Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6567/2021/1
Works approval holder	Lynas Kalgoorlie Pty Ltd
ACN	053 160 302
Registered business address	Level 4 1 Howard Street PERTH WA 6000
DWER file number	DER2021/000366
Duration	08/02/2022 to 7/02/2027
Date of issue	08/02/2022
Date of amendment	20 December 2024
Premises details	Lynas Kalgoorlie Rare Earth Processing Facility 70 Johns Road YILKARI WA 6430 Legal description - General Purpose Lease G26/169

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production / design capacity**
Category 44: Metal smelting or refining	162,000 tonnes (of RE concentrate, dry tonnes) per annual period 68,000 tonnes (of RE carbonate, dry tonnes) per annual period
Category 54: Sewage facility	400m^3/ day

This amended works approval is granted to the works approval holder, subject to the attached conditions, on 20 December 2024, by:

Michael Greenslade Digitally signed by Michael Greenslade
Date: 2024.12.20 12:23:38 +08'00'

MANAGER, PROCESS INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
08/02/2022	W6567/2021/1	Works approval granted
17/09/2024	W6567/2021/1	Addition of Category 54 to the works approval to allow for acceptance of treated wastewater and disposal onto land. The expiry date of the works approval has also been amended.
20/12/2024	W6567/2021/1	DWER Initiated amendment to update condition 20.

Interpretation

In this works approval:

(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 works approval:

  (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 works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

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

Construction phase

Infrastructure and equipment

1. The works approval holder must:

(a) construct the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction requirements; and

(c) at the corresponding infrastructure location.

as set out in Table 1.

Table 1: Design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
Delivery, handling and storage of raw materials			
1.	RE concentrate delivery, transfer & storage	(a) Must be designed for receipt and on-site storage of RE concentrate in sealed containers; (b) Must be designed for introduction of RE concentrate into the process via a hooded hopper equipped with a baghouse filter capable of minimising PM during transfer to less than 50 mg/m^3; and (c) Transfer hopper baghouse stack exhaust height must be at least 25 m above as-built ground level.	'RE Concentrate Receivals Area', as depicted in the 'Infrastructure map' in Schedule 1
2.	Delivery and storage of reagents (Sodium hydroxide, sulfuric acid, quicklime, magnesia, soda ash, sodium silicate, ferric sulfate) and hydrocarbon fuel (diesel)	(a) Reagents and hydrocarbons must be designed for delivery in tankers or bags with fully encapsulated unloading by pneumatic transfer (or similar); (b) Storage area(s) for reagents and hydrocarbons must be constructed with secondary containment, with bunding that complies with the requirements of AS 1940, including 110% capacity and requirements to capture any inadvertent jetting of liquids; (c) Bunded areas must be constructed with a collection sump for recovering spilled liquid and stormwater; (d) Quicklime, MgO and soda ash must be stored within steel silo(s), each equipped with a baghouse filter capable of minimising PM during transfer to less than 50 mg/m^3	'Caustic Soda Preparation', 'Sulphuric Acid Preparation', 'Soda Ash Preparation', as depicted in the 'Infrastructure map' in Schedule 1

	Infrastructure	Design and construction requirements	Infrastructure location
Cracking and leaching plant infrastructure			
1.	Flue gas treatment	(a) Must be designed with a flue gas treatment system, comprising: - 2 x venturi scrubbers; - Spray tower; and - Wet Electrostatic Precipitator (WESP) capable of minimising PM emissions to less than 50 mg/m^3 (STP, dry) under normal operating conditions; (b) Must be designed with an emergency gas scrubbing system that: - will automatically operate in upset conditions; - comprises a packed tower with caustic scrubbing system; and - is capable of minimising the rate of sulfur acid emissions to 1.5 g/s or less; (c) Gas Treatment Stack (GTS) exhaust height must be at least 60 m above as-built ground level; (d) GTS must be fitted with a sampling port that complies with the requirements of AS 4323.1, to allow periodic stack testing; (e) GTS must be fitted with a sampling port that complies with the requirements of the CEMS Code; (f) Must install a CEMS system on the GTS capable of accurate and continuous monitoring of volumetric flow rate, stack temperature and process gases (CO, SO_2, NO_X); (g) CEMS system must be installed and calibrated in accordance with requirements of the CEMS Code; and (h) Acid produced by the waste gas circuit must be directed to secondary and tertiary leaching, the water circuit and the water treatment circuit.	'Waste Gas Circuit', as depicted in the 'Infrastructure map' in Schedule 1
2	Product handling and storage	Product packaging equipment and storage must be located within an enclosed building, to allow product handling in a sealed environment;	Not specified
3	Conveyors	All conveyors and transfer points must be enclosed;	Not specified
4	Pumps	All pumps must: (a) be located to the south-eastern side of tanks, or where this is not possible: - must be shielded; or - must be specified to have a SWL of ≤ 98 decibels (dB); (b) have specifications that include a requirement that their noise emissions:	As per design requirements

	Infrastructure	Design and construction requirements	Infrastructure location
		- will not contain tonal characteristics; or - have a SWL at least 5 dB less than specified, if tonality cannot practicably be removed;	
5	Electric drive motors	All electric drive motors must: (a) be located to the south-eastern side of tanks, or (b) have cowlings or close-fitting acoustic enclosures; or where this is not possible; (c) have specifications that include a requirement that their noise emissions: - will not contain tonal characteristics; or - have a SWL at least 5 dB less than specified, if tonality cannot practicably be removed.	As per design requirements
6	Agitators	(a) Large agitator motors must be specified to have a SWL of ≤ 98 dB; (b) Small agitator motors must be specified to have a SWL of ≤ 92 dB; (c) All agitator specifications must include a requirement that their noise emissions: - will not contain tonal characteristics; or - have a SWL at least 5 dB less than specified, if tonality cannot practicably be removed.	Not specified
7	Cooling tower	(a) Pumps must be located on the eastern side of the structure; (b) Each fans must be specified to have a SWL of ≤ 100 dB; (c) Specifications must include a requirement that their noise emissions: - will not contain tonal characteristics; or - have a SWL at least 5 dB less than specified, if tonality cannot practicably be removed.	As per design requirements
8	Shielding	The following items must be installed with shielding to reduce noise emissions: (a) Combustion air fan; (b) Dilution air fan; (c) WTG/WEST ID Fan; (d) Rotary kiln drives; and (e) Concentrate handling fan	Not specified
9	Filter building	(a) Must be constructed as a 3-sided enclosure, with cladding applied to the north, east and west facades; (b) Cladding must extend fully from the roof of the building to the base of the level defined by the	'Filtration & Secondary Leach', as depicted in the 'Infrastructure map' in Schedule 1

	Infrastructure	Design and construction requirements	Infrastructure location
		suspended concrete slab (level 2), with no gaps;	
10	HDS/Lime preparation	Must be located at the eastern side of the processing plant.	As per design requirements
11	Noise bunding	(a) Must construct a noise bund along the northern edge of the process plant that extends at least 9 m above as-built ground level; (b) Must construct a noise bund along the eastern edge of the IP storage facility that extends at least 3 m above as-built ground level; (c) Must construct a bund underneath the kiln up to the base of the kiln (9.8 m at the west end and 7.7 m at the east end of the kiln).	As per design requirements
12	Emergency diesel generators	(a) 3 x 2,250 kVA diesel engine driven generators; (b) Must be specified to achieve ambient air quality and workplace exposure standard criteria; (c) Stack exhaust height must be at least 10 m above as-built ground level.	'Emergency Diesel Generators', as depicted in the 'Infrastructure map' in Schedule 1
13	Stormwater infrastructure	(a) Site must be designed to divert uncontaminated surface water runoff away from operational areas and direct to natural downstream drainage; (b) Sealed plant and processing areas must be fully bunded and designed to contain surface water runoff on the premises and divert to a stormwater retention pond.	As per design requirements
14	Stormwater retention pond	(a) 1 x stormwater retention pond; (b) Must be constructed with a storage capacity of at least 58,000 m^3 (which includes allowance for a 1% AEP storm event).	'Storm Water Retention Pond', as depicted in the 'Premises map' in Schedule 1
By-product containment infrastructure			
1.	Iron phosphate (IP) storage facility	(a) 1 x dry stacking storage area with internal process liquor storage sump; (b) Must be constructed with an IP storage capacity of at least 230,000 m^3 (which includes minimum 500 mm operational freeboard and allowance for a 1% AEP storm event); (c) Process liquor sump must be constructed with a holding capacity of at least 15,000 m^3; - Storage area and sump must be constructed with a dual liner system with leak detection, comprising: - secondary lower liner comprising a minimum5.5 mm thick geosynthetic clay liner with a permeability of $1x10^{-7}$ m/s or less;	'Iron Phosphate Storage Area' and 'Process Liquor Surge Storage', as depicted in the 'Premises map' in Schedule 1

	Infrastructure	Design and construction requirements	Infrastructure location
		- upper liner comprising HDPE geomembrane with a manufacturer specified thickness of at least 2.0 mm; - geonet with intermittent cut-off drainage to direct leaks towards a central leak detection/ extraction sump; and - HDPE geomembrane liner must comply with the requirements specified in condition 2.	
2.	Gypsum storage facility – Stage 1	(a) 1 x slurry deposition storage area with settling and water recovery; (b) Must be constructed with a storage capacity of at least 1,600,000 m^3 (which includes minimum 300 mm operational freeboard and allowance for a 1% AEP storm event); (c) Must be constructed with a single HDPE geomembrane liner system with leak detection, comprising a manufacturer specified thickness of at least 1.5 mm; and (d) HDPE geomembrane liner must comply with the requirements specified in condition 2.	'Gypsum Storage Facility Stage 1', as depicted in the 'Premises map' in Schedule 1
3.	Gypsum storage facility – Stage 2	(a) 1 x slurry deposition storage area with settling and water recovery; (b) Must be constructed with a storage capacity of at least 1,620,000 m^3 (which includes minimum 300 mm operational freeboard and allowance for a 1% AEP storm event); (c) Must be constructed with a single HDPE geomembrane liner system with leak detection, comprising a manufacturer specified thickness of at least 1.5 mm; and (d) HDPE geomembrane liner must comply with the requirements specified in condition 2.	'Gypsum Storage Facility Stage 2', as depicted in the 'Premises map' in Schedule 1
4.	Kieserite evaporation ponds	(a) 3 x brine storage ponds; (b) Ponds must be constructed with a combined storage capacity of at least 370,000 m^3 (assuming 1 m depth, and including minimum 300 mm operational freeboard and allowance for a 1% AEP storm event); (c) Must be constructed with a single HDPE geomembrane liner system with leak detection, comprising a manufacturer specified thickness of at least 1.5 mm; and (d) HDPE geomembrane liner must comply with the requirements specified in condition 2.	'Kieserite Evaporation Pond 1', 'Kieserite Evaporation Pond 2' and 'Kieserite Evaporation Pond 3', as depicted in the 'Premises map' in Schedule 1
Environmental monitoring infrastructure			
1.	Meteorological station	Prior to commencing TLO on the premises, must install a wind monitor (anemometer) on the premises that complies with Observation Specification No. 2013.1;	As per design requirements

	Infrastructure	Design and construction requirements	Infrastructure location
2.	Dust monitoring	Prior to commencing TLO on the premises, must: (a) establish monitoring locations that can be used to continuously measure PM_{10} levels in the vicinity of the by-product storage facilities: - at least two (2) monitoring stations along the northern boundary of the premises; and - at least one (1) monitoring station on the premises boundary adjacent to the IP storage facility; (b) procure an ambient air quality monitor that: - supplies continuous real-time data to allow real-time monitoring of TSP, PM_{10} and $PM_{2.5}$ concentrations; - provides automatic feedback (SMS text message or equivalent) to the plant manager or supervisor if set trigger levels are exceeded; and - complies with AS 3580.1.1.	As per design requirements

High density polyethylene geomembranes

2. The works approval holder must ensure all HDPE geomembrane liners comply with the properties listed in Table 2, and are constructed in accordance with the requirements specified in that table.

Table 2: HDPE liner installation requirements

	Item	Property/construction requirement
1	Liner properties	HDPE liners must have the following properties: (a) Specific gravity of 0.94 or more; (b) Melt index of 0.05 g to 0.30 g in 10 minutes; (c) Carbon black content of 2-3%; (d) Minimum tensile strength at yield of 16,000 kN/m^2; (e) Minimum tensile strength at break of 550 kN/m^2; (f) Minimum elongation at yield of 10%, and at break 300%
2	Liner fabrication	(a) Liners must be fabricated to form the shape of the pond embankments; (b) All seams and joins made on the premises must be continuous; (c) Panels of the liner must be overlapped by a minimum of 100 mm, prior to heat welding or mechanical joining
3	Welding materials	Membrane welding materials must be supplied by the liner manufacturer, and be identical with the liner membrane
4	Seams and joins	All seams and joins must be constructed and tested as watertight over their full length using a vacuum box test and air pressure test
5	Shear resistance	Shear resistance must be tested in accordance with ASTM D5321

Compliance audit and reporting

3. The works approval holder must within 28 calendar days of an item of infrastructure specified in condition 1 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 1 for that item of infrastructure; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

4. The Environmental Compliance Report required by condition 3, must include as a minimum:

(a) certification by a suitably qualified engineer, whether the items of infrastructure or components thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

5. Subject to condition 4(a), where an item of infrastructure or component of infrastructure has been certified as not being constructed, or does not comply with the corresponding requirements, or contains material defects, the works approval holder must:

(a) correct the non-compliant or defective works, prior to re-certifying in accordance with condition 4(a); or

(b) provide to the CEO a description of, and explanation for, any departures from the requirements specified in Table 1 that do not require rectification and do not constitute a material defect along with the Environmental Compliance Report required by condition 3.

Fugitive dust controls

6. During construction works, the works approval holder must implement the dust controls specified in Table 3 in accordance with the corresponding action/requirement set out in that table.

Table 3: Fugitive dust controls during construction works

	Control	Actions/requirements
1	Ground disturbing activities, such as topsoil stripping	(a) Must schedule to avoid periods of High Winds from a southerly vector (including Great Eastern Hwy); (b) Where there is a risk of dust affecting sensitive receptors, must only conduct when soil conditions are moist but not saturated; and (c) Must cease/suspend during High Wind conditions where there is a risk of dust affecting sensitive receptors.
2	Water carts/sprays	(a) Must operate when visible dust is generated from ground surfaces on the premises; and (b) Must operate proactively subject to weather forecasting over a 24-hour period.

3	Dust suppressant (other than water)	(a) Must apply proactively to stockpiles, noise bunds and pond embankments; and (b) Must reapply proactively subject to visual inspection and weather forecasting.
4	Cessation of activities	Must cease an activity causing visible dust lift-off where dust management measures have not prevented dust lift-off and there is a risk of dust affecting sensitive receptors

Noise monitoring

7. During construction works, the works approval holder must conduct monitoring of noise emissions at the locations specified in Table 4 in accordance with the corresponding requirements set out in that table.

Table 4: Noise monitoring requirements during construction works

Monitoring point ref	Parameter	Sound measuring equipment	Units	Frequency	Duration
N1	L_{AS} 90,30min	Non-directional system	dB(A)	At commencement of construction works, 6-monthly thereafter	Continuous, 2 weeks
	L_{AS} 10,30min				
	L_{Aeq}(20Hz-500Hz),30min				

8. The works approval holder must ensure that all noise measurements are carried out in accordance with Part 3 of the *Environmental Protection (Noise) Regulations 1997* (as applicable).

9. The works approval holder must ensure that 6-monthly monitoring is conducted at least 4 months apart.

10. The works approval holder must ensure that all monitoring equipment used on the premises to comply with condition 7 is calibrated in accordance with the manufacturer's specifications.

Environmental commissioning phase

Environmental commissioning plan

11. The works approval holder must, at least 3 months prior to the commencement of environmental commissioning, provide to the CEO an environmental commissioning plan.

12. The plan required by condition 11 must include, but not be limited to:

(a) the stages, processes and expected timeframes of environmental commissioning;
(b) how accidents or malfunctions will be managed;
(c) start up and shut down procedures and how emissions will be managed during start up and shut down; and
(d) procedures for monitoring and managing emissions and discharges during environmental commissioning including, but not limited to:

(i) details of parameters to be included in any monitoring programs;
(ii) targets and/or trigger levels for each parameter; and
(iii) contingency actions to be implemented if target and/or trigger levels are exceeded.

Environmental commissioning requirements

13. The works approval holder may only commence environmental commissioning once the reports required by condition 3 and condition 11 have both been submitted by the works approval holder.

14. The works approval holder must conduct environmental commissioning in accordance with the plan submitted in accordance with condition 11.

15. The works approval holder must notify the CEO:

(a) at least 7 days prior to, the commencement date of environmental commissioning; and

(b) within 7 days after, the completion date of environmental commissioning.

16. The works approval holder must, within 60 calendar days of the completion of environmental commissioning, submit to the CEO an Environmental Commissioning Report.

17. The report required by condition 16 must include, but not be limited to:

(a) a summary of environmental commissioning activities undertaken, including timeframes and the amount of RE concentrate processed, RE carbonate produced, and volumes of by-products produced (IP, gypsum and brine);

(b) a summary of the environmental performance of all plant and equipment as installed, including air emissions monitoring conducted on all point sources;

(c) a review of the plant's performance against the design specifications; and

(d) where they have not been met, measures proposed to meet the design specification, together with timeframes for implementing the proposed measures.

Time limited operational phase

Commencement and duration

18. The works approval holder may conduct time limited operations for the infrastructure and equipment specified in condition 19:

(a) for a period not exceeding 120 calendar days from the completion date of environmental commissioning; or

(b) until such time as a licence is granted in accordance with Division 3, Part V of the *Environmental Protection Act 1986*,

whichever is sooner.

Infrastructure and equipment

19. During time limited operations, the works approval holder must ensure the premises infrastructure listed in Table 5 is maintained and operated in accordance with the corresponding operational requirement set out in that table.

Table 5: Infrastructure requirements during time limited operations

	Site infrastructure	Operational requirement
1	RE concentrate delivery, transfer & storage	(a) Receipt and on-site storage of RE concentrate must be in sealed containers; (b) Transfer feed hopper must be operated with an extraction system discharging via a baghouse filter
2	Gas treatment	(a) Flue gas from the kiln must be cleaned using a flue gas treatment system, comprising: - a combination of two venturi scrubbers; - spray tower; and - WESP; (b) Acid produced by the waste gas circuit must be directed to secondary and tertiary leaching, the water circuit and the water treatment circuit
3	Backup emergency scrubber	(a) Must be brought online during a failure in the main emission control system; (b) Must not be used in lieu of the main emission control system under normal operating conditions
4	IP storage facility	(a) IP filter cake must be stored within the IP storage facility; (b) Process liquor within the storage sump must be reclaimed for reuse within the process; (c) An operational freeboard of at least 500 mm must be maintained at all times; and (d) Recovery of water from storm events must be pumped back to the plant for reuse.
5	Gypsum storage facility	(a) Gypsum slurry resulting from neutralisation of wastewater must be stored within the gypsum storage facility (stage 1); (b) An operational freeboard of at least 300 mm must be maintained at all times; and (c) Recovery of supernatant water must be pumped back to the plant for reuse
6	Kieserite evaporation ponds	(a) Brine discharge from RO water purification must be stored within the kieserite evaporation ponds; and (b) An operational freeboard of at least 300 mm must be maintained at all times
7	Secondary containment	(a) All hydrocarbon and hazardous materials must be stored in bunded areas that comply with the requirements of AS 1940; and (b) Spills and leaks of hydrocarbons and hazardous materials must be immediately cleaned up and stored in impervious containers for off-site removal by a licensed controlled waste carrier
8	Surface water and site drainage	(a) Surface water runoff from operational areas must be diverted to the stormwater retention basin; and (b) Surface water runoff from non-operational areas must be diverted away from operational areas

9	Emergency diesel generators	(c) Must not be used for power generation under normal operating conditions

20. During construction activities, environmental commissioning and time limited operation, the works approval holder must ensure that the re-use of treated effluent is conducted in accordance with the requirements of Table 6.

Table 6: Treated effluent re-use requirements

	Site infrastructure/ process	Operational requirement
1.	Treated effluent supply, storage and processing	(a) Only treated effluent from the South Boulder Wastewater Treatment Plant may be accepted onto the premises. (b) Effluent accepted onto the site must meet the following requirements: (i) E coli <1000 cfu or MPN/100ml (ii) Suspended Solids <30 mg/L (iii) pH 6.5 – 8.5 (c) The onsite treated effluent re-use process must include the following infrastructure: (i) Connection pipe from the City of Kalgoorlie-Boulder treated recycled water pond to the premises 20ML buffer tank; (ii) Chlorine disinfection unit; (iii) Recycled loop, free chlorine injection point and free chlorine analyser; (iv) A shutoff valve must be installed on the connection pipe to prevent water flow in the event of an emergency or during maintenance; (v) Sampling point/inline analyser installed to enable the monitoring of treated effluent (d) The onsite treated effluent re-use process must include the following operational requirements: (i) The water treatment plant must be maintained in good working order in accordance with the manufacture's specifications; (ii) The treated effluent must reside in the buffer tank for a minimum of 4 days after treatment of chlorine; and (e) Spills or leaks of treated effluent that does not meet the requirements of part (b) must be immediately contained and cleaned up.
2	Onsite treated effluent reuse	(a) Treated effluent may only be used on site for the purpose of: (i) Dust suppression via water carting; (ii) Firefighting and hose down; (iii) Filter cloth wash and filter chute sprays; (iv) Industrial use/process water within the premises; and (v) Moisture conditioning of construction materials in order to achieve minimum compaction requirements at the design moisture content in accordance with geotechnical specifications.

		(b) Treated effluent discharged for dust suppression outside of engineered containment infrastructure must not exceed 400kL/day. (c) Treated effluent used for dust suppression must be used in such a manner that prevents: (i) the pooling or ponding of water; (ii) erosion or scouring; (iii) waterlogging or runoff; and (iv) overspray leaving the premises boundary.

21. During time limited operations, the works approval holder must undertake inspections of the scope and type and at the corresponding frequency specified in Table 7.

22. Where any inspection required by condition 21 identifies an appropriate level of environmental protection is not being maintained, the works approval holder must:

(a) take corrective action to mitigate adverse environmental consequences as soon as practicable; and

(b) maintain a written log of all inspections undertaken, with each inspection

(c) signed off by the person who conducted the inspection.

Table 7: Inspection of infrastructure requirements

Scope of inspection	Type of inspection	Frequency of inspection
IP & gypsum storage facilities, kieserite evaporation ponds	Visual integrity (including signs of seepage), leak assessment and freeboard capacity	Daily whilst operating, monthly if not operating

By-product stockpile dust controls

23. During time limited operations, the works approval holder must implement the dust controls specified in Table 8 in accordance with the corresponding action/requirement set out in that table.

Table 8: By-product stockpile dust controls

	Control	Actions/requirements
1	Dust suppressant (other than water)	(a) Must apply proactively to IP and gypsum stockpiles where there is a risk of visible dust lift-off or IP or gypsum dust affecting sensitive offsite receptors; (b) Must reapply proactively subject to visual inspection and weather forecasting;
2	Housekeeping	Must conduct regular housekeeping to remove IP and gypsum spillage from areas outside of the storage facilities;

3	Monitoring and trigger levels	(a) Must use meteorological data to assist in determining the potential for dust-lift off from IP and gypsum stockpiles and take appropriate management action(s); (b) Must set trigger levels on ambient air quality monitoring equipment to prevent the occurrence of PM_{10} emissions from the IP and gypsum storage facilities exceeding 50 µg/m^3 over a 24-hour period; (c) Must reduce trigger levels if necessary, in response to complaints or other evidence of off-site impacts; and (d) Must keep a log of dust trigger exceedance events including the identification of the sources and action(s) taken to control dust.

Authorised emission points to air

24. During time limited operations, the works approval holder must ensure the emissions listed in Table 9 are only emitted from the corresponding emission point and location specified in that table.

Table 9: Authorised emission points to air

Emission	Emission point	Minimum stack height (m)[1]	Maximum stack internal diameter (m)[2]	Emission point location[3]
NO_X, SO_2, CO, H_2SO_4, HF, HCl, Cl, PM_{10}, $PM_{2.5}$	Gas treatment stack	60.0	1.9	A1
	Concentrate transfer hopper baghouse stack	25.0	0.7	A2
PM, NO_X, CO	Emergency diesel generator (kiln burner)	10.0	0.45	A3
	Emergency diesel generators (gas treatment circuits 1 & 2)	10.0	0.45	A4
PM, HCl	Quicklime storage silo baghouse	34.5	0.2	Not specified
	Quicklime scrubber	8.0	0.2	
PM	MgO neutralisation circuit baghouse	25.0	0.3	
	MgO silo baghouse 1 – 3	23.0	0.17	
	Soda ash storage silo	33.0	0.2	

Note 1: Height from ground level to emission exit point of stack.
Note 2: Inner diameter of discharge point.
Note 3: Emission point location reference Schedule 1: Map of emission points.

CEMS reporting

25. The works approval holder must, within 30 calendar days of completing successful calibration and verification of the CEMS system installed on the main stack, submit to the CEO a CEMS calibration report.

26. The report required by condition 25 must include, but not be limited to:

(a) details of the CEMS system specifications and location, as determined prior to the initial operation of the REPF kiln in accordance with Phase I and II;

(b) the Quality Assurance plan, as required under section 2;

(c) details of the successful calibration and verification of the installed CEMS system, as conducted within 500 operational hours of the REPF kiln in accordance with Phase III; and

(d) details of the ongoing calibration and verification of the installed CEMS system, as conducted in accordance with Phase IV, of the CEMS Code where relevant.

Records and reporting (general)

27. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether 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 issues raised; and

(d) the complete details and dates of action(s) taken by the works approval holder to investigate or respond to any complaint.

28. The works approval holder must maintain accurate and auditable books including the following records, information, reports and data required by this works approval:

(a) the works conducted in accordance with condition 1;

(b) monitoring of construction noise levels in accordance with condition 7;

(c) any maintenance of infrastructure that is performed in the course of complying with condition 19;

(d) the volume of treated effluent accepted onto, and discharged within the premises, when undertaken in accordance with condition 20;

(e) inspections conducted in accordance with condition 21;

(f) monitoring and dust trigger exceedance events logged in accordance with condition 23; and

(g) complaints received under condition 27.

29. The books specified under condition 28 must:

(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 works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 10 have the meanings defined.

Table 10: Definitions

Term	Definition
AEP	Annual Exceedance Probability
AS 1940	means the most recent version and relevant parts of the Australian Standard AS 1940 The storage and handling of flammable and combustible liquids
AS 3580.1.1	means the most recent version and relevant parts of the Australian Standard AS 3580.1.1 Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment
AS 4323.1	means the most recent version and relevant parts of the Australian Standard AS 4323.1 Stationary source emissions – selection of sampling positions
ASTM D5321	means the Active Standard ASTM D5321 / D5321M Standard test method for determining the shear strength of soil-geosynthetic and geosynthetic interfaces by direct shear
books	has the same meaning given to that term under the EP Act
BOD	biochemical oxygen demand.
CEO	means Chief Executive Officer of the Department CEO for the purposes of notification means: Director General Department administering the Environmental Protection Act 1986 Locked Bag 10 JOONDALUP DC WA 6919 info@dwer.wa.gov.au
CEMS	Continuous Emissions Monitoring System
CEMS Code	means the document Continuous Emission Monitoring System (CEMS) Codes for Stationary Source Air Emissions, March 2016, Department of Environment Regulation, Perth WA
Cfu or MPN / 100mL	colony forming units or most probable number per 100 millimetres
Cl	chlorine
CO	carbon monoxide
condition	means a condition to which this works approval is subject under s.62 of the EP Act
Department	means the department established under section 35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Part V, Division 3 of the EP Act
discharge	has the same meaning given to that term under the EP Act
E Coli	*Escherichia coli*
emission	has the same meaning given to that term under the EP Act

environmental commissioning	means an activity or sequence of activities undertaken after pre-commissioning has demonstrated the integrity of the plant and equipment. The purpose of commissioning is to test equipment, infrastructure, and processes after the input of raw materials, to confirm design specifications, optimise process conditions, and to monitor/validate emissions or discharges in order to establish a steady-state operation
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment and other environmental factors
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure has been constructed in accordance with the works approval
EP Act	Environmental Protection Act 1986 (WA)
freeboard	means the distance between the maximum surface water elevations and the top of retaining banks or structures at their lowest point
GTS	gas treatment stack
H_2SO_4	sulfuric acid
HCl	hydrogen chloride
HDPE	High density polyethylene
HF	hydrogen fluoride
High Wind	means wind conditions rating 7 or higher on the Beaufort Wind force Scale, i.e., wind speeds 50 km/h or greater
LAS 90,30min and LAS 10,30min	means the A-weighted level exceeded for more than 90% and 10%, respectively, of the time over 30 minutes with the sound level meter set to 'Slow' time weighting
LAeq(20Hz-500Hz),30min	means the A-weighted equivalent noise level between 20 Hz and 500 Hz (one-third octave bands inclusive), averaged over 30 minutes
MgO	magnesium oxide, or magnesia
non-directional system	Means single microphone sound measuring equipment compliant with Schedule 4 of the Noise Regulations and capable of recording overall and one-third octave band statistical noise levels based on the A-weighted sound pressure level with 'Slow' time weighting (L_{AS})
normal operating conditions	means the operation of infrastructure (including abatement equipment) excluding start up, shut down and upset conditions
NO_X	means oxides of nitrogen, calculated as the sum of nitric oxide and nitrogen dioxide and expressed as nitrogen dioxide
Observation Specification No. 2013.1	means the document Observation Specification No.2013.1 – Guidelines for the Siting and Exposure of Meteorological Instruments and Observing Facilities, Bureau of Meteorology, January 1997. Available at www.bom.gov.au/climate/cdo/about/observation_specification_2013.pdf
PM	means total particulate matter including both solid fragments of material and miniscule droplets of liquid
PM2.5 and PM10	means particles with an aerodynamic diameter of less or equal to 2.5 µm and 10 µm, respectively

pre-commissioning	means an activity or sequence of activities undertaken after construction (but prior to commissioning) to test equipment and infrastructure for functionality, and for any installation defects or failures. Examples include hydraulic pump, pipeline and valve testing; hydrostatic testing of vessels, tanks and ponds; electrical component testing; and liner integrity tests for storage facilities and wastewater containment ponds
premises	the premises to which this works approval applies, as specified at the front of this works approval and as shown on the map in Schedule 1 to this works approval
prescribed premises	has the same meaning given to that term under the EP Act
RE	rare earth
shut down	means the period when plant or equipment is brought from normal operating conditions to inactivity
SO_2	sulfur dioxide
start up	means the period when plant or equipment is brought from inactivity to normal operating conditions
STP, dry	means standard temperature and pressure (0°Celcius and 101.325 kilopascals, respectively), dry
suitably qualified engineer	means a person who holds a tertiary academic qualification in engineering and has a minimum 5 years of experience working in their area of expertise
SWL	sound power level
TN	means total nitrogen
TP	means total phosphorus
time limited operations	means operation of the infrastructure identified under this works approval that is authorised for that purpose, subject to the relevant conditions
WESP	Wet Electrostatic Precipitator
works approval	refers to this document, which evidences the grant of the works approval by the CEO under s.54 of the EP Act, subject to the conditions
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval

END OF CONDITIONS

Schedule 1: Maps

Premises map

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

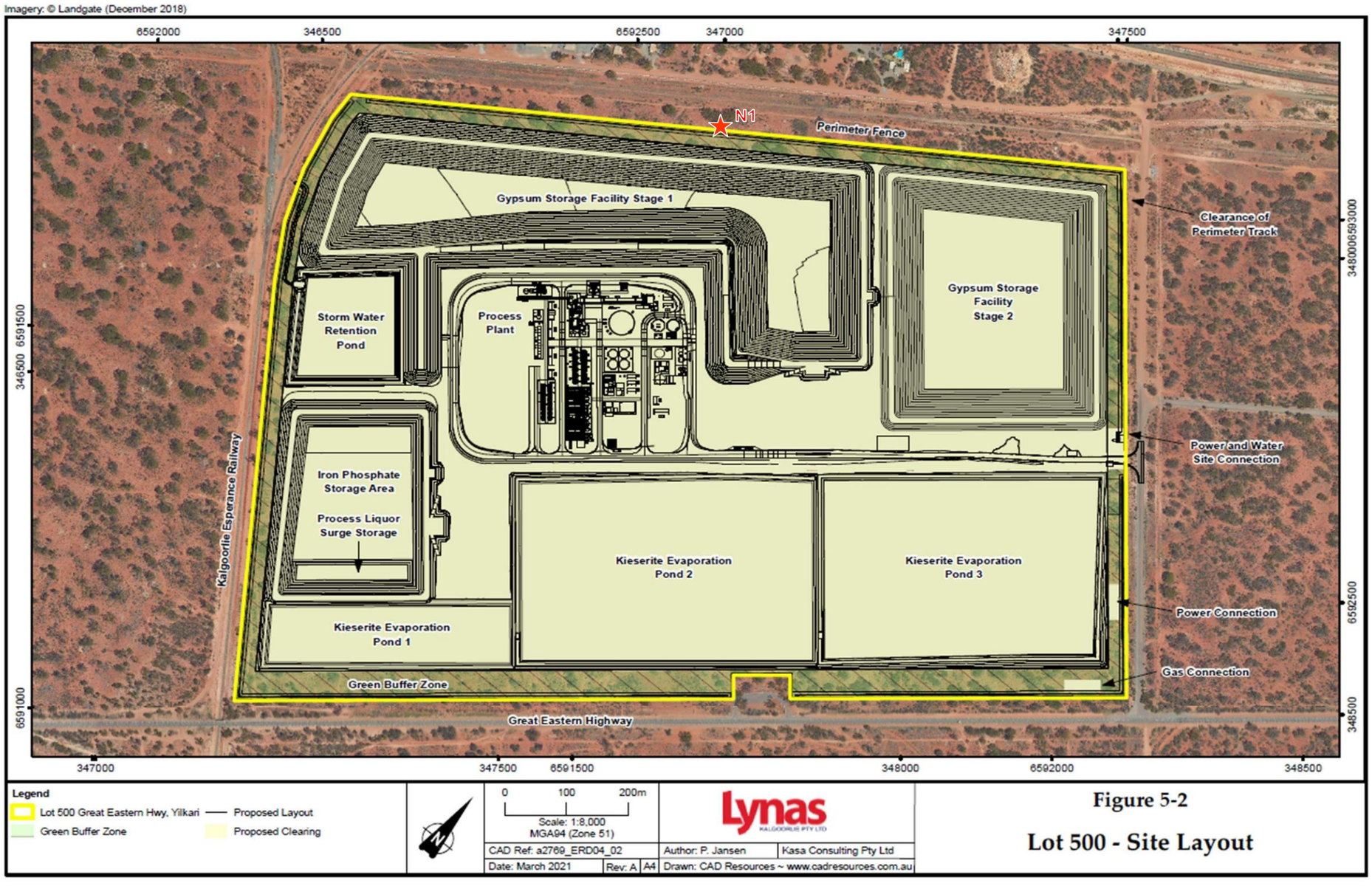
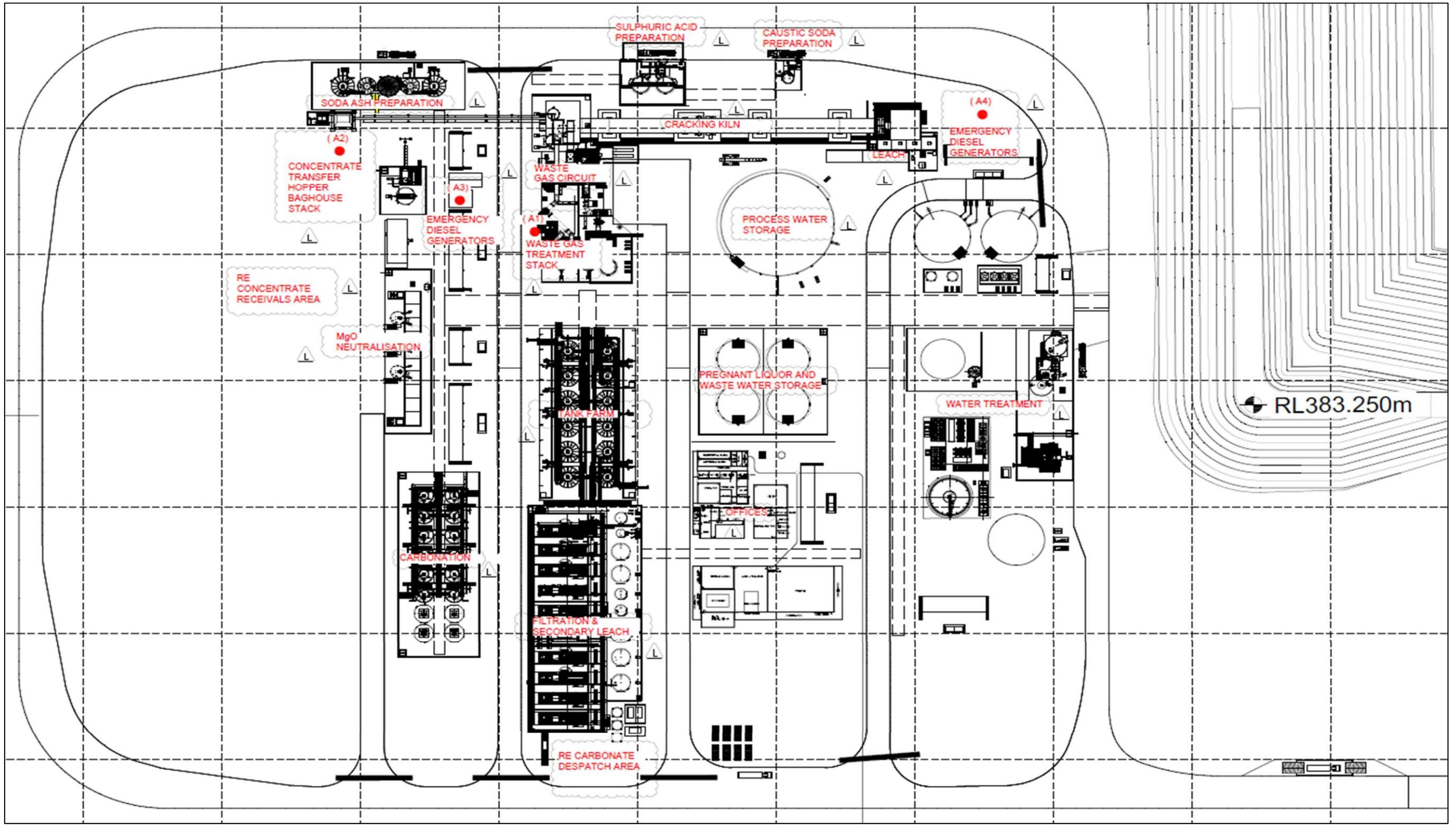


Figure 1: Map of the boundary of the prescribed premises

Schedule 1: Maps

Infrastructure map and map of emission points

The location of key REPF infrastructure is shown in the map below, in addition to key emission points at the premises.



Schedule 1: Maps

Infrastructure map and map of emission points

The location of key treated effluent pipeline routes chlorine dosing unit and standpipe infrastructure is shown in the map below.