Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L9223/2019/1
Licence holder	Yara Pilbara Nitrates Pty Ltd
ACN	127 391 422
Registered business address	Level 5, 182 St Georges Terrace PERTH WA 6000
DWER file number	DER2019/000564
Duration	21/04/2020 to 20/04/2040
Date of issue	20/04/2020
Premises details	Yara Pilbara Nitrates TAN Plant Village Road BURRUP WA 6714 Legal description - Part of Lot 3017 on Deposited Plan 50979 Certificate of Title Volume 2784 Folio 568 As defined by the coordinates in Schedule 2: Premises boundary

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 31: Chemical manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process.	Not more than 350,000 tonnes per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 20 April 2020, by:

James Milne Digitally signed by James Milne Date: 2020.04.20 05:42:23 +08'00'

James Milne

A/ Senior Manager, Process Industries

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

Licence history

Date	Reference number	Summary of changes
W4701/2010/1	25 July 2013	New works approval for construction and commissioning of the Technical Ammonium Nitrate TAN Plant.
W4701/2010/1	23 June 2016	Amendment Notice issued to extend the duration of the works approval to allow sufficient time to complete commissioning following delays.
W4701/2010/1	10 November 2016	Amendment Notice issued to extend the duration of the works approval to allow sufficient time to complete commissioning following delays.
W4701/2010/1	30 November 2017	Amendment Notice issued to extend the duration of the works approval to allow sufficient time to complete commissioning following delays.
L7997/2002/11	29 June 2018	Licence L7997/2002/11 which was first issued on 21 April 2015 for the adjacent Ammonia Plant operated by Yara Pilbara Fertilisers Pty Ltd was amended to include the operation of the Technical Ammonium Nitrate (TAN) Plant, and changes to the prescribed premises boundary to incorporate both the Ammonia Plant and the TAN Plant.
L7997/2002/11	2 April 2019	Amendment to the licence in the form of an amendment notice to extend the date associated with TN and TP limits for discharges from the Ammonia Plant WWTP from 1 April 2019 to 30 November 2019.
L9223/2019/1	20 April 2020	New licence issued in place of L7997/2002/11 for operation of the TAN Plant. L7997/2002/1 expires on 20 April 2020. L9223/2019/1 will take effect from 21 April 2020.

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 means:

  (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:

Infrastructure and equipment

1. The licence holder must ensure that the site infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 1.

Table 1: Infrastructure and equipment requirements

Site infrastructure and equipment	Operational requirements	Infrastructure location
TAN prilling plant	Must only be operated with a three stage scrubbing system which discharges to the atmosphere via the Common Stack, comprising the following components: • independent scrubber for prilling tower air emissions; • rotary brush scrubber for bleed air emissions; and • final scrubber for rotary brush scrubber air emissions.	As shown in Schedule 1: Map of infrastructure locations
Nitric acid plant	Must be operated with a catalytic NOx emission abatement system.	
Contaminated water ponds (Pond 4 and Pond 5)	• For storage and evaporation of stormwater, flushwater and process condensates. • Double lined with 1.5 mm thick HDPE to achieve a permeability of less than 1 x 10^{-9} m/s. • Includes tell tales for leak detection • Maintained with a minimum operational freeboard of 500 mm.	
Clean/contingency contaminated water ponds (Pond 1 and Pond 2)	• For storage and evaporation of clean stormwater and contaminated water (where required as a contingency). • Contaminated water must only be received from Pond 4 and Pond 5, and only in the event those ponds have reached capacity. • Double lined with 1.5 mm thick HDPE to achieve a permeability of less than 1 x 10^{-9} m/s. • Includes tell tales for leak detection. • Maintained with a minimum operational freeboard of 500 mm.	
Treated effluent ponds (Pond 3 and Pond 6)	• For storage and evaporation of treated effluent received from the ATUs. • Lined with 1.5 mm thick HDPE to achieve a permeability of less than 1 x 10^{-9} m/s. • Maintained with a minimum operational freeboard of 500 mm.	

Site infrastructure and equipment	Operational requirements	Infrastructure location
Bulk TAN storage building	• Storage of bulk TAN shall only be undertaken within the Bulk TAN storage building. • Positive pressure shall be maintained within the building to minimise the ingress of air. • The building must be sufficiently sealed, and have air curtains or equivalent in operation at entrances, to minimise the egress of air from the building.	
TAN bagging, storage and staging are	• Bagging of bulk TAN must only be undertaken within the TAN bagging facility. • When bag filling is undertaken, the opening between the loading arm and bag must be sealed.	
TAN truck loading facility	Truck loading must be undertaken: • within the truck loading facility; • with a retractable loading arm installed with dust shrouds; and • on a concrete pad that directs runoff to the contaminated water collection system.	
TAN Off-spec area	Off-spec TAN must be stored: • within roofed storage bays; and • on a concrete floor that directs runoff to the contaminated water collection system.	
Seawater cooling circuit pipeline	A daily visual inspection of the pipeline must be undertaken and a record of each inspection must be maintained.	
Aerobic treatment units (ATU)	• Production must not exceed 10.8 m^3 per day. • Treated effluent may only be discharged to the treated effluent ponds (Pond 3 or Pond 6).	

Emissions and discharges

Discharges to air

2. The licence holder must ensure that emissions specified in Table 2 are discharged only from the corresponding discharge point and only at the corresponding discharge point location set out in Table 2.

Table 2: Authorised discharge points to air

Emission	Discharge point	Discharge point height (m)	Discharge point location As shown in Schedule 1: Map of authorised discharge point locations
NH_3, PM	Common stack	70	Discharge point A1
NO_x, NH_3, N_2O	Nitric acid plant stack	54	Discharge point A2
NH_3	Unit 31/32 vent	80	Discharge point A3
NH_3	Unit 12 vent	50	Discharge point A4
NOx	Nitric acid storage tank vent A	15	Discharge point A5
	Nitric acid storage tank vent B	15	Discharge point A6

3. The licence holder must ensure that emissions from the discharge points listed in Table 3 for the corresponding parameter do not exceed the corresponding limit when monitored in accordance with condition 6.

Table 3: Discharges to air limits

Discharge point	Emission	Limit (mg/m^3)
Common stack (A1)	PM	15
	NH_3	10
Nitric acid plant stack (A2)	NOx (as NO_2)	103[1]
	NH_3	0.75[1]
	N_2O	196[1]

Note 1: emission limits for the Nitric acid plant stack do not apply during Start-up.

4. The licence holder must ensure that emissions from the discharge point listed in Table 4 for the corresponding parameter do not exceed the corresponding limit during Start-up for the corresponding maximum period, as monitored in accordance with condition 6.

Table 4: Discharges to air limits - Start-up

Discharge point	Emission	Limit (mg/m^3)	Maximum period
Nitric acid plant stack (A2)	NOx (as NO_2)	1540	2 hours
	NH_3	11.5	

Noise emissions

5. The licence holder must ensure that noise emissions do not exceed the limit of 65 dB(A) when monitored in accordance with condition 13.

Monitoring

Discharges to air

6. The licence holder must monitor emissions:

(a) from the discharge point;

(b) at the corresponding monitoring location;

(c) for the corresponding parameter;

(d) at the corresponding frequency;

(e) for the corresponding averaging period;

(f) in the corresponding unit; and

(g) using the corresponding method

as set out in Table 5.

Table 5: Monitoring of discharges to air

Discharge point	Monitoring location	Parameter	Frequency	Averaging period	Unit [1,2]	Method [3,4]
Common stack (A1)	Schedule 1: Map of monitoring locations A1	Flow rate	Quarterly	60 minutes	m^3/s	USEPA Method 2
		PM			mg/m^3 g/s	USEPA Method 17
		NH_3				USEPA CTM 027
Nitric acid plant stack (A2)	Schedule 1: Map of monitoring locations A2	Flow rate	Continuous		m^3/s	CEMS
		NOx (as NO_2)			mg/m^3 g/s	
		NH_3				
		N_2O				
		N_2O				
Unit 31/32 vent (A3)	Schedule 1: Map of monitoring locations A3	Flow rate	A minimum of three monitoring events, at least 7 days apart, to be conducted within 3 months of the TAN Plant achieving steady-state production.		m^3/s	USEPA Method 2
		NH_3			mg/m^3 g/s	As per the methodology submitted to meet the requirements of condition 15

Note 1: Concentrations for the Common stack to be corrected to STP dry.
Note 2: Concentrations for the nitric acid plant stack to be corrected to STP at 17% oxygen on a dry basis
Note 3: Duplicate sample runs conducted consecutively on the same sampling day.
Note 4: Where any USEPA method refers to USEPA Method 1 for the sampling plane, this must be read as a referral to AS/NZS 4323.1:2001.

7. The licence holder must ensure that quarterly monitoring is undertaken such that there are at least 45 days in between the days on which samples are taken.

8. The licence holder must ensure that sampling required by condition 6 is undertaken at sampling locations in accordance with the current version of AS 4323.1 or relevant part of the CEMS Code.

9. The licence holder must ensure that all non-continuous sampling and analysis undertaken required by condition 6 is undertaken by a holder of NATA accreditation for the relevant methods of sampling and analysis.

10. For any CEMS operated in accordance with condition 6 the licence holder must ensure that the CEMS is operated, maintained and calibrated in accordance with the CEMS Code.

Ambient air quality

11. The licence holder must monitor the air for concentrations of the parameter listed in Table 6:

    (a) at the corresponding monitoring location;

    (b) in the corresponding unit;

    (c) at no less that the corresponding frequency;

    (d) for the corresponding averaging period;

    (e) using the corresponding sampling method; and

    (f) the corresponding analytical method

    as set out in Table 6.

Table 6: Monitoring of ambient air concentrations

Parameter	Monitoring location	Unit	Frequency	Averaging Period	Sampling Method	Analytical Method
NH_3	Schedule 1: Map of monitoring locations AA5, AA6 and AA7	ppm	Continuous	NA	Diffusion Visible and audible alarm at 35 ppm	Electrochemical

Ambient groundwater

12. The licence holder must monitor the groundwater for concentrations of the parameters listed in Table 7:

    (a) at the corresponding monitoring location;

    (b) in the corresponding unit;

    (c) at no less that the corresponding frequency;

    (d) for the corresponding averaging period;

    (e) using the corresponding sampling method; and

    (f) the corresponding analytical method

    as set out in Table 7.

Table 7: Monitoring of ambient groundwater concentrations

Parameter [2,3,4]	Monitoring location	Unit	Frequency	Averaging Period	Method	
					Sampling	Analytical
pH [1]	Schedule 1: Map of monitoring locations US2, DS1, DS2, DS3, DS4, DS5, DS6, DS7 and DS8	NA	Quarterly	Spot sample	AS/NZS 5667.11	NATA accredited
Electrical conductivity [1]		µS/cm				
Redox potential [1]		mV				
Temperature [1]		°C				
Dissolved Oxygen [1]		%				
Ammonia as ammoniacal nitrogen (NH_3-N)		µg/L				
Nitrate and nitrite						
Aluminium						
Cadmium						
Chromium (III)						
Chromium (VI)						
Copper						
Nickel						
Lead						
Sulfate						
Total dissolved solids						
Total Kjeldal nitrogen						
Total nitrogen as N and total oxidised						
Total recoverable hydrocarbons						
Total phosphorus as P						
Total organic carbon						
Total alkalinity						
Major cations (K^+, Na^+, Ca^{2+},Mg^{2+})						
Zinc						

Note 1: In-field non-NATA accredited analysis permitted. Samples must be measured in a flow-through cell.

Note 2: Limits of reporting must be lower than the site-specific trigger values established for groundwater contaminants in accordance with condition 8-4 of Ministerial Statement 870 (10% above the baseline contaminant concentrations).

Note 3: Ultra-trace analysis must be used where possible if matrix interference causes a consequential increase of the limits of reporting.

Note 4: Metal samples are to be filtered for analysis

Noise emissions

13. The licence holder must monitor noise:

(a) at the corresponding monitoring location;

(b) in the corresponding unit;

(c) at no less that the corresponding frequency;

(d) for the corresponding averaging period; and

(e) using the corresponding monitoring method

as set out in Table 8.

Table 8: Monitoring of noise

Parameter	Monitoring location	Unit	Frequency	Averaging Period	Monitoring method
Noise $L_{A\ 10}$	Schedule 1: Map of monitoring locations N4	dB	Quarterly	Not less than 15 minutes, and not more than 4 hours	Part 3 – Noise measurement *Environmental Protection (Noise) Regulations 1997*

14. The licence holder must ensure that quarterly monitoring is undertaken such that there are at least 45 days in between the days on which samples are taken.

Improvements

15. Within two months of the TAN plant achieving steady state production following the commencement of the licence, the licence holder must submit to the CEO:

(a) a proposed methodology for sampling and analysis of NH_3 emissions from the Unit 31/32 vent; and

(b) a peer review of the proposed methodology conducted by a holder of NATA accreditation for stack sampling and analysis.

16. The licence holder must submit to the CEO, by no later than 30 June 2020, a scope of work, based on the requirements of the *Department of Environment Air Quality Modelling Guidance Notes (2006),* to conduct revised air quality modelling to assess the predicted impact on air quality of discharges to air from the Unit 31/32, at relevant sensitive receptor locations.

17. The licence holder must conduct revised air quality modelling in accordance with the scope of work submitted to meet the requirements of condition 16, and within one month of the completion of monitoring of Unit 31/32 vent in accordance with the requirements of condition 6, must submit to the CEO:

(a) a report on the outcomes of the revised air quality modelling; and

(b) all raw data files developed for the air quality model.

Records and reporting

18. The licence holder must maintain accurate and auditable books including 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 condition 1 of this licence;

(c) monitoring undertaken in accordance with conditions 6, 11, 12, and 13 of this licence; and

(d) complaints received under condition 20 of this licence.

19. The books specified under condition 18 must:

(a) be legible;

(b) if amended, be amended in such a way that the original versions(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.

20. The licence holder must record the following information in relation to complaints received relating to 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.

21. For each start-up of the TAN plant, the licence holder must notify the CEO in writing, within seven days of the following:

(a) the date when start-up occurred, and

(b) the date when steady state production was achieved following start-up.

22. The licence holder must, within seven days of becoming aware of any non-compliance with conditions 3, 4 and 5 of this licence, notify the CEO in writing of that non-compliance and include in that notification the following information:

(a) which condition was not complied with;

(b) the time and date when the non-compliance occurred;

(c) if any environmental impact occurred as a result of the non-compliance and if so what that impact is and where the impact occurred;

(d) the details and result of any investigation undertaken into the cause of the non-compliance;

(e) what action has been taken and the date on which it was taken to prevent the non-compliance occurring again; and

(f) what action will be taken and the date by which it will be taken to prevent the non-compliance occurring again.

23. 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 90 days after the end of that annual period an Annual Audit Compliance Report in the approved form.

24. The licence holder must submit to the CEO by no later than 90 days after the end of each annual period, an annual environmental report for that annual period for the conditions listed in Table 9, and which provides information in accordance with the corresponding requirement set out in Table 9.

Table 9: Reporting requirements – Annual Environmental Report

Condition	Requirement
6 Monitoring of discharges to air	Tabulated monitoring data results and time-series graphs in Microsoft Excel format for each monitoring location showing concentrations of all parameters over a minimum three year period (where sufficient data allows). An interpretation of the monitoring data including comparison to historical trends and emission limits. Copies of original monitoring, laboratory and analysis reports submitted by third parties.
	A summary of TAN Plant startup and shutdown events including dates, times, durations, reasons for each event, characterisation and quantification of gases vented during each event, and commentary on how the emissions compared with inputs used in previous modelling for the TAN Plant.
11 Ambient air monitoring	Summary of alarm threshold exceedances and actions taken.
12 Groundwater monitoring	Tabulated monitoring data results and time-series graphs in Microsoft Excel format for each monitoring location showing concentrations of all parameters over a minimum three year period (where sufficient data allows). An interpretation of the monitoring data including comparison to historical trends and emission limits (where relevant). Copies of original monitoring, laboratory and analysis reports submitted by third parties (where relevant).
13 Noise monitoring	
20 Complaints	Summary of complaints received and any action taken to investigate or respond to any complaint

Definitions

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

Table 10: Definitions

Term	Definition
ACN	Australian Company Number
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 January until 31 December.
approved form	the AACR Form template approved by the CEO for use and available via DWER's external website.
AS 4323.1	means the Australian Standard *AS 4323.1 Stationary source emissions selection of sampling positions*
AS/NZS 2031	means the Australian Standard *AS/NZS 2031 Selection of containers and preservation of water samples for microbiological analysis*
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 5667.10	means the Australian Standard *AS/NZS 5667.10 Water quality – sampling – guidance on sampling of waste waters*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water quality – sampling – guidance on sampling groundwater*
ATU	Aerobic Treatment Unit
books	has the same meaning given to that term under the EP Act.
CEMS	Continuous Emission 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
CEO	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
condition	a condition to which this works approval / licence is subject under section 62 of the EP Act.

Term	Definition
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
HDPE	High Density Polyethylene
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
licence	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.
licence holder	means the occupier of the premises, being the person to whom this licence has been granted, as identified on the front of this licence.
NATA	means the (Australian) National Association of Testing Authorities.
N_2O	Nitrous oxide
NH_3	Ammonia
NOx	Nitrogen oxides
PM	Particulate Matter
Premises	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 of this licence.
prescribed premises	has the same meaning given to that term under the EP Act.
Start-up	the period between the ignition of the Ammonia reactor and the activation of the DeNOx reactor in the Nitric acid plant.
Steady state production	means the continuous operation of the TAN plant for 7 consecutive days with daily production varying by less than 5% from ammonium nitrate solution plant and TAN prilling plant production targets of 965 tpd and 915 tpd respectively.
STP	Standard Temperature and Pressure (273.15K and 101.32 kPa)
TAN	Technical Ammonium Nitrate
tpd	tonnes per day

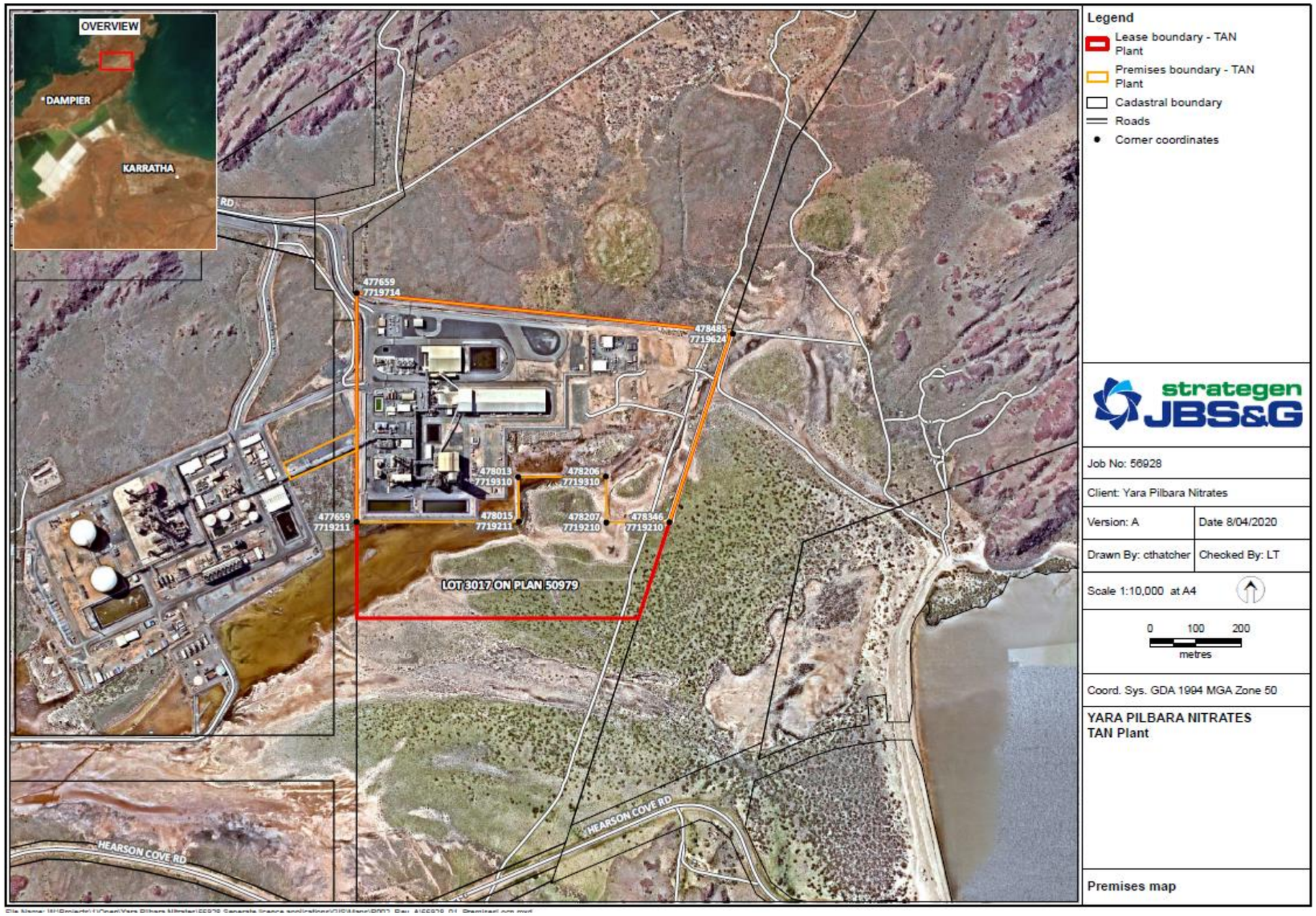
Term	Definition
USEPA	United States (of America) Environmental Protection Agency
USEPA Method 2	means USEPA Method 2 *Determination of Stack Gas Velocity and Volumetric Flow Rate (type s pitot tube)*
USEPA Method 17	means USEPA Method 17 *Determination of Particulate Matter from Stationary Sources*
USEPA Method CTM 027	means Conditional Test Method 027 – Procedure for Collection and Analysis of Ammonia in Stationary Sources
Usual working day	means 0800-17000 hours, Monday to Friday excluding public holidays in Western Australia

END OF CONDITIONS

Schedule 1: Maps

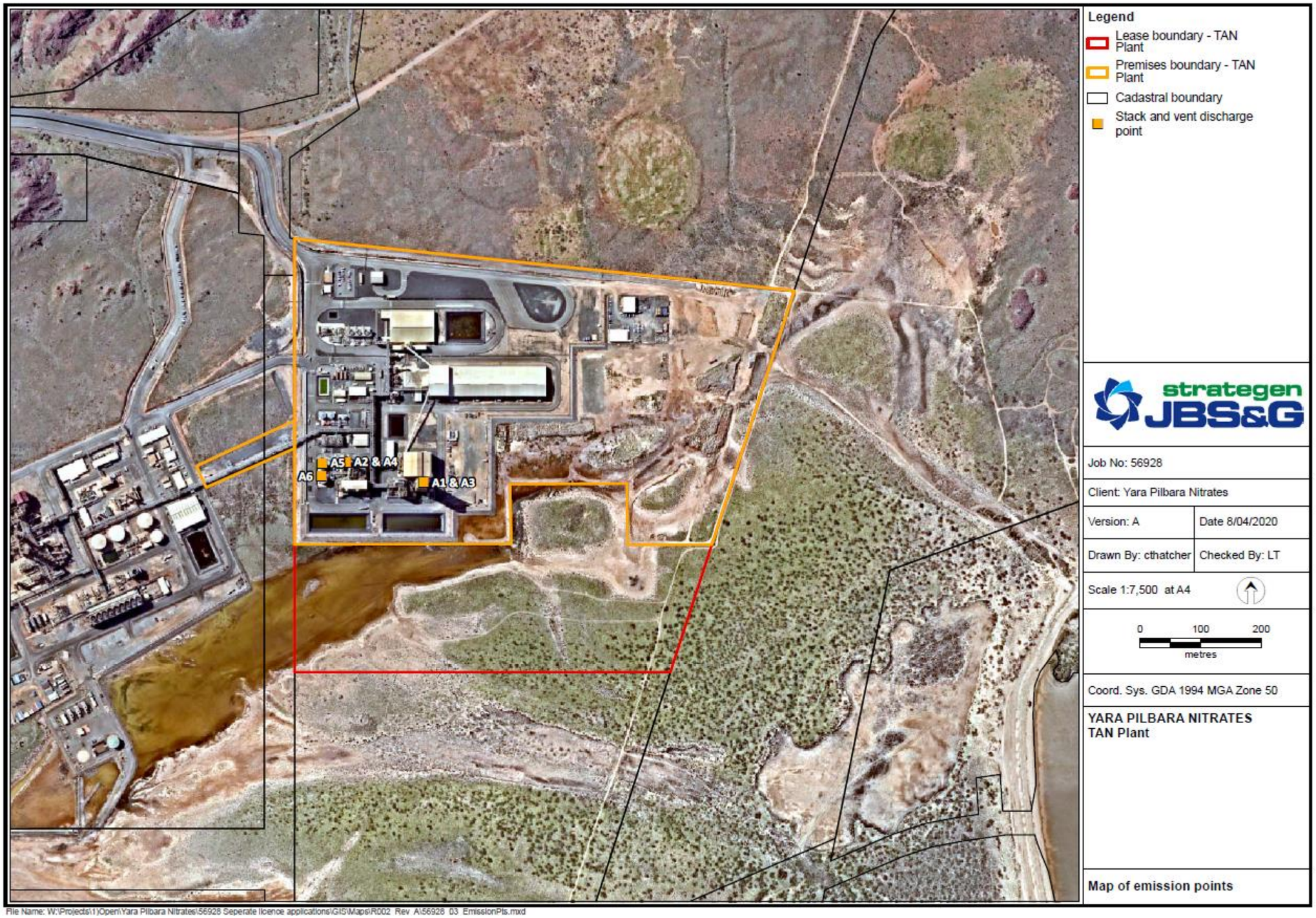
Premises map

The boundary of the prescribed premises is shown in orange in the map below.

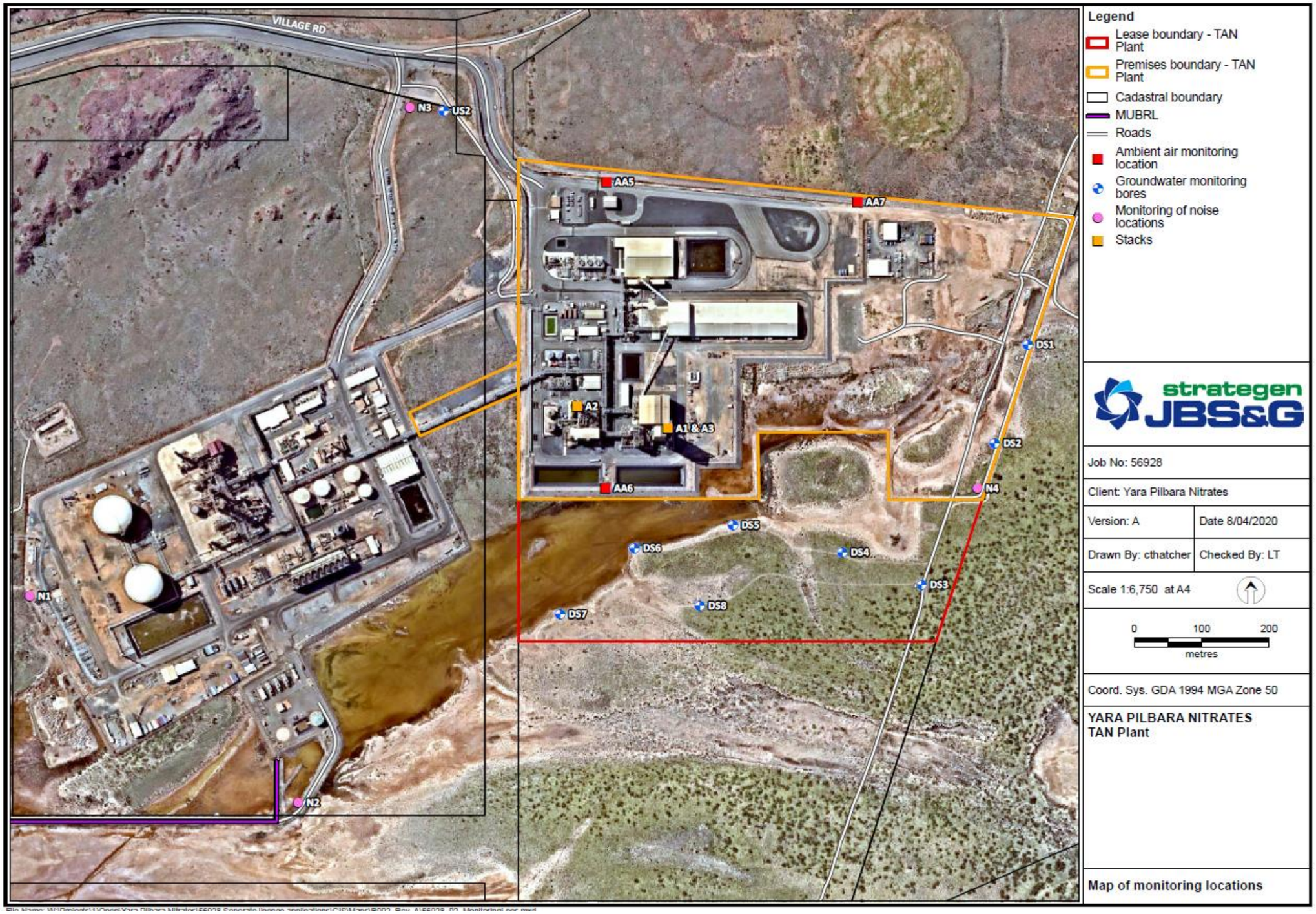


Map of infrastructure locations

Map of authorised discharge point locations



Map of monitoring locations



Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 11.

Table 11: Premises boundary coordinates (MGA 94)

Easting	Northing	Zone
477659	7719714	50
478485	7719624	50
478346	7719210	50
478207	7719210	50
478206	7719310	50
478013	7719310	50
478015	7719211	50
477659	7719211s	50