Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence Number	L5646/1994/10
Licence Holder **ACN**	Iluka Resources Limited 008 675 018
Registered business address	Level 17, 240 St Georges Terrace PERTH WA 6000
File Number	DER2016/000799
Duration	01/04/2015 to 30/01/2031
Date of amendment	03/09/2020
Premises details	Eneabba Mineral Sands Mine Brand Hwy ENEABBA WA 6518 Legal description - Being part of mining tenements AM70/2667 and M70/879 as depicted in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.	18,600,000 tonnes per annual period
Category 63: Class I inert landfill site: premises on which waste (as determined by referenced to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the CEO and as amended from time to time) is accepted for burial.	5,000 tonnes per annual period

This amendment is granted to the licence holder, subject to the attached conditions, on 3 September 2020, by:

Lauren Fox Digitally signed by Lauren Fox Date: 2020.09.03 09:51:59 +08'00'

Lauren Fox

A/MANAGER, RESOURCE INDUSTRIES

REGULATORY SERVICES

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

Licence history

Date	Instrument	Summary of changes
26/02/2007	L5646/1994/8	Licence renewed. Issued for 3 years. Tyre disposal conditions removed; altered monitoring requirements for Max's dam.
25/03/2010	L5646/1994/8	Licence renewed. AACR condition added.
01/12/2011	W5057/2011/1	Works Approval for construction of a temporary 12 MW gas-fired power station.
26/03/2015	L5646/1994/10	Licence renewed.
14/04/2016	L5646/1994/10	Licence review and amendment to authorise disposal of monazite from Narngulu with ASS characteristics at the Eneabba Monazite Disposal Pit. Ambient monitoring conditions updated to specify the physical location.
29/04/2016	L5646/1994/10	Amendment by notice to extend duration of licence to 2031.
20/10/2016	L5646/1994/10	Amendment Notice 1: Licence amendment to relocate ambient air monitoring location 'AQ2'.
22/08/2017	L5646/1994/10	Amendment Notice 2 – reduction of environmental monitoring requirements for low risk areas.
24/04/2019	L5646/1994/10	Amendment Notice 3 – reduction of environmental monitoring requirements given non-operating status. Conditions added to enable progression towards mine closure and relinquishment.
05/08/2019	W6251/2019/1	Works Approval for the construction of associated infrastructure for the Eneabba Mineral Sands (Monazite) Recovery Project Phase 1
07/02/2020	L5646/1994/10	Amalgamation of amendment notices and some administrative corrections including updated Department's contacts. During this amalgamation no risk assessment of the Premises was undertaken.
24/06/2020	L5646/1994/10	Amendment to update waste disposal locations and a dust monitoring location.
03/09/2020	L5646/1994/10	Licence amendment for the operation of the Eneabba Mineral Sands (Monazite) Recovery Project Phase 1

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 means the version of the standard, guideline, or code of practice in force at the time of granting of this licence and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the licence;
(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:

Premises operation

1. The licence holder shall ensure that all thickener underflow, tailings, clay slimes disposal, vehicle washdown and return water pipelines are:

(a) equipped with automatic cut-outs in the event of a pipe failure; or
(b) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; or
(c) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures.

2. The licence holder must ensure that materials listed in Table 1 are only discharged into the corresponding infrastructure specified in that table.

Table 1: Containment infrastructure table

Infrastructure	Material	Infrastructure description / requirements
Mined out voids, cells within operating pits, external TSFs	Sand and clay/slimes tails	• Must be constructed as an erosion-resistant, non-polluting structure which is stable in the long term; • Decant overflow drains to the process water pond; • Water levels to be maintained at least 500 mm below the top of the wall.
Slimes Disposal Dam	Clay slimes from the thickener	• Must be constructed as an erosion-resistant, non-polluting structure which is stable in the long term; • Decant overflow drains to the process water dam; • Water levels to be maintained at least 500 mm below the top of the wall; Must be pumped as a thickened slurry to: • the clay slimes disposal dam as depicted in the Tailings map in Schedule 1; OR • used as dust suppressant on exposed areas within the Premises
EMP Resource Pit	Sand tailings and oversize	Must be returned to the EMP for disposal as depicted in the Tailings map in Schedule 1.
Process water pond	Process water[1]	None specified.
Process water dam	Process water, decant overflow water, surface water and stormwater runoff from the process plant and mineral concentrate stockpile area	• Must be lined with HDPE of at least 1.0 mm thickness; • Water levels to be maintained at least 500 mm below the top of the wall; • Specified in Eneabba Monazite Recovery Project: Site features in Schedule 1

Note 1: Tails return water, recycled process water.

3. The licence holder must ensure that the containment infrastructure listed in Table 1 is maintained and operated in accordance with the corresponding infrastructure description/requirements set out in Table 1.

4. The licence holder must ensure that the site infrastructure and equipment listed in

Table 2 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 2.

Table 2: Infrastructure and equipment requirements

Site infrastructure and equipment	Operational requirement	Infrastructure location
Mobile screening unit (in-pit)	• Design capacity: 800 tph;	Schedule 1 - Eneabba Monazite Recovery Project: Site features and Plant site layout
Feed stockpile area	• Must be constructed with overburden material or similar and track rolled with a dozer; • Dimensions: 45 m x 40 m	
Feed hopper and conveyor	• None specified	
Oversize screen		
Wet vibrating screen		
2 x Desliming cyclones	• Design capacity: 60 tph;	
Thickener tank	• Design capacity: 15 tph (slimes);	
Product concentrate storage area	• Dimensions: 40 m x 40 m; • Must be equipped with a sub-surface drainage system comprising drainage pipework, aggregate, geofabric and clean fill sand;	
Process plant area	• Must be equipped to contain all surface water runoff from the process plant area to within the operational footprint, for return to the process water dam;	
Pipelines containing clay slimes / vehicle wash down	• Automatic cut-outs in the event of a pipe failure; OR • Secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR • Telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;	
Vehicle wash down bay	• None specified.	

5. The licence holder must undertake inspections as detailed in

(a) Table 3;
(b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
(c) maintain a record of all inspections undertaken.

Table 3: Inspection of infrastructure requirements table

Scope of inspection	Type of inspection	Frequency of inspection
Thickener underflow, tailings, clay slimes disposal, vehicle washdown and return water pipelines	Visual integrity and leak assessment	Daily, whilst operating
Mined out voids, cells within operating pits, external TSFs, Process Water Dam, EMP Resource Pit and Slimes Disposal Dam	Assessment of: • water levels; • condition and functionality of the underflow drains; • condition of walls; and • pump operational characteristics.	Daily, whilst operating

6. The licence holder shall only dispose waste on the premises if:

(a) it is of a type listed in Table 4;
(b) the quantity is below any quantity limit listed in Table 4; and
(c) it meets any specification listed in Table 4.

Table 4: Authorised waste types

Waste type	Quantity limit tonnes/year	Specification
Inert Waste Type 1 Special Waste Type 1	5,000 (combined)	• Industrial, non-recyclable waste only, including construction and demolition wastes such as building materials, vent bags, non-recyclable packaging, etc.; • Solid waste only; • Waste generated from Iluka Mid West Operations only; and • Contaminants must comply with CT1 criteria.
Monazite Concentrate	75,000	• Generated from Iluka Mid West Operations and Iluka South West Operations only.

7. The licence holder must ensure that wastes disposed on the Premises are only subjected to the processes set out in Table 5 and in accordance with any process limits described in that table.

Table 5: Waste processing requirements table

Waste type	Process	Process limits
Inert waste type 1	Disposal of waste by burial	• Shall only take placed within the 'Yellow Dam', the '250 dam', and the 'Red 17 pit', as depicted on the map of 'Tailings cells & waste disposal locations' in Schedule 1; and • No waste shall be burnt;
Special waste type 1		• Must be separated from other wastes for disposal; • Disposal must occur in a discrete asbestos disposal area within the 'Yellow Dam', the '250 dam', and the 'Red 17 pit', as depicted on the map of 'Tailings cells & waste disposal locations' in Schedule 1; • Must be covered with a layer of at least 2 metres of soil as soon as practicable and no later than the end of the working day that it was disposed; • A permanent record must be maintained of all disposal locations; and

Waste type	Process	Process limits
		• Must not be disposed within 2 metres of the final landform surface of the pit;
Monazite concentrate		• Shall only take placed within the 'Monazite Disposal Pit' as depicted on the map of 'Tailings cells & waste disposal locations' in Schedule 1; • Shall be disposed above the winter water table; and • Material with a pH of less than 4 and greater than 9 must be managed in accordance with section 5.0 of the Acid Sulfate Soils Management Plan, and disposed within a discrete location within the 'Eneabba Monazite Disposal Pit'.

8. The licence holder must ensure that sufficient cover is applied and maintained on landfilled wastes in accordance with Table 6.

Table 6: Waste cover requirements table

Waste type	Material	Timescale
Inert waste type 1	Clean fill or soil	• Monthly; and • Waste with the potential to become windblown must be covered as soon as practicable after deposit;
Monazite concentrate	Compacted overburden or similar	• Immediately after disposal.

Emissions

9. The licence holder must implement the controls specified in Column 1 of Table 7 in accordance with the actions/ requirements specified in Column 2 of Table 7.

Table 7: Dust controls table

Column 1	Column 2
Control	**Actions/Requirements**
Dust suppression	• Must operate water carts when discernible levels of dust are generated from ground surfaces on the Premises; • Must apply proactively to unsealed operational areas associated with MSRP (e.g. in the mining area, roadways, loading areas and process plant area); • Must ensure that any water used on the premises for dust suppression does not impact on the health of native vegetation;
Mining	• Must progressively remove overburden sheeting in the EMP in a manner that limits the area exposed to dust generation;
Stockpiles	• Monazite feed must be stockpiled within an earthen bunker containment area, fitted with a sprinkler system for watering the feed material; • Must operate a sprinkler system for watering stockpiled feed material during dry, windy conditions; • Mineral concentrate final product must be stockpiled within a bunker containment area; • Any spilled feed/product material must be removed regularly from the process plant area and returned to the stockpile(s);

Column 1	Column 2
Control	**Actions/Requirements**
Material handling	• Must implement loading and unloading procedures to ensure that dust emissions from material handling is minimised (e.g. minimise drop heights);
Traffic	• Must adhere to site speed limits and designated roads; • Must operate a vehicle wash down bay and ensure trucks loaded with finished product are washed prior to leaving the area

10. The licence holder must ensure that fugitive emissions are managed in accordance with the parts of the document specified in Table 8.

Table 8: Management plans table

Management plan reference	Parts	Date of document
Dust Management Plan	• 5.0 Implementation Strategy and Management Actions – Table 1 Summary of Management Actions for Dust; • 6.0 Monitoring – Table 2 Summary of Dust Monitoring Program.	April 2018

Monitoring (general)

11. The licence holder must ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all surface water sampling is conducted in accordance with AS/NZS 5667.6;
(c) all groundwater sampling is conducted in accordance with AS 2531 and AS/NZS 5667.11; 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.

12. The licence holder must ensure that:

(a) monthly monitoring is undertaken at least 15 days apart;
(b) quarterly monitoring is undertaken at least 45 days apart; and
(c) annual monitoring is undertaken at least 9 months apart.

13. The licence holder must ensure that all monitoring equipment used on the premises to comply with the conditions of this licence is calibrated in accordance with the manufacturer's specifications.

14. The licence holder must, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

Process monitoring

15. The licence holder must undertake monitoring of the parameters for the process listed in Table 9, in the corresponding units and the frequency specified in that table.

Table 9: Process monitoring table

Process description	Parameter	Units	Frequency
Processing of ore	Amount of ore processed through the mineral recovery plant	tonnes	Annual
	Amount of ore processed		
	Amount of mineral concentrate produced		
Secondary process tailings disposal	Amount of monazite concentrate disposed on the Premises	tonnes	Monthly
	Amount and location of sand tailings and clay slimes disposed on the Premises		

Ambient environmental monitoring

16. The licence holder must undertake monitoring of ambient groundwater quality at the locations and for the parameters listed in Table 10, in the corresponding units, over the averaging period and at the frequency set out in that table.

Table 10: Groundwater monitoring

Monitoring point reference	Parameter	Units	Averaging period	Monitoring frequency
EM78, EM90, EM91	Standing water level[1,2]	mAHD	Spot sample	Quarterly
	pH[1]	-		
	Electrical conductivity @ 25°C[1]	µS/cm		
	Major ions: bicarbonate, calcium, carbonate, chloride, magnesium, potassium, sodium, sulfate, total dissolved solids[1]	mg/L		
	Metals and metalloids: aluminium, arsenic, chromium (as CrVI and total Cr), cobalt, copper, iron, mercury, nickel, radium, radon, selenium, thallium, uranium, zinc			Annual

Note 1: In-field, non-NATA accredited analysis permitted.
Note 2: SWL to be determined prior to the collection of other samples.

17. The licence holder must undertake monitoring of ambient groundwater at the locations and for the parameters listed in Table 11 in the corresponding units, over the averaging period and at the frequency set out in that table.

Table 11: Ambient air quality monitoring

Monitoring point reference	Parameter	Units	Monitoring frequency	Averaging period	Method
ENE1 (Allied tails); ENE4 & 5 (Brand Hwy Sth); ENE7 (Allied tails); ENE8 (Eneabba town)	TSP	g/m^2	Continuous[1]	Monthly[2]	AS 3580.10.1

Note 1: Availability ≥90% of the measurement interval.

Note 2: During the period 1 October and ending 31 May the following year.

Records and reporting

18. All information and records required by the licence must:

(a) be legible;
(b) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;
(c) except for records listed in condition 18(d), be retained for at least 6 years from the date the records were made or until the expiry of the licence or any subsequent licence; and
(d) for those following records, be retained until the expiry of the licence and any subsequent licence:
    (i) off-site environmental effects; or
    (ii) matters which affect the condition of the land or waters.

19. 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 31 March in each year, an annual audit compliance report in the approved form.

20. The licence holder must implement a complaints management system that as a minimum records the number and details or complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

Annual environmental report

21. The licence holder must submit to the CEO, by 15 March in each year, an annual environmental report for the preceding annual period which includes, but is not limited to:

(a) details of the calculation of fees payable in respect of this licence;
(b) a summary of the process monitoring required by condition 15;
(c) monitoring reports required by conditions 16 and 17;
(d) a summary of any complaints received and management actions taken for each complaint; and
(e) a summary of any environmental incidents and any action(s) taken.

22. The licence holder must ensure the report required by condition 21 includes:

(a) an appraisal and trend analysis of the results against any baseline data and previous monitoring results; and
(b) time-series figures for all monitoring data, with axes presented on relevant scales.

Definitions

In this licence, the terms in Table 12 have the meanings defined.

Table 12: Definitions

Term	Definition
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).
ACN	means Australian Company Number
Acid Sulfate Soils Management Plan	means the document title 'Acid Sulfate Soils Management Plan – Midwest Operations – Eneabba Monazite Disposal Site', prepared by RPS Group for Iluka Resources Limited and dated August 2015
AHD	means Australian Height Datum
annual period	means a 12 month period commencing from 1 January until 31 December in the same year
AS 3580.1.1	means the Australian Standard AS 3580.1.1 *Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment*
AS 3580.10.1	means the Australian Standard AS 3580.10.1 *Methods for sampling and analysis of ambient air – Determination of particulate matter – deposited matter – gravimetric method*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.6	means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*
ASS	means acid sulfate soils, being soils or sediments which contain iron sulfides and/or other sulfidic minerals that have previously been oxidised to produce sulfuric acid (Actual Acid Sulfate Soils) or soils or sediments which contain iron sulfides and/or other sulfidic minerals that have not been oxidised (Potential Acid Sulfate Soils)
averaging period	means the time over which a limit is measured or a monitoring result is obtained
Books	has the same meaning given to that term under the EP Act
CEO	means the 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
condition	means a condition to which this licence is subject under s.62 of the EP Act
CT1 criteria	means the contaminate threshold (CT) values for a Class I landfill, as per Table 3 of the landfill definitions
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
Department Request	means a request for Books or other sources of information to be produced, made by an Inspector or CEO to the Works Approval Holder in writing and sent to the Works Approval's address for notifications, as described at the front of this Works Approval, in relation to: a) compliance with the EP Act or this Works Approval; b) the Books or other sources of information maintained in accordance with this Works Approval; or the Books or other sources of information relating to Emissions from the Premises
discharge	has the same meaning given to that term under the EP Act
DWER	means the Department of Water and Environmental Regulation
Dust Management Plan	means the document titled 'Dust Management Plan – Eneabba Operations', prepared by Iluka Resources and dated April 2018
emission	has the same meaning given to that term under the EP Act
EMP	means the (Eneabba) Monazite Pit, defined in the Premises Map in Schedule 1
EMRP	Means the Eneabba Monazite Recovery Project
Environmental Harm	has the same meaning given to that term under the EP Act
EP Act	means the *Environmental Protection Act 1986* (WA)
EP Regulations	means the *Environmental Protection Regulations 1987* (WA)
HDPE	means high density polyethylene
Iluka Mid West Operations	means the Narngulu Synthetic Rutile Plant, Narngulu Mineral Separation Plant and Eneabba Mineral Sands Mine
Iluka South West Operations	means the North Capel dry plant and synthetic rutile plant, the Capel dry mill and the Tutunup South mine
Inert Waste Type 1	has the same meaning given to that term in the Landfill Definitions and means a non-hazardous, non-biodegradable (half-life greater than 2 years) waste containing contaminant concentrations less than Class I landfill acceptance criteria but excluding paper and cardboard and materials that require treatment to render them inert (e.g. peat, acid sulfate soils)
landfill definitions	means the document entitled 'Landfill Waste Classification and Waste Definitions 1996' published by the CEO and as amended from time to time
licence	refers to this document, which evidences the grant of a licence by the CEO under s.57 of the EP Act, subject to the Conditions
licence holder	refers to the occupier of the premises being the person to whom this licence has been granted, as specified at the front of this licence
monazite concentrate	means monazite-rich mineral produced at the company's licensed mineral separation plants at Narngulu and North Capel
MSP	refers to (Narngulu) Mineral Separation Plant
MSRP	refers to Mineral Sands Recovery Project – which includes conveyor, mobile screening unit and de-sliming cyclones
NATA	National Association of Testing Authorities, Australia
NATA accredited	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

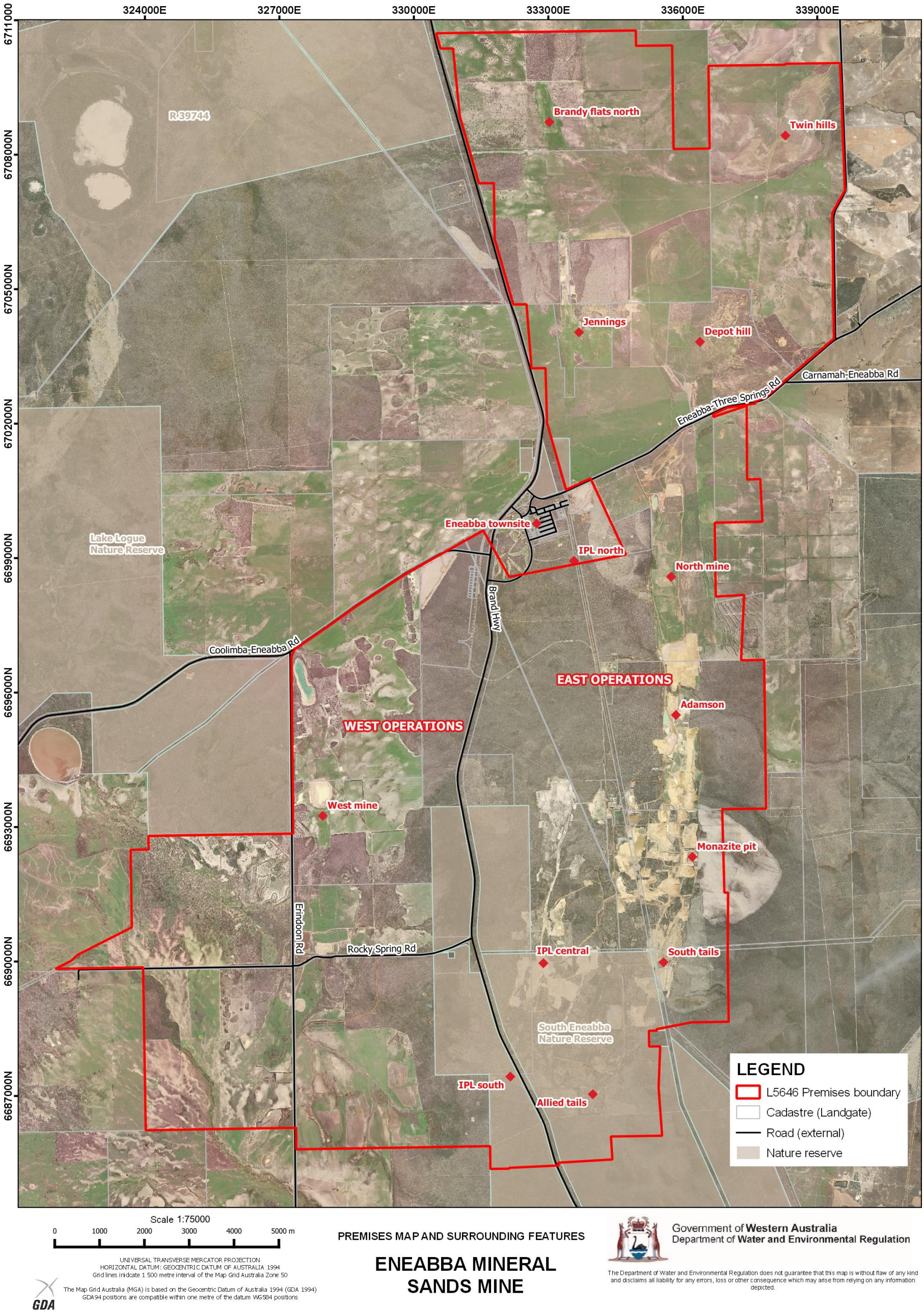
Premises	refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the map in Schedule 1 to this licence
prescribed premises	has the same meaning given to that term under the EP Act
quarterly	means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December in the same year
Special Waste Type 1	has the same meaning given to that term in the landfill definitions and means waste which contains asbestos and asbestos cement products
spot sample	means a discrete sample representative of the time and place at which the sample is taken
SWL	Standing Water Level
tph	tonnes per hour
TSF	means an engineered containment pond or dam used to store tailings
µS/cm	means microsiemens per centimetre

END OF CONDITIONS

Schedule 1: Maps

Premises map

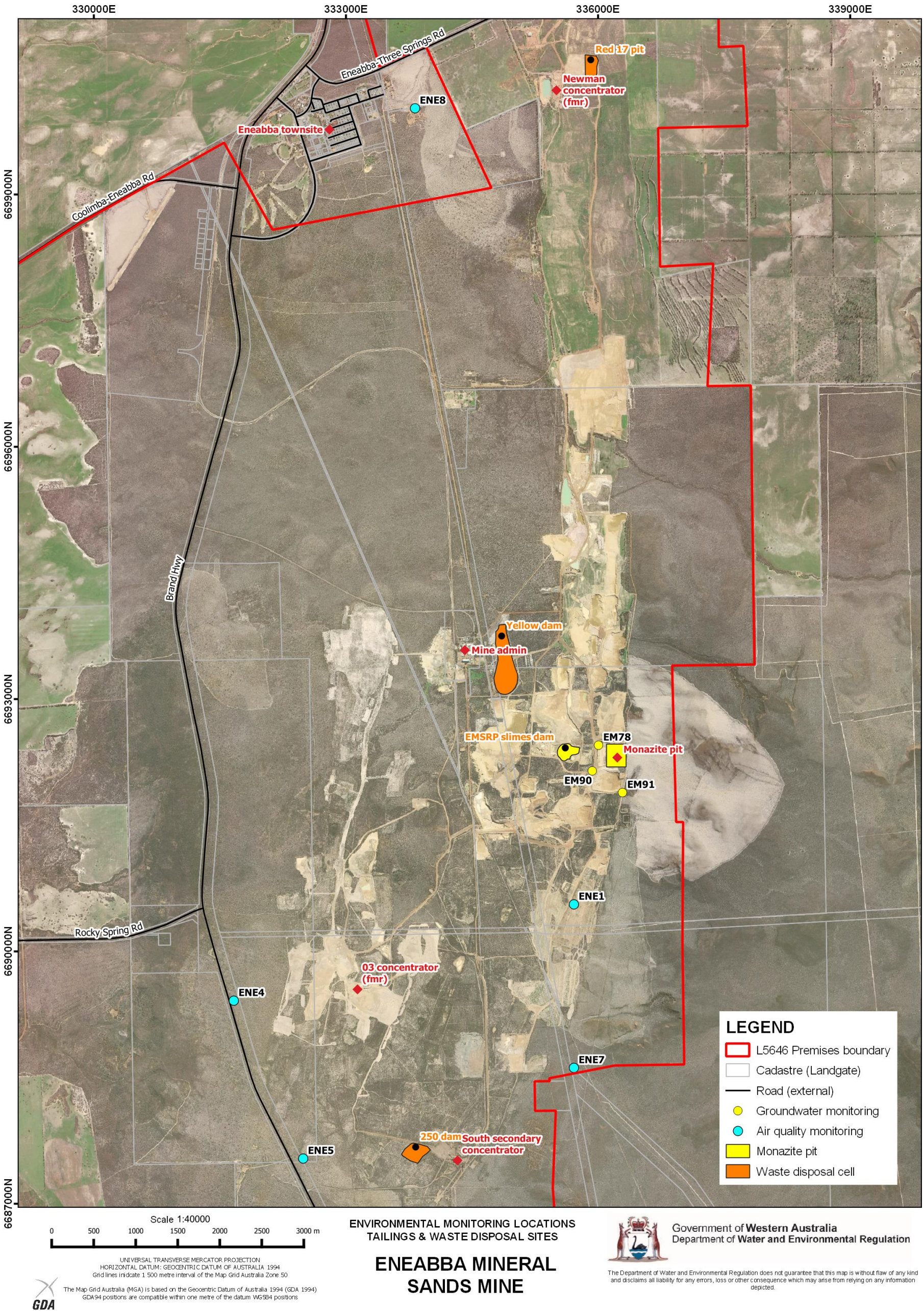
The boundary of the prescribed premises is shown in the map below.



Environmental monitoring, tailings cells and waste disposal sites

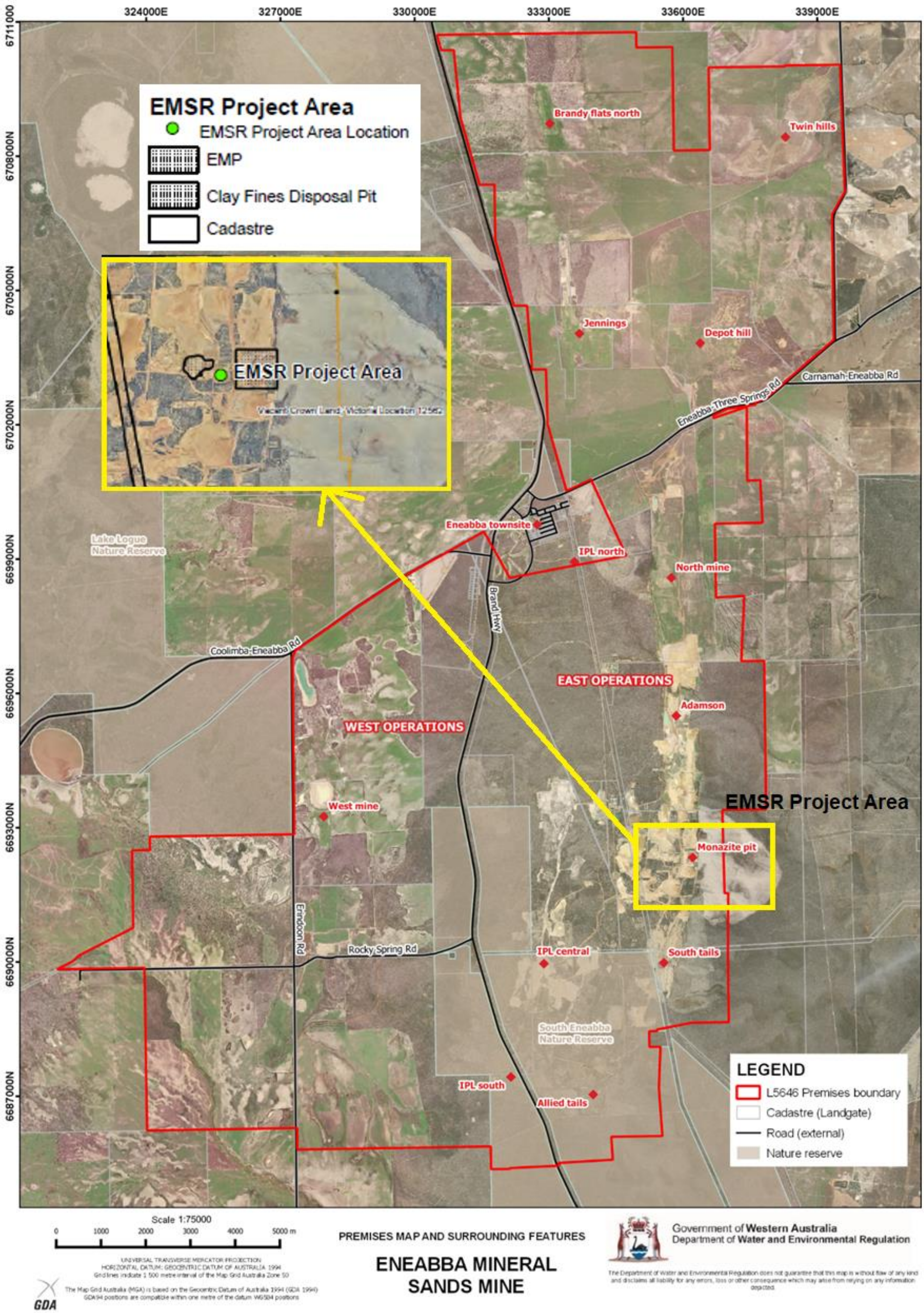
The location of groundwater and ambient air quality monitoring points are depicted in the map below.

The location of the mine voids authorised for tailings disposal and disposal of wastes are shown in the map below. The shaded areas depict the extent of each void.



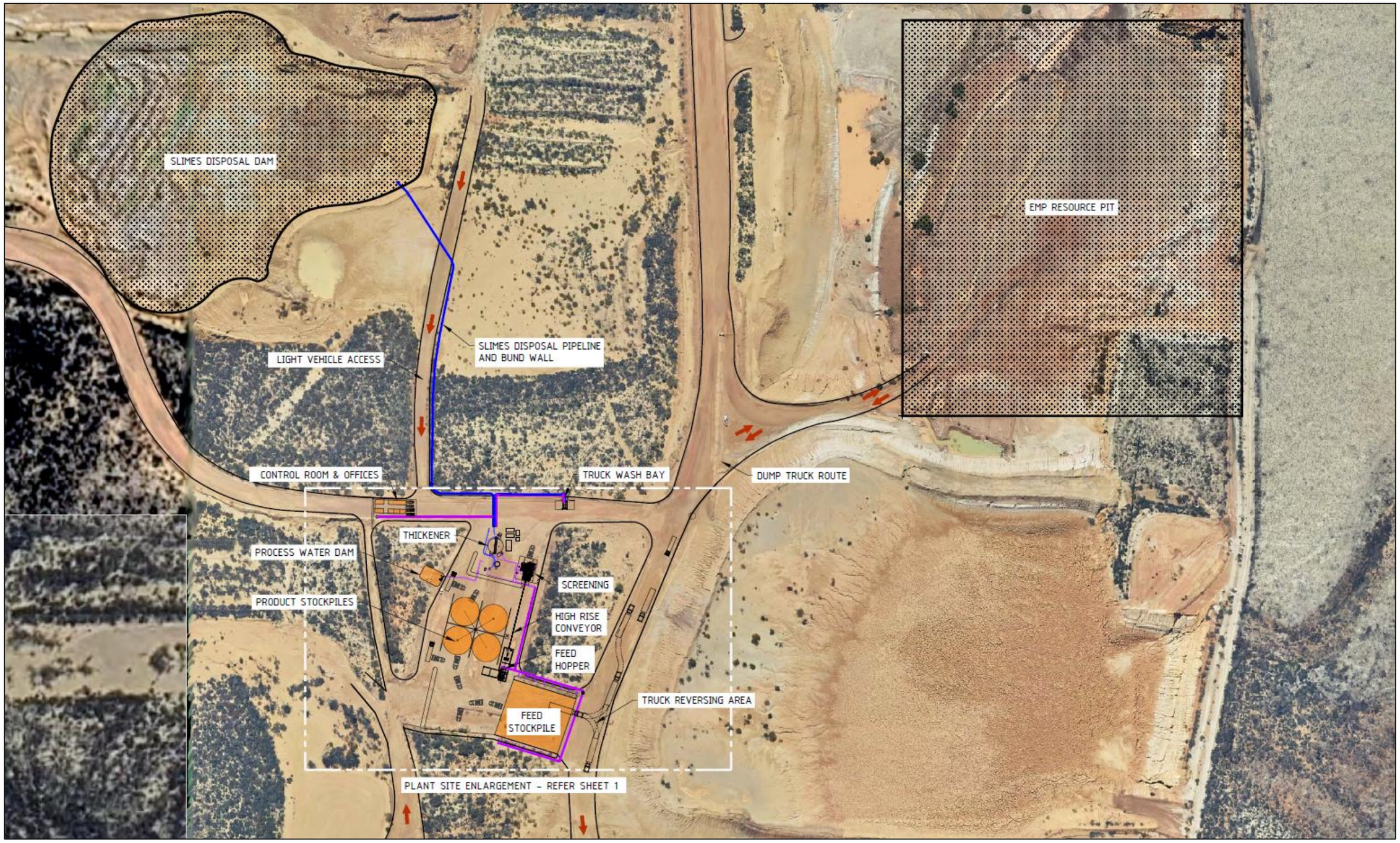
Insert of Eneabba Monazite Recovery Project Map

The sensitive receptors in relation to the EMRP and the project in relation to the rest of the prescribed premises



Eneabba Monazite Recovery Project: Site features

The main features relating to the EMRP are shown in the map below.



Eneabba Monazite Recovery Project: Plant site layout

The plant site layout and features are shown in the map below.