Licence

Licence number	L8974/2016/2
Licence holder	Eclipse Soils Pty Ltd
ACN	131 802 661
Registered business address	Level 2, 40 Subiaco Square Road SUBIACO WA 6008
DWER file number	DER2016/000832-1
Duration	28/07/2020 to 28/03/2040
Date of issue	21/02/2022
Premises details	Abercrombie Road Resource Recovery Centre Lot 115 on Plan 48295 (Volume 2602, Folio 976) and Lot 2 on Plan 29392 (Volume 2219, Folio 775) Abercrombie Road POSTANS WA 6167

Prescribed premises category description **(Schedule 1, *Environmental Protection Regulations 1987*)**	**Assessed production / design capacity**
Category 61A: Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated, or discharged onto land.	500,000 tonnes per annual period
Category 67A: Compost manufacturing and soil blending: premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils.	50,000 tonnes per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 21 February 2022, by:

Jarrod Abrahams
Digitally signed by Jarrod Abrahams
Date: 2022.02.21 15:55:58 +08'00'

MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of
the *Environmental Protection Act 1986* (WA)

Licence history

Date	Reference number	Licence Holder	Summary of changes
17/04/2002	L7766/2001/1	Eclipse Resources Pty Ltd	New licence
05/05/2003	L7766/2001/2	Eclipse Resources Pty Ltd	Licence re-issue
28/04/2004	L7766/2001/3	Eclipse Resources Pty Ltd	Licence re-issue
28/04/2005	L7766/2001/4	Eclipse Resources Pty Ltd	Licence re-issue
28/04/2010	L7766/2001/5	Eclipse Resources Pty Ltd	Licence re-issue
07/07/2011	L7766/2001/5	Eclipse Resources Pty Ltd	Amendment
11/08/2011	L7766/2001/5	Eclipse Resources Pty Ltd	Amendment
28/03/2017	L8974/2016/1	Eclipse Soils Pty Ltd	New licence
20/11/2018	L8974/2016/1	Eclipse Soils Pty Ltd	Amendment following appeal
13/05/2019	L8974/2016/1	Eclipse Soils Pty Ltd	Amendment to increase Cat 61A throughput and include the acceptance of hydrocarbon and pesticide contaminated soils meeting Class IV contaminant criteria, and soil material meeting Class I contaminant criteria.
10/06/2020	L8974/2016/1	Eclipse Soils Pty Ltd	Amendment to include the acceptance and screening of asbestos chip contaminated soil.
28/07/2020	L8974/2016/2	Eclipse Soils Pty Ltd	Licence renewal – administrative renewal only. Expiry date extended for 20 years.
21/12/2020	L8974/2016/2	Eclipse Soils Pty Ltd	DWER initiated amendment to update groundwater monitoring requirements and improvement program.
21/02/2022	L8974/2016/2	Eclipse Soils Pty Ltd	Amendment to increase Category 61A throughput, include expanded list of infrastructure and equipment, remove improvement program and update product quality requirements.

Interpretation

In this licence:

(a) the words ‘including’, ‘includes’ and ‘include’ in conditions mean “including but not limited to”, and similar, as appropriate;

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

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

(d) any reference to an Australian or other standard, guideline, or code of practice in this licence:

  (i) if dated, refers to that particular version; and

  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;

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

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

Waste type restriction and waste classification

1. The licence holder must only accept onto the Premises waste of a waste type, which does not exceed the corresponding rate at which waste is received, and which meets the corresponding acceptance specification set out in Table 1.

Table 1: Types of waste authorised to be accepted onto the Premises

Waste type	Rate at which waste is received	Acceptance specification
Clean fill	Combined limit of 500,000 tonnes per annual period. The following sub-limits apply within the combined annual total: • ASS and PASS – 300,000 tonnes. • Class I contaminated soils – 100,000 tonnes. • Class III hydrocarbon and pesticide contaminated soils – 50,000 tonnes. • Class IV hydrocarbon and pesticide contaminated soils – 20,000 tonnes. • Soil contaminated with visible Asbestos or ACM – 100,000 tonnes.	None specified
ASS and PASS		• Classified in accordance with Steps 1-6 and Figure 1 of the Landfill Definitions prior to acceptance at the Premises. • Net acidity is characterised in accordance with the ASS Identification and Investigation Guidelines prior to acceptance at the Premises.
Class III hydrocarbon and pesticide contaminated soils		• Classified in accordance with Steps 1-6 and Figure 1 of the Landfill Definitions prior to acceptance at the Premises. • Contaminated soil containing: ○ hydrocarbons and/or pesticides with contaminant concentrations equal to, or less than, Class III or Class IV landfill acceptance criteria as specified in the Landfill Definitions (and with reference to the quantity limits specified in column 2 of this table); and ○ concentrations of contaminants other than hydrocarbons and pesticides equal to, or less than, Class I landfill acceptance criteria as specified in the Landfill Definitions. • Pesticide contaminated soil is limited to contamination with the following chemicals: ○ 2,4-Dichlorophenoxyacetic acid; ○ 2,4,5-Trichlorophenoxyacetic acid; ○ Aldrin; ○ Chlordane; ○ Dichlorodiphenyltrichloroethane; ○ Dieldrin; ○ Lindane; and ○ Metolachlor.
Class IV hydrocarbon and pesticide contaminated soils		
Class I contaminated soils		• Must contain contaminant concentrations equal to, or less than, Class I landfill acceptance criteria as specified in the Landfill Definitions.

Waste type	Rate at which waste is received	Acceptance specification
Soil contaminated with visible Asbestos or ACM		• Asbestos or ACM contaminated soil only to be accepted if soil contains a concentration of 0.05% w/w or less of visible asbestos or ACM. • The visible asbestos or ACM within the contaminated soil must only comprise of fragmented fibro cement sheeting pieces. • Soil containing fibrous asbestos or asbestos fines above 0.001% w/w shall not be accepted.
Green waste	50,000 tonnes per annual period	• Treated timber is not authorised to be accepted.

2. The licence holder shall ensure that where waste does not meet the waste acceptance criteria set out in condition 1 it is removed from the Premises by the delivery vehicle or, where that is not possible, stored in a quarantined storage area or container and removed to an appropriately authorised facility within 7 weekdays.

Processing and storage requirements

3. The licence holder shall ensure that wastes accepted onto the Premises are only subjected to the processes set out in Table 2 and in accordance with any process limits described in that Table.

Table 2: Waste processing requirements

Waste type	Processes	Process limits
Green waste	Receipt, handling, screening, mulching, storage before and after mulching, soil blending and treatment by composting and pasteurisation	• Only to be undertaken in the Green Waste Area or ASS/PASS Area; • Feedstock inputs shall achieve a carbon: nitrogen ratio of 25:1 to 35:1. However, where there are large pieces of ligneous material, such as wood chips or pieces, feedstock inputs shall achieve a carbon: nitrogen ration of at least 40:1; • Windrows shall be turned regularly to ensure aerobic conditions are maintained; • The core temperature of the composting pile shall be maintained between 55ºC and 65ºC for a period of at least three days; • Moisture level in the composting piles shall be maintained between 35 to 65 per cent; • Only potable water is authorised to be used on composting windrows to provide moisture after pasteurisation has occurred; • All mulched green waste shall be stored in windrows no larger than: ○ 3 metres high;

Waste type	Processes	Process limits
		○ 5 metres wide; and ○ have 4 metres of clear ground between windrows; • A five metre fire break shall be maintained around all green waste storage areas.
ASS and PASS	Receipt, handling, storage and treatment (neutralisation) prior to soil blending, reuse or offsite disposal	• Storage and treatment are only to be undertaken in the ASS/PASS Area or Green Waste Area; • ASS and PASS must be treated in accordance with the procedures outlined in section 2.5 of the ASS Treatment Guidelines, as per Attachment 1; • Treatment of ASS and PASS must commence within: ○ two and a half days of the material being delivered to the Premises; and ○ before the maximum duration of stockpiling is exceeded, based on the type of material and in accordance with the short-term stockpiling requirements outlined in section 2.8.2 of the ASS Treatment Guidelines, as per Attachment 2. • All treated material is tested and validated in accordance with section 2.5.6 of the ASS Treatment Guidelines, as per Attachment 1, prior to the material being removed from the ASS/PASS Area or Green Waste Area.
Class III hydrocarbon and pesticide contaminated soils; and Class IV hydrocarbon and pesticide contaminated soils	Receipt, handling, storage and treatment (bioremediation) prior to soil blending, reuse or offsite disposal	• The combined volume of Class III or IV hydrocarbon and pesticide contaminated soils (including untreated soils and soils undergoing treatment) at the Premises at one time is no more than 40,000 m^3; • Storage and treatment are only to be undertaken in the Bioremediation Area; • All treated material is tested and validated to confirm that hydrocarbon and pesticide concentrations are equal to, or less than, Class I landfill acceptance criteria, prior to the material being removed from the Bioremediation Area.
Clean fill	Receipt, handling, storage and soil blending	• Stockpiles must be sign-posted so they can be clearly identified for appropriate management on-site

Waste type	Processes	Process limits
Class I contaminated soils	Receipt, handling, storage and screening prior to soil blending, and offsite reuse	• Stockpiles of unprocessed and processed material must be sign-posted so they can be clearly identified for appropriate management on-site.
Soil contaminated with visible asbestos or ACM	Receipt, handling, storage and screening prior to reuse or offsite disposal	<u>Waste processing</u> • All screening and stockpiling activities must be undertaken in either the Main Screening Area, Supplementary Screening Area (ACM in Acid Sulfate Soils) or in the Supplementary Screening Area (ACM in Hydrocarbon Impacted Soils), as defined in Figure 2 of Schedule 1. • Soils contaminated with ASS, PASS or hydrocarbons as well as visible asbestos or ACM must be screened for asbestos or ACM before further treatment. <u>Stockpile management</u> • Materials accepted for screening shall be maintained in at least three separate stockpile areas for unprocessed waste, products tested for asbestos or ACM and products awaiting testing for asbestos or ACM; • Unprocessed waste and product stockpiles must be kept clearly separated at a minimum three metre distance from the base of the stockpile; • Products tested for asbestos or ACM and products awaiting testing for asbestos or ACM must be clearly separated by a minimum three metre distance from the base of the stockpile; • Clearly visible and legible signage must be erected on individual stockpiles to clearly identify and delineate tested products, untested products and unprocessed waste. • Oversize material containing ACM must be contained in accordance with Attachment 4 and disposed of to an appropriately licenced waste disposal facility as soon as practicable. <u>Dust management</u> • All waste and product stockpiles must remain in a damp state to prevent dust lift-off. Targeted wetting must occur when material handling such as reclaiming from the stockpiles that have the potential to generate fugitive dust;

Waste type	Processes	Process limits
		• All products to be removed from the premises shall be wetted down prior to loading to prevent dust emissions; • The reticulated sprinklers must be operating prior to and during tipping, handling and screening of material.

4. The licence holder is not authorised to undertake any activities, including excavations, which may disturb the former landfill area of the Premises delineated by the yellow line on Figure 1 in Schedule 1.

Infrastructure and equipment

5. The licence holder shall ensure that:
(a) materials are stored and processed within containment infrastructure in accordance with Table 3;
(b) containment infrastructure is operated in accordance with the corresponding infrastructure requirements in Table 3; and
(c) the integrity of the containment infrastructure is maintained in accordance with the corresponding infrastructure requirements in Table 3.

Table 3: Containment infrastructure

Containment infrastructure	Material	Infrastructure requirements
ASS/PASS Area depicted in the Premises Map in Figure 1 Schedule 1.	ASS and PASS or green waste, mulch, composting green waste	• Compacted limestone pad that has a minimum thickness of 300 mm; and • The pad must be provided with a bund of at least 300 mm in height on all sides except for a truck entry area at the highest point of the pad which must be provided with a bund of at least 150 mm in height.
Green Waste Area depicted in the Premises Map in Figure 1 Schedule 1.	Green waste, mulch, composting green waste or ASS and PASS	• Compacted limestone pad that has a minimum thickness of 300 mm; and • The pad must be provided with a bund of at least 300 mm in height on all sides except for a truck entry area at the highest point of the pad which must be provided with a bund of at least 150 mm in height.
Green waste stormwater basin	Contaminated stormwater and leachate from green waste, ASS and PASS	• All runoff and leachate from the Green Waste Area shall be directed to the stormwater basin that has been constructed from a minimum thickness of 300 mm compacted limestone; • A minimum 300 mm embankment freeboard must be maintained on the stormwater basin.

Containment infrastructure	Material	Infrastructure requirements
ASS/PASS stormwater basins	Contaminated stormwater and leachate from green waste, ASS and PASS	• All runoff and leachate from the ASS/PASS Area shall be directed to the stormwater basins that have been constructed from a minimum thickness of 300 mm compacted limestone; • A minimum 300 mm embankment freeboard must be maintained on the stormwater basins.
Bioremediation Area depicted in the Premises Map in Figure 1 Schedule 1.	Class III and IV contaminated soils	• Must be treated on a cell that comprises a compacted crushed limestone base which has been overlain by 1.50 mm high-density polyethylene (HDPE) liner, which has been overlain by 150 mm of screened sand and 150 mm of crushed limestone; • The cell surface is maintained to achieve a 1% fall towards each stormwater basin; and • The cell must be provided with a bund of at least 1 m in height by 1.5 m wide and overlain by 1.50 mm HDPE liner.
Stormwater basins within the Bioremediation Area depicted in the Premises Map in Figure 1 in Schedule 1	Contaminated stormwater and leachate from the Bioremediation Area	• All runoff and leachate from the bioremediation area shall be directed to a 1.50 mm HDPE lined stormwater basin; • A minimum 300 mm embankment freeboard must be maintained, as measured from the top of the eastern retaining embankment (between the basin and adjacent cell surface); and • Basins must not overtop onto the adjacent HDPE lined cell or outside the HDPE lined area.
Main Screening Area depicted in Figure 2 Schedule 1.	Asbestos or ACM contaminated soils	• All runoff from the Main Screening Area shall be captured and prevented from leaving the Premises.
Supplementary Screening Area (ACM in Hydrocarbon Impacted Soils) as depicted in Figure 2 Schedule 1.	Mixed asbestos or ACM and hydrocarbon contaminated soils	• Located within existing infrastructure of Bioremediation Area.
Supplementary Screening Area (ACM in ASS) as depicted Figure 2 Schedule 1.	Mixed asbestos or ACM and ASS or PASS	• Located within existing infrastructure of ASS/PASS Area.

6. The licence holder must ensure that the infrastructure and equipment specified in column 1 of Table 4 is maintained and operated in accordance with the operational requirements specified in column 2 of Table 4.

Table 4: Infrastructure and equipment controls

Column 1	Column 2
Infrastructure and equipment	**Operational requirements**
Green waste grinder	• Up to one grinder onsite. • Must be in good working order when brought onto the Premises.
Screen(s), trommel(s), stacker(s), loader(s), excavator(s), bobcat(s), telehandler(s), tractor(s), dozer(s) and roller(s)	• Must be maintained in good working order.
Water truck(s)	• At least one water truck with a capacity of at least 15,000 L must be present on the Premises at all times. • Must be maintained in good working order.
Two abstraction bores licensed to take water by GWL109942, granted under section 5C of the *Rights in Water and Irrigation Act 1914*	• Must be maintained in good working order to ensure that an adequate water supply for the reticulation main is available at all times.
Reticulation main along northern, eastern and southern boundaries of Lot 115, extending into Lot 2	• Must be maintained in good working order.
Reticulated sprinklers and water piping for stockpiles	• Reticulated sprinklers must be capable of wetting down the entire surface of all stockpiles on the Premises that are subject to dust lift-off simultaneously or within a period of thirty minutes. • Spray reach and rate of flow of sprinklers must be sufficient to reach the top of all stockpiles specified above. • Spray reach and rate of flow of sprinklers must be maintained in good working order.

Dust management

7. The licence holder must ensure that stockpiles in each area of the Premises described in Table 5 do not exceed the corresponding maximum stockpile height for that area.

Table 5: Maximum stockpile height requirements

Area	Maximum stockpile height	Location
Main Screening Area	30 mAHD	'Main Screening Area' in Figure 8 of Schedule 1
North-eastern Stockpiling Area	35 mAHD	'North-eastern Stockpiling Area' in Figure 8 of Schedule 1

Area	Maximum stockpile height	Location
All areas of the Premises outside of the Main Screening Area and the North-eastern Stockpiling Area	7 m above the base of the stockpile	All areas of the Premises outside of the 'Main Screening Area' and 'North-eastern Stockpiling Area' in Figure 8 of Schedule 1

8. The licence holder must undertake the fugitive dust management requirements in Table 6.

Table 6: Fugitive dust management requirements

Description	Requirements
Reticulated sprinkler system	• Operate when visible dust is generated from stockpile surfaces on the Premises. • Operate proactively subject to weather forecasting over a 24 hour period. • Operate during the movement and handling of materials on the Premises to manage dust emissions.
Vehicles	• Vehicle speeds limited to less than 25 km/hr on areas of unconsolidated or unsealed road.
Cessation of activities	• Cease an activity causing visible dust lift-off where dust emissions are, or are likely to, impact on sensitive receptors.

Output testing

General

9. The licence holder must ensure that outputs from the Premises that are intended for disposal to landfill are classified in accordance with Steps 1-6 and Figure 1 of the Landfill Definitions prior to removal offsite.

10. The licence holder must ensure that Products are tested and shown to conform to either:

(a) the uncontaminated fill requirements in Table 6 and Table 7 of the Landfill Definitions; or
(b) another end use standard determined by the licence holder.

Products from screening of soil contaminated with visible Asbestos or ACM

11. The licence holder must ensure that testing of Products, derived from Asbestos or ACM contaminated soils, is undertaken in accordance with the Product testing procedures specified in Attachment 3.

12. The licence holder must ensure that Products, derived from Asbestos or ACM contaminated soils, are only supplied to customers that have been tested in accordance with Condition 11 and shown to conform to the product specification of 0.001% Asbestos weight for weight (w/w) for Asbestos content (in any form) within any recycled products.

13. The licence holder must ensure that Products, derived from Asbestos or ACM contaminated soils, that do not conform to the product specification of 0.001% Asbestos weight for weight (w/w) for Asbestos content (in any form) are, within 7

days of confirmation of product specification non-conformance, either;

(a) re-screened as soon as practicable; or
(b) disposed of to an appropriately licenced waste disposal facility as soon as practicable.

14. The licence holder must maintain accurate and auditable records of all Asbestos Product testing undertaken in accordance with Condition 11. These records must include:

(a) details of the sample size;
(b) a statement of Limit of Detection of the analysis;
(c) results in relation to Asbestos detected (positive result exceeding the 0.001% w/w limit) or not;
(d) description of any Asbestos detected; and
(e) estimate of the concentration of Asbestos detected if practical to do so.

15. The records maintained in accordance with Condition 14 must be made available to the Department and customers on request.

Monitoring

16. The licence holder shall ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
(c) all compost samples are collected and preserved in accordance with AS 4454; and
(d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

17. The licence holder shall ensure that six monthly monitoring is undertaken at least 5 months apart.

Monitoring of inputs and outputs

18. The licence holder shall undertake the monitoring and recording in Table 7 according to the specifications in that table.

Table 7: Monitoring and recording of inputs and outputs

Input/ Output	Parameter	Units	Averaging period	Frequency
Waste Inputs	Waste types as specified in Table 1	m^3	N/A	Each load arriving at the Premises
Waste Outputs	Waste types as defined in the Landfill Definitions	m^3	N/A	Each load leaving or rejected from the Premises
Product outputs	Blended soils Composted mulches, soil conditioners or composts Fill products	m^3	N/A	Each load leaving the Premises

Process monitoring

19. The licence holder shall undertake the monitoring and recording in Table 8 according to the specifications in that table.

Table 8: Process monitoring and recording

Monitoring point reference	Process description	Parameter	Units	Frequency	Method
Compost windrows	Composting	Temperature	ºC	Weekly	None specified
		Moisture content	%	Weekly	None specified
		Carbon: nitrogen ratio	None specified	Weekly	None specified
		Compost quality	None specified	As required in AS 4454	Sampling and testing in accordance with AS 4454
Blended soils	Soil blending	Blended soil quality	None specified	As required in AS 4419	Sampling and testing in accordance with AS 4419

Ambient environmental quality monitoring

20. The licence holder shall undertake the monitoring in Table 9 according to the specifications in that table.

Table 9: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
ARMB1, ARMB5, ARMB6A, ARMB7 and ARMB8 as depicted in the Map of monitoring bore locations in Figure 7 in Schedule 1	Standing water level[1]	mAHD and mBGL	Spot sample	Six monthly
	pH[1]	N/A		
	Electrical conductivity[1]	µS/cm		
	Redox potential[1]	mV		
	Dissolved oxygen[1]	mg/L		
	Total aluminium			
	Arsenic			
	Cadmium			
	Chromium			
	Copper			
	Total iron			
	Mercury			
	Lead			
	Manganese			
	Nickel			
	Selenium			
	Zinc			
	Potassium			
	Sodium			
	Calcium			
	Magnesium			
	Chloride			
	Sulfate			
	Total acidity			

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
	Total alkalinity			
	Total nitrogen (TN)			
	Ammonium nitrogen			
	Nitrate nitrogen			
	Nitrite nitrogen			
	Total Kjeldhal Nitrogen (TKN)			
	Total phosphorus (TP)			
	Total dissolved solids (TDS)			
	Biochemical oxygen demand (BOD)			
ARMB6A and ARMB7	Organochlorines: 2,4-Dichlorophenoxyacetic acid; 2,4,5-Trichlorophenoxyacetic acid; Aldrin; Chlordane; Dichlorodiphenyltrichloroethane; Dieldrin; Lindane; and Metolachlor.	mg/L	Spot sample	Six monthly
	Organophosphates			
	BTEX (benzene, toluene, ethylbenzene, xylene)			
	Polycyclic aromatic hydrocarbons (PAHs)			
	Polychlorinated biphenyls (PCBs)			
	Total recoverable hydrocarbons (TRHs)			

Note 1: In-field non-NATA accredited analysis is permitted.

21. The licence holder shall undertake the monitoring in Table 10 according to the specifications in that table and record and investigate results that do not meet any limit specified.

Table 10: Monitoring of ambient air quality

Monitoring point reference and Location	Parameter	Limit	Units	Averaging period	Frequency	Method
Portable asbestos fibre monitors 1 to 3. Positioned variably: monitors will be placed on the basis of professional judgement taking account of daily wind directions and with regards to nearby sensitive receptors. Indicative monitor locations within Main Screening Area shown in Figures 5 & 6, Schedule 1.	Asbestos fibres	0.01	Fibre/ mL	Duration of shift during which handling and screening of asbestos or ACM contaminated material occurs	Continuous during handling and screening of asbestos or ACM contaminated material	NOHSC: 3003

22. The monitoring required by condition 21 must be carried out by a suitably qualified environmental health professional.

Recordkeeping

23. The licence holder shall maintain a record of the following information for ASS and PASS received at the Premises:

(a) the source of the ASS or PASS;
(b) analysis results of all ASS or PASS received at the Premises;
(c) the neutralisation status of all ASS or PASS on receipt;
(d) for ASS or PASS received in an unneutralised state, the quantity of neutralising agent applied; and
(e) all validation and testing results for ASS or PASS treated on the Premises.

24. The licence holder shall maintain a record of the following information for asbestos or ACM contaminated soil received at the Premises;

(a) the source of the asbestos or ACM contaminated soil;
(b) the registration number of the delivery vehicle and the date of delivery; and
(c) documentation confirming that each load contains;
    i. a concentration of 0.05% w/w or less of visible asbestos; and
    ii. a concentration of fibrous asbestos or asbestos fines less than 0.001% w/w.

25. The licence holder shall maintain a record of the following information for Class I, III and IV contaminated soils received at the Premises:

(a) the source of the contaminated soils;
(b) analytical results of contaminated soils on receipt at the Premises;
(c) classification of contaminated soils in accordance with the Landfill Definitions on receipt at the Premises;
(d) validation and testing results for Class III and IV contaminated soils treated on the Premises.

26. The licence holder shall maintain a record of the following information for the quality of Products produced at the Premises:

(a) the end use standard that each Product conforms to in accordance with condition 10; and
(b) analytical results from testing conducted in accordance with condition 10.

27. The licence holder must maintain accurate and auditable books that include the following records, information, reports, and data required by this licence:

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

(b) any maintenance of infrastructure that is performed in the course of complying with conditions 5 and 6 of this licence;

(c) monitoring programmes undertaken in accordance with conditions 18, 19, 20 and 21 of this licence; and

(d) complaints received under condition 29 of this licence.

28. All information and records required by the licence shall:

(a) be legible;

(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
(c) be retained by the licence holder for the duration of the licence; and
(d) be available to be produced to an inspector or the CEO as required.

29. The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the Premises:
(a) the name and contact details of the complainant, (if provided);
(b) the time and date of the complaint;
(c) the complete details of the complaint and any other concerns or other issues raised; and
(d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.

Reporting

30. The licence holder must:

(a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and

(b) prepare and submit to the CEO by no later than 30 days after the end of that annual period an Annual Audit Compliance Report in the approved form.

31. The licence holder must submit to the CEO, by no later than 30 days after the end of each annual period, an Annual Environmental Report for that annual period for the conditions in Table 11, and which provides information in accordance with the corresponding requirement set out in Table 11.

Table 11: Annual environmental report requirements

Condition or table	Requirement
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken
-	Summary of any fires at the Premises
Conditions 3 and 23	A tabulated summary of treated ASS and PASS validation and testing results
Conditions 3 and 25	A tabulated summary of treated Class III and IV contaminated soils validation and testing results
Condition 10	A list of the different Products produced at the Premises and specification of the end use standard that each Product conforms to in accordance with condition 10.
Condition 14	Product derived from asbestos or ACM contaminated soil test results

Condition or table	Requirement
Condition 18, Table 7	Summary of inputs and outputs comprising a tabulated summary of the quantity of: • waste inputs received at the Premises; • waste outputs removed or rejected from the Premises; and • Product outputs removed from the Premises.
Condition 20, Table 9	Monitoring results of ambient groundwater quality including: • A description of the field methodologies employed. • A summary of the field and laboratory quality assurance / quality control (QA/QC) program. • Copies of the field QA/QC documentation and field monitoring records. • An assessment of the reliability of field procedures and laboratory results. • A tabulated summary of results. • A diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown). • An interpretive summary and assessment of ambient groundwater quality monitoring results against relevant assessment levels for water as published in *Guideline: Assessment and management of contaminated sites*; and • An interpretive summary and assessment of ambient groundwater quality monitoring results against previous monitoring results. Trend graphs shall be provided in support of this assessment.
Condition 21, Table 10	Asbestos fibre monitoring results including any breaches of limits and the action taken to mitigate these breaches. Quality assurance and quality control documentation shall also be provided.
Condition 29	Complaints summary

32. The licence holder shall submit the information in Table 12 to the CEO according to the specifications in that table.

Table 12: Non-annual reporting requirements

Condition or table	Parameter	Reporting period	Reporting date	Format
Table 8	Records demonstrating compliance with composting process limit requirements for: • C:N ratio; • core temperature; and • moisture level	Not applicable	Within 14 days of the CEO request	Not specified

Condition or table	Parameter	Reporting period	Reporting date	Format
Condition 24	Records demonstrating compliance with waste acceptance limits for concentrations of visible asbestos and fibrous asbestos in waste loads of asbestos contaminated soil accepted at the Premises	Not applicable	Within 14 days of the CEO request	Not specified
Conditions 3 and 23	Laboratory reports of validation and testing results for treated ASS and PASS	Not applicable	Within 14 days of the CEO request	Laboratory reports
Conditions 3 and 25	Laboratory reports of validation and testing results for treated Class III and IV contaminated soils	Not applicable	Within 14 days of the CEO request	Laboratory reports
Conditions 10 and 26	Product end use standards and testing analytical results	Not applicable	Within 14 days of the CEO request	Tabulated summary of end use standards and results; laboratory reports
Condition 21	Asbestos fibre monitoring results Quality assurance and quality control documentation shall also be provided. Details of monitor locations, any changes in locations and dates these changes occurred.	Six monthly	Within 30 days of the six monthly period[1] ending	Not specified
Condition 14	Product derived from asbestos or ACM contaminated soil test results	Six monthly	Within 30 days of the six monthly period[1] ending	Not specified

Note 1: Six monthly periods are defined in Table 13

Notification

33. The licence holder must immediately notify the CEO of:

(a) Any fire on the Premises; and/or

(b) Any accident, malfunction, or emergency which results or could result in the discharge of fire-fighting washwater or other wastes from the Premises.

Definitions

In this licence, the terms in Table 13 have the meanings defined.

Table 13: Definitions

Term	Definition
acceptance criteria	has the meaning defined in the Landfill Definitions
acid sulfate soils	includes both sulfidic soil materials as potential acid sulfate soils and sulfuric soil materials as actual acid sulfate soils
ACM	means bonded asbestos containing material and has the meaning defined in the *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia* published by the Department of Health
ACN	Australian Company Number
actual acid sulfate soils	also known as AASS are soils or sediments which contain iron sulfides and/or other sulfidic minerals that have undergone some oxidation. This results in low pH (i.e. pH < 4) and often a yellow and/or red mottling (jarosite/iron oxide) in the soil profile. AASS commonly also contain residual un-oxidised sulfide minerals (i.e. potential acidity) as well as existing acidity
AHD	means Australian Height Datum
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website)
annual period	a 12 month period commencing from 1 July until 30 June of the immediately following year
AS 4419	means Australian Standard AS 4419 *Soils for landscaping and garden use*
AS 4454	means Australian Standard AS 4454 *Composts, soil conditioners and mulches*
AS 4964	means the Australian Standard AS 4964 *Method for the qualitative identification of asbestos in bulk samples*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>asbestos</td><td>means the asbestiform variety of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals and includes actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite and any mixture containing 2 or more of those</td></tr>
<tr><td>asbestos fines</td><td>has the meaning defined in the Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia published by the Department of Health</td></tr>
<tr><td>ASS</td><td>means acid sulfate soils</td></tr>
<tr><td>ASS/PASS Area</td><td>means the area labelled ASS/PASS Area as depicted in the Premises Map in Schedule 1 of this Licence and within the following GPS Coordinates:
<table>
<tr><th>Point</th><th>Easting (m)</th><th>Northing (m)</th></tr>
<tr><td>21</td><td>387687.7189</td><td>6435211.9006</td></tr>
<tr><td>22</td><td>387686.5842</td><td>6435314.2241</td></tr>
<tr><td>23</td><td>387833.9854</td><td>6435313.1314</td></tr>
<tr><td>24</td><td>387824.8536</td><td>6435049.8608</td></tr>
<tr><td>25</td><td>387522.1758</td><td>6435053.6768</td></tr>
<tr><td>26</td><td>387521.3379</td><td>6435210.9226</td></tr>
<tr><td>27</td><td>387550.0854</td><td>6435211.1414</td></tr>
<tr><td>28</td><td>387834.0307</td><td>6435239.8914</td></tr>
<tr><td>29</td><td>387878.2420</td><td>6435219.8756</td></tr>
<tr><td>30</td><td>387884.6664</td><td>6435050.6216</td></tr>
</table></td></tr>
<tr><td>ASS Identification and Investigation Guidelines</td><td>means the document titled Identification and investigation of acid sulfate soils and acidic landscapes, published by the Department</td></tr>
<tr><td>ASS Treatment Guidelines</td><td>means the document titled Treatment and management of soil and water in acid sulfate soil landscapes, published by the Department</td></tr>
<tr><td>Attachment 1</td><td>means Attachment 1 of this Licence unless otherwise stated</td></tr>
<tr><td>Attachment 2</td><td>means Attachment 2 of this Licence unless otherwise stated</td></tr>
<tr><td>Attachment 3</td><td>means Attachment 3 of this Licence unless otherwise stated</td></tr>
<tr><td>Attachment 4</td><td>means Attachment 4 of this Licence unless otherwise stated</td></tr>
<tr><td>Averaging period</td><td>means the time over which a limit is measured or a monitoring result is obtained</td></tr>
<tr><td>BGL</td><td>means below ground level</td></tr>
</table>

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>Bioremediation Area</td><td>means the area labelled as Bioremediation Area in the Premises Map in Schedule 1 of this Licence and within the following GPS Coordinates:
<table>
<tr><td>Point</td><td>Easting (m)</td><td>Northing (m)</td></tr>
<tr><td>11</td><td>387550.5222</td><td>6435315.7434</td></tr>
<tr><td>12</td><td>387686.5842</td><td>6435314.2241</td></tr>
<tr><td>13</td><td>387687.7189</td><td>6435211.9006</td></tr>
<tr><td>14</td><td>387550.0856</td><td>6435211.1414</td></tr>
</table></td></tr>
<tr><td>CEO</td><td>means Chief Executive Officer of the Department.
“submit to / notify the CEO” (or similar), means either:
Director General
Department administering the Environmental Protection Act 1986
Locked Bag 10
Joondalup DC WA 6919
or:
info@dwer.wa.gov.au</td></tr>
<tr><td>clean fill</td><td>has the meaning defined in the Landfill Definitions</td></tr>
<tr><td>compost</td><td>means an organic product that has undergone controlled aerobic and thermophilic biological transformation through the composting process</td></tr>
<tr><td>composting</td><td>the process whereby organic materials are microbiologically transformed under controlled aerobic conditions</td></tr>
<tr><td>contaminated soil</td><td>has the meaning defined in the Landfill Definitions</td></tr>
<tr><td>damp</td><td>means wet enough that dust cannot be visibly generated</td></tr>
<tr><td>Department</td><td>means the department established under s.35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Division 3 Part V of the Environmental Protection Act 1986</td></tr>
<tr><td>DWER</td><td>means the Department of Water and Environmental Regulation</td></tr>
<tr><td>discharge</td><td>has the same meaning given to that term under the EP Act</td></tr>
<tr><td>emission</td><td>has the same meaning given to that term under the EP Act</td></tr>
<tr><td>end use standard</td><td>refers to relevant specifications or standards (including environmental specifications and standards) as discussed in Factsheet: Assessing whether material is waste</td></tr>
</table>

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>EP Act</td><td>means the Environmental Protection Act 1986</td></tr>
<tr><td>Factsheet: Assessing whether material is waste.</td><td>means the document titled Factsheet: Assessing whether material is waste, published by the Department</td></tr>
<tr><td>fibrous asbestos</td><td>has the meaning defined in the Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia published by the Department of Health</td></tr>
<tr><td>green waste</td><td>means waste that originates from untreated trees or plants</td></tr>
<tr><td>Green Waste Area</td><td>means the area labelled Green Waste Area in the Premises Map in Schedule 1 of this Licence and within the following GPS Coordinates:
<table>
<tr><td>Point</td><td>Easting (m)</td><td>Northing (m)</td></tr>
<tr><td>1</td><td>388103.7793</td><td>6434890.0993</td></tr>
<tr><td>2</td><td>388269.5289</td><td>6434887.2549</td></tr>
<tr><td>3</td><td>388264.0988</td><td>6434708.3177</td></tr>
<tr><td>4</td><td>388157.3053</td><td>6434710.1278</td></tr>
<tr><td>5</td><td>388157.8225</td><td>6434739.3473</td></tr>
<tr><td>6</td><td>388101.4163</td><td>6434740.7728</td></tr>
</table></td></tr>
<tr><td>Guideline: Assessment and management of contaminated sites</td><td>means the document titled Guideline: Assessment and management of contaminated sites</td></tr>
<tr><td>Guideline: Managing asbestos at construction and demolition waste recycling facilities</td><td>means the document titled Guideline: Managing asbestos at construction and demolition waste recycling facilities published by the Department</td></tr>
<tr><td>hardstand</td><td>means a surface with a permeability of 10^{-9} metres/second or less</td></tr>
<tr><td>Landfill definitions</td><td>means the document titled Landfill Waste Classification and Waste Definitions 1996 published by the Department as amended</td></tr>
<tr><td>leachate</td><td>means liquid released by or water that has percolated through waste and which contains some of its constituents</td></tr>
<tr><td>licence</td><td>refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within</td></tr>
</table>

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>licence holder</td><td>refers to the occupier of the Premises, being the person specified on the front of the licence as the person to whom this licence has been granted</td></tr>
<tr><td>Main Screening Area</td><td>means the area labelled Main Screening Area in Schedule 1, Figure 3 of this Licence and within the following GPS Coordinates:

<table><tr><td>Point</td><td>Easting (m)</td><td>Northing (m)</td></tr><tr><td>1.</td><td>388124.43</td><td>6435105.31</td></tr><tr><td>2.</td><td>388188.52</td><td>6435105.79</td></tr><tr><td>3.</td><td>388247.32</td><td>6435106.66</td></tr><tr><td>4.</td><td>388124.60</td><td>6435038.90</td></tr><tr><td>5.</td><td>388189.25</td><td>6435039.17</td></tr><tr><td>6.</td><td>388124.61</td><td>6434986.57</td></tr><tr><td>7.</td><td>388190.11</td><td>6434987.29</td></tr><tr><td>8.</td><td>388248.36</td><td>6434987.16</td></tr></table></td></tr>
<tr><td>NATA</td><td>means the National Association of Testing Authorities, Australia</td></tr>
<tr><td>NATA accredited</td><td>means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis</td></tr>
<tr><td>NOHSC: 3003</td><td>means Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition, National Occupational Health and Safety Commission (NOHSC): 3003</td></tr>
<tr><td>North-eastern Stockpiling Area</td><td>means the area labelled North-eastern Stockpiling Area in Schedule 1, Figure 8 of this Licence and within the following GPS Coordinates:

<table><tr><td>Point</td><td>Easting (m)</td><td>Northing (m)</td></tr><tr><td>1.</td><td>388286.84</td><td>6435315.66</td></tr><tr><td>2.</td><td>388289.61</td><td>6435110.89</td></tr><tr><td>3.</td><td>388121.25</td><td>6435109.53</td></tr><tr><td>4.</td><td>388121.22</td><td>6434975.43</td></tr><tr><td>5.</td><td>387895.51</td><td>6434970.55</td></tr><tr><td>6.</td><td>387888.31</td><td>6435323.96</td></tr><tr><td>7.</td><td>388040.14</td><td>6435311.55</td></tr></table></td></tr>
<tr><td>PASS</td><td>means potential acid sulfate soils</td></tr>
<tr><td>pasteurisation</td><td>means the process whereby organic materials are treated to significantly reduce the numbers of plant and animal pathogens and plant propagules</td></tr>
</table>

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>potential acid sulfate soils</td><td>are soils or sediments which contain iron sulphides and/or other sulfidic minerals that have not been oxidised. The field pH of these soils in their undisturbed state is more than pH 4 and is commonly neutral to alkaline (pH 7 to pH 9). These soils or sediments are invariably saturated with water in their natural state. The waterlogged layer may be peat, clay, loam, silt, or sand and is usually dark grey and soft but may also be dark brown, or medium to pale grey to white</td></tr>
<tr><td>Premises</td><td>refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the Premises map (Figure 1) in Schedule 1 to this licence</td></tr>
<tr><td>prescribed premises</td><td>has the same meaning given to that term under the EP Act</td></tr>
<tr><td>product</td><td>Refers to a fit for purpose recycled product that has been produced from the substantial or material transformation of waste through treatment, reprocessing and/or screening so that it is no longer waste. Relevant factors for determining whether a material meets this description are outlined in the Factsheet: Assessing whether material is waste.</td></tr>
<tr><td>quarantined storage area or container</td><td>means a hardstand storage area or sealed-bottom container that is separate and isolated from authorised waste disposal areas and is capable of containing all non-conforming waste and its constituents, these areas must be clearly marked and their access restricted to authorised personnel</td></tr>
<tr><td>Schedule 1</td><td>means Schedule 1 of this Licence unless otherwise stated</td></tr>
<tr><td>six monthly period</td><td>means the 2 inclusive periods from 1 January to 30 June and 1 July to 31 December in the same year</td></tr>
<tr><td>spot sample</td><td>means a discrete sample representative at the time and place at which the sample is taken</td></tr>
<tr><td>Supplementary Screening Area (ACM in Acid Sulfate Soils)</td><td>means the area labelled Supplementary Screening Area ACM in Acid Sulfate Soils in Schedule 1, Figure 4 of this Licence and within the following GPS Coordinates:
<table>
<tr><th>Point</th><th>Easting (m)</th><th>Northing (m)</th></tr>
<tr><td>1.</td><td>387584.84</td><td>6435265.08</td></tr>
<tr><td>2.</td><td>387614.15</td><td>6435265.19</td></tr>
<tr><td>3.</td><td>387651.57</td><td>6435265.05</td></tr>
<tr><td>4.</td><td>387684.65</td><td>6435265.64</td></tr>
<tr><td>5.</td><td>387585.56</td><td>6435217.53</td></tr>
<tr><td>6.</td><td>387614.15</td><td>6435265.19</td></tr>
<tr><td>7.</td><td>387651.34</td><td>6435218.04</td></tr>
<tr><td>8.</td><td>387684.90</td><td>6435218.08</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>Supplementary Screening Area (ACM in Hydrocarbon Impacted Soil)</td><td>means the area labelled Supplementary Screening Area ACM in Hydrocarbon Impacted Soil in Schedule 1, Figure 4 of this Licence and within the following GPS Coordinates:
<table>
<tr><th>Point</th><th>Easting (m)</th><th>Northing (m)</th></tr>
<tr><td>1.</td><td>387521.21</td><td>6435206.72</td></tr>
<tr><td>2.</td><td>387581.15</td><td>6435207.39</td></tr>
<tr><td>3.</td><td>387521.12</td><td>6435171.80</td></tr>
<tr><td>4.</td><td>387580.77</td><td>6435172.90</td></tr>
<tr><td>5.</td><td>387520.73</td><td>6435139.31</td></tr>
<tr><td>6.</td><td>387580.68</td><td>6435138.98</td></tr>
<tr><td>7.</td><td>387521.43</td><td>6435101.62</td></tr>
<tr><td>8.</td><td>387580.06</td><td>6435101.50</td></tr>
</table></td></tr>
<tr><td>waste</td><td>has the same meaning given to that term under the EP Act</td></tr>
</table>

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown by the pink line in the map below (Figure 1).

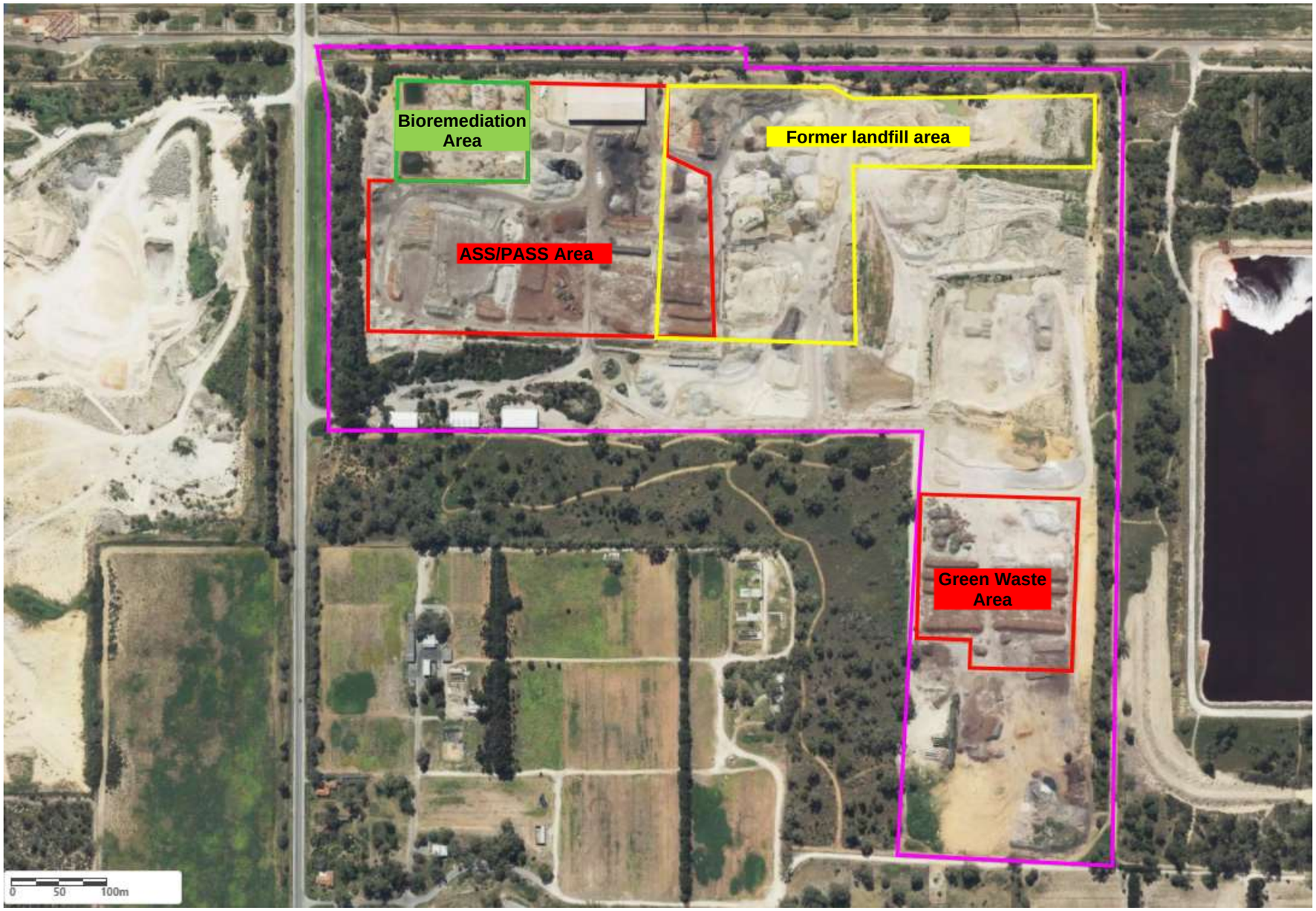

Figure 1: Map of the boundary of the prescribed premises

Maps of Screening Areas for treatment of asbestos or ACM contaminated soil

The blue line depicts the storage and processing areas for asbestos or ACM contaminated soil as referred to in condition 5.

Figure 2: Overview of asbestos or ACM contaminated soil screening areas

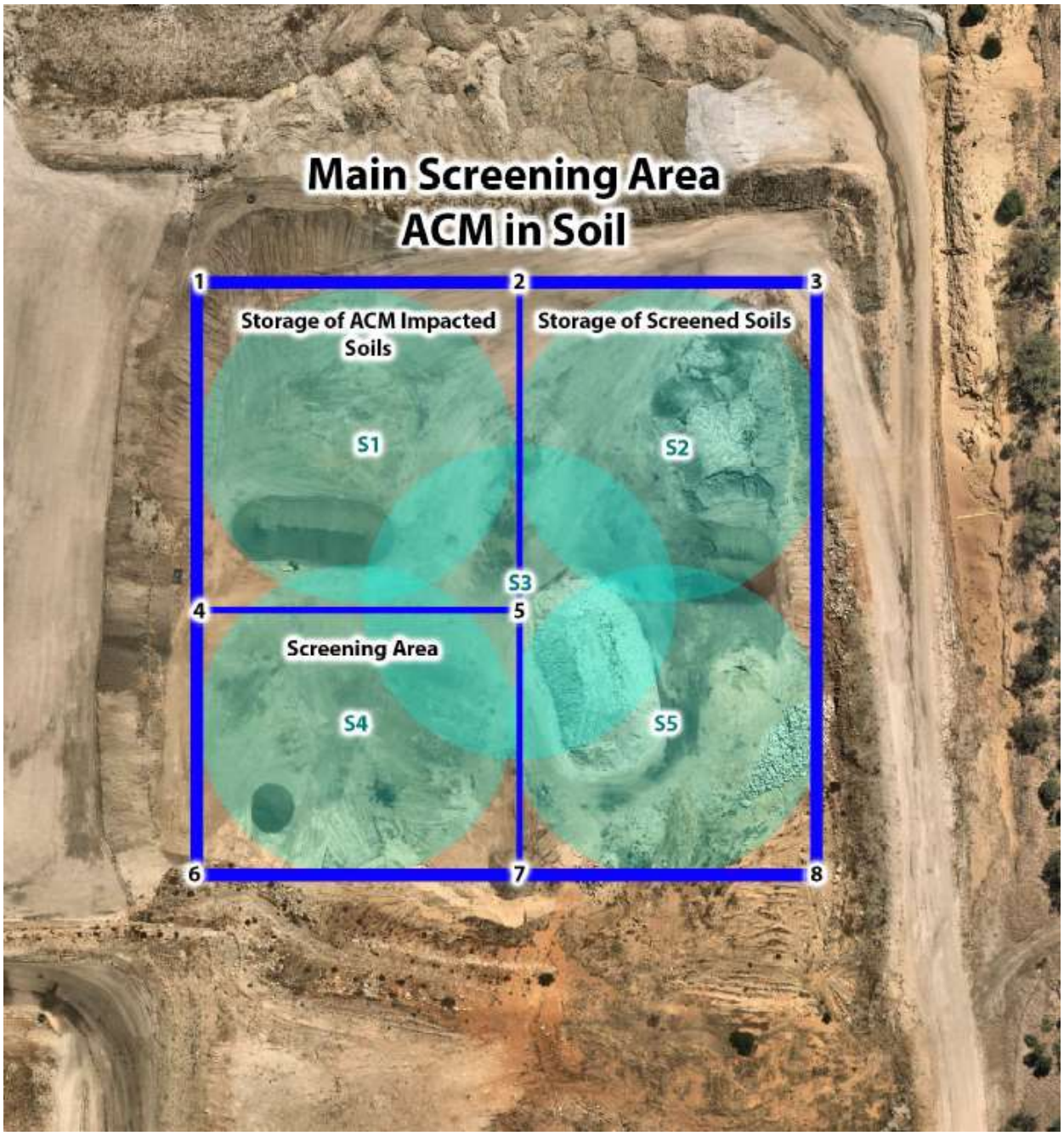

Figure 3: Detailed view of Main Screening Area and layout of dust suppression sprinklers.

Figure 4: Detailed view of supplementary screening areas and layout of dust suppression sprinklers.

Maps showing indicative locations of asbestos fibre monitor locations within Main Screening Area

Figure 5: Indicative asbestos fibre monitor locations under a south-westerly wind direction scenario for screening activities within the Main Screening Area.

Figure 6: Indicative asbestos fibre monitor locations under an easterly wind direction scenario for screening activities within the Main Screening Area.

Map of monitoring bore locations

The locations of the monitoring bores are shown in the map below. Monitoring bore locations required to be monitored under condition 20 are shown by blue dots.

Figure 7: Location of monitoring bores

Map of areas with different stockpile height limits

Figure 8: Location of Main Screening Area and North-eastern Stockpile Area as referenced in condition 7

Attachment 1: Section 2.5 of the ASS Treatment Guidelines (pages 9 to 16)

2.3.4 Piling and diaphragm walls

'Top down' methods of construction, where underground vertical walls are constructed prior to excavation and construction of basement floors, can significantly reduce the volume and extent of soil and groundwater ASS disturbance. Where dewatering is required, the use of piling or diaphragm wall techniques to construct underground walls can act to eliminate (or limit) the effect of drawdown where dewatering is limited to inside the walls.

2.4 Managing ASS disturbance

Wherever possible, the disturbance of ASS should be avoided. If ASS are to be disturbed, comprehensive management measures will need to be implemented based on the level of risk associated with the disturbance. Factors that may influence the level of risk include the nature, magnitude and duration of the proposed ASS disturbance, the soil characteristics and the sensitivity of the surrounding environment.

Soil management measures are recommended where the volume of ASS to be disturbed is greater than 100m^3. For disturbances of ASS (greater than 100m^3) the management should include:

- staging of disturbance such that the potential effects on any area disturbed at any one time are limited and managed;
- staging of earthworks program to minimise the amount of time that ASS are exposed to the atmosphere (i.e. minimise the time that excavations are left open); and
- neutralisation of ASS materials in accordance with 2.5 Soil neutralisation.

2.4.1 Hydrogen sulfide

Disturbance of some ASS landscapes may release hydrogen sulfide gas. This gas has a characteristic offensive 'rotten egg' odour. However, at high concentrations and/or after prolonged exposure, hydrogen sulfide inhibits the sense of smell. The olfactory nerve loses sensitivity and the potentially hazardous gas is no longer detectable by smell.

Hydrogen sulfide is heavier than air and so tends to settle in depressions and may reach toxic levels within excavations and in confined spaces. Therefore, it is strongly recommended that on-site gas monitoring and occupational health and safety measures are implemented to deal with this contingency during the disturbance of ASS materials, particularly when ASS disturbance is planned to be carried out in urban environments.

More information on hydrogen sulfide can be found in the Government of Western Australia's Department of Health document *Environmental Health Guide, Hydrogen Sulphide and Public Health* (Department of Health, 2009). Guidance on the management of hydrogen sulfide in the work place can be obtained from WorkSafe (a division of the Department of Commerce, the Western Australian State Government agency responsible for the administration of the *Occupational Safety and Health Act 1984*).

2.5 Soil neutralisation

Where the disturbance of ASS is unavoidable, the most common technique used in managing the disturbance is neutralisation of the soils with alkaline materials.

2.5.1 Calculating the quantity of neutralising agent for treatment of ASS

It is important to provide adequate neutralising material to reduce the potential for environmental harm or damage. Sufficient neutralising material should be applied to

counteract the theoretical acid production potential of the soil. The theoretical acid production potential of the soil is determined based on the existing plus the potential acidity of the soil, multiplied by a 'safety factor' of 1.5.

The safety factor is used for the following reasons:

- In most situations the neutralising agent is not fully mixed with the soil regardless of the mixing method used.
- The distribution of sulfides within soil profiles can be highly variable, so there is a risk that investigations may underestimate the theoretical acid production potential of the soil.
- Neutralising agents such as fine aglime (calcium carbonate) have a low solubility and hence a low reactivity and coatings of gypsum, and/or iron and aluminium compounds can form on the grains of neutralising agents during neutralisation, reducing the neutralising efficiency.

In 'high risk' situations larger safety factors may be needed.

The actual amount of neutralising material needed is calculated using the 'net acidity' of the soil as determined during ASS investigations for the project. Note that ASS investigations for this purpose should be undertaken in accordance with *Identification and investigation of acid sulfate soils and acidic landscapes* (DER 2015).

Net acidity should be determined from the suspension peroxide oxidation combined acidity and sulfur (SPOCAS) or chromium reducible sulfur (CRS) methods[6], as detailed in *Acid Sulfate Soils Laboratory Methods Guidelines* (Ahern *et al*., 2004). Soil samples should be analysed to a detection limit of 0.005%S such that net acidity can be calculated, according to an acid-base account (ABA), expressed by the following equation:

- **Net acidity = potential acidity + existing acidity – acid neutralising capacity (ANC)**[7]

For linear disturbances, and for non-linear disturbances less than 1,000m^3, the highest net acidity detected at the site should be used to calculate the amount of neutralising material needed.

When the volume of soil to be disturbed is more than 1,000m^3, the mean net acidity plus the standard deviation may be used to calculate the amount of neutralising material needed, provided a sufficient number of laboratory analyses have been performed to satisfactorily characterise the soil profile and ASS at the site. Detrimental environmental impacts may occur if incorrect liming rates are used.

Calcium carbonate ($CaCO_3$), in the form of finely crushed limestone or 'aglime', is the most commonly used neutralising agent for the treatment of ASS, and is used in the calculations provided below.

Once the net acidity has been determined, the amount of lime needed for soil treatment can be calculated using the following equation:

[6] For highly leached and poorly buffered **Bassendean Sands** in Western Australia, net acidity should be determined to a detection limit of 0.005%S. For further information refer to *Identification and investigation of acid sulfate soils and acidic landscapes* (DER 2015).

[7] Due to the particular characteristics of the sandy soil and groundwater regime in Western Australia, DER does not recognise the validity of ANC values without confirmatory kinetic testing or modified laboratory methods to determine particle size distribution to provide a more accurate estimate of the actual amount of neutralising capacity that would be available under real field conditions. For further information refer to *Identification and investigation of acid sulfate soils and acidic landscapes* (DER 2015).

- **Lime needed (kg $CaCO_3$/tonne soil) = net acidity (kg H_2SO_4/tonne of soil) x 1.02[8] x safety factor[9] x 100/ENV[10]**

As net acidity is most commonly reported in units of percentage sulfur (S%), the equation is rewritten below using S% units:

- **Lime needed (kg $CaCO_3$/tonne soil) = net acidity (S% x 30.59) x 1.02[8] x safety factor[9] x 100/ENV[10]**

The bulk density (BD) of the soil needs to be taken into account when calculating the amount of lime needed to treat a given volume of soil. The liming rate calculation for volumes of soil in cubic metres is shown below.

- **Lime needed (kg $CaCO_3$/m^3 soil) = bulk density soil (tonne/m^3) x net acidity (S% x 30.59) x 1.02[8] x safety factor[9] x 100/ENV[10]**

To access the DER web-based 'Lime rate calculation tool to calculate the amount of lime needed to treat ASS, go to http://www.der.wa.gov.au/your-environment/acid-sulfate-soils/67-lime-rate-calculations-for-neutralising-acid-sulfate-soils.

2.5.2 Selecting neutralising materials

There are many types and sources of neutralising agents. These vary greatly in their ability to change soil pH and the speed at which this happens. This is referred to as their effective neutralising value (ENV).

Calcium carbonate ($CaCO_3$), in the form of finely crushed limestone or 'aglime', is the most commonly used neutralising agent for the treatment of ASS, however, other neutralising agents may also be used. These include magnesite, dolomite, hydrated lime/slaked lime[11], burnt or quicklime, sodium carbonate, sodium bicarbonate, soda ash, etc. Any chemically-amended liming products should be used with caution due to their high alkalinity which has the potential to impact on the receiving environment.

Note on the use of sodium-based compounds in ASS landscapes

Should sodium-based compounds be considered as a neutralising material, precautions should be taken to ensure that the salinity and sodicity of soils are not increased as a result of free sodium ions being introduced into the landscape. Sodium has a dispersive effect in soils and in water and its use should be carefully managed.

The use of sodium-based compounds also increases the salinity of any discharge waters and may contribute to adverse downstream impacts in sensitive waterways.

The use of soda ash (Na_2CO_3) is particularly risky as it has a pH >11 and is highly soluble (one kilogram is soluble in 3.5 litres of water). Its use is not recommended as it releases heat on combination with water and is known to cause sodicity effects on soils. Products such as sodium hydroxide (NaOH) may have little residual alkalinity and buffering capacity over time.

If sodium-based compounds are used, sodium should be added to any water quality

[8] The factor 1.02 is used to stoichiometrically convert units of sulfuric acid (H_2SO_4) to units of calcium carbonate ($CaCO_3$).
[9] A minimum safety factor of 1.5 should be used.

[10] The actual rate of application of neutralising materials required must be corrected for the effective neutralising value (ENV) of the neutralising materials.

[11] Hydrated lime/slaked lime (liquid lime) is the preferred material to be used for neutralisation of water.

monitoring suite and precautions taken with regard to any precipitates/sludge in settlement/retention ponds. This sediment should be analysed and appropriately remediated or disposed of.

The important factors to be considered in selecting neutralising agents are:

- neutralising value (NV) and effective neutralising value (ENV);
- ability to deliver ongoing buffering capacity;
- solubility;
- pH, chemical constituents, moisture content and other impurities/contaminants;
- purity of lime, fineness rating or particle size;
- method of application; and
- occupational safety and health issues.

From an environmental perspective, the most critical factors in managing outcomes are the pH of the neutralising agent, effective neutralising value (ENV) and solubility.

In some circumstances, DER may approve the use of alkaline waste materials as neutralising agents.

However, DER will require assessment of these materials to be carried out to ensure that the concentration of metals (and/or other contaminants) in the neutralised soil will not pose a risk to the environment or human health.

For further information consult DER's policy and guidelines on waste-derived materials http://www.der.wa.gov.au/your-environment/waste/waste-derived-materials.

2.5.3 Calculating effective neutralising value (ENV) of a neutralising material

The effective neutralising value (ENV) of a neutralising material is the ability of a unit mass of neutralising material to change soil pH. The higher the ENV, the more effective the neutralising material will be at increasing pH.

ENV takes into account:

- neutralising value (NV)—i.e. the amount of calcium or magnesium as oxides or carbonates, expressed as a percentage;
- particle size distribution (percentage by weight)—i.e. the fineness of the neutralising material. The finer the product, the greater the surface area for the neutralising chemical reactions to occur; and
- solubility of the neutralising material.

The NV and the solubility of the neutralising material are determined by laboratory analysis. The particle size distribution is determined by mechanical sieving.

The fineness of the neutralising agent will influence the effectiveness and reactivity of the agent. As particle size increases, the amount of soil that portion of neutralising material is able to neutralise decreases. For example, lime particles in the size range 0.30–0.85 millimetres have around 60 per cent effective neutralising value, while lime particles over 0.85 millimetres but below one millimetre have only 10 per cent effective neutralising value. Particle sizes greater than two millimetres are considered ineffective at neutralising acidity.

Generally, DER recommends fine aglime (crushed limestone which passes through a < one

millimetre sieve) as a neutralising agent for acidic or potentially acidic soils because:

- it has a relatively high neutralising value (NV) of 85 per cent to 95 per cent;
- it has a pH in the range pH 8.5 to 9.0, making it safe from an occupational health and safety perspective and reducing the risk of environmental harm from excess alkalinity (i.e. pH 'overshoot'); and
- it has a low solubility in water so it can provide acid buffering capacity over a sustained period of time.

The use of quicklime (burnt lime) and/or slaked lime is generally not recommended because it is highly caustic and presents occupational health and safety challenges. Although most amended liming products have a higher NV (ranging between 150 to 179 per cent) compared to aglime, they are highly alkaline (pH 12.5–13.5) and represent an environmental risk if inappropriately applied to soils. In addition, amended lime products are more soluble in water and generate considerable heat, both of which could impact the receiving environment.

Due to their high dissolution rate, the residual effect of amended lime products may have little residual alkalinity so their ability to neutralise acidity over time may be limited.

Table 2 provides an example, adapted from *New South Wales Acid Sulfate Soil Management Advisory Committee Manual* (Stone *et al.*, 1998), which can assist to clarify the method of calculating ENV values. In this example the crushed limestone product is calculated as having an ENV of 59 per cent. Therefore, 1.7 parts (100/59) of the product is equivalent to one part of pure fine $CaCO_3$, so a correction factor of 1.7 needs to be used for this product. Note that ENV values may need to be further corrected for solubility when the more soluble type of lime products are used (e.g. slaked lime).

Table 2. Calculating ENV values

Materials	Particle size	Proportion (%)	Utilisation factor	ENV
Example: crushed limestone NV 75%	1.00–2.00mm	0	0.01	0.00
	0.85–1.00mm	15	0.10	1.0
	0.300–0.850mm	20	0.60	9.0
	<0.300mm	65	1.00	49.0
	Total	100		59.0%
ENV = % Proportion/100 x Utilisation Factor x NV				

2.5.4 Lime application

Successful treatment of disturbed ASS is based on the effective incorporation of the neutralising material into the soil. It should be noted that over the longer term, iron, aluminium and low solubility gypsum compounds are likely to coat the neutralising agents, reducing their effectiveness. Application methods include, but are not limited to:

- mechanical application and mixing in small windrows using conventional earth working equipment;

- broadscale mechanical application using rotary hoeing and tillage—this method is useful in treating agricultural land and treatment of stockpiled materials for future landscaping use;
- application of a lime slurry to the surface of a soil and further blending;
- injection of an aglime or hydrated lime slurry into an up-hydraulic gradient trench, perpendicular to the direction of groundwater flow;
- injection of an aglime or hydrated lime slurry into dredging pipelines particularly during dredging operations—this method is suitable for sand and silty materials but is not suitable for heavy clay soil; and
- using 'lime buffer' on exposed ASS and covering with clean fill or sandbagging the face and incorporating lime under and in the sandbags—this method is suitable for infrastructure earthworks or rehabilitation of undisturbed ASS landscapes.

***Note**: soils often need to be mixed a minimum of two times and may need to be mixed several more times to ensure sufficient mixing.*

2.5.5 Treatment pad

For treatment of large volumes of material by mechanical application of neutralisation materials, treatment should be carried out on a treatment pad. The treatment pad should consist of a minimum 300-millimetre thickness of compacted crushed limestone, or other appropriate neutralisation material. The treatment pad should be bunded with a minimum 150-millimetre high perimeter of compacted, crushed limestone to contain potential leachate runoff within the treatment pad area and prevent surface water runoff from entering the treatment pad area. The level of compaction used should produce an appropriately low permeability to prevent infiltration of leachate.

In addition, the following management strategies may need to be implemented to manage risk:

- installation of leachate collection and treatment systems; and
- construction of erosion and sediment control structures.

The following issues should also be considered in the treatment pad design.

Earthworks strategy

An earthworks strategy should be formulated to ensure that sufficient space is available to accommodate the volume of soil requiring treatment. Expected rates of throughput in cubic metres, mixing times and validation testing times, along with the capacity of the treatment pads to accept the materials, need to be identified in the strategy.

The earthworks strategy should also ensure that adequate time is available to obtain the results of validation testing before the treated soils need to be reused.

Climate, seasonal conditions and soil texture may affect treatment rates and hence the size of treatment pads needed.

Spatial tracking

The accurate spatial tracking of large volumes of ASS during the neutralisation process (e.g. survey with a hand-held global positioning system (GPS), differential GPS, designated lot numbers or conventional survey, depending on the level of accuracy needed) is essential

to ensure that soil treatment can be properly validated.

Some sites may have difficulty developing an appropriate tracking program, due to spatial constraints. In such situations, alternative management and treatment facilities should be used.

Decommissioning

Once soil treatment has finished the treatment area must be appropriately decommissioned. Decommissioning should include remediation and validation of the ground surface where the treatment pad and associated infrastructure was placed.

Please note that a management plan for an on-site ASS treatment facility is valid only for the duration of the project for which approval was provided. ASS materials from other sites should not be accepted for treatment without considering potential licensing requirements under the *Environmental Protection Act 1986*

2.5.6 Validation of soil treatment

The effectiveness of soil neutralisation activities needs to be validated to confirm that an appropriate amount of neutralising material has been thoroughly mixed with the soil.

Validation sampling should be undertaken using field testing (pH_F and pH_{FOX}) at a sampling intensity reflective of DER's *Landfill Waste Classification and Waste Definitions 1996 (As amended)* (Department of Environment and Conservation, 2009).

The accuracy of the field testing program should be 'calibrated' by sending 25 per cent of samples to a laboratory for confirmatory analysis.

Appropriate laboratory analytical methods for validation purposes include: the SPOCAS suite; pH_{KCl} and pH_{OX} undertaken in a laboratory on an un-ground sample; the CRS with the inclusion of a measurement of total potential acidity (TPA) from the SPOCAS suite.

Additional laboratory analyses are needed to confirm validation if there is poor correlation between laboratory results and field test results.

The following performance criteria should be met to confirm effective neutralisation of soils:

- the neutralising capacity of the treated soil must exceed the existing plus potential acidity of the soil, (e.g. pH_{fox} must be >5);
- the neutralising material has been thoroughly mixed with the soil;
- soil pH must be in the range 6.0 to 8.5; and
- excess neutralising agent must remain within the soil until all acid generation reactions are complete and the soil has no further capacity to generate acidity[12].

Additionally, in order to account for all sources of acidity for poorly buffered sands (e.g. soils of the Bassendean sand formation), measurements of TPA should be less than the limits of reporting.

If soils fail validation, additional neutralisation is needed until results comply with performance criteria.

[12] Choice of appropriate neutralising agent is important to achieve this long-term performance criterion (see 2.5.2 Selecting neutralising materials)

Quality assurance/quality control (QA/QC)

Any sampling program should include measures to ensure the quality and reproducibility of all sampling methods used at the site. Adequate QA/QC is needed to ensure that the samples collected are of the highest quality and integrity, and that analysis is completed with the highest accuracy. Where results are produced with inadequate QA/QC procedures, they cannot be accepted as being accurate or representative of the site conditions.

QA/QC measures are needed regardless of the number of samples taken.

When undertaking validation sampling, standard QA/QC procedures should be followed as outlined below.

Field QA/QC

The minimum field QA/QC procedures that should be performed are:

- collection of field duplicates as quality control samples;
- use of standardised field sampling forms (including Chains of Custody) and methods; and
- documenting calibration and use of field instruments.

Field duplicate samples (also known as blind replicates) are used to identify the variation in analyte concentration between samples collected from the same sampling point and also the repeatability of the laboratory's analysis. Field duplicates should be collected at the rate of one field duplicate for every 20 investigative samples. The field duplicate sample and investigative sample from the same sample location should be submitted to the laboratory as two individual samples without any indication to the laboratory that they have been duplicated.

Laboratory QA/QC

Analysis of samples should be completed by laboratories which hold National Association of Testing Authorities (NATA) accreditation for the particular parameters and methodologies needed. Information on QA/QC methods should be obtained from the designated laboratory before sampling to ensure that they meet acceptable standards.

The laboratory report should be a NATA endorsed report and include the results of the analysis, sample numbers, laboratory numbers, a statement about the condition of the samples when they were received (e.g. on ice, cold, ambient, etc.), date and time of receipt, dates and times of extraction and analysis of samples, quality control results and a report on sampling and extraction holding times.

Data review

Following receipt of field and/or laboratory data, a detailed review of the data should be completed to determine their accuracy and validity, before being used to make any decisions. Analytical data should be reviewed against field data and field observations to identify any spurious results inconsistent with field findings. Where inconsistencies are identified, re-sampling or re-analysis may be needed.

Attachment 2: Section 2.8.2 of the ASS Treatment

Guidelines (page 19)

2.8.2 Short-term stockpiling

The recommended maximum time period over which soils may be temporarily stockpiled before treatment commences to neutralise acidity is detailed in Table 3.

Table 3. Indicative maximum periods for short-term stockpiling of untreated ASS

Type of material		Maximum duration of stockpiling before the commencement of treatment	
Texture range (AS 1726–1993)	**Approx clay content (%)**	**Days**	**Hours**
Coarse texture **Sands to loamy sands**	≤5	Overnight	18 hours
Medium texture **Sandy loams to light clays**	5–40	2½ days	70 hours
Pyritic peat	NA	2 ½ days	70 hours
Fine texture **Medium to heavy clays and silty clays**	≥40	2½ days	70 hours

Note: *Excavated ASS requires treatment to neutralise acidity regardless of the duration of stockpiling. Table 3 is provided as a guide to the maximum period of time that should elapse before treatment to neutralise acidity commences.*

Note*: These timeframes do not apply to iron monosulfide sediments or gels (formerly known as monosulfidic black oozes). Iron monosulfide gels or sediments should not be stockpiled without a risk assessment and the implementation of strict environmental management protocols.*

At some sites, these figures may be too conservative, and in other circumstances not conservative enough (e.g. during hot weather some sands may begin to oxidise within a matter of hours, whereas complete oxidation of peat may take longer). Appropriate operational delay times should be determined well before the creation of the stockpile.

The use of a guard layer under the short-term stockpiles may be warranted in certain circumstances. Peaty soils containing pyrite should not be stockpiled without the use of a guard layer and adequate bunding.

The total volume of material placed in short-term stockpiles should not exceed 20 per cent of a day's total extraction. When undertaking short-term stockpiling of ASS materials, the stockpile should be monitored for signs of oxidation (e.g. colour changes, decrease in pH of more than half a pH unit). If stockpiled ASS materials are observed to have oxidised they will need to be treated with an appropriate amount of neutralising material before re-burial.

Due diligence is needed when stockpiling sandy soils with no acid buffering capacity (e.g. Bassendean sands), particularly when these soils are extracted from below the watertable. Reburial of untreated and acidifying sandy soils is not recommended.

Attachment 3: Product Asbestos Monitoring and Testing

Product testing and supply

The testing procedures detailed in this attachment have application to the three main recycled Products:

1. Recycled drainage rock 20-27mm;
2. Recycled sand, screened to <10mm; and
3. Recycled road-base, <19mm.

Stockpile inspection and sampling

- Inspections and sampling may be undertaken by staff employed by the Licence Holder as long as they have received the required asbestos training for operational staff as set out in section 5.2 of *Guideline: Managing asbestos at construction and demolition waste recycling facilities*.
- No sampling is required for recycled drainage rock, other than to determine by laboratory analysis whether a suspect fragment is Asbestos.
- For recycled road-base and screened sand, sampling is necessary and must be spread evenly over the whole stockpile surface or samples may be taken at regular intervals (as per conveyor sampling) during construction of the stockpile. Suspect ACM or areas must be targeted for sampling.
- Sampling of road base and screened sand Products must occur at a minimum rate of

  40 locations per 4000 tonnes or 14 samples per 1000m^3 of Product.

Conveyor sampling

- Sampling of road base and screened sand Products must occur at a minimum rate of 1 sample per 70m^3 of a Product output. Suspect ACM or areas must be targeted for sampling.

Sample treatment

- Each sample collected must be at least 10 litres in volume and then be divided into 2 size fractions (>7mm and <7mm) in the field by sieving through a 7mm screen or spread out for inspection on a contrasting colour fabric. The >7mm fraction should be examined for any suspect ACM and this be retained to calculate the level of contamination.
- The <7mm fraction will need to be a minimum 500 ml, be wetted, and submitted for laboratory analysis. This sample size is considered necessary to improve the limit of detection for Asbestos in the analysis procedure.

Sample analysis method

- **>7mm sample fractions –**
  - Asbestos concentrations (ACM and Asbestos) should be calculated in accordance with the methods detailed in section 4.1.7 of Department of Health (DoH), 2009, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. Averaging Asbestos levels across the stockpile is not appropriate and Asbestos levels within each sample should be reported.
- **<7mm sample fractions**
  - Each <7mm sample fraction must be analysed for Asbestos and ACM.
  - Asbestos analysis must be undertaken by an independent NATA certified laboratory and comply with Australian Standard Method for the Qualitative Identification of asbestos in bulk samples (AS 4964-2004) or be demonstrated to be able to achieve the equivalent level of results to this Australian Standard.

AS 4964-2004 is currently the only method in Australia that has NATA certification; however the practicable level of detection for this standard polarized light microscopy method (PLM) and dispersion staining (DS) is 0.01% w/w. It is possible however, to measure Asbestos contamination at or lower than

0.001% w/w where an increased sample size is used, however DWER recognises that any reporting of concentrations below 0.01% w/w will be outside the conditions set by NATA.

Therefore, to determine whether recycled Products meet the product specifications for Asbestos content, samples must be a minimum of 500mL in size. Proponents must adopt one of the following analytical approaches:

1. Detected/non-detected – where any quantity of Asbestos is detected by the PLM method it must be assumed, without further analysis, to be in concentrations above the product specification limit of 0.001% w/w. A weight of evidence approach may be adopted i.e. the frequency and occurrence of other positive results in the stockpile can be taken into account to determine whether the stockpile being assessed is considered to meet the product specification or not; or
2. Where any quantity of Asbestos is detected by the PLM method, the sample is subject to further testing in the form of a semi-quantitative method with a lower level of detection for Asbestos. Either of the following methods are considered acceptable by DWER:
    - The extraction and weighing of fibre bundles or fibre cement material from the total sample; and
    - Measuring the width and length (i.e. volume) of individual fibre by Phase Contrast Microscopy (PCM) and calculating the weight of fibres in the extracted sub-sample.

Interpreting inspection and sampling results

- If the visual inspection, sieve sample or analytical results identify Asbestos above or possible above the 0.001% w/w criteria, then that stockpile or product process should be deemed potentially contaminated and considered for off-site disposal as Asbestos Waste, or subject to further actions to remediate it or to demonstrate its acceptability by further assessment. A record should be made of the decision-making and action taken (e.g. off-site disposal, further assessment undertaken etc.) in relation to that stockpile.
- In addition to the above, where Asbestos is identified above or possibly above the 0.001% w/w criteria, an investigation into the likely cause for the presence of Asbestos in the product should be undertaken and measures implemented to prevent a reoccurrence. A record of the investigation and its findings together with the details of any preventative measures implemented at the site should be made.

(Derived from Section 4.3 of the *Guideline: Managing asbestos at construction and demolition waste recycling facilities*)

Attachment 4: Asbestos Factsheet

Transportation and disposal of asbestos-containing material

The transportation and disposal of asbestos-containing material (ACM) from commercial, industrial and other activities is regulated by the Environmental Protection (Controlled Waste) Regulations 2004 (Controlled Waste Regulations). The Controlled Waste Regulations apply obligations on the waste transporter to ensure the waste is safely transported to an approved location.

The Controlled Waste Regulations define what is considered to be ACM for the purposes of the Controlled Waste Regulations. This definition includes material which contains 0.001 per cent or more of asbestos fibres weight/weight.

Please note that removal, handling, signage, security and onsite packaging of asbestos-contaminated material must be carried out in accordance with the local government authority, Department of Health (DoH) and WorkSafe requirements. Contact the relevant authority for further information (refer to the end of this factsheet).

Transportation of ACM

The Controlled Waste Regulations require ACM to be:

1. separated from other material for disposal where that is reasonably practicable
2. wrapped and contained in a manner that prevents asbestos fibres entering the atmosphere during transportation on a road
3. labelled or marked with the words 'CAUTION ASBESTOS' in letters no less than 50 mm high on the individual packages and the transport container.

Further guidance on the transportation of ACM is set out in the Code of Practice for the Safe Removal of Asbestos 2nd Edition [NOHSC:2002(2005)] and the Health (Asbestos) Regulations (1992 or as amended). This Code of Practice recommends that:

- ACM is sealed in heavy-duty 200 μm (minimum thickness) polythene plastic and clearly labelled with the appropriate signage warning
- all drums or bins used to store and dispose of ACM should be in good condition, with lids and rims in good working order. The drums or bins should be lined with polythene plastic (200 μm minimum thickness) and be clearly labelled
- if a waste skip bin, vehicle tray or similar container is used, the ACM should be double-bagged before being placed in to the container or

sealed in double-lined, polythene plastic (200 μm minimum thickness), and be clearly labelled. In the case of bulk loads such as contaminated soil, an alternative is to double-line the vehicle tray with the polythene and completely cover the load with a close-fitting, durable material such as the double-layered polythene or a tarpaulin

- in the case of ACM in the form of contaminated soil, it needs to be wetted down before removal and loading onto a vehicle or bin.

Disposal of material containing asbestos

All material containing asbestos must be disposed at a disposal site appropriately licensed or registered under Part V of the *Environmental Protection Act 1986* (EP Act) to accept asbestos waste.

A person who disposes of material containing asbestos other than at a licensed disposal site commits an offence.

Receipts for the disposal of ACM should be retained or passed on to the disposal client to assist any subsequent regulatory investigation.

Duty to notify others of the presence of asbestos

A person who takes material containing asbestos to a disposal site **MUST** inform the operator of the facility that the material is, or contains, asbestos waste. This notification should be provided in a written form; however, where notification is verbally provided the disposal site should make a written record of the notification.

Penalties for non-compliance

Penalties apply for offences committed under the EP Act and Controlled Waste Regulations.

Further information and contacts

Local government authority

For information on demolition licence requirements and household queries contact an Environmental Health Officer at your local government authority.

Department of Health

For information on asbestos cement products in your home, asbestos-contaminated sites and frequently asked questions on asbestos, visit the *DoH website* or phone 9222 4222.

Department of Consumer and Employment Protection - Worksafe

For information about asbestos in the workplace, licensed asbestos removalists and appropriate handling of asbestos including safety wear, visit the *Worksafe website* or phone 1300 307 877.