SUEZ Recycling and Recovery Pty Ltd

Modification to LHRRP Operation Hours

Environmental Assessment

January 2018

Executive summary

SUEZ currently operates the resource recovery park at Lucas Heights 2 referred to as the Lucas Heights Resource Recovery Park (LHRRP). On 23 January 2017, State Significant Development (SSD) 6835 application was approved by the Planning Assessment Commission to allow for an increase in landfill capacity, relocation and expansion of the garden organics facility and construction and operation of a new resource recovery facility.

The SSD 6835 consent allows for operation of the landfill between 6 am and 5 pm Monday to Friday and 8 am to 5 pm Saturdays and Sundays. SUEZ is seeking to modify the development consent (the modification) to allow for operation of the landfill between 5 am and 5 pm Monday to Friday and 6 am to 5 pm Saturdays (with no change to Sunday's operation hours).

The modification is proposed in order to address existing and potential future queuing issues at the site entrance prior to the site opening at 6 am.

To evaluate the impacts of the proposed modification, an assessment of noise, traffic, visual and other impacts was undertaken.

The assessment concluded the following:

- **Traffic and access**: the proposed modification is expected to help address current queuing issues and result in a neutral or slightly improved operations to the local road network
- **Noise**: operational noise levels are predicted to comply with the night-time noise criteria at all sensitive receivers. Traffic noise levels are not predicted to increase significantly as a result of the modification.
- **Visual**: the proposed modification is expected to have negligible visual significance at all identified visual receptors

Given the minor nature of the proposed operational changes, it is considered that the development remains substantially the same as the development subject to the original development consent. Furthermore, as the environmental impacts from the modification are negligible, it is considered appropriate that the modification be considered under Section 96(1A) of the *Environmental Planning and Assessment Act 1979*.

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1. Introduction

1.1 Overview

This environmental assessment relates to an application by SUEZ Recycling and Recovery (SUEZ) to modify the State Significant Development (SSD) 6835 consent (Appendix A), which granted approval for the Lucas Heights Resource Recovery Project (the Project). The consent was granted on 23 January 2017 by the Planning Assessment Commission of NSW, as delegate of the Minister for Planning. The SSD 6835 consent was granted under Section 89E of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for an increase in landfill capacity, relocation and expansion of the garden organics facility and construction and operation of a new resource recovery facility at the Lucas Heights Resource Recovery Park (LHRRP).

The SSD 6835 consent allows for operation of the landfill between 6 am and 5 pm Monday to Friday and 8 am to 5 pm Saturdays and Sundays. SUEZ is seeking to modify the development consent (the modification) to allow for operation of the landfill between 5 am and 5 pm Monday to Friday and 6 am to 5 pm Saturdays (with no change to Sunday's operation hours). The modification is proposed in order to address existing and potential future queuing issues at the site entrance prior to the site opening at 6 am.

1.2 Purpose of this report

This environmental assessment has been prepared to support the application to modify development consent SSD 6835 pursuant to Section 96(1A) of the EP&A Act. The environmental assessment assesses the potential environmental impacts arising from the modified operations and includes mitigation measures to minimise environmental impacts. The environmental assessment has been prepared to a level of detail commensurate with the minor scale of the proposed modifications and the legislative framework under which the modification will be considered.

1.3 The proponent

The proponent of the proposed modification is SUEZ. Due to the existing operational arrangements at the LHRRP, Sutherland Shire Council (SSC) is a joint applicant for the proposed modification. Although both SUEZ and SSC are joint applicants, the modified Project would continue be operated by SUEZ.

The relevant postal address for SUEZ is:

Level 3, 3 Rider Boulevard,

Rhodes NSW 2138

1.4 Site location

The LHRRP, is located on Little Forest Road, Lucas Heights. It is situated within the Sutherland local government area, approximately 30 km south west of the Sydney city centre. Specifically, the Project is located on:

- Lot 101 DP 1009354
- Lot 3 DP 1032102
- Lot 2 DP 605077

1.5 The approved Project

The Project approved under SSD 6835 includes:

- Reprofiling of existing landfill areas to provide up to 8.3 million cubic metres of additional landfill airspace capacity, including an increase in the quantity of waste landfilled at the site up to 850,000 tonnes per year. Reprofiling of the site to be completed in 2037.
- Relocation and expansion of the existing garden organics facility to the western side of the site, with an approved capacity of 80,000 tonnes of green and garden waste per year.
- Construction and operation of a fully enclosed advanced resource recovery technology facility to be located on the western side of the site with a capacity of up to 200,000 tonnes of general solid waste per year.
- A 149 ha community parkland following site closure, capping and landscaping and made available for community use in 2039.

1.6 Modification approval framework

The Project was approved as a State Significant Development (SSD 6835) under Section 89E of the EP&A Act on 23 January 2017. SSD consents may be modified under Section 96 of the EP&A Act provided information stipulated in Clause 115 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) is contained within the application, and that the development as modified will be substantially the same development as the development for which consent was originally granted.

The requirements of Clause 115 of the EP&A Regulation and where they are addressed in this document are outlined in the following table.

Table 1 Requirements for application for modification of development consent

Requirement	Response/reference
(1) An application for modification of a development consent under section 96(1), (1A) or (2) or 96AA (1) of the Act must contain the following information:	
(a) the name and address of the applicant,	Section 1.3
(b) a description of the development to be carried out under the consent (as previously modified),	Section 1.5
(c) the address, and formal particulars of title, of the land on which the development is to be carried out,	Section 1.4
(d) a description of the proposed modification to the development consent,	Section 3
(e) a statement that indicates either: (i) that the modification is merely intended to correct a minor error, misdescription or miscalculation, or (ii) that the modification is intended to have some other effect, as specified in the statement,	Section 2
(f) a description of the expected impacts of the modification,	Section 4
(g) an undertaking to the effect that the development (as to be modified) will remain substantially the same as the development that was originally approved,	Section 3
(g1) in the case of an application that is accompanied by a biodiversity development assessment report, the reasonable steps taken to obtain the like-for-like biodiversity credits required to be retired under the report to offset the residual impacts on biodiversity values if different	Not applicable

biodiversity credits are proposed to be used as offsets in accordance with the variation rules under the *Biodiversity Conservation Act 2016*,	
(h) if the applicant is not the owner of the land, a statement signed by the owner of the land to the effect that the owner consents to the making of the application (except where the application for the consent the subject of the modification was made, or could have been made, without the consent of the owner),	Appendix C
(i) a statement as to whether the application is being made to the Court (under section 96) or to the consent authority (under section 96AA),	The application is being made to the consent authority under Section 96(1A)

When assessing an application under Section 96 for modification to consent, the consent authority is required to take into consideration the relevant matters outlined in Section 79C of the EP&A Act.

1.7 Stakeholder consultation

SUEZ has undertaken consultation with SCC in a letter dated 18 July 2017 providing information about the proposed modification (refer Appendix B). In a response letter dated 21 July 2017 (Appendix B), SCC requested that SUEZ identify all potential impacts associated with the proposed development and to undertake preliminary studies.

This environmental assessment report identifies the potential impacts through an environmental risk screening (Section 4.1) and provides an assessment of impacts in Section 4.

2. Need for the modification

Following receipt of approval for expanded operations at the LHRRP, SUEZ has been in consultation with SSC officers who have identified constraints with the existing operating hours at the LHRRP, (currently 6 am to 5 pm Monday to Friday, and 8 am to 5 pm on weekends).

It has been observed that prior to 6 am, waste delivery vehicles are forming queues waiting to enter the LHRRP. This queuing time affects the turnaround times of all vehicles. In particular, SUEZ's transfer stations operators, who deliver waste to the LHRRP have provided feedback regarding the queueing prior to 6 am.

SUEZ has committed to managing traffic on site and as part of the expanded operations, including no queuing on public roads (New Illawarra Road). In preparation for the increase in traffic due to the closure of Eastern Creek Landfill in August 2017, SUEZ has made significant investment by installing a second inbound weighbridge at the LHRRP entrance, as well as upgrading its existing weighbridges with Mandalay® Technologies software (licence plate recognition) to improve overall weighbridge efficiencies.

To deliver better service to address queuing issues on Little Forest Road experienced by SUEZ' customers, SUEZ is proposing an extension to the approved operating hours to allow landfill operations to commence one hour earlier, at 5 am.

The modification would address existing and potential future queuing issues at the site entrance prior to the current commencement of landfill operation hours at 6 am.

3. Proposed modification

SUEZ is seeking a modification to SSD 6835 to allow for extending the operating hours of the landfill to between 5 am and 5 pm Monday to Friday and 6 am and 5 pm Saturdays (with no change to the Sunday landfill operating hours)

Operational hours for all other LHRRP operations would remain unchanged. No changes are proposed with respect to the quantities of waste to be accepted or other site infrastructure. Landfilling activities will continue to be undertaken as described in the Environmental Impact Statement (EIS) for the Project (GHD 2016).

Given the nature of the proposed modification, which is to adjust the operating hours only, it is considered that the development is considered substantially the same development as approved in the original development consent.

SUEZ requests that Condition C53 of Schedule C of the Consent be modified as follows:

> **C53**. The Applicant shall comply with the hours detailed in Table 2, unless otherwise agreed in writing by the EPA or the Secretary.
>
> Table 2: Hours of Work

Facility	Activity	Day	Approved operating hours
Landfill	Construction	Monday - Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm
	Operation	Monday - Friday Saturday Sunday	~~6 am – 5 pm~~ ***5 am – 5 pm*** ~~8 am – 5 pm~~ ***6 am – 5 pm*** 8 am – 5 pm
	Other operations [1]	Monday - Sunday	Anytime
GO facility	Construction	Monday - Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm
	Operation	Monday - Friday Saturday - Sunday	6 am – 5 pm 8 am – 5 pm
	Other operations [2]	Monday - Sunday	Anytime
ARRT facility	Construction	Monday - Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm
	Operation	Monday - Sunday	Anytime

> *Notes:*
>
> *[1] Other landfilling operation includes only security guard control, machinery maintenance and/or repairs, site infrastructure maintenance and/or repairs (landfill gas and leachate), and emergency management activities related to site safety, emergency repairs and site infrastructure repairs*
>
> *[2] Other GO operations includes only repair works, machinery maintenance and repairs, loading bunkers, final product preparation manufacture (but does not include shredding) and emergency management activities related to site safety, emergency repairs and site infrastructure repairs. Unloading bunkers is only permitted between the hours of operations listed under 'GO Facility – Operation' in Table 2.*

Mobile lighting would be used for the landfill operations to ensure adequate illumination during the earlier operating hours.

The lights would be placed at strategic locations to assist with waste filling operations and moved on a regular basis as the waste tipping location requires. Up to two lighting towers would

be required and on occasion (for example during winter months), an additional lighting tower may also be utilised.

The lighting specifications and lighting types would be chosen based on what is expected to be the minimum level required for operations and safety and cover an area of approximately 5,000 m^2.

4. Environmental impact assessment

4.1 Identification of potential impacts

4.1.1 Preliminary environmental risk screening

A preliminary environmental risk screening was undertaken to identify potential environmental impacts that may arise as a result of the proposed modification.

The preliminary environmental risk screening was undertaken in the form of a preliminary desktop-level risk assessment, to broadly assess the environmental risks that may arise as a result of the modification and identify key areas for the assessment.

The environmental risk analysis for the modification involved:

- Identifying environmental aspects
- Identifying the source of potential risks associated with each of these aspects
- Identifying the potential impact associated with each risk
- Identifying priority issues for the environmental impact assessment.

Appendix D provides the results of the preliminary risk assessment. It includes:

- A summary of the potential key impacts/risks
- Consideration of the priority for the assessment
- A discussion regarding the findings of the preliminary risk screening.

4.1.2 Priority environmental issues

The potential environmental issues associated with the proposed modification that require further investigation are considered to inc lude:

- Traffic, transport and access
- Noise
- Visual amenity (lighting)

Aside from the proposed changes to operation hours of the landfill and proposed mobile lighting, the Project (including site infrastructure and operational activities and mitigation measures) would continue to be undertaken as described in the EIS (GHD 2016), the Response to Submissions and Preferred Project Report (SUEZ 2016) and in accordance with the Development Consent (SSD 6835).

As discussed in Appendix D, given the minor nature of the proposed modification, it is expected to result in negligible change to other environmental issues such as:

- Air quality
- Surface water and soils
- Groundwater
- Leachate
- Heritage
- Biodiversity
- Greenhouse gas
- Pests, vermin and noxious weeds
- Hazards and risk
- Utilities and infrastructure provisions
- Land use
- Final land use
- Fire
- Waste management

- Litter and illegal dumping

These issues have therefore not been assessed further.

4.2 Traffic and access

4.2.1 Potential impacts

An assessment of the potential traffic impacts associated with the proposed modification was undertaken. The assessment is attached in Appendix E. This section provides a summary of the findings of the traffic impact assessment.

A Traffic Impact Assessment (TIA) report for the Project was prepared as part of the EIS for SSD 6835 (GHD 2016). The TIA included intersection modelling, using the both the SIDRA intersection modelling software and the Paramics microsimulation modelling software, at the following intersections:

- Heathcote Road / New Illawarra Road; and
- Little Forest Road / New Illawarra Road.

The TIA traffic modelling which accounted for the vehicle trips associated with the LHRRP, indicated that both of these intersections were expected to operate with a good level of service.

Weighbridge information from October 2017 indicates that between 54 and 70 waste collection vehicles currently enter the subject site between 6:00 am and 7:00 am. This includes the vehicle activity associated with the recently closed Eastern Creek Recovery Park.

It has been assumed that 100 percent of the waste collection vehicles currently accessing the LHRRP Facility between 6:00 am – 7:00 am (up to 70 vehicles) will access the site between 5:00 am – 6:00 am.

This is considered to be a conservative assessment as not all vehicles would arrive at the earliest times even if the facility opens earlier due to the travel time from point of collection to the LHRRP.

Based on these assumptions the expected traffic volumes between 5:00 am and 6:00 am are shown in Table 2.

Table 2 Expected waste collection vehicle activity

Time	Heathcote Road	New Illawarra Road
5:00 am – 6:00 am	28 inbound / 28 outbound	42 inbound / 42 outbound

Data has been obtained from Roads and Maritime Services traffic count stations to determine the current traffic volumes on Heathcote Road and New Illawarra Road between (5:00 am and 6:00 am):

- Heathcote Road 210 m west of Beethoven Street (Station Id: 37022); an
- Alfords Point Road 400 m east of Snow Gum Place (Station Id: 42001).

The data from these count stations (for 2017) indicates that:

- Heathcote Road experiences 880 (two way) vehicles between 5:00 am – 6:00 am.
- New Illawarra Road / Alfords Point Road experiences 2,810 (two way) vehicles between 5:00 am – 6:00 am.

The portion of traffic associated with the proposed change in opening hours as a comparison with the background traffic volumes on the adjoining arterial road network is shown in Table 3.

Table 3 Portion of LHRRP vehicle activity

Time	Heathcote Road			New Illawarra Road		
	Increase in traffic from proposal	Background Traffic	Portion	Increase in traffic from proposal	Background Traffic	Portion
5:00 am - 6:00 am	56	880	6%	84	2,810	3%

The information provided in Table 3 indicates that the changes to opening hour would result in:

- Up to six percent increase in traffic volumes on Heathcote Road.
- A three percent increase in traffic volumes on New Illawarra Road / Alfords Point Road.

As shown at Figure 1, midblock traffic counts (from 2013) undertaken at Heathcote Road indicate that:

- The peak hours of road network activity in the vicinity of the LHRRP facility occur between 7:00 am – 8:00 am and 5:00 pm – 6:00 pm; and
- Vehicle activity on weekends is lower than on weekdays.

As shown in Figure 1, the proposed weekday starting time (5 am) occurs two hours prior to peak morning activity on the adjoining road network.

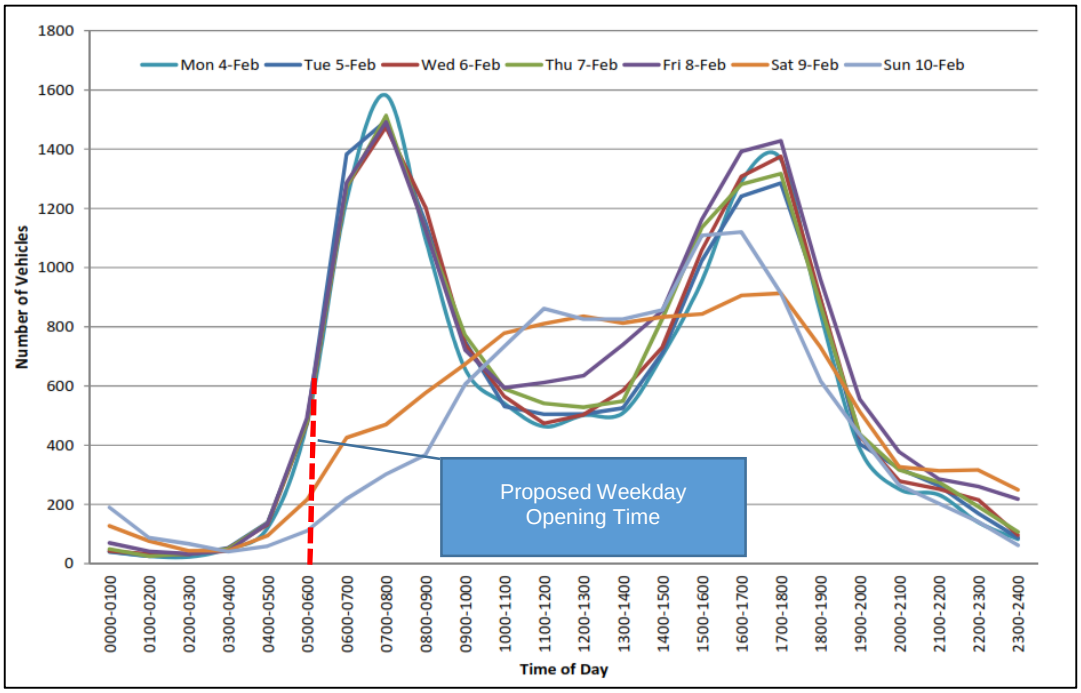


Figure 1 Two-way traffic volumes on Heathcote Road

The previous modelling undertaken for the project demonstrated that both the Heathcote Road / New Illawarra Road and Little Forest Road / New Illawarra Road intersections are expected to operate with a good level of service.

The proposed modification would not result in any increase in total traffic to the LHRRP, but the proposal would potentially result in vehicles associated with the LHRRP operation being distributed over a greater time period.

The modification is therefore expected to result in a neutral or slightly beneficial operations to the Little Forest Road / New Illawarra Road intersection, compared to the currently consented opening times for the facility.

4.2.2 Mitigation measures

As outlined in Section 2, SUEZ has already made a significant investment by installing a second inbound weighbridge at the LHRRP entrance and has upgraded its weighbridge software. The proposed modification is expected to help address current queuing issues and result in a neutral or slightly improved operations to the local road network. No further traffic mitigation measures are proposed.

4.3 Noise

This section provides a summary of the noise impacts due to modification of the operational hours in Section 3. This assessment was prepared with consideration to the following documents:

- *Industrial Noise Policy* (INP) (EPA, 2000)
- *Road Noise Policy* (RNP) (DECCW, 2011)
- *Lucas Heights Resource Recovery Park Project, Noise Assessment* (GHD, 2015).

4.3.1 Existing environment

Noise sensitive receivers were identified in the *Lucas Heights Resource Recovery Park Project, Noise Assessment* (NA) and are summarised in Table 4.

Table 4 Noise sensitive receivers

Receiver ID	Receiver location	Approximate distance to the LHRRP, m
R1	Engadine	2,000
R2	Barden Ridge	3,000
R3	Menai	3,300
R5	ANSTO Motel	500
R6	Gandangara	1,500
R7	Gandangara North	1,600

Background noise levels

Background noise measurements undertaken in 2008 are provided in the NA and summarised in Table 5.

Table 5 Background noise levels L_{90} dB(A)

Location	Day	Evening	Night
67 Thomas Mitchell Drive, Barden Ridge	42	38	33
22 Mountain Street, North Engadine	40	36	32
ANSTO Motel	41	38	36

Noise criteria

The project specific noise criteria, in Table 6, are based on the measured background noise levels and the INP.

Table 6 Project specific noise criteria

Receiver	Time period	Amenity criteria (acceptable noise level)[1] $L_{Aeq,period}$	Intrusive criteria, $L_{Aeq,\ 15min}$	Sleep disturbance, L_{Amax}	Project specific noise criteria
	Day	55	45	-	

Residential (R1, R3, R6, R7)	Evening	45	41	-	45 $L_{Aeq(15min)\ day}$ 41 $L_{Aeq(15min)\ evening}$ 37 $L_{Aeq(15min)\ night}$ 47 L_{Amax}
	Night	40	37	47	
Residential (R2)	Day	55	47	-	47 $L_{Aeq(15min)\ day}$ 43 $L_{Aeq(15min)\ evening}$ 38 $L_{Aeq(15min)\ night}$ 48 L_{Amax}
	Evening	45	43	-	
	Night	40	38	48	
R5 ANSTO Motel[2]	Day	65	-	-	65 $L_{Aeq(when\ in\ use)}$ 41 $L_{Aeq(15min)\ evening}$ 51 L_{Amax}
	Night	40	41	51	

Note 1: The residential receivers surrounding the site have been classified as 'suburban' with consideration to the INP 'noise amenity area' classifications.

Note 2: The ANSTO Motel is classed as a commercial receiver during the day-time period and a residential receiver during the night-time period.

4.3.2 Potential impacts

Noise modelling

Operational noise modelling to assess the potential impacts due to the change in operating hours was undertaken using Cadna-A Version 2017. Cadna-A is a computer program for the calculation, assessment and prognosis of noise exposure. Environmental noise propagation was calculated using the algorithm in *ISO 9613-2 'Acoustics – Attenuation of sound during propagation outdoors'*.

The following noise modelling parameters were made to establish site conditions:

- surrounding land was modelled assuming a mixture of hard and soft ground with a ground absorption coefficient of 0.5
- terrain topography with a one metre resolution of the site and a two metre resolution outside of the site was used to generate the site used to predict noise levels
- modelled scenarios take into account the shielding effect from surrounding buildings and structures on and adjacent to the site
- receptors were modelled at a height of 1.5 m above ground level
- atmospheric air absorption was based on an average temperature of 10ºC and an average humidity of 70%.

Operational noise sources

Details of the equipment that would be used during operation of the landfill are provided in Table 7.

Table 7 Operational landfill equipment

Item	Number	Status	Sound power level L_w, dBA
Landfill compactor	2	Existing	113
Bulldozer	2	Existing	108
Terex 40-tonne dump truck	3	Existing	106
Caterpillar 30-tonne excavator	2	Existing	107
Caterpiller 20-tonne excavator	1	Existing	110
Terex 40-tonne water cart	1	Existing	107
10-tonne water cart	1	Existing	107
Road sweeper	1	Existing	104

Caterpillar 140 grader	1	Existing	110
Roller	1	Existing	108

Operational noise impacts

Predicted noise levels for the modified operating hours for landfill operations are provided in Table 8. The modification proposes to change the operational start time from 6 am to 5 am, therefore the most stringent night-time noise criteria has been used to assess compliance.

Table 8 Predicted operational noise levels, dB(A)

Receiver ID	Criteria (Night), dBA	Predicted noise levels, dB(A) $L_{Aeq, 15min}$	Compliant with criteria ?
R1	37	27-29	Yes
R2	38	26	Yes
R3	37	23-24	Yes
R5	41	34-39	Yes
R6	37	36	Yes
R7	37	27-32	Yes

Traffic noise impacts

The additional traffic generated as a result of the modification is summarised in Table 3. The proposed modification is expected to increase traffic levels by:

- 6% during the 5:00 am to 6:00 am time period on Heathcote Road
- 3% during the 5:00 am to 6:00 am time period on New Illawarra Road.

The application notes[1] for the *Road Noise Policy* state that "*for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2 dB above that of the noise level without the development*. *This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night noise assessment criterion.*"

A significant increase in traffic volumes would be needed in order to increase road traffic noise by 2 dB(A) (a doubling in traffic corresponds to an approximate 3 dB(A) increase).

The proportion of additional traffic generated from the modification relative to existing traffic volumes is very low.

Based on the United Kingdom Department of Transport Calculation of Road Traffic Noise (CoRTN) algorithm, the increase in traffic noise emissions from the modification is not predicted to be noticeable (<0.1 dB(A)).

Therefore, the additional traffic generation from the modification is predicted to increase road traffic noise emission levels by less than 2 dB(A) and the objectives of the *Road Noise Policy* are met. Additional traffic noise mitigation measures are therefore not required.

4.3.3 Mitigation measures

Operational noise levels are predicted to comply with the most stringent night time noise criteria all sensitive receivers and no specific noise mitigation measures are recommended.

Traffic noise levels are not predicted to increase significantly as a result of the modification.

[1]http://www.environment.nsw.gov.au/noise/roadnoiseappnotes.htm 12 December 2012

4.4 Visual amenity (lighting)

4.4.1 Existing environment

The landscape surrounding the LHRRP facility is a predominantly a natural landscape defined by reasonably dense native vegetation and rugged topography. These natural landscapes are intersected by the LHRRP and the ANSTO facility, and the reasonably busy New Illawarra Road and Heathcote Road.

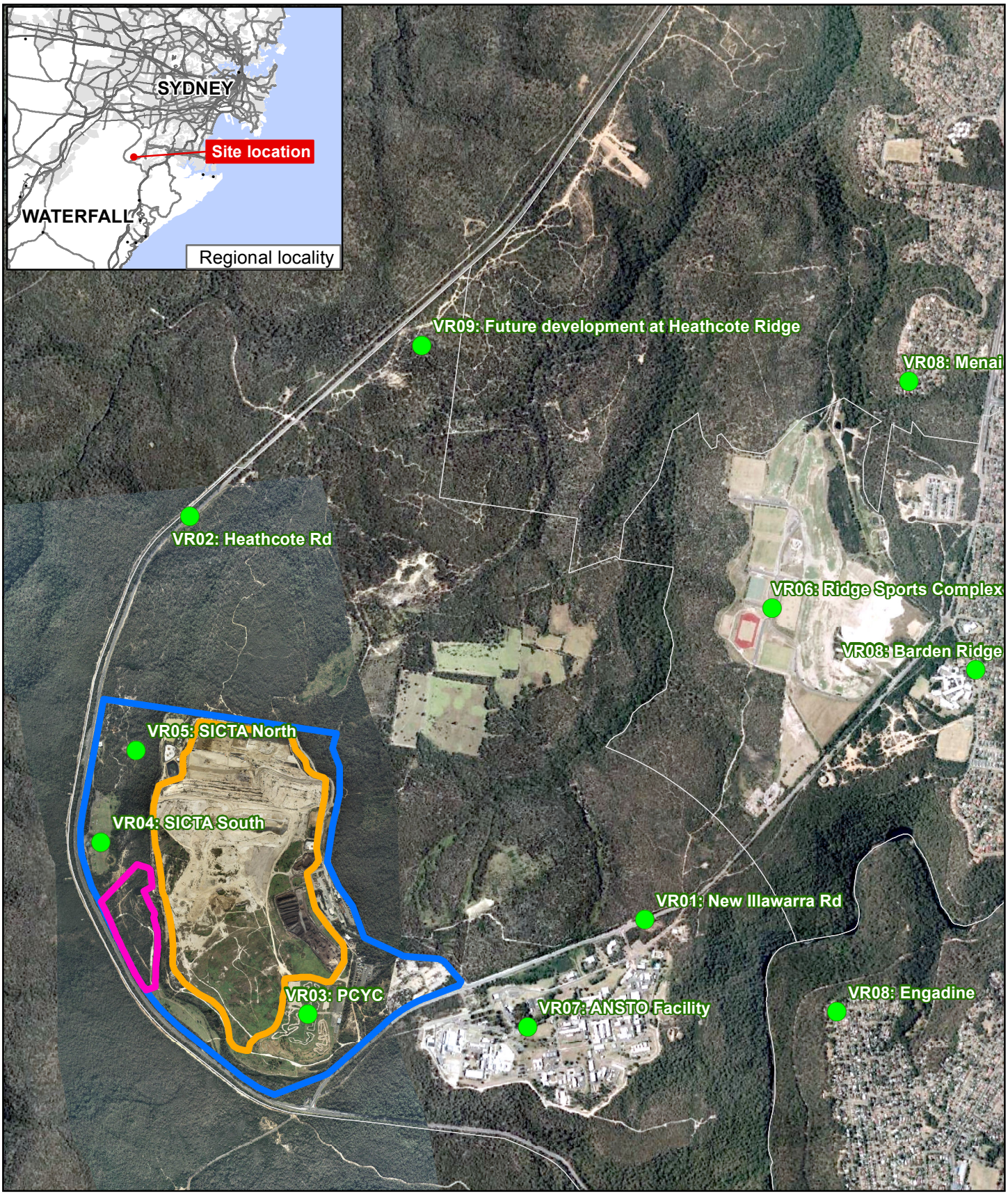
The undulating landscape provides reasonably expansive views from a number of vantage points, but access to such vantage points are limited.

Sensitive visual receptors are defined as a person and/or viewer group that would experience a potential impact. They are considered in terms of viewing locations where the proposal may be visible to residents, or areas where visitors spend extended amounts of time. Sensitive receptors include houses as well as areas from which fixed or transient views would be possible, but where the time of stay is shorter, such as roads, lookouts, or recreational areas.

Sensitive visual receptors identified in the EIS (GHD 2016) included:

- Travellers along New Illawarra Road
- Travellers along Heathcote Road
- Receptors at the PCYC
- Receptors at the southern and northern part of the SICTA Gun Club
- Receptors at the Ridge Sporting Complex
- Receptors at the ANSTO Facility
- Existing residents to the north and east of the site (Engadine, Barden Ridge and Menai)
- Future residents to the north-west of the site (Heathcote Ridge).

Figure 2 shows the locations of these visual receptors.



LEGEND

- Lucas Heights Resource Recovery Park boundary
- Proposed ARRT/GO facilities
- Landform re-profiling extents
- Visual receptors

Paper Size A4

0 250 500 1,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

SITA Australia
Lucas Heights Resource Recovery Park

Locations of visual receptor groups

Job Number	21-23482
Revision	A
Date	05 May 2015

Figure 2

15/133 Castlereagh Street Sydney NSW 2000 Australia **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com **W** www.ghd.com

N:\AU\Sydney\Projects\21\23482\GIS\Maps\MXD\21_23482_Z059_LocationsOfReceptorGroups.mxd

Aerial Imagery: Google 2015 and ESRI 2015. LHRRP Boundary: GHD, 2014. Roads/Suburbs: NSW LPMA 2012. Location Data: GEOSCIENCE AU 2014. Created by:jrichardson

4.4.2 Potential impacts

The proposed modification would not result in any change to the approved infrastructure on the site nor the proposed operations, other than to commence landfill operations two hours earlier and provide mobile lighting to ensure adequate illumination for the earlier operations.

Therefore the overall visual amenity impacts are not expected to change. However consideration has been given to the potential for visual amenity impacts from the proposed mobile lighting.

The lighting specifications and lighting types would be chosen based on what is expected to be the minimum level required for operations and safety. Directional lighting towers would be used. The chosen lighting towers are designed to minimise glare and light spill. Directional lighting towers would enable SUEZ to control the direction of illumination to ensure that light is generally directed towards the ground and not off-site and to reduce light spill.

The visual effect of the proposed lighting would be influenced by the location of the lights on site and the relative position of sensitive receptors (level and distance from light sources) as well as the presence of visual barriers such as topographic features and or vegetation.

Mobile lighting would be placed at the landfill tipping face and along the haul route to the landfill.

The site operations are unlikely to be visible for the majority of New Illawarra Road and Heathcote Road. Travellers along these roads may see limited and fleeting views of the landfill only during filling of the upper limits of the landform profile. During times of lighting operation, the potential for visibility from these roads is very limited and any views would also be fleeting.

The PCYC, SICTA Gun Club and Ridge Sporting Complex as well as ANSTO are not expected to be operational during the period when the mobile lighting is likely to be required (prior to daylight hours).

Existing residential areas are located a significant distance from the site (2.5 km or more). While at times some landfill operations may be visible from some residential areas, the distance as well as topography and vegetation would mitigate any effects. A number of mitigation measures are also proposed to further reduce any potential visual impacts (refer Section 4.4.3).

Similarly, future residential areas will be located a significant distance from the site (nearest houses approximately 2 km from the site) and topography and vegetation are expected to screen views to the majority of the site. Should there be any direct line of sight to future residential receivers, the distance would mitigate any effects. The proposed mitigation measures would also further reduce any potential visual impacts.

The proposed modification is therefore expected to have negligible visual significance at all identified visual receptors (refer Section 4.4.3).

4.4.3 Mitigation measures

The following mitigation measures are proposed to minimise the potential for visual impacts from the proposed mobile lighting:

- Application of Australian Standard AS 4282- Control of the obtrusive effects of outdoor lighting
- Placement and selection of lighting to the minimum level necessary for operations and safety
- Use of low flux lamps and directional lights directed towards the ground, where practical
- Implementation of work procedures related to the use of the mobile lights to avoid adverse off-site lighting impacts

5. Conclusions

SUEZ is seeking a modification to SSD 6835 to allow for an extension to the operation hours of the landfill to between 5 am and 5 pm Monday to Friday and 6 am and 5 pm Saturdays (with no change to Sunday landfill operation hours).

The modification would address existing and potential future queuing issues at the site entrance prior to the current commencement of landfill operation hours at 6 am.

To evaluate the impacts of the proposed modification, an assessment of noise, traffic, visual and other impacts was undertaken.

The assessment concluded the following:

- **Traffic and access**: the proposed modification is expected to help address current queuing issues and result in a neutral or slightly improved operations to the local road network
- **Noise**: operational noise levels are predicted to comply with the night-time noise criteria at all sensitive receivers. Traffic noise levels are not predicted to increase significantly as a result of the modification.
- **Visual**: the proposed modification is expected to have negligible visual significance at all identified visual receptors

Given the minor nature of the proposed modification, it is considered that the modification is consistent with the original development consent. Furthermore, as the environmental impacts from the modification are negligible, it is considered appropriate that the modification be considered under Section 96(1A) of the EP&A Act.

Appendices

Appendix A - Development consent

Development Consent

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

As delegate of the Minister for Planning under delegation executed on 14 September 2011, the Planning Assessment Commission of NSW (the Commission) approves the development application referred to in Schedule A, subject to the conditions specified in Schedules B to D.

These conditions are required to:

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

Joe Woodward PSM
Member of the Commission (Chair)

Sydney 23 January 2017

SCHEDULE A

Application No:	SSD 6835
Applicant:	SITA Australia Pty Ltd and Sutherland Shire Council
Consent Authority:	Minister for Planning
Land:	Little Forest Road, Lucas Heights Lot 101 in DP 1009354, Lot 3 in DP 1032102 and Lot 2 in DP 605077
Development:	Increase landfill capacity, relocate and expand the garden organics facility and construct and operate a new resource recovery facility

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DEFINITIONS

ANSTO	Australian Nuclear Science and Technology Organisation
ARRT Facility	Advanced Resource Recovery Technology Facility, as described in the EIS
Applicant	SITA Australia Pty Ltd and Sutherland Shire Council
BCA	Building Code of Australia
Biosolids	As defined in the EPA's *Environmental Guidelines: Use and Disposal of Biosolids Products, 2000*
CEMP	Construction Environmental Management Plan
Construction	As described in the EIS, including: • landfill re-profiling, stripping back covered areas and landfilling on top of existing waste; • construction of the GO Facility, earthworks, hardstand, internal access road, water and leachate infrastructure, waste receival and sorting areas, compost bunkers and storage areas; • construction of the ARRT Facility, earthworks, hardstand, buildings, biofilters, water infrastructure; and • Mill Creek re-alignment.
Council	Sutherland Shire Council
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Development	The development as described in the EIS and RTS, and as generally depicted in Appendix A, including increasing landfill capacity, expanding garden organics processing and constructing and operating a resource recovery facility at Little Forest Road, Lucas Heights
DPI Water	Department of Primary Industries Water
EIS	Environmental Impact Statement titled *Environmental Impact Statement – Lucas Heights Resource Recovery Park Project*, prepared by GHD dated October 2015
ENM	Excavated Natural Material
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning & Assessment Act 1979*
EP&A Regulation	*Environmental Planning & Assessment Regulation 2000*
EPL	Environment Protection Licence issued by the EPA under the *Protection of the Environment Operations Act 1997*
Evening	The period from 6 pm to 10 pm
General Solid Waste (putrescible)	As defined in the EPA's *Waste Classification Guidelines, 2014*, or its latest version, includes manure
General Solid Waste (non-putrescible)	As defined in the EPA's *Waste Classification Guidelines, 2014*, or its latest version, includes garden waste and wood waste
GO Facility	Garden Organics Facility, as described in the EIS
Feasible	Feasible relates to engineering considerations and what is practical to build
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage Item	An item as defined under the *Heritage Act 1977,* and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974*
Incident	An incident causing or threatening material harm to the environment, and/or an exceedance of the limits or performance criteria in this consent
Land	In general, the definition of land is consistent with the definition in the EP&A Act
Landfill re-profiling	Area of the landfill to be stripped of existing final cap cover and intermediate cover for the placement of further waste on top, as described in the EIS and shown on the figures in Appendix A
LHRRP	Lucas Heights Resource Recovery Park incorporating the landfill, GO and ARRT facilities, administration building, weighbridge, workshops, parking areas, gas, leachate and water management infrastructure
Management & Mitigation Measures	The Applicant's management and mitigation measures contained in the EIS and included in Appendix B
Material harm to the environment	Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning (or delegate)
Mitigation	Activities associated with reducing the impacts of the Development
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
OEMP	Operational Environmental Management Plan

Operation	As described in the EIS, includes receipt, processing and landfilling waste on the re-profiled landfill and at the GO and ARRT facilities
OU/m^3	Odour units per cubic metre, as defined in the EPA's *Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW,* November 2006
POEO Act	*Protection of the Environment Operations Act 1997*
Reasonable	Reasonable relates to the application of judgment in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
Resource Recovery Centre	Existing resource recovery centre in the eastern part of the site for receipt and processing of recyclable materials including plastics, paper, scrap metal and household rubble
RMS	Roads and Maritime Services
RTS	Response to Submissions titled *Lucas Heights Resource Recovery Park Project Response to Submissions and Preferred Project Report* prepared by SUEZ Recycling & Recovery Australia dated June 2016 and supplementary information titled *LHRRP Response to Biodiversity Offsets Review*, prepared by GHD dated 29 July 2016, *LHRRP Re: DPI Comments on the RTS Report*, prepared by GHD dated 3 August 2016 and *Response to Cronulla Model Aero Club*, prepared by SUEZ Recycling and Recovery, dated 29 July 2016
Secretary	Secretary of the Department (or nominee)
Sensitive Receivers	Residence, education institution (e.g. school, university, TAFE college), health care facility (e.g. nursing home, hospital), religious facility (e.g. church) and children's day care facility, as shown on the figure in Appendix E
Site	The land listed in Schedule A, and as depicted in Appendix A including the landfill, GO and ARRT facilities, administration building, weighbridge, workshops, parking areas, gas, leachate and water management infrastructure
Special waste	As defined in the EPA's *Waste Classification Guidelines, 2014*, or its latest version, includes asbestos waste
VENM	Virgin Excavated Natural Material
Voluntary Planning Agreement	Voluntary Planning Agreement between Council and SITA Australia Pty Ltd for the Lucas Heights Resource Recovery Park, as described in the EIS, publicly exhibited from 1 June to 29 June 2016 and referred to in the Letter of Offer dated 15 December 2016

SCHEDULE B

ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

B1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the Development.

TERMS OF CONSENT

B2. The Applicant shall carry out the Development in accordance with the:
(a) EIS and RTS;
(b) Development plans and drawings in the EIS and RTS (see Appendix A);
(c) the Management and Mitigation Measures (see Appendix B); and
(d) the draft Landfill, GO, ARRT and Post Closure Environmental Management Plans included in the EIS.

B3. If there is any inconsistency between the plans and documentation referred to in Condition B2 above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.

B4. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
(a) any reports, plans or correspondence that are submitted in accordance with this consent; and
(b) the implementation of any actions or measures contained in these documents.

LIMITS OF CONSENT

B5. This consent lapses five years after the date from which it operates, unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under Section 95 of the EP&A Act.

B6. The Applicant shall not receive more than:
(a) 850,000 tonnes of general solid waste (putrescible and non-putrescible) and asbestos waste per year on site for landfill disposal;
(b) 10,000 tonnes of general solid waste (non-putrescible) and batteries per year on site at the Resource Recovery Centre and waste collection point;
(c) 80,000 tonnes of garden and wood waste per year and 2,000 tonnes of manure at the GO Facility;
(d) 200,000 tonnes of general solid waste (putrescible and non-putrescible) per year including 10,000 tonnes of biosolids at the ARRT Facility; and
(e) the quantity of waste required to meet the final landform profile described in the EIS.

B7. The receipt, processing and disposal of waste at the landfill, GO and ARRT facilities shall cease at the end of 2037.

OTHER CONSENTS AND APPROVALS

B8. Within 6 months of the date of this consent, the Applicant shall modify DA 11-01-99 to remove the conditions of that consent that relate to the LHRRP. The modification shall be in accordance with the *Environmental Planning and Assessment Regulation, 2000.* The modification is required to ensure all activities undertaken at the LHRRP are covered by this consent only.

STATUTORY REQUIREMENTS

B9. The Applicant shall ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this

consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.

STRUCTURAL ADEQUACY

B10. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA.

Notes:

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

OPERATION OF PLANT AND EQUIPMENT

B11. The Applicant shall ensure that all plant and equipment used for the Development are:
(a) maintained in a proper and efficient condition; and
(b) operated in a proper and efficient manner.

PROTECTION OF PUBLIC INFRASTRUCTURE

B12. Prior to the commencement of construction, the Applicant shall:
(a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, kerbs, footpaths, nature trip, street trees and furniture); and
(b) submit a copy of this report to the Secretary and Council.

B13. The Applicant shall:
(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged as a result of the Development; and
(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the Development.

STAGED SUBMISSION OF PLANS OR PROGRAMS

B14. With the approval of the Secretary, the Applicant may:
(a) submit any strategy, plan or program for the landfill re-profiling, GO Facility and ARRT Facility construction and operation, required by this consent, on a progressive basis; and/or
(b) combine any strategy, plan or program required by this consent.

DISPUTE RESOLUTION

B15. In the event that a dispute arises between the Applicant and either Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.

Note: This condition does not relate to disputes raised regarding matters in the Voluntary Planning Agreement required under Condition B19.

COMPLIANCE

B16. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.

B17. The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.

EVIDENCE OF CONSULTATION

B18. Where consultation with any public authority or community group is required by the conditions of this consent, the Applicant shall:

(a) consult with the relevant public authority or community group prior to submitting the required documentation to the Secretary for approval, where required;
(b) submit evidence of this consultation as part of the relevant documentation required by the conditions of this consent; and
(c) include the details of any outstanding issues raised by the relevant public authority or community group and an explanation of or agreement between any public authority or community group and the Applicant or any person acting on this Development consent.

PLANNING AGREEMENT

B19. Prior to the commencement of construction and prior to receiving increased tonnes of waste in accordance with Condition B6(a), the Applicant shall enter into the Voluntary Planning Agreement with Council in accordance with the Letter of Offer dated 15 December 2016.

SCHEDULE C

SPECIFIC ENVIRONMENTAL CONDITIONS

WASTE

Receipt, Storage & Handling of Waste

C1. The Applicant shall only receive waste on site that is authorised for receipt by an EPL.

C2. The Applicant shall ensure any waste generated on the site during construction is classified in accordance with the EPA's *Waste Classification Guidelines, 2014* or its latest version, and disposed of to a facility that may lawfully accept the waste.

C3. The Applicant shall:
- (a) implement auditable procedures to:
  - i. ensure the site does not accept wastes that are prohibited;
  - ii. screen incoming waste loads; and
- (b) ensure that:
  - i. all waste types that are controlled under a tracking system have the appropriate documentation prior to acceptance at the site; and
  - ii. staff receive adequate training in order to be able to recognise and handle any hazardous or other prohibited waste.

Monitoring

C4. The Applicant shall provide details of the quantity, type and source of wastes received on the site and provide these details to the EPA and the Secretary when requested.

Landfill Operations

C5. To minimise the potential for odour generation, the Applicant shall, unless otherwise agreed in writing by the EPA:
- (a) ensure a maximum of 1 hectare of existing intermediate cover or 2 hectares of existing final capped cover may be stripped in advance of landfilling to form the prepared surface. The prepared surface must have a minimum depth of 300 millimetres;
- (b) at any one time a maximum of 2,500 metres squared of the prepared surface may be stripped back to expose previously landfilled waste to form the active tip face; and
- (c) the landfill gas field infrastructure must be retained and operating at all times, with the exception of the stripped back prepared surface.

Imported Soil

C6. The Applicant shall:
- (a) ensure that only VENM or ENM or other material approved in writing by the EPA is used as fill on the site;
- (b) keep accurate records of the volume and type of fill to be used; and
- (c) make these records available to the Secretary upon request.

C7. During construction, the Applicant shall ensure any material brought on site for use as fill meets the requirements of the relevant Resource Recovery Order and Exemption issued under the *Protection of the Environment Operations (Waste) Regulation 2014*, to apply that material to land. The Applicant shall retain records of all material brought on site for filling purposes and provide the records to the EPA and the Secretary when requested.

ODOUR & AIR QUALITY

Limits

C8. The Applicant shall ensure the Development does not cause or permit the emission of any offensive odour, as defined in the POEO Act.

C9. The Applicant shall:

(a) operate and maintain all facilities within the site in a condition which controls the emission of dust; and
(b) carry out all reasonable and feasible measures to minimise dust from the site.

Meteorological Monitoring

C10. The Applicant shall install, operate and maintain a meteorological weather station on the site that complies with the requirements of an EPL for the site.

Site Air Quality and Odour Management Plan

C11. The Applicant shall prepare a Site Air Quality and Odour Management Plan. The plan shall:

(a) be prepared by a suitably qualified and experienced person in consultation with the EPA and Council;
(b) be submitted to the Secretary prior to the commencement of construction;
(c) list all emission sources across the LHRRP and key performance indicators for each emission type;
(d) describe odour and dust monitoring methods, location, frequency and duration;
(e) show the locations of real-time dust monitors on and off-site with appropriate trigger values;
(f) report on the performance of the site against the key performance indicators for each emission type;
(g) detail proactive mitigation measures for the control of dust and odour impacts;
(h) detail the contingency measures to be implemented to respond to complaints or if dust or odour impacts are identified; and
(i) include record keeping, a complaints register and compliance reporting.

Landfill

C12. The Applicant shall conduct an odour audit of the landfill to validate the odour reductions described in the EIS have been achieved at the existing landfill. The odour audit shall:

(a) be prepared by a suitably qualified and experienced person in consultation with the EPA and Council;
(b) be submitted to the EPA, Council and the Secretary at least one month prior to the commencement of landfill re-profiling;
(c) include collection and analysis of odour samples in accordance with the EPA's *Approved Methods for Sampling and Analysis of Air Pollutants in NSW*; and
(d) identify mitigation measures with a timeline for implementation, where the odour reductions identified in the EIS are not being achieved.

GO Facility

C13. All organic material and waste shall be stored at the GO Facility in accordance with the requirements of an EPL for the site, including limits on the height of stockpiles and use of breathable membrane covers on compost bunkers.

C14. The Applicant shall conduct an odour audit of the GO Facility to validate the odour data used in the EIS. The odour audit shall:

(a) be prepared by a suitably qualified and experienced person in consultation with the EPA and Council;
(b) be submitted to the EPA, Council and the Secretary within 6 months of commencement of operation of the GO Facility as described in the EIS;
(c) include collection and analysis of odour samples in accordance with the EPA's *Approved Methods for Sampling and Analysis of Air Pollutants in NSW*;
(d) validate the efficiencies of the odour controls, specifically the covers used for the active composting stage;
(e) validate the odour data for freshly turned material;

(f) demonstrate that the final design achieves an equivalent or better performance than stated in the EIS, supported by dispersion modelling in accordance with EPA's *Approved Methods for Sampling and Analysis of Air Pollutants in NSW*, if required; and
(g) identify additional mitigation measures with a timeline for implementation, where odour performance significantly differs from the predictions in the EIS.

ARRT Facility

Biofilter and Pre-Treatment System

C15. The Applicant shall appoint an appropriately qualified and experienced person to design the ARRT Facility, biofilter and pre-treatment and post-treatment systems. The biofilter, pre-treatment and post-treatment systems shall be designed and constructed to:

(a) achieve the point source discharge parameters detailed in the EIS, as a minimum; and
(b) achieve a maximum odour emission concentration of 250 OU/m^3 at discharge. If 250 OU/m^3 cannot be achieved, the Applicant shall implement the pre-treatment and post-treatment systems, in accordance with the requirements of the EPA and in a timeframe approved by the Secretary.

Pre-Operation

C16. Prior to the commencement of operation of the ARRT Facility, the Applicant shall:

(a) provide written evidence to the EPA and the Secretary, from an independent odour expert to verify the final design parameters and actual stack parameters for the pre-treatment system and biofilter;
(b) prepare an odour verification report for the pre-treatment, biofilter and post-treatment system, prepared by an independent odour expert, to verify:
    a. the systems are fully commissioned prior to operation of the ARRT Facility; and
    b. approve the odour control system and the odour management plan required under Condition C17.

Air Quality and Odour Management Plan

C17. The Applicant shall prepare an Air Quality and Odour Management Plan for the ARRT Facility. The plan shall:

(a) be prepared by an independent odour expert in consultation with the EPA and Council;
(b) be submitted to the EPA, Council and the Secretary prior to the commencement of operation of the ARRT Facility;
(c) include an odour management strategy containing:
    i. objectives and targets;
    ii. odour risk assessment;
    iii. biofilter and pre-treatment monitoring and maintenance plan;
    iv. air quality monitoring plan;
    v. communications strategy; and
    vi. system and performance review for continuous improvement.

Biofilter and Pre-Treatment Monitoring and Maintenance Plan

C18. The Applicant shall prepare a Biofilter and Pre-Treatment Monitoring and Maintenance Plan as required under Condition C17. The plan shall:

(a) be prepared by an independent odour expert endorsed by the Secretary;
(b) be prepared in consultation with the EPA and Council;
(c) be submitted to the EPA, Council and the Secretary prior to the commencement of operation of the ARRT Facility;
(d) include a method for monitoring biofilter and pre-treatment performance that identifies biofilter and pre-treatment performance indicators that can be monitored via the process control room computer systems;

(e) detail all proposed actions to ensure the biofilter and pre-treatment system is maintained for operation in a proper and efficient manner including, but not limited to, frequency of replacement/replenishment of filter bed material; and
(f) identify mitigation actions to be taken in the event of breakdown and/or servicing of the biofilter and/or pre-treatment system.

Operating Conditions

C19. All waste receivable, processing, storage and dispatch associated with the ARRT Facility must be completely enclosed within sealed buildings that are operated under negative pressure.

C20. The Applicant shall ensure all air captured through the ARRT Facility buildings are treated through a biofilter and approved pre-treatment system prior to discharge to atmosphere.

Odour Audit

C21. The Applicant shall conduct an odour audit of the ARRT Facility to validate the odour data used in the EIS. The odour audit shall:

(a) be prepared by an independent odour expert in consultation with the EPA and Council;
(b) be submitted to the EPA, Council and the Secretary within 6 weeks of commencement of operation of the ARRT Facility and again after 6 months of operation;
(c) include collection and analysis of odour samples in accordance with the EPA's *Approved Methods for Sampling and Analysis of Air Pollutants in NSW*;
(d) validate the efficiencies of the odour controls, including the biofilter(s) and pre-treatment system;
(e) demonstrate the final design achieves an equivalent or better performance than stated in the EIS, supported by dispersion modelling in accordance with EPA's *Approved Methods for Sampling and Analysis of Air Pollutants in NSW*, if required; and
(f) identify additional mitigation measures with a timeline for implementation, where odour performance significantly differs from the predictions in the EIS.

GREENHOUSE GAS

C22. The Applicant shall implement all reasonable and feasible measures to minimise energy use on site and greenhouse gas emissions produced on site.

LEACHATE

Landfill – Dual Gas and Leachate Trench

C23. The Applicant shall design and install a dual gas and leachate management trench near the perimeter of the re-profiled landfill to intercept sideways movement of leachate. The trench shall:

(a) be designed in accordance with the requirements of the EPA;
(b) be approved by the EPA, prior to construction of the trench and landfill re-profiling;
(c) include extraction risers along the length of the trench to allow extraction and transfer of leachate to the existing ring main; and
(d) be installed in accordance with a CEMP, prepared by a suitably qualified person and submitted to the EPA at least one month prior to construction of the trench.

Landfill Gas Infrastructure

C24. The Applicant shall maintain and operate the landfill gas infrastructure on the site, at all times. The Applicant shall retain and operate the gas collection system within the prepared surface (stripped back cover) as much as practicable.

Operating Conditions

C25. Accumulated sludge and sediment formed during leachate storage at the site shall be disposed of to a special waste area at the LHRRP, separate from the active tip face.

C26. The Applicant shall manage all water that comes into contact with waste at the GO Facility as leachate. Leachate generated at the GO Facility may only be reused in the composting process on site or disposed to sewer in accordance with a Trade Waste Agreement or as otherwise agreed in writing with the EPA.

C27. All leachate generated at the ARRT Facility must be stored indoors or in enclosed tanks and used in the ARRT composting process or transferred for disposal to a Facility lawfully permitted to receive it.

Leachate Monitoring

C28. The Applicant shall routinely monitor leachate volumes from all sources and re-calibrate the leachate model included in the EIS, to ensure adequate storage, treatment and disposal capacity is maintained at all times. The Applicant shall report the results of on-going monitoring and model calibration every year in the Annual Review required under Condition D7.

C29. The Applicant shall implement any recommended measures identified by leachate model calibrations to maintain adequate storage, treatment and disposal capacity for the LHRRP at all times.

SURFACE WATER & GROUNDWATER

Discharge Limits

C30. The Development shall comply with Section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.

GO Facility

C31. The Applicant shall ensure excess water collected in the leachate dams at the GO Facility during high rainfall periods is transported off-site and disposed of lawfully or discharged to sewer in accordance with a Trade Waste Agreement.

C32. The Applicant shall prepare and submit a detailed design for managing surface water from roofs and breathable membrane covers at the GO Facility. The design shall:

(a) be approved by the EPA prior to the commencement of operation of the GO Facility;
(b) demonstrate that surface water runoff from the roof and breathable membrane covers does not come into contact with waste; and
(c) describe a program for on-going monitoring of the water quality discharged from the GO Facility to Mill Creek.

Mill Creek

C33. The Applicant shall prepare an Aquatic Habitat Monitoring Plan to monitor the stream health of Mill Creek within the site. The plan shall:

(a) be prepared by a suitably qualified and experienced person in consultation with DPI Water;
(b) be submitted to the Secretary prior to construction of the GO Facility and updated and re-submitted to the Secretary prior to construction of the ARRT Facility;
(c) describe the monitoring locations, frequency and parameters to be measured; and
(d) detail the measures to be implemented if monitoring indicates the habitat quality of Mill Creek is decreasing as a result of activities on the site.

C34. The Applicant shall prepare a Mill Creek Stream Rehabilitation, Stabilisation and Vegetation Management Plan. The plan shall:

(a) be prepared by a suitably qualified and experienced person in consultation with DPI Water;
(b) be submitted to the Secretary prior to construction of the GO and ARRT facilities;
(c) be prepared in accordance with DPI Water *Guidelines for Controlled Activities on Waterfront Land;*

(d) detail proposed stream realignment works including details of the measures to minimise water quality impacts;
(e) detail the proposed rehabilitation and stabilisation of the stream including methods and staging of works;
(f) detail opportunities to maximise the width of riparian zones, particularly in the final landform design, and detail the vegetation types, maintenance, monitoring and performance criteria for the rehabilitation works; and
(g) be updated to include any changes to the rehabilitation objectives and staging approved in the Post Closure Plan for the site, required under Condition C40.

Groundwater Management Plan

C35. The Applicant shall prepare a Groundwater Management Plan for the site. The plan must:
(a) be prepared by a suitably qualified and experienced person, in consultation with the EPA and DPI Water;
(b) be submitted to the Secretary, prior to the commencement of construction;
(c) detail the groundwater monitoring network including location and frequency of monitoring, the parameters for testing, relevant criteria and trigger levels for action;
(d) include a protocol for investigation, notification and mitigation of any exceedances of the identified trigger levels; and
(e) describe the measures that could be implemented to respond to identified groundwater contamination.

Groundwater Monitoring

C36. The Applicant shall re-establish historic groundwater monitoring bores (BH24, BH31, MB021 and MB022) to improve detection of leachate in groundwater systems to the north of the site. The Applicant shall monitor groundwater from these bores in accordance with the requirements of an EPL for the site and the groundwater management plan required under Condition C35.

Bunding

C37. The Applicant shall store all chemicals, fuels and oils used on the site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Handbook.*

FINAL LANDFORM, REHABILITATION & CLOSURE

Final Landform

C38. The Applicant shall rehabilitate the site to achieve the final landform shown in Appendix C, in accordance with the criteria in the EPA's *Environmental Guidelines: Solid Waste Landfills*, *2016*, or its latest version.

C39. The Applicant shall ensure the height of the final landform does not exceed 179.9 metres Australian Height Datum (AHD) post-settlement of the waste mass and final capping, as described in the EIS.

Post-Closure Plan

C40. The Applicant shall amend the draft Post-Closure Plan for the site, to the satisfaction of the Secretary. The plan shall:

(a) be prepared by a suitably qualified and experienced person;
(b) be submitted to the EPA and the Secretary 12 months prior to the planned closure of the landfill, GO and ARRT Facilities on the site;
(c) be approved by the EPA, Council, ANSTO and the Secretary, prior to commencement of the final phase of landfill capping and rehabilitation works;
(d) detail the requirements for on-going management of the capped waste mass;
(e) describe monitoring and management measures to ensure integrity of the cap;
(f) describe on-going leachate and surface water management, odour and dust control;

(g) detail landfill gas monitoring and maintenance;
(h) identify future land uses on the site, developed in consultation with Council, ANSTO, the Cronulla Model Aero Club and local recreational and sporting groups;
(i) include a rehabilitation management plan, including, but not limited to:
    i. rehabilitation works as generally depicted in Appendix C;
    ii. criteria for evaluating the effectiveness of the rehabilitation;
    iii. a program and schedule to monitor the effectiveness of the rehabilitation;
    iv. a program and schedule for routine maintenance of the rehabilitation;
    v. any remedial actions necessary to ensure the success of the rehabilitation;
    vi. a weed management plan; and
(j) incorporate the post closure requirements detailed in the VPA.

VISUAL AMENITY

C41. The Applicant shall undertake screen planting as shown on the plan in Appendix D to minimise the visual impacts of the Development. The planting shall be completed by January 2025, subject to agreement with ANSTO for works on ANSTO's land. Evidence of implementation of the planting shall be provided to the satisfaction of the Secretary, within one month of completing the planting.

C42. The Applicant shall progressively hydro-mulch and grass completed landfill areas to minimise the visual impacts of the Development.

BIODIVERSITY

Construction

C43. The Applicant shall prepare a Vegetation and Fauna Management Plan to minimise impacts on biodiversity during construction of the GO and ARRT facilities, to the satisfaction of the Secretary. The plan shall:

(a) be prepared by a suitably qualified and experienced ecologist;
(b) be submitted to the Secretary, prior to the commencement of construction of the GO and/or ARRT Facility, whichever is sooner;
(c) include a vegetation clearing protocol and pre-clearance surveys;
(d) detail specific procedures for protecting native vegetation, including the *Coastal Upland Swamp*, and fauna adjacent to construction areas, including the access track near the GO Facility, the sediment pond north of the ARRT Facility and the verge adjacent to Heathcote Road;
(e) detail erosion and sediment controls and weed management procedures; and
(f) include procedures for seed collection and translocation of key species, including *Allocasuarina diminuta subsp. Mimica* and *Acacia bynoeana.*

C44. The Applicant shall appoint a qualified and experienced ecologist to be present on site during native vegetation clearing for construction of the GO and ARRT facilities and realignment of Mill Creek.

Biodiversity Offset Strategy

C45. The Applicant shall purchase and retire the ecosystem and species credits listed in Table 1, in accordance with OEH's *Frameworks for Biodiversity Assessment 2014* and the *NSW Biodiversity Offsets Policy for Major Projects 2014,* to the satisfaction of the Secretary. The credits shall be purchased and retired prior to construction of the relevant facility listed in Table 1.

Table 1: *Biodiversity Offset Strategy*

Facility	No. of Credits	Offset Type
GO Facility	185 ecosystem	Red Bloodwood – Scribbly Gum heathy woodland on sandstone plateaux
	97 species	Eastern Pygmy-possum
ARRT Facility	143 ecosystem	Red Bloodwood – Scribbly Gum heathy woodland on sandstone plateaux
	88 species	Eastern Pygmy-possum
	5154 species	*Allocasuarina diminuta subsp. mimica*

Note: The areas referred to in Table 1 are shown on the figures in Appendix A.

C46. The Applicant shall not commence construction of a facility listed in Table 1, until the Biodiversity Offset Strategy for that facility has been implemented, to the satisfaction of the Secretary.

C47. The Applicant shall ensure the biodiversity offsets are secured by a conservation mechanism, which protects and manages the land in perpetuity, to the satisfaction of the Secretary.

TRANSPORT AND ACCESS

Construction Traffic Management Plan

C48. The Applicant shall prepare a Construction Traffic Management Plan for construction of the GO and ARRT facilities. The plan shall:

(a) be prepared by a suitably qualified and experienced expert, in consultation with Council and RMS;
(b) be submitted to the Secretary, prior to the commencement of construction of the GO and/or ARRT Facility;
(c) detail the measures to be implemented to ensure road safety and network efficiency during construction;
(d) detail heavy vehicle routes, access and parking arrangements;
(e) include a Driver Code of Conduct to:
- minimise the impacts of construction works on the local and regional road network;
- minimise conflicts with other road users;
- ensure truck drivers use specified routes;

(f) include a program to monitor the effectiveness of these measures; and
(g) if necessary, detail procedures for notifying residents and the community, of any potential disruptions to routes.

Intersection Safety Review

C49. The Applicant shall conduct a safety review of the Little Forest Road and New Illawarra Road intersection in the years 2020 and 2025 to ensure the on-going safe and efficient performance of the intersection. The safety reviews shall be prepared to the satisfaction of the Secretary and shall:

(a) be prepared by an independent traffic expert;
(b) be undertaken in consultation with Council and RMS and in accordance with relevant guidelines;
(c) be approved by the Secretary and RMS, by the end of 2020 and 2025;
(d) analyse vehicle movements and delays during peak periods;
(e) establish intersection performance and the need for any intersection upgrade works; and
(f) include a program for implementation of intersection upgrade works, if required.

C50. The Applicant shall implement the recommendations of the safety reviews, including any required intersection upgrades, to the satisfaction of the Secretary and RMS. The timing and payment for implementation of any required intersection upgrades shall be agreed with the Secretary and RMS.

Operating Conditions

C51. The Applicant shall ensure:
(a) all staff vehicles, plant and equipment are parked on site and do not park on the public road network;
(b) all loading and unloading of materials is carried out on site;
(c) all trucks entering or leaving the site with loads have their loads covered;
(d) vehicles do not track dirt onto the public road network; and
(e) heavy vehicles use designated routes to minimise impacts on the local and regional road network.

Parking

C52. The Applicant shall provide sufficient parking facilities for site personnel and heavy vehicles on the site, to ensure traffic associated with the site does not utilise public and residential streets or public parking facilities.

NOISE

Hours of Work

C53. The Applicant shall comply with the hours detailed in Table 2, unless otherwise agreed in writing by the EPA or the Secretary.

***Table 2**: Hours of Work*

Facility	Activity	Day	Time
Landfill	Construction	Monday – Friday Saturday - Sunday	7 am - 5 pm 8 am - 5 pm
	Operation	Monday – Friday Saturday - Sunday	6 am - 5 pm 8 am - 5 pm
	Other operations[1]	Monday – Sunday	Anytime
GO Facility	Construction	Monday – Friday Saturday - Sunday	7 am - 5 pm 8 am - 5 pm
	Operation	Monday – Friday Saturday - Sunday	6 am – 5 pm 8 am – 5 pm
	Other operations[2]	Monday – Sunday	Anytime
ARRT Facility	Construction	Monday – Friday Saturday - Sunday	7 am - 5 pm 8 am - 5 pm
	Operation	Monday – Sunday	Anytime

Notes:
[1] Other landfilling operations includes only security guard control, machinery maintenance and/or repairs, site infrastructure maintenance and/or repairs (landfill gas and leachate), and emergency management activities related to site safety, emergency repairs and site infrastructure repairs
[2] Other GO operations includes only repair works, machinery maintenance and repairs, loading bunkers, final product preparation manufacture (but does not include shredding) and emergency management activities related to site safety, emergency repairs and site infrastructure repairs. Unloading bunkers is only permitted between the hours of operations listed under 'GO Facility - Operation' in Table 2.

Operational Noise Limits

C54. The Applicant shall ensure noise from the site does not exceed the noise limits in Table 3.

***Table 3**: Noise Limits dB(A)*

No.	Location	Day	Evening	Night	Night
		$L_{eq(15min)}$	$L_{eq(15min)}$	$L_{eq(15min)}$	$L_{1(1min)}$
R1	Engadine	35	35	35	45
R2	Barden Ridge	35	35	35	45
R3	Menai	35	35	35	45
R6	Gandangara	37	37	37	45
R7	Gandangara North	35	35	35	45

Note:

- *To identify a noise receiver location, refer to the figure in Appendix E.*
- *Noise generated on the site is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the EPA's NSW Industrial Noise Policy.*

Noise Management

C55. The Applicant shall implement the noise management measures described in the OEMPs for the LHRRP, GO and ARRT facilities to ensure noise from the site complies with the limits in Table 3.

Noise Monitoring

C56. The Applicant shall monitor noise from the site to demonstrate compliance with the noise limits in Table 3. The monitoring shall be:

(a) undertaken annually, or to address genuine noise complaints that are related to the site as determined by the EPA or the Secretary;
(b) in accordance with the *NSW Industrial Noise Policy*; and
(c) reported to the EPA and the Secretary within one month of completing the monitoring, including details of management actions taken and the effectiveness of the actions to address any exceedances of the limits in Table 3.

LITTER & PEST CONTROL

C57. The Applicant shall:

(a) ensure all waste loads are covered;
(b) inspect and clear the site (and if necessary, surrounding area) of litter arising from the Development on a daily basis; and
(c) maintain the site in a clean and tidy state at all times.

C58. The Applicant shall:

(a) implement measures to manage pests, vermin and declared noxious weeds on site; and
(b) inspect the site routinely to ensure the measures are effective, and pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area.

Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.

HERITAGE

Unexpected Finds Protocol

C59. If Aboriginal objects are uncovered during construction, work in the immediate area must stop and the Regional Operations Group of the OEH, Council and the Registered Aboriginal Parties are to be consulted.

C60. If any archaeological relics are uncovered during the course of the work, then all works shall cease immediately in that area and the OEH Heritage Branch contacted. Depending on the possible

significance of the relics, an archaeological assessment and an excavation permit under the *NSW Heritage Act 1977* may be required before further works can continue in that area.

Site Impact Recording

C61. Within one month of the date of this consent, the Applicant shall submit Site Impact Recording Forms to OEH for the four previously impacted Aboriginal heritage sites, AHIMS 52-2-1108, 52-2-1029, 52-2-1030 and 52-2-1031, as described in the EIS.

FIRE PREVENTION & MANAGEMENT

C62. The Applicant shall:

(a) design and construct the GO and ARRT Facility buildings to meet the fire safety requirements of the BCA; and
(b) maintain a 10 metre wide Asset Protection Zone around the northern and western sides of the GO and ARRT Facility buildings.

C63. The Applicant shall prepare an Emergency Response Plan for the site detailing procedures to be implemented in the event of a fire on or near the site. The Emergency Response Plan shall:

(a) be prepared by a suitably qualified and experienced expert in consultation with Council and the NSW Rural Fire Service;
(b) be submitted to the Secretary within three months of the date of this consent, or an alternative timing as otherwise agreed with the Secretary; and
(c) detail emergency access and egress routes, including an alternative access route, escape routes, refuge areas, assembly points and evacuation procedures.

SCHEDULE D

ENVIRONMENTAL MANAGEMENT, REPORTING, AUDITING AND COMMUNITY ENGAGEMENT

ENVIRONMENTAL MANAGEMENT

Construction Environmental Management Plan

D1. The Applicant shall prepare a Construction Environmental Management Plan (CEMP) for the Development, to the satisfaction of the Secretary. The Plan must:
- (a) be prepared in consultation with Council and be approved by the Secretary prior to construction of the Development;
- (b) identify the statutory approvals that apply to the site;
- (c) outline all environmental management practices and procedures to be followed during construction;
- (d) describe all activities to be undertaken on the site during construction, including a clear indication of construction stages;
- (e) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
- (f) describe the roles and responsibilities for all relevant employees involved in construction works; and
- (g) include the management plans under Condition D2 of this consent.

D2. As part of the CEMP for the Development, required under Condition D1 of this consent, the Applicant shall include the following:
- (a) a construction management plan for the dual gas and leachate trench prepared in consultation with EPA (Condition C23);
- (b) an erosion and sediment control plan;
- (c) a vegetation and fauna management plan (Condition C43); and
- (d) a construction traffic management plan (Condition C48).

D3. The Applicant shall carry out construction of the Development in accordance with the CEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

Operational Environmental Management Plan

D4. The Applicant shall amend the draft Operational Environmental Management Plan (OEMP) for the Landfill, GO and ARRT Facilities, to the satisfaction of the Secretary. The Plans must:
- (a) be prepared in consultation with Council and be approved by the Secretary prior to operation of the Development;
- (b) identify the statutory approvals that apply to the site;
- (c) outline all environmental management practices and procedures to be followed during operation;
- (d) detail how the environmental performance of the Development will be monitored, and what actions will be taken to address identified adverse environmental impacts; and
- (e) include the management plans under Condition D5 of this consent.

D5. As part of the OEMP's for the Development, required under Condition D4 of this consent, the Applicant shall include the following:
- (a) site air quality and odour management plan (Condition C11);
- (b) ARRT Facility air quality and odour management plan (Condition C17);
- (c) biofilter and pre-treatment monitoring and maintenance plan (Condition C18);
- (d) aquatic habitat monitoring plan (Condition C33);
- (e) Mill Creek stream rehabilitation, stabilisation and vegetation management plan (Condition C34);
- (f) groundwater management plan (Condition C35); and
- (g) emergency response plan (Condition C63).

D6. The Applicant shall operate the Development in accordance with the OEMP's approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

Management Plan Requirements

D7. The Applicant shall ensure the Management Plans required under this consent are prepared in accordance with any relevant guidelines, and include:

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

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Revisions to Strategies, Plans and Programs

D8. Within three months of:

(a) an audit submitted under Condition D12;
(b) an incident report under Conditions D10 and D11;
(c) an annual review under Condition D9; and/or
(d) a modification to this consent,

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

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

REPORTING

Annual Review

D9. By the end of December each year, and annually thereafter, the Applicant shall review the environmental performance of the site, to the satisfaction of the Secretary. This review must:

(a) be submitted to the Secretary by the end of February each year;
(b) describe the operations that were carried out in the past year;
(c) analyse the monitoring results and complaints records of the site over the past year, including a comparison of these results against the:
    i. relevant statutory requirements, limits or performance measures/criteria;
    ii. monitoring results of previous years;
    iii. predictions in the EIS;

(d) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
(e) identify any trends in the monitoring data;
(f) identify any discrepancies between the impacts predicted in the EIS and the actual impacts of the site and analyse the potential cause of any significant discrepancies; and
(g) describe what measure will be implemented over the next year to improve the environmental performance of the site.

Incident Reporting

D10. Upon detecting an exceedance of the limits/performance criteria in this consent or the occurrence of an incident that causes (or may cause) material harm to the environment, the Applicant shall immediately (or as soon as practical thereafter) notify the Secretary and any other relevant agencies of the exceedance/incident.

D11. Within seven days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

INDEPENDENT ENVIRONMENTAL AUDIT

D12. Within one year of the date of this consent, and every three years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the site. The audit must:
(a) be carried out by a suitably qualified, experienced and independent audit team whose appointment has been endorsed by the Secretary;
(b) assess the environmental performance of the site, and its effects on the surrounding environment;
(c) determine whether the site is complying with the relevant standards, performance measures and statutory requirements;
(d) review the adequacy of the Environmental Management Plans for the site, compliance with this consent, and any other licences and consents; and, if necessary;
(e) recommend measures or actions to improve the environmental performance of the site, and/or any plan/program required under this consent.

D13. Within three months of commissioning the audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary with a response to all recommendations contained in the audit report.

COMMUNITY ENGAGEMENT

Community Reference Group

D14. The Applicant shall establish and maintain a Community Reference Group (CRG) to maintain regular communication with the local community regarding activities on the site, any environmental impacts, monitoring results and management actions. The CRG shall include representatives from the local community, recreational and sporting clubs, ANSTO, Council and the Applicant. The CRG shall meet on a quarterly basis.

Access To Information

D15. The Applicant shall make the following information publicly available on its website and keep the information up to date.
(a) the EIS, RTS, CEMP and OEMPs;
(b) current statutory consents, approvals and licences for the site;
(c) approved strategies, plans and programs;
(d) a summary of all monitoring data for the site as required under this consent;
(e) a complaints register, updated on an annual basis;
(f) Annual Reviews, Independent Environmental Audits and the Applicant's response to the recommendations; and

(g) any other matter required by the Secretary.

Note: This requirement does not require any confidential information to be made available to the public.

APPENDIX A
DEVELOPMENT PLANS

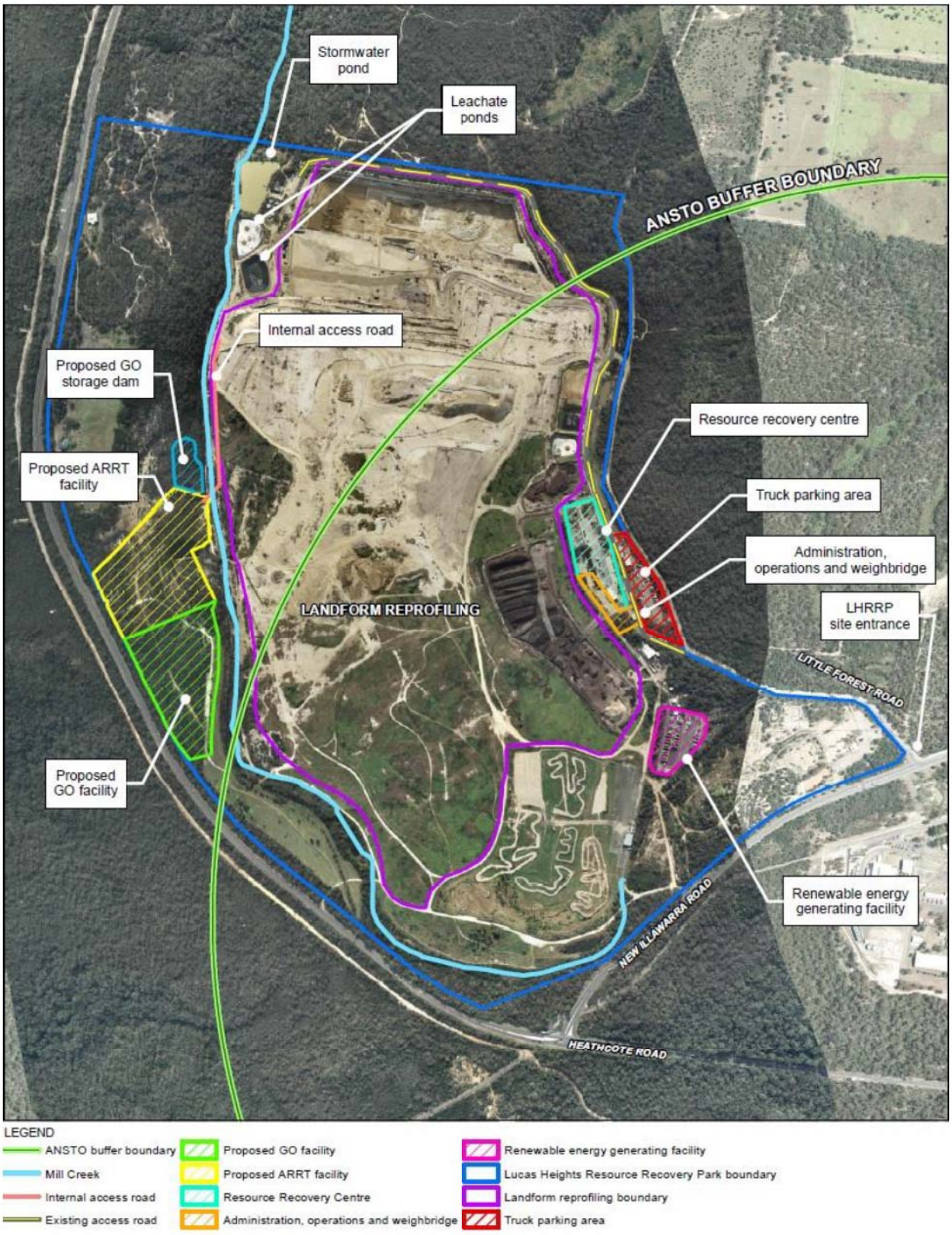

Figure 1: *Key Infrastructure*

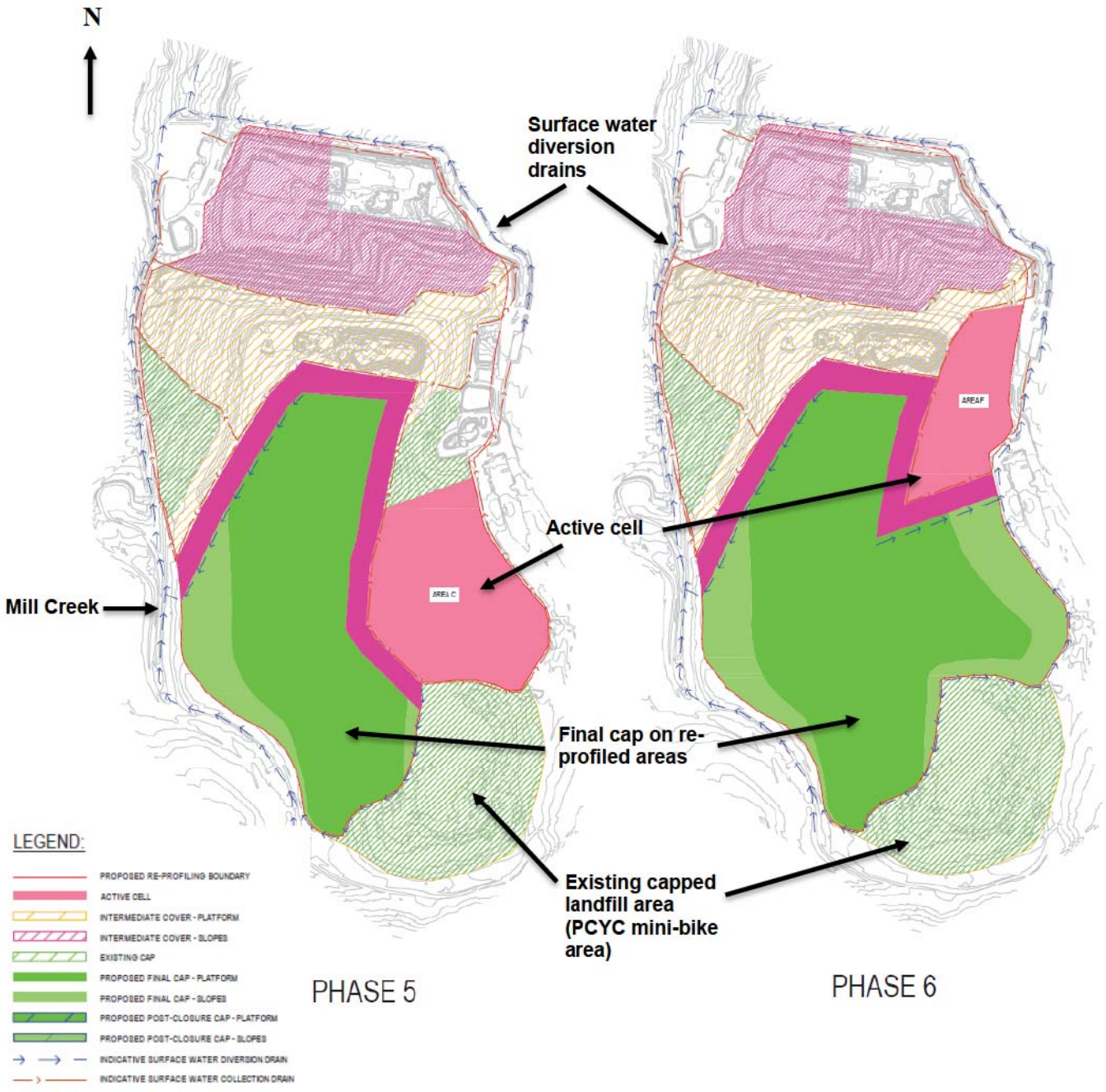

Figure 2: *Re-Profiling of Existing Landfill (shows landfilling on top of already capped areas)*

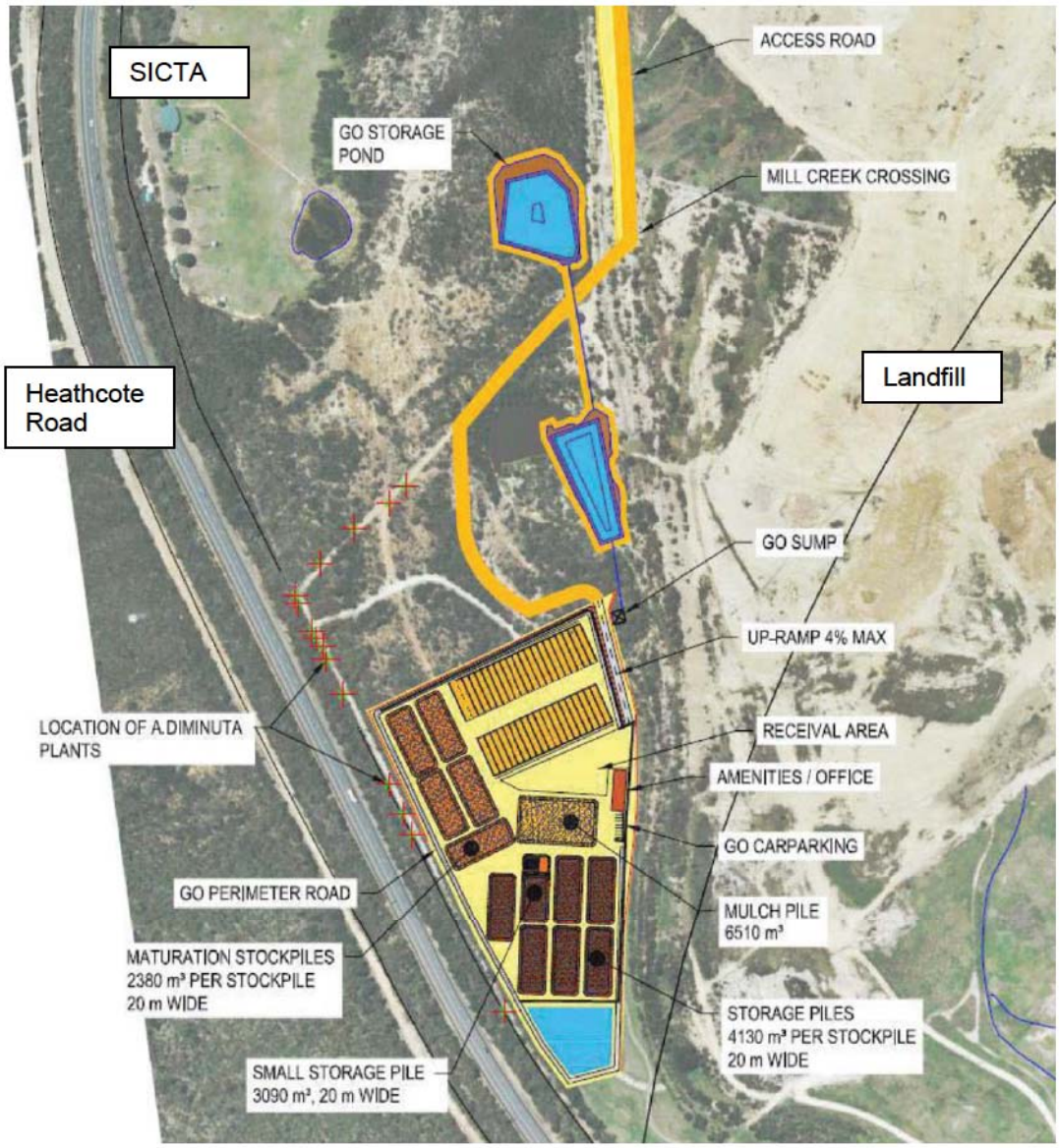

Figure 3: *Garden Organics Facility*

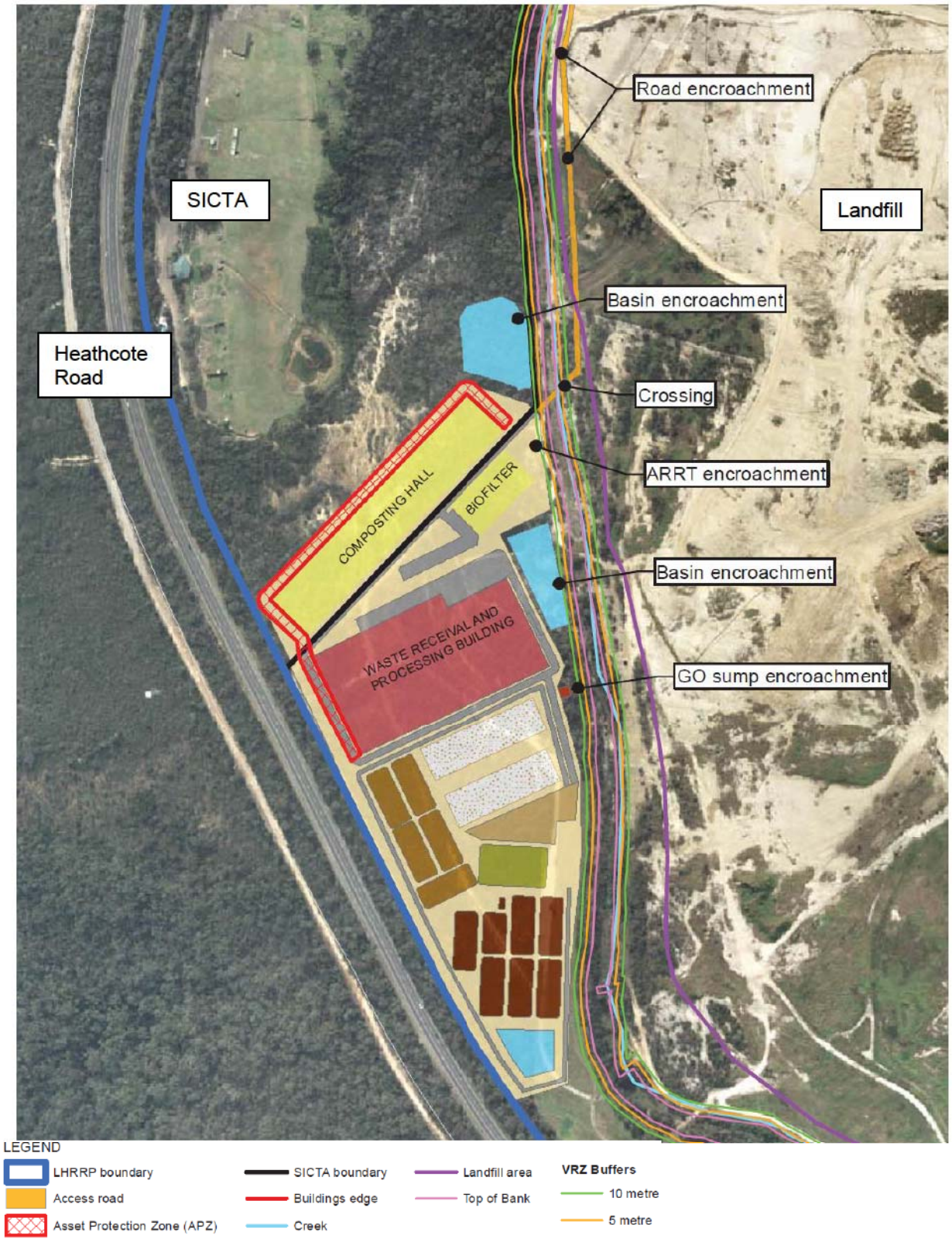

Figure 4: *Advanced Resource Recovery Technology Facility*

APPENDIX B
APPLICANT'S MANAGEMENT AND MITIGATION MEASURES

Summary of mitigation and management measures

The following summarises the proposed mitigation and management measures.

Design

Final landform (reprofiling)

The NSW EPA (1996) Environmental Guidelines: Solid Waste Landfills, Benchmark Technique no. 28 states the following, 'The final settlement of the seal-bearing surface should leave a gradient of 5% to defined drainage points'.

The proposed final landform would provide a final surface that has a minimum grade of 5% towards defined drainage points. Details of the design basis for the final landform and settlement analysis are contained in Appendix C.

GO Facility

The relocated GO facility would be partially enclosed with breathable membranes used as part of the active composting phase and aerated concrete 'bunkers' used during the active composting phase to reduce the potential for odour

A perimeter bund would be constructed around the whole GO facility, with all stormwater that comes into contact with garden organics being captured and treated as leachate

A designated pond would be used for the containment of water from the GO facility that comes in contact with the garden organics. Leachate generated from the GO facility would be treated in a separate system to the leachate from the LHRRP and reused to the maximum extent possible

ARRT facility

The proposed ARRT facility would utilise existing best practice technologies in use by SITA both in Europe and locally in Australia, which would include:

Fully enclosed buildings under negative air pressure, with self closing roller doors to reduce the potential for odour

Use of suitably sized biofilters to capture and treat air from the ARRT facility prior to release

Construction

The OEMPs for the LHRRP, ARRT facility and GO facility contain detailed prevention, mitigation and rectification measures to address as potential impacts associated with existing operations at LHRRP and the proposal.

Table 1 summarises mitigation and management measures outlined in the technical studies undertaken for this EIS. These should be read in conjunction with the management strategies (prevention, mitigation and rectification) detailed in the OEMPs.

Table 1 Construction mitigation and management measures

Potential issue	Mitigation and management measures
Waste management	• Prepare a waste management sub-plan for the landfill, ARRT facility and GO facility as part of the CEMP
Traffic, transport and access	• Undertake a Community information and awareness program during construction • Prepare a Traffic Management Plan for the construction phase of the proposal including the following key measures: – Consultation with RMS and SSC to ensure that general signposting of construction access roads are appropriate and provide adequate warning of heavy vehicle and construction activity – Distribute construction activity warning notices to advise local road users of scheduled construction activities – Provide advance notice of road/lane closures and advice on alternative routes (if required) – Whenever practical, promote the use internal and haulage access roads rather than public roads by construction vehicles – Manage the transportation of construction materials to maximise vehicle loads and minimise vehicle movements in consultation with RMS and SSC and the NSW Police Service
Noise	• Select plant and equipment to minimise noise emissions where possible whist maintaining efficiency of function. Fit residential grade silencers and maintain all noise control equipment in good order • Restrict noisy activities to daylight hours • Use reverse quackers with a low decibel output rather than beepers for excavators and wheel loaders
Visual	• Implement 'early works' rehabilitation and maintenance measures, including substantial woodland and understory planting to screen the LHRRP from ANSTO land and adjacent roads including along Heathcote Road and around the boundary of the existing PCYC area • Apply hydromulch on exposed batter areas
Dust	• Prepare a dust management plan sub-plan as part of the CEMP
Soils and surface water	• Develop erosion and sediment control plan or soil and water management plan for the GO and ARRT facilities • Continue surface water monitoring as prescribed in EPL 5065 • Develop a soil and water management plan for the GO / ARRT facility and incorporate into the construction contractor's environmental management plans • Continue use of existing measures in place to minimise demand for potable water including reuse of water captures in site basins for dust suppression • Construct the ARRT facility so that there is not a significant increase in demand for potable water during construction • Construct the GO facility so that there is no increase in potable water demand in addition to current demands
Groundwater	• Develop appropriate site management practices and emergency response procedures to be detailed in a construction and environmental management plan (CEMP) for the ARRT and GO facility to minimise water quality impacts associated with construction activities • Install and monitor six additional groundwater wells for the ARRT and GO facility, comprising four shallow wells and two deeper wells. These would characterise deeper flow directions and identify short term water quality impacts in the deeper aquifer system from the ARRT and GO facility. The two deeper wells would be located at the northwest corner of the proposal site on Heathcote Road and east of the GO sump

Potential issue	Mitigation and management measures
Contamination	• After development approval and prior to the GO facility and ARRT facility development, conduct targeted soil sampling and subsequent lead analysis on the ARRT area which is adjacent to, and proposed to extend onto SICTA • As recommended in the groundwater assessment, install new monitoring wells around the GO facility and ARRT facility prior to construction • Monitor these wells during construction of the GO facility and ARRT facility to provide early indication of any additional impacts from construction or operation on the proposal site • Undertake a general site inspection in conjunction with the soil sampling and well installation to identify any visual or olfactory signs of potential contamination on the proposal site, primarily in the form of stockpiled materials or previously unknown land use activities. • If unexpected material (including waste materials or evidence of filling) is encountered during construction, seek advice from an appropriately qualified Environmental Consultant in regard to the management of this material • Develop and detail in the CEMP appropriate site management practices and emergency response procedures prior to construction to minimise water quality impacts associated with GO facility and ARRT facility construction • If required by the planning authorities, prepare a Statutory Site Audit report to approve any remediation works required to make the land suitable for construction of the ARRT or GO facilities.
Hazards and risk	• Undertake a detailed safety study to confirm the safety exclusion zone from SICTA operations and identify any hazards associated with constructing and operating the ARRT facility in the proposed location • Propose suitable mitigation measures to be incorporated in building design and construction
Fire prevention and management	• Apply the relevant fire safety requirements of the Building Code of Australia to any buildings, including provision of smoke detectors, fire extinguishers, fire blankets, fire hose reels and sprinklers where applicable • Design the buildings on site to meet the requirements of the Planning for Bushfire Protection guidelines to protect staff and minimise the potential for building damage, including provision of a 10 m APZ. • Identify and incorporate appropriate construction standards for buildings and refuge areas during the detailed design phase. • Ensure that bushfire management procedures are included in the CEMP. This would include: – Requirements for emergency access and egress including nomination of an alternative access route. – Formal preparedness procedures for staff and contractors to maintain awareness of and respond to escalating forecast fire danger – Formal pre-rehearsed procedures for staff and contractors to respond to respond to a formal bushfire warning being issued by emergency services, including identification of escape routes and refuge areas
Biodiversity	General • Ensure that all workers are provided with an environmental induction prior to starting work on site. This would include information on the ecological values of the proposal site, protection measures to be implemented to protect biodiversity and penalties for breaches • Prepare a flora and fauna management sub-plan as part of the CEMP incorporating recommendations below, and expanding where necessary • Put in place measures to suppress dust during clearing and construction Flora species

Potential issue	Mitigation and management measures
	• Collect seeds of the *Acacia bynoeana* individual in the appropriate season (September to January) prior to vegetation clearing occurring. Plant seeds in the nursery and use any individuals grown for onsite plantings. Propagate Acacia species from scarified seed or using boiling water treatment (Wrigley and Fagg 2007) • Carefully remove the *Acacia bynoeana* individual and transfer it to the on-site nursery, along with soil adjacent to the individual which may include a long-term soil seed bank (Benson and Macdougal 1996). Replant it at the proposed offset site or another suitable location • Collect seeds and propagules of *Allocasuarina diminuta* subsp. *mimica* in March prior to vegetation clearing occurring. Plant seeds in the nursery and use any individuals grown for on site plantings. • Collect ramets of *Allocasuarina diminuta* subsp. *mimica* and associated soil prior to vegetation clearing and transfer them to the on-site nursery for propagation and replanting. Undertake replanting in areas that are not likely to be impacted by future development, including the proposed offset site. Plant ramets along the realigned Mill Creek where the ironstone soil is present. Do not plant *Allocasuarina littoralis* near these plants as this species can shade out *Allocasuarina diminuta* subsp. *mimica* and mycorrhyzial associations may be different. Carry out any removal and replanting with input from the SSC bushcare staff. • Prepare a management plan for the collection of seed and translocation of plants as part of the CEMP for the proposal and include monitoring and assessment of the success of the program Vegetation clearing • Limit disturbance of vegetation to the minimum necessary to construct the proposal • Ensure that vehicles are appropriately washed prior to work on site to prevent the potential spread of Cinnamon Fungus (*Phytophthora cinnamomi*) and Myrtle Rust (*Pucciniales fungi*) in accordance with the national best practice guidelines for Phytophthora (DEH 2006) and the Myrtle Rust factsheet (DPI 2011c) for hygiene control • Where the proposal footprint adjoins native vegetation mark the limits of clearing and install fencing around the construction footprint area prior to the commencement of construction activities to avoid unnecessary vegetation and habitat removal • Place stockpiles of fill or vegetation within existing cleared areas (and not within areas of adjoining native vegetation) • Install sediment fences to prevent transfer of sediments into adjacent vegetation Weeds • Actively manage weeds during the construction phase of the proposal, including managing and disposing of weeds that were recorded within the proposal footprint. Manage any noxious weeds in accordance with the NW Act • Clean vehicles and other equipment to be used on site to minimise seeds and plant material entering the proposal site and prevent the introduction of further exotic plant species or disease • Incorporate control measures in the design of the proposal to limit the spread of weed propagules downstream of study area. Use sediment control devices, such as silt fences, to assist in reducing the potential for spreading weeds Fauna habitat • Implement protocols to prevent introduction or spread of chytrid fungus following Office of Environment and Heritage Hygiene protocol for the control of disease in frogs (DECCW 2008)

Potential issue	Mitigation and management measures
	• Ensure that a trained ecologist is present during the clearing of native vegetation or removal of potential fauna habitat to avoid impacts on resident fauna and to salvage habitat resources as far as is practicable • When undertaking clearing surveys: – Stage the vegetation clearing, commencing in the south of the GO facility and progressing northwards to increase the opportunity for fauna to vacate the proposal site and move into areas of 'secure' habitat to evade injury – Mark any hollow-bearing trees to be felled prior to clearing of vegetation. Remove hollow bearing trees in accordance with a hollow-bearing tree management protocol which includes the presence of a qualified ecologist or wildlife expert experienced in the rescue of fauna – Ensure that habitat features (fallen logs and tree hollows) removed from site are salvaged and relocated within adjacent areas of vegetation – Undertake inspections of native vegetation for resident fauna and/or nests or other signs of fauna occupancy – Defer vegetation removal and associated construction activity in areas occupied by more mobile threatened fauna until the fauna has vacated the proposal footprint – Ensure that an ecologist is present during works along Mill Creek to rescue and relocate any frogs to other locations along Mill Creek. Undertake any handling of frogs with respect to the Office of Environment and Heritage Hygiene protocol for the control of disease in frogs (DECCW 2008) Water quality and aquatic habitats • Prepare erosion and sediment control plans in accordance with Volume 2b of Managing Urban Stormwater: Soils and Construction (DECC 2008). Establish erosion and sediment control plans prior to the commencement of construction and update and managed them throughout as relevant to the activities during the construction phase • Regularly inspect erosion and sediment control measures particularly after rainfall events, to ensure their ongoing functionality. • Reinstate stabilised surfaces as quickly as practicable after construction • Apply water to exposed surfaces that are causing dust generation, which may include unpaved roads, stockpiles, hardstand areas and other exposed surfaces (for example recently graded areas) • Ensure that vehicles follow appropriate speeds to limit dust generation • Store all stockpiled material in bunded areas and keep them away from waterways to avoid sediment entering the waterways • Make spill kits available to construction vehicles and put in place a management protocol for accidental spills • Eradicate Plague Minnow (if present) prior to decommissioning to ensure that it is not released into local waterways as a result of draining of dams. Use humane methods and obtain an appropriate licence from NSW Primary Industries (Animal Welfare branch and Fishing and Aquaculture branch) • Salvage large woody debris removed from the realigned creek and place it in the new alignment to maintain habitat values • Construct the new section of the creek to mimic a natural ecosystem and revegetate with locally endemic species. Consideration should be given to using propagated *Allocasuarina diminuta* subsp. *mimica*
Landuse	• Submit a planning proposal to enable proposed activities under the SLEP.

Potential issue	Mitigation and management measures
Heritage	• Develop and included in the CEMP an unexpected finds procedure. This would outline the procedures to follow if unexpected Aboriginal objects or non-Aboriginal relics were uncovered during construction • Submit Site Impact Recording Forms for the previously impacts sites, AHMS 52-2-1108, 52-2-1029, 52-2-1030 and 52-2-1031 to OEH
Riparian corridors	• Provide a minimum of 875 m^2 of riparian offsets for the permitted activities
Socio-economic	• Implement measures to reduce the potential for amenity impacts during construction, as identified in the relevant chapters of the EIS • Maintain ongoing engagement with the community during construction. Develop a stakeholder engagement plan would be developed for the proposal construction phase. This would include how information would be disseminated, communication channels including for feedback on the proposal and protocols for responses to feedback or enquiries

Operation

Table 2 summarises mitigation and management measures outlined in the technical studies undertaken for this EIS. These should be read in conjunction with the management strategies (prevention, mitigation and rectification) detailed in the OEMPs.

Table 2 Operation mitigation and management measures

Potential issue	Mitigation and management measures
Waste management	• Include waste handling procedures, waste processing procedures, quality control procedures and protocols (including sampling and testing) and finished product storage and handling requirements in OEMPs • Carry out sampling and testing in accordance with the requirements of relevant resource recovery orders • Apply for specific resource recovery orders if required
Traffic, transport and access	• Perform a safety review in both 2020 and 2025 on the safety of the intersection of New Illawarra Road and Little Forest Road • Review signposted and non-signposted speed restrictions along the road network and where necessary, provide additional signposting of speed limitations • Consult with schools and school bus services to determine and mitigate if any school bus service use roads within the study area • Install appropriate traffic control and warning signs for areas identified to have existing potential safety risks • Consult with the NSW Police Service to mitigate impacts of heavy (multi-dimensional) vehicles on the roads • Project induction training for truck and vehicle operators • Manage queuing and prevent long queues at site entrance • Actively monitor area and have in place traffic control • Delay trucks when required • Manage dispatch timing for vehicles from SITA controlled facilities • Require SITA owned waste delivery vehicles to travel on arterial or sub-arterial roads rather than local roads (with the exception of Little Forest Road). • Discourage customer transfer trailers and B doubles from travelling on local roads
Noise	LHRRP • Limit waste receival hours • Select plant and equipment to minimise noise emissions where possible whist maintaining efficiency of function. Fit residential

Potential issue	Mitigation and management measures
	grade silencers and maintain all noise control equipment in good order • Maintain all machinery and equipment in proper working order in accordance with manufacturer's requirements • Do not operate heavy machinery outside site operating hours • Include noise component in site inductions GO facility • Select plant and equipment to minimise noise emissions where possible whist maintaining efficiency of function. Fit residential grade silencers and maintain all noise control equipment in good order • Restrict operations to designated areas • Restrict noisy activities to daylight hours • Use reverse quackers with a low decibel output rather than beepers for excavators and wheel loaders • Utilise favourable routes for accessing and exiting the facility to ensure avoidance of residential areas where possible ARRT facility • Conduct all operations within buildings • Use reverse quackers rather than alarms with a low decibel output for excavators and wheel loaders • Utilise favourable routes for accessing and exiting the facility to ensure avoidance of residential areas where possible • Fit noise reduction measures within the buildings
Visual	• Grass the final capping layer as the reprofiling works occur to further minimise visual impacts • Ensure filling does not exceed proposed final landform heights • Maintain fences and other site infrastructure • Maintain Little Forest Road • Provide screen and screen maintenance • Progressively rehabilitation and revegetation.
Odour	Landfill reprofiling • Strip back the areas of the existing landfill (south of existing active landfill area) in segments with approximately 1 ha of cover stripped in advance of the active tipping area. Of this area ensure that approximately 2,500 m^2 would be less than one day old to minimise the emission of odours from the stripped surface. – Strip back the existing areas which are capped and revegetated and do not expose previously landfilled waste – Strip back the existing areas of intermediate cover (south of the existing active landfilling area) and do not expose previously landfilled waste • Each morning further strip back the equivalent to a day's waste disposal operations (to minimise the potential for the perching of leachate) and place waste directly over this area. Ensure that there is no exposed waste during the night when the potential for odour issues off site is higher LHRRP • Cover odorous wastes as soon as possible after delivery in accordance with the requirements of the site's environment protection licence • Minimise the size of the active landfill face, taking into account the practicalities, safety, access, traffic management, etc. • Inspect and monitor the capping layer regularly • Train staff (internal and contractors) on odour management strategy and all relevant procedures

Potential issue	Mitigation and management measures
	• Install and operate a landfill gas collection system progressively to minimise odour as a result of landfill gas seepage GO facility • Conduct random monitoring and inspections of incoming vehicles to determine waste composition • Order manures in accordance with production schedules and blend with compost only in favourable weather conditions at any given time • Train staff (internal and contractors) on odour management strategy and all relevant procedures • Only allow up to 40,000 tonnes of composting material to be stored on site (includes receival, shredding, active composting and maturation stage) at any one time at the western GO • Measure oxygen and moisture content of compost (active phases) and control with aeration and moisture addition ARRT facility • Process waste daily • Carry out composting at set periods of time, to set temperatures, oxygen levels and moisture levels to provide certainty that composted material has fermented properly and has stabilized • Maintain the facility under negative pressure, ensuring odours do not escape the building • Regularly inspect biofilters and maintenance of biofilter media • Train staff (internal and contractors) on odour management strategy and all relevant procedures
Dust	LHRRP • Do not undertake dust generating activities during adverse weather conditions • Cease operations if unsafe (for example, during strong winds) • Monitor monthly dust deposition at six boundary locations on site • Limit vehicles to specified routes around the site and ensure speed limits are adhered to • Use dust suppression techniques such as watering to maintain moist conditions on exposed areas and unsealed roadways GO facility • Cover or enclose vehicles during transport around the site • Spray windrows, final compost storage areas and loading areas, particularly prior to transportation and turning • Cease operations if unsafe (for example, during strong winds) • Operate water cart(s) on trafficable areas as required ARRT facility • Conduct all operating activities within the enclosed areas of the ARRT facility • Cover or enclose vehicles during transport around the site • Spray windrows, final compost storage areas and loading areas, particularly prior to transportation and turning • Operate water cart(s) on trafficable areas as required

Potential issue	Mitigation and management measures
Soils and surface water	• Continue to use of existing measures in place to minimise demand for potable water including reuse of water captures in site basins for dust suppression • Where possible, minimise exposed areas over which sediment would be generated through maintenance of both natural and artificial ground cover such as grass or erosion control cover products • Discharge disturbed area drainage lines into a sediment basin designed in accordance with 'the Blue Book' Volume 1 (Landcom, 2005) and Volume 2b (DECC, 2008) • Divert clean upstream runoff around the actively worked areas of the proposal site to avoid mixing clean stormwater with runoff from disturbed areas • Manage vehicle movements to minimise generation and transport of sediment • Appropriately manage material stockpiles including locating them as far as possible from drainage lines • Continue general flood management practices including keeping drainage lines free of waste and debris and monitoring drainage lines during periods of heavy rainfall • Continue monitoring surface water quality in accordance with licences • Undertake further investigation of the habitat condition and macroinvertebrate populations to confirm the preliminary findings. It is recommended that this work be undertaken every three years commencing soon after reprofiling works commence in Area E. • Progressively revegetate completed reprofiling areas • Design and operate sediment dams and sediment traps to promote sedimentation • Maintain erosion and sediment control measures until the site is stabilised • Maintain drains to prevent weed build up
Groundwater	• Develop a monitoring system to assess the landfill collection system during re-profiling. This may include one or a combination of the following: – Ongoing assessment of the leachate generation volumes within the Stage 1 to 4 landfill areas during re-profiling – Ongoing assessment of the operation efficiency of the basal drainage system in Stage 1 to 4 of the landfill. This may represent some practical difficulties in given the drainage system is buried beneath waste – Characterisation and monitoring of leachate levels at the base of the landfill during re-profiling works to assess the potential for changes to leachate levels – Characterisation of changes in the hydraulic properties of the Stage 1 to 4 landfill areas during the re-profiling works – An improved collection system if water balance discrepancies are interpreted and/or overall changes in leachate levels and yields are observed and taking into account groundwater quality data. • Continue ongoing leachate management until such time as the leachate volume monitoring and or leachate and water quality monitoring suggest that risks are no longer significant • Confirm trigger levels for groundwater quality for monitoring wells around the LHRRP on which further investigations would be undertaken.

Potential issue	Mitigation and management measures
	• Include operational procedures and practices designed to minimise the production and spillage of impacted water and/or fluids used in operational activities in the OEMPs • Continue current groundwater monitoring activities and also monitor the six new wells in the ARRT and GO facility areas (refer Table 1 for details). If impacts occur during operation or post closure carry out further investigation and implement remedial measures which may include: – Additional investigations to isolate the source of impact and characterise the significance of the impact relative to key target criteria for the protection of surrounding sensitive systems. – Implementation of additional control measures to prevent ongoing impact. This may include: ○ Installation of additional monitoring wells to assess the emergence of significant impacts that may not be considered presently significant ○ Installation of additional wells to capture and treat impacted groundwater. This may include treating the water separately or incorporating the system into the existing leachate management system ○ It would be possible to use the Stage 5 groundwater drainage system located beneath the liner to intercept any impacted water
Leachate	• Continue ongoing monitoring of leachate volumes extracted from LHRRP landfill and other sources • Periodically review the leachate water balance model • Monitor groundwater and surface water impacts, as required by the proposal site EPL • Ongoing monitoring of surface water and leachate as required by EPL • Review of leachate levels daily • Inspect the site and review pumping/discharge records daily • Update standard operating procedures as site develops • Maintain relevant emergency procedures • Take action as leachate volumes and levels increase • Document corrective and preventative actions taken • Undertake regular inspections and repairs of infrastructure including removal of sludge from dams and maintenance of pumps and aerators • Compact and cover waste with daily and intermediate cover material to minimise infiltration of stormwater and further leachate generation • Remove leachate from a number of gas extraction wells using air lift pumps, flowing by gravity to the leachate collection dam • Maintain the leachate collection dam (holding capacity of 10 ML) to allow for the collection of leachate from the western ring main, central ring main, eastern ring main, Area 5-1 and Areas 5-2/5-3 • Maintain further emergency leachate containment dam (containment capacity of 9.2 ML) to contain leachate in extended wet weather events • Actively manage leachate levels in the containment dams so that they are have sufficient capacity to cope with leachate arising from wet weather events
Hazards and risk	Dangerous Goods • Transport Dangerous Goods to site and store in accordance with the Australian Dangerous Goods Code

Potential issue	Mitigation and management measures
	• Implement appropriate safe work procedures for the safe handling of the Dangerous Goods, including spill prevention and clean up requirements • Store and use any smaller quantities of Dangerous Goods (aerosols, paints, cleaners etc.) that may be used on site in accordance with the Australian Dangerous Goods Code, including appropriate labelling, separation where necessary and disposal • Implement all safeguards identified in the hazard identification process through the development and implementation of a comprehensive safety management system for the operation of the proposal or via an update of the existing safety management procedures for the existing site, taking into account any new requirements specific to the proposal Emergency preparedness • Regularly review and update the ERP
Fire prevention and management	• Manage the areas adjoining Heathcote Road adjacent to buildings as a specific APZ. • Implement bushfire management procedures as outlined in the LHRRP OEMP, including: – Requirements for emergency access and egress including nomination of an alternative access route. – Establishing an alternative access and egress route to the north-east through the existing cleared and developed areas – Implementing formal preparedness procedures for staff and contractors to maintain awareness of and respond to escalating forecast fire danger • Regularly rehearse procedures for staff and contractors to respond to respond to a formal bushfire warning being issued by emergency services, including identification of escape routes and refuge areas • Inspect and maintained all fire protection systems in accordance with AS1851-2012 Routine Service of Fire Protection Systems and Equipment. • Maintain waste stockpiles (including any garden organics or paper based waste material) in a tidy manner prior to processing and make efforts to limit exposure to ignition sources • Undertake hot works in accordance with SITA's hot work procedure and permit system as per existing operations procedures to minimise the potential for flammable materials to be ignited • Regularly maintain all mechanical components associated with the raw material delivery, shredding and mixing processes would also be undertaken to prevent overheating • Manage fires in accordance with SITA's emergency response procedures. If the fire cannot be extinguished immediately, contact local emergency services to provide assistance
Biodiversity	Vegetation and weeds • Manage noxious weeds on an ongoing basis according to legislative requirements. • Continue suppression of dust within the landfill and ARRT and GO facilities. • Manage water quality Feral animals • Provide ongoing control of feral animals. • Minimise sources of food and habitat for pest species. Post closure – vegetation and weeds • Sow exposed soil with native seed immediately to prevent colonisation by weeds.

Potential issue	Mitigation and management measures
	• Use locally sourced native species. • Incorporate propagated individuals of *Allocasuarina diminuta* subsp. *mimica* from the site into the landscaping plan. • Manage noxious weeds according to legislative requirements. • Monitor and manage revegetation areas, including planted *Allocasuarina diminuta* subsp. *mimica,* as per the EMP.
Greenhouse gas	• Investigate opportunities to increase the methane capture rate on an ongoing basis, as the landfill gas system is progressively modified to accommodate the new final landfill profile during the entire operational life of the proposal. • Continue to work with the landfill gas management contractor to refine the gas extraction and oxidation system in identified major emissions contributing areas. • Consider implementation of greenhouse gas mitigation strategies such as implementation of energy efficient practices, installation of solar panels and use of biofuels • Install gas extraction wells in completed areas to control gas migration • Progressively install gas extraction wells in operational areas as the landfill develops • Prepare and regularly review the emergency plan and emergency procedures • Implement a program for scheduled monitoring of landfill gas (surface and subsurface)
Litter and illegal dumping	• Support Regional Illegal Dumping (RID) squads • Engage with stakeholders regarding illegal dumping • Undertake internal audits • Establish a Litter and Illegal Dumping fund

APPENDIX C
FINAL LANDFORM & REHABILITATION PLAN

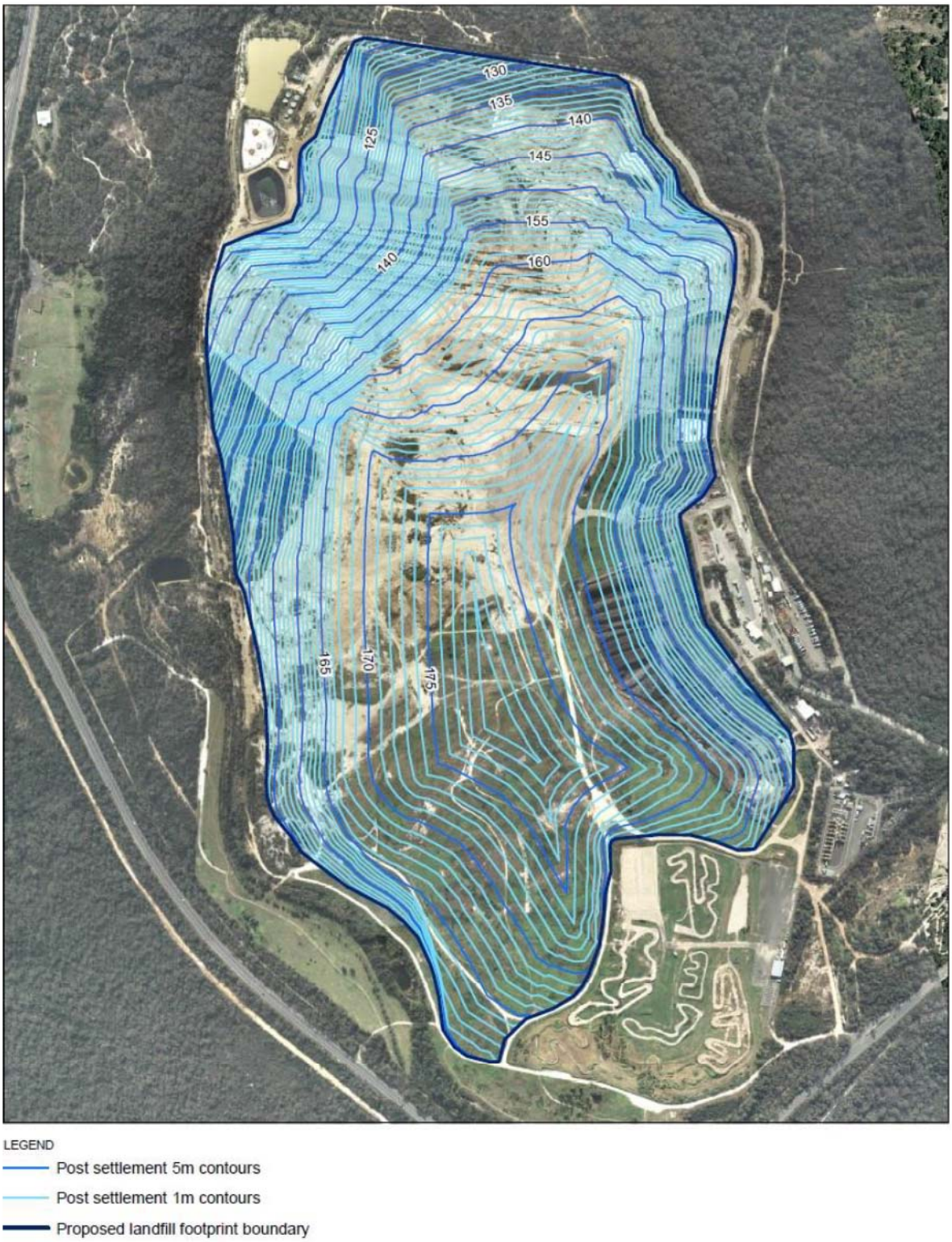

Figure 5: *Final Landform Post Settlement*

Figure 6: *Masterplan - Rehabilitation*

APPENDIX D
SCREEN PLANTING

Figure 7: *Screen Planting*

APPENDIX E
SENSITIVE RECEIVERS

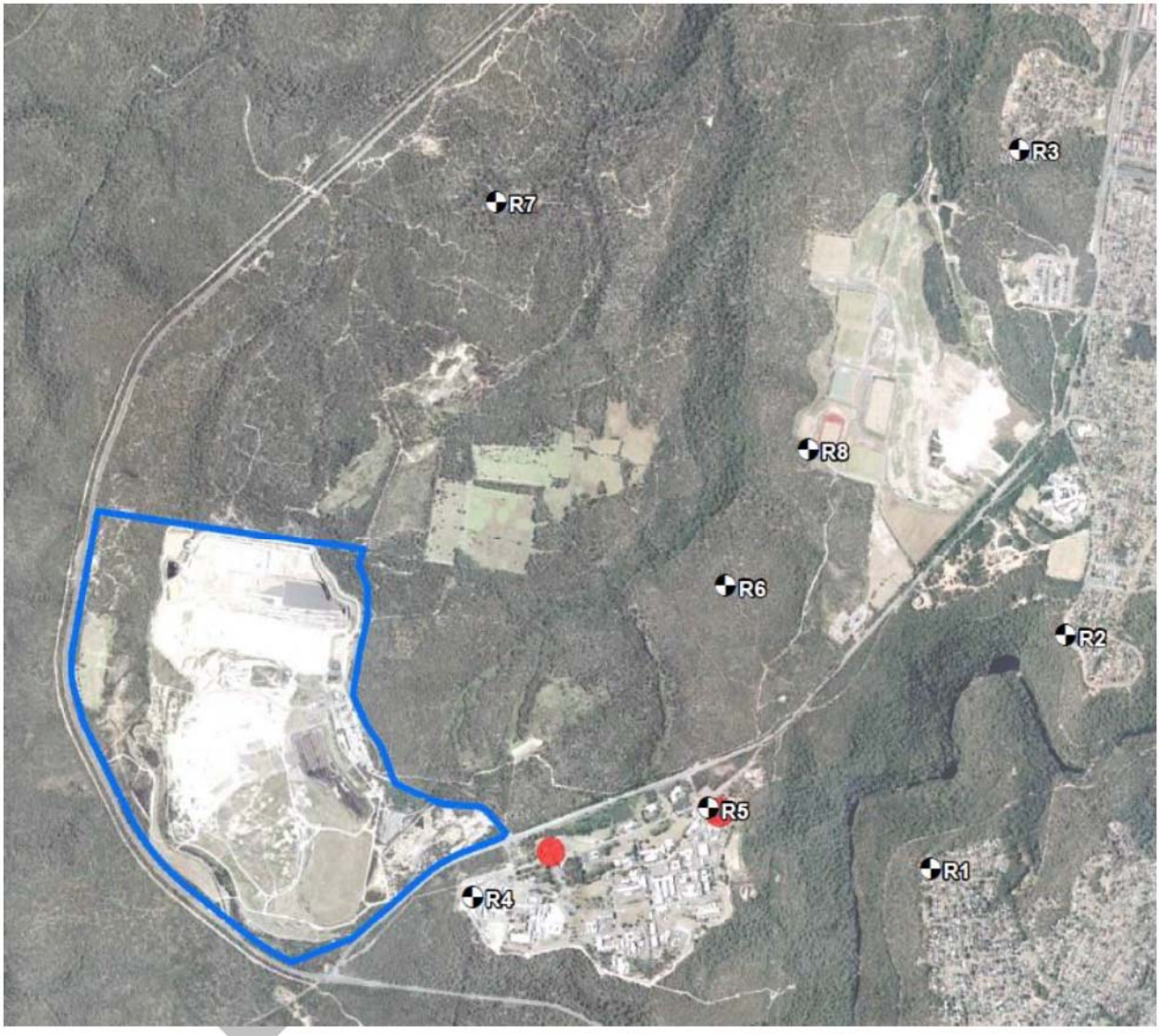

Figure 8: *Noise Receiver Locations (R1 – R8)*

Appendix B - Consultation letters

Appendix C - Land owners consent

Recycling & Recovery

18 July 2017

Mr Scott Phillips
General Manager
Sutherland Shire Council
Locked Bag 17
Sutherland NSW 1499

Dear Scott,

RE: Consent Modification to operating hours at Lucas Heights Resource Recovery Park

SUEZ is pleased to continue our ongoing relationship working collaboratively with Sutherland Shire Council and operating Lucas Heights Resource Recovery Park (LHRRP) in a safe and efficient manner to service Council as well as the wider Sydney metropolitan region.

Following receipt of approval for expanded operations at the LHRRP, we have been in consultation with Sutherland Shire Council officers who have identified constraint with the existing operating hours at the LHRRP, being 7am to 5pm Monday to Friday, and 8am to 5pm on weekends. It has been observed that prior to 6am, waste delivery vehicles are forming long queues waiting to enter the LHRRP. This queuing time affects the turnaround times of all vehicles including Council's. In addition, our transfer stations operators, who deliver waste to the LHRRP have also provided similar feedback regarding the queueing prior to 6am. We are concerned this issue will exacerbate following closure of the Eastern Creek Landfill.

SUEZ has committed to managing traffic on site and as part of the expanded operations, including no queuing on public roads (New Illawarra Road). In preparation for the increase in traffic due to the pending closure of Eastern Creek Landfill in August 2017, SUEZ has made significant investment by installing a second inbound weighbridge at the LHRRP entrance, as well as upgrading our existing weighbridges with Mandalay® Technologies software (licence plate recognition) to improve overall weighbridge efficiencies. However, in order to deliver better service to Council as well as the SUEZ' other customers, we are proposing an extension to our approved operating hours by opening LHRRP two hours earlier. This would involve modification of the 2017 consent.

We therefore seek Council's support as co-applicant to lodge a consent modification modifying clause C53 of SSD 6835 to allow the following operating hours at the LHRRP.

Facility	Activity	Day	Time	Proposed change
Landfill	Construction	Monday – Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm	N/A
	Operation	Monday – Friday Saturday Sunday	6 am – 5 pm 8 am – 5 pm 8 am – 5 pm	**4 am – 5 pm** **6 am – 5 pm** N/A
	Other operations	Monday - Sunday	Anytime	N/A
GO facility	Construction	Monday – Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm	N/A
	Operation	Monday – Friday Saturday - Sunday	6 am – 5 pm 8 am – 5 pm	N/A
	Other operations	Monday - Sunday	Anytime	N/A
ARRT Facility	Construction	Monday – Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm	N/A
	Operation	Monday – Sunday	Anytime	N/A

SUEZ will undertake the relevant studies in support of the modification including noise, traffic and visual amenity. The full scope of the studies required will be determined in consultation with Council and the Department of Planning.

As part of SUEZ's commitment to safety, if this modification is approved we would invest in permanent and mobile lighting for the operations to ensure adequate illumination. We do not expect the proposed change to result in any significant environmental impacts.

We look forward to hearing feedback from Council regarding our proposal.

Yours sincerely

Phil Carbins
NSW Projects Director
0457 560 146

Sutherland Shire COUNCIL

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File Ref: 2016/248623
Related Files: 2015/211777

21 July 2017

Mr Phil Carbins
NSW Projects Director
SUEZ Recycling & Recovery
Email: emmanual.vivant@suez-env.com.au

Dear Mr Carbins

Thank you for your letter of 18 July 2017 seeking Council's view on a proposal to lodge an application to modify the operating hours of the Lucas Heights Resource Recovery Park.

At first blush it seems there could be several benefits emanating from a change in the landfill operating hours at LHRRP and I believe the proposal warrants further consideration. Of course, the benefits of changing operating hours would need to be carefully assessed against any impacts on the community. I note your commitment to identify those impacts and undertake the necessary studies in support of an application to modify the existing development consent.

I suggest the appropriate way to progress the matter is to identify all potential impacts and undertake preliminary studies in concert with Council officers before presenting those findings in a joint briefing to the elected Council. This will assist Councillors in their consideration as to whether Council will join SUEZ in an application to the Department of Planning to modify the consent.

Thank you for bringing this matter to my attention. I am pleased to inform you of Council's shared desire to continue working collaboratively with SUEZ in your operation of LHRRP to achieve mutually beneficial outcomes and I look forward to progressing this matter with you.

If you require any further information please do not hesitate to contact Council's Manager Environmental Science, Ian Drinnan on 9710 0547.

Yours sincerely

Scott Phillips
General Manager

Appendix D - Results of environmental risk assessment and prioritisation of issues

Issue	Potential key risks	Potential impact	Priority of assessment	Discussion
Air quality	Dust emissions from landfill operations causing offsite impacts Odour emissions from waste, at levels that exceed odour limits and affect sensitive receptors.	Negligible	Low	No changes to the quantity or types of waste or operational activities on the site are proposed. Landfilling would be undertaken in accordance with approved operations. Therefore no additional dust or odour would be generated as a result of the modification.
Surface water and soils	Erosion and sediment and surface water quality impacts leading to contamination of surface water Erosion and sediment and or other surface water quality impacts during operation Flooding impacts	Negligible	Low	No changes to the quantity or types of waste or operational activities on the site are proposed. The modification would not result in any increased potential for erosion and sedimentation during operation from run-off from disturbed areas. Appropriate stormwater management controls and erosion and sediment management controls would continue to be implemented. The proposed modification would not result in any increased flood risks.
Groundwater	Impacts on groundwater quality, availability and groundwater elevations from operation of the proposal	Negligible	Low	No changes to the quantity or types of waste or operational activities on the site are proposed. Groundwater would continue to be managed in accordance with approved operations. The proposed modification would therefore not result in any increased potential for groundwater impacts.
Leachate	Changes to leachate generation leading to migration of leachate to groundwater or surface water.	Negligible	Low	No changes to the quantity or types of waste or operational activities on the site are proposed. Leachate would continue to be managed in accordance with approved operations. The proposed modification would therefore not result in any increased potential for leachate impacts.
Heritage	Encounter and disturb items of European or Aboriginal cultural heritage during construction and operation	Negligible	Low	The proposed modification would not disturb any additional areas beyond those already approved. There would therefore be no increase in risk to disturbance of items of European or Aboriginal cultural heritage. Current mitigation measures for management heritage impact risks would continue to be implemented.

Issue	Potential key risks	Potential impact	Priority of assessment	Discussion
Biodiversity	Effects on threatened or vulnerable species through removal of vegetation and destruction of habitat. Impacts on aquatic ecology in Mill Creek due to surface water or contamination.	Negligible	Low	The proposed modification would not disturb any additional areas beyond those already approved. The proposed modification would therefore not result in any increased potential for biodiversity or aquatic ecology impacts. Current mitigation measures for managing biodiversity risks would continue to be implemented.
Traffic and access	Changes to opening hours affecting the operation of the road network or intersections.	Low	Medium	The commencement of landfill operations two hour earlier is expected to help address current queuing issues on Little Forest Road that are occurring prior to 6 am. Earlier arrival of some vehicles may reduce traffic to the site during the morning peak hour. The modification is expected have a neutral or slightly beneficial impact on the local road network. Traffic and access has been assessed further and the results are provided in Section 4.2
Greenhouse gas	Emissions from fuel use in equipment and electricity use, mobile equipment and transport significantly contributing to global warming.	Negligible	Low	There may be a very minor increase in greenhouse gas emissions from use of mobile lighting, however any increase would be negligible.
Noise	Noise emissions from site activities affect sensitive receptors	Low	Medium	The proposed modification would result in landfilling activities commencing up to two hours earlier than currently approved. No additional equipment is proposed and no change to the proposed types of activities. There would therefore be no additional noise generation, however some noise sources would be in operation earlier. Potential noise impacts have been assessed further in Section 4.3.
Pests, vermin and noxious weeds	Spread of noxious weeds or pathogens in the local area or in products.	Negligible	Low	There would be no changes to the quantity or types of waste or operational activities on the site. Pests, vermin and noxious weeds would continue to managed in accordance with current approved operations.

Issue	Potential key risks	Potential impact	Priority of assessment	Discussion
	Attraction of pests and vermin, resulting in a nuisance to nearby sensitive receptors.			
Hazards and risk	Dangerous or hazardous materials or scenarios causing harm to the environment or people.	Negligible	Low	The proposed modification would not change the potential for hazards and risk significantly at the landfill beyond approved operations. Mobile lighting is proposed to ensure proper illumination to allow continued safe operations of the landfill during earlier hours of operation (before sunrise).
Visual	Visibility of the proposed mobile lighting reducing the amenity of nearby sensitive receptors.	Low	Medium	Some sections of the landfill operation has potential to be visible from some view points during limited times, such as during filling of the upper limits of the landfill profile. The proposed lighting would be selected to minimise glare and light spill and lighting would be directed towards the ground and not offsite. Existing and potential future sensitive residential receivers are located significant distances from the site (more than 2 km), which provides mitigation to any visual effects. Potential visual impacts have been assessed further in Section 4.4.
Utilities and infrastructure provisions	Utilities demand exceeds supply available and places a burden on existing infrastructure.	Negligible	Low	The proposed modification would not change demands on any utilities.
Socio-economic	Amenity impacts during construction and operation. Employment during construction and operation.	Negligible	Low	Traffic, transport and access, noise and visual amenity have been assessed further in Section 4. The proposed modification is not expected to result in any change to other potential amenity impacts. There would be no change in employment as a result of the proposed modification.
Land use	Impacts to adjacent and nearby land uses	Negligible	Low	The proposed modification would not have any significant change to potential impacts on adjacent or nearby land uses.
Final land use	Landfill gas and or leachate impacting on the community or vegetation	Negligible	Low	The proposed modification would result in no change the final land use of the site.

Issue	Potential key risks	Potential impact	Priority of assessment	Discussion
Fire	Large scale bushfire impacting the proposal facilities over the course of the proposal life. Landfill, compost or ARRT facility fire causing damage to property.	Negligible	Low	The proposed modification would result in no change to the bushfire or fire risk of the approved operations.
Waste management	Potential impacts associated with treating, storing, using and disposing of waste and waste products.	Negligible	Low	The proposed modification would not change the proposed methods for handling, storage and disposal of waste on the site.
Litter and illegal dumping	Litter from proposal operations and from transport of waste to the proposal site impacting on the environment and amenity of the surrounding area.	Negligible	Low	The proposed modification would not result in any increased potential for windblown litter or litter impacts. However SUEZ would continue to implement and improve management/mitigation of litter with existing and proposed measures.

Appendix E - Traffic Impact Assessment Memo

Memorandum

25 January 2018

To	SUEZ Recycling and Recovery Pty Ltd		
Copy to			
From	Mark Lucas	Tel	+61 2 9239 7141
Subject	Updated Traffic Assessment	Job no.	2126747

1 Introduction

In September 2015, GHD completed a Traffic Impact Assessment (TIA) report for the proposed Lucas Height Resource Recovery Project (the Project) at the Lucas Heights Resource Recovery Park (LHRRP). The Project included:

- Reprofiling of existing landfill areas to provide up to 8.3 million cubic metres of additional landfill airspace capacity, including an increase in the quantity of waste landfilled at the site up to 850,000 tonnes per year. Reprofiling and capping and closure of the site to be completed in 2037.
- Relocation and expansion of the existing garden organics facility to the western side of the site, with an approved capacity of 80,000 tonnes of green and garden waste per year.
- Construction and operation of a fully enclosed advanced resource recovery technology facility to be located on the western side of the site with a processing capacity of up to 200,000 tonnes of general solid waste per year.
- A 149 ha community parkland following site closure, capping and landscaping and made available for community use in 2039.

The TIA included intersection modelling, using the both the SIDRA intersection modelling software and the Paramics microsimulation modelling software, at the following intersections:

- Heathcote Road / New Illawarra Road; and
- Little Forest Road / New Illawarra Road.

The traffic modelling indicated that both of these intersections are expected to operate with a good level of service up to 2027 accounting for the vehicle trips associated with the LHRRP.

The Project (SSD 6835) was approved by the NSW Department of Planning and Environment on 23 January 2017. A condition of consent (Condition C53) was that the landfill would operate during the following periods:

- 6:00 am – 5:00 pm - Monday to Friday; and
- 8:00 am – 5:00 pm - Saturday and Sunday.

2 Proposed Amendments

SUEZ has advised that before the facility opening time at 6:00 am, waste collection vehicles are regularly observed to form long queues along Little Forest Road, when waiting for the facility to open. Information provided by SUEZ indicates that this queuing activity is detracting from the efficiency of the operation of the LHRRP, while also impacting the turnaround time of the waste collection vehicles utilising the facility.

Information provided by the Client indicates that the queuing activity on Little Forest Road does not currently adversely impact the operation of the Little Forest Road / New Illawara Road intersection.

In order to mitigate these vehicle queuing issues, SUEZ has recently updated the software at the existing weighbridge, to enable faster weigh times.

Accordingly, SUEZ is seeking to amend the condition of consent to extend the operating hours of the LHRRP one hour earlier than previously approved on both weekdays and Saturdays, as follows:

- 5:00 am – 5:00 pm - Monday to Friday.
- 6:00 am – 5:00 pm - Saturday
- 8:00 am – 6:00 pm - Sunday (no change).

3 Traffic Assessment

Weighbridge information from October 2017 indicates that between 54 and 70 waste collection vehicles currently enter the subject site between 6:00 am and 7:00 am. This includes the vehicle activity associated with the recently closed Eastern Creek Recovery Park.

For the purpose of analysis to be conservative it has been assumed:

- 100 percent of the waste collection vehicles currently accessing the LHRRP Facility between 6:00 am – 7:00 am (up to 70 vehicles) will access the site between 5:00 am – 6:00 am.

This is considered a conservative assessment as not all vehicles would arrive at the earliest times even if the facility opens earlier. This is due to the travel time from point of collection to Lucas Heights.

Utilising the above assumptions it is expected that up to 70 waste collection vehicles will access / egress the LHRRP between 5:00 am and 6:00 am.

Information provided by SUEZ indicates approximately 40 percent of waste collection vehicles access / egress the LHRRP via Heathcote Road and 60 percent via New Illawarra Road / Alfords Point Road.

The expected traffic volumes associated with the proposed hours of operation at the LHRRP (between 5:00 am and 6:00 am) is displayed in Table 1.

Table 1 – Expected Waste Collection Vehicle Activity

Time	Heathcote Road	New Illawarra Road
5:00 am – 6:00 am	28 inbound / 28 outbound	42 inbound / 42 outbound

Data has been obtained from Roads and Maritime Services (Roads and Maritime) traffic count stations to determine the current traffic volumes on Heathcote Road and New Illawarra Road between (4:00 am and 6:00 am):

- Heathcote Road 210 m west of Beethoven Street (Station Id: 37022); an
- Alfords Point Road 400 m east of Snow Gum Place (Station Id: 42001).

The data from these count stations (for 2017) indicates:

- Heathcote Road experiences 880 (two-way) vehicles between 5:00 am – 6:00 am.
- New Illawarra Road / Alfords Point Road experiences (two-way) 2,810 vehicles between 5:00 am – 6:00 am.

The portion of traffic associated with the proposed change in opening hours as a comparison with the background traffic volumes on the adjoining arterial road network is displayed in Table 2.

Table 2 – Portion of LHRRP Vehicle Activity

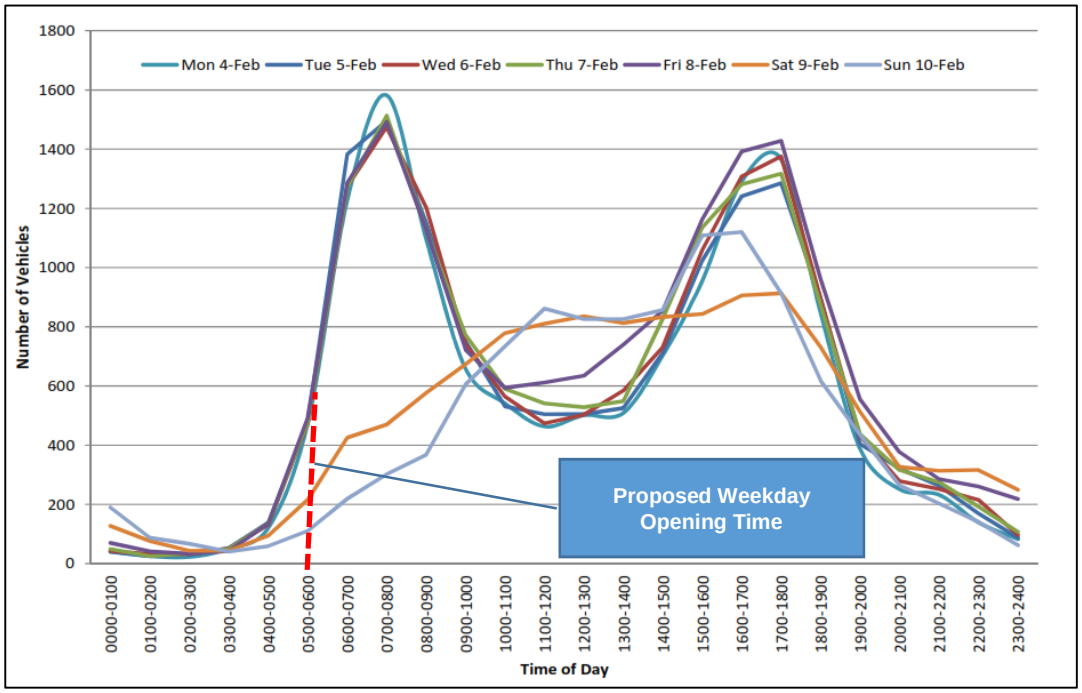
Time	Heathcote Road			New Illawarra Road		
	Increase in traffic from proposal	Background Traffic	Portion	Increase in traffic from proposal	Background Traffic	Portion
5:00 am - 6:00 am	56	880	6%	84	2,810	3%

The data in Table 2 indicates that the changes to opening hour would result in:

- Up to six percent increase in traffic volumes on Heathcote Road.
- Up to three percent increase in traffic volumes on New Illawarra Road / Alfords Point Road.

As shown in Figure 1 the proposed weekday opening hour of operation occurs approximately two hours prior to peak morning activity on the adjoining road network.

Figure 1 – Two-way Traffic Volumes on Heathcote Road



Previous traffic modelling (undertaken in the TIA) demonstrated that, with the operation of the Project, both the Heathcote Road / New Illawarra Road and Little Forest Road / New Illawarra Road intersections are expected to operate with a good level of service up to the 2027 horizon year of analysis.

The proposed modification would not result in any increase in total traffic to the LHRRP. However, the proposal could result in vehicles associated with the LHRRP operation being distributed over a greater time period. The modification is therefore expected to result in a neutral or slightly beneficial operations to the Little Forest Road / New Illawarra Road intersection, compared to the currently consented opening times for the facility.

4 Summary

The overall conclusion from this investigation is the proposed extension of the operating hours at the LHRRP facility is expected to have a neutral or slightly beneficial impacts to the operation of the adjoining road network operation, but would reduce queuing on Little Forest Road, and improve the efficiency of the LHRRP.

Regards,

Mark Lucas
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Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	A Montgomery	D Gamble		D Gamble		18/9/17
1	A Montgomery	D Gamble		D Gamble		8/11/17
2	A Montgomery	A Dixon		A Dixon		18/01/17
3	A Montgomery	A Dixon	A. Dixon	A Dixon	A. Dixon	25/01/17

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