# Licence

| | |
|---|---|
| **Licence Number** | L7815/2001/11 |
| **Licence Holder** | Saracen Metals Pty Ltd |
| **ACN** | 107 154 727 |
| **Registered business address** | 89 St Georges Tce<br>PERTH WA 6000 |
| **DWER File Number** | 2012/006911-1 |
| **Duration** | 9/10/2014 to 20 October 2024 |
| **Date of issue** | 9 October 2014 |
| **Amendment Date** | 11 March 2020 |
| **Prescribed Premises** | Category 5 – Processing or beneficiation of metallic or non-metallic ore<br>Category 6 – Mine dewatering<br>Category 52 – Electrical power generation<br>Category 64 – Class II putrescible landfill<br>Category 73 – Bulk chemical storage<br>Category 85 – Sewage facility<br>As defined in Schedule 2 |
| **Premises** | North Eastern Goldfields Operations<br>Mining tenements L36/155, L36/157, L36/158, L36/181, L36/193, L36/199, L36/202, L37/61, L37/73, L37/142, L37/166, L37/181, L37/199, L37/215, L37/216, M36/35, M36/177, M36/421, M36/428, M36/462, M36/473, M36/494, M36/503, M36/504, M36/512, M36/525, M36/527, M36/541, M36/542, M36/582, M37/339, M37/340, M37/356, M37/357, M37/358, M37/359, M37/360, M37/361, M37/465, M37/367, M37/368, M37/437 and M36/599<br>LEINSTER WA 6437<br>As defined in Schedule 1 |

This Licence is granted to the Licence Holder, subject to the following conditions, as amended on 11 March 2020, by:

Tim Gentle

Digitally signed by Tim Gentle
Date: 2020.03.11 15:00:06 +08'00'

**Tim Gentle**
**Manager – Resource Industries**
**Regulatory Services**
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

# Introduction

This Introduction is not part of the Licence conditions.

**DWER's industry licensing role**

The Department of Water and Environment Regulation (DWER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DWER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DWER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DWER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DWER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

**Licence requirements**

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/ Licence Holder the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link: http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

**Licence fees**

If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non-payment of

annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

**Ministerial conditions**
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

**Premises description and Licence summary**
Saracen Mineral Holdings Limited is an Australian mid-tier gold producer. North Eastern Goldfields Operations, which include the Thunderbox and Waterloo operations, were purchased from Norilsk Nickel Australia Pty Ltd (Norilsk) in May 2014, under the subsidiary Saracen Metals Pty Ltd (Saracen). The site has remained in care and maintenance since 29 September 2007 at Thunderbox Operations and 2008 at the Waterloo nickel deposit. Both operations share power, processing facility, dewatering and mine camp facilities.

The Thunderbox operation consists of a processing plant with a potential capacity of 2.6 million tonnes per annum (Mtpa), two tailings storage facilities (TSFs), power station, one open pit, the underground Waterloo nickel mine and a 268 room camp. The processing plant at Thunderbox is a traditional carbon-in-leach (CIL) circuit. There also exists a wastewater treatment plant at the mine camp although this does not form part of the Licence as treated effluent is incorporated into the processing facility and is therefore not discharged to the environment.

***Amendment October 2015***
This Licence amendment is to allow the recommencement of Thunderbox Operations after an extended period of care and maintenance. Dewatering discharges to Double A Pit will start up at a rate of 450,000 kL to allow for a rapid drawdown of groundwater and safe mining of Thunderbox Pit before discharge rates plateau at approximately 310,000 kL. This amendment also increases approved throughput rates for the processing facility to 2.6 Mtpa compared to the nominated 50,000 tonnes when the site was in care and maintenance.

Until recently Saracen has only operated two diesel fired generators on site to produce less than 10 MW. However, the power station at Thunderbox has the capacity to produce 14.8 MW using seven LPG generators, four dual fuel generators and three diesel generators. To cater for the additional waste during production, Saracen will also be resuming the operation of a 4,000 tonne per annum landfill to accept industrial wastes only.

***Amendment April 2016***
Licence amendment to convert category 89 to 64 and add category 85 to the Licence.

***Amendment November 2016***
Licence amendment to add Bannockburn tenements and tenements for the connecting haul road and dewatering pipeline to Thunderbox as part of the North Eastern Goldfield Operations' Premises.
Removal of monitoring bore MB3 from groundwater monitoring condition as it was destroyed by the construction of the eastern waste dump southern extension. A correction was made to the description of the composition of the generators in the power plant. DER also made some administrative changes to the Licence consistent with the *Guidance Statement: Setting Conditions* and the revised format for Annual Audit Compliance Reports (AACRs). The form for AACRs is now available from the public DWER website: www.dwer.wa.gov.au

The licences and works approvals issued for the Premises for the five licences prior to issue of this Licence are:

| Instrument log | | |
|---|---|---|
| **Instrument** | **Issued** | **Description** |
| L7815/2001/8 | 21 October 2007 | Licence re-issue |
| L7815/2001/9 | 21 October 2008 | Licence re-issue |
| L7815/2001/10 | 21 October 2011 | Licence re-issue |
| L7815/2001/11 | 9 October 2014 | Licence re-issue and conversion to REFIRE format |
| L7815/2001/11 | 29 January 2015 | Licence amendment |
| L7815/2001/11 | 29 October 2015 | Licence amendment to move out of care and maintenance |
| L7815/2001/11 | 4 April 2016 | Licence amendment to add categories 64 and 85. |
| L7815/2001/11 | 11 November 2016 | Licence amendment to add Bannockburn tenements and tenements for the connecting haul road and pipeline to Thunderbox as part of the North Eastern Goldfield Operations' Premises. Removal of monitoring bore MB3. Correction to the power plant generators description. |
| L7815/2001/11 | 31 October 2017 | Amendment notice 1- Licence amendment to authorize construction of stage 6 embankment lift to TSF Cell A. |
| L7815/2001/11 | 11 April 2018 | Amendment notice 2 - Licence amendment to authorise expansion of TSF Cell A and Cell B to abut the Eastern Waste Dump. |
| L7815/2001/11 | 17 September 2018 | Amendment notice 3 - Licence amendment to increase category 5 to 3.0 mtpa and to include M36/177 within premises boundary. |
| L7815/2011/11 | This amendment. | This amendment – approval to construct and operate two mine dewater storage dams. Amalgamation of amendment notices and licence into one document. |

**Severance**

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

**END OF INTRODUCTION**

# Licence conditions

## 1 General

### 1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

**'Act'** means the *Environmental Protection Act 1986;*

**'Annual Audit Compliance Report'** means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO from time to time and published on the Department's website.

**'annual period'** means the inclusive period from 1 October until 30 September in the following year;

**'AS/NZS 5667.1'** means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

**'AS/NZS 5667.11'** means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters;*

**'averaging period**' means the time over which a limit is measured or a monitoring result is obtained;

**'CEO'** means CEO of the Department of Water and Environmental Regulation (DWER);

**'CEO'** for the purpose of correspondence means;

Director General
Department Administering the Environmental Protection Act 1986
Locked Bag 10, Joondalup DC
JOONDALUP, WA 6027
info@dwer.wa.gov.au

**'Clean fill'** has the meaning defined in Landfill Definitions;

**'Department'** means the department established under s.35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Division 3 Part V of the *Environmental Protection Act 1986.*

**'environmentally hazardous material'** means material (either solid or liquid raw materials, materials in the process of manufacture, manufactured products, products used in the manufacturing process, by-products and waste) which if discharged into the environment from or within the premises may cause pollution or environmental harm.

**'freeboard'** means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

**'HDPE'** means High Density Polyethylene;

**'Inert Waste Type 1'** has the meaning defined in Landfill Definitions;

**'Landfill Definitions'** means the document titled "Landfill Waste Classification and Waste Definition 1996" published by the Chief Executive Officer of the Department of Environment as amended form time to time;

**'Licence'** means this Licence numbered L7815/2001/11 and issued under the Act;

**Licence Holder'** means the person or organisation named as Licence Holder on page 1 of the Licence;

**'mbgl'** means metres below ground level;

**'NATA'** means the 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;

**'NOx'** means oxides of nitrogen, calculated as the sum of nitric oxide and nitrogen dioxide and expressed as nitrogen dioxide;

**'Premises'** means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'**PVC**' means Polyvinyl Chloride plastic;

**'quarterly'** means the 4 inclusive periods from 1 April to 30 June, 1 July to 30 September, 1 October to 31 December and in the following year, 1 January to 31 March;

**'Schedule 1'** means Schedule 1 of this Licence unless otherwise stated;

**'Schedule 2'** means Schedule 2 of this Licence unless otherwise stated;

'**Schedule 3'** means Schedule 3 of this Licence unless otherwise stated;

**'Six monthly'** means the two inclusive periods 1 October to 31 March and 1 April to 30 September;

**'spot sample'** means a discrete sample representative at the time and place at which the sample is taken;

**'STP dry'** means standard temperature and pressure (0o Celsius and 101.325 kilopascals respectively), dry;

'**TSF'** means Tailings Storage Facility;

**'USEPA'** means United States (of America) Environmental Protection Agency;

**'USEPA Method 5'** means the United States (of America) Environmental Protection Agency *Method 5 – Determination of Particulate Matter Emissions from Stationary Sources;*

**'USEPA Method 6C'** means the United States (of America) Environmental Protection Agency *Method 6C – Determination of Sulfur Dioxide Emissions from Stationary Sources;*

**'USEPA Method 7E'** means the United States (of America) Environmental Protection Agency *Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure);*

**'USEPA Method 10'** means the United States (of America) Environmental Protection Agency *Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)*

**'USEPA Method 17'** means the United States (of America) Environmental Protection Agency *Method 17 – Determination of Particulate Matter Emissions from Stationary Sources*

**'USEPA Method 29'** means the United States (of America) Environmental Protection Agency *Method 29 – Determination of Metals Emissions from Stationary Sources;* and

**'zone of influence'** means the area of a receiving environment with the potential to be altered or changed as a result of an emission or discharge.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

## 1.2 General conditions

1.2.1 The Licence Holder shall immediately recover, or remove and dispose of spills of environmentally hazardous materials which occur outside an engineered containment system.

## 1.3 Premises operation

1.3.1 The Licence Holder shall ensure that all pipelines containing either alkaline, saline, or acidic materials or cyanide are either:
(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.

1.3.2 The Licence Holder shall ensure that tailings are only stored in containment cells with the relevant infrastructure requirements and at the locations specified in Table 1.3.1.

**Table 1.3.1: Containment infrastructure**

| Containment cell or dam number(s) | Material | Infrastructure requirements |
|---|---|---|
| TSF cells A and B | Tailings | Lined with clay to achieve a permeability of at least $<10^{-8}$ m/s or equivalent |
| TSF cells 1, 2 and 3 (Bannockburn) | Tailings | Decommissioned TSF. |
| Process water dam - Thunderbox | Return tailings water | Lined with 1mm HDPE to achieve a permeability of at least $<10^{-9}$ m/s or equivalent |
| Mine dewatering dam - Thunderbox | Mine dewater | Lined with a 1.5mm HDPE Geotextile liner |
| Mine dewatering dam 2 – Thunderbox | Mine dewater | Lined with a 0.75mm UV resistant PVC liner. |

| | | |
|---|---|---|
| Mine dewatering dam – Otto bore | Mine dewater | Lined with a 0.75mm UV resistant PVC liner. |
| Mine Dewatering Dam - Bannockburn | Mine dewater | Lined with a 1.5mm HDPE Geotextile liner |

1.3.3 The Licence Holder shall manage containment cells in Table 1.3.1 such that:
- (a) For TSF cells, a minimum top of embankment freeboard of 500mm or containment of a 1 in 100 year/72 hour storm event (whichever is greater) is maintained; and
- (b) For other containment, a 300 mm freeboard is maintained.

1.3.4 The Licence Holder shall manage TSFs such that:
- (a) a seepage collection and recovery system is provided and used to capture seepage from the TSF; and
- (b) seepage is returned to the TSF or re-used in process.

1.3.5 The Licence Holder shall:
- (a) undertake inspections as detailed in Table 1.3.2;
- (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 1.3.2: Inspection of infrastructure**

| Scope of inspection | Type of inspection | Frequency of inspection |
|---|---|---|
| Tailings pipelines | Visual integrity | • Weekly during care and maintenance<br>• Daily during operations |
| Return water lines | Visual integrity | • Weekly during care and maintenance<br>• Daily during operations |
| Embankment freeboard on all containment infrastructure | Visual to confirm required freeboard capacity is available | • Weekly during care and maintenance<br>• Daily during operations |
| Dewatering pipelines | Visual integrity | • Daily during operations |

1.3.6 The Licence Holder shall undertake an annual water balance for the TSF cells A and B. The water balance shall as a minimum consider the following:
- (a) site rainfall;
- (b) evaporation;
- (c) decant water recovery volumes;
- (d) seepage recovery volumes; and
- (e) volumes of tailings deposited.

1.3.7 The Licence Holder shall ensure that where wastes produced on the Premises are not taken off-site for lawful use or disposal, they are managed in accordance with the requirements in Table 1.3.3.

| Waste type | Management strategy | Requirements |
|---|---|---|

| | | |
|---|---|---|
| Inert Waste Type 1 & 2 | Receipt, handling and disposal of waste by landfilling | All waste types<br>• No more than 5 000 tonnes per year of all waste types cumulatively shall be disposed of by landfilling.<br>• Disposal of waste by landfilling shall only take place within the landfill areas shown on the Emission Maps in Schedule 1;<br>• Waste shall be placed in a defined trench or within an area enclosed by earthen bunds; and<br>• The active tipping area shall be restricted to a maximum linear length of 30 metres.<br>• Construction, operation and decommissioning of landfill cells can occur within the defined landfill area providing there is no waste within:<br>• 100 m of any surface water body; and<br>• 3 m of the highest level of the water table aquifer. |
| Putrescible waste | | |
| Clean Fill | | |
| Other waste that meets the acceptance criteria for Class II landfills | | |

1.3.8 The Licence Holder shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.3.4 and that sufficient stockpiles of cover are maintained on site at all times.

**Table 1.3.4: Cover requirements**

| Waste Type | Material | Depth | Timescales |
|---|---|---|---|
| All waste | Inert and incombustible | 1000mm | Within three months of the final waste load in each trench |

1.3.9 The Licence Holder shall implement security measures at the landfill area to prevent as far as is practical, unauthorised access to the site.

1.3.10 The Licence Holder shall take all reasonable and practical measures to ensure that no windblown waste escapes from the landfill area and that windblown waste is collected on at least a monthly basis and returned to the active tipping area.

1.3.11 The Licence Holder must construct the infrastructure in Column 1 of Table 1.3.5 in accordance with the requirements specified in Column 2 and to plans and locations referenced in Column 3.

**Table 1.3.5: Infrastructure and equipment requirements**

| Column 1 | Column 2 | Column 3 |
|---|---|---|
| **Infrastructure / Equipment** | **Requirements (design and construction)** | **Site plan reference** |
| Mine dewatering dam 2 at Thunderbox Operations | • Lined with a 0.75mm UV resistant PVC liner;<br>• Fitted with a high water level shut off switch to prevent overtopping;<br>• Fence around perimeter of dam; and<br>• Fauna egress ladders/nets to be installed at each corner of turkeys nest. | Schedule 1, Figure 2 |

| | | |
|---|---|---|
| Mine dewatering dam at Otto Bore Operations. | • Lined with a 0.75mm UV resistant PVC liner;<br>• Fitted with a high water level shut off switch to prevent overtopping;<br>• Fence around perimeter of dam;<br>• Fauna egress ladders/nets to be; and installed at each corner of turkeys nest | Schedule 1, Figure 4 |
| Pipelines | • All pipelines to be bunded or within v drains. | Not shown |

1.3.12 The Licence Holder must not depart from the requirements specified in Table 1.3.5 except:

(a) Where such departures are minor in nature and do not materially change or affect the infrastructure; and

(b) Where such departure improves the functionality of the infrastructure and does not increase the risks to public health, public amenity or the environment.

If condition 1.3.12(b) applies, then the Licence Holder must provide the CEO with a list of departures and demonstrate that these have not increased the risk to public health, public amenity or the environment.

1.3.13 The Licence Holder shall submit a construction compliance document to the CEO, following construction of the infrastructure listed in Table 1.3.5 and prior to operation.

1.3.14 The Licence Holder must ensure the construction compliance document:

(a) Is certified by a qualified engineer stating that each item of infrastructure specified in Table 1.3.5 has been constructed in accordance with the conditions of the Licence; and

(b) Be signed by a person authorised to represent the Licensee and contain the printed name and position of that person within the company; and

(c) Includes the groundwater bore logs for newly installed nested groundwater bores.

1.3.15 The Licence Holder shall operate Cell A of the TSF in accordance with the conditions of this Licence, following submission of the construction compliance document required by condition 1.3.13.

# 2 Emissions

## 2.1 General

2.1.1 The Licence Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of this Licence.

## 2.2 Point source emissions to air

2.2.1 The Licence Holder shall ensure that where waste is emitted to air from the emission points in Table 2.2.1, and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this Licence.

**Table 2.2.1: Emission points to air**

| Emission point reference as depicted in Schedule 1 | Emission point height (m) | Source, including any abatement |
|---|---|---|
| Carbon regeneration kiln stack | 21 | LPG |

| | | |
|---|---|---|
| Power station – 14 generators:<br>• LPG generators with a single stack;<br>• All others with a dual emissions stack. | 14 | 7 LPG Generators<br>4 Duel Fuel Generators<br>3 Diesel Generators |

2.2.2 The Licence Holder shall not cause or allow point source emissions to air greater than the limits listed in Table 2.2.2.

| **2.2.2: Cumulative point source emission limits to air** | | | |
|---|---|---|---|
| **Emission point Reference** | **Parameter** | **Limit (including units)[1]** | **Averaging period** |
| Carbon regeneration kiln stack | arsenic | 10 mg/m$^3$ for each element/analyte | Minimum 60 minute average |
| | antimony | | |
| | cadmium | | |
| | lead | | |
| | mercury | | |
| | vanadium | | |

Note 1: All units are referenced to STP dry

## 2.3 Fugitive emissions

2.3.1 The Licence Holder shall ensure that prior to, and during any disturbance to the following TSF components, these areas are continually wetted using water sprays, dribble bars or other suitable methods to ensure there is no visible windblown dust:

- The surface of the TSF
- The onsite roadways in the immediate vicinity of the TSF
- TSF embankments
- The 'TSF affected area', as denoted by Figure 6 in Schedule 1.

## 2.4 Emissions to land

2.4.1 The Licence Holder shall ensure that where waste is emitted to land from the emission point in Table 2.4.1 it is done so in accordance with the conditions of this Licence.

| **Table 2.4.1: Emissions to land** | | |
|---|---|---|
| **Emission point** | **Description** | **Source including abatement** |
| Eastern Waste Dump | Pipes feeding surface area of approximately 4.2 ha. | Treated effluent |

# 3 Monitoring

## 3.1 General monitoring

3.1.1 The Licence Holder shall ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;

(b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and

(c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

3.1.2 The Licence Holder shall ensure that quarterly monitoring is undertaken at least 45 days apart.

## 3.2 Monitoring of point source emissions to air

3.2.1 The Licence Holder shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

| Table 3.2.1: Monitoring of point source emissions to air | | | | | |
|---|---|---|---|---|---|
| **Emission point reference** | **Parameter** | **Units[1]** | **Averaging period** | **Frequence[2]** | **Method** |
| Carbon regeneration kiln stack | Arsenic, antimony, cadmium, lead, mercury, vanadium | $mg/m^3$ | Minimum 60 minutes | Annually | USEPA Method 29 |
| | Particulates | | | | USEPA Method 5 or 17 |
| Power station | Sulphur dioxide ($SO_2$) | $mg/m^3$ | Minimum 30 minutes | Annually | USEPA Method 6C |
| | Carbon monoxide (CO) | | | | USEPA Method 10 |
| | NOx | | | | USEPA Method 7E |
| | Particulates | | | | USEPA Method 5 or 17 |

Note 1: All units are referenced to STP dry
Note 2: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.

## 3.3 Ambient environmental quality monitoring

3.3.1 The Licence Holder shall undertake the monitoring in Table 3.3.1 according to the specifications in that table and record and investigate results that do not meet any limit specified.

| Table 3.3.1: Monitoring of ambient groundwater quality and tailings decant concentrations | | | | | |
|---|---|---|---|---|---|
| **Monitoring point reference and location** | **Parameter** | **Limit** | **Units** | **Averaging period** | **Frequency** |
| Monitoring bores, MB4, MB5, MB6, MB7S, MB7D, MB8S, MB8D | pH[1] | 6.0 to 9.0 | - | Spot sample | Quarterly |
| | Standing water level (SWL) | >4 | mbgl | | |
| | Total dissolved solids (TDS) | <1500 | mg/L | | |
| | Weak acid dissociable cyanide (WAD CN) | <0.5 | | | |
| | Arsenic (As) | <0.5 | | | |
| | Antimony (Sb) | - | mg/L | Spot sample | Six monthly |
| | Bicarbonate ($HCO_3$) | - | | | |
| | Calcium (Ca) | - | | | |
| | Carbonate ($CO_3$) | - | | | |
| | Cadmium (Cd) | - | | | |
| | Chloride (Cl) | - | | | |
| | Chromium (Cr) | - | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Cobalt (Co) | - | | | |
| | Copper (Cu) | - | | | |
| | Iron (Fe) | - | | | |
| | Lead (Pb) | - | | | |
| | Magnesium (Mg) | - | | | |
| | Manganese (Mn) | - | | | |
| | Mercury (Hg) | - | | | |
| | Molybdenum (Mo) | - | | | |
| | Nickel (Ni) | - | | | |
| | Nitrate ($NO_3$) | - | | | |
| | Potassium (K) | - | | | |
| | Selenium (Se) | - | | | |
| | Sodium (Na) | - | | | |
| | Sulphate ($SO_4$) | - | | | |
| | Thallium (Tl) | - | | | |
| | Total cyanide (CN) | - | | | |
| | Zinc (Zn) | - | | | |
| Decant (supernatant) pond of each operating Cell of the Tailings Storage Facility | Weak acid dissociable cyanide | 50 | mg/L | Spot sample | Quarterly |
| | Arsenic[1] | - | | | Weekly |

Note 1: In-field non NATA accredited analysis permitted

3.3.2 The Licence Holder shall, when standing water levels rise higher than 6 mbgl, provide the CEO with the following information:
- (a) the monitoring bore location;
- (b) the root cause analysis for the exceedances; and
- (c) a description of remedial measures taken or planned to be taken, including those taken to prevent recurrence of the exceedances.

# 4 Information

## 4.1 Records

4.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 4.1.1(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.

4.1.2 The Licence Holder shall ensure that:
(a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
(b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

4.1.3 The Licence Holder must submit to the CEO within 60 days after the annual period an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions in this Licence for the annual period.

4.1.4 The Licence Holder shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

## 4.2 Reporting

4.2.1 The Licence Holder shall submit to the CEO an Annual Environmental Report within 60 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

**Table 4.2.1: Annual Environmental Report**

| Condition or table (if relevant) | Parameter | Format or form[1] |
|---|---|---|
| - | Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken | None specified |
| Table 3.3.1 | Ambient groundwater monitoring | None specified |
| 4.1.3 | Compliance | Annual Audit Compliance Report (AACR) |
| 4.1.4 | Complaints summary | None specified |

Note 1: Forms are in Schedule 2

4.2.2 The Licence Holder shall ensure that the Annual Environmental Report also contains:
(a) any relevant process, production or operational data; and
(b) an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licence Holder shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

**Table 4.2.2: Non-annual reporting requirements**

| Condition or table (if relevant) | Parameter | Reporting period | Reporting date (after end of the reporting period) | Format or form[1] |
|---|---|---|---|---|
| - | Copies of original monitoring reports submitted to the Licensee by third parties | Not Applicable | Within 14 days of the CEOs request | As received by the Licensee from third parties |

Note 1: Forms are in Schedule 2

## 4.3 Notification

4.3.1 The Licence Holder shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

**Table 4.3.1: Notification requirements**

| Condition or table (if relevant) | Parameter | Notification requirement[1] | Format or form[2] |
|---|---|---|---|
| 2.1.1 | Breach of any limit specified in the Licence | Part A: As soon as practicable but no later than 5pm of the next usual working day.<br>Part B: As soon as practicable | N1 |
| 3.3.2 | Standing Water Level exceeding 6 mbgl | Within 7 calendar days of becoming aware of Standing Water Levels exceeding 6 mbgl | None specified |

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

# Schedule 1: Maps

## Premises map

The Premises are shown in the map below.

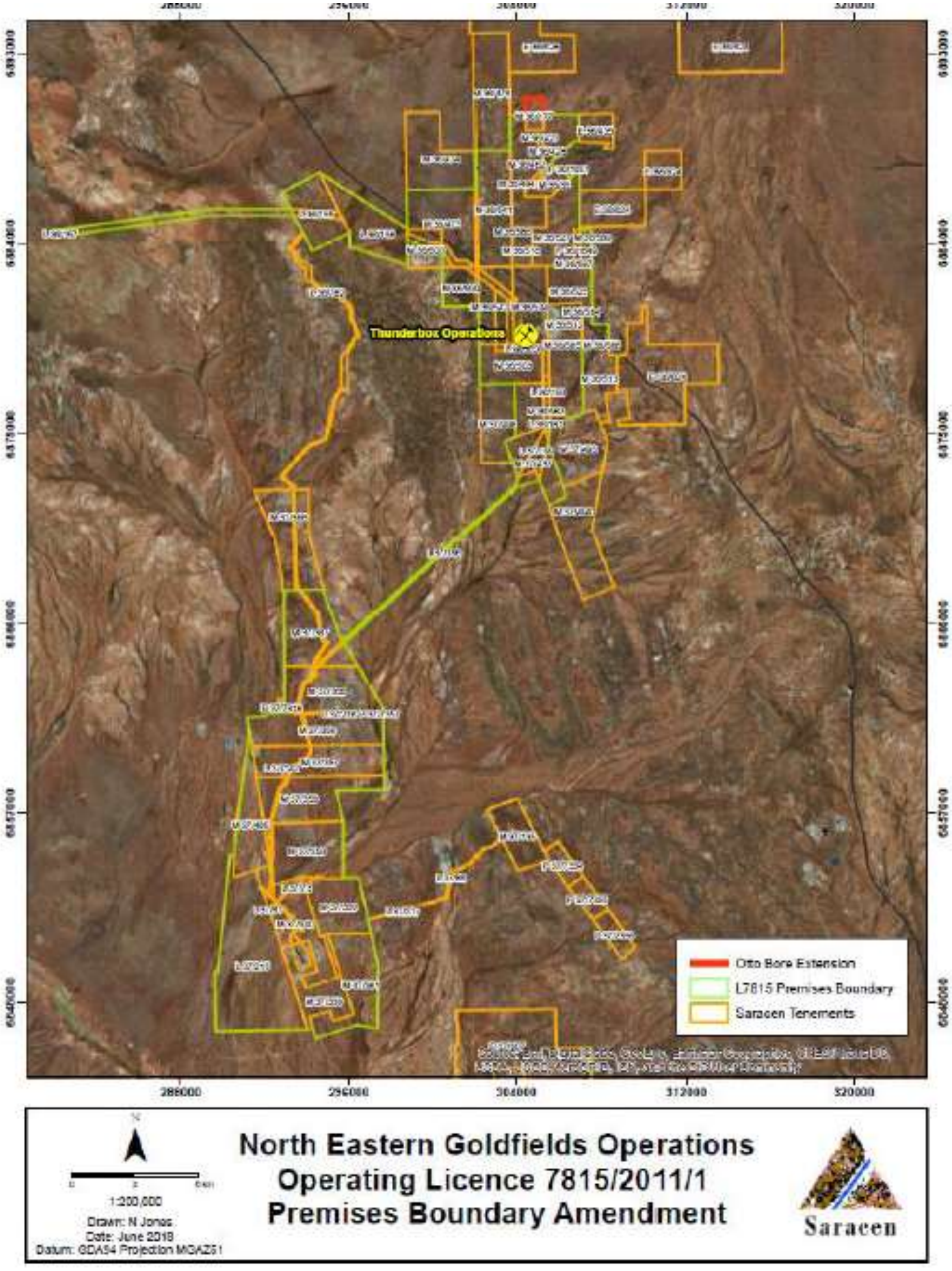


**Figure 1: Premises map**

**Map of monitoring locations and containment infrastructure**

The locations of the monitoring points defined in Table 3.3.1 are shown below in Figure 2 and Figure 2b. Containment infrastructure defined in Table 1.3.1 are shown below in Figure 2, Figure 3 and Figure 4.

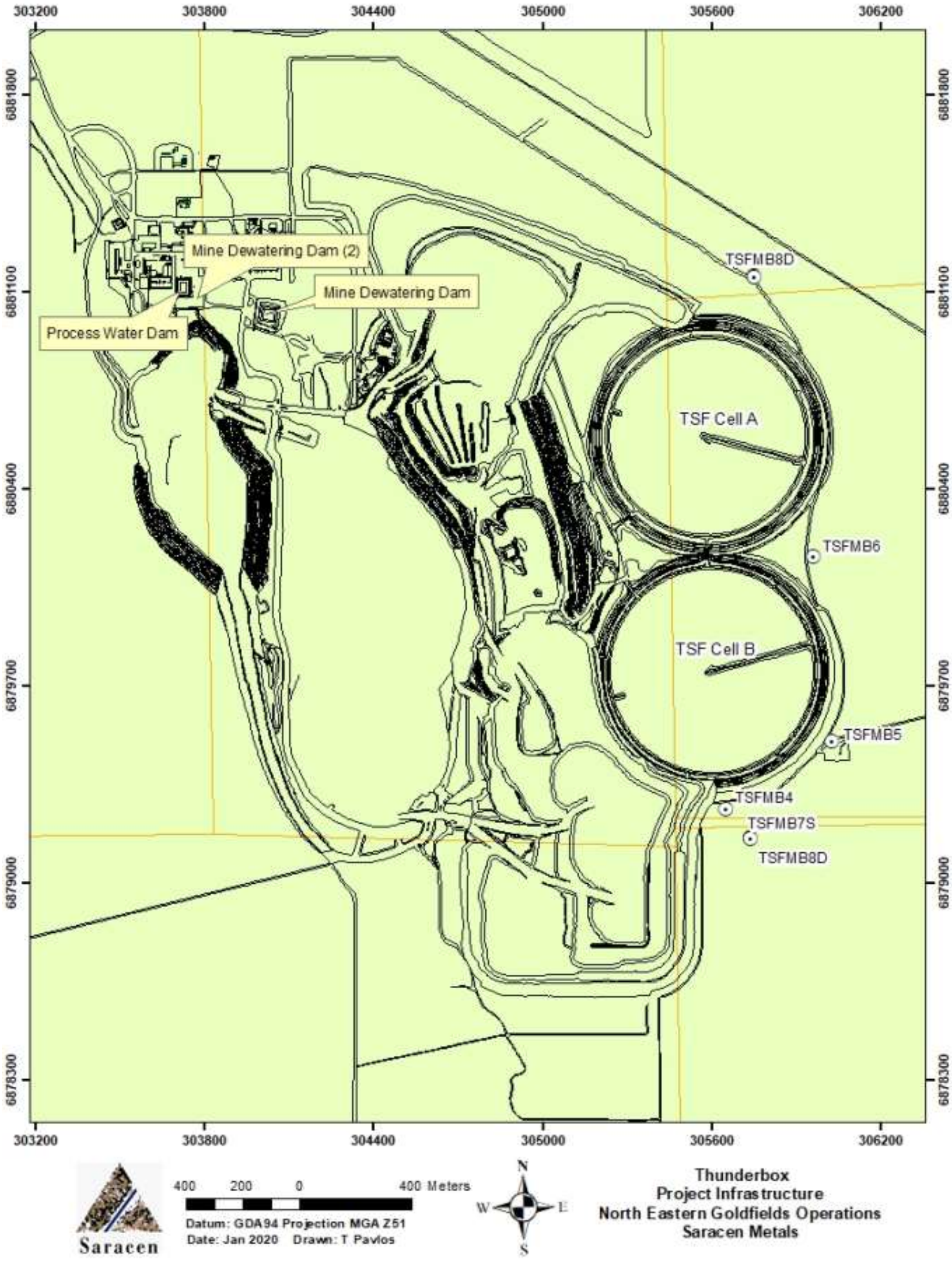


**Figure 2: Location of containment infrastructure at the Thunderbox operations (northern section of Premises). Locations of monitoring bores also shown.**

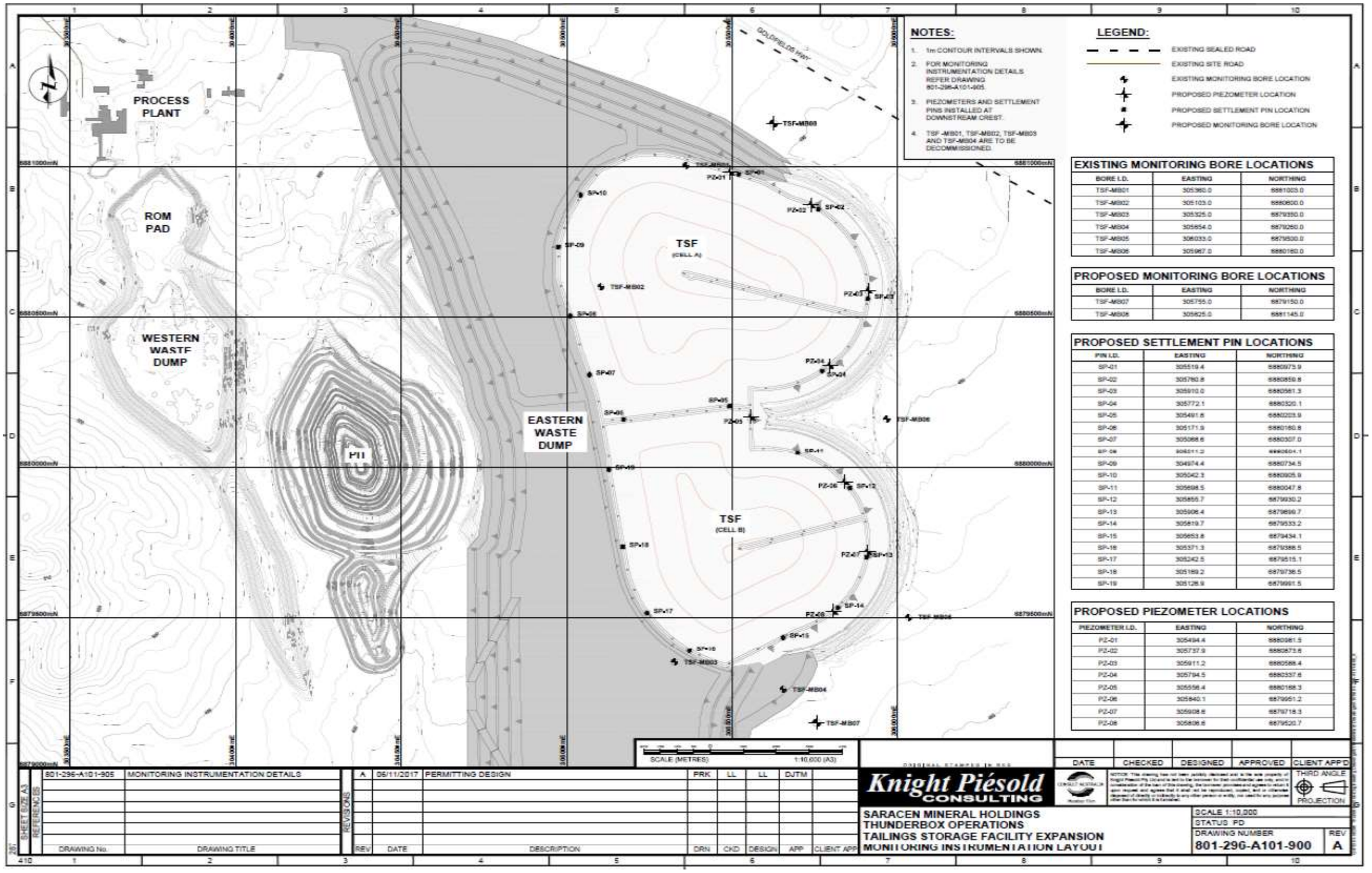


**Figure 2b: Location of TSF groundwater monitoring bores, including bores at MB7 and MB8**

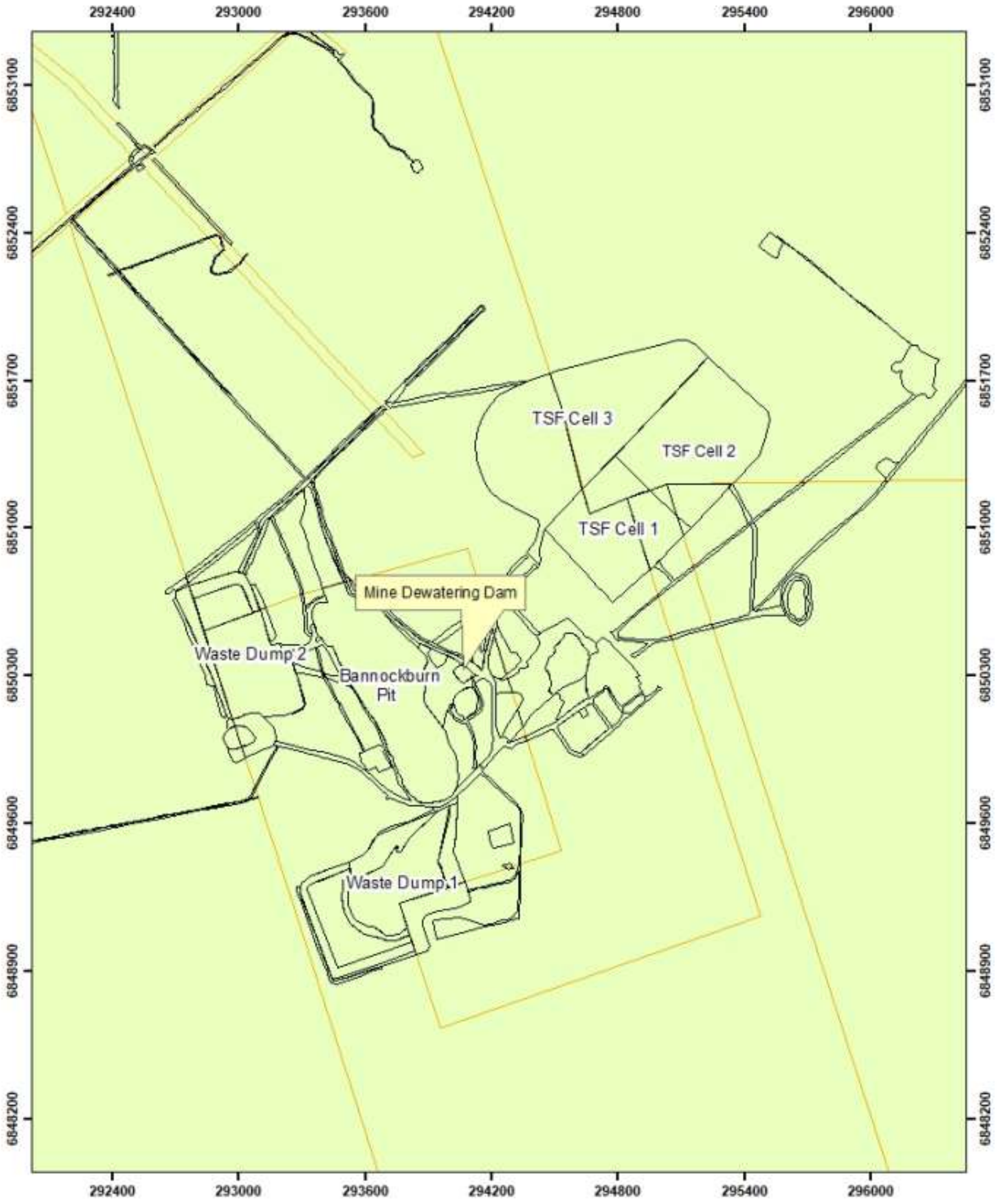


**Figure 3: Containment infrastructure at the Bannockburn tenements (southern section of Premises).**

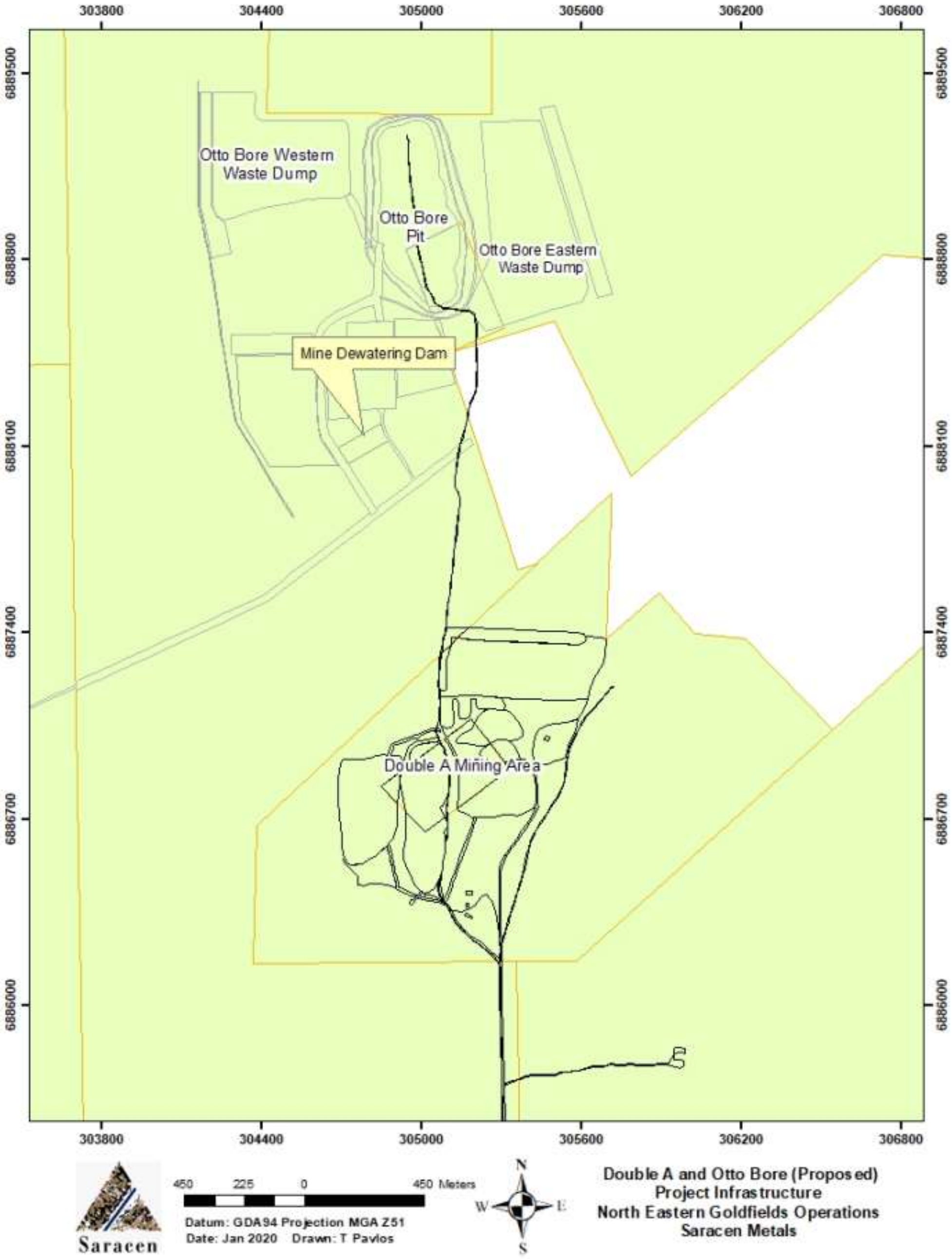


**Figure 4: Location of dewatering dam at Otto Bore.**

**Map of Emission points**

The Locations of the air emission points defined in Table 2.2.1 are shown below. These are located at the Thunderbox operations.

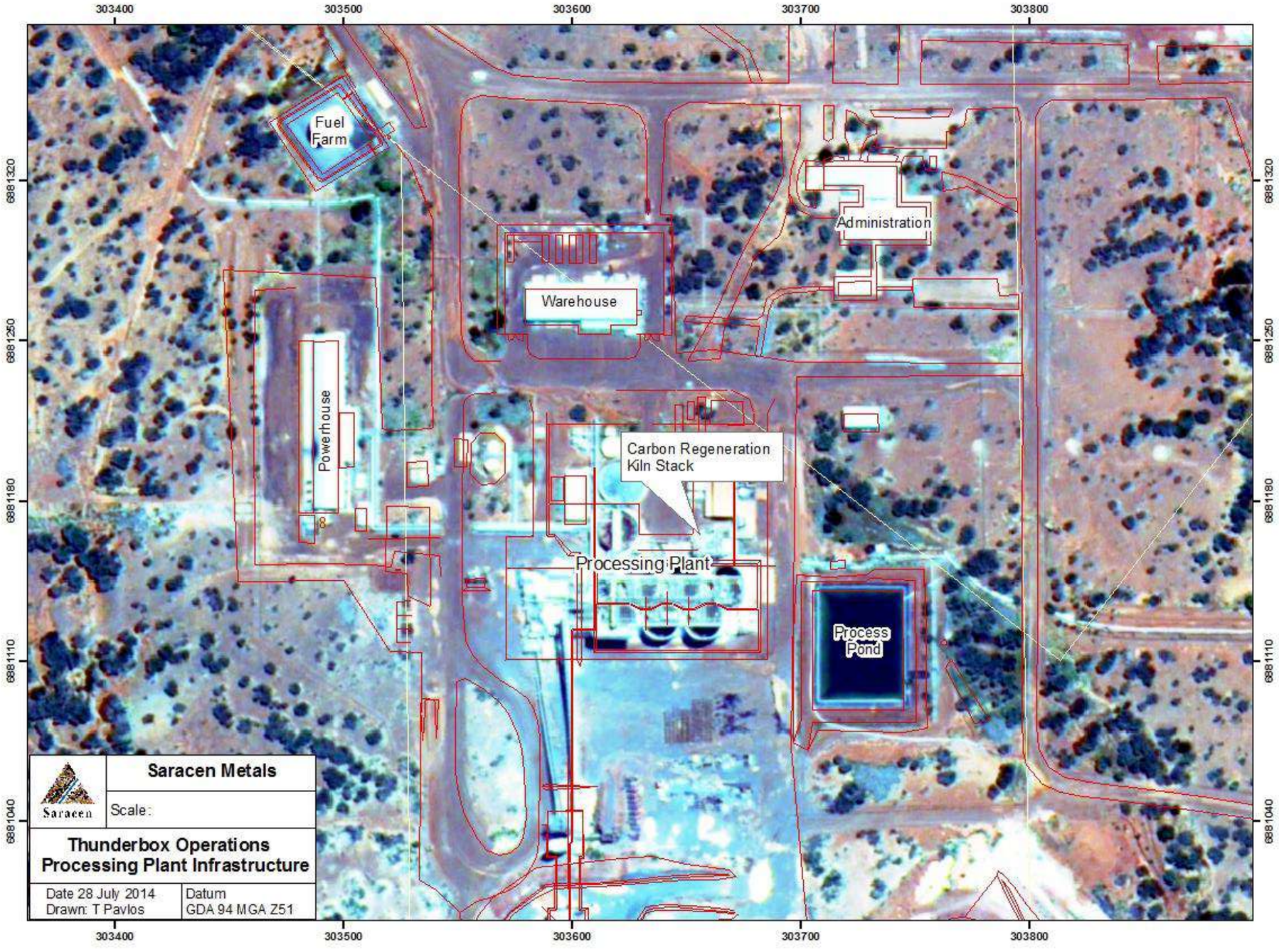


**Figure 5: Locations of emission points to air.**

The location of the areas subject to fugitive dust controls in condition 2.3.1 are as listed in Figure 7 below;

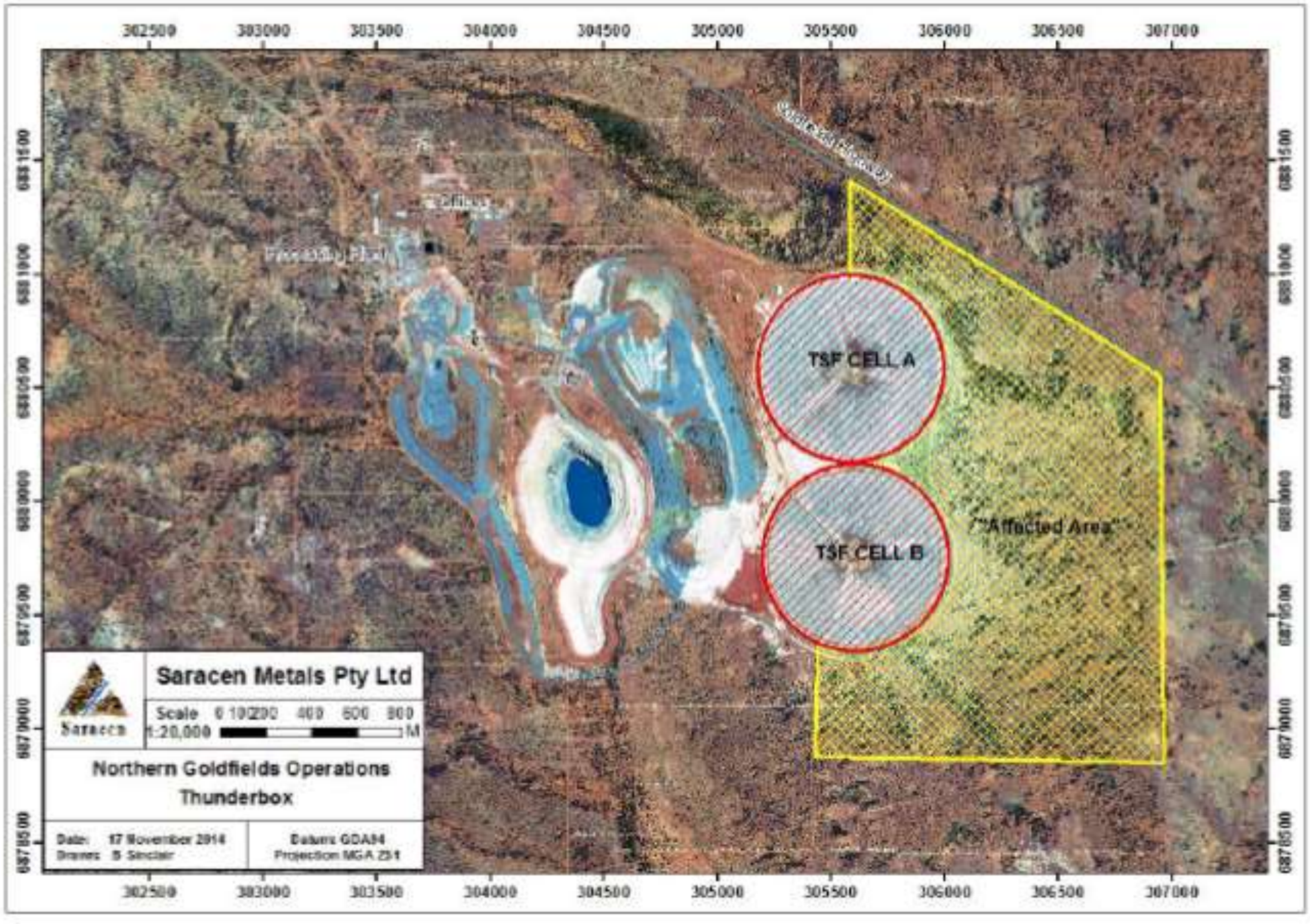


**Figure 6: Location of areas subject to fugitive dust controls in condition 2.3.1**

**Map of landfill locations**

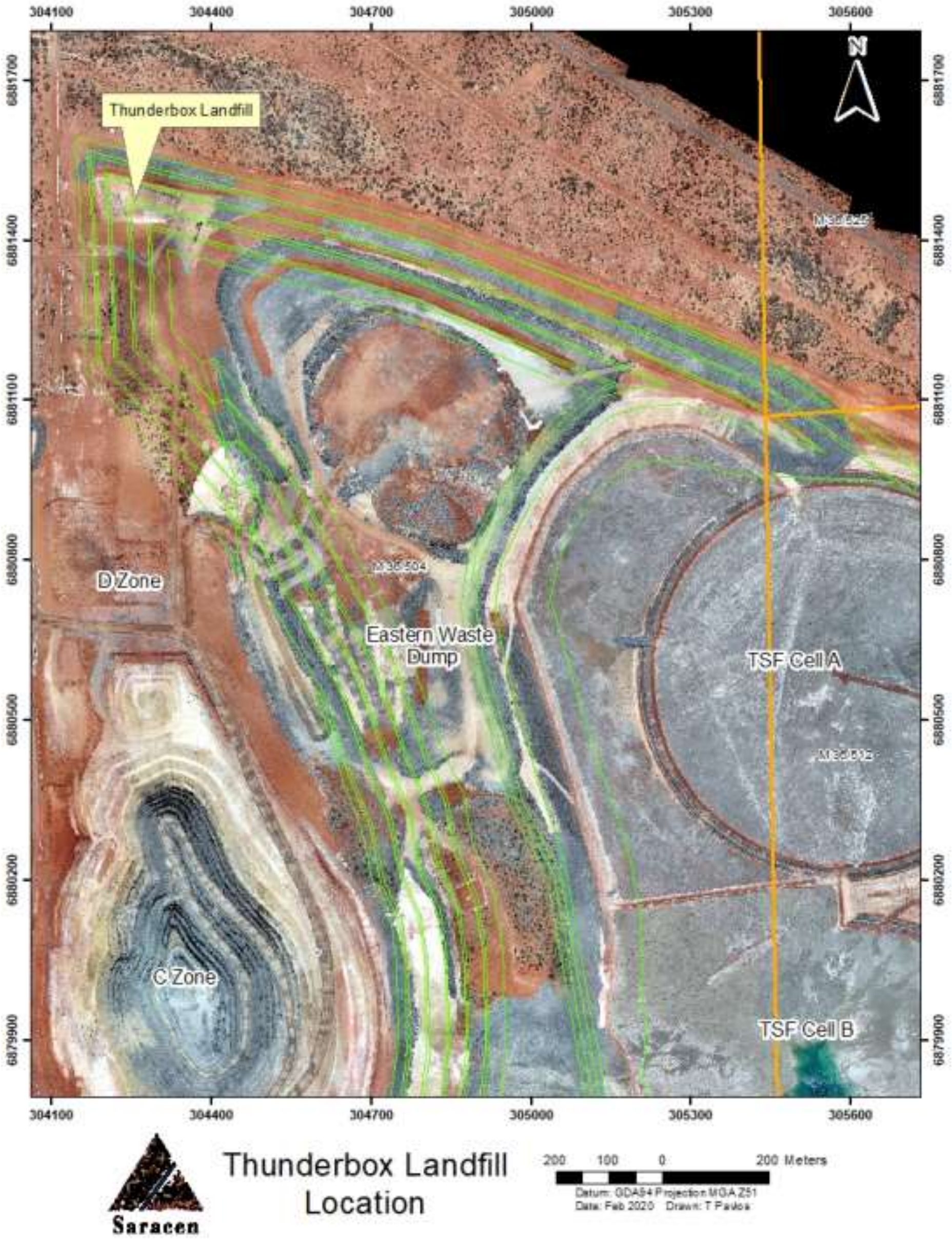


**Figure 7: Thunderbox Landfill Location**

## Schedule 2: Prescribed Premises Categories

The Premises prescribed categories under schedule 1 of *Environmental Protection Regulation 1987*

**Prescribed Premises categories**

| Category number | Category Description | Category production or design capacity | Approved Premises production or design capacity |
|---|---|---|---|
| 5 | Processing or beneficiation of metallic or non-metallic ore. | 50 000 tonnes or more per year | 3 000 000 tonnes per annual period |
| 6 | Mine dewatering | 50 000 tonnes or more per year | 450 000 tonnes per annual period |
| 52 | Electrical power generation | 10 megawatts or more in aggregate (using fuel other than natural gas) | 14.8 MW in aggregate |
| 64 | Class II putrescible landfill | 20 tonnes or more per year | 5000 tonnes per annual period |
| 73 | Bulk chemical storage | 1 000 cubic metres in aggregate | 105 000 cubic metres in aggregate |
| 85 | Sewage facility | More than 20 but less than 100 $m^3$ per day | 70 $m^3$ per day |

# Schedule 3: Notification & Forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

Licence: L7815/2001/11 Licence Holder: Saracen Metals Pty Ltd
Form: N1 Date of breach:

**Notification of detection of the breach of a limit or any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution.**

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

## Part A

| | |
|---|---|
| Licence Number | |
| Name of operator | |
| Location of Premises | |
| Time and date of the detection | |

| **Notification requirements for the breach of a limit** | |
|---|---|
| Emission point reference/ source | |
| Parameter(s) | |
| Limit | |
| Measured value | |
| Date and time of monitoring | |
| Measures taken, or intended to be taken, to stop the emission | |

## Part B

| | |
|---|---|
| Any more accurate information on the matters for notification under Part A. | |
| Measures taken, or intended to be taken, to prevent a recurrence of the incident. | |
| Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission | |
| The dates of any previous N1 notifications for the Premises in the preceding 24 months. | |

| | |
|---|---|
| Name | |
| Post | |
| Signature on behalf of Saracen Metals Pty Ltd | |
| Date | |