Government of Western Australia
Department of Water and Environmental Regulation

# Licence

| | |
|---|---|
| **Licence Number** | L9000/2016/1 |
| **Licence Holder** | Gruyere Management Pty Limited |
| **ACN** | 615 728 795 |
| **Registered business address** | Level 1, 26 Colin Street<br>WEST PERTH WA 6005 |
| **File Number** | DER2016/001956 |
| **Duration** | 4/08/2017 to 3/08/2037 |
| **Prescribed Premises** | Category 5 – Processing or beneficiation of metallic or non-metallic ore<br>Category 12 – Screening etc. of material<br>Category 54 – Sewage facility<br>Category 64 – Class II putrescible landfill site<br>Category 73 – Bulk storage of chemicals etc. |
| **Premises** | Gruyere Gold Project<br>Mining Tenement L38/254 and Part of L38/255 and M38/1267<br>COSMO NEWBERY WA 6440<br>As shown in Schedule 1 |

**Date of Amendment** 3 November 2021

This amended Licence is granted to the Licence Holder, subject to the following conditions, on 3 November 2021 by:

Melanie Bruckberger
Digitally signed by Melanie Bruckberger
Date: 2021.11.03 16:29:46 +08'00'

**A/MANAGER RESOURCE INDUSTRIES**

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

# Licence history

Table 1 provides the history for Licence L9000/2016/1.

**Table 1: Licence history**

| Instrument | Issued | Nature and extent of licence or amendment |
|---|---|---|
| L9000/2016/1 | 4/08/2017 | New licence for a category 54 WWTP at the Miner's accommodation village, constructed under W5997/2016/1. |
| L9000/2016/1 | 19/10/2017 | Amendment Notice 1<br>Licence amendment to include the category 64 landfill constructed under W6002/2016/1. |
| L9000/2016/1 | 12/03/2018 | Amendment Notice 2<br>Licence amendment to include category 12 for the MCSP. |
| L9000/2016/1 | 27/08/2018 | Amendment Notice 3<br>Licence amendment to excise the location of the Gruyere Power Station (category 52) from the existing prescribed premises boundary. The Gruyere Power Station is operated by APA Power Holdings Pty Ltd under Licence L9153/2018/1. |
| L9000/2016/1 | 5/04/2019 | Amendment Notice 4<br>Licence amendment to increase the capacity of category 64 from 1,400 tpa to 1,800 tpa and to include inert waste type 2 as a waste type to be accepted in the landfill. |
| L9000/2016/1 | 24/07/2019 | Licence amendment (and amendment notices consolidation) to include category 5 (process plant and TSF); category 73 (bulk fuel facility); and increase the design capacity of category 54 with the inclusion of the process plant WWTP. |
| L9000/2016/1 | 12/01/2021 | Licence amendment (DWER initiated) to implement an improvement condition as controls to address Tailing Storage Facility seepage recovery. |
| L9000/2016/1 | 3/11/2021 | Licence amendment for the:<br>- construction of a Class II landfill (Category 64);<br>- construction of the tailings storage facility embankment stages 3 to 6 with a compacted low-permeability liner instead of a HDPE liner as used for stages 1 and 2; and<br>- increased production capacity at the processing facility from the current 8.8 million tonnes per annum (Mtpa) up to 10.5 Mtpa. |

# Definitions and interpretation

## Definitions

In this Licence, the terms in Table 2 have the meanings defined.

**Table 2: Definitions**

| Term | Definition |
|---|---|
| ACN | Australian Company Number. |
| Amendment Notice | means an amendment granted under s.59 of the EP Act in accordance with the procedure set out in s.59B of the EP Act. |
| 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 (guidelines and templates may be available on the Department's website). |
| Annual Period | means a 12 month period commencing from 1 July until 30 June in the following year. |
| ANZECC, 2000 Livestock | Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Paper No. 4, Volume 3) Primary Industries – Rationale and Background Information (available at http://www.waterquality.gov.au). |
| Approved Policy | has the same meaning given to that term under the EP Act. |
| AS 1692 | means the Australian Standard AS 1692-2006 *Steel tanks for flammable and combustible liquids.* |
| AS 1940 | means the Australian Standard AS 1940-2004 *The storage and handling of flammable and combustible liquids.* |
| AS/NZS 5667.1 | means the Australian/New Zealand 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 5667.10 | means the Australian/New Zealand Standard AS/NZS 5667.10 *Water Quality - Sampling – Guidance on sampling of waste waters*. |
| AS/NZS 5667.11 | means the Australian/New Zealand Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on the sampling of groundwaters*. |
| Australian & New Zealand Guidelines for Fresh & Marine Water Quality | Australian & New Zealand Guidelines for Fresh & Marine Water Quality (available at http://www.waterquality.gov.au). |
| 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. |

| Term | Definition |
|---|---|
| Category/ Categories/ Cat. | Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations. |
| CEO | means Chief Executive Officer.<br>CEO for the purposes of notification means:<br>Director General<br>Department Administering the *Environmental Protection Act 1986*<br>Locked Bag 10<br>JOONDALUP DC WA 6919<br>info@dwer.wa.gov.au |
| cfu/100mL | colony forming units per 100 millilitres. |
| Clean Fill | has the meaning defined in the Landfill Definitions. |
| Clinical waste | means waste generated by medical, nursing, dental, veterinary, pharmaceutical or other related activity which is poisonous or infectious; likely to cause injury to public health; or contains human tissue or body parts. |
| Condition | means a condition to which this Licence is subject under s.62 of the EP Act. |
| Delegated Officer | an officer under section 20 of the EP Act. |
| Department | means the department established under s.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 the CEO to the Licence Holder in writing and sent to the Licence Holder's address for notifications, as described at the front of this Licence, in relation to:<br>(a) compliance with the EP Act or this Licence;<br>(b) the Books or other sources of information maintained in accordance with this Licence; or<br>(c) 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 Department of Water and Environmental Regulation. |
| Emission | has the same meaning given to that term under the EP Act. |
| Environmental Harm | has the same meaning given to that term under the EP Act. |

| Term | Definition |
|---|---|
| EP Act | means the *Environmental Protection Act 1986* (WA). |
| EP Regulations | means the *Environmental Protection Regulations 1987* (WA). |
| Freeboard | means the distance between the maximum water surface elevation and the top of the retaining banks or structures at their lowest point. |
| GWL | Groundwater level |
| Hardstand | means a surface with a permeability of $10^{-9}$ metres per second or less. |
| HDPE | high density polyethylene. |
| Implementation Agreement or Decision | has the same meaning given to that term under the EP Act. |
| Inert Waste Type 1 | has the meaning defined in the Landfill Definitions. |
| Inert Waste Type 2 | has the meaning defined in the Landfill Definitions. |
| Inspector | means an inspector appointed by the CEO in accordance with s.88 of the EP Act. |
| kL | kilolitres. |
| Landfill Definitions | means the document titled “Landfill Waste Classification and Waste Definitions 1996” published by the CEO of the Department of Water and Environmental Regulation 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. |
| L/s | Litres per second. |
| Material Environmental Harm | has the same meaning given to that term under the EP Act. |
| mbgl | metres below ground level. |
| MCSP | Mobile Crushing and Screening Plant |
| 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. |

| Term | Definition |
|---|---|
| NTU | Nephelometric Turbidity Units. |
| OWS | Oil Water Separator. |
| Phase 1 | short-term management |
| Phase 2 | medium-term management |
| Pollution | has the same meaning given to that term under the EP Act. |
| 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. |
| Primary Activities | refers to the Prescribed Premises activities listed on the front of this Licence as described in Schedule 2, at the locations shown in Schedule 1. |
| Putrescible | has the meaning defined in the Landfill Definitions. |
| quarterly | means the 4 inclusive periods from 1 July to 30 September, 1 October to 31 December and in the following year 1 January to 31 March, and 1 April to 30 June. |
| RL | Reduced Level. |
| Serious Environmental Harm | has the same meaning given to that term under the EP Act. |
| Special Waste Type 2 | has the meaning defined in the Landfill Definitions. |
| Spot sample | means a discrete sample representation at the time and place at which the sample is taken. |
| Suitably qualified geotechnical engineer | Means a person who:<br>1. hold a Bachelor of Engineering recognised by the Australian Institute of Engineers, and<br>2. has a minimum of 5 years of experience working in geotechnical engineering including experience in the design of tailings storage facilities. |
| TSF | Tailings Storage Facility. |
| TRH | Total Recoverable Hydrocarbons. |

| Term | Definition |
|---|---|
| Unreasonable Emission | has the same meaning given to that term under the EP Act. |
| Waste | has the same meaning given to that term under the EP Act. |
| WWTPs | means Wastewater Treatment Plants at the Miners accommodation village and at the Process Plant. |
| $m^3$/day | means cubic metres per day. |
| µS/cm | means microSiemens per centimeter. |

## Interpretation

In this Licence:

(a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;

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

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

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

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

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

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

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

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

# Conditions

The Licence Holder must ensure that the following conditions are complied with:

## Emissions

**1.** The Licence Holder must not cause any Emissions from the Primary Activities on the Premises except for specified Emissions and general Emissions described in Column 1 of Table 3 subject to the exclusions, limitations or requirements specified in Column 2 of Table 3.

**Table 3: Authorised Emissions table**

| **Column 1** | **Column 2** |
|---|---|
| **Emission type** | **Exclusions/Limitations/Requirements** |
| **Specified Emissions** | |
| Discharge of tailings to the TSF | Subject to compliance with Condition 2 and Condition 3 (Row 4). |
| Treated wastewater from the WWTPs | Subject to compliance with Condition 2 and Condition 3 (Rows 6, 7, 8 and 9). |
| Class II Waste (Putrescible, Inert Waste Type 1, Inert Waste Type 2 and Special Waste Type 2) | Subject to compliance with Condition 2, Condition 3 (Rows 10, 11, 12 and 13) and Condition 6. |
| **General Emissions (excluding Specified Emissions)** | |
| Emissions which arise from the Primary Activities set out in Schedule 2 | Emissions excluded from General Emissions are:<br>• Unreasonable Emissions; or<br>• Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or<br>• Discharges of Waste in circumstances likely to cause Pollution; or<br>• Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or<br>• Emissions or Discharges which do not comply with an Approved Policy; or<br>• Emissions or Discharges which do not comply with a prescribed |

| Column 1 | Column 2 |
|---|---|
| **Emission type** | **Exclusions/Limitations/Requirements** |
| | standard; or<br>• Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or<br>• Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004*. |

**2.** The Licence Holder must ensure that all Emissions specified in Table 4, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

**Table 4: Authorised discharge points**

| Emission | Discharge point | Discharge point location |
|---|---|---|
| Tailings | TSF | As shown in Schedule 1: Maps – Site Plan 1 and 2. |
| Treated wastewater from the miners accommodation village WWTP | L1 | As shown in Schedule 1: Maps – Site Plan 1. |
| Treated wastewater from the Process Plant WWTP | L2 | As shown in Schedule 1: Maps – Site Plan 2. |
| Putrescible and Inert Waste Type 1 (bricks and concrete) | Landfill | As shown in Schedule 1: Maps – Site Plan 1, 3 and 5. |
| Inert Waste Type 2 (tyres and cleaned ammonium nitrate bags) | Waste Rock Landform | As shown in Schedule 1: Maps – Site Plan 3. |
| Putrescible, Inert Waste Type 1 (bricks and concrete), Inert Waste Type 2 and Special Waste Type 2) | Waste Rock Dump 1 Landfill | As shown in Schedule 1: Maps – Site Plan 1, 3 and 5. |

## Infrastructure and equipment

**3.** The Licence Holder must ensure that the site infrastructure and equipment listed in Table 5 is maintained and operated in accordance with the corresponding operational requirements set out in Table 5.

## Table 5: Infrastructure and equipment requirements

| | Site infrastructure and equipment | Operational requirements |
|---|---|---|
| 1 | Ore processing | Conducted within a bunded area which drains to sumps with recovery pumps. |
| 2 | Reagent area | Processing reagents stored in accordance with AS 1940 and AS 1692. |
| 3 | Process water pond and sedimentation pond | HDPE maintained.<br>Total freeboard of 300 mm maintained. |
| 4 | TSF<br>Refer to Schedule 1: Maps – TSF section layout and TSF – Stage 3 to 6 typical embankment section. | <u>General</u><br>Integrated Waste Landform, with a total design storage capacity of 61,940,000 $m^3$ or 92,920,000 tonnes.<br><u>Embankment</u><br>Freeboard of 500 mm over and above the freeboard required to hold the volume of water associated with a 1:100 year, 72 hour storm event.<br>Stage 3 - Embankment crest level of RL 422.0 m.<br>Stage 4 - Embankment crest level of RL 427.0 m.<br>Stage 5 - Embankment crest level of RL 432.0 m.<br>Stage 6 (Final) – Embankment crest level of RL 439.2 m.<br><u>Cut-off trench</u><br>Located beneath the perimeter embankment.<br><u>Underdrainage</u><br>HDPE lined underdrainage sumps located immediately adjacent to the upstream embankment toe and at the lowest point within the TSF basin.<br>Sumps with a full storage capacity of 585 $m^3$.<br>Central underdrainage piping network around the decant structure to the extent of a decant pond of nominal 150 m radius connected to underdrainage discharge pipes that report by gravity to the perimeter underdrainage sump.<br>The recovered underdrainage water is returned to the tailings beach and hence to the decant system and back to the plant for re-use in the process facility or alternatively directly back to the plant via a dedicated pipeline.<br>Flowmeters installed to allow volumes of seepage recovered from the underdrainage system to be recorded.<br><u>Tailings and return water pipelines</u><br>Fitted with flow and leak detection sensors.<br><u>Tailings deposition</u><br>Sub-aerially and cyclically via multiple spigots.<br>Deposited tailings layer thickness: nominal 300 to 400 mm thickness.<br>Spigotting/tailings deposition carried out such that a tailings beach forms and the supernatant pond (from both rainfall events and tailings deposition) is maintained around the central decant structure.<br><u>Decant facility</u><br>Decant pond central and as small as practical (i.e. nominal 150 m radius).<br>Decant water recovered is pumped back to the process plant for reuse. |

| | Site infrastructure and equipment | Operational requirements |
|---|---|---|
| 5 | MCSP | Mobile crusher with a processing ability of 90-200 tonnes per hour, a feeding size of 480-750 mm producing an outlet size of 65-200 mm. |
| 6 | WWTPs | All sewage and treated wastewater storage and treatment tanks, transfer pipelines and conveyance infrastructure must be impermeable and free of leaks or defects.<br>Storm-water conveyance infrastructure must not direct storm-water into any sewage and treated wastewater storage and treatment tanks, transfer pipelines and conveyance infrastructure.<br>All above ground infrastructure located on a hardstand. |
| 7 | Miners accommodation village WWTP | MAK Water designed 200 $m^3$/day WWTP.<br>Wastewater treated before being discharged to the spray field.<br>Boundary of WWTP fenced with appropriately signposted.<br>Be capable of treating sewage to the following standards:<br>Treated wastewater outflow ≤200 $m^3$/ day<br>Biochemical Oxygen Demand <20 mg/L<br>Total Suspended Solids <30 mg/L<br>Total Nitrogen <40 mg/L<br>Total Phosphorus <5 mg/L<br>Turbidity <5 NTU<br>Free chlorine 0.2-2 mg/L<br>pH ≥6.5-≤8.5 pH units<br>*E.coli* <10 cfu/100mL |
| 8 | Process Plant WWTP | MAK Water designed 25 $m^3$/day WWTP.<br>Wastewater treated before being discharged to the spray field.<br>Contingency storage capacity for up to two days of normal flow if discharge is suspended while any problems are fixed.<br>Boundary of WWTP fenced with appropriately signposted entrance / exit gate.<br>The WWTP will meet the following emission standards:<br>Biochemical Oxygen Demand <20 mg/L<br>Total Suspended Solids <10 mg/L<br>Total Nitrogen <30 mg/L<br>Total Phosphorus <8 mg/L<br>Turbidity <5 NTU<br>Chlorine Residual >0.2-2 mg/L<br>pH 6.5-8.5 pH units<br>*E.coli* <10 cfu/100mL |
| 9 | Spray fields<br>(refer to Schedule 1: Maps – Site Plan 1 (L1) and Site Plan 2 (L2)) | 2 hectares.<br>Fenced and appropriately signposted.<br>Effluent discharge from the WWTP managed to allow effluent to infiltrate or evaporate and prevent surface ponding or runoff from the spray field. |

| | Site infrastructure and equipment | Operational requirements |
|---|---|---|
| 10 | Landfill fence, signage | To be maintained.<br>Sign to be legible. |
| 11 | Landfill trench | 250 m x 150 m landfill area.<br>Each cell approximately 30 m long x 10 m wide x 4 m deep, surrounded by an earthen bund of 1 m in height at surface level.<br>Tip face to not exceed 30 m in length and incorporates a ramp down where the waste is deposited.<br>Firebreak of at least 3 m in width around the boundary of the Landfill.<br>Windblown waste to be collected and put back in the Landfill.<br>Waste to be covered at least weekly with 300 mm of soil or Clean Fill.<br>Conduct at least weekly inspections.<br>Maximum of up to 8 $m^3$ per annual period of clinical waste generated at the premises and accepted for burial at the Waste Rock Dump 1 Landfill.<br>Licence Holder to appoint a nominated person to supervise the disposal of the Special Waste Type 2.<br>Special Waste Type 2 is covered as soon as practical after disposal with clean fill to a depth of at least 1 m.<br>Prepare a plan of the location of the Special Waste Type 2.<br>Licence Holder is to keep a register of Special Waste Type 2 disposed of at site, including;<br>- Date;<br>- Nominated person's name;<br>- Quantity disposed;<br>- That waste has been covered in accordance with requirements above; and<br>- Grid reference to the plan of the landfill so that the position of the waste can be easily and accurately ascertained. |
| 12 | Designated pallet cell | Broken wooden pallets – storage and burning (for training purposes only)<br>Located within the landfill compound.<br>Stored within a designated cell within the Landfill area.<br>To be surrounded by 2 m high earthen perimeter bunds.<br>Fire control measures to be present when pallets are burned. |
| 13 | Waste Rock Landform | Tyres[1] and ammonium nitrate bags (Inert Waste Type 2)<br>Directly landfilled.<br>No more than 100 tyres stored at the Premises at any one time.<br>Tyres to be disposed in batches not exceeding 1,000 whole tyres.<br>Tyres covered at regular intervals such that no more than 1,000 whole tyres are left exposed at any one time.<br>Each batch of tyres to be separated by at least 100 mm of soil or another dense inert and incombustible material, with a final cover not less than 500 mm.<br>Ammonium nitrate bags shaken to remove prill prior to disposal.<br>Regular inspections. |
| 14 | Wash down facilities | Located on concrete pads, which drain to an OWS. |

| | Site infrastructure and equipment | Operational requirements |
|---|---|---|
| | | Heavy and light vehicles washed down at a purpose-built wash down facility.<br>Sediment from the wash down pad collected in a concrete sump and wash water treated to separate solids and hydrocarbons. |
| 15 | Workshops | Workshop facilities (heavy, light vehicle and maintenance) located on concrete pads which drain to an OWS.<br>Heavy and light vehicle maintenance occurs within the workshops. |
| 16 | OWS | Located within a bunded area.<br>Designed to treat all stormwater and wastewater likely to be contaminated with hydrocarbons. |
| 17 | Bulk oil tanks located within the mining area workshops | Comprise 7 x 10 kL self bunded storage tanks.<br>Stored in accordance with AS 1940. |

Note 1: Requirements for landfilling and covering of tyres are set out in Part 6 of the EP Regulations.

**4.** The Licence Holder shall:

(a) undertake inspections as detailed in Table 6;

(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, with each inspection signed off by the person who conducted the inspection.

**Table 6: Inspection of infrastructure**

| Scope of inspection | Type of inspection | Frequency of inspection |
|---|---|---|
| Tailing pipelines (delivery and distribution) | Visual integrity | Daily |
| Return water pipelines | Visual integrity | Daily |
| TSF embankment | Visual to confirm required freeboard capacity is available | Daily |
| Process water pond and sedimentation pond | Visual integrity, leak assessment and freeboard capacity | Daily |

**5.** The Licence Holder must undertake an annual water balance for the TSF. The water balance shall as a minimum consider the following:

(a) site rainfall;

(b) evaporation;

(c) tailings return water recovery volumes;

(d) seepage recovery volumes; and

(e) volumes of tailings deposited.

## Waste Acceptance

**6.** The Licence Holder must only accept onto the Premises Waste of a Waste type, which does not exceed the corresponding rate at which Waste is received, and which meets the corresponding acceptance specification set out in Table 7.

**Table 7: Types of Waste authorised to be accepted onto the Premises**

| Waste type | Rate at which waste is received | Acceptance specification[1] |
|---|---|---|
| Sewage | 200 $m^3$/day Miners accommodation village WWTP<br>25 $m^3$/day - Process plant WWTP | Accepted through sewer inflow(s) only |
| Putrescible Waste | 2,000 tonnes per Annual Period | Must meet the acceptance criteria for Class II landfills |
| Inert Waste Type 1 | | Bricks and concrete |
| Inert Waste Type 2 | | Tyres and cleaned ammonium nitrate bags |
| Special Waste Type 2 | 8 cubic metres per Annual Period | Clinical waste generated at the Premises |

Note 1: Additional requirements for the acceptance of controlled waste are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

## Waste Input Monitoring

**7.** The Licence Holder must record the total amount of Waste deposited on the Premises for each Waste type listed in Table 8, in the corresponding unit, and for each corresponding time period, as set out in Table 8.

**Table 8: Waste deposited on Premises**

| Waste type | Unit | Time period |
|---|---|---|
| Waste Inputs – Sewage | $m^3$ | Continuous |
| Putrescible Waste | Tonnes | Incoming load |
| Inert Waste Type 1 | Tonnes | Incoming load |
| Inert Waste Type 2 | Tonnes | Incoming load |
| Special Waste Type 2 | $m^3$ | Incoming load |

## Monitoring

**8.** The Licence Holder must ensure that:

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

(b) all waste water sampling is conducted in accordance with AS/NZS 5667.10;

(c) all groundwater sampling is conducted in accordance with 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.

**9.** The Licence Holder must ensure that monitoring is undertaken in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters.

## Emissions and Discharge Monitoring

**10.** The Licence Holder must monitor emissions:

(a) for each discharge point;

(b) at the corresponding monitoring location;

(c) for the corresponding parameters;

(d) in the corresponding units;

(e) for the corresponding Averaging Period,

(f) at the corresponding frequency; and

(g) using the corresponding method.

as set out in Table 9.

**Table 9: Emissions and discharge monitoring**

| Discharge point | Monitoring location | Parameters | Units | Averaging period | Frequency | Method |
|---|---|---|---|---|---|---|
| Miners accommodation village WWTP | Offtake discharge point for the spray field | pH | pH units | Spot sample | Quarterly | AS/NZS 5667.1<br>AS/NZS 5667.10 |
| | | Total Suspended Solids | mg/L | | | |
| | | Total Phosphorus | mg/L | | | |
| | | Total Nitrogen | mg/L | | | |
| Process Plant WWTP | | Biochemical Oxygen Demand | mg/L | | | |
| | | *Escherichia coli* | cfu/100mL | | | |
| | | Free Chlorine | mg/L | | | |
| | | Volume | $m^3$ | Continual | Continuous | Flow metering device |

## Ambient Monitoring

**11.** The Licence Holder must monitor the groundwater for concentrations of the parameter listed in Table 10:

(a) at the corresponding monitoring location;

(b) in the corresponding unit;

(c) at no less than the corresponding frequency;

(d) for the corresponding Averaging Period; and

(e) using the corresponding method.

as set out in Table 10.

**Table 10: Monitoring of ambient concentrations**

| Parameter | Monitoring location | Unit | Frequency | Averaging Period | Method |
|---|---|---|---|---|---|
| Standing Water Level | TSFM1<br>TSFM2<br>TSFM3<br>TSFM4<br>TSFM5<br>TSFM6<br>TSFM7<br>TSFM8<br>(as shown in Schedule 1: Maps – TSF monitoring bore locations) | mbgl | Spot sample | Quarterly | AS/NZS 5667.1<br>AS/NZS 5667.11 |
| pH[1] | | pH units | | | |
| Electrical Conductivity | | µS/cm | | | |
| Bicarbonate Alkalinity as $HCO_3$ | | mg/L | | | |
| Chloride, Cl | | | | | |
| Sulfate, $SO_4$ | | | | | |
| Sodium, Na | | | | | |
| Potassium, K | | | | | |
| Calcium, Ca | | | | | |
| Magnesium, Mg | | | | | |
| Antimony, Sb | | | | | |
| Arsenic, As | | | | | |
| Cadmium, Cd | | | | | |
| Chromium, Cr | | | | | |
| Cobalt, Co | | | | | |
| Copper, Cu | | | | | |
| Iron, Fe | | | | | |
| Manganese, Mn | | | | | |
| Mercury, Hg | | | | | |
| Molybdenum, Mo | | | | | |
| Nickel, Ni | | | | | |
| Selenium, Se | | | | | |
| Thallium, Tl | | | | | |
| Total Recoverable Hydrocarbons | | | | | |
| Uranium, U | | | | | |
| Zinc, Zn | | | | | |
| Weak Acid Dissociable (WAD) cyanide | | | | | |
| Total cyanide | | | | | |

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

## Improvements

**12.** The Licence Holder must undertake the improvements in Table 11

**Table 11: Improvement program**

| Improvement reference | Improvement | Date of completion |
|---|---|---|
| IR1 | The Licence Holder must implement **Phase 1** (short-term management) TSF seepage recovery actions by the Date of Completion.<br>**Phase 1** actions are described in Schedule 3. | 31 May 2021 |
| IR2 | The Licence Holder must implement Phase 2 (medium-term management) TSF seepage recovery actions by the Date of Completion, following **Phase 1** compliance. | |
| IR3 | The Licence Holder must implement long-term seepage actions by the Date of Completion following **Phase 1** and **Phase 2** compliance, respectively.<br>Long-term seepage actions are described in Schedule 3. | |

## Record-keeping

**13.** 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) the maintenance of infrastructure required to ensure that it is kept in good working order in accordance with Condition 3 of this Licence;

(c) monitoring undertaken in accordance with Conditions 7, 10 and 11 of this Licence;

(d) complaints received under Condition 14 of this Licence.

In addition, the Books must:

(e) be legible;

(f) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;

(g) be retained for at least 3 years from the date the Books were made; and

(h) be available to be produced to an Inspector or the CEO.

**14.** The Licence Holder must record the number and details of any complaints received by the Licence Holder relating to its obligations under this Licence and its compliance with Part V of the EP Act at the Premises, and any action taken by the Licence Holder in response to the complaint. Details of complaints must include:

(a) an accurate record of the concerns or issues raised, for example a copy of any written complaint or a written note of any verbal complaints made;

(b) the name and contact details of the complainant, if provided by the complainant;

(c) the date of the complaint; and

(d) the details and dates of the actions taken by the Licence Holder in response to the complaints.

**15.** The Licence Holder must, within 7 days of becoming aware of any non-compliance with Conditions 1, 2, 6 and Schedule 2: Table 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.

**16.** 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.

**17.** 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 2, and which provides information in accordance with the corresponding requirement set out in Table 2.

**Table 12: Annual Environmental Report requirements**

| Condition | Requirement |
|---|---|
| 5 | Annual water balance for the TSF. |
| 7 | Total amount of waste accepted onto the Premises. |
| 10 | Tabulated monitoring data results including an interpretation and comparison against previous monitoring results. |
| 11 | Tabulated ambient groundwater monitoring data results including a summary of the monitoring results with an interpretation and comparison against background results, the Australian & New Zealand Guidelines for Fresh & Marine Water Quality; and ANZECC, 2000 Livestock guidelines. |
| 12 | Report on the status of improvement program, including compliance with the long-term seepage recovery management plan outlined in Schedule 3. |

**18.** The Licence Holder must comply with a Department Request, within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

**19.** The Licence Holder must:

(a) construct and/or install the infrastructure and/or equipment;

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

(c) at the corresponding infrastructure location,

as set out in Table 13.

**Table 13: Design and construction/installation requirements**

| Infrastructure | Design and construction/installation requirements | Infrastructure location |
|---|---|---|
| Waste Rock Dump 1 Landfill | - The landfill shall be constructed at the location shown in Schedule 1, Site Plan 5.<br>- 250 m x 150 m landfill area.<br>- Each cell approximately 30 m long x 10 m wide x 4 m deep, surrounded by an earthen bund of 1 m in height at surface level.<br>- Maintain a minimum separation distance of at least 3 m between the base of the deepest excavation and the highest seasonal level of the groundwater.<br>- Tip face to not exceed 30 m in length and incorporates a ramp down where the waste is deposited.<br>- Firebreak of at least 3 m in width around the boundary of the Landfill.<br>- A wire fence is installed around the boundary of the landfill to act as an effective barrier to fauna.<br>- An entrance/exit gate incorporated into the fence. | Schedule 1: Maps: Site Plan 1, Site Plan 3 and Site Plan 5 |

**20.** The Licence Holder must within 30 calendar days of an item of infrastructure required by condition 19 being constructed or installed:

(a) undertake an audit of their compliance with the requirements of condition 19; and

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

**21.** The Environmental Compliance Report required by condition 20, must include as a minimum the following:

(a) certification by a suitably qualified professional engineer that the items of infrastructure or components thereof, as specified in condition 19 have been constructed in accordance with the relevant requirements specified in

condition 19;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 19; and

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

**22.** The Licence Holder shall operate the landfill in accordance with the conditions of this Licence, following submission of the Environmental Compliance Report required under condition 20.

**23.** The Licence Holder is authorised to:

(a) construct embankment raises for TSF to the construction height; and

(b) operate TSF until the end of Stage 6 to the operating height,

as specified in Table 14.

**Table 14: Construction – Critical Containment Infrastructure**

| Infrastructure | Design and construction requirements | Infrastructure location |
|---|---|---|
| TSF embankment Stage 3 | - Zone A constructed with fine grained saprolite material which is compacted to achieve a hydraulic conductivity of at least 1.0E x $10^{-8}$ m/s (95% UCL).<br>- Junction between the Stage 2 HDPE liner and Stage 3 Zone A liner constructed as shown in Schedule 1: Maps: TSF – Stage 2 HDPE liner and Stage 3 Zone A material junction. | Schedule 1: Maps: TSF – Stage 3-6 typical embankment section; TSF – Stage 2 HDPE liner and Stage 3 Zone A material junction. |
| TSF embankment Stage 4 | | |
| TSF embankment Stage 5 | | |
| TSF embankment Stage 6 | | |

**24.** The Critical Containment Infrastructure Report required by condition 24 must include as a minimum the following:

**25.** (a) certification by a suitably qualified geotechnical engineer that each item of critical containment infrastructure or component thereof, as specified in condition 23, has been built and installed in accordance with the requirements specified in condition 23:

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 23;

(c) photographic evidence of the installation of the infrastructure; and

(d) be signed by a person authorised to represent the Licence Holder and contains the printed name and position of that person.

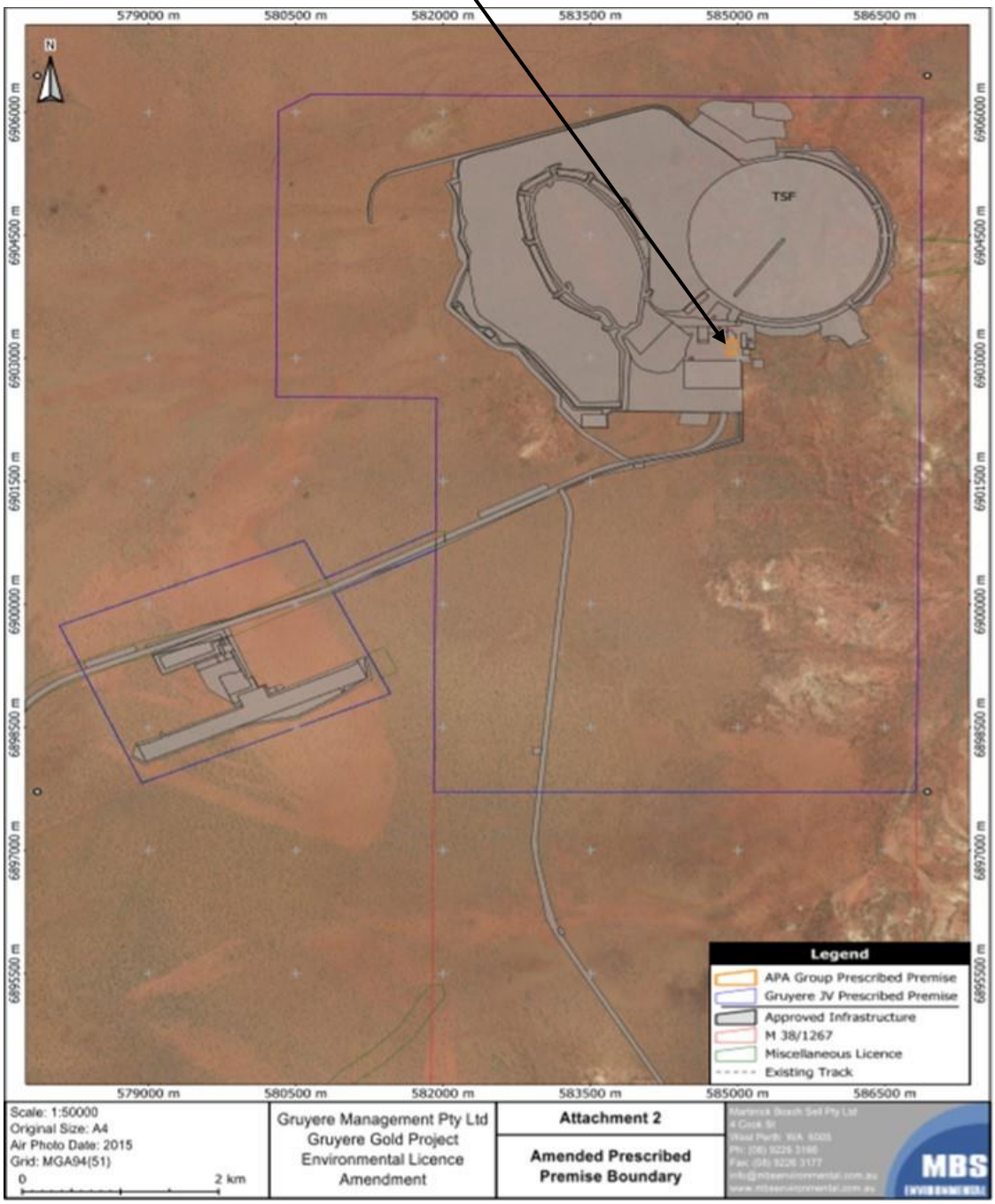
# Schedule 1: Maps

## Premises map

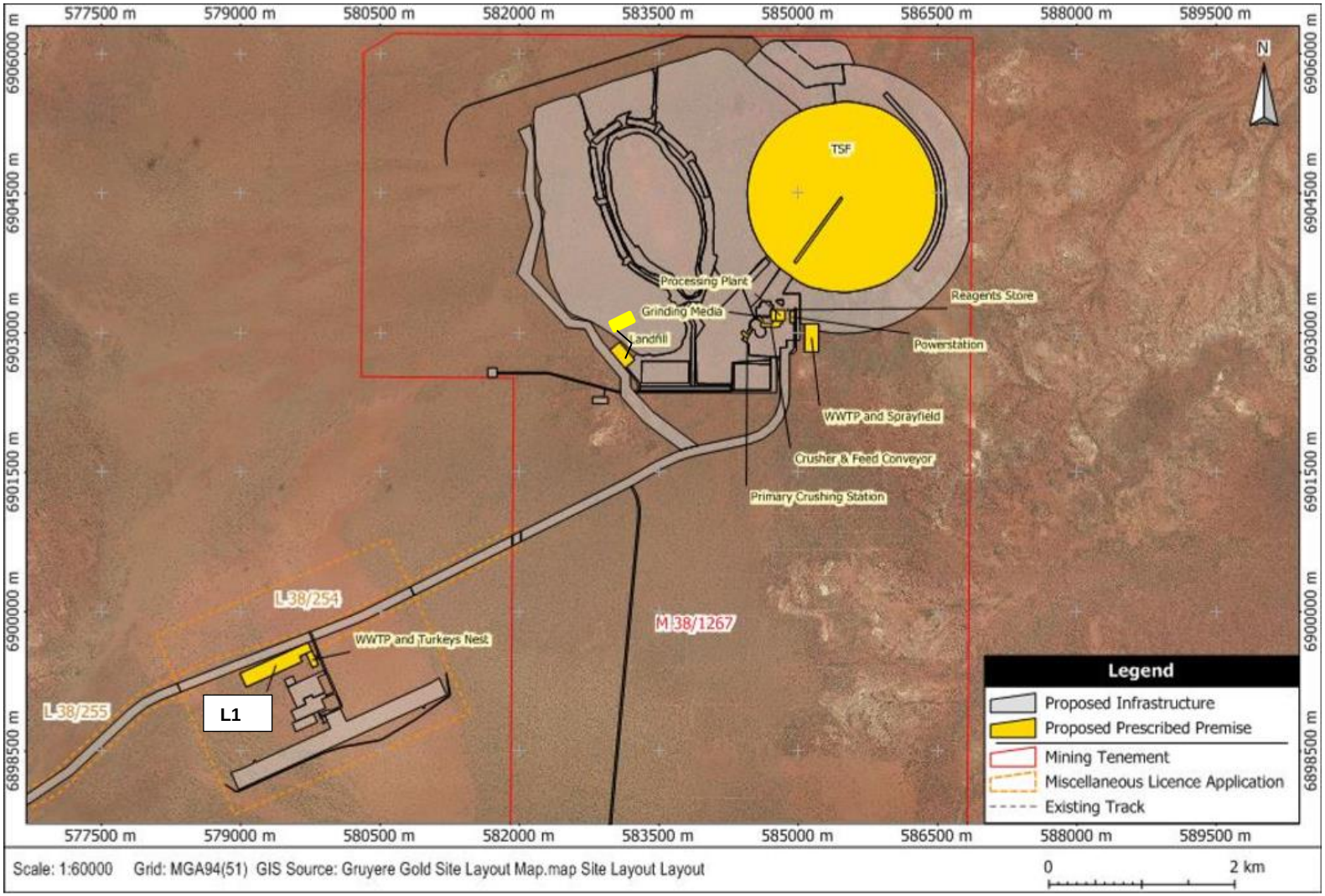
The Premises is shown in the map below. The purple line depicts the Premises boundary.

The orange outline and coordinates below depict the area excluded from the Premises boundary:

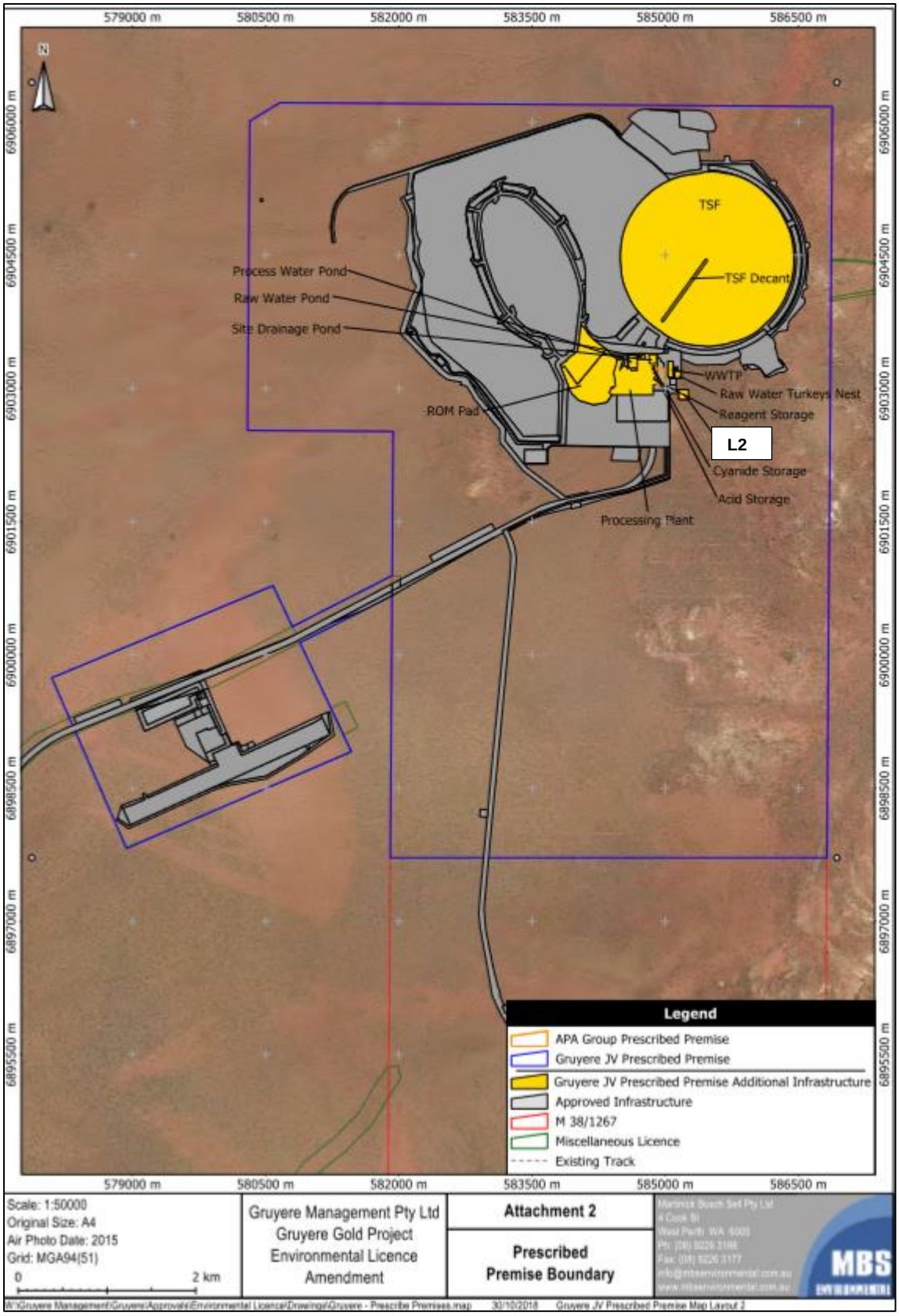
| Eastings | Northings | Eastings | Northings |
|---|---|---|---|
| 584900.191 | 6903043.981 | 584985.191 | 6903043.981 |
| 584900.191 | 6903223.981 | 584985.191 | 6903223.981 |



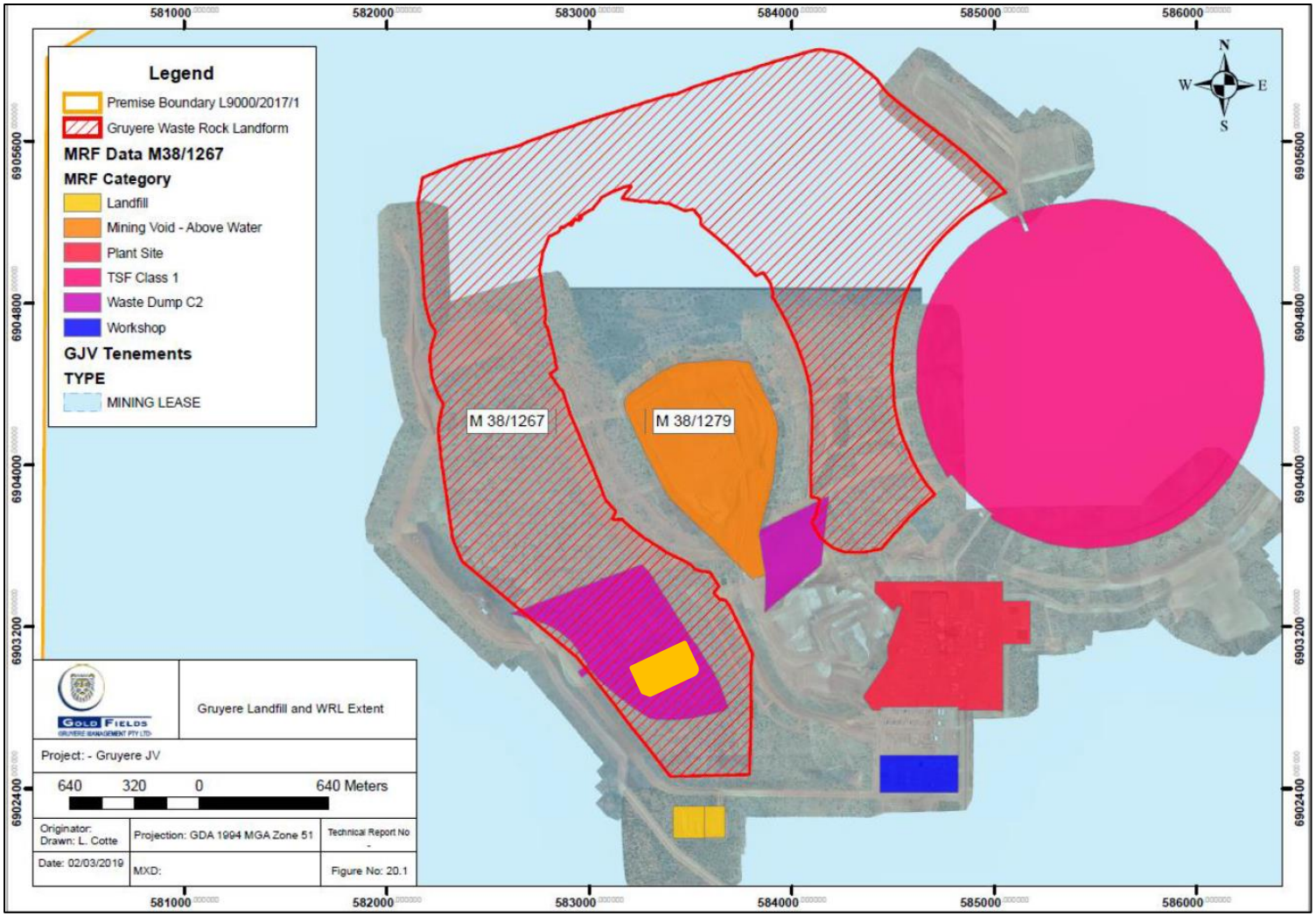
## Site Plan 1


577500 m
579000 m
580500 m
582000 m
583500 m
585000 m
586500 m
588000 m
589500 m
6906000 m
6904500 m
6903000 m
6901500 m
6900000 m
6898500 m
N
TSF
Processing Plant
Grinding Media
Landfill
Reagents Store
Powerstation
WWTP and Sprayfield
Crusher & Feed Conveyor
Primary Crushing Station
L38/254
M38/1267
WWTP and Turkeys Nest
L38/255
L1
Legend
Proposed Infrastructure
Proposed Prescribed Premise
Mining Tenement
Miscellaneous Licence Application
Existing Track
Scale: 1:60000 Grid: MGA94(51) GIS Source: Gruyere Gold Site Layout Map.map Site Layout Layout
0
2 km

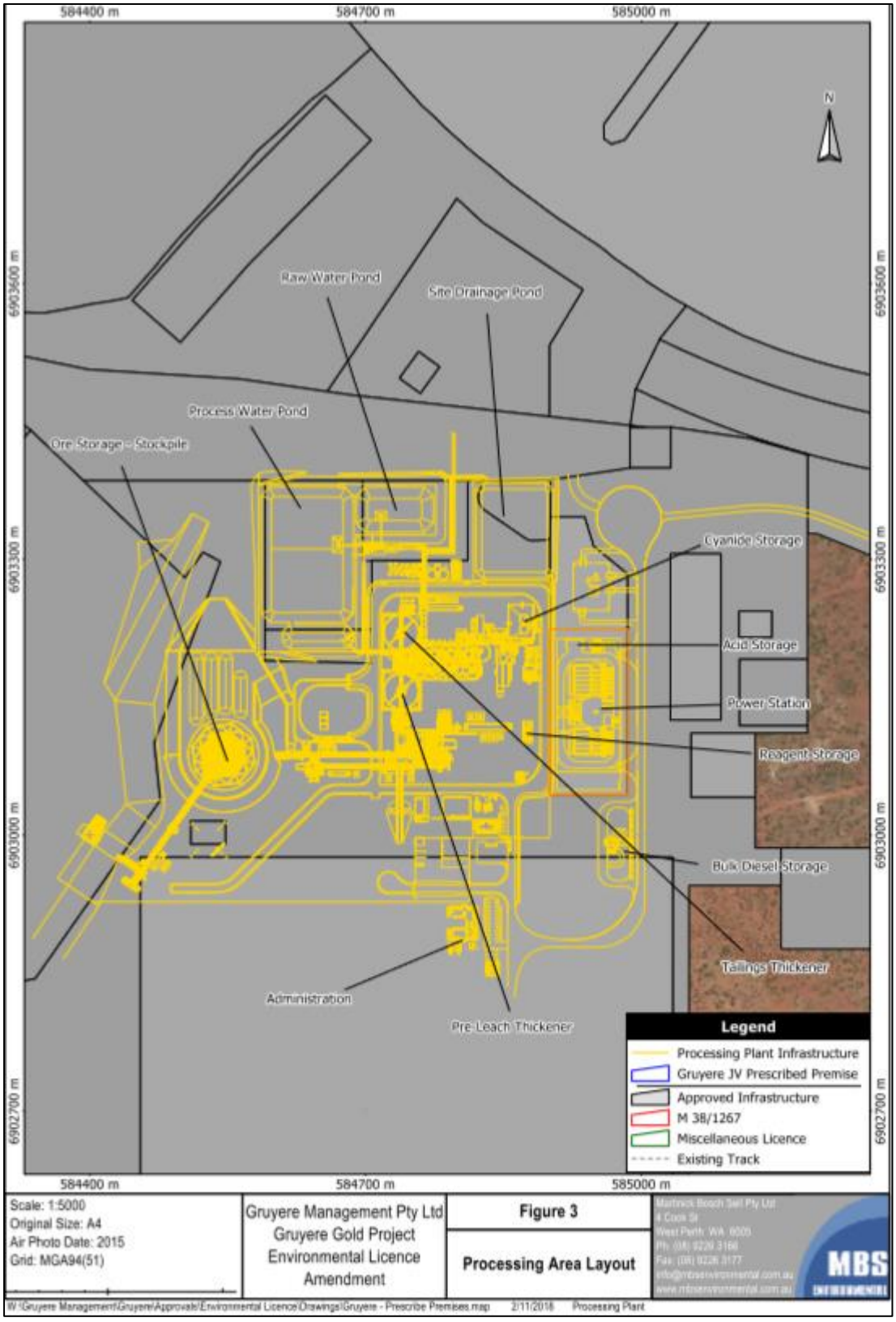
## Site Plan 2


579000 m
580500 m
582000 m
583500 m
585000 m
586500 m
6906000 m
6904500 m
6903000 m
6901500 m
6900000 m
6898500 m
6897000 m
6895500 m
N
TSF
TSF Decant
Process Water Pond
Raw Water Pond
Site Drainage Pond
WWTP
Raw Water Turkeys Nest
Reagent Storage
ROM Pad
L2
Cyanide Storage
Acid Storage
Processing Plant
Legend
APA Group Prescribed Premise
Gruyere JV Prescribed Premise
Gruyere JV Prescribed Premise Additional Infrastructure
Approved Infrastructure
M 38/1267
Miscellaneous Licence
Existing Track
Scale: 1:50000
Original Size: A4
Air Photo Date: 2015
Grid: MGA94(51)
0
2 km
Gruyere Management Pty Ltd
Gruyere Gold Project
Environmental Licence
Amendment
Attachment 2
Prescribed
Premise Boundary
MBS

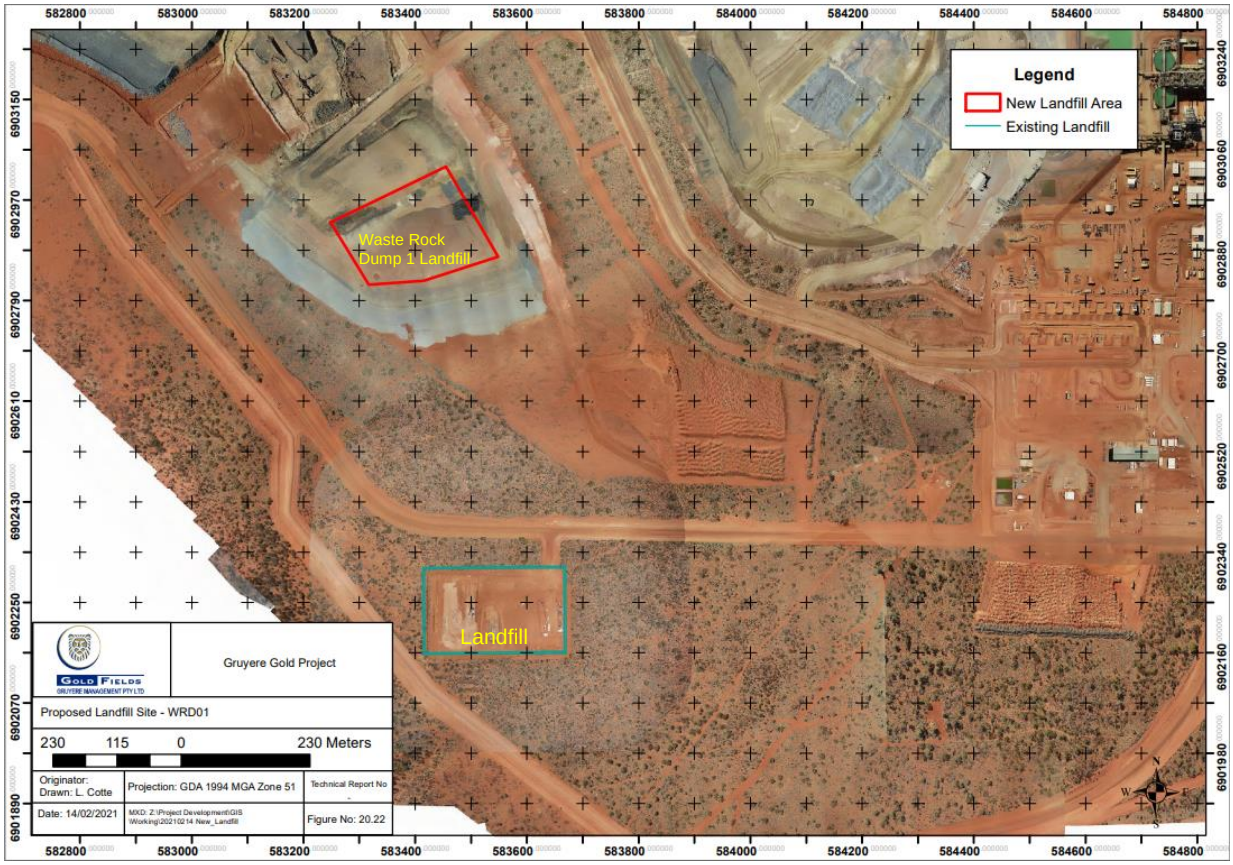
## Site Plan 3


581000
582000
583000
584000
585000
586000
6905600
6904800
6904000
6903200
6902400
Legend
Premise Boundary L9000/2017/1
Gruyere Waste Rock Landform
MRF Data M38/1267
MRF Category
Landfill
Mining Void - Above Water
Plant Site
TSF Class 1
Waste Dump C2
Workshop
GJV Tenements
TYPE
MINING LEASE
N
W
E
S
M 38/1267
M 38/1279
Gruyere Landfill and WRL Extent
Project: - Gruyere JV
640 320 0 640 Meters
Originator: Drawn: L. Cotte
Projection: GDA 1994 MGA Zone 51
Technical Report No -
Date: 02/03/2019
MXD:
Figure No: 20.1

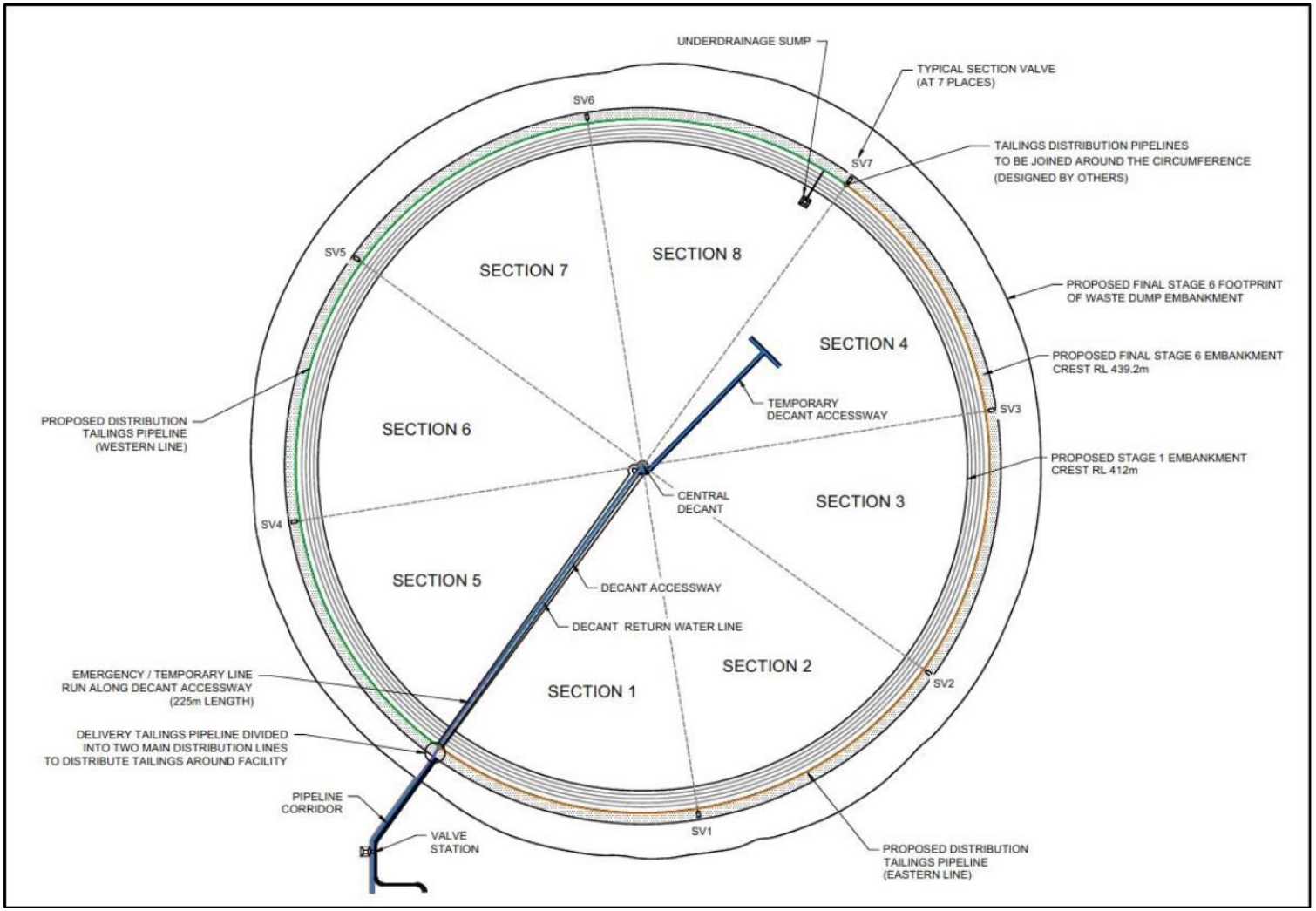
## Site Plan 4


584400 m
584700 m
585000 m
6903600 m
6903300 m
6903000 m
6902700 m
N
Raw Water Pond
Site Drainage Pond
Process Water Pond
Ore Storage – Stockpile
Cyanide Storage
Acid Storage
Power Station
Reagent Storage
Bulk Diesel Storage
Tailings Thickener
Administration
Pre-Leach Thickener
Legend
Processing Plant Infrastructure
Gruyere JV Prescribed Premise
Approved Infrastructure
M 38/1267
Miscellaneous Licence
Existing Track
Scale: 1:5000
Original Size: A4
Air Photo Date: 2015
Grid: MGA94(51)
Gruyere Management Pty Ltd
Gruyere Gold Project
Environmental Licence
Amendment
Figure 3
Processing Area Layout
MBS
W:\Gruyere Management\Gruyere\Approvals\Environmental Licence\Drawings\Gruyere - Prescribe Premises.map
2/11/2016
Processing Plant

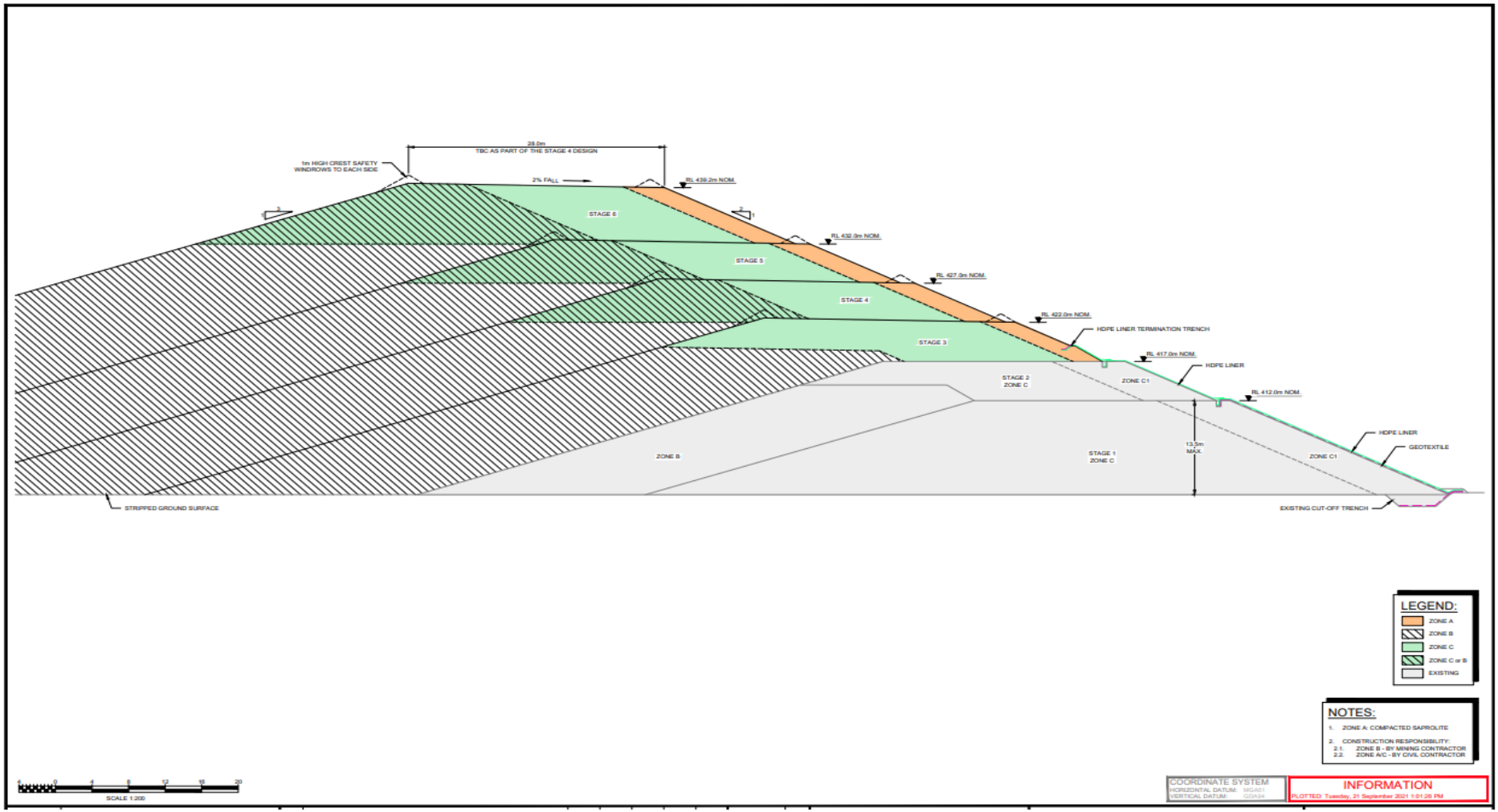
## Site Plan 5


Legend
New Landfill Area
Existing Landfill
Waste Rock Dump 1 Landfill
Landfill
Gruyere Gold Project
Proposed Landfill Site - WRD01
230 115 0 230 Meters
Originator: Drawn: L. Cotte
Projection: GDA 1994 MGA Zone 51
Technical Report No
Date: 14/02/2021
Figure No: 20.22
582800 583000 583200 583400 583600 583800 584000 584200 584400 584600 584800
6903150 6902970 6902790 6902610 6902430 6902250 6902070 6901890
6903240 6903060 6902880 6902700 6902520 6902340 6902160 6901980

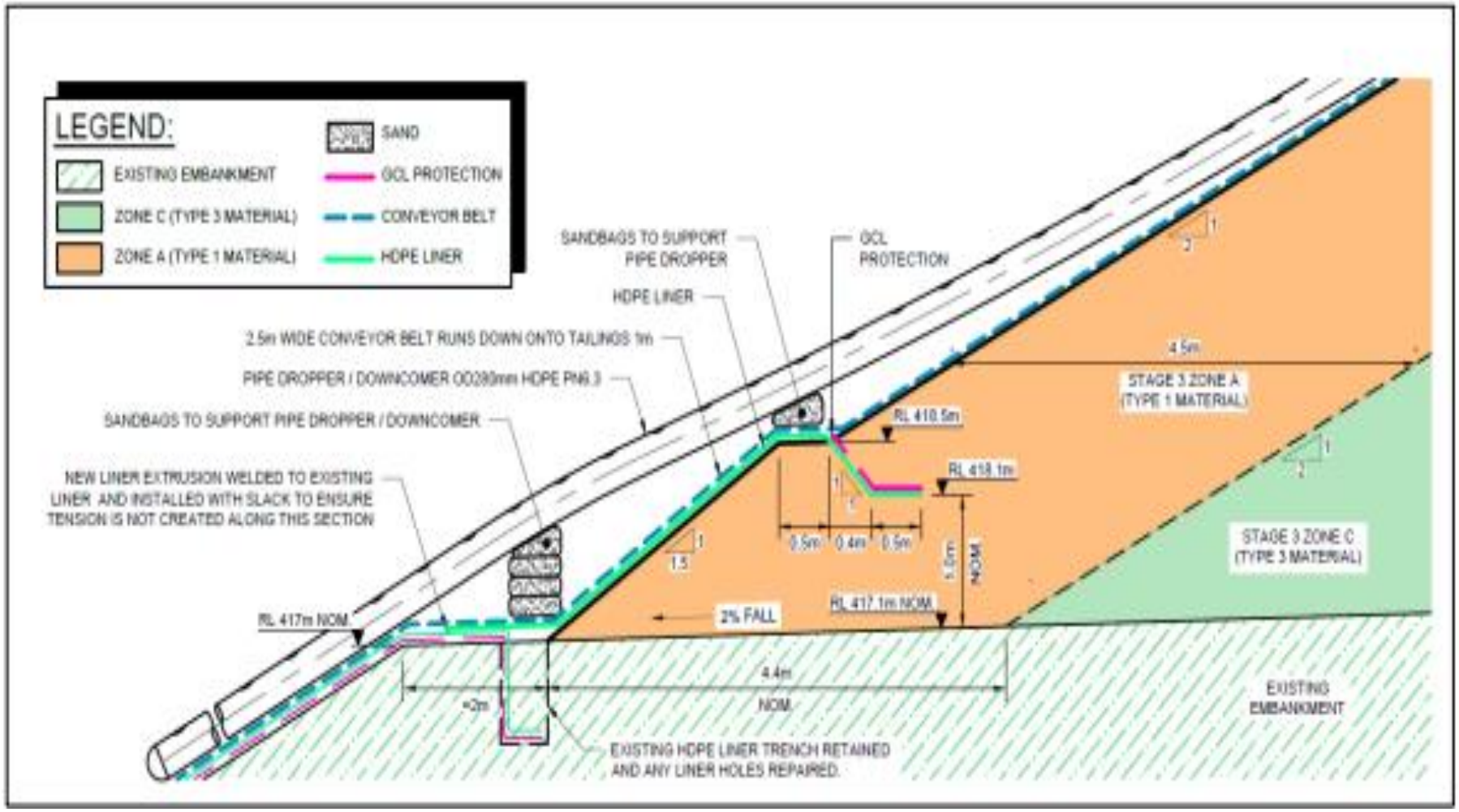
## TSF section layout



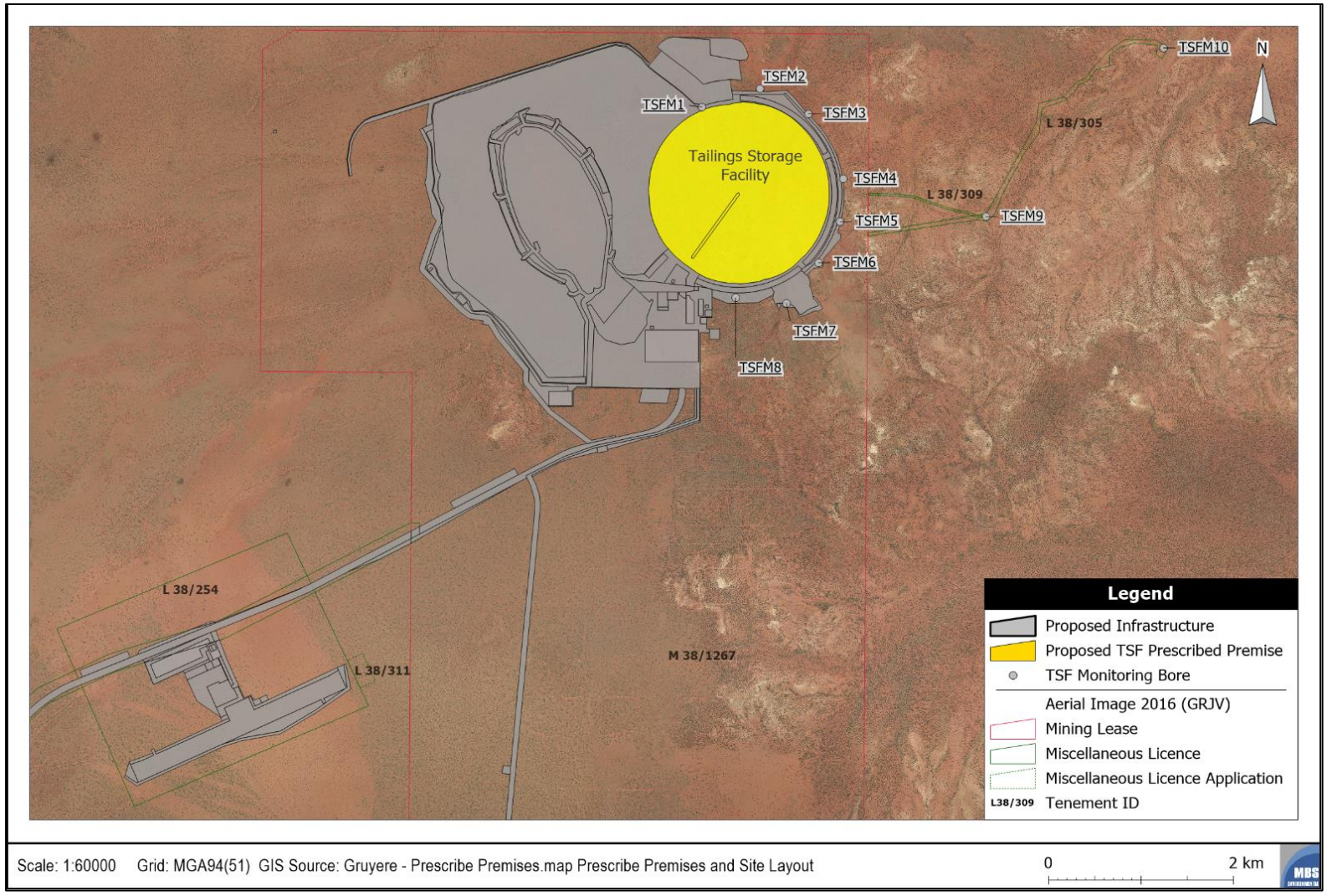
# TSF – Stage 3 – 6 typical embankment section



## TSF – Stage 2 HDPE liner and Stage 3 Zone A material junction



## TSF monitoring bore locations



# Schedule 2: Primary Activities

At the time of assessment, Emissions and Discharges from the following Primary Activities were considered in the determination of the risk and related Conditions for the Premises.

The Primary Activities are listed in Table 15.

**Table 15: Primary Activities**

| Primary Activity | Premises production or design capacity |
|---|---|
| Category 5 - Processing or beneficiation of metallic or non-metallic ore: premises on which —<br>(a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or<br>(b) tailings from metallic or non-metallic ore are reprocessed; or<br>(c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam. | 10,500,000 (dry) tonnes per Annual Period |
| Category 12 - Screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated. | 1,752,000 tonnes per Annual Period |
| Category 54 - Sewage facility: premises –<br>(a) on which sewage is treated (excluding septic tanks); or<br>(b) from which treated sewage is discharged onto land or into waters. | 225 $m^3$/day |
| Category 64 - Putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled “Landfill Waste Classification and Waste Definitions 1996” published by the Chief Executive Officer and as amended from time to time) is accepted for burial. | 2,000 tonnes per Annual Period |
| Category 73 - Bulk storage of chemicals etc.: premises on which acids, alkalis or chemicals that –<br>(a) contain at least one carbon to carbon bond; and<br>(b) are liquid at STP (standard temperature and pressure),<br>are stored. | 1,500 $m^3$ in aggregate |

## Infrastructure and equipment

The Primary Activity infrastructure and equipment situated on the Premises is listed in Table 166.

**Table 16: Infrastructure and equipment**

| Infrastructure and equipment | | Plan Reference |
|---|---|---|
| **Prescribed Activity Category 5** | | |
| 1 | Run of Mine pad and coarse ore stockpile | As shown in Schedule 1: Maps - Site Plan 2 – ROM Pad; and Site Plan 4 - Ore Storage - Stockpile |
| 2 | Primary Crushing Plant (open circuit gyratory crusher) | As shown in Schedule 1: Maps – Site Plan 1 - Processing Plant, Grinding Media, Crusher & Feed Conveyor and Primary Crushing Station; Site Plan 2 - Processing Plant; and Site Plan 4 - Pre-Leach Thickener and Tailings Thickener |
| 3 | Two stage grinding circuit (semi-autogenous milling with pebble crushing and ball milling) | |
| 4 | Gravity recovery circuit with intensive leach and dedicated electrowinning | |
| 5 | Leaching and Adsorption (hybrid carbon in leach circuit that consists of a single stage of leaching and six stages of leaching and adsorption) | |
| 6 | Thickening | |
| 7 | Smelting | |
| 8 | Carbon regeneration | |
| 9 | Above ground TSF – waste fines slurry pipeline, perimeter embankment, cut-off trench, decant tower, decant return pipeline, seepage recovery sump, perimeter underdrain, underdrainage network and perimeter surface water diversion structure | As shown in Schedule 1: Maps – Site Plan 1 – TSF; and Site Plan 2 - TSF and TSF decant |
| 10 | Processing reagents (carbon, flocculant, hydrochloric acid, sodium cyanide, sodium hydroxide, smelting fluxes and quicklime) | As shown in Schedule 1: Maps – Site Plan 1 – Reagents Store; and Site Plans 2 and 4 - Reagent Storage, Acid Storage and Cyanide Storage |
| 11 | Containment ponds (HDPE lined process water pond and a sedimentation pond) | As shown in Schedule 1: Maps – Site Plans 2 and 4 - Process Water Pond, Raw Water Pond and Site Drainage Pond |
| **Prescribed Activity Category 12** | | |
| 1 | MCSP | Not shown, but located within the TSF footprint (Schedule 1: Maps – Site Plan 1 – TSF) |

| Infrastructure and equipment | | Plan Reference |
|---|---|---|
| **Prescribed Activity Category 54** | | |
| | **Miner's accommodation village WWTP** | |
| 1 | Pump pits with duty/standby macerating pumps, control panel and alarms | Not shown, but refer to Schedule 1: Maps – Site Plan 1 - WWTP and Turkeys Nest; and Spray field (L1) for location |
| 2 | Influent screen | |
| 3 | Influent feed pump | |
| 4 | 3 x 55 kL modular fiberglass bioreactor | |
| 5 | 250 kL balance tank | |
| 6 | 50 kL sludge tank | |
| 7 | 250 kL treated effluent tank | |
| 8 | 2 hectare spray field with above ground sprinkler arrangement | |
| 9 | Fencing around the boundary of the WWTP and spray field | |
| | **Process plant WWTP** | |
| 1 | Pump pits with duty/standby macerating pumps, control panel and alarms | Not shown, but refer to Schedule 1: Maps – Site Plan 1 – WWTP and Sprayfield (L2); and Site Plan 2 – WWTP |
| 2 | Influent screen | |
| 3 | Influent feed pump | |
| 4 | Moving bed reactor | |
| 5 | 32 kL balance tank | |
| 6 | 9 kL sludge tank | |
| 7 | 32 kL treated effluent tank | |
| 8 | 2 hectare spray field with above ground sprinkler arrangement | |
| 9 | Fencing around the boundary of the WWTP and spray field | |

| Infrastructure and equipment | | Plan Reference |
|---|---|---|
| **Prescribed Activity Category 64** | | |
| | **Landfill facility** | |
| 1 | Fencing around the boundary | Not shown, but refer to Schedule 1: Maps – Site Plan 5 - Landfill for location |
| 2 | Signage | |
| 3 | Firebreak at least 3 m in width around the boundary of the facility | |
| | **Landfill trench** | |
| 1 | 250 m x 150 m landfill area | As shown in Schedule 1: Maps – Site Plan 5 - Landfill |
| 2 | Each cell approximately 30 m long x 10 m wide x 4 m deep, surrounded by an earthen bund of 1 m in height at surface level | |
| 3 | Length of 30 m which incorporates a ramp down into the trench | |
| | **Designated pallet cell** | |
| 1 | Located within landfill facility | Not shown, but refer to Schedule 1: Maps – Site Plan 5 - Landfill for location |
| 2 | Surrounded by a 2 m earthen perimeter bund | |
| | **Waste Rock Landform** | |
| 1 | For the disposal of Inert Waste Type 2 (tyres and cleaned ammonium nitrate bags only) | As shown in Schedule 1: Maps – Site Plan 3 – Waste Rock Landform |
| **Prescribed Activity Category 73** | | |
| 1 | 6 x 110 kL (~600 $m^3$ total capacity) self bunded diesel storage tanks for refuelling of light and heavy vehicles located directly north of the power station | As shown in Schedule 1: Maps – Site Plan 4 - Bulk Diesel Storage |
| 2 | 7 x 10 kL (~60 $m^3$ total capacity) self bunded oil storage tanks (total capacity 70 kL) | As shown in Schedule 1: Maps – Site Plan 3 - Workshop |
| 3 | Various ore processing reagents, including:<br>• hydrochloric acid (70 $m^3$);<br>• sodium cyanide (734 $m^3$); and<br>• sodium hydroxide (30 $m^3$).<br>Processing reagents are stored in a designated reagents shed or bulk storage units. | As shown in Schedule 1: Maps – Site Plan 1 – Reagents Store; and Site Plans 2 and 4 - Reagent Storage, Acid Storage and Cyanide Storage |

| Infrastructure and equipment | | Plan Reference |
|---|---|---|
| **Other activities** | | |
| 1 | OWS | Not shown, but refer to Schedule 1: Maps – Site Plan 4 – Bulk Diesel Storage for location |
| 2 | Washdown facility | Location not shown |
| 3 | Workshops | As shown in Schedule 1: Maps – Site Plan 3 – Workshop |

# Schedule 3: Improvement program

The improvement program details are described in Table 17.

**Table 17: Improvement program details**

| Improvement reference | Program details |
|---|---|
| IR1 | The Licence Holder must implement **Phase 1** (short-term management) TSF seepage recovery actions identified in Condition 12, including at a minimum the following:<br>1. Re-purpose the existing TSFM5 bore to recover groundwater and increase the TSFM5 bore pumping capacity to accommodate a pumping rate of at least 5 L/s and at most 15 L/s.<br>2. Drill at least 9 exploration holes around existing bores TSFM2 and TSFM5 (in aggregate). Exploration holes are to be drilled to a depth of at least 30 m or 6 m into the fresh bedrock.<br>3. Using the drilled exploration holes in IR1 point 2, install at least two recovery bores near TSFM2 and one recovery bore near TSFM5.<br>4. Construct the new recovery bores in IR1 point 3, so the slotted intervals are placed against the existing aquifer and also within the area that may be affected by mounding above the water table.<br>5. Test each new recovery bore using a step-rate test of at least 4 x 30-minute steps. Then undertake an 8-hour constant rate test after the step-rate test to determine:<br>(i) the yield for duty rate assignment, pump selection and site water balance purposes; and<br>(ii) the aquifer response for capture zone assessment.<br>6. Once the new recovery bores have been tested as per IR1 point 5, begin operating the recovery bores to recover seepage.<br>7. Monitor the following at the recovery bores, and at the already-built interception trenches and decant pond:<br>(i) groundwater level (GWL in mbgl – at recovery bores only);<br>(ii) abstraction volumes (in $m^3$/hour – at recovery bores and interception trenches only);<br>(iii) pH (field);<br>(iv) conductivity @ 25°C (field) (in µS/cm);<br>(v) Weak Acid Dissociated (WAD) Cyanide (in mg/L);<br>(vi) Sulfate: Chloride and Alkalinity; and<br>(vii) Other analytes (in mg/L): Total Dissolved Solids, Bicarbonate Alkalinity as HCO3, Sulfate (as SO4), Chloride, Calcium, Magnesium, Potassium, Sodium, Total Cyanide.<br>8. Monitoring as described in IR1 point 7 should commence as soon as the recovery bores are operational.<br>9. Monitoring as described in IR1 point 7 is to be undertaken progressively at the following frequencies:<br>(i) every 4 to 8 hours for no less than three days; |

| Improvement reference | Program details |
|---|---|
| | (ii) daily for at least a week;<br>(iii) weekly for at least a month; and<br>(iv) monthly throughout **Phase 1.**<br>10. Install at least one monitoring bore within 50 m of TSFM5, and at least one monitoring bore between TSFM2 and TSFM3, drilled to a depth of at least 30 m or 6 m into the fresh bedrock. The monitoring bores are to measure GWL (in mbgl) at the frequency identified in IR1 point 9.<br>11. Recovered groundwater is to be sent to the sedimentation/process pond or into another existing impervious holding area. Recovered groundwater is not to be sent to the TSF during **Phase 1**.<br>12. Monitor GWL at all groundwater bores for the TSF at least weekly.<br>13. Submit a report to the CEO after **Phase 1** has been completed which must include as a minimum:<br>(i) compliance with the **Phase 1** actions detailed in IR1 points 1 to 12 and any other actions implemented during **Phase 1** for seepage recovery;<br>(ii) interpretation of the results of the actions undertaken during **Phase 1;**<br>(iii) assessment of the capacity of the seepage recovery system to determine if recovered groundwater deposited onto the TSF would be appropriately contained or recovered;<br>(iv) a water balance, including the parameters as per Condition 5;<br>(v) all water quality monitoring laboratory reports;<br>(vi) coordinates of, and a map with, the locations of the recovery and monitoring bores; and<br>(vii) IR2 **Phase 2** actions and associated implementation timeframes based on the progress of the seepage recovery.<br>14. Submit a **Phase 2** seepage recovery management plan. The aim of the plan is to investigate whether unplanned seepage is occurring elsewhere around the TSF following the implementation of the actions in **Phase 1**. The plan must include a summary and interpretation of outcomes of the **Phase 1** TSF seepage recovery actions, and must specify triggers for actions and execution timeframes for the implementation of at least the following commitments:<br>(i) Install additional monitoring bores around the TSF to assist with determining the hydraulic properties of the groundwater flow system once recovery begins and identifying the capture zones after the Phase 1 bores have been operational for at least one month.<br>(ii) Install additional GWL monitoring bores further downstream of TSFM2 and TSFM5 to monitor longer-term mounding trends. |

| Improvement reference | Program details |
|---|---|
| IR2 | Following compliance with IR1, the Licence Holder must implement **Phase 2** (medium-term management) TSF seepage recovery actions identified in Condition 12, including at a minimum the following:<br>1. Continue monitoring of recovery bores, and at the already-built interception trenches and decant pond, as described in IR1 point 7 monthly during **Phase 2**.<br>2. Continue to measure GWL (in mbgl) at monitoring bores monthly during **Phase 2.**<br>3. Continue sending recovered groundwater to the sedimentation/ process pond or into another existing impervious holding area. Recovered groundwater can be sent to the TSF if the activity is approved prior to implementing **Phase 2**.<br>4. Implement actions within the **Phase 2** seepage recovery management plan identified in IR1 point 14.<br>5. Undertake electromagnetic surveys around perimeter of the TSF to identify:<br>(i) baseline conditions in areas that have not had tailings deposited;<br>(ii) current conditions in areas affected by seepage; and<br>(iii) whether seepage is passing beneath the embankment along undetected geological structures or zones of highly fractured bedrock.<br>6. Develop a seepage recovery operation plan that defines how the bores and sumps are to be operated to maximise seepage recovery.<br>7. Submit a report to the CEO after **Phase 2** has been completed which must include as a minimum:<br>(i) compliance with the **Phase 2** actions and any other actions implemented during **Phase 2** for seepage recovery;<br>(ii) interpretation of the results of the actions in **Phase 2**;<br>(iii) if not undertaken prior to implementation of **Phase 2**, assessment of the capacity of the seepage recovery system to determine if recovered groundwater deposited onto the TSF would be appropriately contained or recovered;<br>(iv) the seepage recovery operation plan as described in IR2 point 6;<br>(v) a water balance, including the parameters as per Condition 5; and<br>(vi) coordinates of, and a map with, the locations of the recovery and monitoring bores, where relevant. |

| Improvement reference | Program details |
|---|---|
| IR3 | Following compliance with IR1 and IR2, the Licence Holder must implement Long-term TSF seepage recovery actions as identified in Condition 13, including at a minimum the following:<br>1. Continue monitoring of recovery bores, and at the already-built interception trenches and decant pond, as described in IR1 point 7, monthly.<br>2. Continue to measure GWL (in mbgl) at monitoring bores monthly.<br>3. Continue sending recovered groundwater to the sedimentation/ process pond or into another existing impervious holding area. Recovered groundwater can be sent to the TSF if this activity is approved after implementing **Phase 2**.<br>4. Implement the seepage recovery operation plan as described in IR2 point 6.<br>The Licence Holder must submit a long-term seepage recovery management plan prior to the Date of Completion identified in Condition 12. The plan must include a summary and interpretation of outcomes of the **Phase 1** and **Phase 2** TSF seepage recovery actions. The plan must identify triggers for actions and execution timeframes for the implementation of at least the following commitments:<br>a) Long-term electromagnetic survey program to assess whether conditions have changed in areas where changes are otherwise undetected by the existing bore network.<br>b) Long-term seepage recovery solutions that will be considered and the circumstances in which the seepage recovery solutions may be used, including but not limited to the following:<br>(i) Increase the number of recovery and monitoring bores targeting high risk areas, including potential for GWL bores further downstream of TSFM2 and TSFM5 to monitor longer-term mounding trends; and/or<br>(ii) Install cut-off trenches where seepage is within 5 to 7 m of the surface; and/or<br>(iii) Install drainage bores within the base of the cut-off trenches to collect deeper seepage not normally accessible using trenches; and/or<br>(iv) Install underdrains beneath downstream embankment lifts.<br>c) Regular updates of the water balance, including the parameters as per Condition 5.<br>The Licence Holder must submit an annual report outlining the compliance with the long-term seepage recovery management plan, which will form a part of the AER. |

Note 1: existing bore locations shown in Schedule 1: Maps (TSF monitoring bore locations)