SUEZ Recycling and Recovery Pty Ltd

LHRRP - Garden Organics Facility

Construction Environmental Management Plan

May 2021

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1. Introduction

1.1 Background

SUEZ Recycling and Recovery Pty Ltd (SUEZ) operates the Lucas Heights Resource Recovery Park (LHRRP) located at Lucas Heights, NSW.

On 23 January 2017, the Planning Assessment Commission approved a State Significant Development (SSD) application (No. SSD 6835) to allow for an increase in landfill capacity, relocation and expansion of the garden organics (GO) facility and construction and operation of a new advanced resource recovery technology facility (ARRT) facility (the Approved Project). The construction of these facilities would be implemented in stages to minimise the impact of the activities, by ensuring that disturbances only occur when required. Only the GO facility would be constructed at this stage. As such, this plan deals with the provision of the GO facility alone, and the associated construction environmental management planning.

GHD Pty Ltd (GHD) has been engaged by SUEZ to prepare a Construction Environmental Management Plan (CEMP) to guide the management of environmental issues during the redevelopment of the GO Facility, in accordance with approval conditions D1 and D2 relating to the construction of the facility.

1.2 Purpose and scope of CEMP

The primary purpose of the CEMP is to provide a project specific Environmental Management Plan that describes the environmental strategy, methods, controls and legislative and approval requirements.

The purpose of the CEMP is to:

- Identify the environmental issues (aspects and impacts) relevant to the project
- Establish the environmental controls to reduce any adverse impacts on the environment from construction of the project
- Describe the methods and processes by which the project will maintain compliance with all relevant environmental legislation, any applicable license, approval and permit, regulatory requirements during construction
- Ensure the works are effectively managed so as to eliminate or reduce potential adverse impacts on the environment as a result of construction activities.
- Action any outcomes from incidents or non-conformances to continually improve the Environmental Management System.

This CEMP should be read in conjunction with appended sub plans; construction management plan for the dual gas and leachate trench (SUEZ, 2020), erosion and sediment control plan (GHD, 2020), vegetation and fauna management plan (GHD, 2019) and construction traffic management plan (GHD, 2020).

1.3 Definitions

Term	Definition
ANSTO	Australia's Nuclear Science and Technology Organisation
ARRT Facility	Advanced Resource Recovery Technology facility

CEMP	Construction Environmental Management Plan
CRG	Community Reference Group
EIS	Environmental Impact Statement
EMR	Environment Management Representative
EPA	New South Wales Environment Protection Authority and any successor body
EPL	Environmental Protection Licence
GO facility	The Garden Organics facility at LHRRP, that undertakes composting of waste including green and garden waste, but excluding waste types such as food waste and biosolids
LHRRP	Lucas Heights Resource Recovery Park
OEMP	Operational Environmental Management Plan
PoEO	Protection of the Environment Operations ACT
RTS	Response to submissions
SICTA	Sydney International Clay Target Association
SSC	Sutherland Shire Council
SUEZ	SUEZ Resource and Recovery Pty Ltd
WH&S	Work Health and Safety

1.4 Limitations

This report: has been prepared by GHD for SUEZ Recycling and Recovery Pty Ltd and may only be used and relied on by SUEZ Recycling and Recovery Pty Ltd for the purpose agreed between GHD and the SUEZ Recycling and Recovery Pty Ltd as set out in this report.

GHD otherwise disclaims responsibility to any person other than SUEZ Recycling and Recovery Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Project description

2.1 Project location

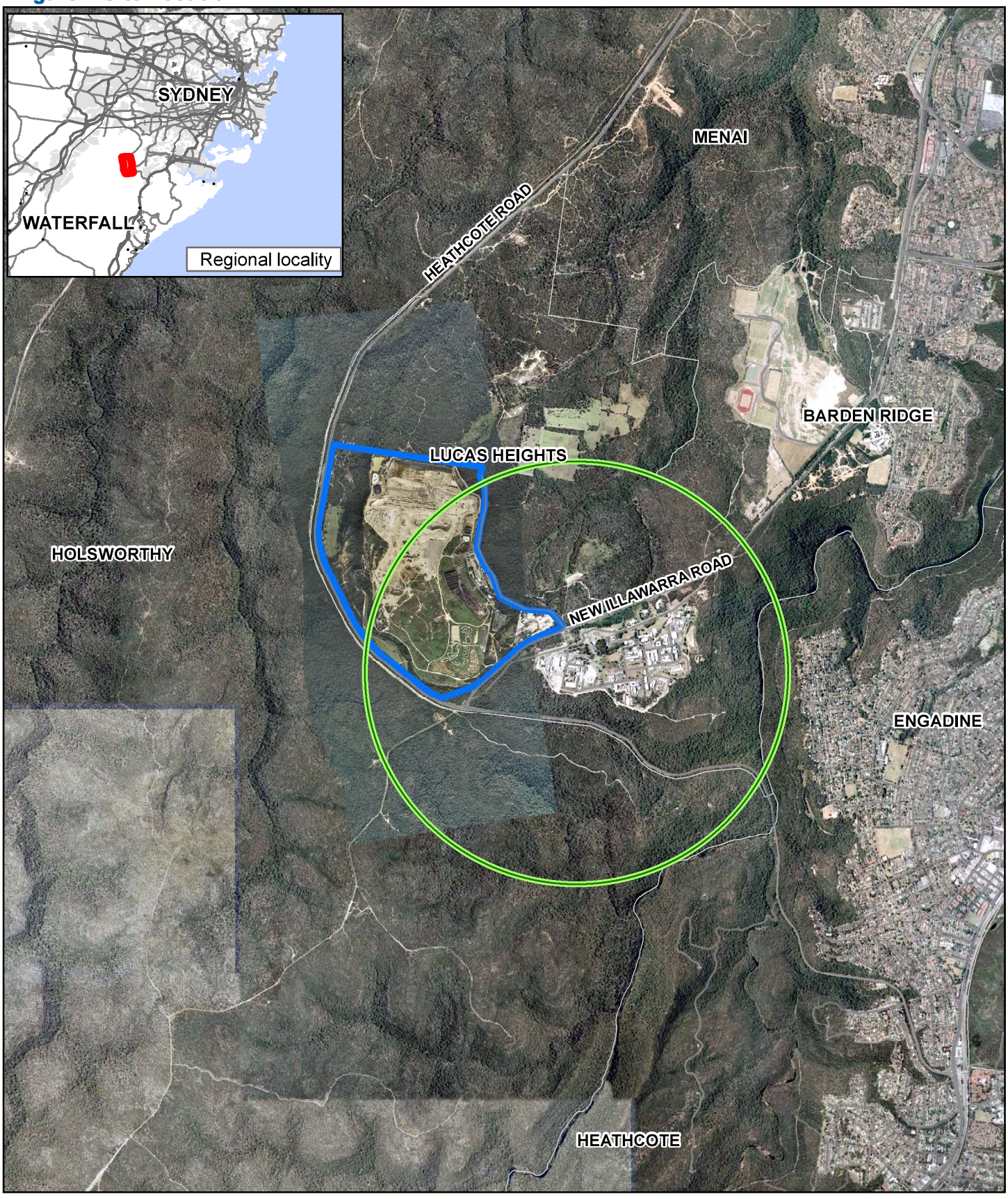
The Lucas Heights Resource Recovery Park is located at Lot 101 of plan DP 1009354. The site is approximately 30 km south-west from the Sydney CBD, on Little Forest Rd, Lucas Heights NSW 2234. The location of the LHRRP is shown in Figure 1. The site is surrounded by bushland while the southern edge is closed off by New Illawarra Road and Heathcote road.

The LHRRP is surrounded by a number of features which are detailed in Table 2-1

Table 2-1 LHRRP surrounding land use

Direction	Surrounding land use description
North	Mill Creek Mountain Bike trails Mill Creek Bushland
North West	The Sydney International Clay Target Association (SICTA) Mill Creek Heathcote Road
South East	New Illawarra Road Australia's Nuclear Science and Technology Organisation (ANSTO)
South	Intersection between Heathcote Rd and New Illawarra Rd
West	Marconi Clay Target Club Heathcote Road

Figure 1 Site Location



LEGEND

- Lucas Heights Resource Recovery Park boundary
- ANSTO buffer boundary
- Roads

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

SUEZ
Lucas Heights Resource Recovery Park

Job Number 21-23482
Revision A
Date 27 Apr 2015

Site location

Figure E.1

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-Z010_SiteLocation.mxd

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

2.2 Project detail

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. The LHRRP has operated since 1987 and contains a putrescible waste landfill, GO facility, resource recovery centre and a renewable energy production facility.

The active areas at the landfill receive municipal waste from various council kerbside collections across Sydney, commercial waste contractors and SUEZ operated waste transfer stations. The resource recovery centre, GO facility and administration infrastructure are currently located at the east of the LHRRP.

The existing GO facility processes material from council collections, small businesses and individual members of the public. The prepared material is pasteurised and matured by regularly turning for a period of time in blocks and open windrows. The processing takes between 20 and 30 weeks, during which the material is exposed to the elements and prevalent climatic conditions without any permanent cover.

In January 2017, the Planning Assessment Commission approved Development Consent No SSD 6835 to allow for:

- Increase in overall and yearly landfill capacity
- Relocation and expansion of the existing GO facility, and
- Construction and operation of a new advanced resource recovery technology facility (ARRT facility).

As part of the approved works, SUEZ is proposing to construct only the GO facility at this initial stage without the ARRT facility. The ARRT facility may be constructed at a later date.

2.3 Construction Activities

The construction activities associated with this initial stage of the project are expected to be carried out over a period of 6 months. The relevant construction activities associated to construction of the GO Facility only include:

- GO Facility West:
  - site preparation and vegetation clearance,
  - removal of existing culvert if required,
  - bulk earthworks for site shaping,
  - construction of hardstand and internal access roads,
  - construction of water and leachate management infrastructure including temporary diversion drains,
  - construction of surface water storage dams,
  - installation of concrete box culvert for the Mill Creek crossing,
  - installation of waste receival and sorting areas and prefabricated concrete bunkers and storage areas,
  - Commissioning of mechanical equipment including pumping station,
  - Mill Creek initial realignment, and
  - Mill Creek rehabilitation works including planting of native vegetation.
- GO Facility East:
  - Relocation works within Area 2 and 3 of the GO area

2.4 Duration and construction hours

In accordance with Condition C53, construction hours will comply with Table 2 of SSD-6835, as reproduced in Table 2-2.

Table 2-2 Approved construction hours

Facility	Day	Time
Landfill	Monday – Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm
GO Facility	Monday – Friday Saturday - Sunday	7 am – 5 pm 8 am – 5 pm
ARRT Facility	Monday – Friday Saturday – Sunday	7 am – 5 pm 8 am – 5 pm

3. Legislation, Approvals and References

3.1 Relevant Legislation

The LHRRP has been licensed by the NSW EPA under the PoEO Act 1997. The environment protection licence (EPL) No. 5065 and No. 12520 authorises the scheduled activities listed within the EPL specifically for LHRRP. This license is renewed annually and is reviewed every five years after the date of issue.

The conditions of the EPL are addressed within the current Operational Environment Management Plan (OEMP). A separate OEMP for the new GO Facility and an update to the existing OEMP will be developed to include the LHRRP landfilling activities and other approved activities in accordance with the Development Consent SSD 6835.

3.2 Development consent

The Project Approval and EPL outlines the main requirements for this CEMP. The relevant conditions are outlined in Table 3-1 below.

Table 3-1 Management Plan Requirements

Condition	Requirement	Relevant section
D1	The applicant shall prepared 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;	Refer Council and DPIE review comments (addressed in document) Appendix A
	b. Identify the statutory approvals that apply to the site;	Section 3.1
	c. Outline all environmental management practices and procedures to be following during construction	Section 5
	d. Described all activities to be undertaken on the site during construction, including a clear indication of construction stages;	Section 2.2
	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;	Sections 4.4 and 6
	f. Describe the roles and responsibilities of all relevant employees involved in construction works; and	Section 4.1
	g. Include the management plans under Condition D2 of this consent.	Appendices B to E
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 the EPA	Appendix B
	b. An erosion and sediment control plan	Appendix C
	c. A vegetation and fauna management plan	Appendix D

	d. A construction traffic management plan	Appendix E
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	OEMP
	b. A description of:	
	I. The relevant statutory requirements (including any relevant approval, licence or lease conditions)	Section 3
	II. Any relevant limits or performance measures/criteria; and	Appendices B to E
	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.	Sections 5 and 6
	c. A description of the measures that will be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria	Section 5
	d. A program to monitor and report on:	Section 6
	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	Section 4.4
	f. A program to investigate and implement ways to improve the environmental performance of the Development over time	Section 7.1
	g. A protocol for managing and reporting any:	Sections 4.4 and 6.5
	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 period review of the plan	Section 7

4. Implementation

4.1 Roles and responsibilities

The roles and responsibilities of key personnel are identified below.

Table 4-1 Roles and responsibilities

Title	Role
Site Manager	Overall responsibility for the management of construction issues on site
Compliance officer	Establishment and management of environmental monitoring contract, wet weather monitoring and ad-hoc sampling as required
Site supervisor	Supervision of site based construction activities, ensuring that necessary water environmental controls are maintained to achieve the environmental objectives
Site personnel, including contractors	Day to day implementation of environmental control and visual monitoring as required. Adherence to this CEMP.
Environmental Management Representative (EMR)	The EMR is responsible for overseeing the environmental management of the project and supervision of environmental services. The EMR has the authority to stop work if an adverse impact on the environment has occurred or is likely to occur. The EMR will: • Be responsible for the presentation or certification of all CEMP's and procedures • Be responsible for considering and advising on matters specified in the conditions of this consent and compliance with such matters • Oversee the receipt and response to complaints about the environmental performance of the project • Facilitate an introduction and training program for all persons involved with construction, landfilling and rehabilitation activities • Be present on site during any critical construction activities as defined in this CEMP.
Compliance Officer	SUEZ will employ or nominate a compliance officer for the LHRRP. The compliance officer will: • Be in charge of establishment and management of environmental monitoring contract, wet weather monitoring and ad-hoc sampling as required and interpretation and management of monitoring data • Report on to relevant stakeholders, as required by this CEMP.
Community Reference Group (CRG)	A CRG has been established for LHRRP, comprising of SUEZ representatives and the community. The CRG meet on a quarterly basis to discuss matters of concern associated with the environmental impact of the development and to promote mutually satisfactory solutions. The group will be kept informed of construction works at the LHRRP.

4.2 Competence, training and awareness

SUEZ would generally engage contractors to complete works on site, whose responsibility it would be for providing sufficient staff on site to meet all the requirements described in this CEMP. It would be the responsibility of all contractors working on-site to ensure staff are trained in the requirements of this CEMP.

The Induction, Training and Competency Procedure provides instruction to ensure that staff are trained and competent to perform their required duties in a safe and environmentally sound manner and that appropriate training records are retained. Appropriate environmental and WH&S training will also be given to suppliers and contractors to ensure their performance meets SUEZ requirements.

Environmental and WH&S Due Diligence training will also be provided to employees and nominated contractors. It is designed to provide employees and contractors with information about their environmental and WH&S responsibilities.

The training is focused on the following issues:

- Environmental legislation - NSW
- Environmental aspects and impacts of the operational activities
- SUEZ policies
- Environmental management
- Environmental due diligence.

The LHRRP Training Matrix identifies the internal training needs (Induction, Environmental Due Diligence, IMS Awareness, IMS Procedures and SOPs) and the external training needs (first aid etc.) for on-site staff. Contractors are required to provide ongoing training which is discussed at the monthly contractor meetings.

4.3 Communication

4.3.1 Internal communication

SUEZ is committed to ensure effective communication and consultation is undertaken on a regular basis at all levels of the business. The methods of communication on site will include:

- Pre-Start Meetings.
- Inductions.
- Toolbox Talks.
- Alerts/ Bulletins/ Initiatives.
- Environmental Work Method Statements.

4.3.2 External communication

The Secretary of DPIE will be notified in writing of the start of the construction of the project. Details of external stakeholders are provided in Table 4-2

Table 4-2 Stakeholder details

Agency	Contact person	Phone
Department of Planning, Industry and Environment	Julia Pope	02 8217 2068
NSW EPA	Trevor Wilson	02 9995 5646
Sutherland Shire Council	Ian Drinnan	02 9710 0547

4.3.3 Community consultation

Updates of work progress, construction activities and planned works schedules will be provided on the project website at www.suez.com.au where significant changes in noise, air or traffic impacts are expected.

Project website

In accordance with Condition D15 of SSD-6835, SUEZ will maintain a project website at www.suez.com.au which will provide details of the project, including:

a) The EIS, RTS, CEMP and OEMPs

b) Current statutory, plans and programs

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 Review, Independent Environmental Audits and the Applicant's response to the recommendations

g) Any other matter required by the secretary.

Community Reference Group

In accordance with Condition D14 of SSD-6835, a community reference group (CRG) has been established for the LHRRP, comprising of SUEZ representatives and the community.

The CRG meets on a quarterly basis to discuss matters of concern associated with the environmental impact of the development and to promote mutually satisfactory solutions.

The group will be kept informed of proposed works for the Project.

4.4 Incident Response Plan

4.4.1 Incident reporting

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. Environmental reportable incidents are reportable to Council as per Reporting Template requirements.

A copy of the Reporting Template is contained in Appendix C of the Operational Environmental Management Plan.

4.4.2 Environmental incident/non-conformance management

A non-conformance is the failure to comply with the requirements of this CEMP and supporting documentation. All environmental incidents, non-conformances and associated corrective actions are to be recorded in accordance with the *Incident Reporting and Corrective Action Procedure*.

All contact with an environmental regulatory bodies must be approved by the Site Manager or the relevant Business Line Manager.

4.4.3 Community complaints

SUEZ is committed to best practice, prevention, mitigation and rectification of the operation and management of the LHRRP and post closure management obligations. The Complaint

Investigation and Rectification Process is included in Appendix K of the Operational Environmental Management Plan.

A free call telephone line through SUEZ's Customer Service department operates 24 hours a day 7 days per week (COC 153). Complaints about the development can be registered on this line.

Details of all complaints received and actions taken in response to the complaints are kept on the SUEZ database through the SIMS system. Complaints received via the hotline are investigated and responded to within the allocated time frame set out in Environmental Complaints Management SOP.

4.4.4 Emergency preparedness

Emergency drills are to be conducted in accordance with the Emergency Management Procedure for the Site. In the event of an emergency involving potential environmental damage the PIRMP must be activated in accordance with EPL No. 5065.

5. Construction environmental management

The following sections outline the documentation requirements and management measures that should be included in the CEMP. This CEMP considers all relevant aspects of the construction of the GO Facility.

5.1 Waste

Management actions provided in Table 5-1 would be implemented to minimise potential impacts of waste during construction.

Table 5-1 Proposed management actions - waste

Impact	Management actions	Timing
Waste being released to the environment from the site and impacting natural habitats and other sensitive receivers, leading to contravention of site EPL No.5065.	Waste (including runoff from waste areas) must not be released to the environment, stored, transferred or disposed contrary to any condition in EPL No. 5065.	Construction
	Reasonable and practicable steps must be taken to ensure recyclable waste is not deposited in the general waste stream. Such steps may include, but are not limited to, provision of receptacles, suitable signage, and promotion of awareness of the recycling service among staff	Construction
	There must be no direct or indirect release of contaminants to any watercourse or stormwater drain	Construction
Excess excavated spoil	Excavated material will be stockpiled within specified locations approved by the Superintendent for characterisation testing. Once characterised and segregated, re-use of the excavated material for construction activities and operation of the site (.e.g. utilisation as landfill cover material) is to comply with the Spoil Management Plan, Site Licence and the Specification.	Construction
Risk to human health.	Work Health and Safety Plan shall be prepared and implemented which considers exposure of workers to contaminated groundwater/surface water (leachate), landfill gas and contaminated soil, as well as appropriate safety measures.	Construction
	Bins for waste collection will be provided on site for utilisation by all staff and sub-contractors. Bins will be emptied/removed for disposal and replaced as	Construction

	needed. Ensure that an adequate number of bins is present on site and at the site office.	
	Ablutions facilities are to be provided at the landfill site if none available to staff.	Construction

5.2 Traffic, transport and access

The potential management actions of traffic, transport and access are identified in the CTMP (Appendix E).

5.3 Noise

Management actions provided in Table 5-2 would be implemented to minimise potential impacts of noise on the surrounding environment.

Table 5-2 Proposed management actions - noise

Impact	Management actions	Timing
Noise generated by site activities causing nuisance to the surrounding environment	Works shall be undertaken in such a way so as to minimise noise impacts and potential for nuisance to be caused to surrounding sensitive receivers.	Construction
	Noise monitoring shall be conducted in accordance with a monitoring plan developed and implemented by the Contractor, ensuring compliance Table 5-3.	Construction
	The hours of construction shall be 7.00 am – 5.00 pm Monday to Friday and 8.00 am – 5.00 pm Saturday and Sunday. Activities likely to generate significant noise levels limited to times least likely to impose noise disturbance.	Construction
	Heavy vehicles accessing the site are to comply with local speed limits when travelling along local street networks. Heavy vehicles will comply with the CTMP.	Construction
	Where available, consideration should be given to employing plant, machinery and vehicles on-site which include noise suppressors or are equipped with electric motors as opposed to diesel operated motors, and are regularly maintained/serviced.	Construction
	Use reverse quackers with a low decibel output rather than beepers for excavators and wheel loaders	Construction

As per condition C54 of the Consent (SSD 6835), noise from the site must not exceed noise limits in Table 5-3 below:

Table 5-3 Noise limits dB(A)

No.	Location	Day	Evening	Night	Night
		L_{eq} (15 min)	L_{eq} (15 min)	L_{eq} (15 min)	L_{eq} (1 min)
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

5.4 Visual

Management actions provided in Table 5-4 would be implemented to minimise potential impacts on the visual amenity.

Table 5-4 Proposed management actions - visual

Management actions	Timing
Maintenance of roads, fences and site infrastructure would be undertaken as necessary.	Construction
Progressive rehabilitation and revegetation of any cleared areas, including applying hydromulch on exposed batter areas.	Construction
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	Construction

5.5 Dust

Management actions provided in Table 5-5 would be implemented to minimise potential impacts on air quality.

Table 5-5 Proposed management actions – air quality

Impact	Management actions	Timing
Generation of dust	To reduce generation of dust: • Limit earthmoving activities during periods of high winds • Implement dust suppression using water carts or binder sprays • Specify height and cover of stockpiles • Minimise vehicle movements • Cover loads during transport • Comply with vehicle speed limits.	Pre-construction
	Limit the areas of clearing and ground disturbance to the minimum required.	Construction

Impact	Management actions	Timing
	Investigate any dust complaints and implement correction as soon as possible.	Construction
	Maintain dust suppression controls on disturbed areas until rehabilitation is completed with appropriate vegetation coverage. Rehabilitate within 10 days of completion of the capping layer in an area.	Construction
Exhaust emissions	Turn off plant and machinery when not in use and fit with emission control devices complying with Australian Design Standards.	Construction
	Maintain construction plant and equipment in good working condition in accordance with manufacturer requirements. Stand down any equipment found to be emitting excessive exhaust emissions (such as excessive visible diesel smoke) until repaired.	Construction
Combustion emissions	No burning of any materials would be permitted on-site.	Construction
Impact on sensitive receivers	Advise local residents of hours of operation and duration of work and provide a contact name and number for queries regarding air quality.	Construction

5.6 Soils and surface water

Construction activities on the site have the potential to exacerbate erosion processes and sediment generation. An Erosion and Sediment Control Plan has been developed as required by SSD-6835, which can be found in Appendix C.

Potential management actions for soils and surface water are discussed in the ESCP (Appendix C).

5.7 Groundwater

Install and monitor two additional groundwater monitoring wells prior to commencement of operations at the ARRT and GO facility. The two 30 m deep groundwater monitoring wells would be installed in accordance with the recommendations of the Groundwater Management Plan (Douglas Partners, 2018) developed in consultation with the NSW Department of Primary Industries. 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 south of monitoring points MB305 and MB306 on the western site boundary.

5.8 Contamination

Management actions provided in Table 5-6 would be implemented to minimise potential impacts from contamination.

Table 5-6 Proposed management actions - Contamination

Management actions	Timing
Monitor groundwater wells during construction of the GO facility and staged construction of the ARRT facility to provide early indication of any additional impacts from construction or operation on the proposal site	Construction
Undertake a general site inspection in conjunction with the soil sampling and well installation to identify any visual or olfactory signs of potential	Construction

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	Construction
Develop and detail in the CEMP appropriate site management practices and emergency response procedures prior to construction to minimise water quality impacts associated with the GO facility construction	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 GO facility.	Construction

5.9 Hazards and risks

Management actions provided in Table 5-7 would be implemented to minimise potential impacts from hazards and risks.

Table 5-7 Proposed management actions - Hazards and risks

Management actions	Timing
Propose suitable management actions to be incorporated in building design and construction	Pre-Construction
Provision of adequate resources including staffing, fire-fighting equipment, first aid equipment and personal protective equipment	Construction
Training and retraining of staff so that a high level of preparedness is maintained by all people who may be involved in an emergency	Construction
Periodic review and update of the emergency procedures for the site	Construction
Reporting incidents to relevant authorities	Construction
Notification of community members who may be affected by the incident	Construction

5.10 Fire prevention and management

Management actions provided in Table 5-8 would be implemented to minimise potential impacts of fires.

Table 5-8 Proposed management actions – Fire prevention and management

Management actions	Timing
Fire prevention and management would be undertaken in accordance with the LHRRP Emergency Response Plan.	Construction
The relevant fire safety requirements of the Building Code of Australia would be applied during construction of the proposal, including any buildings, including provision of smoke detectors, fire extinguishers, fire blankets, fire hose reels and sprinklers where applicable	Construction

Management actions	Timing
A 10 metre wide Asset Protection Zone would be provided around the northern and western sides of the GO and ARRT Facility buildings	Construction

5.11 Biodiversity

The potential management actions of vegetation and fauna management plan are identified in Appendix D.

5.12 Heritage

Management actions provided in Table 5-9 would be implemented to minimise potential impacts on heritage sites or relics.

Table 5-9 Potential management actions - Heritage

Impact	Management actions	Timing	Responsibility
Aboriginal and Non-Aboriginal heritage - Inductions	As part of the site induction, all workers would be advised of their obligations in relation to heritage before construction begins, namely what to do in the event of an unexpected finds and the responsibilities and requirements of the Heritage Act 1977.	Pre-construction, Construction	Contractor
Non-Aboriginal heritage – Unexpected finds	In the unlikely event that unexpected archaeological remains or potential heritage items note identified as part of this assessment are discovered during the Project, all works in the immediate area will cease, the remains and potential impacts will be assessed by a qualified archaeologist or heritage consultant and, if necessary, the Heritage Division, NSW notified in accordance with section 146 of the Heritage Act 1977.	Construction	Contractor
Aboriginal heritage – unexpected finds	If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the proponent must follow an unanticipated finds protocol, including: • Immediately cease all work at the particular location and the Regional Operations Group of Heritage NSW and EnviroLine will be contacted on 131 555. Registered Aboriginal Parties would also be consulted. • Ensuring no further harm occurs to the object • Secure the area so as to avoid further harm to the Aboriginal object	Construction	Contractor

Impact	Management actions	Timing	Responsibility
	• Notify Heritage NSW as soon as practical on 131 555, providing any details of the Aboriginal object and its location • Not recommence any work at the particular location unless authorised in writing by Heritage NSW. • If human remains are discovered, contact the NSW Police or NSW Coroner, than Heritage NSW, the relevant Aboriginal parties must be notified.		

5.13 Socio-economic

Table 5-10 Management actions - Socio-economic

Management Actions	Timing
Maintain ongoing engagement with the community during construction Develop a stakeholder engagement plan 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	Pre-Construction
Maintain ongoing engagement with the community during construction	Construction

6. Inspections, auditing and reporting

6.1 Environmental review

SUEZ evaluates the success of its environmental management approach on a regular basis. While individual components of the monitoring programme will be reviewed at set intervals as required by SSD-6835, an overall evaluation of the environmental performance of the LHRRP is conducted on an annual basis in accordance with SUEZ's Audit Procedure and as part of the Annual Review process.

The purpose of the audit procedure is to outline the process for implementing an internal audit program, designed to ensure that:

- SUEZ's Integrated Management System meets environmental, quality health, safety, and asset management system criteria and other relevant standards
- The Integrated Management System is implemented, rigorous and effective,
- Improvement opportunities are addressed to ensure continuous improvement and reduction in safety, environment, quality, and asset related incidents, and
- Audit findings are documented and communicated to senior management and other relevant personnel.

SUEZ also aims to provide confidence to DPIE and other relevant stakeholders that construction works are being managed in a way that minimises environmental impacts.

6.2 Environmental inspections

The Environmental Management Representative (EMR) will undertake weekly inspections of the work site to evaluate the effectiveness of environmental controls.

The EMR will record inspection findings on an inspection checklist form.

6.3 Environmental monitoring

Any required environmental monitoring will be detailed within relevant sub plans in Appendix B to Appendix E.

6.4 Environmental auditing

The SUEZ Audit Procedure provides detailed instruction on weekly inspections and management system audits conducted on a regular basis to verify that site's operations comply with the requirements of this CEMP and the OEMP.

The results of the audits would be recorded and recommendations for improvement communicated to the relevant management personnel as well as to the contractors.

6.5 Reporting

6.5.1 Monitoring results

Environmental monitoring data are stored in electronic format on the SUEZ computer network. As required by SSD-6835 and the Protection of the Environment Legislation Amendment Act 2011, monitoring results required by the licence will be posted on the company website within 14 days (or made available on request).

Monitoring results are reviewed and communicated on a monthly basis at the site meetings. This provides an ongoing mechanism for assessing the environmental performance over time.

An annual return with the results from surface water, groundwater, surface gas, subsurface gas and leachate monitoring is provided to the NSW EPA within eight weeks of the licence renewal date. The report includes all monitoring results, the number of complaints and details of non-compliance against the EPL.

The records of all complaints received will be stored. The records include details of the following:

- Date and time of the complaint
- Method by which complaint was made
- Personal details of the complainant which were provided by complainant or, if no details were provided, a note to that effect
- Nature of the complaint
- The action taken by the licensee, including any follow-up contact with the complainant; and
- If no action was taken by the licensee, the reasons why no action was taken

The record of each complaint must be kept for at least four years after the complaint was received and must be made available to any authorised officer of the NSW EPA on request.

SUEZ provide a number of feedback mechanisms for complaints.

Community members can register complaints via the SUEZ free-call 24-hour odour hotline in writing or through the SUEZ website.

SUEZ, its employees and the contractor's employees must notify:

- The NSW EPA of incidents causing or threatening material harm to the environment as soon as possible. Notifications must be made by telephoning the EPA Pollution Hotline on 131 555. Written details of the notification to the NSW EPA must be made within seven days of the date of the incident.
- DPIE and any other relevant agencies of any exceedances of limits/performance criteria, with a written report to be provided within seven (7) days of the incident.

6.5.2 Reporting template

By the end of February each year, an Annual Review is prepared and submitted to DPIE providing a summary of operations carried out during the last year, an analysis of monitoring results and complaints, and identification of non-compliances, trends in monitoring data and other items required by Condition D9 of SSD-6835.

SUEZ will complete reporting in accordance with SSD-6835 and LHRRP Reporting Template, which is provided in Appendix C of the Operational Environmental Management Plan.

7. Review and improvement

7.1 Continuous improvement

Continuous improvement of this CEMP will be completed as part of SUEZ's Audit Procedure, which requires a review of the plan on an annual basis.

The continuous improvement process will aim to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

7.2 CEMP revision

This CEMP is a "living document" and will be updated periodically as new technology emerges and new standards for environmental performance are adopted industry wide. Any proposed updates will be provided DPIE and other stakeholders as relevant.

Key events that will trigger a requirement to review, and if necessary, revise this EMP include:

- The outcomes of any independent audits completed in accordance Condition D12 of SSD-6835
- As a result of incidents and non-conformances or non-compliances
- As a result of periodic review, including during preparation of the Annual Review
- Changes to the Project or construction methodology, particularly in relation to reflecting any modifications to SSD-6835

Appendices

Appendix A - Consultation

From: Phillippa Biswell <PBiswell@ssc.nsw.gov.au>
Sent: Monday, 22 February 2021 2:28 PM
To: Chiang, Lc <lc.chiang@suez.com>
Cc: Ian Drinnan <IDrinnan@ssc.nsw.gov.au>
Subject: Suez Lucas Heights Garden Organics Facility CEMP comments

Hi LC,

I have reviewed the Lucas Heights CEMP for the proposed Lucas Heights Garden Organics Facility. Generally I have no issue with the CEMP. There are however some sections that I found needed further clarification or are missing information. I have listed these below along with the section that they are located in.

CEMP
Table 5-9 (pg 21). There is no requirement listed to undertake an Aboriginal Heritage Induction with contractors, just a non-Aboriginal Heritage Induction. This needs to be included, especially as there are requirements surrounding unexpected finds of Aboriginal Heritage.

E&SC Plan – Appendix C
Section 4.2 Inspections (page 52). Please clarify the first sentence. Will daily visual inspections take place with additional inspections taken when more than 5mm of rainfall is forecast for that day or the following day or will inspections only occur when more than 5mm of rain is expected? Council prefers daily inspections with additional inspections after 5mm of rain or inclement weather in line with the Blue Book.

Please provide additional information regarding what should happen to the sediment from the sediment basin following a clean-out (paragraph 4 of section 4.2). In table 5.1 of the CEMP it is stated that excavated sediment should not be released to the environment, stored, transferred or disposed contrary to EPL No. 5065, but nowhere in the CEMP does it indicate how the excavated sediments will be disposed of or reused. Will they require testing or treatment prior to disposal or reuse?

Section 4.3 Water Quality Testing (page 52). Please specify what actions will be taken if analytes exceed trigger criteria (as stated in EPL) for additional monitoring undertaken in excess of existing EPL requirements.

Please contact me if you require further information or clarification on my comments.

Kind Regards
Phillippa Biswell

SUTHERLANDSHIRE

Phillippa Biswell
Sutherland Shire Council | Environmental Project Officer – Earth Scientist | Environmental Science Unit
(02) 9710 0210

pbiswell@ssc.nsw.gov.au
sutherlandshire.nsw.gov.au

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We acknowledge the traditional owners of the land on which we live, and pay our respects to elders past and present.

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Planning, Industry & Environment

Mr LC Chiang
New Illawarra Road Landfill Manager

3 Rider Boulevard
Rhodes, NSW, 2138

11/05/2021

Dear Mr Chiang

Lucas Heights Resource Recovery Plant (SSD-6835)
Construction Environmental Management Plan - request for additional information

We require additional information relating to the Construction Environmental Management Plan submitted under the conditions of consent for the Lucas Heights Resource Recovery Plant.

Please provide the following additional information:

- Pursuant to Condition D1(d), please describe all the activities to be undertaken on site during construction, updating section 2.3 to reflect this.
- Pursuant to Condition C48(e), please include a Driver Code of Conduct in the Construction Traffic Management Plan to:
    - Minimise the impacts of construction works on the local and regional road network;
    - Minimise conflicts with other road users; and
    - Ensure truck drivers use specified routes.
- Pursuant to Condition C48(f), include a program to monitor the effectiveness of the measures in the Construction Traffic Management Plan.

Please provide the information or notify us that you will not provide the information by Tuesday 25 May 2021. If this timeframe is not achievable, please provide and commit to an alternative timeframe for providing this information.

If you have any questions, please contact Kathryn Moreira on 02 9274 6086/ at kathryn.moreira@dpie.nsw.gov.au.

Yours sincerely

Sheelagh Laguna
A/Team Leader
Industry Assessments

Appendix B - Dual Gas and Leachate Trench Management Plan

Construction Environmental Management Plan

Part 1 - Landfill Related Construction works only

Dual Gas and Leachate Trench construction works

Lucas Heights Resource Recovery Park

Document #: LHRRP -CEMP-Part 1

Issue date: 2 October 2018

Version: 004

1. Quality Information

1.1. Document Revision Register

Rev	Revision Details	Prepared by	Reviewed by	Authorised by	Date
1	Initial Draft SSC and EPA	Chandra Mohan Landfill Engineer/Project Manager	LC Chiang Landfill Manager New Illawarra Road Landfill	Kim Ross NSW Landfill/ Advisor	19 July 2017
2	Consultation Draft	Ken Telfer Compliance Manager LHRRP SUEZ	LC Chiang Landfill Manager New Illawarra Road Landfill	Kim Ross NSW Landfill/ Advisor	10 April 2018
3	Consultation Draft Following Council Comments	Ken Telfer Compliance Manager LHRRP SUEZ	LC Chiang Landfill Manager New Illawarra Road Landfill	Kim Ross NSW Landfill/ Advisor	15 May 2018
4	Added SSC acceptance and clarified OEMP/ CEMP relationship in Section 2.1	Ken Telfer Compliance Manager LHRRP SUEZ	LC Chiang Landfill Manager New Illawarra Road Landfill	Kim Ross NSW Landfill/ Advisor	6 Sep 2018

Table of Contents

2. Introduction

SUEZ Recycling and Recovery (SUEZ) operates a solid waste landfill at Lucas Heights Resource Recovery Park (LHRRP). LHRRP is licensed to accept solid waste from domestic and commercial sources that are suitable for disposal in a general solid (putrescible) waste landfill. Activities on the site include waste receival and recycling, waste compaction and covering, environmental monitoring and environmental management.

On 23rd January 2017, NSW DoP approved a Development Consent, to increase landfill capacity, relocate and expand the garden organic facility and construct and operate a new resources recover facility.

Under section C23 of the consent, a Dual Gas – Leachate Trench is required around the landfill where re profiling will be undertaken. This is required to ensure additional leachate and landfill gas will be collected and treated effectively.

An Operational Environmental Management Plan (OEMP) has been prepared for Landfill profiling works, GO and the ARRT facilities, as part of the EIS and later updated to satisfy the 2017 Development Consent (DC) SSD 6835 conditions. The OEMP cover's all construction, operation, waste processing and landfill rehabilitation activities until waste receival activities cease.

In accordance with the DC Conditions (D1, D2 & D3), site specific Construction Environmental Management Plans (CEMP's) are to be prepared and submitted prior to the development of the Dual Gas and Leachate Trench, GO and ARRT Facilities, while these plans are in line with the OEMP and supporting SUEZ Environmental Quality and Safety systems, they will be prepared separately as standalone documents.

The following Table outlines the number of various Environmental Management Plans that have been prepared as part of the EIS or will be prepared and submitted to relevant stakeholders at various stages, in accordance with the 2017 DC.

Table 1.1

Approved Activity	Environmental Management Plans (EMP's)			
	Construction Phase	Operational Phase	Closure Phase	Post Closure Phase (+ 30years)
Landfill Re-profiling & Waste Filling;	CEMP for Dual Gas & Leachate Trench works	OEMP for Landfill Re-profiling & waste filling	Landfill Closure Plan	Post Closure EMP
Status	Submitted here (this document)	Submitted with EIS / Has been updated	Will be submitted prior to L/F Closure	Submitted with EIS / Will be updated and submitted prior to Closure
GO Facility	Construction EMP	OEMP for GO Facility	N/A	N/A
Status	Will be submitted prior to development	Submitted with EIS / to be updated later	N/A	N/A
ARRT Facility	Construction EMP	OEMP for ARRT Facility	N/A	N/A
Status	Will be submitted prior to development	Submitted with EIS / to be updated later	N/A	N/A

2.1 Purpose and Scope

In accordance with DC Condition C23, D1 – D3, a CEMP is to be prepared and submitted to EPA at least one month prior to construction of the Dual Gas and Leachate Trench works.

The plan has been prepared in consultation with Southerland Shire Council (SSC) with correspondence found in Appendix 2.

This CEMP for the Dual Gas and Leachate Trench construction works has been prepared as a stand-alone plan to address the potential environmental issues during the construction of the Dual Gas and Leachate Trench near the perimeter the proposed final landform at the LHRRP. The purpose of this document is to describe the environmental management during specific construction activities that have, or are likely to have, an impact on the environment. This

document sets out detailed procedures and measures that must be taken to minimise and eliminate the environmental impacts.

A full OEMP has been prepared for the site covering environmental, operational activities and relevant environmental impacts arising from landfill re-profiling, waste receival, and waste filling at the site and should be referred to regarding all environmental management issues at LHRRP, including leachate management, landfill gas management, air quality and odour management, surface water management, noise, and vegetation management. Where required further, detailed information has been supplied in separate supporting documentation such as this CEMP.

SUEZ is committed to best practice, prevention, mitigation and rectification during the operation and management of the LHRRP. The purpose of this CEMP is to adopt and document a "Best Practice Approach" for the environmental management of the LHRRP, in particular, construction works associated with Dual Gas and Leachate Trench construction works at the LHRRP site.

2.2 Statutory Approvals that apply to the Site;

The following NSW legislation applies to the operations of LHRRP which is stipulated in the Operational Environmental Management Plan (OEMP):

- Environmental Planning and Assessment Act, 1979 (EP&A Act)
- Protection of the Environment Operations Act, 1997 (PoEO Act 1997)
- Waste Avoidance and Resource Recovery Act, 2001
- Waste Recycling and Processing Corporation Act, 2010
- National Environment Protection Council (New South Wales) Act, 1995
- Water Management Act, 2000
- Soil Conservation Act, 1938
- Public Health Act, 2010
- Work Health and Safety Act, 2011
- Contaminated Land Management Act 1997
- Heritage Act, 1977
- National Parks and Wildlife Act, 1974

Other Licence and Permits include

- Environmental Protection Licence (EPL) No 5065
- Environmental Protection Licence (EPL) No 13114
- Environmental Protection Licence (EPL) No 12520
- Sydney Trade Waste Agreement No 35034
- Lease agreement with ANSTO
- Voluntary Planning Agreement

2.3 The Development Consent SSD 6835

Consent Conditions C23, D1, D2 and D3 the CEMP requirements:

Relevant Conditions	Requirement	CEMP Reference
D1	The Applicant shall prepare a Construction Environmental Management Plan (CEMP) for the Development, to the satisfaction of the Secretary. The Plan must:	Noted
(a)	be prepared in consultation with Council and be approved by the Secretary prior to construction of the Development;	Appendix 1-2 SSC and EPA Correspondence TBA
(b)	identify the statutory approvals that apply to the site;	1.2
(c)	outline all environmental management practices and procedures to be followed during construction;	3
(d)	describe all activities to be undertaken on the site during construction, including a clear indication of construction stages;	2.2
(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;	4
(f)	describe the roles and responsibilities for all relevant employees involved in construction works; and	5
(g)	include the management plans under Condition D2 of this consent.	As below
D2	As part of the CEMP for the Development, required under Condition D1 of this consent, the Applicant shall include the following:	As below
(a)	(a construction management plan for the dual gas and leachate trench prepared in consultation with EPA (Condition C23);	Appendix 1 SSC and EPA

		Correspondence TBA
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:	Refer Appendix 3
(a)	be designed in accordance with the requirements of the EPA;	Approved Refer Section E6.1 of EPL
(b)	be approved by the EPA, prior to construction of the trench and landfill re-profiling;	Appendix 1 SSC and EPA Correspondence TBA
(c)	include extraction risers along the length of the trench to allow extraction and transfer of leachate to the existing ring main; and	Refer Appendix 3
(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.	Noted
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.	Noted

3. Guidelines for Construction Environment Management Plan

The following sections outline the documentation requirements and management measures that should be included in the CEMP. This CEMP considers all relevant aspects of the works including program, operating hours, noise and dust control, stormwater and sediment control, leachate and odour management, waste and stockpile management and worker health and safety during construction of the Dual Gas and Leachate Trench works.

3.1 Reference Documents

This CEMP refers to following reference documents:

[1] A copy of the Concept Design Documentation for Dual Gas and Leachate Trench works prepared by SUEZ, July 2017 (Appendix 3).

[2] Landfill re-profiling and Progressive Capping Indicative Staging Plans – Phase 1 to Phase 9 (Appendix 4)

[3] Development Consent (SSDA 6835) Conditions – C23 (a), (b), (c), (d) and D2 (a).

[4] LHRRP OEMP, updated in June 2017.

[5] Environmental Protection Licence No. 5065.

[6] (a) SUEZ Environment, Quality & Safety Management System (MAN 018-version 3);

(b) SUEZ Environment, Quality & Safety Management System (SOP 023 – Working Heights);

(c) SUEZ Environment, Quality & Safety Management System (SOP 035 – Excavation Works);

and other SUEZ's polices/ procedures /SOPs applicable to the construction and landfill operation;

[7] Work Health and Safety Act 2011 and Work Health and Safety Regulation 2011 (NSW).

3.2 Construction Program

The first section of the Dual Gas and Leachate Trench works commenced January 2018 and will continue over several years as landfilling progresses, in accordance with 'Landfill re-profiling Indicative Staging Plans (Appendix 4). The rate of progress will depend on the rate the of profiling. It is important for each section of the trench to be completed before re profiling of that area.

3.3 Scope of the Dual Gas and Leachate Trench Construction Works

In areas to be re-profiled, the existing cover and capping system will be stripped back to promote leachate percolation from the new waste into the existing waste and to the existing leachate collection system. In undertaking the stripping works, leachate will be prevented from entering the surface water by the construction of separation bunds.

To intercept any sideways movement of leachate and providing additional extraction points, a dual gas/leachate management trench will be constructed near the perimeter of the re-profiling area. Sections of trench will be constructed as landfilling progresses.

The purpose designed trench will consist of a nominally 1.5 – 2 m deep trench within the existing waste mass backfilled with site-generated crushed sandstone and perforated pipe. The typical arrangement for the trench is illustrated in Figure 5.1. This trench will act as an extraction point for any sideways movement of leachate, should it occur. Extraction risers will be located along the length of the trench, to allow leachate to be extracted and transferred to the existing leachate ring main. Detailed design of the system will be undertaken prior to installation and will include consideration of the predicted leachate flows, settlement and strength requirements.

Prior to excavation, a further diversion wall will be installed on the outer side of the trench, approximately 5 metres from the excavation to allow vehicle access, the purpose of this is to direct any surface water to the sedimentation dam, preventing it leaving site upstream of the Sedimentation Pond. The wall will extend to the north of the recently installed the Gabbian Basket Channel.

Thus there will be two separate water flows to existing storages. As shown in figure 5.3

Details of the trench can be found in Appendix 3-4.

.

The trench will be on an incline towards the leachate treatment pond to allow drainage of the liquid, the gas lines will be under negative pressure to remove the landfill gas.

The leachate pipe will have sumps approximately every 100m to allow access for maintenance. While the gas pipe will be connected to gas well also approximately 100m which will be connected to the sites overall gas extraction system.

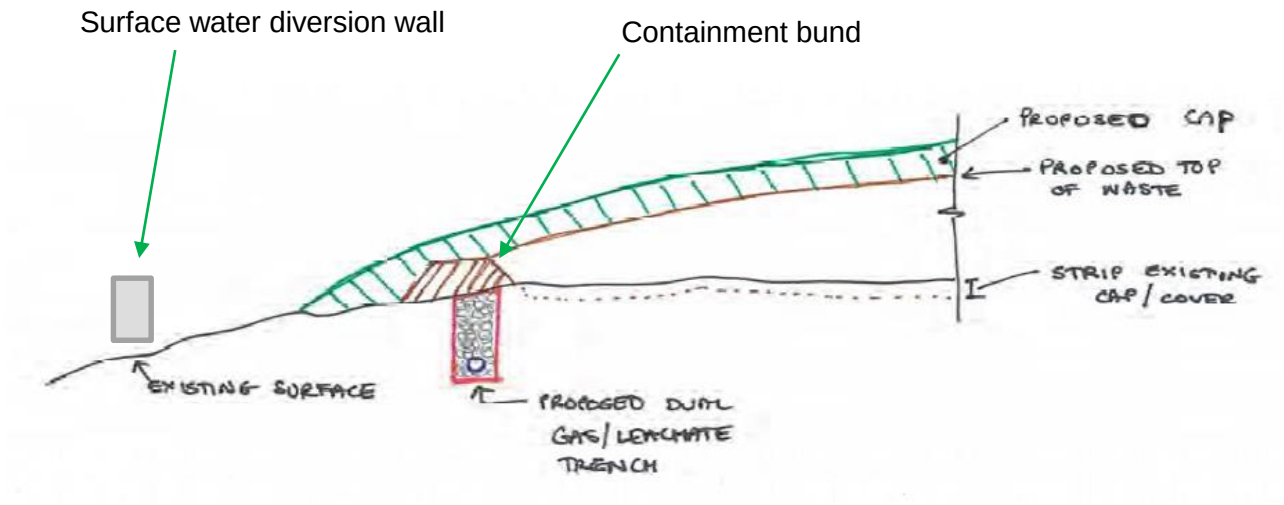

Figure 5.1 Proposed dual gas/leachate trench typical arrangement

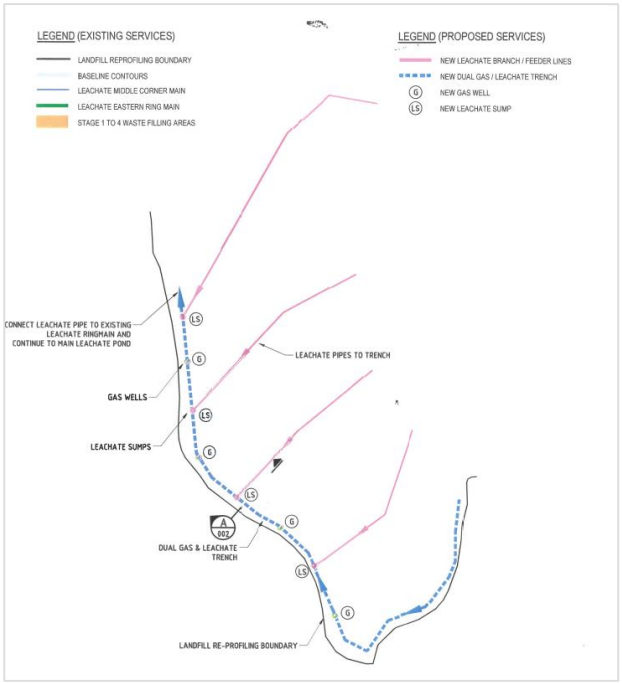

Fig 5.2 showing location of the trench around the area to be re-profiled	Figure 5.3 Green Line is the Gabbian Baskets to Sedimentation Dam. Blue is Surface water diversion wall.

	Black is the Leachate Trench and Landfill Bund

Based on the detailed design and in line with 'Staged Landfill re-profiling and waste filling plan (Phase 1 to Phase 4), the route of the initial sections of the proposed trench will be set out. Actual location of the trench and its setback distance from the landfill re-profiling boundary, will depend on the factors such as: locations of the nearby existing gas and leachate mains, actual spot levels and actual depth of waste along the route. Existing intermediate cover and capping system will be stripped back and stockpiled nearby for backfilling. The trench (subject to detail design) will be excavated to expose the old waste, near the perimeter of the re-profiled landfill to intercept the potential sideways movement of leachate and constructed as a gravity line (with 1 – 2 % fall) in stages as landfilling progresses. Please refer Appendix 4 for details.

The main perimeter trench will contain two (2), 110 to 250mm diameter perforated pipes (one for gas and other one for leachate) and be backfilled with a high permeability material such as crushed sandstone/aggregate. Lateral branch /feeder leachate trenches will be constructed from the centre of the landfill area, draining towards the perimeter Dual Gas and Leachate Trench and connected at regular intervals. Leachate Inspection Risers/Sump pits will be installed at these connection points. This will permit collection and extraction of any leachate moving horizontally near the interface of the existing and newly landfilled waste into trench, which will either be pumped out or gravity feed into the nearby existing leachate ring main. Gas collection wells will also be installed at regular intervals as required (subject availability of gas) along the trench, which will be connected to the nearby gas headers/ gas well stations. A leachate containment bund will also be constructed, prior to commencement of waste filling along the re-profiling boundary and will be incorporated as part of the locally thickened capping along the re-profiled boundary (refer to Appendix 3 – Concept design drawings for details). Following landfill re-profiling works, new waste will be filled to varying depths (subject to LHRRP pre-settlement contours and actual depths along the route), and the areas contoured to its final landform profile will be capped to contain leachate and gas.

Both the leachate containment bund and the surface water diversion wall, will be approximately 1 m high and 2 m wide, along the length of the re-profiling area.

4. Environmental Management Practices and Procedures to be followed during Construction

The following management plan practices are in line with the OEMP and supporting SUEZ Environmental Quality and Safety systems, however are specific to the dual leachate and gas trench.

4.1 Dust Management Plan

Dust emissions may arise via construction plant and equipment travelling on internal unsealed roads, during excavation/ stripping of the existing cover/ trench works and loading and unloading of stripped intermediate cover materials. The magnitude of impact will depend on the size of the construction works, topography, prevailing wind speed/direction, and distance to the nearest sensitive receptor. In line with the LHRRP OEMP, the objective of the Dust Management Plan is to prevention of air pollution and the degradation of local amenity.

Following dust mitigation measures are to be employed during construction of the Dual Gas and Leachate Trench works:

- Minimising the length of the open trench at any one time.
- Watering down of all unsealed trafficable roads that are used by the plant and equipment, as required throughout the day to minimise dust;
- Watering down any dust generating areas during construction and maintaining a water supply (dedicated water cart) on site for this purpose;
- Where possible, activities that have high potential for dust generation (excavation, unloading of materials etc.) will be halted during adverse weather conditions where strong winds are blowing towards the nearby receptor;
- Vehicles leaving the construction site with potential dust / litter generating excavated materials will be covered to prevent windblown emissions; and,
- Any dust related complaints will be recorded, investigated and appropriate correction action taken.

4.2 Noise Management Plan

Noise monitoring will be undertaken at the specific noise receptor locations, in accordance with DC Condition (C54). The Operations Manager will conduct regular site inspections to ensure that the Contractor is complying with the Noise Management Plan.

Preventative measures

- Ensure all vehicles accessing the site use designated access roadways.
- Demonstrate equipment will not cause excessive noise generation (based on the NSW EPA Environmental Guidelines: Solid Waste Landfills: Noise Control).
- Select plant and equipment to minimise noise emissions where possible, whilst maintaining efficiency of function. Residential grade silencers will be fitted and all noise control equipment will be maintained in good order.
- Maintain all machinery and equipment in proper working order in accordance with the manufacturer's requirements.
- No activities of heavy machinery outside site operating hours.
- Include a noise awareness component in site induction trainings.
- Prior to any alternative equipment being installed on site, an internal noise assessment will be conducted to ensure that it is in general accordance within the approved parameters.

General noise compliance and noise management measures for this specific works include undertaking noise monitoring of the construction activities and all other activities around the LHRRP site to ensure that the site noise level is not exceeding the required criteria.

The construction works will be carried out within the following approved Hours of Work:

Facility	Activity	Day	Time
Landfill	Construction works	Monday - Friday	7 am – 5 pm
		Saturday - Sunday	8 am – 5 pm

4.3 Surface Water and Sediment Management

Surface water management will involve diversion of clean surface water around the areas disturbed for the Dual Gas and Leachate Trench works.

This will include construction of temporary stormwater diversion drainage walls along the upstream catchment of the trench or around the rim of each active landfilling area to divert stormwater away from the trench and to minimise potential leachate generation.

The diversion drainage will typically comprise of open channel drains and be on the outer edge of the diversion drain. Diversion drains will be constructed progressively approximately 5 metres from the trench works and connected to the clean water and dirty water channels located at the perimeter of the LHRRP. Clean water from the undisturbed upstream catchments (capped areas of the landfill) will be diverted to the clean water channel and will enter Mill Creek. Thus the two streams will be kept separate.

In addition, silt fences will be constructed along the downstream of the work areas and within drainage lines to minimise sediment runoff and to protect rehabilitated areas of the landfill. Stormwater from the disturbed areas will be directed to nearby stormwater dam for reuse. Stormwater collected in the dam will be used for onsite dust suppression. The stormwater treatment facility at the LHRRP treats the sediment laden stormwater within the main stormwater dam prior to any discharging to Mill Creek.

4.4 Leachate and Landfill Gas Management

Leachate management will involve preventing leachate from entering the surface water by the construction of separation diversion walls while undertaking the stripping works (existing intermediate cover/ capping system

Additional leachate controls including temporary sumps with pump out connections will be installed prior to excavation of trenching works. Any contaminated stormwater entering the trench will be

contained and captured within low points of the trench and will treated as leachate. This contaminated water will be pumped into the nearby perimeter leachate ring main sumps, which will be directed to the leachate dam for treatment and disposed to sewer as controlled by Sydney Water Trade Waste Agreement.

4.5 Stockpile Management including Erosion and Sediment Control Plan;

All stockpiling works will generally be in compliance with LHRRP OEMP. Temporary stockpiles with stripped intermediate cover materials will be maintained with silt fences and located within the areas that drain to sedimentation dams. Temporary stockpiled material will be used onsite for covering and capping works as soon as practicable, to limit the size and location of the stockpile over the duration of the works.

Stockpiles likely to remain place for more than a week will be used as intermediate cover and replaced with clean soil.

4.6 Odour Management

Excavation of the Dual Gas and Leachate Trench may generate some odour (due to exposure of old waste, gas, leachate etc.) around the construction site.

The following odour management and mitigation measures are to be employed during construction of the Dual Gas/ Leachate trenching works:

- Trench works will be undertaken in small sections only at a time to reduce potential odour emissions and the exposed trench will be backfilled and covered within a short timeframe, prior to commencing next section of the trench;
- At any one time, no more than 100m of trenches will be exposed;
- Ensure all equipment and all odour control measures, such as odour suppressing spray equipment are in place;
- Works are to be carried out by competent and authorised personnel only. Additional training will be provided to the Contractor and his workers on landfill odour management strategy and all relevant standard operating procedures (SOP's) as part of the Risk Assessment / Job Safety and Environmental Assessment (JSEA) process;
- Monitoring of the landfill gas wells/ leachate wells upstream and surrounding areas of the work to ensure these wells are active and in good condition so that they can continue to capture gas/leachate;
- Minimise the area of cap /Intermediate cover removed prior to construction of the trench;
- Spraying odour neutralising agents over the exposed waste, soon after the excavation/stripping of the cover material;
- Maintaining an odour neutraliser spray around the works area;
- Transporting any odorous waste from the construction area to the active tip area as soon as practicable;
- Covering the excavated waste as soon as practicable with new intermediate capping layer material or other suitable material such as a tarpaulin, after installation of leachate pipe and aggregate bedding material;

- All open pipes will be blocked/ covered or connected to the collection network (Gas & Leachate);
- All trench excavation should stop under high wind and inclement weather conditions;
- Regular odour monitoring shall be conducted especially at the downwind locations;
- Any odour related complaints will be recorded, investigated and appropriate correction action taken.

5. Performance Monitoring

Under the OEMP, daily and weekly checks are undertaken by site personnel for the overall environmental performance of the site. This includes visual checks on litter, noise, dust, odour by site supervisors and managers.

As the trench installation will always be in the general area of the tip face this monitoring will be included in the existing procedures.

The performance of the leachate extraction system also be John P Grey Engineering (JPG), and the gas extraction Energy Development Limited (EDL).

6. Roles and Responsibilities

Overall responsibility for the implementation of the CEMP rests with SUEZ. All employees and the contractors will meet the requirements of the CEMP and associated procedures. In-line with the LHRRP OEMP the responsibilities for the implementation of the CEMP are summarised in below.

Action	Responsibility	Timing
Overall implementation of the CEMP	Landfill Manager	Ongoing
Daily inspections for the work area.	Operations Manager	Ongoing
Scheduling trench work.	Operations Manager	As required
Insuring trench is built to correct level, angle and length to minimise exposure waste.	Landfill Manager / Operations Manager	As required
Installation of pipe work and inspection of joins occurs with set time frames to minimise exposure waste.	Operations Manager	As required
Backfilling occurs with set time frames to minimise exposure waste.	Operations Manager	As required

Appendix 1 Consultation with NSW EPA refer Section H for the Licence Variation

Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

Licence - 5065

SUEZ RECYCLING & RECOVERY PTY LTD
ABN 70 002 902 650 ACN 002 902 650
LOCKED BAG 5015
KINGSGROVE DC NSW 2208

Attention: Mr LC Chiang

Notice Number	1555375
File Number	EF13/5346
Date	07-Dec-2017

NOTICE OF VARIATION OF LICENCE NO. 5065

BACKGROUND

A. SUEZ RECYCLING & RECOVERY PTY LTD ("the licensee") is the holder of Environment Protection Licence No. 5065 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("the Act"). The licence authorises the carrying out of activities at NEW ILLAWARRA ROAD, LUCAS HEIGHTS, NSW, 2234 ("the premises").

Licence variation application and monitoring updates

B. On 20-Jul-2017 the Environment Protecton Authority (EPA) received an application for the variation of the licence which requested that the licence is updated with regard to its monitoring/discharge points.

C. The EPA sought to clarify the application and additional information was provided during the EPA's inspection of the premises on 14 September 2017 and via email on 3 October 2017.

D. The licensee submitted to the EPA on 6 April 2017. the letter from GHD to Kim Ross, NSW Landfill Advisor for Suez Recycling and Recovery "Lucas Heights 2 landfill site: Landfill Gas Investigation - Key findings and recommendations regarding landfill gas monitoring bore MB037 and elevated methane and/or carbon dioxide concentrations" dated 5 April 2017 (GHD ref: 21/26092) ("MB037 investigation report").

E. The licensee submitted to the EPA on 6 September 2017, the document Groundwater Management Plan - Lucas Heights Resource Recovery Park, New Illawarra Road, Lucas Heights (September 2017), prepared for Suez Australia Pty Ltd by Douglas Partners, Revision 1 ("the GMP").

F. The EPA has reviewed the licence variation application, the MB037 investigation report, and the GMP. Subsequently, the EPA has determined that the monitoring required by Conditions M2.2, M2.3, M8.1 and M8.2 need to be updated to reflect the EPA's review, and to align with the document *Environmental Guidelines: Solid Waste Landfills (Second edition, September 2016)*, prepared by the NSW EPA.

G. On 5 December 2017, the licensee provided additional information regarding the location of monitoring points and a map to be incorporated into the licence variation application.

Page 1

Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

Approval of Landfill - Dual Gas and Leachate Trench

H. On 20 July 2017, the licensee submitted to the EPA the following documents for review and approval:

   A. *Construction Environmental Management Plan Part 1 - Landfill Related Construction works only Dual Gas and Leachate Trench construction works, Lucas Heights Resource Recovery Park. prepared by Suez and issued on July 2017* (version no. 0031) ("Dual Gas and Leachate Trench CEMP"), and

   B. The Dual Gas and Leachate Trench Concept Design, which consists of the following drawings:

      A. *Phase 1 to 4 Filling, Proposed dual gas / leachate trench, sections and details, drawing No. 147-Se-CL-LHRRP-DA-001* (Revision A, issued for review on 13.07.17) prepared by Suez,

      B. *Phase 1 to 4 Filling, Proposed dual gas / leachate trench, sections and details, drawing No. 147-Se-CL-LHRRP-DA-002* (Revision A, issued for review on 13.07.17) prepared by Suez, and

      C. *Phase 1 to 4 Filling, Proposed dual gas / leachate trench, sections and details, drawing No. 147-Se-CL-LHRRP-DA-003* (Revision A, issued for review on 13.07.17) prepared by Suez.

   C. The EPA has undertaken a review of the documentation provided and has no objections to the proposal. The EPA therefore Approves the installation, subject to the requirements of a new licence condition at E6.1.

Second licence variation application

I. On 12 October 2017, the EPA received an application for the variation of the licence to enable re-profiling (overtopping) of the existing LHRRP landfill as per the Development Consent for State Significant Development 6835.

J. The EPA has agreed to vary the licence to permit the re-profiling, consistent with the Development Consent for State Significant Development Application no. 6835, subject to the requirements of licence conditions L3.4, E7.1, O5.8, O5.11, O5.12, O5.18, O6.6, O6.7 and O6.8.

Other

K. The EPA has determined that the licence requires updating in respect of clarifying and updating a number of conditions generally and in relation to the EPA's *Environmental Guidelines: Solid Waste Landfills (Second edition, September 2016)*. These conditions are set out below.

L. In accordance with the *Protection of the Environment Legislation Miscellaneous Amendments Act 2017* and changes with regard to supervisory licences, Environment Protection Licence no. 13384 is no longer in force and any conditions relating to this licence may be removed.

M. The EPA has taken into account the objectives and factors listed in section 45 of the Act.

VARIATION OF LICENCE NO. 5065

1. By this notice the EPA varies licence No. 5065. The attached licence document contains all variations that are made to the licence by this notice.
2. The following variations have been made to the licence:

   A. Some Condition numbers have changed as new Conditions have been added and old Conditions have been removed.

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Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

B. Condition P1.1 has been updated as follows:
   A. New monitoring points 44, 45, 46, 47, 48, 49, 50, 51, 52, 53 and 54 have been added.
   B. The location descriptions for points 28, 30, 31, 32, 33, 52, 53, 1, 3, 4, 7, 8, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 40, 41, 42, 43 and 44 have been updated to refer to an updated map of the premises.

C. Condition L2.5 is updated to be clarify that where avoidance of water pollution is practical, the licensee is not able to choose to minimise water pollution instead.

D. Condition L3.1 has had its table updated to allow the disposal of leachate at the rate of 1500kL/day.

E. Condition L3.4 has been added to permit the disposal of waste in Areas E, D, B and A.

F. Condition O4.1, O4.2, O4.3 and R1.8 that relate to supervisory licence no. 13384 have been removed.

G. Condition O5.2 has had the sentence structure updated for ease of reading.

H. Condition O5.7 has been updated to "ceasing landfilling operations" instead of "ceasing operations" and now refers to the Required Outcome in Chapter 8 (Covering of Waste) in the EPA's *Solid Waste Landfill Guidelines* (2016), instead of Benchmark Technique 33 of the *Environmental Guidelines: Solid Waste Landfills* (1996).

I. Condition O5.8, relating to progressively final capping as soon as practicable, has been added.

J. Condition O5.11, relating to the maximum area of stripping in advance of landfilling "the Prepared Surface" has been added.

K. Condition O5.12, relating to the maximum area of the Prepared Surface that can be stripped back to form the Active Tipface, has been added.

L. Condition O5.16 has had the word "lawfully" added before the words "disposed of to sewer".

M. The title above Condition O5.17 is now "Landfill Gas".

N. Condition O5.18, relating to the retention and operation of landfill gas infrastructure, has been added.

O. Condition O6.6, relating to the installation and maintenance of freeboard markers, has been added.

P. Condition O6.7 relating to the maintenance of the 10ML settling zone has been added.

Q. Condition O6.8, relating to the use of the stormwater treatment plant to treat water following a rainfall event has been added.

R. Condition M2.2 (Air monitoring requirements) has been updated to add Carbon Dioxide monitoring to Monitoring Points 28, 29, 30, 31, 32, 33, 51, 52, 53 and 54.

S. Condition M2.3 (Water and/or Land Monitoring Requirements) has been updated as follows:
   A. Point 1, Surface Water Monitoring: Now requires monitoring for Total organic carbon, Total dissolved solids, and Potassium.
   B. Point 3,40, Leachate monitoring: Now requires monitoring for BOD, Chemical oxygen demand, Nickel, Total petroleum hydrocarbons, and Alkalinity (as bicarbonate). The monitoring frequency of Benzo(a)pyrene, Polycyclic aromatic hydrocarbons, and total petroleum hydrocarbons has been changed from quarterly to yearly.

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Licence Variation

C. Point 4, 7, 8, 16, 17,18, 19, 24, 25, 26, 27, Groundwater Monitoring: Now requires monitoring for Redox potential, temperature, phosophorus, Bicarbonate alkalinity. The frequency of monitoring for nitrate and nitrite is now quarterly instead of yearly). The frequency of Benzo(a)pyrene, total petroleum hydrocarbons, polycyclic aromatic hydrocarbons is now yearly instead of quarterly.

D. Points 44, 45, 46, 47, 48, 49, 50 have been added to the groundwater monitoring requirements.

E. Point 1 has had the requirement to monitor Turbidity removed

F. Points 51, 52, 53 and 54 have been added to the subsurface gas monitoring requirements.

T. Condition M2.4 (b) has been updated to state "at a minimum of weekly intervals" instead of "minimal weekly intervals".

U. Condition M2.4 (c) has been updated to refer to the methods outlined in Chapter 5.3 "Landfill gas sub-surface monitoring" of the EPA's *Environmental Guidelines: Solid Waste Landfill Guidelines* (2016) instead of Benchmark 16 of the EPA's *Environmental Guidelines: Solid Waste Landfills* (1996).

V. Condition M8.2 has been updated to state 1% (v/v) methane instead of 1.25% (v/v) methane.

W. A new Condition has been added at M8.3 which requires the licensee to submit a Draft Landfill Surface Gas Monitoring Programme.

X. A new Condition has been added at M8.4 which requires the licensee to submit a Draft Landfill Sub-Surface Gas Monitoring Programme.

Y. A new Condition has been added at M8.5 which specifies how the Draft Monitoring Programmes required by Conditions M8.3 and M8.4 must be submitted, and requires the licensee to consider any comments the EPA has on these draft Monitoring Programmes.

Z. A note has been added underneath Condition M8.5 specifying that the Monitoring Programmes required by M8.3 and M8.4 may be incorporated into one document.

AA. The previous Condition M8.4 is now Condition M8.7 and states "all fires" instead of "fires" and the word "etc" has been removed.

AB. Condition R2.3 has been removed as this condition is duplicated at R4.2.

AC. Condition R4.1 has been updated to include the requirement to report data available under Condition M8.7.

AD. Condition R4.2 has had Monitoring Points 24, 25, 26, 27, 44, 45, 46, 47, 48, 49 and 50 added to the reporting requirement.

AE. Condition E6.1 has been added specifying the conditions for the construction of the dual gas and leachate trench.

AF. Condition E7.1 has been added specifying the conditions for the re-profiling works overtopping the existing landfill.

AG. Condition E8.1, A special dictionary, has been added to the licence to clarify the following terms used in the licence: Cell, Daily cover, Final capping layer, Intermediate cover, Landfill gas, Landfilling operations, Leachate, and Other landfilling operations.

Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

.....

Trevor Wilson

Unit Head

Waste & Resource Recovery

(by Delegation)

INFORMATION ABOUT THIS NOTICE

- This notice is issued under section 58(5) of the Act.
- Details provided in this notice, along with an updated version of the licence, will be available on the EPA's Public Register (http://www.epa.nsw.gov.au/prpoeo/index.htm) in accordance with section 308 of the Act.

Appeals against this decision

- You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

When this notice begins to operate

- The variations to the licence specified in this notice begin to operate immediately from the date of this notice, unless another date is specified in this notice.
- If an appeal is made against this decision to vary the licence and the Land and Environment Court directs that the decision is stayed the decision does not operate until the stay ceases to have effect or the Land and Environment Court confirms the decision or the appeal is withdrawn (whichever occurs first).

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Appendix 2 Consultation with Southernland Shire Council

Telfer, Ken

From: Ian Drinnan <IDrinnan@ssc.nsw.gov.au>
Sent: Monday, 16 July 2018 10:11 AM
To: Telfer, Ken
Cc: Chiang, Lc
Subject: RE: CEMP for Dual Gas and Leachate Trench - OEMP Modifications

Hi Ken,

I've had a look through the CEMP for the Dual Gas and Leachate Trench. The additional text and diagrams address Council's previous comments. As such we are now satisfied with the document and no further amendments are required.

I'll look through the OEMP mods now and get back to you asap.

Regards

SUTHERLANDSHIRE

Ian Drinnan
Manager / Principal Environmental Scientist
T 9710 0547
idrinnan@ssc.nsw.gov.au
sutherlandshire.nsw.gov.au

Connect with us:

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From: Telfer, Ken [mailto:ken.telfer@suez.com]
Sent: Wednesday, 11 July 2018 3:43 PM
To: Ian Drinnan
Cc: Chiang, Lc
Subject: CEMP for Dual Gas and Leachate Trench - OEMP Modifications

Hi Ian

Please find updated Dual Gas and Leachate Trench clarifying the bunding terminology.

Also have you been able to consider the proposed changes to the OEMP, as discussed refer attached email?

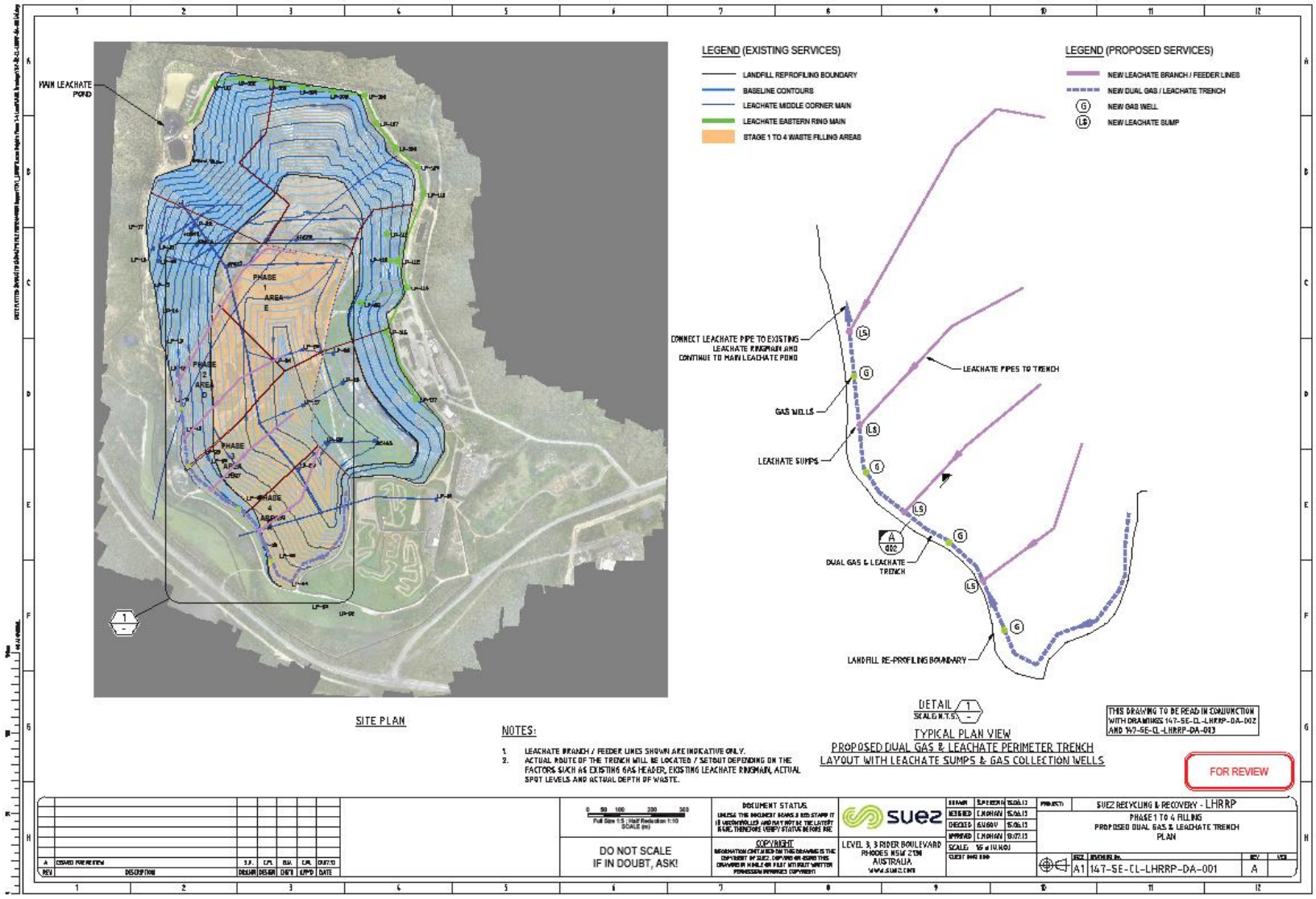
Please have no hesitation in contacting me to discuss.

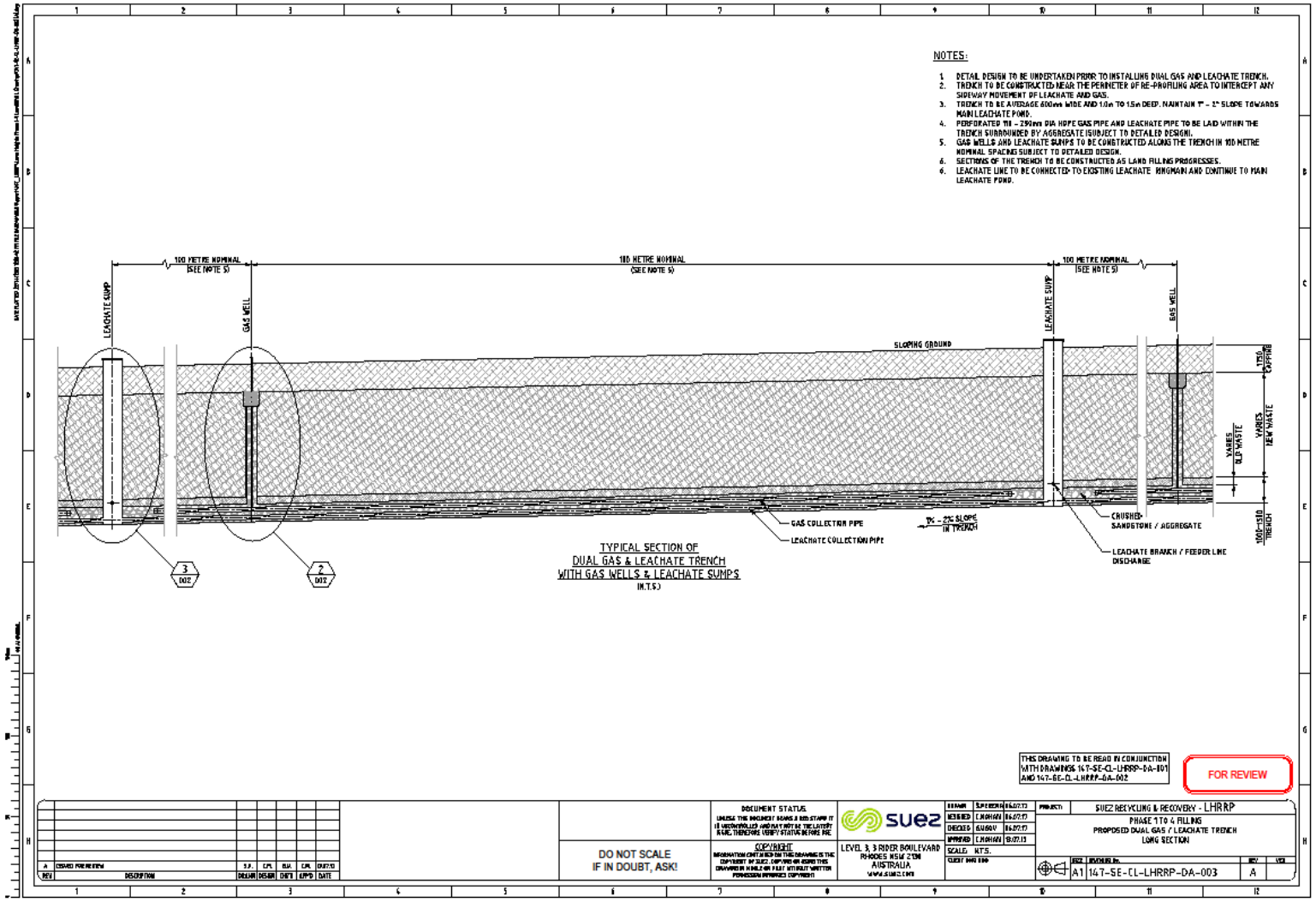
Thanks

Ken Telfer
Compliance Manager
New Illawarra Road Landfill

1

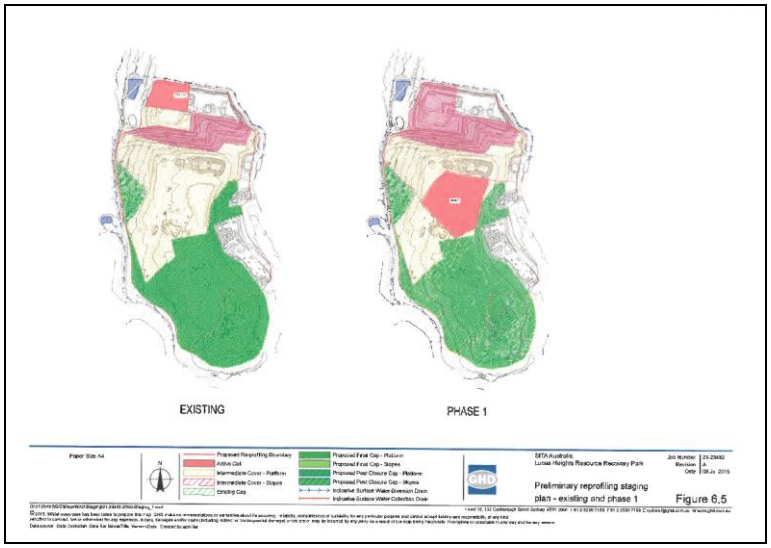
Appendix 3 Dual Gas and Leachate Trench Program and Design Overview

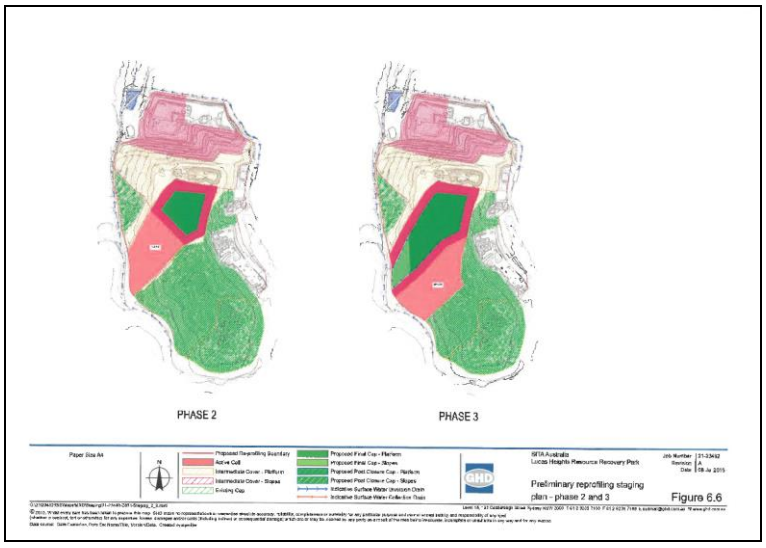

MAIN LEACHATE POND
PHASE 1 AREA E
PHASE 2 AREA D
PHASE 3 AREA C
PHASE 4 AREA B
LEGEND (EXISTING SERVICES)
LANDFILL REPROFILING BOUNDARY
BASELINE CONTOURS
LEACHATE MIDDLE CORNER MAIN
LEACHATE EASTERN RING MAIN
STAGE 1 TO 4 WASTE FILLING AREAS
LEGEND (PROPOSED SERVICES)
NEW LEACHATE BRANCH / FEEDER LINES
NEW DUAL GAS / LEACHATE TRENCH
NEW GAS WELL
NEW LEACHATE SUMP
CONNECT LEACHATE PIPE TO EXISTING LEACHATE RINGMAIN AND CONTINUE TO MAIN LEACHATE POND
LEACHATE PIPES TO TRENCH
GAS WELLS
LEACHATE SUMPS
DUAL GAS & LEACHATE TRENCH
LANDFILL RE-PROFILING BOUNDARY
SITE PLAN
NOTES:
1. LEACHATE BRANCH / FEEDER LINES SHOWN ARE INDICATIVE ONLY.
2. ACTUAL ROUTE OF THE TRENCH WILL BE LOCATED / SETOUT DEPENDING ON THE FACTORS SUCH AS EXISTING GAS HEADER, EXISTING LEACHATE RINGMAIN, ACTUAL SPOT LEVELS AND ACTUAL DEPTH OF WASTE.
DETAIL 1 SCALE N.T.S.
TYPICAL PLAN VIEW
PROPOSED DUAL GAS & LEACHATE PERIMETER TRENCH
LAYOUT WITH LEACHATE SUMPS & GAS COLLECTION WELLS
THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS 147-SE-CL-LHRRP-DA-002 AND 147-SE-CL-LHRRP-DA-003
FOR REVIEW
DO NOT SCALE IF IN DOUBT, ASK!
DOCUMENT STATUS
COPYRIGHT
LEVEL 3, 3 RIDER BOULEVARD RHODES NSW 2138 AUSTRALIA
SUEZ RECYCLING & RECOVERY - LHRRP
PHASE 1 TO 4 FILLING
PROPOSED DUAL GAS & LEACHATE TRENCH PLAN
A1
147-SE-CL-LHRRP-DA-001
A

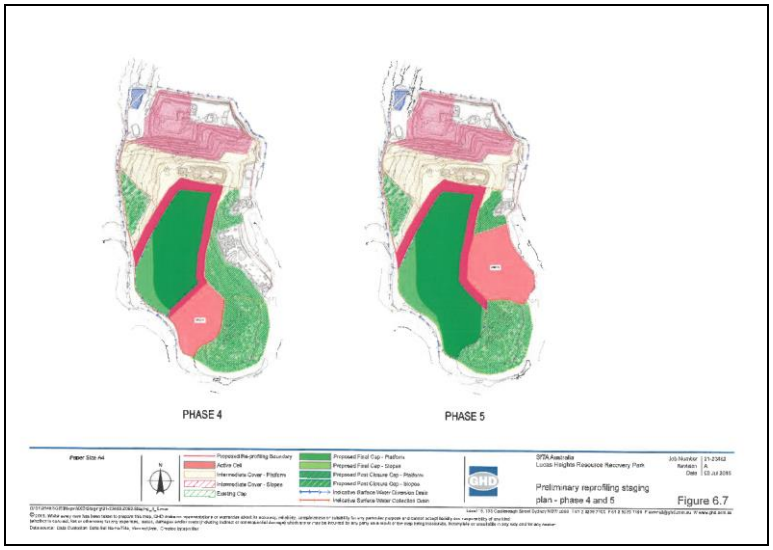

NOTES:
1. DETAIL DESIGN TO BE UNDERTAKEN PRIOR TO INSTALLING DUAL GAS AND LEACHATE TRENCH.
2. TRENCH TO BE CONSTRUCTED NEAR THE PERIMETER OF RE-PROFILING AREA TO INTERCEPT ANY SIDEWAY MOVEMENT OF LEACHATE AND GAS.
3. TRENCH TO BE AVERAGE 600mm WIDE AND 1.0m TO 1.5m DEEP. MAINTAIN 1° – 2° SLOPE TOWARDS MAIN LEACHATE POND.
4. PERFORATED 110 – 250mm DIA HDPE GAS PIPE AND LEACHATE PIPE TO BE LAID WITHIN THE TRENCH SURROUNDED BY AGGREGATE (SUBJECT TO DETAILED DESIGN).
5. GAS WELLS AND LEACHATE SUMPS TO BE CONSTRUCTED ALONG THE TRENCH IN 100 METRE NOMINAL SPACING SUBJECT TO DETAILED DESIGN.
6. SECTIONS OF THE TRENCH TO BE CONSTRUCTED AS LAND FILLING PROGRESSES.
7. LEACHATE LINE TO BE CONNECTED TO EXISTING LEACHATE RINGMAIN AND CONTINUE TO MAIN LEACHATE POND.
100 METRE NOMINAL (SEE NOTE 5)
100 METRE NOMINAL (SEE NOTE 5)
100 METRE NOMINAL (SEE NOTE 5)
LEACHATE SUMP
GAS WELL
SLOPING GROUND
LEACHATE SUMP
GAS WELL
1500 CAPPING
VARIES OLD WASTE
VARIES NEW WASTE
1000–1500 TRENCH
GAS COLLECTION PIPE
LEACHATE COLLECTION PIPE
1% – 2% SLOPE IN TRENCH
CRUSHED SANDSTONE / AGGREGATE
LEACHATE BRANCH / FEEDER LINE DISCHARGE
3 DET2
2 DET2
TYPICAL SECTION OF
DUAL GAS & LEACHATE TRENCH
WITH GAS WELLS & LEACHATE SUMPS
(N.T.S.)
THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS 147-SE-CL-LHRRP-DA-001 AND 147-SE-CL-LHRRP-DA-002
FOR REVIEW
DO NOT SCALE
IF IN DOUBT, ASK!
DOCUMENT STATUS
COPYRIGHT
suez
LEVEL 3, 3 RIDER BOULEVARD
RHODES NSW 2138
AUSTRALIA
SUEZ RECYCLING & RECOVERY - LHRRP
PHASE 1 TO 4 FILLING
PROPOSED DUAL GAS / LEACHATE TRENCH
LONG SECTION
SCALE: NTS.
A1
147-SE-CL-LHRRP-DA-003
A

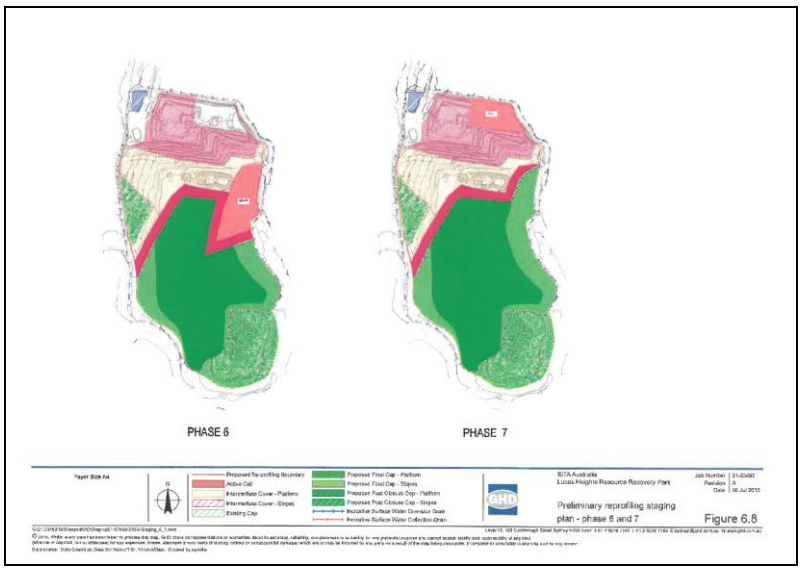
Appendix 4 Landfill Staging Plan

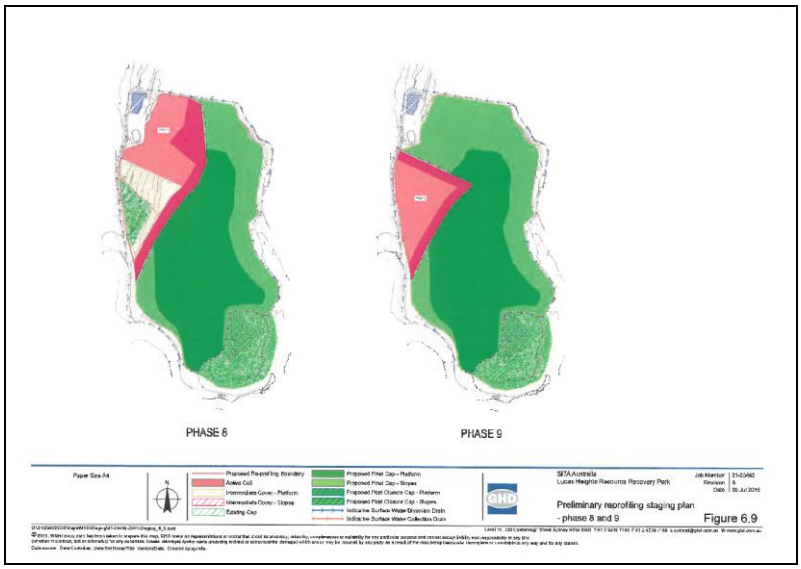
Stages of Re- Profiling which determines staging – progress of Duel Leachate Gas Trench

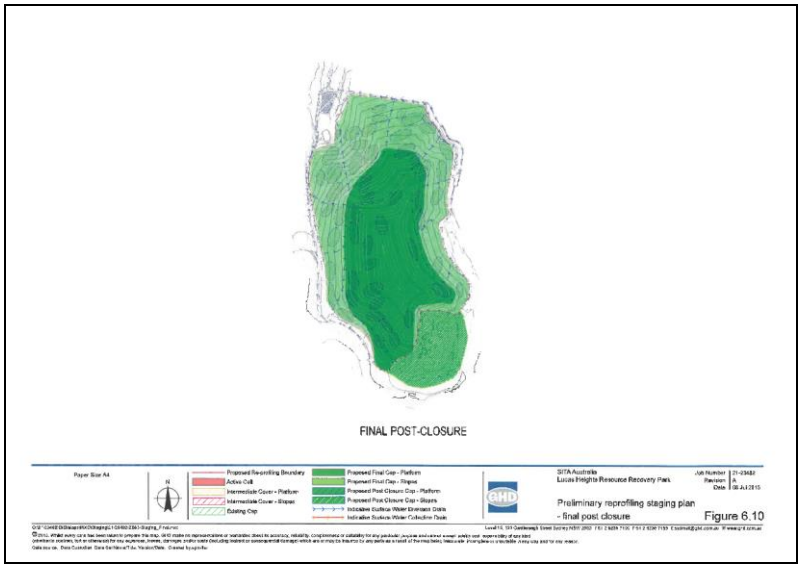





PHASE 4
PHASE 5
Preliminary reprofiling staging plan - phase 4 and 5
Figure 6.7


PHASE 6
PHASE 7
Preliminary reprofiling staging plan - phase 6 and 7
Figure 6.8


PHASE 8
PHASE 9
Preliminary reprofiling staging plan - phase 8 and 9
Figure 6.9


FINAL POST-CLOSURE
Paper Size A4
N
Proposed Re-profiling Boundary
Active Cell
Intermediate Cover - Platform
Intermediate Cover - Slopes
Existing Cap
Proposed Final Cap - Platform
Proposed Final Cap - Slopes
Proposed Post Closure Cap - Platform
Proposed Post Closure Cap - Slopes
Indicative Surface Water Diversion Drains
Indicative Surface Water Collection Pools
SITA Australia
Lucas Heights Resource Recovery Park
Job Number 21-23682
Revision A
Date 08 JULY 2015
Preliminary reprofiling staging plan
- final post closure
Figure 6.10

Appendix C – Erosion and Sediment Control Plan

SUEZ Recycling and Recovery Pty Ltd

LHRRP - Garden Organics Facility

Erosion and Sediment Control Plan

April 2021

Table of contents

Table index

Figure index

1. Introduction

1.1 Background

The relocation and expansion of the existing garden organics (GO) facility at Lucas Heights Resource Recovery Centre was approved on 23 January 2017 under SSD 6835.

GHD will prepare a Construction Environmental Management Plan (CEMP) for the redevelopment of the GO facility to comply with Conditions D1 and D2 of the Consent.

According to the Consent conditions the CEMP will include the following:

- CEMP for the dual gas and leachate trench (prepared by SUEZ and approved by the EPA)
- Erosion and sediment control plan (part of this scope of works)
- Vegetation and fauna management plan (updated as part of this scope of works)
- Construction traffic management plan (part of this scope of works)

The current approval under SSD 6835 allows for the construction of both a Garden Organics (GO) facility and Advanced Resource Recovery Technology (ARRT) facility. The construction of these facilities would be implemented in stages and water management works would likewise be staged to minimise the impact of the activities, by ensuring that disturbances only occur when required. Only the GO facility would be constructed at this stage. As such, this plan deals with the provision of the GO facility alone, and associated water management works.

The construction activities associated with the project include:

- GO Facility West: earthworks, construction of hardstand, internal access road, water and leachate infrastructure, waste receival and sorting areas and compost bunkers and storage areas, Mill Creek rehabilitation.
- GO Facility East: relocation works within Area 2 and 3 of the GO area.

The SSD 6835 approved consent conditions include the Condition D2 under the section “Construction Environmental Management Plan”. This condition states:

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)*

This report includes a Sediment and Erosion Control plan to address Condition (b).

1.2 Purpose of this report

The purpose of this plan is to address the requirements of Condition D2 (b) regarding the development of an erosion and sediment control plan with respect to the construction phase activities for the proposed GO facility.

In the event of future works to construct the ARRT facility, this plan would be updated accordingly to reflect the further construction works.

This plan should be read in conjunction with the Construction Environmental Management Plan prepared by GHD in August 2020.

1.3 Staged approach

As part of the approved works, SUEZ is proposing to construct only the GO facility at this initial stage without the inclusion of the ARRT facility, though the ARRT facility may be constructed at a later date.

The construction of the GO facility would require an initial re-alignment of Mill Creek. In the event that the ARRT facility is constructed, Mill Creek would require further re-alignment as per the approved works. By staging works, the impacts are intended to be minimised as disturbances only occur when necessary. This staged realignment means that the existing sediment basin located to the north of the proposed GO location would now be initially retained.

1.4 Scope and limitations

This report: has been prepared by GHD for SUEZ Recycling and Recovery Pty Ltd and may only be used and relied on by SUEZ Recycling and Recovery Pty Ltd for the purpose agreed between GHD and the SUEZ Recycling and Recovery Pty Ltd as set out in this report.

GHD otherwise disclaims responsibility to any person other than SUEZ Recycling and Recovery Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by SUEZ Recycling and Recovery Pty Ltd and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

2. Erosion and sediment control strategy basis

This section outlines the basis of the erosion and sediment control strategy developed, with this strategy then outlined in Section 3.

2.1 Integration with overall site

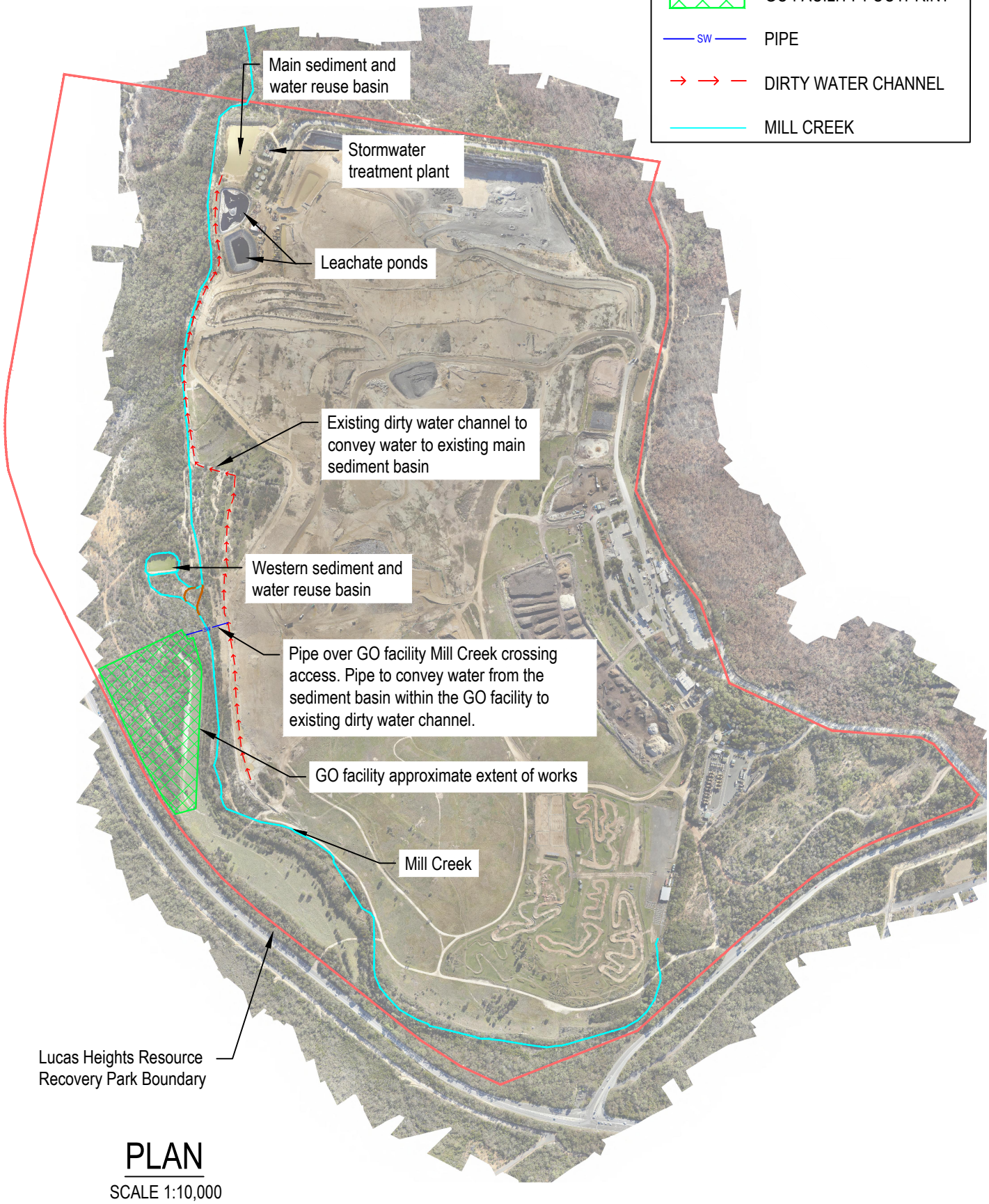
As the proposed works are located within a broader site that includes a long-term sediment management system there is an opportunity to integrate sediment management for the GO construction phase with the overall system. This provides both efficiency and an improved performance through utilising an established sediment management system that is above the standard that would typically be associated with short term land disturbance activities, such as for the construction of the GO facility.

In particular, the existing site Main Sediment Basin, located at the north-west of the site boundary is already used to manage sediment loads much greater than that for the site activities and includes an automated flocculant dosing stormwater treatment plan. Furthermore, it is operated and monitored under the provisions of the site's Environment Protection Licence. Therefore, its efficacy in managing sediment in accordance with relevant legislation and guidance is tested and validated as operations continue. A dirty water drain is located in the vicinity of the proposed GO facility area, on the opposite side of Mill Creek. Therefore, it is feasible to pump sediment laden water, via a temporary pipeline, over the Mill Creek crossing to be constructed and into this dirty water drain. From this point it would flow to the existing Main Sediment Basin via gravity. This is indicated on Figure 1.

This is anticipated to result in a greater certainty of environmental performance through utilising a long term established system than would be achieved via temporary measures such as manual flocculation at the GO site followed by release to Mill Creek.

It is noted that the Main Sediment Basin's primary purpose is to manage sediment laden runoff associated with the landfilling activities. It is also noted that from the approved EIS for the site that the design rainfall event to be managed by the basin is the 34.8 mm over 2 days. In order to not introduce additional flows to the basin during the design storm event (such that the basin's ability to capture and manage the required design event is not impacted) it is proposed to that during rainfall on the GO facility footprint runoff would be captured and retained within the GO site. This would be achieved up to a design rainfall event based on 'The Blue Book' (refer Section 2.3). If this design event is exceeded and overflows occur, these would be directed to Mill Creek. This is consistent with 'The Blue Book' and best practice erosion and sediment control where overflow does occur for rainfall in excess of a design event. After rainfall has ceased and capacity is available in the Main Sediment Basin, water captured on the GO footprint would then be pumped to the basin for treatment through the Stormwater Treatment Plan and subsequent discharge. This system allows for:

- Maintaining the current performance of the Main Sediment Basin in managing runoff from the landfilling area.
- Capturing all runoff from the GO footprint up to an acceptable design event and subsequent treatment of captured water before discharge.



PLAN

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SUEZ Recycling and Recovery
Lucas Heights Resource Recovery Park

Erosion and Sediment Control Plan
Integration with Overall Site

Job Number	12534605
Revision	A
Date	Jul 2020

Figure 01

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2.2 Topography of the proposed earthworks

The proposed earthworks for the GO Facility are entirely “inwards draining” in that a low point is created at the base of the final earthworks where water would drain. The storage capacity would be very large compared to rainfall catchment and as such when the site is fully excavated discharge via overflow would not occur. This greatly reduces erosion and sediment related risk.

In particular, the overflows contemplated in Section 2.1 when the design rainfall event for the GO Facility footprint is exceeded would not occur because much greater than the design rainfall event can be captured. When this is the case the integrated approach with the overall site water management system would still be implemented, however risk of overflow would be further reduced.

However, for the initial works at the site, before drainage directions have been changed by the earthworks activities, flows would still be “outwards draining” with the potential for discharge of sediment laden water if not appropriately controlled. During this phase, collection of disturbed runoff and provision of a temporary erosion and sediment control storage would be required.

Therefore, a staged approach is proposed and included in the strategy outlined in Section 3, where measures are tailored for both the period in which flows are inwards and outwards draining.

2.3 Legislation and guidelines

Managing Urban Stormwater: Soils and Construction ‘The Blue Book’

Managing Urban Stormwater: Soils and Construction Vol 1 (Landcom 2004) “The Blue Book” is the primary guideline adopted throughout NSW (including by the EPA for a large number of licenced sites) with relation to appropriate management of Erosion and Sediment Control. Volume 2b of this guideline (DECC, 2008) provides advice specific to waste management sites.

A number of key principles and requirements are outlined in these documents including minimising the duration and extent of disturbance, appropriate drainage controls, management, monitoring, mitigation as well as a range of other measures. In particular, Volume 2b provides guidance and criteria for the design sediment basins, and in particular for Type D/F ‘wet basins’. These basins operate where a design volume of rainfall is captured with this captured water subsequently treated and discharged at a given environmental standard. This procedure allows for untreated overflow of basins where the given design event is exceeded.

This approach has been adopted for this erosion and sediment control strategy, with a design event selected based on ‘The Blue Book’ and a sediment basin provided for the “outwards draining” phase of the works sized in accordance with this.

Environment Protection Licence 5065

The site is in possession of EPL 5065. The EPL includes a number of requirements, with the following particularly relevant requirements:

- Restating the legislative requirement to not pollute waters other than where specified in the EPL.
- Monitoring in the Main Sediment Basin as well as for basin overflows.
- A maximum concentration limit of 50 mg/L for suspended solids for discharge from the Main Sediment Basin.
- Allowance to exceed this concentration when the overflow is caused by a rainfall event and when all practical measures to avoid and minimise pollution have been undertaken. This is interpreted in the approved EIS as correlating to compliance with ‘The Blue Book’.

Therefore, it is expected that discharging of captured sediment laden water from the GO footprint would be consistent with the EPL on the basis that the Main Sediment Basin's ability to manage sediment laden runoff for the design event would not be impacted, and that pumping to the basin from the GO would occur after rainfall and only undertaken at a rate where the 50 mg/L concentration limit from the Main Sediment Basin can be achieved.

3. Erosion and sediment control strategy

3.1 General principles

During the construction phase, the areas disturbed in the proposed GO facility area would be managed in accordance with the procedures outlined in Blue Book Volume 1 (Landcom, 2004) & Blue Book Volume 2b (DECC 2008). General principles proposed in the plans would include minimisation of exposed areas at any one point in time, maximising ground cover, collecting sediment at the source and potentially provision of sediment basins utilising water management storages proposed for the operational phase.

3.2 Surface water management

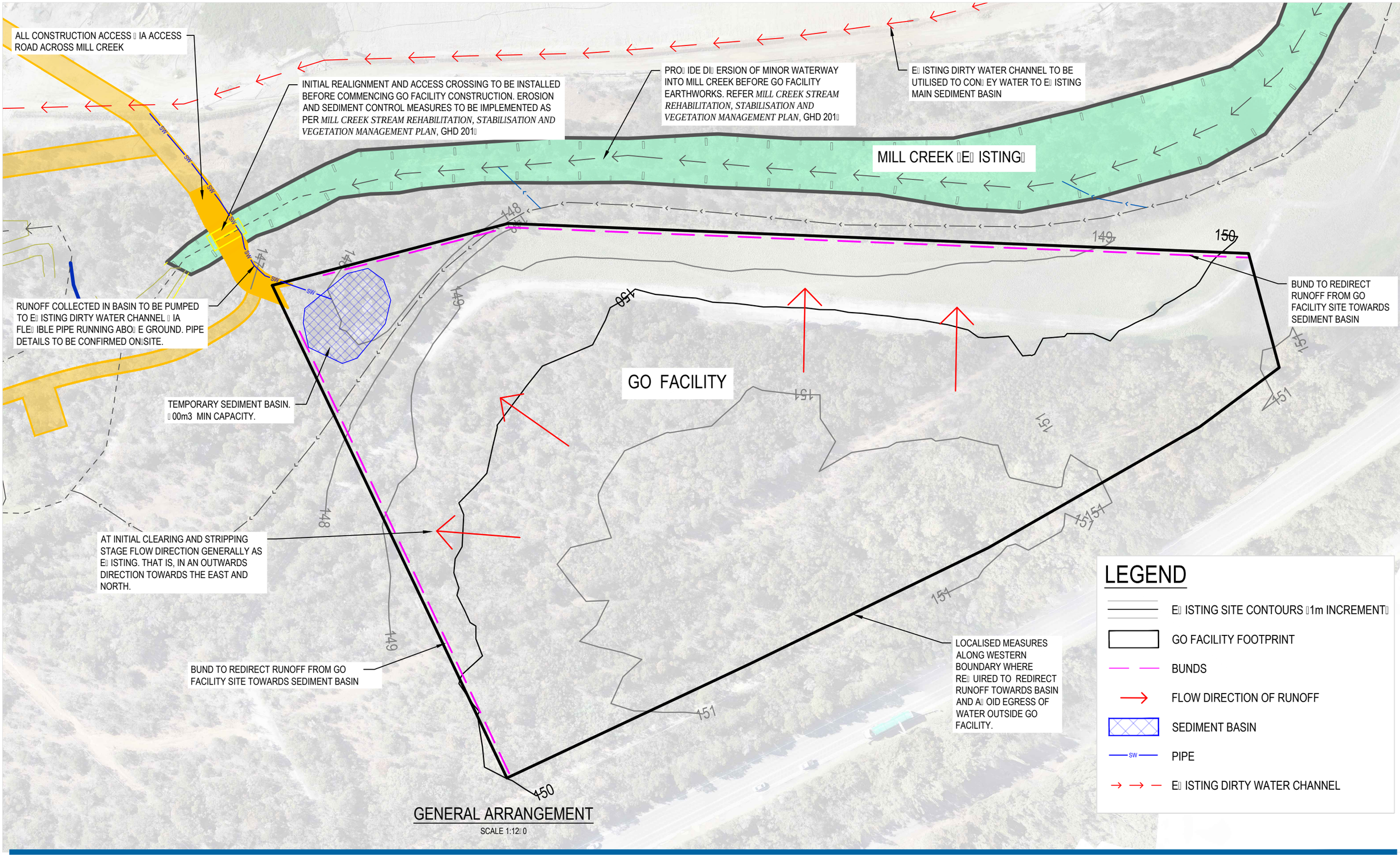
One important aspect of the erosion and sediment control measures is that sediment laden water would be captured and treated up to a design storm event before it is discharged from the site. For effective erosion and sediment control, it is necessary to divert upstream clean water around disturbed areas within the GO facility footprint and also to collect sediment laden water resulting from disturbed areas. Based on the site topography, minimal diversion of upstream clean run-on is required. In small localised areas where it is required minor channels or bunds would be provided. Runoff from disturbed areas would be collected based on phases with these phases based on whether the site is “outwards draining” or ‘inwards draining” as discussed in Section 2.2.

3.2.1 Phases

During the course of construction, there is to be two phases of surface drainage within the GO facility construction footprint. The initial ‘outwards draining’ phase is based upon the existing surface at the GO facility site resulting in runoff draining from within site outwards towards the north-eastern corner.

During the course of construction, the area of the GO facility is intended to be reprofiled such that the site is to be ‘inwards draining’, with runoff draining from the boundaries of the facility towards a permanent basin at the southernmost corner. The permanent basin is intended to capture leachate from site post-construction. However, during construction, the basin would be utilised to capture sediment-laden runoff.

The surface contours and operation of these phases are shown in Figure 2 and Figure 3.



GENERAL ARRANGEMENT

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Surface Water Management Concept Plan
Outwards Draining Phase

Sue Recycling and Recovery
Lucas Heights Resource Recovery Park

Erosion Sediment Control Plan

Job Number 12534605
Revision A
Date Jul 2020

Figure 02

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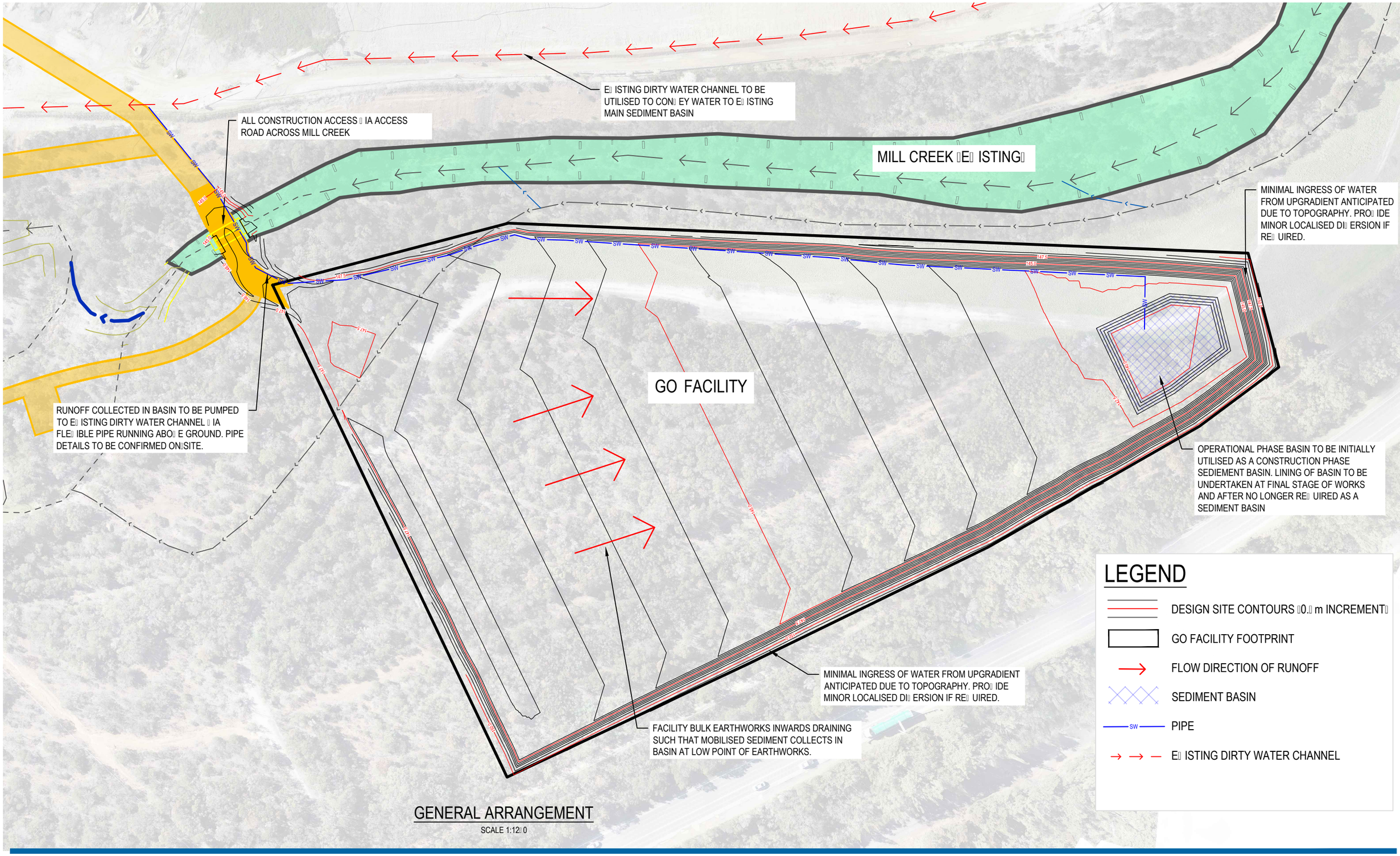

GENERAL ARRANGEMENT

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Surface Water Management Concept Plan
Inwards Draining Phase

GHD

Sue Recycling and Recovery
Lucas Heights Resource Recovery Park

Erosion Sediment Control Plan

Job Number	12534605
Revision	A
Date	Jul 2020

Figure 03

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Plot Date: 31 July 2020 - 9:41 AM Plotted by: Kavi Karunaratne Cad File No: C:\Total Commander\Lucas Heights\Sketch\12510188_Figure4.dwg

3.2.2 Outwards draining phase

It is proposed that a temporary sediment control sump/basin be located at the north-east corner of the GO facility to be operated as a Type D/F sediment basin in accordance with the Blue Book (Landcom 2004 and DECC 2008). This would collect sediment laden waters during the outwards draining phase. The proposed layout is shown in Figure 2. The sump has been sized based on the anticipated timeframe of the outwards draining period which is less than six months.

The required size of the basin has been calculated as 500 m^3 in accordance with the Blue Book Volume 2B. The input parameters for the calculation of the sediment basin volume are shown in Table 1.

Bunding would be provided around the site perimeter where required to contain runoff from disturbed areas and convey to the sediment basin. Both the basin and the conveyance bunding would be provided at the commencement of works within the GO facility footprint such that they are in place before major disturbance activities occur.

Table 1 Erosion and sediment basin assessment parameters

Parameter	Value	Notes
Basin type	Type D/F	As per Blue Book Volume 2b (DECC 2008) for a waste management site.
Design rainfall depth	23.4 mm	75th percentile 5-day depth for Sutherland Shire. (It is noted that this is less than the design event for the overall site landfilling activities. This is on the basis of the shorter duration of disturbance for the GO Facility and consistent with 'The Blue Book' (refer Section 2.3)
Volumetric runoff coefficient	0.50	Based on hydrologic soil type D
Settling zone volume – per hectare of catchment area	117 m^3	Calculated
Basin catchment area	4.1 ha	Area of GO facility footprint
Settling zone required volume	480 m^3	Calculated
Sediment zone required volume	20 m^3	Based on Blue Book Volume 1 (DECC 2008). RUSLE soil loss calculations for 1 month of sediment generation. Basin to be cleared of sediment after every runoff event.
Required basin for erosion and sediment control	500 m^3	Calculated by sum of sediment zone volume required and settling zone volume required.

As outlined in Section 2.1 runoff collected in the basin from the GO facility construction area would be contained within the basin up to the design rainfall event outlined on Table 1. After rainfall ceases and there is capacity in the Main Sediment Basin it would be pumped into the dirty water channel east of Mill Creek. The channel would convey the runoff via gravity to the Main Sediment Basin at the north-west corner of the LHRRP prior to treatment at the existing stormwater treatment facility.

3.2.3 Inwards draining phase

The permanent leachate basin designed as part of the GO facility reprofiling works would be utilised during the inwards draining phase of construction as a sediment basin to collect all sediment laden runoff with the construction area. The basin has a suitable capacity, being able to hold a volume greater than 500 m^3.

Runoff collected in the basin would be pumped after rainfall ceases to the Main Sediment Basin as outlined for the outwards draining stage. The surface water management plan during the inwards draining phase is highlighted in Figure 3.

Only once land disturbance activity is completed should the leachate basin be lined and commence collecting leachate run-off.

3.2.4 Transition from outwards draining to inwards draining phase

The period of reprofiling the surface at the GO facility would mark a period of transition between the 'outwards draining' and 'inwards draining' phases.

It is assumed at this phase, that the construction approach would result in initial stripping of the surface throughout. Following this would be a gradual regrading of the area to attain the proposed surface levels. During this period, a temporary low point is to be established at the lowest point on site to collect sediment laden run-off. This low point would migrate as the earthworks continue until reaching the location of the proposed final basin. Earthworks would be established such that the total storage volume at the low point before spill would always be greater than 500 m^3 such that the required sediment control volume (refer Table 1) would always be available.

3.3 Soil and stockpile management

During the construction, the emphasis would be on maximising the direct transfer of materials and minimising the need for stockpiling. However, there would still be a need for an active stockpiling area for storage of extracted materials and storage of topsoil.

Other specific requirements for soil and stockpile management are set out below:

- Runoff from the stockpile areas would be directed to the sediment basin or low point prior to discharge, preventing untreated, sediment laden runoff from leaving the site.
- Appropriate management of material stockpiles including locating them as far from drainage lines as possible
- Store all stockpiled material in bunded or inwards draining areas and keep them away from waterways to avoid sediment entering the waterways
- Place stockpiles of fill or vegetation within existing cleared areas (and not within areas of adjoining native vegetation)

3.4 Vegetation establishment

Progressive revegetation (or sealing where the final proposed works require this) of disturbed areas where practicable considering post-construction use, would be undertaken as soon as possible after disturbance.

The condition of revegetation works would be visually monitored and any if any of the sections of planting show evidence of poor health professional advice would be sought. Any revegetation that fails would be replanted.

Signage should be installed near the revegetation works to advise that construction equipment and materials are to be excluded from the revegetation area.

Vegetation or permanent erosion matting should be provided where loose soil is exposed on the batters at the perimeter of the footprint.

3.5 Dust management

Where practicable, water is to be applied to exposed surfaces that are causing dust generation, which may include disturbed areas, unpaved roads, stockpiles and other exposed surfaces (for example recently graded areas).

3.6 Access road construction

Construction of an access road over Mill Creek is required to operate the GO Facility. This crossing includes box culverts located in the main channel and a sealed approach roadway on either side.

The crossing is to be constructed prior to disturbance begins at the GO Facility footprint. Erosion and Sediment Control mitigation measures are specified in *Mill Creek Stream Rehabilitation, Stabilisation and Vegetation Management Plan, GHD 2019* for creek realignment works and works within the creek generally. This includes construction of the access road crossing. These mitigation measures should be adopted and include minimising the extent of instream disturbance, and not commencing in-stream works when more than 5 mm per day of rainfall predicted by the Bureau of Meteorology during the construction period.

3.7 Vehicle access management

Designated access tracks for vehicular movement within the construction area would be provided to mitigate unnecessary site disturbance. These are to be within the final footprint of disturbance so that no additional disturbance is required for access.

The appropriate management of vehicle movements through measures such as traffic management personnel and temporary barriers would be established where necessary to minimise generation and transport of sediment.

All access and egress to the site is to be via the proposed access road constructed over Mill Creek.

3.8 Site induction

Environmental matters would be highlighted in the site induction for all personnel including subcontractors. The site induction would include issues relating to erosion minimisation, sediment control and water quality. Staff would be made aware of their responsibilities for all relevant environmental legislation as well as the mitigation measures outlined in this Erosion and Sediment Control plan.

4. Monitoring and maintenance

4.1 General

The strategies outlined for the control of erosion and sedimentation would be inspected regularly, to ensure they are being implemented and are in a condition achieving the desired outcome in line with Blue Book Volume 1 (Landcom, 2004) & Blue Book Volume 2b (DECC 2008).

4.2 Inspections

Visual inspections would take place on-site and would be undertaken daily during construction operations. Additional inspections would be undertaken when more than 5 mm of rainfall is forecast for that day or the following day.

Inspections would monitor the condition and operation of the erosion and sediment structures, including channels and the sediment basin as well as general site housekeeping and compliance of the measures outlined in the erosion and sediment control plans. During the inwards draining phase, inspections are to particularly focus on ensuring that inwards draining profile of the facility is being maintained.

Based upon the observations of the inspections, any required maintenance activities or corrective measures would be scheduled and carried out. The progress of these measures would be monitored in future inspections.

During the outwards draining phase, the sediment basin is to be cleaned out after every runoff event. Solid waste materials removed from sediment retention basins are to be disposed off-site to an appropriately licensed facility in a manner that does not result in the pollution of waters or reused on-site as cover for asbestos waste in accordance with condition O5.8 of EPL 5065.

4.3 Water quality testing

Monitoring of discharge from the Main Sediment Basin is already required (and would be continued) under the EPL for the site. Based on the integration of the GO construction sediment management strategy with the overall site (refer Section 2.1) verification of the performance of erosion and sediment controls for the GO construction would therefore already be tested and confirmed through the existing monitoring program.

However, to further test and verify site performance the following monitoring would be undertaken:

- When an overflow occurs during operational hours a sample is taken of the overflow as well as in Mill Creek both upstream and downstream of the overflow.
- When an overflow is suspected to have occurred outside operating hours, a sample is taken in the basin that has experienced overflow as well as in Mill Creek both upstream and downstream of the overflow.
- Testing would be performed for overflow events not occurring within 5 days of a previous sampling event

It is to be noted that both overflow events highlighted above are only likely to occur during the outwards draining stage. Furthermore, as outlined in condition L2.5 of the EPL 5065, exceedance of the Total Suspended Solids limit is permitted if this is due to a rainfall event and best management practices are implemented. Best management practices correspond to compliance with ‘The Blue Book’, which allows for uncontrolled discharges above a given design event.

Therefore, where an exceedance of 50 mg/L (EPL concentration limit) occurs, firstly it would be confirmed based on rainfall records whether 'The Blue Book' design event has been exceeded. If the event has not been exceeded it would be treated as stipulated in the EPL for when a non-compliance with the EPL conditions occurs, including notification of the EPA. In addition, temporary erosion and sediment control measures would be implemented rapidly including providing temporary groundcover and more basin storage if practicable.

It should also be noted that for the assessment of erosion and sediment control performance sampling would be reviewed with relation to total suspended solids.

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12534605-63615-4/https://projectsportal.ghd.com/sites/pp15_01/lucasheights2develop/ProjectDocs/12534605-REP-A_Erosion and Sediment Control Plan.doc.docx

Document Status

Revision	Author	Reviewer		Approved for Issue		
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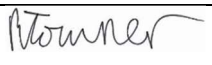
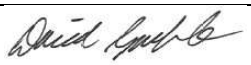
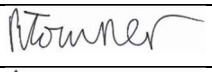
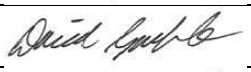
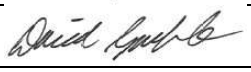
0	K Karunaratne	R Towner		D Gamble		22/09/2020
1	K Karunaratne	R Towner		D Gamble		05/03/2021
2	F Li	R Towner		D Gamble		01/04/2021

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Appendix D - Vegetation and Fauna Management Plan

SUEZ Recycling and Recovery Pty Ltd

Lucas Heights GO Facility

Vegetation and Fauna Management Plan

April 2021

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Appendices

1. Introduction

1.1 Background

The relocation and expansion of the existing garden organics (GO) facility at Lucas Heights Resource Recovery Centre was approved on 23 January 2017 under SSD 6835.

GHD has prepared a Construction Environmental Management Plan (CEMP) for the redevelopment of the GO facility to comply with Conditions D1 and D2 of the Consent.

According to the Consent conditions the CEMP will include the following:

- CEMP for the dual gas and leachate trench (prepared by SUEZ and approved by the EPA)
- Erosion and sediment control plan (part of this scope of works)
- Vegetation and fauna management plan (part of this scope of works)
- Construction traffic management plan (part of this scope of works)

The current approval under SSD 6835 allows for the construction of both a Garden Organics (GO) facility and Advanced Resource Recovery Technology (ARRT) facility. Construction of these facilities would be implemented in stages and water management works would likewise be staged to minimise the impact of the activities, by ensuring that disturbances only occur when required.

Onlythe GO facility would be constructed at this stage. As such, this plan deals with the provision of the GO facility alone, and associated water management works.

The construction activities associated with the project include:

- GO Facility West: earthworks, construction of hardstand, internal access road, water and leachate infrastructure, waste receival and sorting areas and compost bunkers and storage areas, Mill Creek rehabilitation.
- GO Facility East: relocation works within Area 2 and 3 of the GO area

The SSD 6835 approved consent conditions include the Condition D2 under the section “Construction Environmental Management Plan”. This condition states:

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)*

This report includes a vegetation and fauna management plan to address Condition (c).

1.2 Purpose of this report

This VFMP has been prepared to meet the requirements of c.43 and 44 of the conditions of consent and to minimise the potential for adverse impacts on native flora and fauna, and in particular threatened species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC

Act) during clearing and construction on the site. The VFMP comprises a sub-plan to the CEMP for the project.

The VFMP aims to:

- identify native fauna species, including threatened species listed under the BC Act and EPBC Act known or likely to occur on site that may be potentially impacted by the proposed works;
- identify management actions, including safeguards and procedures, to comply with Development Consent C43 and to minimise impacts on native biota as far as possible; and
- outline monitoring and reporting requirements and responsibilities with respect to the actions outlined in the VFMP.

1.3 Relevant conditions of consent

The specific requirements of Development Consent C43 and C44 and document section details are presented in Table 1-1.

Table 1-1 Relevant condition of consent

Condition	Document Reference
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:	This document is the VFMP for the GO facility. A separate VFMP would be prepared for the ARRT facility if or when it is planned for construction.
a) Be prepared by a suitably qualified and experienced ecologist	Refer to section 1.4
b) Be submitted to the Secretary, prior to the commencement of construction of the GO and/or ARRT facility, whichever is sooner	This VFMP will be submitted prior to commencement of construction of the GO facility
c) Include a vegetation clearing protocol and pre-clearance surveys	Refer to sections 3 and 4
d) Detail procedures for protecting native vegetation, including 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	Refer to sections 3 and 4
e) Detail erosion and sediment controls and weed management procedures	Refer to sections 4.3 and 4.4.3
f) Include procedures for seed collection and translocation of key species, including *Allocasuarina diminuta* subsp. *mimica* and *Acacia bynoeana*	Refer to section 3.3
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.	Refer to section 3.1
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	Refer to section 3.2

Condition	Document Reference
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.	Refer to section 3.2
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.	Refer to section 3.2

* Note that the Office of Environment and Heritage (OEH) is now part of DPIE, which now manages the Biodiversity Offsets Scheme.

1.4 Authors of this management plan

Qualifications of staff involved in the preparation of this management plan are detailed in Table 1-2.

Table 1-2 Staff and qualifications

Name	Position/Role	Qualifications	Relevant experience
Kirsten Crosby	Senior Ecologist / Primary author	BSc (Zoology), PhD Accredited BAM Assessor (number BAAS17011)*	14+ years
Jayne Tipping	Technical Director Biodiversity / Technical review	BSc (Ecology), MEnvLaw	25+ years

1.5 Scope and limitations

This report: has been prepared by GHD for SUEZ Recycling and Recovery Pty Ltd and may only be used and relied on by SUEZ Recycling and Recovery Pty Ltd for the purpose agreed between GHD and the SUEZ Recycling and Recovery Pty Ltd as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than SUEZ Recycling and Recovery Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

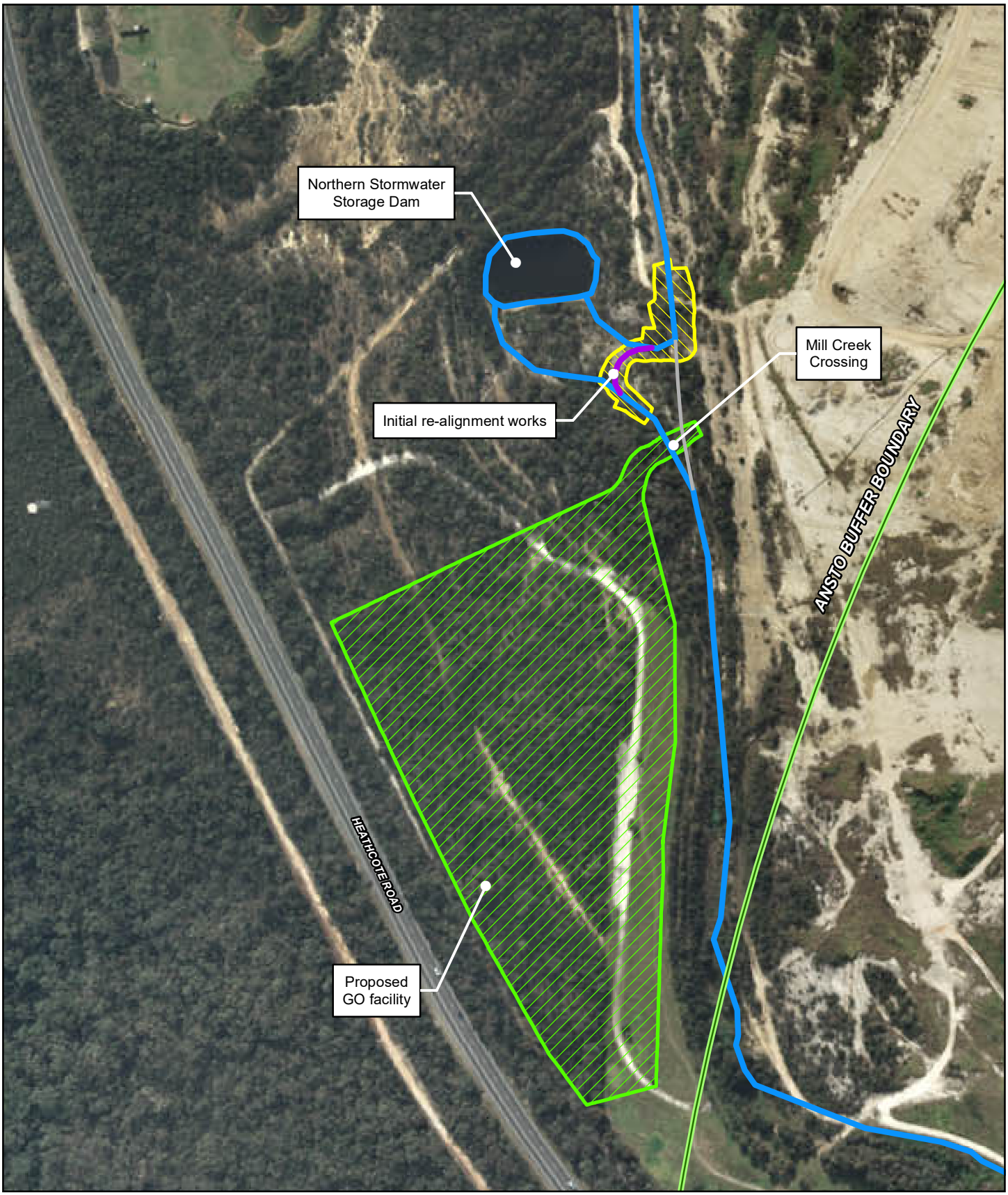
The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no

responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has not been involved in the preparation of the Construction Environment Management Plan (CEMP) and has had no contribution to, or review of the CEMP other than in the Vegetation and Fauna Management Plan. GHD shall not be liable to any person for any error in, omission from, or false or misleading statement in, any other part of the CEMP.



LEGEND

ANSTO Buffer Boundary

Project Boundaries

Proposed GO facility and creek crossing

Proposed Mill Creek re-alignment

Mill Creek

Existing alignment

Initial re-alignment

Further re-alignment

Paper Size A4

0 25 50 100

Metres

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

N

GHD

SUEZ
Lucas Heights Resource Recovery Park

GO facility site layout

Job Number 21-12510188
Revision A
Date 27 Sep 2019

Figure 1.1

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2. Existing environment

The description of the existing environment in this section is summarised from the Biodiversity Assessment Report (GHD 2017).

2.1 Native vegetation

The proposed GO facility area is currently vegetated with Red Bloodwood - Scribbly Gum heathy woodland on sandstone plateaux (Plant Community Type (PCT) 1803). This vegetation type occurs as medium condition (naturally occurring) and poor condition (planted and regenerating). A number of cleared tracks are located in the area.

To the north of the proposed detention basin, a small area of Needlebush - Banksia wet heath on sandstone plateaux of the Sydney Basin (PCT 978) occurs. This PCT is listed as Coastal Upland Swamps endangered ecological community under the BC Act and the EPBC Act.

Vegetation is mapped on Figure 2-1 and summarised in Table 2-1.

Table 2-1 Native vegetation in the study area

Vegetation Community	PCT	Conservation Significance	Location	Number of credits required
Red Bloodwood - Scribbly Gum heathy woodland on sandstone plateaux	1803	Native vegetation	Within footprint of GO facility	185
Needlebush - Banksia wet heath on sandstone plateaux of the Sydney Basin	978	Coastal Upland Swamps (endangered ecological community listed under the BC Act and the EPBC Act).	Outside site (downstream of works)	n/a

2.2 Threatened flora species

2.2.1 Acacia bynoeana

Acacia bynoeana, listed as an endangered species under the BC Act and a vulnerable species under the EPBC Act, was previously recorded alongside the boundary track in the area proposed as the GO facility during the constraints surveys in 2014. This specimen was protected by wooden posts and tape. During the March 2015 survey, it was noted that the individual was in poor condition compared to the earlier survey. In the March 2016 survey, no evidence of the individual could be found at the marked location. Given the lack of any evidence, it is thought that the individual died about six months prior (GHD 2017). No further evidence of the species was recorded in the July 2019 survey.

2.2.2 *Allocasuarina diminuta* subsp. *mimica*

An endangered flora population listed under the BC Act occurs at the site: *Allocasuarina diminuta* subsp. *mimica* L.A.S.Johnson population in the Sutherland and Liverpool local government areas. Most of the population records occur in land alongside Heathcote Road (OEH 2015b). Many ramets of *Allocasuarina diminuta* subsp. *mimica* were recorded during the March 2015 targeted survey for the species both within the site and outside the site, mainly in the road reserve of Heathcote Road. All ramets recorded within the site were recorded along the

access track along the western and northern boundary fence. Additional ramets were recorded in the SICTA land to the north in regenerating woodland.

A summary of the occurrence of *Allocasuarina diminuta* subsp. *mimica* in and around the site is provided in Table 2-2. Locations of ramets are mapped on Figure 2-1.

Table 2-2 *Allocasuarina diminuta* subsp. *mimica* numbers and locations

Location	Description
GO facility	No ramets occur within the GO facility footprint. A survey was conducted in the company of a qualified surveyor in March 2016 to accurately map the location of the ramets with respect to the layout of the GO facility, and to refine the layout of this facility in order to minimise impacts on the endangered population. The GO facility was redesigned so that no *Allocasuarina diminuta* subsp. *mimica* ramets were present with the construction footprint. This was reconfirmed during a survey on 9 July 2019 (refer to GHD 2019).
SUEZ land north of the GO facility	A total of about 67 ramets were recorded during the 2015 survey to the north of the GO facility footprint, mainly along the boundary fence. 62 ramets in this area appear to be hybrids with the common *Allocasuarina littoralis*, with which the endangered population is growing. Ramets were recounted along the boundary fence during the March 2016 survey. A total of 89 ramets were counted within SUEZ land along the western access track (outside the GO facility footprint). Additional individuals were observed on the road reserve side of the fence. The number of ramets recorded within the boundary fence likely increased between the two targeted surveys as a result of further disturbance (eg access track maintenance).
Heathcote road reserve, SICTA land	A total of 137 ramets were counted outside the proposal footprint, both along Heathcote Road and within SICTA land during the March 2015 survey.

2.3 Weeds

A range of weed species occur within the proposal footprint. Weeds of National Significance (Thorp and Lynch 1999) include Bitou Bush (*Chrysanthemoides monilifera* subsp. *rotundata*), Lantana (*Lantana camara*), and Fire Weed (*Senecio madagascariensis*). Priority weed species for the Sutherland Local Government Area that are present include Ludwigia (*Ludwigia peruviana*), Pampas Grass (*Cortaderia selloana*), Lantana (*Lantana camara*) and Fireweed (*Senecio madagascariensis*).

A range of environmental weeds are also present. It is noted that weed species are more common in the section of Mill Creek which flows along the western boundary of the ANSTO land, and evidence of weed management in the SUEZ land included harvested seed heads of *Juncus acutus* and poisoned clumps of African Lovegrass (*Eragrostis curvula*), Pampas Grass and Bitou Bush.

2.4 Fauna habitats

Native woodland comprises a mix of heathy woodland of varying structural complexity dependant on past disturbance history such as clearing, planting and even fire events. Extensive stands of *Allocasuarina* spp. occur throughout the study area in native woodland and generally occur in regrowth vegetation. A range of bird species are likely to nest and shelter in this vegetation. In addition, the Common Ringtail Possum (*Pseudocheirus peregrinus*) is likely to build dreys in this vegetation.

No senescent or mature trees occur within the native woodland. Five hollow-bearing trees were recorded adjacent to the proposal footprint (Figure 2-1), and these contained small hollows only (<10 cm diameter), potentially suitable for species such as the Sugar Glider (*Petaurus breviceps*) and the threatened Eastern Pygmy-possum (*Cercartetus nanus*). These hollows are not suitable for cockatoos or owls.

Two rock outcrops containing many crevices are present within the isolated patch of intact vegetation south of the western sediment control and water reuse basin (Figure 2-1). Based on the presence of many animal carcasses, it is likely that these are used by foxes as dens. Other fauna may also utilise these rock outcrops for shelter.

Mill Creek is located to the east of the GO facility footprint. This creek was previously realigned for the landfill, and additional realignment works are proposed as part of this proposal. Mill Creek typically occurs over sandstone bedrock with a number of small, shallow pools present. Steep banks occur between the creek and the adjacent landfill. Some emergent vegetation occurs along the creek. A dam is located on a realigned section of Mill Creek. This dam has no emergent vegetation, but does contain extensive beds of opportunistic submerged and emergent macrophytes. A range of waterbirds, frogs and reptiles utilise these habitats.

2.5 Threatened fauna species

One threatened fauna species was tentatively recorded on site during the field surveys:

- The Greater Broad-nosed Bat (*Scoteanax rueppellii*), listed as a vulnerable species under the BC Act, was possibly recorded during anabat surveys. This species is known from a wide variety of habitats, including open woodland and tree-lined creeks in open areas. It roosts in tree hollows, and could potentially roost on site.

A number of additional threatened fauna species could occur in the site. These are detailed in Table 2-3, together with their management requirements during clearing operations.

Table 2-3 Likelihood of occurrence of threatened fauna species in the proposal footprint

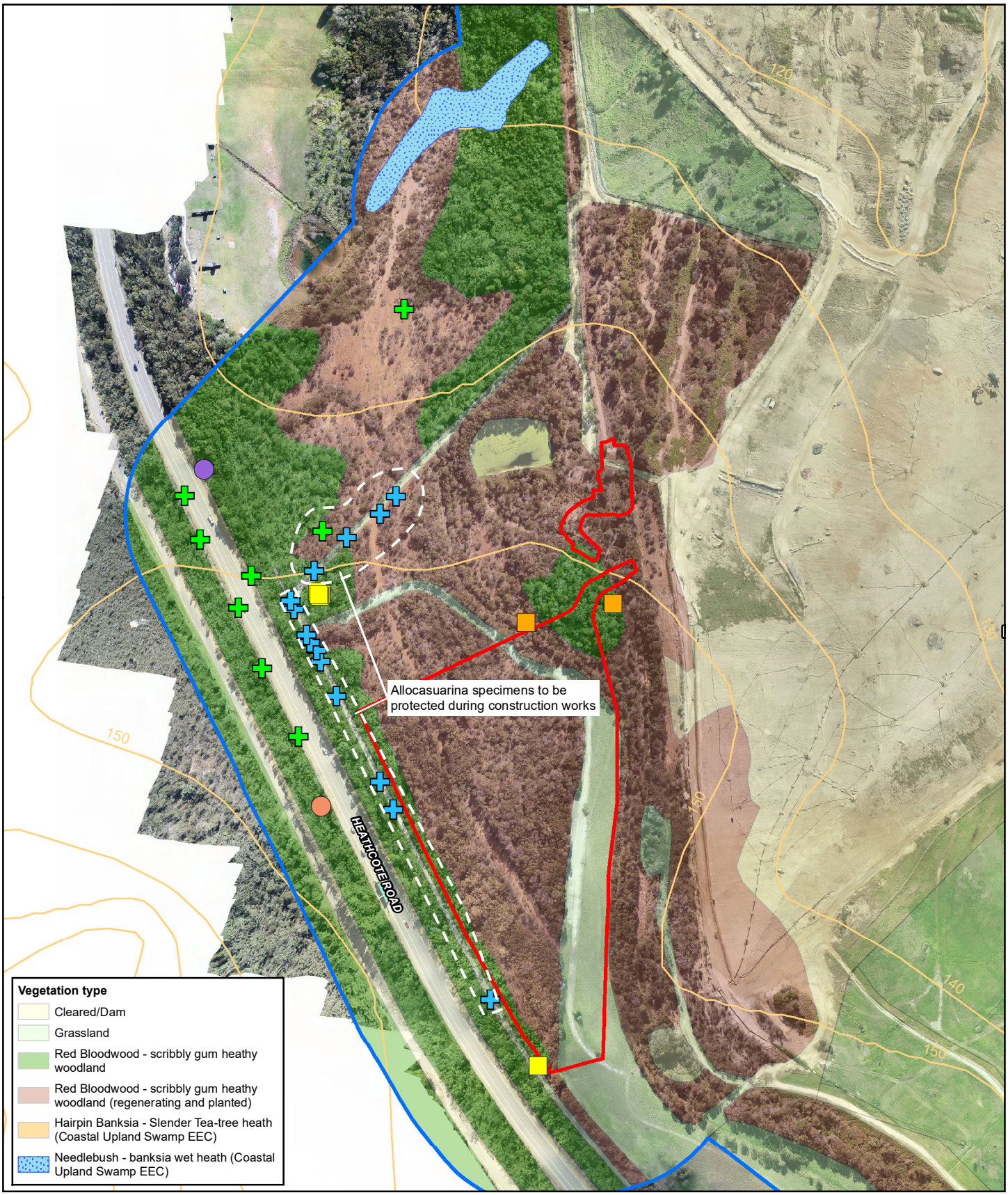
Common Name	Scientific Name	BC Act Status	EPBC Act Status	Likelihood of Occurrence/Habitat in the proposal footprint	Potential for injury or mortality during clearing if present	Number of credits required
MAMMALS						
Eastern Pygmy-possum	*Cercartetus nanus*	V		Likely. Suitable foraging and nesting habitat present in native vegetation in the proposal footprint.	Likely. Project ecologist to undertake pre-clearing surveys of hollow-bearing trees and tussocks and search for individuals during clearing supervision.	97
Koala	*Phascolarctos cinereus*	V	V	Unlikely. Poor quality foraging habitat present only.	Unlikely.	n/a
Spotted-tailed Quoll	*Dasyurus maculatus*	V	E	Possible. May utilise the project footprint for dispersal and foraging. Two small rock outcrops and fallen timber are present, representing potential den habitat.	Possible. Project ecologist to undertake pre-clearing surveys at rock outcrops and search for individuals during clearing supervision.	n/a
Grey-headed Flying-fox	*Pteropus poliocephalus*	V	V	Likely. Would forage in flowering eucalypts on occasion.	Unlikely.	n/a
Eastern Bentwing Bat	*Miniopterus schreibersii oceanensis*	V		Likely. Could forage in native vegetation and cleared areas within the proposal footprint. Suitable roosting habitat not present.	Unlikely.	n/a
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	V		Possible. May forage on occasion in native vegetation within the proposal footprint.	Unlikely.	n/a
Eastern Freetail-bat	*Mormopterus norfolkensis*	V		Likely. May forage on occasion in native vegetation within the proposal footprint. May roost/breed in hollow-bearing trees in the study	Possible. Project ecologist to undertake pre-clearing surveys of hollow-bearing trees and search for hollows	n/a

Common Name	Scientific Name	BC Act Status	EPBC Act Status	Likelihood of Occurrence/Habitat in the proposal footprint	Potential for injury or mortality during clearing if present	Number of credits required
				area, although hollows present are very small.	individuals during clearing supervision.	
Greater Broad-nosed Bat	*Scoteanax rueppellii*	V		Likely. Could forage in native vegetation and cleared areas within the proposal footprint. May roost/breed in hollow-bearing trees in the study area, although hollows present are very small.	Possible. Project ecologist to undertake pre-clearing surveys of hollow-bearing trees and search for hollows individuals during clearing supervision.	n/a
Large-eared Pied Bat	*Chalinolobus dwyeri*	V	V	Possible. Limited suitable forested foraging habitat present. No breeding habitat present.	Unlikely.	n/a
Large-footed Myotis	*Myotis macropus*	V		Likely. May forage above dams and Mill Creek on occasion. Suitable roosting habitat not present.	Possible. Project ecologist to undertake pre-clearing surveys of hollow-bearing trees and search for hollows individuals during clearing supervision.	n/a
Little Bentwing Bat	*Miniopterus australis*	V		Likely. May forage on occasion in native vegetation within the proposal footprint. No suitable roosting habitat present.	Unlikely.	n/a
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	V		Likely. Could forage in native vegetation and cleared areas within the proposal footprint. May roost/breed in hollow-bearing trees in the study area, although hollows present are very small.	Possible. Project ecologist to undertake pre-clearing surveys of hollow-bearing trees and search for hollows individuals during clearing supervision.	n/a
BIRDS						

Common Name	Scientific Name	BC Act Status	EPBC Act Status	Likelihood of Occurrence/Habitat in the proposal footprint	Potential for injury or mortality during clearing if present	Number of credits required
Black-chinned Honeyeater	*Melithreptus gularis gularis*	V		Likely. May forage on occasion in the proposal footprint. Unlikely to breed in the proposal footprint due to disturbed nature of the vegetation.	Unlikely.	n/a
Flame Robin	*Petroica phoenicea*	V		Possible. May forage in the proposal footprint on occasion. Preferred breeding habitat not present.	Unlikely.	n/a
Gang-gang Cockatoo	*Callocephalon fimbriatum*	V		Likely. Could forage in the study area on occasion. No breeding habitat present in the proposal footprint.	Unlikely.	n/a
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	V		Likely. Could forage in the study area on occasion. No breeding habitat present in the proposal footprint.	Unlikely.	n/a
Little Eagle	*Hieraaetus morphnoides*	V		Possible. May forage on occasion in the study area. No breeding habitat (tall trees) present in the proposal footprint.	Unlikely.	n/a
Little Lorikeet	*Glossopsitta pusilla*	V		Possible. May occur on occasion. No breeding habitat present in the proposal footprint.	Unlikely.	n/a
Masked Owl	*Tyto novaehollandiae*			Possible. May forage on occasion in the study area. No breeding habitat present.	Unlikely.	n/a
Powerful Owl	*Ninox strenua*	V		Likely. Could forage in the study area on occasion. No breeding habitat present in the proposal footprint.	Unlikely.	n/a

Common Name	Scientific Name	BC Act Status	EPBC Act Status	Likelihood of Occurrence/Habitat in the proposal footprint	Potential for injury or mortality during clearing if present	Number of credits required
Scarlet Robin	*Petroica boodang*	V		Possible. May forage in the proposal footprint on occasion. Preferred breeding habitat not present.	Unlikely.	n/a
Square-tailed Kite	*Lophoictinia isura*	V		Possible. May forage on occasion in the study area. No breeding habitat (tall trees) present in the proposal footprint.	Unlikely.	n/a
Swift Parrot	*Lathamus discolor*	V		Possible. May forage on occasion in the study area. Does not breed on the Australian mainland.	Unlikely.	n/a
Varied Sittella	*Daphoenositta chrysoptera*	V		Possible. May occur on occasion. Could breed in the proposal footprint.	Possible. Project ecologist to undertake pre-clearing surveys for nests and manage nest removal (if present) during clearing supervision.	n/a
REPTILES						
Rosenberg's Goanna	*Varanus rosenbergi*	V		Unlikely. No evidence of the species during camera surveys for this proposal or previous trapping surveys in nearby areas.	Unlikely.	n/a
FROGS						
Giant Burrowing Frog	*Heleioporus australiacus*	V	V	Possible. Potential shelter habitat in woodland habitat and along riparian zone and potential breeding habitat in swamps and ephemerals pools along Mill Creek. No individuals recorded during targeted surveys.	Possible. Project ecologist to search for individuals during dam drainage and realignment of Mill Creek.	n/a

Common Name	Scientific Name	BC Act Status	EPBC Act Status	Likelihood of Occurrence/Habitat in the proposal footprint	Potential for injury or mortality during clearing if present	Number of credits required
Red-crowned Toadlet	*Pseudophryne australis*	V		Unlikely. Few ephemeral streams present in the proposal footprint. The pH levels recorded along Mill Creek make this waterway unsuitable for this species.	Unlikely.	n/a



LEGEND

Study area

Project footprint

10m Contour

Threatened species

Melaleuca biconvexa

Melaleuca deanei

Allocasuarina diminuta subsp. *mimica* (2015 Survey)

Allocasuarina diminuta subsp. *mimica* (2016 Survey)

Habitat feature

Hollow-bearing tree

Rock outcrop

Paper Size A4

0 25 50 100

Metres

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

N

GHD

SUEZ
Lucas Heights Resource Recovery Park
GO facility
sensitive areas map

Job Number 21-12510188
Revision A
Date 27 Sep 2019

Figure 2.1

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3. Pre-construction management activities

3.1 Appointment of a project ecologist

A project ecologist is to be appointed prior to clearing in order to manage pre-clearing and clearing operations.

3.2 Biodiversity Offset Strategy

Prior to commencing construction of the GO facility, the Biodiversity Offset Strategy would be implemented. The ecosystem and species credits listed in Table 3-1 will be purchased and retired in accordance with Framework for Biodiversity Assessment (OEH 2014a) and the NSW Biodiversity Offsets Policy for Major Projects (OEH 2014b). It is the responsibility of the Site Manager to ensure the offsets will be secured by a conservation mechanism that protects and manages the land in perpetuity.

Table 3-1 Biodiversity Offset Strategy - GO facility

No. of credits	Offset type
185 ecosystem	Red Bloodwood – Scribbly Gum healthy woodland on sandstone plateaux
97 species	Eastern Pygmy-possum

3.3 Seed collection of threatened flora species

Species of *Allocasuarina* can be propagated from seed (Wrigley and Fagg 2007). Female flowers were recorded on several stems of *Allocasuarina diminuta* subsp. *mimica* and cones were common on stems within most patches of this species, therefore it is possible that viable seed has been produced. Preliminary seed collection by the Menai Wildflower Group who run the on-site nursery was undertaken in 2015. Further seed collection is recommended prior to or during the construction of the GO facility. It should be noted that the collection and propagation of threatened plants requires a scientific licence issued under Part 2 of the *Biodiversity Conservation Act 2016*.

The following tasks should be undertaken:

- Prior to commencing collection and propagation of *Allocasuarina diminuta* subsp. *mimica* seed and propagules, an application for a scientific licence for seed collection, as issued under Part 2 of the BC Act, should be submitted and approved.
- Collection of seeds and propagules of *Allocasuarina diminuta* subsp. *mimica* should be carried out by the Menai Wildflower Group in March, and should only include collection from specimens that are not showing any evidence of interbreeding with *Allocasuarina littoralis*.
- Seeds should be planted in the nursery and any individuals grown used for on-site plantings.
- Replanting should be undertaken in areas that are not likely to be impacted by future development. Planting of salvaged and propagated plants along the realigned Mill Creek where the ironstone soil is present is recommended as this is the soil type where the species is currently growing.

- No *Allocasuarina littoralis* should be planted near these plants as this species can shade out *Allocasuarina diminuta* subsp. *mimica* and also interbreed with the endangered population.
- Translocation of *Allocasuarina diminuta* subsp. *mimica* should be carried out with input from the Sutherland Shire Council bushcare staff.

No seed collection of *Acacia bynoeana* is required. This individual was confirmed to have died in 2016, prior to submission of the EIS. A survey on 9 July 2019 did not record any new individuals of this species.

3.4 Vegetation and habitat pre-clearing survey

3.4.1 Fauna survey

A field survey is to be conducted by the project ecologist at least one week prior to clearing commencing. This survey is to include:

- searches for hollow-bearing trees, rock outcrops, occupied nests and dreys, which are to be marked on the sensitive areas map
- hollow-bearing trees and trees with nests are to be marked with flagging tape or spraypaint
- nocturnal surveys of the identified hollow-bearing trees for occupation by fauna. Methods are to include searches for signs of habitation (eg scats, guano), dusk observations for exiting fauna, spotlighting and use of anabats. Details of any trees with occupied hollows need to be recorded on the tree hollow inspection register (see Appendix A) and marked on the sensitive areas map.
- handling of frogs (if required) would be carried out according to the *Hygiene guidelines: Protocols to protect priority biodiversity areas in NSW from* Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants* (DPIE 2020).

3.4.2 Weed survey

A survey should be conducted at least one week prior to clearing commencing to map any areas with weed infestations that require management. These areas are to be marked with flagging tape or parawebbing.

3.5 Sensitive areas map

The sensitive area map is to be updated with any additional hollow-bearing trees, nests, dreys or weed areas prior to clearing commencing to assist with management of clearing operations.

4. Construction management activities

4.1 Inductions

The project ecologist will carry out an induction for all construction staff to advise on biodiversity values on the site and the safeguards and management procedures contained in the VFMP. The induction training will address elements related to flora and fauna management, including:

- Familiarisation with the requirements of this sub-plan
- Relevant legislation regarding the protection of flora and fauna
- Specific species likely to be affected by the construction works and how these species can be recognised
- Locations and purpose of the exclusion zones
- General flora and fauna management measures
- Fauna rescue requirements
- Weed and pathogen control measures.

Records will be kept of all personnel inducted, as well as the date of induction, an outline of the training received and name of the Project ecologist delivering the induction.

4.2 Protection of native vegetation

Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features (eg Coastal Upland Swamps) are to be prepared prior to clearing.

Prior to the commencement of construction activities, ecologically sensitive areas designated as 'no-go areas' will be clearly delineated by single strand flagging rope or parawebbing to alert the workforce personnel of areas that must be avoided. These will include:

- the boundary between the GO facility and areas of native vegetation to be retained
- the verge adjacent to Heathcote Road.

Fencing that was installed to demarcate the construction area in the pre-construction phase will be inspected on a weekly basis. High visibility parawebbing demarcating No Go Zones following pre-clearance surveys, will be inspected and repaired as necessary.

No clearing, stockpiling of plant and material shall take place in the established exclusion zones.

4.3 Erosion and sediment control procedures

A site specific Erosion and Sediment Control Plan will be prepared as part of the CEMP. The purpose of the plan is to manage sensitive areas (such as the Coastal Upland Swamp north of the site, the sediment pond north of the GO facility and the verge along Heathcote Road). The following measures will be included:

- Installation of erosion and sediment controls prior to clearing of vegetation
- Weekly inspection of erosion and sediment controls, and appropriate maintenance as necessary
- Inspections are to be undertaken immediately after weather events such as heavy rainfall to search for any breakages
- Monitoring of weather conditions that may affect erosion and sediment controls

- Temporary stockpiles must be located at least 20 m from the Coastal Upland Swamp and Mill Creek.
- Progressive stabilisation and removal of erosion and sediment controls following construction.

4.4 Clearing of vegetation

4.4.1 Management of clearing of vegetation

- Clearing will commence with the most distant vegetation from secure habitat and progressively work toward the retained bushland (ie. south to north) in order to allow fauna to disperse into areas of retained habitat.
- The project ecologist is to be present during all removal of native vegetation. Management of removal of hollow-bearing trees is to follow the procedure outlined in section 4.4.4. Any fauna that require rescue and relocation will be managed in accordance with the protocol outlined in section 4.5.

4.4.2 Protection of threatened flora

- Ensure any *Allocasuarina diminuta* subsp. *mimica* along the access track or Heathcote Road verge are protected from construction activities for the GO facility through the use of fencing, signage or flagging to avoid accidental removal and/or damage of ramets.

4.4.3 Weed management

The following control measures apply to the general site as well as to the management of weed control on material stockpiles (in particular, topsoil stockpiles).

- Initial control of large infestations of weeds identified on the sensitive areas map (see section 3.4.2) should be achieved via a combination of brush-cutting, manual removal and careful spot-spraying.
- Herbicide spraying should be avoided within 20 metres of the Coastal Upland Swamp and Mill Creek.
- All weed control works should be undertaken by an appropriately qualified and experienced bush regeneration contractor.
- No clearing, stockpiling of plant and material shall take place in the established exclusion zones.
- All weed material should be bagged, removed from site and disposed of at a registered green waste facility.

Following the initial clearing of vegetation, further weed control may need to be undertaken, particularly along the edges of retained vegetation such as the Heathcote Road verge, including:

- In general, use of herbicides should be minimised at all times.
- Maintenance weed control works are to be undertaken during regular sweeps of the site.

4.4.4 Clearing of hollow bearing trees

A qualified ecologist is to be present during clearing operations to ensure felling of trees is carried out in an appropriate manner, and any fauna present can be rescued and relocated. The ecologist is to carry the map of hollow-bearing trees prepared following the pre-clearing surveys. Hollow-bearing trees are to be felled in accordance with the procedure detailed below.

When clearing within the approved construction area, all vegetation surrounding a hollow-bearing tree (excluding other hollow-bearing trees and logs) will be removed at least 24 hours prior to the hollow-bearing tree being removed.

The following steps will be undertaken before the vegetation surrounding hollow-bearing trees is removed:

- Surrounding vegetation (i.e. non-hollowing bearing trees and understory plants) will be inspected by the ecologist for the presence of fauna;
- If animals are found, procedures outlined in the Fauna Rescue and Relocation Procedure below (section 4.5) will be followed. Surrounding vegetation can then be cleared;
- If no fauna are found, then surrounding non-hollow-bearing vegetation can be cleared. This process will be monitored by the ecologist in case fauna are found to be at risk; and
- The ecologist will document the outcomes of this process (e.g. number and species encountered/rescued) (see Appendix A).

At least 24 hours after the removal of surrounding vegetation, the hollow-bearing tree or log can be removed (in accordance with the technique outlined below). Hollow-bearing trees should be removed within the 3 hours before sunset as far as possible and appropriate fauna 'capture and release' techniques will be implemented (see section 4.5).

During the removal of any hollow-bearing trees:

- An ecologist experienced in the handling of fauna will be present with appropriate animal-handling equipment and holding containers.
- Prior to felling or removal, clearing machinery will be used to gently shake or 'bang' the habitat tree for a period of 2-3 minutes (dependant on tree health and structural integrity) to encourage any resident fauna to vacate hollows. Sticks, poles or other similar hand-held objects will also be used to hit the trunk of the tree or log at various points, to encourage animals to vacate the tree. The tree will be observed for at least 5 minutes prior to completing this action.
- Trees should be gently lowered using an excavator bucket for support if possible. The ecologist will observe the tree felling and ensure that any hollows are not blocked by being placed against the ground.
- Once it has been deemed safe by the excavator operator to inspect each tree, hollows will be inspected for fauna that may be present (uninjured, injured or deceased). Use of fibre-optic cameras to assist this process is recommended. The ecologist will document this process using the tree hollow inspection register (see Appendix A).
- Felled habitat trees with any occupied hollows will be left on the ground until the evening or up to 24 hours to allow the animal to exit the hollow. Habitat trees can then be removed.

4.4.5 Clearing of rock outcrops and trees with nests

The project ecologist is to be present during the removal of rock outcrops and trees with nests. Any fauna are to be handled as per the protocols in section 4.5.

4.5 Fauna rescue and relocation procedure

4.5.1 Location for release of animals

The project ecologist is to organise a location for release of rescued animals prior to clearing commencing. For clearing for the GO facility, this is likely to comprise the area of retained vegetation to the north of the GO facility. This will mean that fauna are not moved substantial distances from their existing home range, and may still be located within their existing home range.

4.5.2 General capture and release methods

The project ecologist will be present during the clearance of native vegetation and/or fauna habitats. Animals that require handling must not be approached or handled until the ecologist is present, unless in an emergency (e.g. when there are both no authorised persons present and where the failure to immediately intervene would place the animal at significant risk). In such an emergency, the site manager may obtain over the phone instructions from the project ecologist to ameliorate the situation. A wildlife rescue organisation (eg WIRES, Sydney Wildlife) should be made aware of operations in case any injured fauna are found.

All animals encountered will be treated humanely, ethically, and in accordance with relevant codes under the NSW *Prevention of Cruelty to Animals Act 1979*, including:

- Australian code of practice for the care of animals for scientific purposes (NHMRC 2013)
- Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH 2011)
- Hygiene guidelines: Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants (DPIE 2020)
- Animal ethics considerations and protocols outlined in this document.

If the project ecologist considers an animal is at risk of injury or undue stress, it is to be gently encouraged to vacate the area and should be directed into secure adjoining habitat. Where deemed necessary by the project ecologist, the animal may be required to be captured and released. Capture and release operations will proceed via the following protocols:

- All construction activities that are considered by the project ecologist be likely to increase the risk of injury, mortality or stress to the animal will be halted until the animal has been removed, which will be enforced with the co-operation of the Contractor. Construction activities that do not contribute to the risk of injury, mortality or stress to the animal can continue (as determined by the project ecologist).
- Only qualified ecologists or wildlife carers are authorised to handle animals.
- Animals will be captured (if required) by the project ecologist using a safe and ethical technique, as is appropriate for the particular species (see below). Native animals that are unable to depart of their own accord will be captured and held in a receptacle appropriate for that species until release. All captive-held animals will be provided with food, water and warmth as is appropriate for the species. Each receptacle will only hold one animal at a time and will be cleaned and disinfected between use to avoid the spread of disease. More details are provided in the section 4.5.4.

Management of any captured feral animals is discussed in section 4.5.5.

Details of any fauna relocated from hollows would be recorded on the tree hollow inspection register (see Appendix A). Any other fauna relocated from trees, shrubs or other areas would also be recorded (see Appendix A).

4.5.3 Unexpected finds

The construction contractor is to contact the Project ecologist for advice if any unexpected fauna are found during the construction period (ie, following clearing of native vegetation when the Project ecologist is no longer on site).

4.5.4 Appropriate containers for temporarily holding fauna

Animals that are unable to depart from the construction area of their own accord will be captured and held in an appropriate receptacles until their release. Appropriate containers for temporarily holding various types of animals are:

- Small calico bag (~ 20 cm x 30 cm with cord to secure the opening, turned inside out so that seams are on the outside of the bag): small mammals (e.g. Antechinus), micro-chiropteran bats. Bag then slung from beam in a holding box until the time of release.
- Large calico bag or pillow slip (~ 60 cm x 90 cm with cord to secure the opening, turned inside out so that seams are on the outside of the bag): snakes, medium-sized arboreal mammals. Bag then stored in a cardboard box with padding if required for transport.
- Cage trap (~ 30 cm x 30 cm x 60 cm): medium sized arboreal and ground-dwelling mammals. Trap to be covered with bag to reduce stress.
- Plastic 'lunch-box'- style container (~ 10 cm x 10 cm x 20 cm) with appropriate habitat features, some water (or dampened cloth) and air holes: frogs, reptiles (small lizards).
- Sealable container (~ 1-2 litres) filled with fresh water: tadpoles.
- Small box/open container with appropriate material for nestlings.
- Plastic bag with water: frogs (one bag per frog).

Note: Frogs must be handled in accordance with the NSW hygiene guidelines (DPIE 2020) to prevent the transmission of disease such as the Chytrid fungus. Gloves and/or containers which have been used to handle or contain frogs will not be reused.

4.5.5 Management of animals

Native animals - uninjured

The following methods are appropriate for the release of uninjured native fauna:

- Uninjured captured individuals are to be immediately released into retained vegetation to the north of the clearing area.
- If the project ecologist is not trained to handle snakes (or a particular snake species), then either another wildlife specialist who is trained and experienced at handling snakes will be brought to the site, or a licensed snake handler will be engaged. Licensed snake handlers in the local area will be identified and made aware of this possibility before the commencement of construction activities.
- For particular species (e.g. nocturnal species), the project ecologist may also determine that it is beneficial to hold the animal/s safely in an appropriate receptacle until (or after) sunset to reduce risks to the animal such as disorientation or attack from predators. The receptacle will be kept in a shaded or otherwise suitable location during the day so that the temperatures experienced by the animals are well within its normal range. At all times, the receptacle will be kept in a secure location, under the supervision of the ecologist.

The time, location, species, name of ecologists and other relevant details will be marked on a capture and release recording form (see Appendix A).

Native animals - injured

The following methods are appropriate for the management of injured native fauna:

- If an injured animal is found within the construction area, it should be placed into the care of a local and 'accredited party' experienced in the care of that particular animal species. The following wildlife rescue organisations are in the area:
  - WIRES, Ph. 13 000 WIRES - 13 00 094 737
  - Sydney Wildlife, Ph. (02) 9413 4300
- When injured animals have recovered sufficiently, they will be released safely by the accredited party in suitable habitat within retained vegetation to the north of the construction site.
- Animals that have a poor chance of recovery or for which a successful return to the wild is considered unlikely (as determined by the accredited party) will be euthanised humanely by a veterinarian.

Native fauna - deceased animals

The ecologist will offer deceased animals to the Australian Museum. Specimens not taken by the Museum will be disposed of in an appropriate manner.

Feral fauna

Few feral animals are unlikely to be present during the clearing process. Those that may occur include the Fox (*Vulpes vulpes*) and hollow-dwelling species such as the Common Myna (*Acridotheres tristis*). The following procedures will be followed if feral animals are captured within the construction area:

- Animals will be handled and held in an appropriate receptor as per the Native Fauna Handling Procedure.
- Under Section 2.6 of the *Biodiversity Conservation Act 2016* the liberation without authority of any animal is illegal. Any captured feral animals will therefore not be re-released after capture, but will be humanely destroyed.

5. Summary of tasks

A summary of tasks is provided in Table 5-1.

Table 5-1 Summary of tasks

Task	Measure/Requirement	When to implement	Responsibility	VFMP Reference
General	The project ecologist will carry out an induction for all construction staff to advise on biodiversity values on the site and the safeguards and management procedures contained in the VFMP. The induction will address all elements related to flora and fauna management.	Pre-construction	Environmental management Representative (EMR) and project ecologist	4.1
Protection of native vegetation	Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features (eg Coastal Upland Swamp, threatened flora) and revegetation areas are to be prepared prior to clearing.	Pre clearing	EMRand project ecologist	4.2
	Prior to the commencement of construction activities, ecologically sensitive areas designated as 'no-go areas' will be clearly delineated by single strand flagging rope or parawebbing to alert the workforce personnel of areas that must be avoided.	Pre clearing	EMR and project ecologist	4.2
	Signs should be clearly visible from a distance of at least 20 metres and be general in nature, such as 'Exclusion Zone' or 'Environmental Protection Zone'.	Pre clearing	EMR and project ecologist	4.2
Threatened flora	Collection of seeds from *Allocasuarina diminuta* subsp. *mimica* individuals should be undertaken by the Menai Wildflower Group in March when the species is setting seed.	Pre-construction During construction	EMR and project ecologist	3.2
Pre-clearing surveys	A pre-clearing survey is to be undertaken to identify any hollow-bearing trees, nest sites and bush rock areas. Any identified habitat features that are to be managed during clearing is to be clearly marked with spray paint or flagging tape and mapped with GIS for future reference.	At least one week prior to clearing	Project ecologist	3.4
	A survey should be conducted at least one week prior to clearing commencing to map any areas with weed infestations that are of particular concern for the area. These areas are to be marked with flagging tape or parawebbing.	At least one week prior to clearing	Project ecologist	3.4
Sediment and erosion control	Erosion and sediment controls must be installed prior to clearing of vegetation	Pre-clearing	EMR	4.3

Task	Measure/Requirement	When to implement	Responsibility	VFMP Reference
	Erosion and sediment controls are to be inspected weekly, with appropriate maintenance as necessary	Clearing of vegetation Construction	EMR	4.3
	Inspections of erosion and sediment control measures should be conducted for effectiveness prior to and immediately following storms/heavy rain events.	Clearing of vegetation Construction	EMR	4.3
	Temporary stockpiles must be located at least 20 m from the Coastal Upland Swamp and Mill Creek	Clearing of vegetation Construction	EMR	4.3
Vegetation management	No clearing, stockpiling of plant and equipment shall take place in the established exclusion zones	Clearing of vegetation Construction	EMR and project ecologist	4.4
	Clearing will commence with the most distant vegetation from secure habitat and progressively work toward the retained bushland in order to allow fauna to disperse into areas of retained habitat	Clearing of vegetation	EMR	4.4
	Trees to be felled near exclusion zones must be felled away from the exclusion zone and not into retained bushland habitats	Clearing of vegetation	EMR	4.4
	Fencing and high-visibility parawebbing that was installed to demarcate the construction area in the pre-construction phase will be inspected on a weekly basis. Additional checks should be undertaken following storms where there is a higher risk of material falling on fencing	Clearing of vegetation Construction	EMR	4.4
	No vehicles, plant or construction personnel are to enter the no-go zones unless under instruction from the project ecologist	Clearing of vegetation Construction	EMR and project ecologist	4.4
Weed management	Initial control of large infestations of woody weeds should be achieved via a combination of brush-cutting, manual removal and careful spot-spraying.	Clearing of vegetation	EMR and project ecologist	4.4.3
	Herbicide spraying should be avoided in the wetland and within 20 metres of the upland swamps.	Clearing of vegetation	EMR and project ecologist	4.4.3
	All removed weed material should be bagged, removed from site and disposed of at a registered green waste facility	Clearing of vegetation	EMR and project ecologist	4.4.3

Task	Measure/Requirement	When to implement	Responsibility	VFMP Reference
	Weekly inspections should be undertaken to identify and control any new weed infestations, including those on stockpiled material (particularly topsoil)	Construction	EMR and project ecologist	4.4.3
Fauna handling	Fauna handling is to be conducted in accordance with the Fauna rescue and release procedure	Clearing	Project ecologist	4.6
Unexpected finds	The unexpected finds procedure is to be implemented if any threatened species not previously expected to occur are identified on site during construction	Clearing	Project ecologist	4.6.3
Clearing of fauna habitat	A two-stage clearing process will be implemented, with non-habitat trees cleared at least 24 hours prior to habitat trees. All habitat trees are to be felled under supervision of the project ecologist in accordance with the fauna rescue and release procedure (section 6.3).	Clearing	Project ecologist	4.4.4
	All rock outcrops and trees with nests are to be removed under supervision of the project ecologist in accordance with the fauna rescue and release procedure (section 6.3).	Clearing	Project ecologist	4.4.5
Aquatic habitat protection	Best practice methods for aquatic habitat management will be implemented during construction. Further details are provided in the Sediment and Erosion Management Plan.	Clearing Construction	EMR and project ecologist	4.3
	All vehicles, earthmoving equipment and boots shall be thoroughly washed down prior to their use on the project, including during pre-clearing surveys	Clearing Construction	EMR and project ecologist	4.2
	Wash downs must not be located within 20 m of native vegetation. Dirty water is to be disposed of appropriately	Clearing Construction	EMR and project ecologist	4.3
Post-construction	Progressive stabilisation and removal of erosion and sediment controls following construction	Post-construction	EMR	4.3
	Any revegetation works are to use locally endemic species typical of the vegetation community present	Post-construction	EMR and project ecologist	4.3
	Translocation of *Allocasuarina diminuta* subsp *mimica* should it be required	If required	EMR and project ecologist	3.2

6. Reporting

The project ecologist would provide details of activities conducted during the pre-clearing and construction phase. All registers (see Appendix A) are to be filled out and referred to as appropriate during the pre-clearing and construction phase. Reporting would include:

- Locations of hollow-bearing trees, nests, dreys, rock outcrops etc
- Details of fauna rescued and relocated
- Details of any fauna injured and transferred to the care of WIRES
- Details of any fauna mortality
- Details of any non-conformances and how these were managed
- Details of any unexpected finds and how these were managed (if relevant).

Registers will be provided to SUEZ and the construction contractor at the completion of works.

7. References

DPIE (2020). Hygiene guidelines: Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants. Department of Planning, Industry and Environment. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Wildlife-management/saving-our-species-hygiene-guidelines-200164.pdf

GHD (2017) Lucas Heights Resource Recovery Park Project. Biodiversity Assessment Report.

GHD (2019) Lucas Heights Realignment and Associated Works, *Allocasuarina diminuta* subsp. *mimica* survey.

NHMRC (2013). Australian code of practice for the care of animals for scientific purposes. National Health and Medical Research Council. https://www.nhmrc.gov.au/about-us/publications/australian-code-care-and-use-animals-scientific-purposes

OEH (2011). Code of Practice for Injured, Sick and Orphaned Protected Fauna. Office of Environment and Heritage. https://www.environment.nsw.gov.au/research-and-publications/publications-search/code-of-practice-for-injured-sick-and-orphaned-protected-fauna

OEH (2014a). Framework for Biodiversity Assessment. Office of Environment and Heritage. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/BioBanking/framework-biodiversity-assessment-140675.pdf

OEH (2014b). NSW Biodiversity Offsets Policy for Major Projects. Office of Environment and Heritage. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/nsw-biodiversity-offsets-policy-major-projects-140672.pdf

Appendices

Appendix A - Registers

Hollow inspection register

Hollow inspection register		
Project:	Date:	
Tree number:	Species:	
Pre-clearing inspection:		
Size of hollow (small, medium, large):		
Size of entrance (small, medium, large):		
Height of hollow from ground:		
Are there any additional hollows on same tree	Yes	No
Is the hollow occupied	Yes	No
Species		
Is there evidence of breeding (eggs, nestlings, young etc	Yes	No
Recommended action		
Other comments		
Clearing inspection		
Fauna present:		
Health (was it injured during tree felling):		
Does it require immediate attention:		
Wildlife care agency called:		
Outcome:		
Release of fauna:		
Where was the animal(s) released		
Other comments		
Sign-off		
Name		
Signature		
Date		

General clearing register

General clearing register	
Project:	Date:
Clearing inspection	
Fauna present:	
Health (was it injured during tree felling):	
Does it require immediate attention:	
Wildlife care agency called:	
Outcome:	
Release of fauna:	
Where was the animal(s) released	
Other comments	
Sign-off	
Name	
Signature	
Date	

General clearing register	
Project:	Date:
Clearing inspection	
Fauna present:	
Health (was it injured during tree felling):	
Does it require immediate attention:	
Wildlife care agency called:	
Outcome:	
Release of fauna:	
Where was the animal(s) released	
Other comments	
Sign-off	
Name	
Signature	
Date	

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12510188_REP_Vegetation and Fauna Management Plan

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	K. Crosby	R. Towner	On file	D. Gamble	On file	27/9/19
1	L Yum	K Crosby	On file	D Gamble	On file	22/9/20
2	N Griffith	D Gamble	On file	D Gamble	On file	01/04/21

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Appendix E - Construction Traffic Management Plan

SUEZ Recycling and Recovery Pty Ltd

LHRRP - Garden Organics Facility
Construction Traffic Management Plan

May 2021

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1. Introduction

1.1 Background

The relocation and expansion of the existing garden organics (GO) facility at Lucas Heights Resource Recovery Centre was approved on 23 January 2017 under SSD 6835. GHD have been commissioned by SUEZ Recycling and Recovery (SUEZ) to prepare a Construction Environmental Management Plan (CEMP) for the redevelopment of the GO facility to comply with Conditions D1 and D2 of the Consent.

According to the Consent conditions, the CEMP will include the following:

- CEMP for the dual gas and leachate trench (prepared by SUEZ and approved by the EPA)
- Erosion and sediment control plan (part of this scope of works)
- Vegetation and fauna management plan (updated as part of this scope of works)
- Construction traffic management plan (part of this scope of works)

The current approval under SSD 6835 allows for the construction of both a Garden Organics (GO) facility and Advanced Resource Recovery Technology (ARRT) facility. The construction of these facilities would be implemented in stages and traffic management works would likewise be staged to minimise the impact of the activities, by ensuring that disturbances only occur when required. Only the GO facility would be constructed at this stage.

As such, this plan deals with the provision of the GO facility alone, and associated traffic management works.

1.1.1 Proposed development

The construction activities associated with the GO facility include the following:

- GO Facility West : earthworks, construction of hardstand, internal access road, water and leachate infrastructure, waste receival and sorting areas and compost bunkers and storage areas, Mill Creek rehabilitation.
- GO Facility East: relocation works within Area 2 and 3 of the GO area.

The SSD 6835 approved consent conditions include the Condition D2 under the section “Construction Environmental Management Plan”. This condition states the following:

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)*

This report provides a Construction Traffic Management Plan (CTMP) to address consent condition (d).

1.2 Purpose of this report

This CTMP has been prepared to address the requirements of Condition D2 (d) with respect to the construction phase activities for the proposed GO facility. In the event of future works to

construct the ARRT facility, this plan would be updated accordingly to reflect the further construction works.

This CTMP addresses the approval conditions set out in the development consent by NSW Department of Planning & Environment (application number SSD 6835), which are as follows:

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.*

1.2.1 Objectives

During periods of construction activity, the safety and management of staff and visitor access to the site is a priority. This CTMP will help the Client to efficiently and effectively manage traffic and pedestrian movements, including identification of the following:

- Vehicle approach departure routes to the site
- Construction vehicle types
- Potential areas of parking for construction personnel
- Site access constraints such as vehicle restrictions (e.g. road network load limits/height restrictions) on haulage routes
- Identify areas of vulnerable road users (pedestrians and bicycle riders)
- Methods of communicating traffic changes on the road network

1.3 Staged approach

As part of the approved works, SUEZ is proposing to construct only the GO facility at this initial stage without the inclusion of the ARRT facility. The ARRT facility may be constructed at a later date.

The construction of the GO facility would require an initial re-alignment of Mill Creek. In the event that the ARRT facility is constructed, Mill Creek would require further re-alignment as per the approved works. By staging the works, the impacts would be minimised as disturbances would only occur when necessary. This staged realignment means that the existing sediment basin located to the north of the proposed GO location would be initially retained.

1.4 Scope and limitations

This report: has been prepared by GHD for SUEZ Recycling and Recovery Pty Ltd and may only be used and relied on by SUEZ Recycling and Recovery Pty Ltd for the purpose agreed between GHD and the SUEZ Recycling and Recovery Pty Ltd as set out in this report.

GHD otherwise disclaims responsibility to any person other than SUEZ Recycling and Recovery Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Construction traffic management basis

2.1 Project Location

The location of the GO facility in relation to the overall site plan is in Figure 2-1. The site is accessed from Little Forest Road, via the priority controlled New Illawarra Road / Little Forest Road intersection.

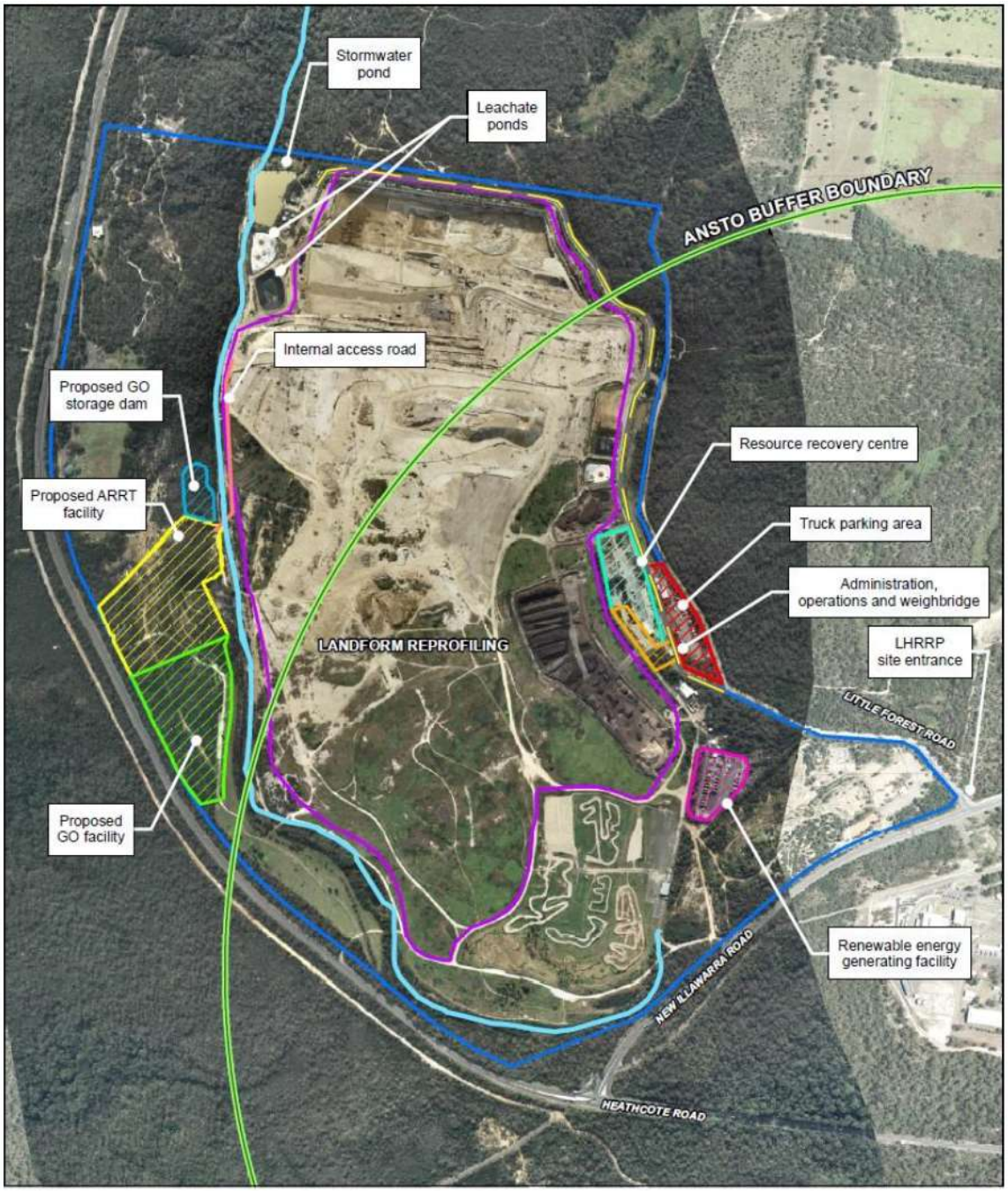

Figure 2-1 General arrangement concept

2.2 Legislation and guidelines

The application of the CTMP will use the following reference documents, with only the edition cited applies. The latest edition of the document will apply, when updated:

- RMS Road Design Guide
- RMS NSW Bicycle Guidelines
- RMS's ROL Manual
- Australian Road Rules
- RMS TCAWS Manual
- RMS Specification D&C G10 – Traffic Management
- RMS Guide: Signposting
- RMS and Destination NSW's Guide to Tourist Signposting
- Austroads Road Safety Audit: Checklist 4. Pre-opening scheme audit
- Austroads Road Safety Audit: Checklist 5: Roadwork traffic scheme audit
- Austroads Road Safety Audit: Checklist 6: Existing roads: road safety audit
- Austroads Guide to Road Design Part 3 – Geometric Design
- Austroads Traffic Engineering Practice – Part 14
- Lucas Heights RRP Traffic Management Plan – Document No: PLAN002, (September 2018)

This report refers to the *Lucas Heights Resource Recovery Park Project Traffic Impact Assessment* report (September 2015), which assessed the expected traffic impact of the proposed development, including the proposed GO facility.

2.3 Stakeholder Consultation

In the development of the CTMP, SUEZ and / or the contractor will be required to undertake consultation with the following road authorities:

- Sutherland Shire Council; and
- Transport for NSW

2.4 Responsibility

The Site Manager is responsible for educating all transport operators (drivers) working on site and construction workers and monitoring implementation of the CTMP. The construction workers and drivers are responsible for understanding the CTMP and report any incidents including crashes, near misses or hazards to the Site Manager.

2.5 Construction Activities

The construction activities associated with the project include:

- GO Facility West :
  - Bulk earthworks,
  - construction of hardstand and internal access roads,

  - construction of water and leachate infrastructure,
  - installation of waste receival and sorting areas and compost bunkers and storage areas, and
  - Mill Creek rehabilitation.
- GO Facility East:
  - Relocation works within Area 2 and 3 of the GO area

2.6 Construction Hours

The proposed hours of construction works, in accordance with Condition C53, are as follows:

- Weekdays: between 7.00 am and 5.00 pm
- Saturday and Sunday: 8.00 am to 5.00 pm

2.7 Vehicle types

The types of vehicles to be used for the construction works is expected to include dump trucks, excavators and light vehicles.

Construction personnel would access the site by light vehicles and park within the site, near the construction activity areas (parking location to be confirmed by the contractor). Given the rural location of the site, construction personal are not expected to access the site by public transport or by walking / cycling.

2.8 Construction Program

The expected construction program for the GO facility is as follows:

- The excavation construction is expected to be completed within a six month period, commencing in late 2020.
- Following completion of the excavation period, construction of the GO facility is expected to occur over a 12 month period.

2.9 Workforce

As identified in the *Lucas Heights Resource Recovery Park Project Traffic Impact Assessment* report (September 2015), the proposed GO facility construction activities are expected to require the following number of construction personal:

- **During the excavation period**: around 10 workers are anticipated to work on site.
- **During the building construction of GO facility**: around 25-30 workers are anticipated to work on site.

It should be noted that as these numbers are assumed as maximum number of workers, this plan is based on highly conservative estimate for the number of construction personnel. However, the actual construction workers may be less.

2.10 Site Offices and Personnel car Parking Location

The GO facility contractors will use the existing site office located in the north-west of the site. Construction personal are expected to park their vehicles at an informal (no marked parking spaces) car parking area in close proximity to the site office. The proposed car parking location will be confirmed by the contractor.

2.11 Traffic Generation

Traffic generated by construction activities for the project would include heavy vehicles (dump trucks and excavators) and light vehicles. Heavy vehicle movements would typically be within the site only and not impact the external public road network. Workers would access the site via the existing weighbridge accessed from Little Forest Road.

As identified in the *Lucas Heights Resource Recovery Park Project Traffic Impact Assessment* report (September 2015), the expected traffic generated (on public roads) during construction is summarised below:

- 10 light vehicles per day during excavation period:
  - 10 arrivals in the morning and 10 departures in the evening
- 25-30 light vehicles per day during facility construction:
  - 25-30 arrivals in the morning and 25-30 departures in the evening

Based on a worst case, with all workers accessing the site by car, this would result in up to 30 light vehicles entering and leaving the site each day. However, these construction workers are expected to access the site before the morning peak (7.30-8.30 am) and depart the site before the evening peak (4-5 pm), which would not affect the peak hour traffic assessment. Additionally, it is recommended that workers car-pool, where possible, to further reduce the traffic impacts.

3. Traffic Management Strategy

3.1 Site Entry and Exit

Access to the site is via a gated two-way weighbridge entrance, located on eastern side of the site which is accessed from Little Forest Road. There are two inbound weighbridges and one outbound weighbridge provided at the site access.

The entrance provides access to internal site car park and constructions site through internal access roads. Drivers to enter and exit the site in a controlled manner and comply with relevant signage, procedures and instructions when on site.

3.2 Pedestrian and bicycle management

There are existing pedestrian crossing facilities located near site office as shown in Figure 3-1. During construction of the GO facility, a limited number of pedestrians are expected on site. It is anticipated that there will be no cyclists movement on site during construction phase. Hence, the construction activities are expected to have minimal impact on pedestrian and cyclist movements.

However, as documented in the TMP, the following measures are to be undertaken to ensure safety of pedestrians are maintained:

- When entering and exiting the site, all drivers must give way to pedestrians. Vehicles should avoid reverse movements where possible.
- Pedestrians on site are to be clearly directed to utilise pedestrian crossing or any pedestrian dedicated paths as a short term measure.
- Upon exit from the site, the driver must come to a complete stop within the boundary, ensure the exit is clear from pedestrians before proceeding out of the site and onto the site.
- Traffic controllers are required to monitor the site access and egress at all times to ensure pedestrians and cyclists in the vicinity of the site are protected from vehicles entering the site.
- Pedestrians are to give priority to vehicular traffic within the site and are not to enter traffic areas until having received visual confirmation that a vehicle operator has acknowledged the presence of the pedestrian. Care should be taken by both drivers and pedestrians, particularly with reversing vehicles, where sight visibility may be restricted. All heavy vehicles are to have auditable vehicle reversing warning.
- Pedestrian on site are required to wear hi-visibility clothing and obey all site safety rules at all times. General public are not allowed to walk around any part of facility.
- Visitors are required to sign in at site office upon arrival to be inducted into the site.

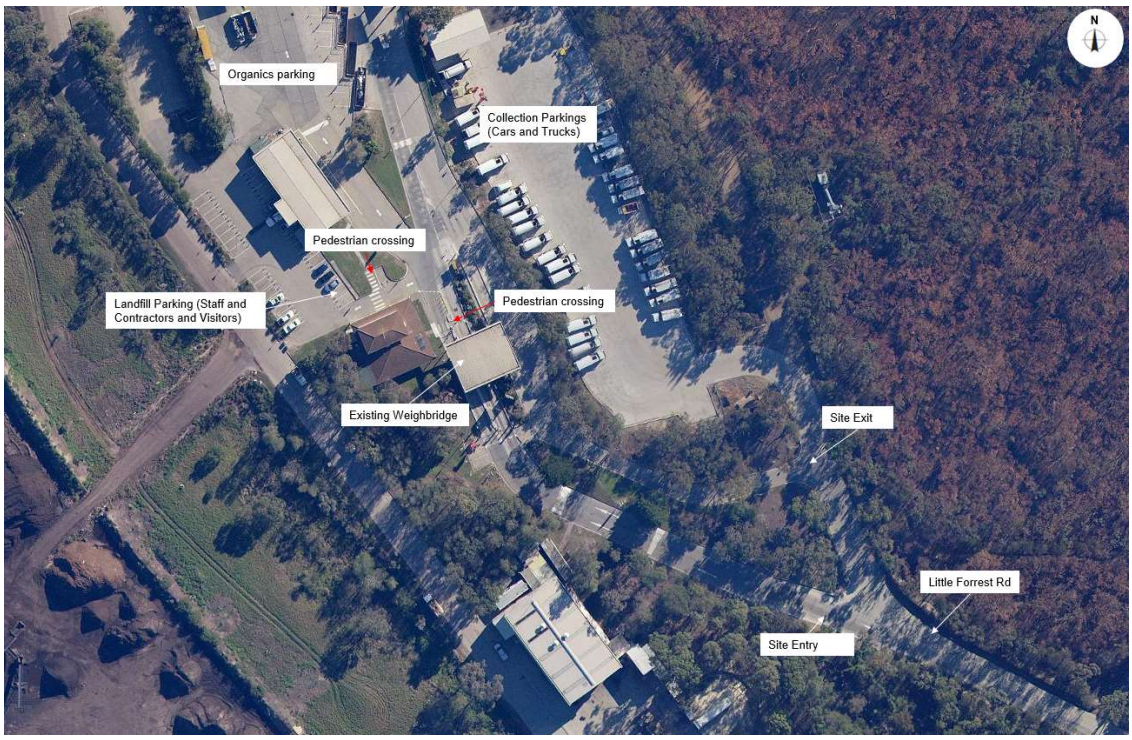

Figure 3-1 Pedestrian crossing locations

Source: Six Maps modified by GHD

3.3 Proposed Haulage Routes

Construction of the proposed GO facility is generally expected to result in heavy vehicle movements within the site only and not on the external road network. If required, heavy vehicles associated with the GO facility construction will access the site from the Little Forrest Road / New Illawarra Road intersection.

The approved GML and HML routes (25 / 26m B-double routes) in the vicinity of the site are shown in Figure 3-2 and in Figure 3-3 respectively. In the vicinity of the site, these approved routes included New Illawarra Road and Heathcote Road. If required, GML and HML heavy vehicles will be required to use these routes to access the site.

As shown in Figure 3-3, it is noted that the A4 at Alfords Point Bridge is a HML restricted route.

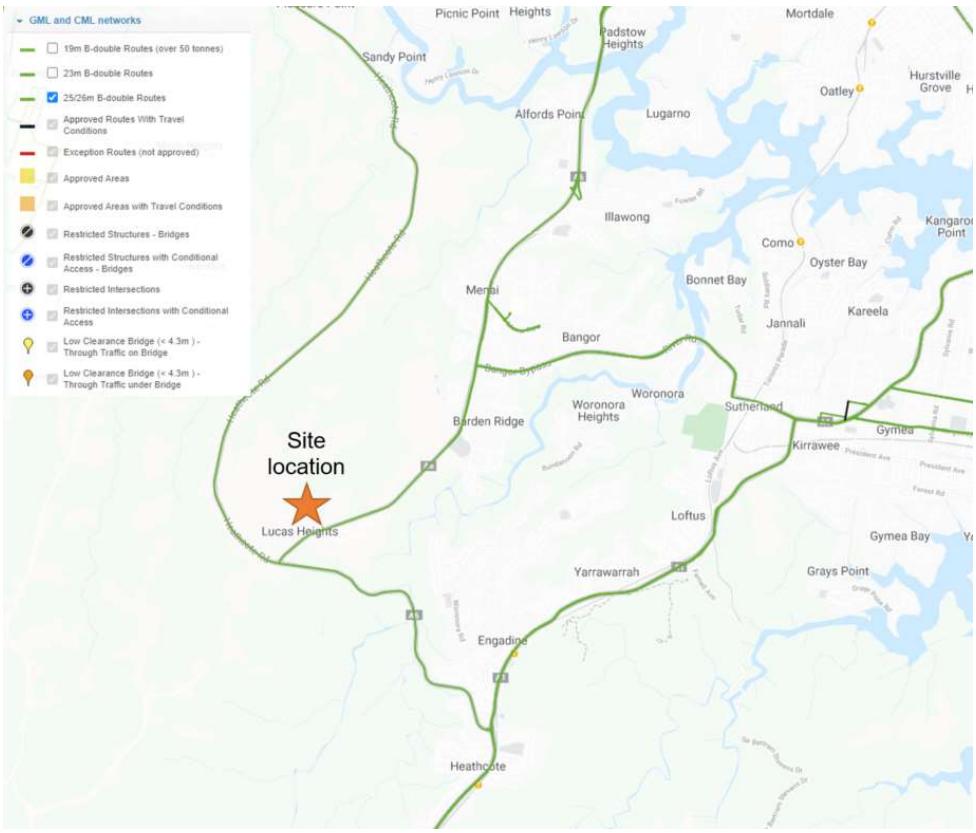

Figure 3-2 GML Routes (25 / 26m B-double Routes)

Source: https://www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html

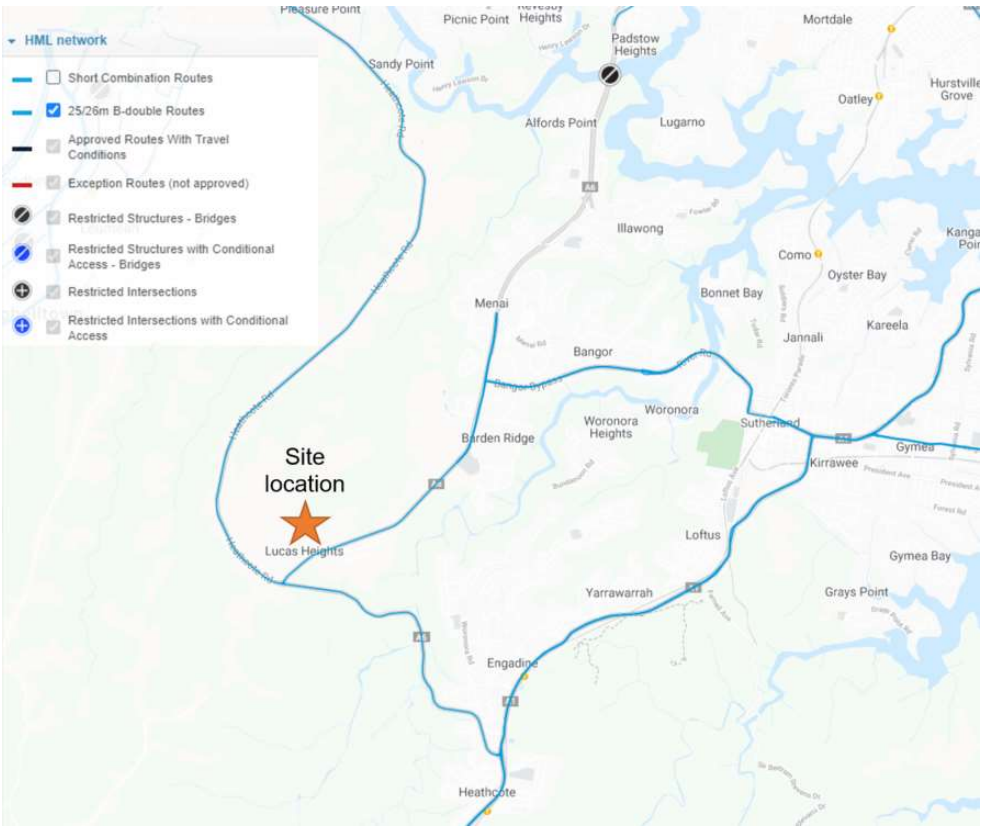

Figure 3-3 HML Routes (25 / 26m B-double Routes)

Source: https://www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html

3.4 Internal Construction Vehicle Access Routes

The internal construction vehicle access routes are shown in

Figure 3-4. These internal routes are two-way roads, which will be utilised by heavy vehicles, such as excavators and dump trucks. Turn around areas will be available for vehicles to turn, when required.

Figure 3-4 Construction internal access routes (two-way)

3.5 Construction Personnel Vehicle Access Routes

Construction personnel will access the construction areas using private vehicles, via weighbridge entrance at Little Forrest Road. All vehicles must enter and exit the landfill premises via the weighbridge.

The vehicle routes between the weighbridge and construction areas will be via the two-way road internal haul roads, as shown at Figure 3-5.

As identified in the site TMP, all light vehicles that access the landfill areas must have a flashing light in operation while on the landfill. The number plates of vehicles entering the site are recorded by CCTV at the weighbridge and are kept on a register. All staff, contractors and visitors are inducted when entering the site and are issued with identification tags after being inducted.

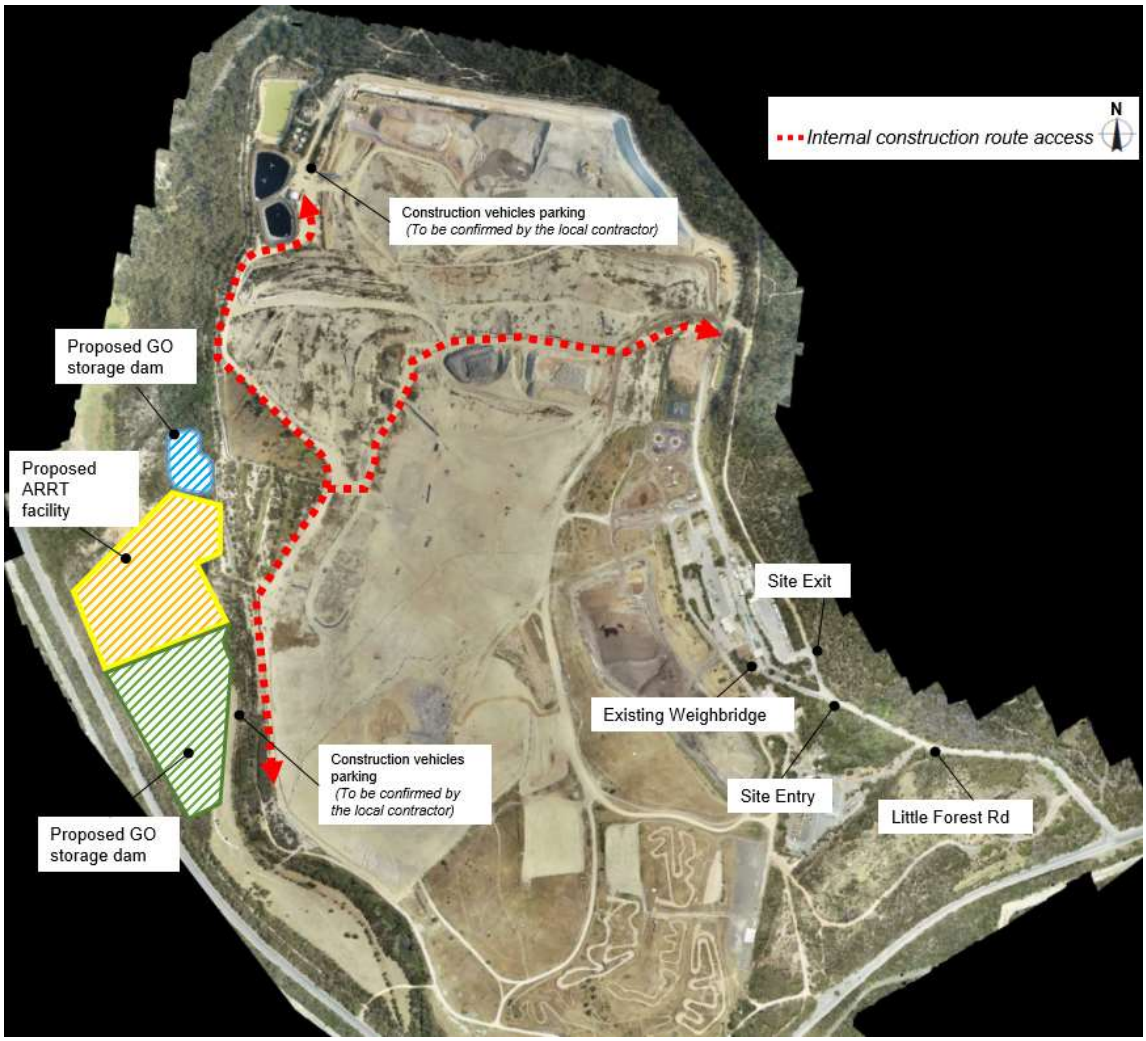

Figure 3-5 Internal Vehicle Access Routes – Construction Personnel

3.6 Parking

Construction personnel will park their vehicles at an informal car parking area in close proximity to the proposed GO facility site, or by the existing offices located at the north-west of the site. These proposed car parking locations will be confirmed by the contractor, with indicative locations shown at Figure 3-5.

Under no circumstance, are personnel or company vehicles allowed to use the side of the internal haul roads for long term parking.

3.7 Alternative Traffic Flow Main Weighbridge Not Operational

As identified in the site TMP, in the event that one of the two inbound weighbridges are not operational, all inbound traffic will be diverted to use the other inbound weighbridge that is still operational.

In the event that the outbound weighbridge is not operational, one of the inbound weighbridges will be used to process all outbound traffic. Traffic controllers or physical barriers will present at both sides of the weighbridge to control traffic.

Vehicles not required to be weighed can proceed on the bypass lane after following traffic controller's or weighbridge operator's directions.

4. Traffic Management Procedures

4.1 Heavy vehicle driver fatigue

Driver fatigue increases risk of accidents and drivers must comply with certain maximum works and minimum rest limits. The Heavy Vehicle National Law sets out three work and rest options:

- Standard hours of operation
- Basic Fatigue Management
- Advanced Fatigue Management

All heavy vehicle drivers providing services to the site, or within the site, are to be aware of the requirements of the adopted fatigue management schemes and operate within the specified requirements.

4.2 Noise

Vehicle engine noise impacts can be limited as a result of drivers switching off engines during waiting periods.

Vehicle compression braking is to be limited to situations where safety requires such application. Limiting compression breaking in built up areas minimises impacts to the local community.

4.3 Vehicle Movement Plans

The Construction Contractor is required to plan construction vehicle movements by using Vehicle Movement Plans (VMPs) to minimise risks.

The effective management of construction vehicle movements on site and throughout the road network is critical to the success of all projects. The Construction Contractor will plan all construction vehicle movements by using Vehicle Movement Plans (VMPs) with the aim to minimise the risk to other road users and keep the traffic generated by the project to a minimum.

All VMPs will include details as follows:

- Author
- Date of preparation
- Frequency of reviews
- Methodology of enforcement

Construction traffic movements may include:

- Deliveries of materials, supplies, plant or equipment to site. Material deliveries will be scheduled for outside of peak traffic hours where feasible
- Transport of over dimension loads
- Haulage of construction materials
- Regular traffic movements by construction personnel

A copy of the relevant VMPs will be provided to all suppliers and construction traffic to make sure they use the preferred travel paths when entering/leaving site.

4.4 Driver's Responsibility

Drivers employed for the project will be required to understand the responsibility to drive safely in accordance with the NSW Road Rules and any directions issued on the project. Drivers are required to comply VMPs and driver code of conduct developed for the project (refer Appendix B).

4.5 Hazardous Movements

The following environmental requirements are to be adhered to:

- All vehicles transporting loose materials will have the entire load covered and / or secured to prevent any large items, excess dust or debris depositing onto the roadway during travel to and from the site including but not limited to construction rumble strips/wheels wash at the site egress location.
- The lead contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles, to maintain the safety of all road users.
- Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.
- Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration.
- All subcontractors must be inducted by the lead contractor to encourage that all the relevant procedures are met.

4.6 Communication

All deliveries to site are to call in via two-way communication devices/mobile phone a minimum of 10 – 15 minutes prior to arriving to ensure that there is no conflict between loading and arriving delivery vehicles and to maintain queuing or parking of vehicles within the site. Raw materials are ordered at 30 minute intervals to give sufficient time to be unloaded at the plant.

The unloading process takes approximately 10 minutes with a 20 minute buffer built in for potential delays. In the rare event that there is not enough queuing space on site at a given time and delivery trucks will be requested to 'go around' and return to the site once the space is available. Vehicles with UHF or CB radios will be advised of the "Channel Number" in use by the weighbridge operator.

Landline site phone call in number is: 02 8525 4100

Drivers are not to handle the phone during the call in process, with the phone to be utilised with hands free kits within the vehicles.

4.7 Speed Limits, Exclusion Zones and Advisory signs

All drivers must observe post speed limits on adjoining road networks to comply with Australian Road Rules. Drivers are to adjust speeds to suit the road environment and weather conditions appropriately to ensure safe movement of the vehicles based on the individual vehicle configurations.

As documented in the TMP, the following speed limits are applied on site:

- 40 km/hr at site entry and exit roads
- 30 km/hr at the landfill areas

- 15 km/hr around the weighbridge and office areas.
- Other advisory speed limit signs may be posted at various locations within the site.

A safe exclusion zone around mobile pants are to be maintained which includes 10m from excavators and 3m from loaders. Signs such as “Stop” signs, “Give way” signs and “Speed Humps” are placed at various locations along entry points and haul roads. Drivers are to follow the internal site road rules as well as to comply with Australian Road Rules at all times.

4.8 Management Process Tools

4.8.1 Traffic Management Plans (TMPs)

This CTMP operates as the master document in a set of plans and drawings dealing with the safe and effective management of traffic during the design and construction phase of the project. The following documents and associated operational procedures are integrated with and are referenced by the CTMP:

- Traffic Management Plans
- Vehicle Management Plans
- Construction Staging Drawings
- Temporary Works Drawings
- Traffic Control Plans
- Safe Work Method Statements

4.8.2 Work health and safety

Any workers required to undertake works or traffic control shall be suitably trained and hold the required accreditation to carry out works on-site and will also be site inducted. All traffic control personnel will be required to hold Roads and Maritime accreditation in accordance with Section 2.4 of Roads and Maritimes’ *Traffic Control at Worksites manual*.

4.8.3 Staff induction

All staff and contractors engaged on site will be required to undergo a site induction. The induction will outline the requirements on the CTMP including site access routes, environmental and occupational health and safety responsibilities, emergency procedures, potential carpooling opportunities, etc.

As identified in the site TMP, all light vehicles that access the landfill areas must have a flashing light in operation while on the landfill. The number plates of vehicles entering the site are recorded by CCTV at the weighbridge and are kept on a register.

Construction personnel accessing the site will do so via the weighbridge. Construction personnel are required to register their arrival to and departure from the site, using a dedicated registration app, which is to be downloaded onto their smartphone or other hand held device.

4.9 Monitoring program

The construction traffic internal routes, traffic management measures and parking areas would be inspected daily before the start of construction activities to ensure that

- conditions are consistent with those stipulated in this plan,
- traffic management installations are not altered
- any changes to exclusion zones or speed limits are identified
- there are no potential hazards.

Any potential adverse impacts shall be recorded and dealt with as they arise and the plan reviewed and updated as required. Any changes to internal haul routes or future access to the site would be communicated to the contractors during morning toolbox meetings.

The majority of traffic movements associated to the construction works are internal, associated to bulk earthworks within the site. External truck movements will be tracked and recorded by the Site weighbridge. The Contractor will also keep a record of any incoming deliveries to site. The vehicle counts can be provided to Council or TfNSW if required.

Construction traffic movements will also be recorded in the vehicle movement plans as detailed in Section 4.3.

4.10 Emergency and Incident Response

4.10.1 Emergency incidents and vehicle breakdown

In the event of an emergency incident (e.g. bushfire) or vehicle breakdown/accident the following general procedures should be adopted in accordance with the Emergency Response Plan (SUEZ, March 2017):

- Immediately begin warning other road uses who may be at risk (this may include activating flashing/hazard lights and/or erecting warning triangles if safe to do so).
- Contact appropriate emergency service as required including the Transport for NSW Traffic Management Centre, NSW Police, NSW Ambulance, NSW Fire Brigade. Contact Site Manager to report the incident.
- Emergency incidents, vehicle breakdowns and other accidents/near misses are to be reported to Site Manager and recorded for future monitoring.

In the event of an emergency related construction traffic incident on the public road network, it will be the responsibility of the Site Manager to ensure that emergency services are notified. The emergency services include but are not limited to:

- Fire
- Ambulance
- Police

Phone “000” in cases of emergency. Furthermore, it is the responsibility of the Site Manager to advise the emergency services of any restriction of vehicular access to the public and private areas one week prior to its implementation. Consultation with community, TfNSW and Sutherland Shire should also be undertaken prior to any restriction of vehicular access.

Appendices

Appendix A – Existing Site plan

Source: Lucas Heights RRP Traffic Management Plan – Document No: PLAN002, 2018

Appendix B – Driver code of conduct

Overview

The purpose of this DCC is to outline procedures for the Contractor and any SUEZ staff operating vehicles and mobile plant during construction of the GO Facility, but is not intended to capture members of the public under all specified requirements below.

In addition, this DCC specifically addresses Conditions C48 of the development consent (SSD 6835), stating:

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

(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;*

This DCC should be considered alongside the CEMP for construction of the GO Facility (GHD, 2021).

General requirements

Site inductions and toolbox talks

All vehicle and mobile plant users will be required to complete a site induction prior to accessing the site. This will cover traffic rules and driver conduct requirements which are described further below.

All vehicle and mobile plant users will also attend regular on-site toolbox talks (where practicable) to obtain up to date information on the site traffic rules and any recent updates/changes.

Driver's licence

All vehicle and mobile plant users shall have an appropriate and up-to-date driver's licence and/or verification of competency for their respective vehicle(s). These shall be provided to SUEZ as part of the site induction.

Construction hours

The proposed hours of construction works, in accordance with Condition C53, are as follows:

- Weekdays: between 7.00 am and 5.00 pm
- Saturday and Sunday: 8.00 am to 5.00 pm

Site access and road network

Access to the site is via a gated two-way weighbridge entrance, located on eastern side of the site which is accessed from Little Forest Road. There are two inbound weighbridges and one outbound weighbridge provided at the site access.

The entrance provides access to internal site car park and constructions site through internal access roads. Drivers to enter and exit the site in a controlled manner and comply with relevant signage, procedures and instructions when on site.

Current traffic flow and access routes will be clearly outlined in the site induction, toolbox talks and posted at the site weighbridge.

Speed limits

As documented in the TMP, the following speed limits are applied on site:

- 40 km/hr at site entry and exit roads
- 30 km/hr at the landfill areas
- 15 km/hr around the weighbridge and office areas.
- Other advisory speed limit signs may be posted at various locations within the site.

Traffic noise management

All vehicle and mobile plant users will implement all practicable measures to limit vehicle noise. This includes noise reduction controls on the vehicles and mobile plant, in line with NSW Government requirements, and speed/braking management. In particular, all heavy vehicles will limit compression braking, particularly when outside of the site, to avoid excessive noise that may disturb local residents. Vehicles will be operated in accordance with the requirements of the CEMP.

Covered loads

All loaded vehicles must be covered to secure and contain all materials within the vehicles and/or trailer with a tarp or other equivalent means.

Wheel wash

Heavy vehicles are encouraged to utilise the wheel wash, prior to exiting the site, to minimise impact on local amenity and on the quality of nearby surface water runoff.

Alcohol and other drugs

All vehicle and mobile plant users at the site must adhere to SUEZ's Alcohol and Drugs policy, which will be outlined as part of the site induction.

Fatigue management

All vehicle and mobile plant users at the site must adhere to the Contractor's Fatigue Management Policy, which will be outlined as part of the site induction.

Drivers must comply with certain maximum works and minimum rest limits. The Heavy Vehicle National Law sets out three work and rest options:

- Standard hours of operation
- Basic Fatigue Management
- Advanced Fatigue Management

All heavy vehicle drivers providing services to the site, or within the site, are to be aware of the requirements of the adopted fatigue management schemes and operate within the specified requirements.

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		Name	Signature	Name	Signature	Date
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1	N Griffiths	L Yum	On File	D Gamble	On File	01/04/2021
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1	L Yum	D Gamble	On File	D Gamble	On File	23/09/2020
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4	L Yum	D Gamble	On File	D Gamble	On File	21/05/21

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