPA)	Comments
Transport for NSW (TfNSW)	Comments
Penrith City Council	Comments
Office of Environment and Heritage (OEH)	Comments
Roads and Maritime Services (RMS)	Comments
Department of Primary Industries – Water (DPI Water)	Comments
Rural Fire Service (RFS)	Comments
Public Submissions	
Public Submissions x 72	Objects
Form letter signatures x 277	Objects
MKB Contracting Pty Limited (t/a Old MacDonald's Child Care)	Objects

2 SUMMARY OF MAIN CHANGES IN RESPONSE TO SUBMISSIONS

Issues raised in submissions have not warranted significant changes to the design of the proposal but have been addressed by way of clarification or provision of additional information.

The air quality model was re-run to test the implications of using alternative meteorological data as well as alternative operating scenarios in response to issues raised by the EPA. The outcomes of the updated modelling are reported in **Section 3.2**.

Further detail regarding the architectural and landscaping treatment of the proposal will be provided as the detailed design progresses and in response to issues raised by Council. Provision has also been made for additional employee/visitor parking on site in response to issues raised by Council.

3 GOVERNMENT AGENCIES

Submissions were received from eight government agencies (see **Table 1** above) following the public exhibition of the EIS. Each of these submissions are addressed in the below sub-sections, with the issues raised presented in ***bold italic*** text, followed by the response in normal text.

3.1 Department of Planning and Environment

The submission received from the DP&E (dated 14 December 2015) requested clarification on a number of matters. These responses are provided below.

The duration of the construction period

The proposed construction activities would be undertaken over a period of approximately 10 months.

Confirmation of the maximum depth to excavation

Excavation will in general be to a depth of 2m. There will be some excavations to a depth of 3-5m for the construction of foundations for the Waste Transfer Station (around the perimeter of the building). In the south east corner of the site, there will be significant excavation up to 10m to reduce the existing bank to accommodate truck parking.

Detail the storage location and timing of the disposal of the excess spoil generated by the excavation (if not immediately sent to the adjacent landfill)

The excavation will generate a surplus of spoil of approximately 70,000 m^3. This may be used as part of the capping and rehabilitation of the landfill. Based on current timelines, the timing of the landfill capping and rehabilitation will overlap with the commencement of construction of the Waste Transfer Station, so that the surplus spoil is stored on site for a minimum period.

The Department notes that 740m^3 of on-site stormwater detention is required, please confirm whether this calculation has considered Stages 1 and 2. Please demonstrate that the proposal will have sufficient stormwater detention capacity for both stages

The 740m^3 of on-site stormwater detention has been calculated to consider the stormwater detention requirements both Stage 1 and Stage 2.

Detail the location and size of the underground stormwater storage tank and bio-retention basin (size only)

The underground stormwater storage tank is 275m^3 and is located in the south-west corner of the site. The bio-retention basin is 465m^3 and is located in the north-west corner of the site. The locations of both are shown on Figure 9 of the Surface Water Assessment (EIS Vol 2 Appendix F) which also includes the dimensions.

Demonstrate how the routes for inbound trucks will be managed, the maximum number of trucks that can be stationed on the site at one time and the mitigation measures that will be implemented to ensure queuing along Quarry Road does not occur

Routes for inbound trucks will depend on waste collection locations agreed as part of future waste collection contracts not yet in place. These trucks will use main connecting roads in preference to residential streets as far as reasonably practicable. Waste collection trucks generally pick up from a large number of discrete points and will access the Erskine Park site by a range of routes. Trucks entering the site will be guided by appropriate signage erected on the street frontage. The weighbridge has been located well into the site access road to avoid queuing onto Quarry Road with the ability for trucks to bypass the weighbridge and circulate around the site in a clockwise direction before re-entering the weighbridge access road in the unlikely event of significant queuing at the weighbridge.

The layout of the site makes allowance for parking of up to 37 trailers associated with outbound truck movements. The location and numbers of truck and trailer parking on site is shown in 'EIS Volume 1 Appendix C (Design Drawings) Drawing No. 1 Resource Management Facility Indicative Site Layout'. Waste collection trucks will continue to be stationed at Cleanaway's depot at 48 Quarry Road, as per current arrangements.

3.2 Environment Protection Authority

SLR (2015b) prepared an *Air Quality Impact Assessment* for the development in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (Approved Methods) (Department of Environment and Conservation (DEC) 2005). A copy of SLRs *Air Quality Impact Assessment* (2015b) was appended to the EIS and summarised within the EIS.

In relation to odour, the assessment considered the NSW EPA impact assessment criterion of 2OU at 99th percentile and a further assessment of 2OU at 100th percentile. The AQIA refers to these as the compliance standard and design standard respectively. For the purposes of the submissions report, these are now referred to as Criterion 1 and Criterion 2 (refer to **Section 3.2.6**).

The 100th percentile Criterion 2 was adopted to reflect Cleanaway's goal of no adverse odour impact on the local community at any time of plant operations, reflecting that Criterion 1, being expressed as 99th percentile, allowed for a limited number of hours when odour concentrations exceeding 2OU could be experienced.

SLR (2015b) concluded that the plant does not require any supplementary air pollution control to achieve Criterion 1; neither does it require this to achieve Criterion 2, until the plant is operating in excess of 90% (equivalent to 270,000 tonnes) of design capacity. Above this throughput, an abatement efficiency of 40% for the wet scrubber would achieve all the objectives.

The corresponding assessment of 'emergency operations' shows that operation of a wet scrubber with an efficiency of 60% or greater would be required. While the likelihood of this event occurring is very low, the inclusion of a wet scrubber in the design of the WTS ensures sufficient capacity to manage this worst case scenario.

In addition, Cleanaway will undertake a rigorous monitoring and verification process within the first 12 months of operations when waste tonnages at the facility are well below design capacity. This process will be used to verify modelled odour predictions and refine the odour management measures, if required, and will be subject to a planning condition.

The EPA's submission dated 7 December 2015, identified 6 issues in relation to the air quality assessment undertaken for the Development. Each of these issues has been addressed by SLR below. The issues raised by the EPA and requests for additional information are identified in ***bold italic*** text, followed by the response in normal text.

3.2.1 Staged Construction and Operation

The EPA notes that the proposal will be constructed and operated in two stages. Whilst this Environmental Assessment and it's modelling is focused on the construction and operation of stage 1, it is unclear from the modelling if the proposed air controls will have capacity to deal with the increased demands of stage 2. For example if the handling, processes, or temporarily stored volumes of waste are likely to change with the operation of stage 2 then these scenarios must be clearly stated in the modelling. Further, if stage 1 is approved and odour impacts are experienced in it operation, the EPA would be unlikely to support any further expansion to stage 2 until such time as those odour impacts from stage 1 are addressed and the proponent can demonstrate sufficient capacity in the local air shed to warrant such expansion.

The EPA requests that the Proponent provide clear modelling that is inclusive of any changes to stage 1 due to be experienced as a result of the operation of stage 2.

The scope and limitations of the Air Quality Impact Assessment (EIS Vol 2 Appendix A) are described at various locations within the submitted EIA documentation, including the EIS Executive Summary, and at numerous points in the introduction of the EIS. Section 2.2 of Appendix A provides a summary statement of the extents of the assessment in terms of the Waste Transfer Station (WTS) only. Section 4.3 of Appendix A makes reference to the Stage 2 Erskine Park Resource Recovery Facility (RRF) and states that the assessment of those impacts will be performed through a separate EIS.

The air quality impact assessment has been performed to address the potential impacts of Stage 1 only, and subsequent emissions that may be generated or propagated as a consequence of Stage 2 (i.e. the RRF) will be addressed in the subsequent EIS. Notwithstanding the above, the dispersion modelling assessment performed as part of the Stage 1 development was performed with the existence of the anticipated building structure to be constructed as part of Stage 2 in the model. This was performed to account for the potential influence of building wake and downwash effects from the Stage 2 RRF building upon the emissions to air assessed as part of the Stage 1 Air Quality Impact Assessment (EIS Vol 2 Appendix A). The purpose of this was to reduce the potential subsequent requirement for changes to the location, height or discharge conditions of the emissions from Stage 1.

It is noted that the tonnages of waste received by the facility (maximum of 300,000 tpa) will not change as a result of the operation of Stage 2 of the development, i.e. part of the 300,00 tpa received at the WTS will be diverted to the RRF for processing and resource recovery. It has been assumed that this will be up to 150,000 tpa of the overall 300,000 tpa design capacity, however, this will be confirmed as the design of the resource recovery process develops.

The Stage 2 development will be subject to a detailed air quality assessment in due course, although the impacts predicted as part of Stage 1 are not likely to change given that the tonnages of waste handled as part of Stage 1 and Stage 2 have been considered in the assessment submitted for Stage 1. It should be noted that the air pollution control measures described in the Stage 1 EIS can be scaled up to respond to any unexpected air emissions identified in the Stage 2 EIS or issues identified during the monitoring and validation process for Stage 1.

The detailed scope of the Air Quality Impact Assessment (AQIA) for Stage 2 will be set out in the Stage 2 EIS. An indicative scope of works is likely to include:

- Assessment of potential impacts of construction phase activities using a risk based approach;
- Assessment of changes to odour emissions predicted through Stage 1 as a result of part of the 300,000 tpa throughput being diverted to the Resource Recovery Facility. While the resource recovery process has not yet been defined, changes to predicted odour emissions may arise from processing and additional handling of the waste material;
- Assessment of changes to predicated odour emissions associated with changes to the residence time (i.e. the length of time waste resides in the facility) which could reduce or increase compared to the residence time indicated in the Stage 1 EIS depending on the final recovery process;
- Assessment of changes to predicted particulate emissions as a result of waste processing and handling; and
- Consideration of any refinements required to existing mitigation measures in the Waste Transfer Station or new mitigation measures required in the Resource Recovery Facility.

In any case, Cleanaway has voluntarily submitted to a rigorous monitoring standard and verification process within the first 12 months of operations, as described in Section 3.2.

3.2.2 Roller Doors

The EPA notes that the number of trucks proposed to be loading and unloading per day (see Pg11 of Appendix B) is likely to result in some "fast acting" roller doors being open permanently between 12pm-1pm, at other times the doors are likely to require opening every minute.

The EPA requests that the proponent demonstrate that negative pressure can be maintained with 1-2 doors open permanently in the Waste Transfer Facility, or if this cannot be achieved, that the proponent install an airlock hall vented to the air treatment system with sufficient capacity for 4 dual axle collection trucks at any one time.

The method of assessment of odour emissions through open roller doors is presented in Section 6.3 of the Air Quality Impact Assessment (EIS Vol 2 Appendix A).

To appropriately quantify the emissions of odour from open doors, a review of those methods used in similar assessments has been performed. The AQIA for the Banksmeadow Transfer Terminal (Wilkinson Murray, 2014) considered the percentage of air lost through doorways and small leaks as being 5% of the total odour emissions from the transfer terminal. This value was selected as being a "sensible and conservative assumption" (Wilkinson Murray, 2014). The fugitive emission of 5% was subtracted from the total odour emission, resulting in 95% of odour being emitted through a stack, and 5% as a fugitive emission from the building.

SLR elected to review the assumption made in Wilkinson Murray (2014) and examined the results of a number of experimental studies relating to the rates of air changes within buildings of a similar configuration to that proposed as part of the proposed development at the Development site. Results of empirical studies of buildings with openings on one side only (as would be the case for the main reception hall at the Development site) are presented in Section 6.3 of the AQIA.

In the interests of conservatism, the air changes per hour through the door openings have been assumed to be the maximum of those measured through experimental studies, at 0.58 air changes per hour (25,839 m^3/hr or 7.2 m^3/s). Compared to the volume of air calculated to be exhausted through the stack (37.1 m^3/s) these calculations indicate that 19% of the odour may be emitted through open doors, as opposed to the 5% assumed in similar recent assessments.

The methodology adopted to account for fugitive emissions through the roller shutter doors considered the percentage of time when roller doors may be opened, based on truck arrival/departure numbers (based on waste receival rates). As discussed in Section 6.3 of Appendix A, a conservative assumption has been made that 19% of total odour may be emitted through open doors (compared to 5% assumed for similar assessments). The justification of this assumption is presented. Furthermore, to offset potential concerns of data manipulation associated with controlled and fugitive odour emissions, the odour emitted through the open roller doors has been modelled in addition to (not subtracted from) odour being emitted through the stack.

Modelling demonstrated that odour emissions from the facility will be compliant with legislative requirements. Notwithstanding this, a program of smoke tests will be performed upon commissioning to confirm the potential for egress of air from the building, as part of the monitoring and verification process.

3.2.3 Operation of the Emission Control System

"Mitigation and Management" (p7-8) of the AQIA Report sets out the emission control system. This is described as having four parts: containment, internal air management, air pollution control, and emission control. The design seeks to maintain negative pressure in the building to minimise fugitive emissions. This is achieved by the proposed dilution stacks and rapid acting doors. Strobic Air Corporation's "Tri-Stack"™ system is listed as the dilution stacks. This system has been designed to provide three air changes per hour from the inlet flow (part A on the diagram in Appendix A of the AQIA Report). Additional dilution is provided by the bypass flow (labelled B), and the entrained flow (labelled C).

It is stated that "system configuration allows for a period of bedding in, such that during the early stages of operation (up to 90% of operating capacity, equivalent to 270,000 tonnes per annum) emissions may be discharged via a bypass of the air pollution control device without compromising the amenity of local residents." That is, operation of up to 90 per cent capacity does not need the air pollution control device to reduce emissions. This approach fails to prevent and minimise air pollution at all times. The EPA advises that air pollution control devices should be operating at all times consistent with clause 128(2) of the POEO Act. The air pollution control device is described as being designed to "achieve the 'design standard' with the plant operating at full capacity in the 'normal operations' scenario, or during the 'emergency operations' scenario". The only detail provided is the further definition "wet scrubber" in parentheses.

The proponent must clarify its commitment to minimising air pollution in the planned operation of the air pollution control device.

The air pollution control device consists of both the Tri-Stack™ system and the wet scrubber, as part of an integrated system. The Tri-Stack™ system will be fully operational upon commencement of operations, and the assessment provided demonstrates that it's operation will not cause odour concentrations above 2 OU (as the 99th percentile) at any time up to and including operation at full capacity. Our modelling shows that at a throughput of around 90% of capacity, additional air pollution controls (i.e. a wet scrubber) would be required to achieve 2 OU (as the 100th percentile) (Criterion 2).

The adoption of standards beyond those imposed through legislation (2 OU as the 99th percentile / 100th percentile) should be regarded as a clear commitment to minimising air pollution.

The proponent must submit further details of the proposed air pollution control device to verify that it is fit-for-purpose and does not impede other elements of the air pollution control device.

The primary air pollution control device consists of containment with extraction and controlled emission through a dedicated dilution fan system. The additional air pollution control device (i.e. wet scrubber) installed upstream of the dilution fan system will not impede operation. The fans on the Tri-Stack™ system will be configured to cope with the pressure drop associated with the wet scrubber system.

Discussions with suppliers have indicated a range of off-the-shelf wet scrubber options for the physical removal of odour and particulates, which can be matched to the duty and performance requirements of the Resource Management Facility. As detailed design of the facility progresses, the specification will be further developed with details submitted to the EPA as part of the process of applying for an Environmental Protection Licence (EPL).

Notwithstanding this, Cleanaway will undertake a rigorous monitoring and verification process during commissioning and within the first 12 months of operations. This process will be used to verify odour predictions and refine the odour management measures, if required, and will be subject to a planning condition. As an additional commitment, Cleanaway will also undertake follow-up monitoring during the operational lifetime of the WTS, on a basis to be agreed with the relevant authorities.

3.2.4 Assessment of meteorological modelling

The difference in winds between observations from OEH's monitoring site at St Marys and that of the wind field modelling is significant. St Marys data should be used as input for generating wind fields and these then used to repeat the dispersion modelling. The EPA notes the difference in these winds and attributes this to reduced exposure at the OEH St Marys monitoring station due to a significant building complex blocking flow from the nor-nor-east. OEH's website does not note obstruction to wind observation for this site. Figure 14 (page 76) of the AQIA Report intends to show the location of OEH's St Marys monitoring station and the flow obstruction. However, the monitoring station is incorrectly placed in the figure. The monitoring station is a shed in the figure on the north side of the building complex.

The EPA requests that the proponent repeat and resubmit dispersion modelling using data from OEH's St Marys monitoring station as an input for generating wind fields.

A detailed discussion of the meteorology used in the assessment is presented in Section 5.2 of the Air Quality Impact Assessment (EIS Vol 2 Appendix A). This discussion includes a transparent evaluation of CALMET performance against local observations at St Mary's AWS.

The discrepancy between the observed and predicted winds from the north-northwest vector at St Mary's is presented in Figure 15 of of the Air Quality Impact Assessment and discussed in the report. It may be noted that the comparison of wind vector frequency at St Mary's shows a good performance with the exception of a lower frequency of winds from the NNW.

To address the sensitivity of this matter, a subsequent dispersion modelling exercise has been performed using the meteorological data from St Mary's AWS as observation data in the modelling. For clarity, all other parameters and input data were consistent with that reported in the AQIA (Appendix A).

Table 3 below presents a summary of the observed odour concentrations as presented in Appendix A and the 'remodelling' using St Marys data, as requested by NSW EPA.

For all three scenarios, namely (i) normal operations at 99th percentile (Criterion 1); (ii) normal operations at 100th percentile (Criterion 2), and (iii) emergency operations, the modelling has been performed at maximum throughput and without any abatement from the wet scrubber air pollution control device, ie the purpose of the modelling is to demonstrate the differences in unabated odour emissions when using St. Mary's AWS as observation data as opposed to using it as reference data.

When odour abatement is applied, as has been provided for in the design and operation of the facility, the predicted odour emissions are shown in **Figure 1, Figure 2 and Figure 3,** including a comparison of the 'with abatement' odour plots as presented in the EIS (where the St. Mary's AWS data was not used as an input to the modelling) to the remodelled odour plots using St. Mary's AWS data as an input.

This demonstrates that regardless of whether the St. Mary's AWS data is used as an input to the modelling, the odour objective of no adverse odour impacts on the neighbouring residential community at any time is still met.

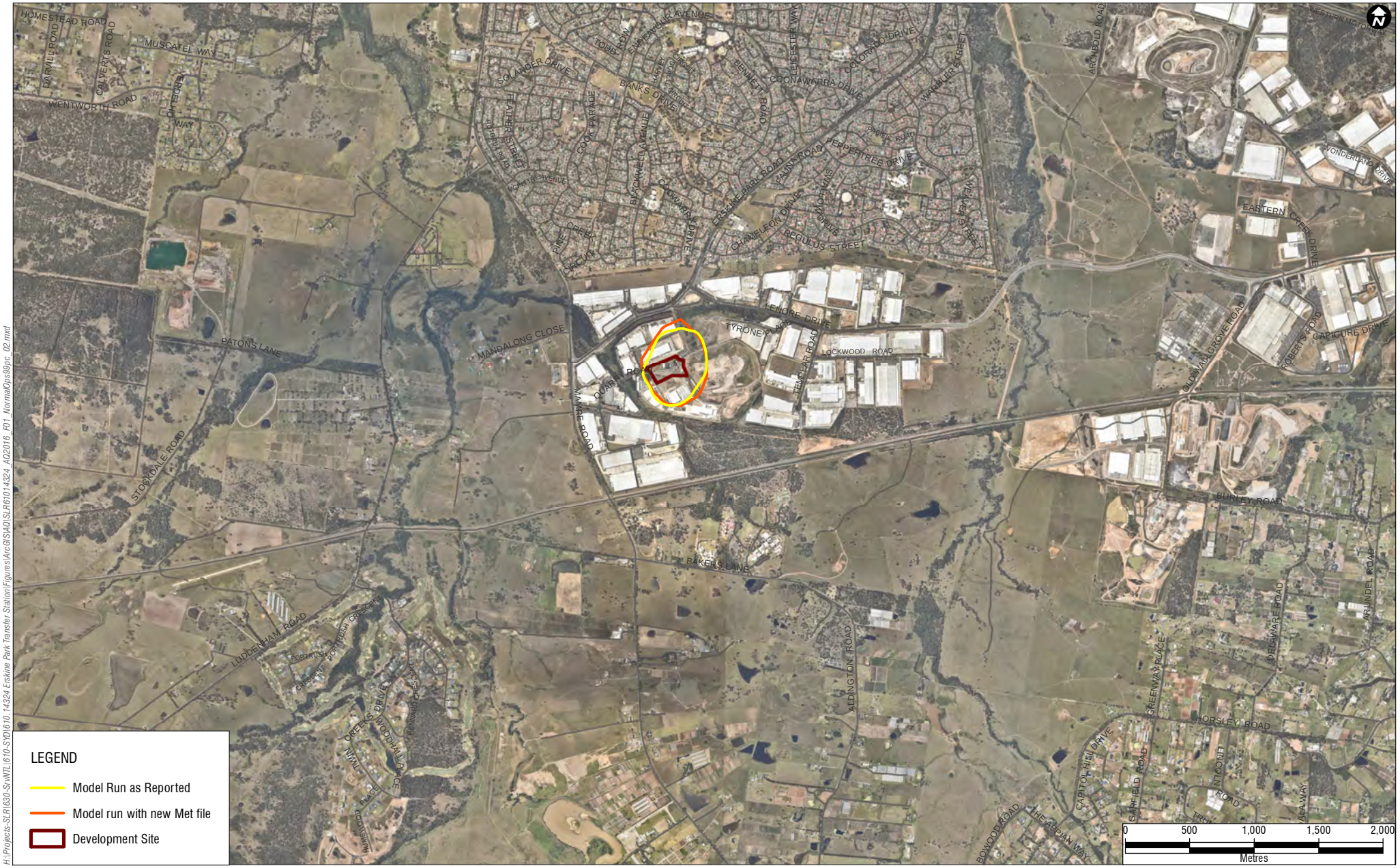
Table 3 Comparison of St Mary's AWS as Observation Data in the Dispersion Modelling – WITHOUT APPLICATION OF ADDITIONAL AIR POLLUTION CONTROLS

ID	Easting (m)	Northing (m)	1-sec OU (SLR 2015b)			1-sec OU (St Marys)		
			Normal Operation		Emergency	Normal Operation		Emergency
			P=100	P=99	P=100	P=100	P=99	P=100
Maximum			**2.6**	**0.9**	**7.7**	**3.1**	**1.3**	**6.5**
TPI-19	293997	6255989	1.2	0.5	2.7	1.6	0.4	3.2
TPI-20	293816	6255930	1.2	0.4	3.2	1.2	0.3	2.7
TPI-21	293656	6255900	1.1	0.4	3.2	0.9	0.2	2.6
TPI-22	295201	6256602	2.0	0.9	4.3	2.3	1.3	5.0
TPI-23	294052	6255726	1.8	0.5	3.8	2.0	0.3	4.8
TPI-24	295077	6256635	1.9	0.8	4.2	2.3	1.1	4.9
TPI-25	294999	6256627	2.0	0.7	4.2	2.2	0.9	4.9
TPI-26	294928	6256620	2.0	0.7	4.3	2.2	0.7	4.9
TPI-27	294852	6256609	1.9	0.6	4.1	1.9	0.5	4.2
TPI-28	294768	6256601	1.6	0.5	3.3	1.7	0.5	3.5
TPI-29	294645	6256588	1.3	0.5	2.8	1.4	0.5	2.9
TPI-30	294558	6256574	1.2	0.5	2.6	1.4	0.4	3.0
2−01	293563	6259079	0.3	0.1	0.7	0.3	0.1	0.7
2−02	293516	6258624	0.4	0.1	0.9	0.4	0.1	0.8
2−03	293465	6258229	0.4	0.1	0.9	0.5	0.1	1.0
2−04	294059	6258351	0.4	0.2	1.0	0.5	0.1	1.1
2−05	294601	6258032	0.6	0.2	1.6	0.7	0.1	1.5
2−12	295420	6258341	0.7	0.2	1.6	0.7	0.2	1.6
3−7	295163	6256640	2.2	0.8	4.6	2.3	1.3	5.0
3−8	293995	6256674	1.0	0.4	2.2	1.0	0.3	2.2
3−9	295425	6257064	1.2	0.6	2.6	1.4	0.7	3.0
3−10	294676	6257026	1.1	0.4	2.4	1.3	0.2	2.8
3−11	293645	6257198	0.7	0.2	1.4	0.6	0.2	1.7
3−12	294129	6257276	0.7	0.2	1.6	0.7	0.1	1.6

ID	Easting (m)	Northing (m)	1-sec OU (SLR 2015b)			1-sec OU (St Marys)		
			Normal Operation		Emergency	Normal Operation		Emergency
			P=100	P=99	P=100	P=100	P=99	P=100
3−13	294007	6256945	0.9	0.3	1.9	0.9	0.2	1.9
3−14	294514	6256646	1.2	0.4	2.5	1.3	0.4	2.8
3−15	295058	6256896	1.4	0.5	3.1	1.7	0.6	3.9
3−16	294747	6257477	1.0	0.2	2.0	0.9	0.2	2.1
3−17	293714	6257592	0.6	0.2	1.2	0.6	0.1	1.2
3−18	294426	6257574	0.7	0.2	1.5	0.9	0.2	2.0
3−19	295162	6257444	0.9	0.4	1.9	1.0	0.4	2.1
3−20	295692	6256786	1.4	0.7	3.1	1.5	0.3	3.2
3−21	294654	6254316	1.0	0.3	2.7	1.0	0.2	2.8
3−22	295524	6254202	1.1	0.1	2.4	1.3	0.2	2.8
3−23	295395	6254530	1.2	0.2	2.6	1.4	0.3	3.0
3−24	295661	6254639	1.2	0.2	2.5	1.3	0.2	2.7
3−25	293192	6257134	0.5	0.2	1.1	0.5	0.1	1.1
3−26	292835	6256594	0.8	0.2	1.7	0.5	0.1	1.7
3−27	292692	6255777	0.6	0.2	1.3	0.5	0.1	1.1
3−28	292791	6255201	0.8	0.3	2.1	0.5	0.1	1.2
3−29a	292588	6254557	0.5	0.3	1.4	0.5	0.1	1.1
3−29b	293548	6255910	1.0	0.4	3.2	0.8	0.2	2.4
3−30	292473	6254118	0.5	0.2	1.1	0.4	0.1	1.0
3−32	291478	6255872	0.5	0.1	1.0	0.5	0.1	1.0
3−33	290812	6254737	0.4	0.2	0.8	0.3	0.0	0.6
3−34	290033	6254610	0.5	0.1	1.1	0.4	0.1	0.8
3−35	295640	6257527	1.1	0.5	2.4	1.1	0.5	2.8
3−36	294602	6257322	0.9	0.3	1.9	1.0	0.2	2.2
3−37	295328	6255537	2.6	0.8	7.7	3.1	0.9	6.5
4−26	299186	6255950	0.5	0.1	1.0	0.6	0.0	1.4
4−27	298921	6255571	0.5	0.1	1.0	0.5	0.0	1.2

ID	Easting (m)	Northing (m)	1-sec OU (SLR 2015b)			1-sec OU (St Marys)		
			Normal Operation		Emergency	Normal Operation		Emergency
			P=100	P=99	P=100	P=100	P=99	P=100
4−32	299892	6254639	0.3	0.0	0.7	0.4	0.0	0.8
4−33	299194	6254748	0.5	0.1	1.0	0.6	0.1	1.3
4−34	298741	6254826	0.5	0.1	1.0	0.7	0.0	1.4
4−42	299741	6254216	0.4	0.0	0.8	0.5	0.0	1.1
4−44	296088	6256082	1.4	0.2	2.9	1.6	0.2	3.5
4−45	296102	6257112	1.3	0.5	2.8	1.2	0.2	2.7
4−46	296581	6256755	1.0	0.1	2.2	1.1	0.1	2.4
4−47	296975	6256859	0.8	0.1	1.8	0.9	0.1	1.9
4−48	297098	6257212	0.6	0.1	1.3	0.7	0.1	1.5
4−49	297266	6257594	0.5	0.1	1.4	0.7	0.1	1.4
4−50	296144	6257481	1.2	0.5	2.6	1.2	0.3	2.8
4−51	296567	6257340	1.0	0.2	2.2	0.9	0.1	2.0
4−52	296841	6257647	0.8	0.2	1.8	0.7	0.1	1.6
4−53	296698	6258035	0.7	0.3	1.6	0.6	0.1	1.4
4−54	297173	6257813	0.6	0.1	1.2	0.5	0.1	1.0
4−55	297347	6256662	0.5	0.1	1.6	1.1	0.1	2.3
4−56	297139	6256124	0.8	0.1	1.7	1.9	0.1	4.0
4−57	297493	6256155	0.6	0.1	1.4	1.2	0.1	2.6
4−58a	296039	6256804	1.6	0.3	3.3	1.6	0.2	3.4
4−61	295953	6255664	1.4	0.2	3.0	1.4	0.2	3.1
5−1	296359	6253712	1.1	0.1	2.2	1.4	0.1	2.9
5−2	296368	6253159	1.0	0.1	2.1	1.3	0.1	2.7
5−3	296213	6252522	0.6	0.1	1.5	0.7	0.1	1.5
5−4	296086	6252019	0.4	0.1	0.8	0.5	0.1	1.2
5−5	296034	6251493	0.3	0.1	0.7	0.4	0.1	1.0
5−11	300347	6253651	0.2	0.0	0.5	0.4	0.0	0.9
5−12	299627	6253557	0.4	0.0	1.3	0.4	0.0	0.9

ID	Easting (m)	Northing (m)	1-sec OU (SLR 2015b)			1-sec OU (St Marys)		
			Normal Operation		Emergency	Normal Operation		Emergency
			P=100	P=99	P=100	P=100	P=99	P=100
5−13	299435	6252990	0.5	0.1	1.1	0.4	0.0	0.8
5−14	298687	6253071	0.6	0.1	1.4	0.6	0.1	1.2
5−15	298790	6253674	0.7	0.1	1.4	0.6	0.1	1.3
6−4	292884	6253462	0.5	0.1	1.2	0.3	0.1	0.7
6−5	292025	6253344	0.4	0.1	0.9	0.3	0.1	0.7
6−7	294699	6253107	0.9	0.1	1.9	1.5	0.1	3.3
6−8	294835	6252593	0.5	0.1	1.1	1.4	0.1	3.1
6−9	295418	6251877	0.4	0.1	0.8	0.5	0.1	1.0
6−14	290899	6252994	0.4	0.2	0.9	0.4	0.1	0.8
6−15	292288	6253971	0.5	0.2	1.0	0.4	0.1	0.9
6−18	293196	6253424	0.5	0.1	1.7	0.4	0.1	0.9
6−17	292758	6253899	0.5	0.1	1.1	0.3	0.1	0.9



H:\Projects\SLR\610-SYD\610.14324 Erskine Park Transfer Station\Figures\ArcGIS\AQ\SLR610.14324_AQ2016_F01_NormalOps99pc_02.mxd

SLR

2 LINCOLN ST
LANE COVE
NEW SOUTH WALES 2066
AUSTRALIA
T: 61 2 9427 8100
F: 61 2 9427 8200
www.slrconsulting.com

Project No.:	610.14324
Date:	24/02/2016
Drawn by:	NT
Scale:	1:40,000
Sheet Size:	A4
Projection:	GDA 1994 MGA Zone 56

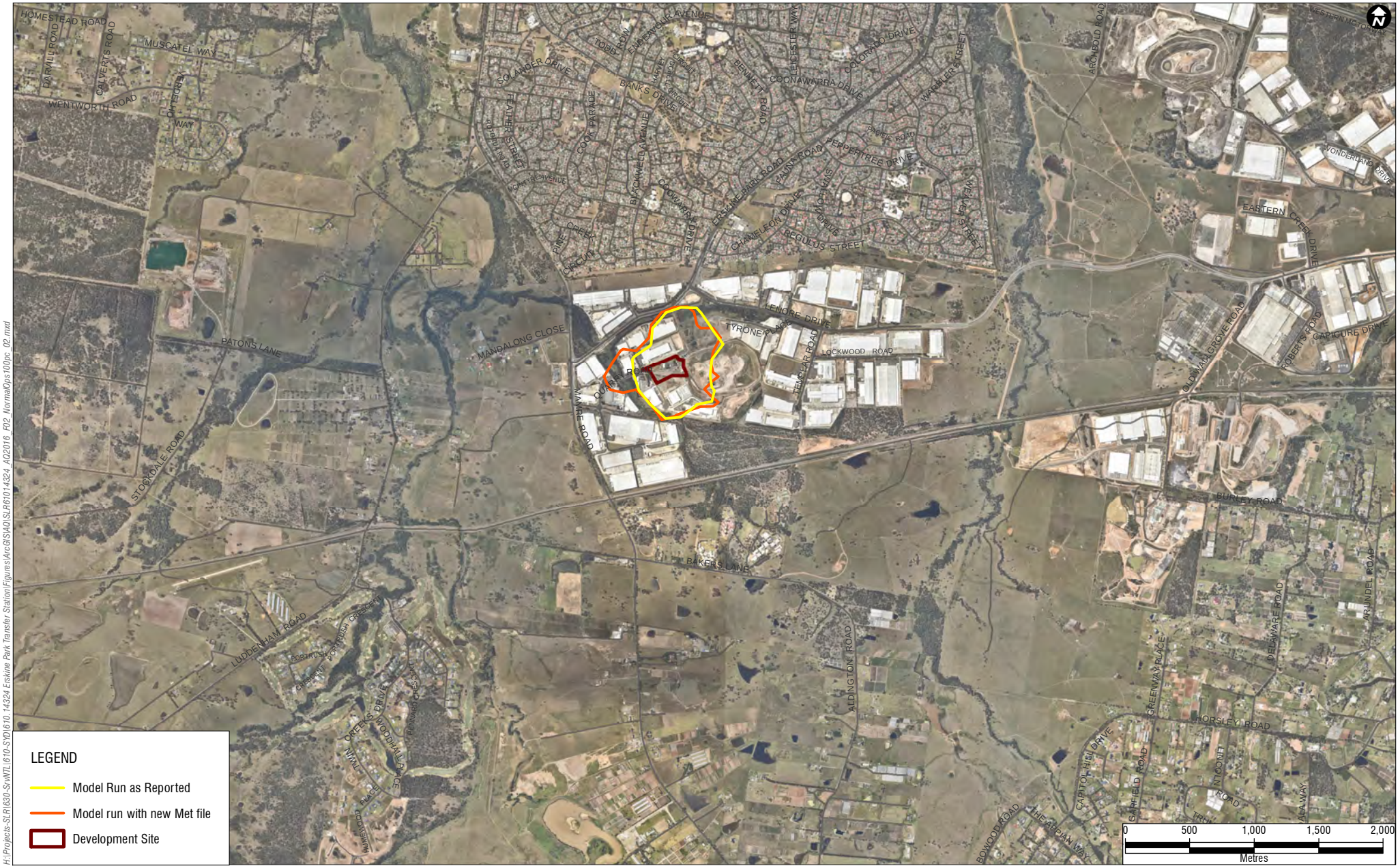
Notes:
1. All features are approximate only and subject to detailed survey.
2. Aerial Imagery courtesy Nearmap.
3. DCDB courtesy NSW LPI.
4. Dispersion Model: Calpuff
5. Modelling Period: 2013
6. Scenario: 29

Cleanaway Waste Management Limited

Erskine Park Waste Transfer Facility

Comparison - Predicted Ground Level 1-Second Odour Concentrations Normal Operations, 99th Percentile (Criterion 1)

FIGURE 1



H:\Projects\SLR\610-SYD\610.14324 Erskine Park Transfer Station\Figures\ArcGIS\AQ\SLR610.14324_AQ2016_F02_NormalOps100pc_02.mxd

2 LINCOLN ST
LANE COVE
NEW SOUTH WALES 2066
AUSTRALIA
T: 61 2 9427 8100
F: 61 2 9427 8200
www.slrconsulting.com

Project No.:	610.14324
Date:	24/02/2016
Drawn by:	NT
Scale:	1:40,000
Sheet Size:	A4
Projection:	GDA 1994 MGA Zone 56

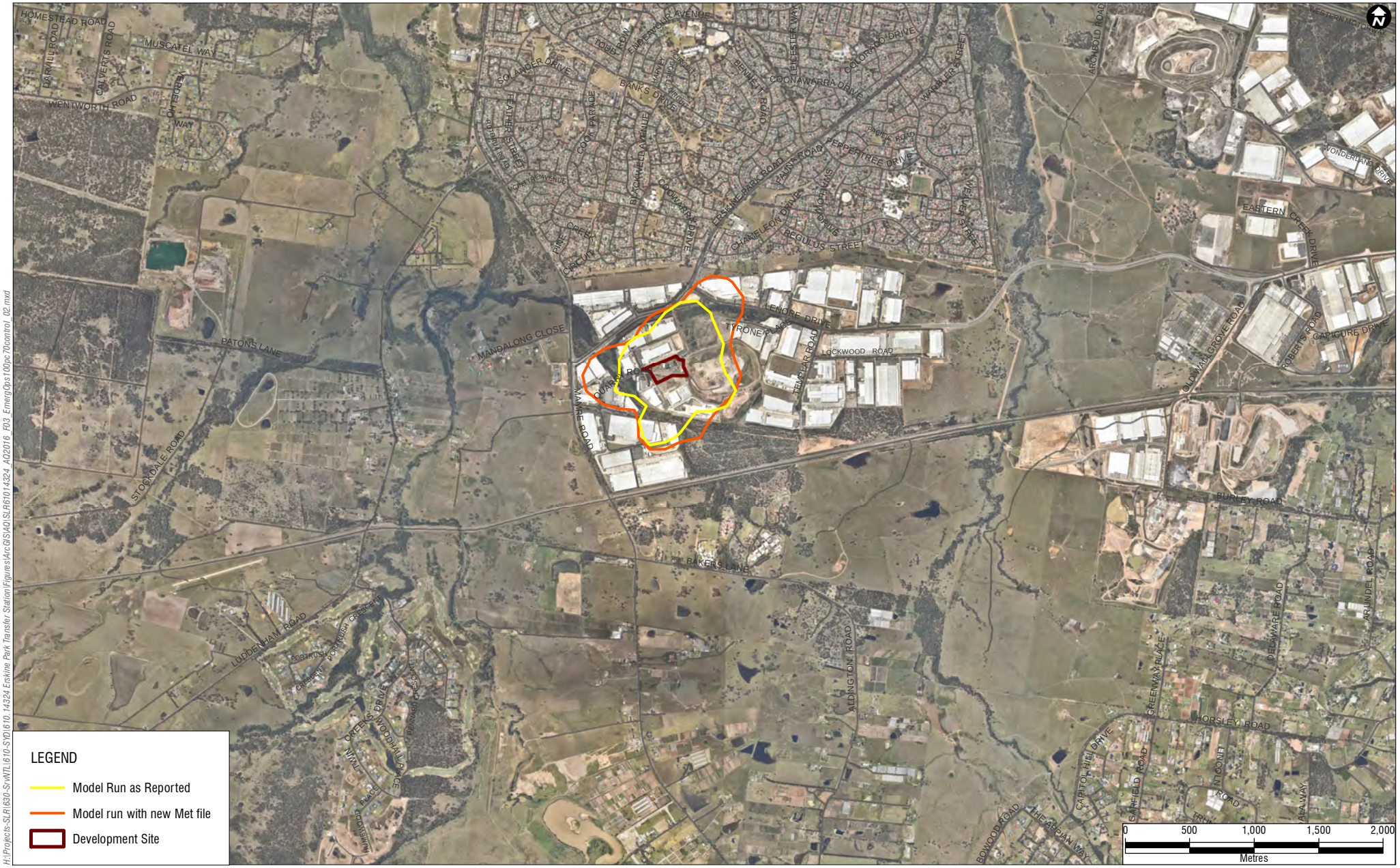
Notes:
1. All features are approximate only and subject to detailed survey.
2. Aerial Imagery courtesy Nearmap.
3. DCDB courtesy NSW LPI.
4. Dispersion Model: Calpuff
5. Modelling Period: 2013
6. Scenario: 29

Cleanaway Waste Management Limited

Erskine Park Waste Transfer Facility

Comparison - Predicted Ground Level 1-Second Odour Concentrations Normal Operations 100th Percentile (Criterion 2), 40% Control

FIGURE 2



H:\Projects\SLR\610-SYD\610.14324 Erskine Park Transfer Station\Figures\ArcGIS\AQ\SLR610.14324_AQ2016_F03_EnergyOps100pc70control_02.mxd

SLR
2 LINCOLN ST
LANE COVE
NEW SOUTH WALES 2066
AUSTRALIA
T: 61 2 9427 8100
F: 61 2 9427 8200
www.slrconsulting.com

Project No.:	610.14324
Date:	24/02/2016
Drawn by:	NT
Scale:	1:40,000
Sheet Size:	A4
Projection:	GDA 1994 MGA Zone 56

Notes:
1. All features are approximate only and subject to detailed survey.
2. Aerial Imagery courtesy Nearmap.
3. DCDB courtesy NSW LPI.
4. Dispersion Model: Calpuff
5. Modelling Period: 2013
6. Scenario: 32

Cleanaway Waste Management Limited

Erskine Park Waste Transfer Facility

Comparison - Predicted Ground Level 1-Second Odour Concentrations Emergency Operations 100th Percentile (Criterion2), 70% Control

FIGURE 3

Normal Operations

For the normal operations scenario (at maximum throughput) the predicted peak ground-level odour concentrations results increase from 2.6 OU to 3.1 OU and from 0.9 OU to 1.3 OU as the 100th percentile and 99th percentile respectively.

Although the predicted unabated 99th percentile odour concentration increases from a prediction of 0.9 OU to 1.3 OU, it remains in compliance with the 2.0 OU impact assessment criterion as specified in the NSW EPA Approved Methods. Based upon these results, the use of St Mary's as input data into the dispersion model does not alter the conclusions drawn from that reported in the AQIA.

Therefore the conclusions of the AQIA in the EIS as submitted remain valid.

The unabated 100th percentile odour concentration at maximum throughput increases from 2.6 OU to 3.1 OU, and the requirement for supplementary odour control implemented through a wet scrubber at a time prior to maximum throughput is consistent with that reported in the Air Quality Impact Assessment. Corresponding to the analysis provided in the AQIA, an abatement efficiency of 40% would achieve <2 OU, and would comply with the Criterion 2. Correspondingly, the conclusion derived from these results is consistent with that reported in the AQIA.

Emergency Operations

With regard to the predicted emergency operation impact, the remodelling shows a reduction in the predicted maximum 100th percentile 1-second odour concentration from 7.7 OU to 6.5 OU, and as such the conclusions drawn for the AQIA (SLR 2015b) remain valid. The modelling using St Mary's AWS data as model input data still demonstrates that in order to achieve the voluntary Criterion 2 objective, that the plant would still require additional abatement through a wet scrubber.

Whilst it may seem counter-intuitive that predicted impacts of 'normal operations' increase and 'emergency operations' decrease, there are a range of other factors that affect potential dispersion of odour from the processes, including hours of operation, emission profile, the operation / in-operation of the doorways associated with either scenario etc.

To offer certainty regarding the outcomes, the recommendations associated with the more conservative assessment will be adopted.

3.2.5 Cumulative assessment

The AQIA Report does not consider impacts from operation of both the existing landfill and the proposed waste transfer station. The EPA recommends that assessment of the proposal include consideration of combined impacts.

Assess the local air quality impacts from operation of both the landfill and the proposed waste transfer station.

At the time of planned operation of the Waste Transfer Station, inert waste will no longer be accepted at the landfill site and therefore it is reasonable to conclude that a cumulative assessment of operational impacts should not be required to include the closed landfill.

Additionally, a field ambient odour assessment (FAOA) has been performed as part of the AQIA to determine the existing odour environment in the area surrounding the development site. The FAOA is detailed in Section 4.5.2 and Appendix C of the Air Quality Impact Assessment (EIS Vol 2 Appendix A). In summary, the observations made during that study concluded that odour from the existing operations at the Development site were not contributing to odour nuisance beyond the site boundary or within the community. Observations were made of odour being present on-site but these were not observed to be resulting from the landfill or detectable at or beyond the development site boundary, and therefore not a consideration of a cumulative impact assessment.

This conclusion is consistent with the conclusions of the Western Sydney Regional Odour Assessment, commissioned by the NSW EPA.

3.2.6 Odour assessment criteria

On pages 6 and 25-26 of the AQIA Report refers to odour criteria as "compliance standard". The EPA does not view odour assessment criteria in this way. The odour assessment criteria are integral to assessment of likely odour impacts which is done from a risk management approach. The performance requirements for operating facilities are set out in the Protection of the Environment Operations Act 1997 (s 129) – "not cause or permit the emission of any offensive odour from the premises".

The EPA requests that the proponent amend text in the AQIA Report to be consistent with the requirements of the POEO Act.

The above is noted, although the definitions of the terminology used in the report are clearly defined in Section 3.3 of the AQIA. The use of the terminology was to differentiate between:

- The standard upon which the plant should be assessed (as consistent with that presented in the Approved Methods) as 2 OU (99th percentile) (previously "the compliance standard"); and
- That voluntarily adopted for this assessment (as more stringent than that required under the Approved Methods) as 2 OU (100th percentile) (previously "the design standard").

In no part does the report suggest or infer that the terminology relates to section 129 of the POEO Act. However, to address the above request, alternative terminology will be adopted to avoid any misinterpretation, as:

- **Criterion 1:** 2 OU as the 99th percentile of 1-second ground level odour concentration. This will replace the previously used terminology of the "compliance standard" but will otherwise represent the same metric.
- **Criterion 2:** 2 OU as the 100th percentile of 1-second ground level odour concentration. This will replace the previously used terminology of the "design standard" but will otherwise represent the same metric.

3.2.7 Dispersion Results

Table 41 (pages 108-112) of the AQIA Report presents incremental and cumulative concentrations of PM10 and PM2.5. In many cases the concentration of PM2.5 is greater than that of PM10. This is aphysical because PM2.5 is a subset of PM10 and therefore cannot have a greater concentration. Page 7 notes that rather than partitioning particle emissions by size, the total quantity was assigned, in turn, to the three size fractions as a conservative assumption. Thus emissions of PM2.5, PM10, and TSP used for the dispersion modelling are the same. Differing dispersion of the particle fractions could, in part, explain the aphysical result.

The EPA requests that the proponent clearly explain the consequence of assuming all particulate emissions are, in turn, PM2.5, PM10, and TSP with regard to the results of dispersion modelling. The EPA suggests a notation on tabulated results reminding readers of the conservative assumption used.

A conservative assessment of particulate matter emissions and predicted impacts was performed. As stated in the report, the assessment used the POEO (Clean Air) Regulations 2010 solid particles (total) emission limits of 50 mg/m^3 for scheduled premises, general activities and plant (POEO Regulations, Schedule 4). Given that no emission limits are provided with specific reference to the TSP, PM_{10} or $PM_{2.5}$ size fractions, it was assumed that 100% of the maximum permissible concentration of 50 mg/m^3 was emitted (i) as TSP, (ii) as PM_{10} and then (iii) as $PM_{2.5}$. That is, although the emission of 50 mg/m^3 would encompass all size fractions (x% TSP + y% PM_{10} + z% $PM_{2.5}$) a conservative assessment was performed to demonstrate that even if the 50 mg/m^3 emission limit was applied solely to any size fraction no impacts in excess of the relevant standards were predicted. Although this approach is highly conservative and assumes emissions of PM_{10} and $PM_{2.5}$ significantly beyond the expected range, the aim was to demonstrate clear compliance.

The dispersion model inputs included assumptions relating to the size of the particles being emitted, with TSP containing particles of a larger diameter, PM_{10} a smaller diameter than TSP but larger than $PM_{2.5}$ and $PM_{2.5}$.5 being a smaller diameter than both TSP and PM_{10}. The effects of the modelled wind field on these particles of differing size affects the distance travelled, response to turbulence etcetera and results in concentrations of each being different at locations across the gridded domain.

Given the application of the assumptions noted above, in many cases, the concentration of PM_{10} is predicted to be larger than $PM_{2.5}$ due to the influence of the wind field upon those size fractions.

Although an aphysical result, the results are intended to show compliance and avoid any criticisms should assumptions have been made relating to the particle size distribution of particulate matter emitted from waste handling processes.

3.2.8 Location of OEH monitoring stations

Table 11 (page 51) of the AQIA Report lists OEH monitoring stations within a twenty kilometre radius of the proposal. The directions from project site are incorrect – it appears that "west" and "east" have been confused for St Marys, Liverpool, and Prospect.

The EPA requests that the proponent amend Table 11 in the AQIA Report to correctly state the direction of the monitoring stations.

The typographical errors are noted, and the text contained within the table should read as follows (**Table 4**):

Table 4 Updated Table 11 from AQIA

AQMS Name	Distance / Direction from Project Site	Location (km, Australian Map Grid, zone 56)		Parameters Measured	AQMS Commissioned
		Easting	Northing		
St Mary's Located off Mamre Rd	2.8 km / NNW	293.2	6258.1	Ozone (O_3) NO, NO_2, NO_X Fine particles (by nephelometry) Fine particles (PM_{10} using a TEOM) Wind speed, wind direction and sigma theta) Ambient temperature Relative humidity	October 1992 -
Bringelly Located on Ramsay Rd	11.2 km / SSW	293.0	6244.5	O_3 NO, NO_2, NO_X SO_2 Fine particles (by nephelometry) Fine particles (PM_{10} using a TEOM) Wind speed, wind direction and sigma theta) Ambient temperature Relative humidity Solar radiation	October 1992 -
Prospect Located in William Lawson Park, Myrtle Street	12.4 km / ENE	306.9	6258.7	O_3 NO, NO_2, NO_X CO Fine particles (by nephelometry) Fine particles (PM_{10} using a TEOM) Wind speed, wind direction and sigma theta) Ambient temperature Relative humidity Solar radiation	February 2007 -

AQMS Name	Distance / Direction from Project Site	Location (km, Australian Map Grid, zone 56)		Parameters Measured	AQMS Commissioned
		Easting	Northing		
Liverpool Located off Rose St.	17.1 km / SE	306.4	6243.3	O_3 NO, NO_2, NO_X CO Fine particles (by nephelometry) Fine particles (PM_{10} and $PM_{2.5}$ using a TEOM) Wind speed, wind direction and sigma theta) Ambient temperature Relative humidity Solar radiation	1990

3.2.9 Modelling of alternative operating scenario

Following discussions with EPA, an alternative operating scenario was modelled to assess the impact of higher than normal waste tonnage in the Waste Transfer Station. The modelling presented in the Air Quality Impact Assessment was based on a hourly waste tonnage profile derived from Cleanaway's existing waste collection activities and actual weighbridge data. Based on this profile, hourly tonnes in the Waste Transfer Station range from 90 to 200 tonnes.

The AQIA also assesses an Emergency operations' scenario, ie the operations associated with unforeseen events such as road closures or extreme weather events that result in no waste being able to be exported from the plant, and the temporary storage of approximately 1,040 tonnes of waste on the floor of the waste transfer station

A further scenario has now been modelled to take account of the daily variance in tonnage profile which may occur during operations, whereby a larger inventory of waste remains within the transfer station during normal receival and load out operations. For modelling purposes, this scenario has been defined as 200 tonnes (the peak hourly tonnage based on the normal operations profile presented in the EIS) in the Waste Transfer Station during every operating hour.

The results of this alternative operating scenario are presented in **Table 5.** As with other scenarios modelled, the assessment of the alternative scenario concludes that Criterion 1 and 2 are met with the application of air pollution controls. Plots of the 2OU concentrations at 99th and 100th percentile (Criterion 1 and Criterion 2) are shown in **Figure 4 and Figure 5**. This shows that under the Alternative Operating Scenario, Criterion 1 can be met without the application of air pollution controls. Criterion 2 is met with the application of air pollution controls at 70% efficiency.

Given the conservatism assumed in the modelling, it is expected that the monitoring and verification process proposed during the first 12 months will demonstrate that actual odour emissions are lower than modelled predictions. However, if this process demonstrates that odour emissions are higher than predicted, the air pollution controls can be scaled up accordingly.

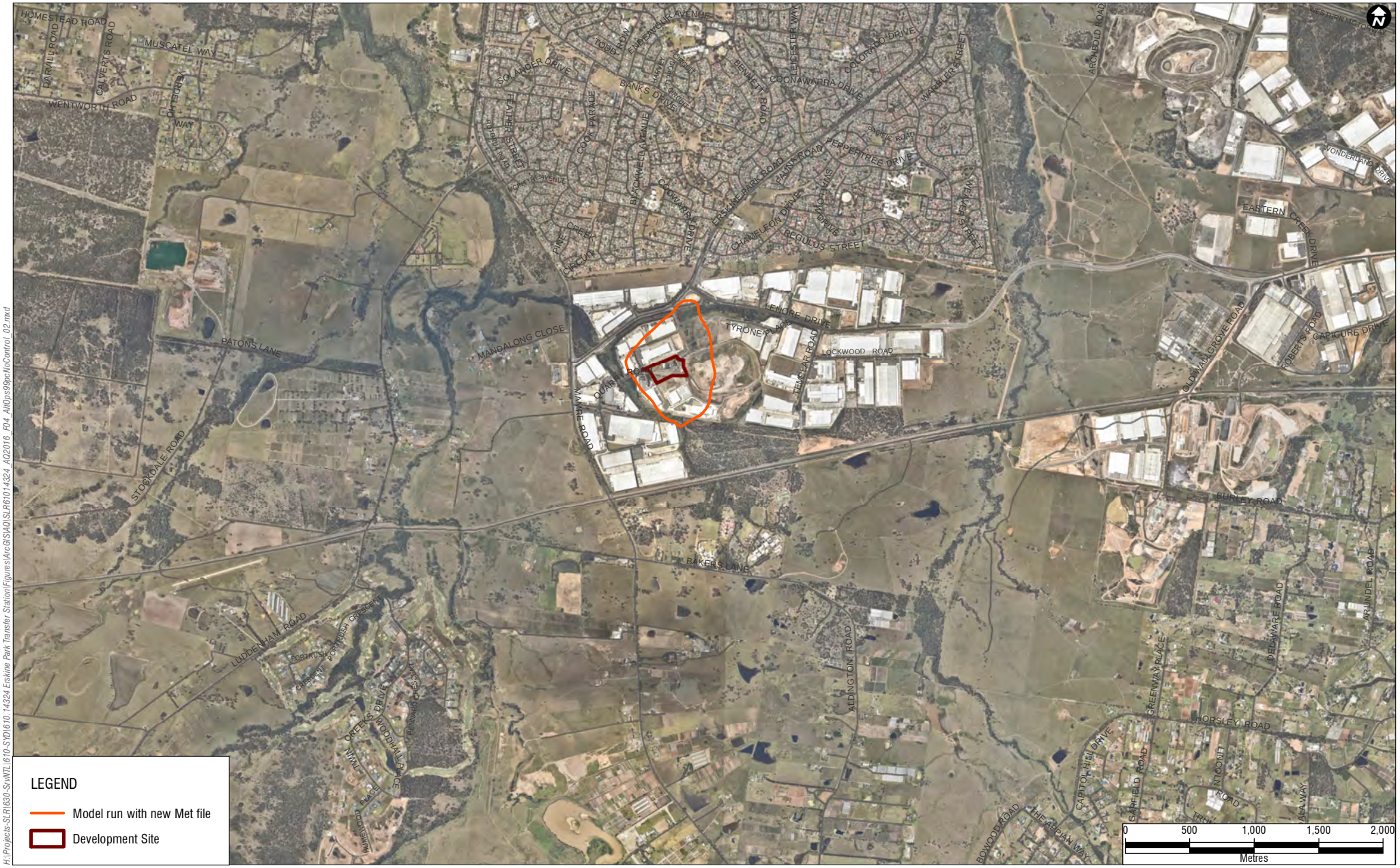
Table 5 Results – Predicted 1-Second Odour Concentrations associated with Alternative Operating Scenario (200 tonnes per hour)

			Predicted Concentration (OU) with Assumed APC Control Efficiency (Normal Operations)																	
ID	Easting (m)	Northing (m)	No Control		40% Control		50% Control		60% Control		70% Control		80% Control		90% Control		95% Control		99% Control	
			P=100	P=99	P=100	P=99	P=100	P=99	P=100	P=99	P=100	P=99	P=100	P=99	P=100	P=99	P=100	P=99	P=100	P=99
Maximum			4.8	1.6	2.9	0.9	2.4	0.8	2.0	0.6	1.5	0.5	1.0	0.4	0.9	0.3	0.9	0.3	0.9	0.3
TPI-19	293997	6255989	2.3	0.5	1.4	0.3	1.2	0.3	1.0	0.2	0.8	0.2	0.5	0.2	0.4	0.2	0.3	0.2	0.3	0.2
TPI-20	293816	6255930	1.7	0.4	1.0	0.3	0.9	0.2	0.7	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1
TPI-21	293656	6255900	1.3	0.3	0.8	0.2	0.7	0.2	0.6	0.1	0.5	0.1	0.4	0.1	0.2	0.1	0.2	0.1	0.1	0.1
TPI-22	295201	6256602	3.9	1.6	2.4	0.9	2.0	0.8	1.7	0.6	1.3	0.5	0.9	0.3	0.7	0.2	0.7	0.2	0.7	0.1
TPI-23	294052	6255726	3.2	0.5	2.0	0.3	1.6	0.3	1.3	0.2	1.0	0.2	0.7	0.2	0.4	0.1	0.3	0.1	0.3	0.1
TPI-24	295077	6256635	3.6	1.4	2.2	0.9	1.8	0.7	1.5	0.6	1.1	0.4	0.8	0.3	0.8	0.2	0.8	0.2	0.8	0.2
TPI-25	294999	6256627	3.9	1.1	2.4	0.7	2.0	0.6	1.6	0.5	1.2	0.4	0.9	0.3	0.8	0.2	0.8	0.2	0.8	0.2
TPI-26	294928	6256620	2.8	0.9	1.7	0.6	1.4	0.5	1.1	0.5	0.9	0.4	0.8	0.3	0.8	0.2	0.8	0.2	0.8	0.2
TPI-27	294852	6256609	3.2	0.9	1.9	0.5	1.6	0.5	1.3	0.4	1.0	0.4	0.8	0.3	0.8	0.3	0.8	0.3	0.8	0.3
TPI-28	294768	6256601	2.8	0.7	1.7	0.5	1.4	0.4	1.1	0.4	0.9	0.3	0.8	0.3	0.8	0.3	0.8	0.3	0.8	0.3
TPI-29	294645	6256588	2.3	0.7	1.4	0.5	1.2	0.4	1.0	0.4	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3
TPI-30	294558	6256574	2.5	0.6	1.5	0.4	1.3	0.4	1.0	0.4	0.8	0.3	0.5	0.3	0.5	0.3	0.5	0.3	0.5	0.3
2−01	293563	6259079	0.4	0.1	0.2	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2−02	293516	6258624	0.6	0.1	0.4	0.1	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2−03	293465	6258229	0.6	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2−04	294059	6258351	0.6	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2−05	294601	6258032	0.9	0.2	0.5	0.1	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2−12	295420	6258341	1.1	0.3	0.7	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0
3−7	295163	6256640	4.4	1.6	2.7	0.9	2.3	0.8	1.8	0.6	1.4	0.5	1.0	0.3	0.7	0.2	0.7	0.2	0.7	0.1
3−8	293995	6256674	1.4	0.4	0.9	0.2	0.7	0.2	0.6	0.2	0.4	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2
3−9	295425	6257064	2.3	0.9	1.4	0.5	1.2	0.4	1.0	0.4	0.7	0.3	0.5	0.2	0.3	0.1	0.3	0.1	0.3	0.0
3−10	294676	6257026	1.8	0.4	1.1	0.3	0.9	0.2	0.7	0.2	0.6	0.2	0.4	0.1	0.4	0.1	0.4	0.1	0.4	0.1
3−11	293645	6257198	0.8	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0
3−12	294129	6257276	1.2	0.2	0.8	0.1	0.6	0.1	0.5	0.1	0.4	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
3−13	294007	6256945	0.9	0.3	0.5	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1

3−14	294514	6256646	2.4	0.5	1.4	0.4	1.2	0.3	1.0	0.3	0.7	0.3	0.5	0.3	0.4	0.2	0.4	0.2	0.4	0.2
3−15	295058	6256896	2.7	0.8	1.7	0.5	1.4	0.4	1.1	0.3	0.9	0.3	0.6	0.2	0.5	0.1	0.5	0.1	0.5	0.1
3−16	294747	6257477	1.3	0.3	0.8	0.2	0.7	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.2	0.0
3−17	293714	6257592	0.7	0.2	0.4	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3−18	294426	6257574	1.1	0.2	0.6	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.0	0.2	0.0	0.2	0.0
3−19	295162	6257444	1.4	0.5	0.9	0.3	0.7	0.2	0.6	0.2	0.5	0.2	0.3	0.1	0.2	0.1	0.2	0.0	0.2	0.0
3−20	295692	6256786	2.9	0.6	1.8	0.3	1.5	0.3	1.2	0.2	0.9	0.2	0.6	0.1	0.3	0.1	0.3	0.1	0.3	0.0
3−21	294654	6254316	2.6	0.4	1.6	0.2	1.3	0.2	1.0	0.2	0.8	0.1	0.5	0.1	0.3	0.1	0.2	0.1	0.2	0.0
3−22	295524	6254202	1.9	0.4	1.1	0.3	0.9	0.2	0.7	0.2	0.6	0.1	0.4	0.1	0.2	0.1	0.2	0.0	0.1	0.0
3−23	295395	6254530	2.6	0.6	1.5	0.4	1.3	0.3	1.0	0.2	0.8	0.2	0.5	0.1	0.3	0.1	0.2	0.0	0.2	0.0
3−24	295661	6254639	2.4	0.5	1.5	0.3	1.2	0.2	1.0	0.2	0.8	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.1	0.0
3−25	293192	6257134	0.8	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3−26	292835	6256594	0.8	0.1	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3−27	292692	6255777	0.6	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
3−28	292791	6255201	0.6	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3−29a	292588	6254557	0.5	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
3−29b	293548	6255910	1.4	0.3	0.9	0.2	0.8	0.2	0.6	0.1	0.5	0.1	0.4	0.1	0.2	0.1	0.2	0.1	0.1	0.1
3−30	292473	6254118	0.5	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3−32	291478	6255872	0.5	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3−33	290812	6254737	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3−34	290033	6254610	0.4	0.1	0.2	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3−35	295640	6257527	1.7	0.6	1.0	0.4	0.9	0.3	0.7	0.3	0.5	0.2	0.4	0.1	0.2	0.1	0.2	0.0	0.2	0.0
3−36	294602	6257322	1.4	0.3	0.8	0.2	0.7	0.2	0.6	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.0	0.2	0.0
3−37	295328	6255537	4.8	1.5	2.9	0.9	2.4	0.7	2.0	0.6	1.5	0.5	1.0	0.4	0.9	0.2	0.9	0.2	0.9	0.2
4−26	299186	6255950	0.7	0.1	0.4	0.0	0.3	0.0	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
4−27	298921	6255571	0.6	0.1	0.3	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−32	299892	6254639	0.4	0.1	0.2	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4−33	299194	6254748	0.6	0.1	0.4	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
4−34	298741	6254826	0.7	0.1	0.4	0.0	0.3	0.0	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
4−42	299741	6254216	0.5	0.1	0.3	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
4−44	296088	6256082	3.2	0.3	2.0	0.2	1.6	0.2	1.3	0.1	1.0	0.1	0.7	0.1	0.4	0.0	0.2	0.0	0.2	0.0

4−45	296102	6257112	2.1	0.4	1.3	0.2	1.1	0.2	0.9	0.2	0.7	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.2	0.0
4−46	296581	6256755	1.1	0.3	0.7	0.2	0.6	0.1	0.5	0.1	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0
4−47	296975	6256859	0.9	0.2	0.5	0.1	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−48	297098	6257212	0.8	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−49	297266	6257594	0.9	0.2	0.6	0.1	0.5	0.1	0.4	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−50	296144	6257481	2.1	0.4	1.3	0.3	1.1	0.2	0.8	0.2	0.6	0.1	0.4	0.1	0.2	0.1	0.2	0.0	0.1	0.0
4−51	296567	6257340	1.7	0.2	1.0	0.1	0.8	0.1	0.7	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0
4−52	296841	6257647	1.1	0.2	0.7	0.1	0.6	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−53	296698	6258035	1.2	0.2	0.7	0.1	0.6	0.1	0.5	0.1	0.4	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−54	297173	6257813	0.9	0.2	0.6	0.1	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−55	297347	6256662	1.1	0.1	0.7	0.1	0.6	0.1	0.4	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−56	297139	6256124	1.9	0.2	1.2	0.1	1.0	0.1	0.8	0.1	0.6	0.0	0.4	0.0	0.2	0.0	0.1	0.0	0.1	0.0
4−57	297493	6256155	1.2	0.1	0.7	0.1	0.6	0.1	0.5	0.0	0.4	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0
4−58a	296039	6256804	2.9	0.4	1.7	0.3	1.5	0.2	1.2	0.2	0.9	0.1	0.6	0.1	0.3	0.1	0.2	0.0	0.2	0.0
4−61	295953	6255664	2.3	0.4	1.4	0.3	1.2	0.2	0.9	0.2	0.7	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.2	0.0
5−1	296359	6253712	1.8	0.2	1.1	0.1	0.9	0.1	0.7	0.1	0.6	0.1	0.4	0.0	0.2	0.0	0.1	0.0	0.1	0.0
5−2	296368	6253159	1.6	0.2	0.9	0.1	0.8	0.1	0.6	0.1	0.5	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.0	0.0
5−3	296213	6252522	0.8	0.1	0.5	0.1	0.4	0.1	0.3	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0
5−4	296086	6252019	0.9	0.1	0.5	0.1	0.4	0.1	0.4	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5−5	296034	6251493	0.7	0.1	0.4	0.1	0.3	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5−11	300347	6253651	0.4	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5−12	299627	6253557	0.4	0.1	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5−13	299435	6252990	0.4	0.1	0.2	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5−14	298687	6253071	0.6	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5−15	298790	6253674	0.6	0.1	0.4	0.1	0.3	0.0	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6−4	292884	6253462	0.5	0.1	0.3	0.1	0.3	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6−5	292025	6253344	0.4	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6−7	294699	6253107	1.6	0.2	0.9	0.1	0.8	0.1	0.6	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0
6−8	294835	6252593	1.5	0.2	0.9	0.1	0.8	0.1	0.6	0.1	0.5	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0
6−9	295418	6251877	0.8	0.2	0.5	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6−14	290899	6252994	0.4	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

6-15	292288	6253971	0.4	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-18	293196	6253424	0.7	0.1	0.4	0.1	0.4	0.0	0.3	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
6-17	292758	6253899	0.5	0.1	0.3	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0



H:\Projects\SLR\610-SYD\610.14324 Erskine Park Transfer Station\Figures\ArcGIS\AQ\SLR610.14324_AQ2016_F04_AltOps99pcNoControl_02.mxd

SLR

2 LINCOLN ST
LANE COVE
NEW SOUTH WALES 2066
AUSTRALIA
T: 61 2 9427 8100
F: 61 2 9427 8200
www.slrconsulting.com

Project No.:	610.14324
Date:	24/02/2016
Drawn by:	NT
Scale:	1:40,000
Sheet Size:	A4
Projection:	GDA 1994 MGA Zone 56

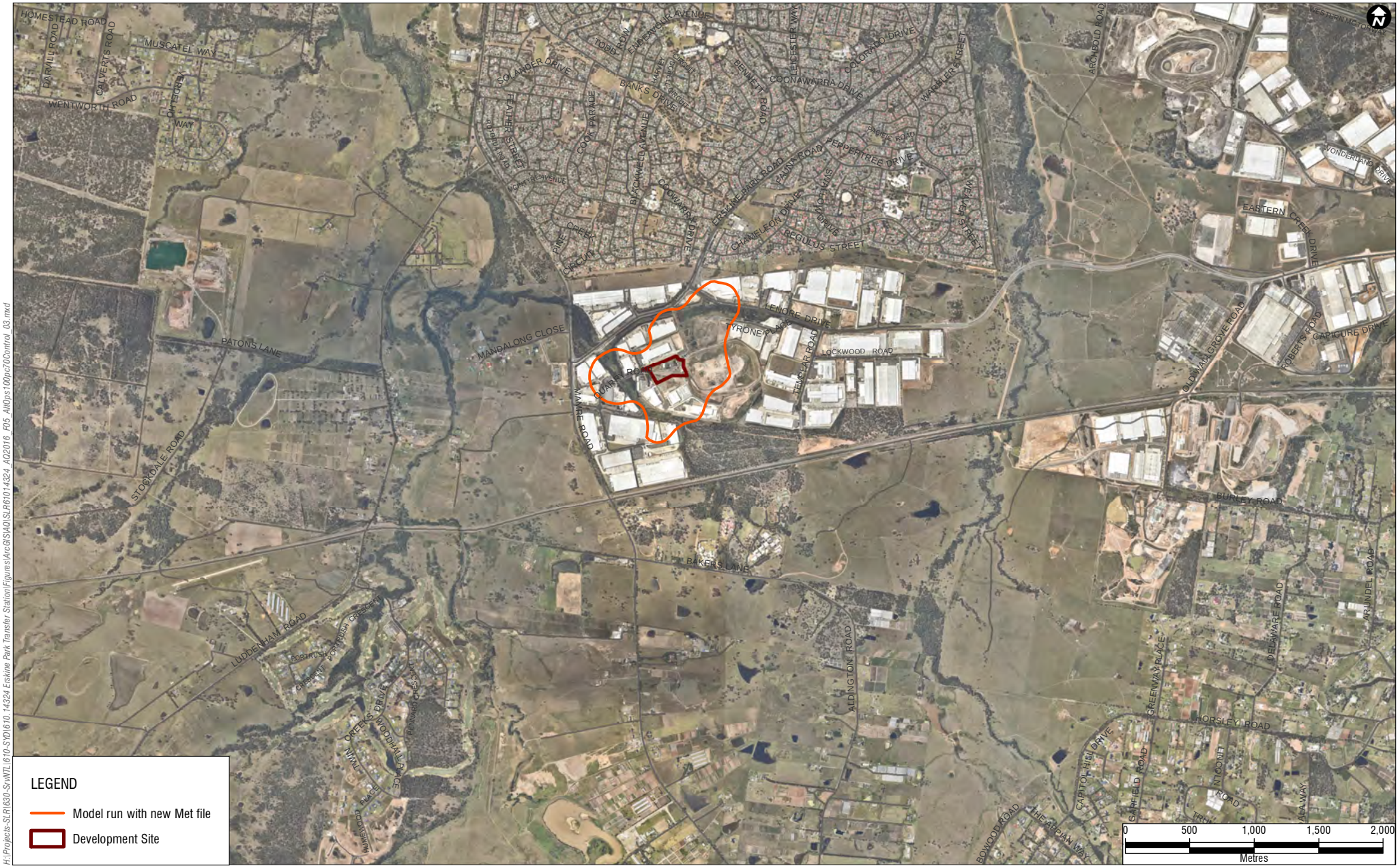
Notes:
1. All features are approximate only and subject to detailed survey.
2. Aerial Imagery courtesy Nearmap.
3. DCDB courtesy NSW LPI.
4. Dispersion Model: Calpuff
5. Modelling Period: 2013
6. Scenario: 33 (Alternative Operation Scenario)

Cleanaway Waste Management Limited

Erskine Park Waste Transfer Facility

Predicted Ground Level 1-Second Odour Concentrations Alternative Operations 99th Percentile (Criterion 1)

FIGURE 4



H:\Projects\SLR\610-SYD\610.14324 Erskine Park Transfer Station\Figures\ArcGIS\AQ\SLR610.14324_AQ2016_F05_AltOps100pc70Control_03.mxd

2 LINCOLN ST
LANE COVE
NEW SOUTH WALES 2066
AUSTRALIA
T: 61 2 9427 8100
F: 61 2 9427 8200
www.slrconsulting.com

Project No.:	610.14324
Date:	24/02/2016
Drawn by:	NT
Scale:	1:40,000
Sheet Size:	A4
Projection:	GDA 1994 MGA Zone 56

Notes:
1. All features are approximate only and subject to detailed survey.
2. Aerial Imagery courtesy Nearmap.
3. DCDB courtesy NSW LPI.
4. Dispersion Model: Calpuff
5. Modelling Period: 2013
6. Scenario: 33 (Alternative Operation Scenario)

Cleanaway Waste Management Limited

Erskine Park Waste Transfer Facility

Predicted Ground Level 1-Second Odour Concentrations Alternative Operations 100th Percentile (Criterion 2), 70% Control

FIGURE 5

3.3 Department of Primary Industries - Water

A soil, geology and contamination assessment was undertaken to establish the salinity, groundwater, acid sulphate soil and contamination aspects of the site to inform the design development and EIS (SLR, 2015f).

The EIS noted that water inflow was encountered during investigations at depths of approximately 2.6m, 2.8m and 4.5m in TP02, BH01 and BH05 respectively. It was considered unlikely that the water inflows encountered during test pitting within the fill materials represent a regional aquifer, given that water inflows were encountered within only a few locations and were recorded as minor inflows. This shallow groundwater did not represent the presence of an aquifer (which requires areal extent, transmissivity and potential beneficial use), due to the limited spatial distribution of the fill which was deposited around the site following quarrying operations and an absence of abstraction wells within these deposits in the region.

Based on the above, the potential for groundwater contamination to be present on the proposed Development site due to the past operations was considered to be low. Similarly, it was considered unlikely that the shallow groundwater within this fill layer would support groundwater dependent ecosystems. The observed fill material appeared to be derived from the local quarry.

Additionally, based on the construction methodology for the Development, topography and the geology of the site, the areas that might contain saline soils and groundwater were considered to be limited. The EIS stated that any identified salinity during the construction of the Development would be managed by using precautionary measures to protect the construction materials from the aggressive nature of saline soil conditions.

The DPI Water submission dated 14 December 2015, included the following comments in relation to the assessment of groundwater undertaken for the Development. The recommendations made by DPI Water and requests for additional information are identified below in ***bold italic*** text, followed by the response in normal text.

Should dewatering greater than 3 ML in any given year be required to allow construction to proceed, a licence may need to be obtained from DPI Water to account for the take of groundwater.

No groundwater dewatering is expected to be required or proposed as a result of the proposed works. Should any groundwater be intersected, the appropriate licences and approvals will be sought from DPI-Water as required.

The applicant should demonstrate that the suggested expansion of the existing landfill monitoring plan will be appropriate and achievable for:

1. ***The detection of adverse groundwater level and quality (not necessarily only leachate) impacts beneath the proposed development site and within the design excavation depth range;***
2. ***The protection of groundwater dependent ecosystems in nearby locations on-site or off-site; and***
3. ***The identification of salinity impacts arising from the development.***

Cleanaway undertakes a programme of groundwater monitoring for the existing landfill, in accordance with the requirements of EPL 4865. This will continue during the closure and post-closure period for the landfill for at least 30 years.

As the direction of groundwater flow is east to west (ie from the landfill to the proposal site), the existing groundwater monitoring programme will provide a reliable indication of any changes to groundwater at the proposal site during construction and operation.

According to the EIS, excavations would be required for the removal of existing building footings and for the general levelling of the site. The depth of excavation for the major site preparation works is identified within the EIS as being between 3 and 5 m to accommodate the platform level of the waste transfer building. This will likely intercept those shallow groundwater zones identified in three out of the combined total of fifteen test pits and auger holes used for the geotechnical investigation.

Excavation will in general be to a depth of 2m. There will be some excavations to a depth of 3-5m for the construction of foundations for the Waste Transfer Station (around the perimeter of the building). In the south east corner of the site, there will be significant excavation up to 10m to reduce the existing bank to accommodate truck parking.

As part of the Construction Environmental Management Plan (required as a condition of consent), protocols will be established to manage and respond to situations where groundwater is encountered during construction.

Some mottling of the clays encountered during the geotechnical investigations suggests the possibility of salinity impacts arising from the excavations proposed for the development. Given the occurrence of the mottled clays immediately above the upper boundary of the weathered shale, there is a high likelihood that saline groundwater flow occurs within that zone and will need to be taken into account during detailed design to prevent building and environmental impacts.

The EIS found that the site was generally surfaced with exposed soil / gravel; however, some areas were grassed. No obvious salinity indicators were observed such as salt scalds or salt crusting on the retaining walls. SLR (2015f) considered that the areas that might contain saline soils and groundwater are considered to be limited. Any identified salinity during the development and operation of the Development will be managed by using precautionary measures to protect the construction materials from the aggressive nature of saline soil conditions.

Whilst the limited data appears to indicate the possible interception of groundwater by the excavations proposed as part of the development, it is also noted that an ongoing program of groundwater monitoring at the adjacent landfill has been identified in the documentation. Further, the Statement of Commitments indicates that "a program of groundwater monitoring would be undertaken, building on the ongoing groundwater monitoring program undertaken for the landfill". On the basis of the data supplied to date, the dewatering of excavations on the proposed development site is unlikely to be significant; however the proposed expansion of monitoring would provide clarification of this.

Cleanaway undertakes a programme of groundwater monitoring for the existing landfill, in accordance with the requirements of EPL 4865. This will continue during the closure and post-closure period for the landfill for at least 30 years.

As the direction of groundwater flow is east to west (ie from the landfill to the Development site), the existing groundwater monitoring programme will provide a reliable indication of any changes to groundwater at the proposal site during construction and operation.

Confirmation of the existing groundwater monitoring locations and schedules, as well as details of the additional monitoring proposed for the Stage 1 area should be sufficient to give confidence that the impacts on the shallow groundwater systems are no more than minimal.

There are 9 boreholes located around the perimeter of the landfill, 2 boreholes located in close proximity to the Leachate Treatment Plant, 2 boreholes located in the south east boundary of the proposal site and 1 borehole located on the northern boundary of the Development site. The scope of works for the existing monitoring program is as follows:

- Gauging, purging and sampling of thirteen existing monitoring wells (i.e. BH15A, BH15B, BH16A, BH16B, BH17D, BH17E, BH18, BH19, BH20, BH21, BH22, BH23 and BH24) in compliance with the premises Environmental Protection License (EPL) 4865;
- Measurement of field parameters (pH, conductivity, redox potential, dissolved oxygen and temperature) in each of the thirteen monitoring wells;

- Sampling and analysis of groundwater extracted from each of the thirteen monitoring wells for a prescribed list of analytes; and
- Preparation of a quarterly groundwater monitoring report detailing the monitoring results and identifying any changes in water quality.

3.4 Penrith City Council

Council's submission dated 4 December 2015, noted that there was no objection to the development; however a number of comments were made in consideration of the development. Responses to selected comments are provided in **Table 6**.

Table 6 Council Comments and Responses

Comment	Response
Property Address Council's records show the property's address as 85-87 Quarry Road, Erskine Park, rather than 50 Quarry Road referenced in the application.	Noted. Cleanaway's records have been updated to reflect the revised address.
Design The proposal would benefit from a site set out approach similar to the surrounding development by including staff and visitor parking areas in front of the building set behind substantial landscaping. The driveway surrounding the proposed building would then be used solely for truck movements, reducing the requirement for duplicate driveways and terraced parking areas.	The office and amenities block have been located at the interface between the transfer building and potential recycling processing building so that it can serve each of the main facilities. This minimises the general distance personnel need to travel within the site on a day to day basis and provides an efficient location while incorporating Health and Safety and site traffic management considerations. The overall site design concept benefits from a one way traffic flow system with the offices and staff car parking located to the inside of the general operational vehicle routing, reducing cross-over by separating staff activities from the main vehicle movements. It was also considered safer to separate small/light vehicles from heavy vehicles. To achieve this it has been necessary to provide an additional (but completely separate) staff vehicle access and parking area.
Greater articulation and architectural treatment is required. The use of colours, materials and additional articulation through projecting elements and parapets to roofs is suggested to achieve this. Additionally the use of a central office/staff break room/main entrance may be used as a focal point of the design which incorporates different materials, proportions and colours. Entrances should be distinguished for example through the use of awnings and/or colour. The use of exposed frames and oversized elements such as downpipes can be used to create visual interest.	Further detail on the architectural treatment of the facility will be provided as the detailed design progresses.
Fencing should be black palisade and located behind landscaping at the street frontage.	Black palisade fencing located behind landscaping fronting on to Quarry Road will be provided.
Access The proposed access arrangement should also be revised. Safe and efficient vehicle access may be provided without the provision of extensive hardstand space at the front boundary as proposed.	The site entrance/exit arrangement has been designed to allow for operational vehicles to re-enter the site without exiting on and to avoid queuing onto Quarry Road. The extent of the hardstanding in this area can be reduced if vehicles are to only exit the site in a westerly direction and this will be further assesses in detailed design.
Staging Plan The proposed first stage of the development occurs at the rear and leaves large portions undeveloped which will be visually prominent and expose the significant level changes upon the site. Given this staging plan is proposed, more detail should be provided in the staging plans showing how this undeveloped land will be managed. Particularly to ensure that materials and vehicles are not stored externally and that stage 1's visual impact has been assessed and deemed acceptable.	It is intended that construction of Stage 1 will include the Waste Transfer Station (WTS) and all related site infrastructure to accommodate the full site build out. Stage 2 will include the Resource Recovery Facility (RRF). Upon completion of the WTS, the undeveloped RRF area will be grassed until such time as construction can commence on the second stage. The visual impact of the Development has been addressed in the Stage 1 EIS and has been assessed as negligible given the site location in a business park

Comment	Response
	over 700m away from the nearest residential areas. The Stage 2 EIS will include an updated visual impact assessment focusing on the RRF and the cumulative visual impacts when the Stage 1 WTS is taken into account. The architectural treatment of the facility will be consistent with the generally high standard of presentation of established and developed sites within the Erskine Business Park.
Noise Assessment Further consideration should be given to the nuisance/impact that could be caused by the use of reserve alarms (beepers) on the site and what restrictions can be imposed to minimise any impact.	Cleanaway owned vehicles operating on the site will be fitted with the High and Low Buzzer system, designed to minimise noise associated with reversing alarms in accordance with the Australian Vehicle Standard (Australian Design Rule 42/04) and Heavy Vehicle National Law Act 2012. The majority of trucks entering site will do so between normal operating hours and will not therefore contribute to night time noise. Signage will be erected at the entrance to the site emphasising good neighbour practices, for example, limiting compression breaking. In addition, mobile plant will operate inside the Waste Transfer Station building and will be fitted with low frequency white noise reversing alarms, which reduce noise impacts. Prior to operations commencing at the Waste Transfer Station, Cleanaway will need to obtain an Environmental Protection Licence (EPL) for the facility, which will set out the noise limits applying to the facility. Cleanaway will comply with all EPL conditions.
Air Quality Assessment The control of odour relies on the creation of a negative internal environment. This is created by the use of 'fast acting' roller doors. It would be important to understand if these are actually permitted when considering other statutory obligations such as work, health and safety. This is raised because should the appropriate authorities reject the 'fast acting' roller doors, then the overall odour assessment would be compromised.	Operation of fast acting roller shutter doors is a commonly applied control to offer a reduction in fugitive emissions and is well proven in the specific industrial application (i.e. Waste Transfer Station and Resource Recovery Facility). The air extraction system will be operated to control the internal environment, in accordance with AS 1668.2
There does not appear to be sufficient assessment and discussion should the proposed develop experience ventilation and air control system breakdown. Backup power via generator to be hired in the event of prolonged power outage. Without appropriate action this could result in significant impacts on the surrounding community.	The extraction system is operated through a Tri-Stack™ extraction system, which will be constructed with a redundant fan in case of periodic maintenance and/or breakdown.
There does not appear to be sufficient assessment and discussions in relation to the cumulative impact on air quality and odour when you consider that there are several other waste facilities in the area.	Cleanaway has adopted an odour performance goal of no adverse odour impact on the local community. This goal has been translated into an odour performance measure of 2OU at 100th percentile, i.e. beyond business park, odour concentrations would not exceed 2OU at any time. This is significantly more stringent than the odour performance required by the NSW legislation (POEO Act), which is 2OU at 99th percentile. This measure allows exceedances of the 2OU concentration at certain times to take in account of maintenance, periodic shutdowns and unforeseen events. The odour strategy of containment, cleaning of the air and dilution and dispersion of the air is designed to meet a more onerous 2OU at 100th percentile measure.
There does not appear to be sufficient assessment	As per preceding point but further note that the

Comment	Response
and discussions on what will they do if they find through their proposed odour assessments that odour generated by the development exceeds their predictions	outcomes of the odour assessment are highly conservative and lead to significant over estimates of odour emissions compared to what is expected in practice. Nonetheless, Cleanaway has proposed a rigorous monitoring and verification process in the first 12 months when waste volumes are relatively low. This will allow the odour management system to be tested and optimised under real operating conditions. This process would be subject to audit by the Department of Planning & Environment and EPA, and would be enforceable as a planning condition. Cleanaway has designed redundant capacity in the odour management system so that any unexpected increase in odour emissions can be managed.
The EPA as the regulator must be satisfied that the odour will not pose an impact on the community and that the development does not create adverse bio-aerosols.	Refer **Section 2.2**
Council believes the assessment has not adequately assessed the impact on neighbouring industrial/commercial development directly adjacent to the development.	The requirements of the Approved Methods are to assess amenity impacts at the relevant receptor locations. Naturally, the amenity sensitivity of a residential property is significantly higher than a workplace, as people should expect a higher degree of amenity at their residence. Commercial and industrial uses are not commonly afforded the same degree of amenity as would be expected for a residential property. Given the nature of the neighbouring industrial uses, it is reasonable to expect that a lower threshold of amenity would apply, particularly at locations with compromised amenity due to distribution centres, dairy and/or meat processing/packing etc. This approach is consistent with numerous other odour impact assessments performed in NSW and across Australia.
Engineering	
There are many existing easements, such as electrical, water, sewer and road accesses to adjacent lots. These services or part of them need to be relocated with consents of the properties owners benefiting from the services. The proposed building and future development land is not supposed to be built over the existing easements.	Existing service easements will be fully accommodated during development of the detailed design. The access easements are for the benefit of Cleanaway to facilitate post closure management and monitoring of the adjacent landfill site.
The accesses or access easements for neighbour properties shall be properly re-routed on site. Lawful point accesses and a sufficient capacity for the adjacent lots shall be clearly demonstrated on plans/report. Dimensions shall be annotated on plans.	As above, access easements are for the benefit of Cleanaway to facilitate post closure management and monitoring of the adjacent landfill site. The design accounts for long term access requirements to the landfill site and related infrastructure.
It is desirable to provide a separate pedestrian access from the street to proposed visitor parking space/offices.	Designated pedestrian access will be provided from Quarry Road to the offices.
It is desirable to provide a separate vehicle access to staff/visitor parking.	This is incorporated in the latest site layout.
A 1.5m wide concrete pedestrian path shall be provided in verge areas for a full length of the property frontage	Following discussion with Council, it was agreed that provision of path in the verge area along the property frontage would not be required as there are no paths either side of the property frontage to connect to.
Any existing unnecessary property access must be	This will be included during the detailed design.

Comment	Response
removed, the kerb reinstated to suit the existing kerb, and the verge area reinstated to suit existing with grass seeded topsoil or turf.	
Sediment & Erosion Control and Traffic Control Plan shall be provided prior to issue the construction certificate or commencement of any works on site.	This will be provided as part of the Construction Environmental Management Plan.
Works-As-Executed Drawings shall be submitted to Penrith City Council with notification of the issue of the Occupation Certificate.	Noted
A restriction as to user and positive covenant relating to stormwater management systems (including on-site detention and water sensitive urban design) shall be provided prior to the issue of any occupation certificate.	Noted

3.5 Transport for NSW

A Traffic Impact Assessment was undertaken by Traffix (2015) to assess the impact of the proposed Development on the performance of the surrounding road network. The assessment also considered the parking provided by the proposed Development in relation to Council requirements and the access and internal circulation arrangements.

The assessment was also undertaken to address the Transport, Access and Parking requirements of the SEARs. A copy of the Traffix *Traffic Impact Assessment* (2015) was appended to the EIS and summarised within the EIS.

Key conclusions of Traffix's (2015) assessment concluded that the predicated traffic generation of the facility during the critical road network peak hours is expected to be very low, with less than one vehicle movement every two minutes on average during the AM and PM peak hours. Analysis of intersection performance demonstrated that the traffic impact of the proposed facility upon the surrounding network would be negligible, with no road network upgrades required.

The arterial and local road networks in the vicinity of the site continue to be upgraded, leading to improvements in safety and congestion for road users. Larger vehicles (such as B-Doubles) leaving the site would access the motorway network via the RMS approved routes for larger vehicles to the M7, thereby avoiding the residential areas to the north (along Mamre Road and Erskine Park Road).

The Transport for NSW (TFNSW) submission dated 11 December 2015, advised that no transport related issues are raised. This following condition was suggested for inclusion in the development consent should the development be approved:

> *A Construction Traffic Management Plan (CTMP) should be prepared in consultation with TFNSW, Roads and Maritime Services and Council prior to the commencement of construction. The CTMP should specify any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of this site with consideration for the cumulative impacts of other construction works that may be occurring nearby. Should any impacts be identified, the duration of the impacts and measures proposed to mitigate these should be clearly identified and included in the CTMP.*

As stated in the EIS, an outline Construction Traffic Management Plan has been prepared. This would be updated in response to pre-construction approvals required as part of the Conditions of Approval.

3.6 Roads and Maritime Services

A Traffic Impact Assessment was undertaken by Traffix (2015) to assess the impact of the proposed development on the performance of the surrounding road network. The assessment also considered the parking provided by the proposed development in relation to Council requirements and the access and internal circulation arrangements.

The assessment was also undertaken to address the Transport, Access and Parking requirements of the SEARs. A copy of the Traffix *Traffic Impact Assessment* (2015) was appended to the EIS and summarised within the EIS.

Key conclusions of Traffix's (2015) assessment established that the predicated traffic generation of the facility during the critical road network peak hours is expected to be very low, with less than one vehicle movement every two minutes on average during the AM and PM peak hours. Analysis of intersection performance demonstrated that the traffic impact of the Development upon the surrounding network would be negligible, with no road network upgrades required.

The arterial and local road networks in the vicinity of the site continue to be upgraded, leading to improvements in safety and congestion for road users. Larger vehicles (such as B-Doubles) leaving the site would access the motorway network via the RMS approved routes for larger vehicles to the M7, thereby avoiding the residential areas to the north (along Mamre Road and Erskine Park Road).

The RMS' submission dated 2 December 2015, advises that it has no further comments to provide to the exhibition of the EIS. On this basis, no further response is required.

3.7 Office of Environment and Heritage

SLR also assessed the potential impacts to flora and fauna, including threatened species and communities and their habitats. The results of the assessment were summarised in the EIS, and concluded that the Development site is a highly artificial and modified area of land with no elements of the natural environment or of the original native vegetation remaining. There are no threatened species, populations or communities or their habitats present on the Development site and none are likely to occur.

A Preliminary Risk Screen under State Environmental Planning Policy No. 33 Hazardous and Offensive Development (SEPP 33) was undertaken by SLR (2015d) as part of the EIS. The SEPP 33 screenings for storage and transportation of dangerous goods were summarised in the EIS and the results indicated that the Development is below the SEPP thresholds, and therefore is not considered a hazardous or offensive development in accordance with the guidelines. As such a Preliminary Hazard Assessment was not required.

SLR undertook an assessment of indigenous and non-indigenous heritage to identify any issues associated with the Development. The assessment involved a review of the Aboriginal Heritage Information Management System (AHIMS) database, State Heritage Inventory and Register and Penrith LEP. The results of the assessment were summarised in the EIS, and concluded that the Development is not anticipated to have any impact on any items of indigenous or non-indigenous heritage due to the disturbed nature of the site and the lack of any listed sites on the relevant heritage databases.

The OEH submission dated 3 December 2015, advised that the Development does not contain biodiversity, natural hazards or Aboriginal cultural heritage issues that require a formal OEH response, and that OEH have no further need to be involved in the assessment of this project.

3.8 NSW Rural Fire Service

Based on the environmental risk assessment included in the supporting document requesting Secretary's Environmental Assessment Requirements (SEARs), bushfire was not identified as a significant risk warranting further assessment.

Based on an assessment of the information provided, the NSW Rural Fire Service raised no objection to the Development.

4 BUSINESS AND PUBLIC SUBMISSIONS

4.1 Local Businesses

One submission was received from a local business. The M.K.B Contracting (trading as Old MacDonald's Child Care) submission dated 1 December 2015, included the following comments in relation to the potential health risks associated with the Development. The comments made by M.K.B. Contracting and requests for additional information are identified below in ***bold italic*** text, followed by the response in normal text.

The current waste centre at Erskine Park is receiving contaminated asbestos soil transported from West Connex at St Peters Site and will continue to do so for a period of time

This issue does not relate to the proposal (SSD 7075), which seeks approval for a Waste Transfer Station on the site adjacent to the existing landfill. The proposed Waste Transfer Station will not accept asbestos.

The landfill site currently accepts soils contaminated with low levels of controlled substances (asbestos), in accordance with its Environmental Protection Licence and operating procedures. The resultant waste is classified as contaminated soil.

The current waste centre (landfill) at Erskine Park is receiving soil containing asbestos transported from WestConnex at St Peters Site and will continue to do so until the end of February 2016. Weekly monitoring during this project has not detected any incidences of airborne asbestos.

There will be 200 trucks delivering waste to the proposed waste facility daily once operational.

At full capacity, the Development would generate approximately 200 refuse collection vehicles per day delivering waste to the site with approximately 30 larger vehicles departing the site each day, transporting waste from the site.

The traffic assessment undertaken for the proposed work (Traffix, 2015) concluded that the predicted traffic generation of the facility during the critical road network peak hours is expected to be very low, with less than one vehicle movement every two minutes on average during the AM and PM peak hours. Analysis of intersection performance demonstrated that the traffic impact of the proposed facility upon the surrounding network would be negligible, with no road network upgrades required.

The arterial and local road networks in the vicinity of the site continue to be upgraded, leading to improvements in safety and congestion for road users. Larger vehicles (such as B-Doubles) leaving the site would access the motorway network via the RMS approved routes for larger vehicles to the M7, thereby avoiding the residential areas to the north (along Mamre Road and Erskine Park Road).

Bi-annual air monitoring checks are undertaken… as this monitoring so close to suburban areas it should be performed perhaps daily.

The air quality monitoring program for the existing landfill is undertaken in accordance with the Environmental Protection Licence for the site.

In relation to the Development of a Waste Transfer Station, Cleanaway expects a condition to be imposed by the Department of Planning & Environment through the development consent, and the EPA through the licensing process, to undertake monitoring for air quality associated with the Development. The type and frequency of such monitoring will be agreed with DP&E and EPA.

Who is verifying and testing the validation of the asbestos materials being transported?

No asbestos material will be received as part of the Development.

What techniques and procedures are in place for the delivery and disposal of such materials?

No asbestos material will be received as part of the Development.

Is there an independent third party overseeing this process in its entirety?

All current and future operations at the site are subject to auditing and monitoring by the EPA and DP&E.

4.2 General Public

As listed in **Table 2**, 72 public submissions were received via the DP&E website following the exhibition of the EIS. An additional 277 signatures were received attached to proforma letters. A number of complainants made multiple submissions.

All public submissions received were in objection to the proposed development, with the majority of submissions being received from the neighbouring suburbs of Erskine Park, St Clair, Mount Druitt, and Colyton.

A summary of the issues raised in the public submissions and responses (grouped by issue) is provided below in **Table 7**.

Table 7 Issues Raised in the Public Submissions

Summary of Issue Raised	Response
EIS General	
The two stages of the project being dealt with in two different EISs means that the community does not see or get the chance to comment on the total impacts.	The Stage 2 EIS will address the cumulative impacts of the both the Stage 1 and Stage 2 Operations.
The EIS mentions the 90 place Childcare centre as well as the Retirement village in Erskine Park but fails to account for the 3 schools also in the same location (Mamre Anglican School, Trinity Catholic Primary School and Emmaus Catholic College).	In designating sensitive receptors for this study, reference was made to the Western Sydney Regional Odour Assessment. That study nominated a significant number of discrete receptor locations which were used to make observations of odour surrounding a number of waste management facilities in the area. These receptor locations have been replicated in the SLR study to assist with discussions on how the proposed Development may alter the findings of that assessment. In addition to the Western Sydney Regional Odour Assessment receptors, additional project-specific receptor locations were used in the assessment. The nominated 'receptor locations' as presented in Table 9 of SLR, 2015b do not represent the sum total of locations sensitive to odour, but are used to characterise impacts across the study area. The assessment of amenity has been performed across the entire study area 'domain' and any location not specifically listed in Table 9 should not imply it has been disregarded or it has not been considered in the assessment. The receptors identified in the EIS represent the "worst case" impacts. Other sensitive receptors in the area can therefore be considered to expect impacts equal to, or less than the worst case receptors.
Community consultation was not adequate for this proposal.	Cleanaway engaged with a range of stakeholders regarding the proposed Waste Transfer Station. The purpose of the engagement was to provide information on the Development as early as possible in the planning process to allow for the up-front identification, and where possible, resolution, of relevant issues or concerns. Consultation was undertaken with relevant Government agencies, Council, elected representatives, local residents and businesses. Key consultation activities undertaken included: • Setting up a project website with project information; • Establishment of Development contact details to provide a central point of contact for community enquiries; • Establishment of a consultation database to register contact details for ongoing updates and information, as well as recording comments, issues and input received from the community and other stakeholders; • Briefing sessions have been held with community and business representatives in May and October 2015 in the Erskine Park area, with a further session held in parallel with the EIS Exhibition; • Newsletter notifications to local residential areas, with four newsletters issued to date; • Written notifications to State elected representatives and Penrith City Council providing information regarding the project;

Summary of Issue Raised	Response
	• A briefing to the Penrith City Council Economic Opportunities Working Party; • Meetings with various Government agencies including Council, Department of Planning & Environment, EPA and RMS; • Responding to media inquiries; and • Responding to community inquiries. Issues raised during the consultation were considered in the design of the Development and within the EIS.
Information about the nature of the waste being brought to the Facility is not sufficiently clear in the EIS.	The Resource Management Facility will handle general solid waste (putrescible). The following wastes (other than special waste, liquid waste, hazardous waste or restricted solid waste) have been pre-classified by the EPA as 'general solid waste (putrescible)': • Household waste that contains putrescible organics; • Waste from litter bins collected by or on behalf of local councils; • Manure and night soil; • Disposable nappies, incontinence pads or sanitary napkins; • Food waste; • Animal waste; • Grit or screenings from sewage treatment systems that have been dewatered so that the grit or screenings do not contain free liquids; and • Any mixture of the wastes referred to above.
Cleanaway should be held accountable by the EPA for any breaches to the EPL, and a timeframe should be set out for when the breach must be rectified. These breaches should also be made available for public record.	All holders of an EPL in NSW are subject to regulations imposed by the EPA. Any breaches to an EPL will be reported to the EPA as required under the EPL. Copies of any notices issued by the EPA, pollutions studies and reduction programs, and annual returns are all publically available on the EPA website.
Noise	
Noise and vibration impacts from road traffic will impact residents	In order to assess the potential impact of traffic noise at the surrounding sensitive receivers noise level calculations were carried out using the UK Department of Transport, "Calculation of Road Traffic Noise" (CORTN 1988) algorithms. Existing traffic movements on Mamre Road, Erskine Park Road, Lenore Drive and traffic movements generated by the Development have been sourced or estimated from Traffix (2015). This was used to predict noise level increases associated with additional traffic. For residential receivers the expected noise level increase as a result of traffic is between 0.2 and 1.6 dBA. Similarly increases at the childcare centre are also low, between 0.1 and 0.9dBA. These results comply with the 2dBA allowance criterion of the RNP.

Summary of Issue Raised	Response
Odour and Air Quality	
The development will contribute to the existing unpleasant odours from surrounding waste facilities.	The assessment has been performed to design a system that will achieve the required standard to protect the community from amenity impacts.
Similar odour producing facilities in the area (SITA Waste Management Facility on Elizabeth Drive Kemps Creek) have not been sufficiently taken into consideration.	The modelling of emissions from the plant assumes that extracted air from the building will be treated through an air quality management system which includes a wet scrubber and discharged to atmosphere via a dilution fan. The benefit of the dilution fan is that it draws in supplementary air prior to the point of discharge to create a significantly larger discharge velocity which is highly beneficial to disperse the air and reduce the potential for community amenity impacts. To model this discharge, the emissions from the waste have been estimated using the stated methodology, and then the supplementary air drawn into the dilution fan assumed to be at an odour concentration of 2 OU (which is then multiplied by the flow rate to generate the product odour emission rate). The assumed 2 OU represents the 'worst case' assessment criterion for odour that should be applied to the receiving environment. Notwithstanding Cleanaway's clear inability to affect the odour emissions from other operations, the assumed odour contribution from the dilution air is at the maximum concentration that should be experienced assuming all other operators are regulated appropriately in accordance with legislation.
The Air Pollution control device should not be bypassed in the early stages of the operation, being at 90% capacity and 270,000 tonnes per annum, it should be completed/ functional air filtration system needs from the first day of operation.	The air pollution control system, including containment and the operation of the dilution stacks will be operational from commissioning up to around 90% capacity. Those components in themselves will be sufficient to not give rise to amenity impacts at a voluntary standard in excess of that required to be achieved. Furthermore, the air quality impact assessment demonstrates that the wet scrubber would not be required until the plant is nearing full capacity, but would be installed and commissioned in case of the 'emergency operation' scenario that assumes waste is prevented from leaving the site. During those times, and other times as required, the wet scrubber would be available for supplementary odour control should it be required.
Cleanaway advise they will commit to undertaking a rigorous monitoring and verification process for only the first 12 months of operation subject to a planning condition. What will this planning condition entail? Residents ask for an opportunity to review this before being approved.	This matter will be addressed by the Department of Planning & Environment as part of the determination process.
Cleanaway states they will "undertake follow-up monitoring during the operational lifetime of the WTS, on a basis to be agreed with the relevant authorities". This monitoring should occur on a frequent and consistent basis.	Agreed.
Odour testing for the EIS is inadequate (testing was done on only 9 days and due to 'meteorological conditions' some locations recorded very few observations.	The FAOA observations were dependent upon prevailing meteorology. There clearly is little value in performing observations at locations unaffected by winds from the site. Reference should be made to SLR 2015b which describes the conditions and timing of the FAOA events to avoid periods of meteorology that would reduce the potential for odour generation and/or propagation.

Summary of Issue Raised	Response
Traffic	
Increased traffic volumes will impact residents in the local area.	The traffic assessment undertaken for the EIS (Traffix, 2015) predicated traffic generation of the Development during the critical road network peak hours is expected to be very low, with less than one vehicle movement every two minutes on average during the AM and PM peak hours. Analysis of intersection performance demonstrated that the traffic impact of the Development upon the surrounding network would be negligible, with no road network upgrades required. The arterial and local road networks in the vicinity of the site continue to be upgraded, leading to improvements in safety and congestion for road users. Larger vehicles (such as B-Doubles) leaving the site would access the motorway network via the RMS approved routes for larger vehicles to the M7, thereby avoiding the residential areas to the north (along Mamre Road and Erskine Park Road).
The EIS does not sufficiently take into consideration the extensive impact of odour, noise and increased traffic from trucks on residential area in Erskine Park and St Clair.	The odour, noise and traffic assessments all included an assessment of the impacts to residences in Erskine Park and St Clair.
The traffic impact assessment only considers the traffic impact on 3 intersections (Erskine Park Rd and Mamre Road, James Erskine Drive and Mamre Road, and Quarry Road and James Erskine Drive), not the entire length of Erskine Park Road, and Mamre Road should be upgraded prior to the WTS being approved in order to be able to effectively handle the additional traffic at all times.	The traffic assessment undertaken for the EIS (Traffix, 2015) found that the predicted traffic generation of the Development during the critical road network peak hours is expected to be very low, with less than one vehicle movement every two minutes on average during the AM and PM peak hours. It also demonstrated that the traffic impact of the Development upon the surrounding road network will be negligible, and no road network upgrades are required to support the Development. Both the arterial and local road networks in the vicinity of the site are undergoing, and will continue to undergo significant upgrades to improve safety and reduce congestion for all road users, and improve amenity for local residents.
The EIS states the direction in which the outgoing vehicles will take but state they have no control over the direction the inbound trucks will take to the WTS. Inbound trucks should not be allowed to travel along Erskine Park Road and Mamre Road to the WTS.	The traffic assessment undertaken for the EIS (Traffix, 2015) demonstrated that the traffic impact of the proposed Development upon the surrounding road network will be negligible, and no road network upgrades are required to support the proposed development. Inbound waste collection trucks will use main connecting roads in preference to residential streets as far as reasonably practicable. Waste collection trucks generally pick up from a large number of discrete points and will access the Erskine Park site by a range of routes. Trucks entering the site will be guided by appropriate signage erected on the street frontage. The weighbridge has been located well into the site access road to avoid queuing onto Quarry Road with the ability for trucks to bypass the weighbridge and circulate around the site in a clockwise direction before re-entering the weighbridge access road in the unlikely event of significant queuing at the weighbridge.
Location	
The location of the WTS is too close to residential areas	The Development site is located within the Western Sydney Employment Area (WSEA) which prohibits residential developments. The nearest residential dwellings are located within the suburb of St Clair, approximately 0.7km to the north of the site, and rural-residential properties are located in Orchard Hills, approximately 0.7 km to the west of the site.

Summary of Issue Raised	Response
The facility will reduce property values in the area.	The operation of the Resource Management Facility would support employment for approximately 150 staff at the Development. This includes 120 staff currently based at the Cleanaway transport depot and landfill, whose continuing employment at this location is dependent on the Waste Transfer Station proceeding. Approximately 30 new staff would be employed in the Waste Transfer Station and Resource Recovery Facility, with up to 10 of these linked to the Waste Transfer Station. The Development would also provide flow on economic benefits for companies servicing the site. The money that would be spent on consumables, along with the significant flow-on benefits, would result in a substantial stimulus to the local and regional economies. The additional traffic generated by the operation of the Development would not have a significant impact on the local road network. Air quality and odour emissions are expected, however, these have been assessed to be within regulatory limits with additional measures put in place to achieve a beyond compliance design goal. As the nearest sensitive receivers are located over 700m away from the site, the potential visual amenity and noise impacts at these receptors have been assessed as negligible (refer to EIS Volume 2, Appendices B (Noise) and D (Visual) for further detail). The workforce associated with the Development would not significantly increase the total population of Erskine Park, or Penrith LGA, and no additional services for the local community are anticipated to be required as a result of the Development. Furthermore the Development is not expected to influence the demographic profile of Erskine Park or the Penrith LGA and it is not anticipated that there would be any adverse impact on social connectivity or housing availability and affordability as a result of the Development.
Human Health and Hazards	
There is insufficient reference to the health impacts of odours, particularly on those who are more sensitive to smells.	A Preliminary Risk Screen under State Environmental Planning Policy No. 33 Hazardous and Offensive Development (SEPP 33) was undertaken as part of the EIS. The SEPP 33 screenings for storage and transportation of dangerous goods indicates that the Development is below the SEPP thresholds and therefore is not considered a hazardous or offensive Development in accordance with the guidelines. In regard to 'odour', the assessment has been performed in accordance with the NSW EPA 'Approved Methods' which provide a scale of relevant odour assessment criteria to account for the sensitivity of the receiving environment, as rated on a scale from 7 OU to 2 OU. Typically this is applied relative to population density on the assumption that there is a greater probability of persons being present within a larger population being hyper-sensitive to odour impacts than a smaller population. However, that scale may also be used arbitrarily to account for sensitive receptors irrespective of population size. The advice provided by NSW EPA is that any location present in metropolitan Sydney should be considered as a contiguous population and the 2 OU should always be applied to those assessments. The odour assessment criterion of 2 OU (as the 99th percentile) has consequently been applied to this assessment, along with a more stringent voluntary criterion of 2 OU (as the 100th percentile). Correspondingly the assessment has focussed upon the potential impact upon members of the public who are the most sensitive to odour, and adopted a 'standard' in excess of the legislative benchmark. The odour concentrations predicted for the two operational scenarios have been assessed as to their potential to give rise to amenity impacts (expressed as odour). The emission of 'odour' from the premises may be comprised of a wide range of volatile compounds that contribute to the odour

Summary of Issue Raised	Response
	response but may also be associated with potential health impacts by nature of the gaseous composition. In regard to discrete odorants, reference is made to NSW DEC (2006) "*Handbook for Design and Operation of Rural and Regional Transfer Stations"* which provides NSW guidance on the operation of waste transfer stations. DEC 2006 makes the following statement: By law (under Clause 9(3) of the Occupational Health and Safety Regulation 2001), an employer must ensure that effective procedures are in place, and are implemented, to identify hazards: • Immediately prior to using premises for the first time as a place of work; and • Before and during the installation, erection, commissioning or alteration of plant in a place of work; and • Before changes to work practices and systems of work are introduced; and • Before hazardous substances are introduced into a place of work; and • While work is being carried out; and • When new or additional information from an authoritative source relevant to the health or safety of the employees of the employer becomes available. Cleanaway will ensure compliance with those requirements and identify, evaluate the risk, and manage the risks associated with the development phases, which would include an assessment of occupational risk associated with the health risk of odorous micro-pollutants. As it is reasonable to assume that the risks associated with odorant compounds on-site (i.e. working with the emission source prior to treatment and dispersion) would be greater than that experienced after treatment and dispersion in the surrounding community, the management of risk in accordance with the overarching occupational health and safety regulations would ensure that the risk in the community (with concentrations multiple orders of magnitude lower) would be appropriately managed.

5 REFERENCES

- Erskine Park Resource Management Facility Staged SSD (SSD-7075) Concept Plan and Stage 1 Waste Transfer Station Environmental Impact Stage Volume 1 (October 2015).
- Air Quality Assessment (SLR, 2015b).
- Noise Assessment (SLR, 2015c).
- Hazards and Risk (SLR, 2015d).
- Waste Assessment (SLR, 2015e).
- Traffic and Transport Assessment (Traffix, 2015).
- Soils, Geology and Contamination Assessment (SLR, 2015f).
- Surface Water Assessment (SLR, 2015g).
- Ecology Assessment (SLR, 2015h).
- Visual Assessment (Green Bean Design, 2015).
- Community and Stakeholder Engagement (ID Planning, 2015).
- Banksmeadow Transfer Terminal Air Quality Impact Assessment (Wilkinson Murray 2014).
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods) (Department of Environment and Conservation (DEC) 2005).
- NSW DEC (2006) Handbook for Design and Operation of Rural and Regional Transfer Stations