Government of Western Australia
Department of Water and Environmental Regulation

# Works Approval

| | |
|---|---|
| **Works approval number** | W6158/2018/1 |
| **Works approval holder** | Hastings Technology Metals Limited |
| **ACN** | 122 911 399 |
| **Registered business address** | Level 3<br>5 Mill Street<br>PERTH WA 6000 |
| **DWER file number** | DER2018/000838 |
| **Duration** | 2/12/2018 to 01/12/2024 |
| **Date of amendment** | 11/11/2022 |
| **Premises details** | Yangibana Rare Earths Project Early Works<br>Legal description –<br>Mining Leases M09/158, M09/157, L09/68, L09/69, L09/70, L09/80, L09/81, L09/93, L09/95, G09/14 and E09/1700<br>WEST LYONS RIVER WA 6705 |

| **Prescribed premises category description** (Schedule 1, *Environmental Protection Regulations 1987*) | **Assessed production / design capacity** |
|---|---|
| Category 12: Screening etc. of material | 363,000 $m^3$ per annual period |
| Category 64: Class II putrescible landfill site | 30 tonnes per annual period |
| Category 54: Sewage facility | 148.8 $m^3$/day |

This works approval is granted to the works approval holder, subject to the attached conditions, on 11 November 2022, by:

Carmen Standring

Digitally signed by Carmen Standring
Date: 2022.11.11 09:31:20 +08'00'

**A/MANAGER, RESOURCE INDUSTRIES**
**REGULATORY SERVICES**
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

# Works approval history

| Date | Reference number | Summary of changes |
|---|---|---|
| 29 November 2018 | W6158/2018/1 | Works approval granted. |
| 6 April 2020 | W6158/2018/1 | Amendment to works approval granted for the increase in Category 85 throughput from 70 $m^3$/day to 98.8 $m^3$/day |
| 22 November 2021 | W6158/2018/1 | Amendment to works approval granted for the relocation of the wastewater treatment plant, changes to premises boundary and 3 year extension to works approval duration. |
| 11 November 2022 | W6158/2018/1 | Amendment to works approval granted for authorisation of crushing and screening activities at the new Borrow Pit and the extended footprints of two existing Borrow Pits within the premises boundary. Inclusion of time limited operations for category 12. |

# Interpretation

In this works approval:

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

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

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

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

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

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

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

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

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

# Works approval conditions

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

## Construction phase

### Infrastructure and equipment

**1.** The works approval holder must:

(a) construct 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 1.

**Table 1: Design and construction / installation requirements**

| | Infrastructure | Design and construction / installation requirements | Infrastructure location |
|---|---|---|---|
| 1. | Crushing and screening plant | • Crushing and screening plant must only be used at the four borrow pit locations within the premises.<br>• Drainage and diversion channels must be constructed at appropriate locations at borrow pits to manage stormwater. | To be used within the four borrow pit locations as indicated by Figure 1 of Schedule 1 |
| 2. | Class II Putrescible landfill | • Landfill must consist of four trenches 2 metres in width, 20 metres in length, and 2 metres in depth.<br>• Landfill must be located greater than 3 m above the groundwater table.<br>• Landfill must be located at least 80 m away from surface water features.<br>• Earthen bunding must be constructed surrounding the landfill trenches so as to prevent the ingress of stormwater.<br>• Perimeter fencing must be erected around landfill trenches. | Trenches to be located within the 'Landfill site' as indicated by Figure 1 of Schedule 1 |
| 3. | Wastewater treatment plant (WWTP) | • Self bunded, containerised and enclosed WWTP as specified in Figure 2 of Schedule 1.<br>• Infrastructure components including:<br>o Sludge tank of 10 kL capacity;<br>o Two balance tanks<br>o Anerobic treatment tank<br>o Anoxic treatment tank<br>o Three aeration tanks<br>o Two irrigation tanks<br>o Two clarifier tanks<br>• All sewage and storage treatment tanks, vessels transfer pipelines and conveyance infrastructure must be impermeable and free of leaks or defects;<br>• Earthen bunding must be constructed around the perimeter of the WWTP<br>• Stormwater is prevented from entering the sewage treatment system and storage infrastructure; | Located as depicted in Figure 1 of Schedule 1 |

| | Infrastructure | Design and construction / installation requirements | Infrastructure location |
|---|---|---|---|
| | | • WWTP able to treat sewage to the follow discharge limits:<br>  ○ Biochemical Oxygen Demand (BOD) < 20 mg/L<br>  ○ Total Suspended Solids (TSS) < 30 mg/L<br>  ○ Total Dissolved Solids < 1000 mg/L<br>  ○ Total Nitrogen < 30 mg/L<br>  ○ Total Phosphorus < 8 mg/L<br>  ○ pH range of 6.8 – 8.5<br>  ○ *Escherichia coli* (E. coli) < 1000 colony forming units (cfu) per 100 mL<br>• WWTP must include pump pits to collect and forward sewage to the WWTP balance tanks, with pre-set level floats to activate the pumps within the pits;<br>• Flowmeters installed on the irrigation pump to monitor volumes discharged to the irrigation sprayfield<br>• Alarm system installed to notify the operator of:<br>  ○ Pump failure; and<br>  ○ High tanks levels;<br>• Chemicals must be stored separately with an above ground vessel/s located on a hardstand enclosed by bunds in accordance with Australian Standard AS3780. | |
| 4. | Irrigation field<br>Stage 1 | • Irrigation field must be fenced with safety signage to deter access<br>• Above ground sprinklers to be installed over a 1.5 hectare area<br>• Sprinklers must be installed to ensure no ponding or pooling of water occurs<br>• Treated wastewater and RO brines must be blended prior to irrigation<br>• Irrigation field permitted to receive up to 76 $m^3$/day of blended effluent via irrigation | Located as depicted in Figure 1 of Schedule 1 |
| 5. | Irrigation field<br>Stage 2 | • Irrigation field must be fenced with safety signage to deter access<br>• Above ground sprinklers to be installed over a 4 hectare area<br>• Sprinklers must be installed to ensure no ponding or pooling of water occurs<br>• Treated wastewater and RO brines must be blended prior to irrigation<br>• Irrigation field permitted to receive up to 148.8 $m^3$/day of blended effluent via irrigation | Located as depicted in Figure 1 of Schedule 1 |
| 6. | Reverse Osmosis (RO) brine pipeline | • Must be impermeable and free of leaks and defects<br>• Connected to a volumetric flowmeter to monitor the daily volume of RO brine delivered to the WWTP Irrigation tanks. | N/A |

### Compliance reporting

**2.** The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/or installed:

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

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

**3.** The Environmental Compliance Report required by condition 2, must include as a minimum the following:

(a) certification by a person authorised to represent the works approval holder that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;

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

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

## Environmental commissioning phase

### Environmental commissioning requirements and emission limits

**4.** The works approval holder may only commence environmental commissioning of an item of infrastructure listed in condition 5 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 2 of this works approval.

**5.** Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 2 may only be carried out:

(a) in accordance with the corresponding commissioning requirements; and

(b) for the corresponding authorised commissioning duration.

**Table 2: Environmental commissioning requirements**

| Infrastructure | Commissioning requirements | Authorised commissioning duration |
|---|---|---|
| WWTP | • Flow meters are maintained on the WWTP inlet and outlet to the irrigated discharge area<br>• Sludge is contained within sealed sludge tanks prior to removal by a licensed waste carried for disposal to an appropriately authorised facility<br>• Spills of wastewater or chemicals outside of a vessel / container are to be cleaned up immediately | For a period not exceeding 180 calendar days in aggregate. |
| Irrigation field<br>Stage 1 | • No more than 76 $m^3$/day of blended effluent can be applied per day to the irrigation discharge area as defined by Figure 1 of Schedule 1 | |

| Infrastructure | Commissioning requirements | Authorised commissioning duration |
|---|---|---|
| | • Irrigation is managed to prevent ponding and pooling of effluent in the ground surface of the irrigation discharge area<br>• No blended effluent is permitted to enter any watercourse shown in Figure 2, Schedule 1. | |
| Irrigation Field Stage 2 | • No more than 148.8 $m^3$/day of blended effluent can be applied per day to the irrigation discharge area as defined by Figure 1 of Schedule<br>• Irrigation is managed to prevent ponding and pooling of effluent in the ground surface of the irrigation discharge area<br>• No blended effluent is permitted to enter any watercourse shown in Figure 2, Schedule 1. | |
| Reverse Osmosis (RO) brine pipeline | • No more than 50 $m^3$/day p of RO brine is supplied to the WWTP;<br>• Volumetric flow meters are maintained to monitor daily volume of RO brine delivered to the WWTP irrigation storage tanks | |

**6.** During environmental commissioning, the works approval holder must ensure that the emission(s) specified in Table 3, are discharged only from the corresponding discharge point(s) and only at the corresponding discharge point location(s).

**Table 3: Authorised discharge points during commissioning**

| Emission | Discharge point | Discharge point location |
|---|---|---|
| Blended effluent | Sprinklers within the irrigation sprayfield | Irrigation sprayfield as shown in Figure 1 of Schedule 1 |

## Monitoring during environmental commissioning

**7.** The works approval holder must monitor emissions during environmental commissioning in accordance with Table 4.

**Table 4: Emissions and discharge monitoring during environmental commissioning**

| Discharge point | Monitoring location | Parameter | Frequency | Averaging Period | Unit |
|---|---|---|---|---|---|
| Sprinklers within the irrigation sprayfield | WWTP outlet | E. coli | Weekly | Spot sample | cfu/100mL |
| | | Total coliforms | | | |
| | | $BOD_5$ | | | mg/L |
| | | TSS | | | |
| | | Total N | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | Total P | | | |
| | | pH[1] | Daily or continuous | N/A | pH units |
| | | Residual Chlorine[1] | | | mg/L |
| | | Cumulative flow volume | Continuous | | $m^3$ |
| | | Chemical Oxygen Demand | Quarterly | Spot sample | mg/L |
| | | Fluoride | | | |
| | | Nitrate | | | |
| | | Major ions<br>Calcium, Carbonate, Potassium, Magnesium, Sodium, Sulfate | | | |
| | | Metals and Metalloids<br>Aluminium, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Copper, Iron, Manganese, Mercury, Molybdenum, Nickel, Lead, Selenium, Silicon, Silver, Strontium, Thorium, Tin, Titanium, Uranium, Zinc | | | |

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

**8.** For the monitoring activity required by condition 7, the works approval holder must:

(a) record the results;

(b) handle and preserve all water samples collected during the monitoring of the WWTP in accordance with AS5667.1:1998; and

(c) have analysis conducted by a laboratory with current National Association of Testing Authorities (NATA) accreditation for the parameters specified.

**9.** The works approval holder must submit to the CEO an Environmental Commissioning Report within 30 calendar days of the completion date of environmental commissioning for each item of infrastructure specified in Table 2.

**10.** The works approval holder must ensure the Environmental Commissioning Report required by condition 9 of this works approval includes the following:

(a) a summary of the environmental commissioning activities undertaken, including timeframes and amount of wastewater processed;

(b) the emissions monitoring results recorded in accordance with conditions 7 and 8;

(c) a summary of the environmental performance of each item of infrastructure or equipment as constructed or installed, which at minimum includes records detailing:

(i) a comparison of the treated effluent monitoring results against discharge limits specified in condition 1; and

(ii) assessment of the irrigation spray field performance against operational requirements in condition 5;

(d) a review of the works approval holder's performance and compliance against the conditions of this works approval; and

(e) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works approval, together with timeframes for implementing the proposed measures.

## Time limited operations phase

### Commencement and duration

**11.** The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1, where the item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 2 has been submitted by the works approval holder for that item of infrastructure.

**12.** The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 13 (as applicable):

(a) for a period not exceeding 210 calendar days from the day the works approval holder meets the requirements of condition 11 (as applicable) for that item of infrastructure; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, if one is granted before the end of the period specified in condition 12(a).

### Time limited operations requirements

**13.** During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 5 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 5.

**Table 5: Infrastructure and equipment requirements during time limited operations**

| | Site infrastructure and equipment | Operational requirement | Infrastructure location |
|---|---|---|---|
| 1. | Crushing and screening plant | • Throughput of 363,000 $m^3$ per annual period<br>• Drainage and diversion channels must be maintained to manage stormwater.<br>• Spill procedure is implemented for any spills<br>• Spills are to be cleaned up immediately with spill kits | To be used within the four borrow pit locations as indicated by Figure 1 of Schedule 1 |

### Compliance reporting

**14.** The works approval holder must submit to the CEO a report on the time limited operations within 60 calendar days of the completion date of time limited operations or 60 calendar days before the expiration date of the works approval, whichever is the sooner.

**15.** The works approval holder must ensure the report required by condition 14 includes the following:

(a) a summary of the time limited operations, including timeframes;

(b) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the:

(i) amount of total material processed; and
(ii) amount of rock produced.

(c) where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

## Record-keeping

**16.** The Works Approval Holder must maintain accurate Books including information, reports and data in relation to the Works and the Books must:

(a) be legible;

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

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

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

**17.** The Works Approval 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.

# Definitions

In this works approval, the terms in Table 6 have the meanings defined.

**Table 6: Definitions**

| Term | Definition |
|---|---|
| Blended effluent | means a mixture of treated effluent produced by the wastewater treatment and reverse osmosis brines |
| Books | has the same meaning given to that term under the EP Act |
| 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 33 Cloisters Square<br>PERTH WA 6850<br>info@dwer.wa.gov.au |
| Condition | means a condition to which this Works Approval is subject under s.62 of the EP Act |
| Department | means the department established under section 35 of the Public Sector Management Act 1994 and designated as responsible for the administration of Part V, Division 3 of the EP Act |
| Department Request | means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Works Approval Holder in writing and sent to the Works Approval's address for notifications, as described at the front of this Works Approval, in relation to:<br>(a) compliance with the EP Act or this Works Approval;<br>(b) the Books or other sources of information maintained in accordance with this Works Approval; 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 | Department of Water and Environmental Regulation |
| Emission | has the same meaning given to that term under the EP Act |
| EP Act | means the Environmental Protection Act 1986 (WA) |
| EP Regulations | means the Environmental Protection Regulations 1987 (WA) |
| Implementation | has the same meaning given to that term under the EP Act. |

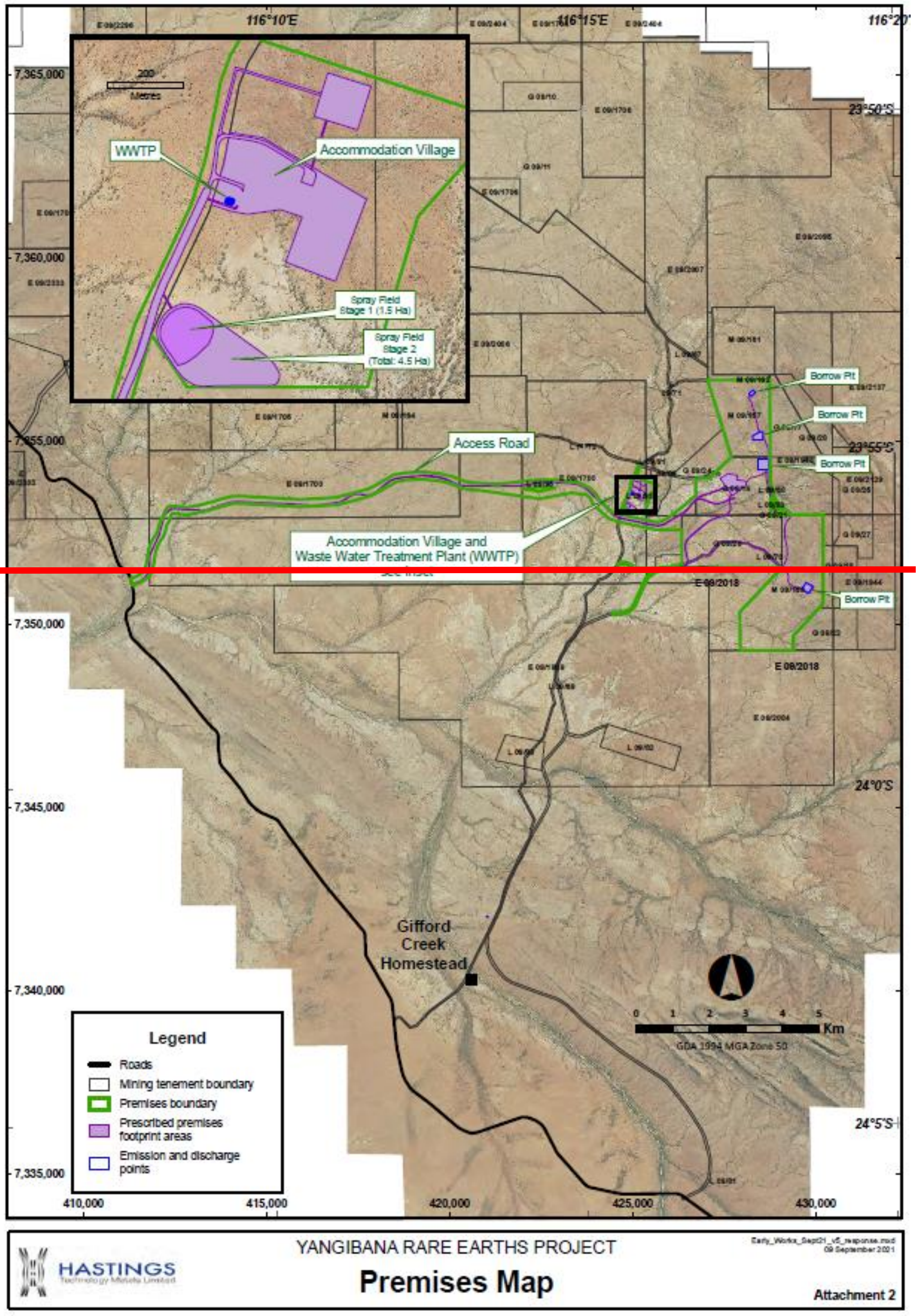
| | |
|---|---|
| Agreement or Decision | |
| Inspector | means an inspector appointed by the CEO in accordance with s.88 of the EP Act |
| $m^3$ | cubic metres |
| NATA | National Association of Testing Authorities, Australia |
| Premises | refers to the premises to which this Works Approval applies, as specified at the front of this Works Approval and as shown on the map in Schedule 1 to this Works Approval |
| Prescribed Premises | has the same meaning given to that term under the EP Act |
| Spot sample | a discrete sample representative at the time and place at which the sample is taken |
| Stage 1 | construction of:<br>• the WWTP to treat up to 35 m3 per day of wastewater;<br>• a 1.5 hectare irrigation area to receive treated effluent;<br>• mobile crushing and screening plant; and<br>• putrescible landfill |
| Stage 2 | increase in wastewater throughput of the WWTP to 100 m3 per day and expansion of the irrigation area to 4 hectares |
| Waste | has the same meaning given to that term under the EP Act |
| Works | refers to the Works described in Schedule 2, at the locations shown in Schedule 1 of this Works Approval to be carried out at the Premises, subject to the Conditions |
| Works Approval | refers to this document, which evidences the grant of the works approval by the CEO under s.54 of the EP Act, subject to the Conditions |
| Works Approval Holder | refers to the occupier of the Premises being the person to whom this Works Approval has been granted, as specified at the front of this Works Approval |
| WWTP | Wastewater Treatment Plant |

**END OF CONDITIONS**

# Schedule 1: Maps

## Premises map

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



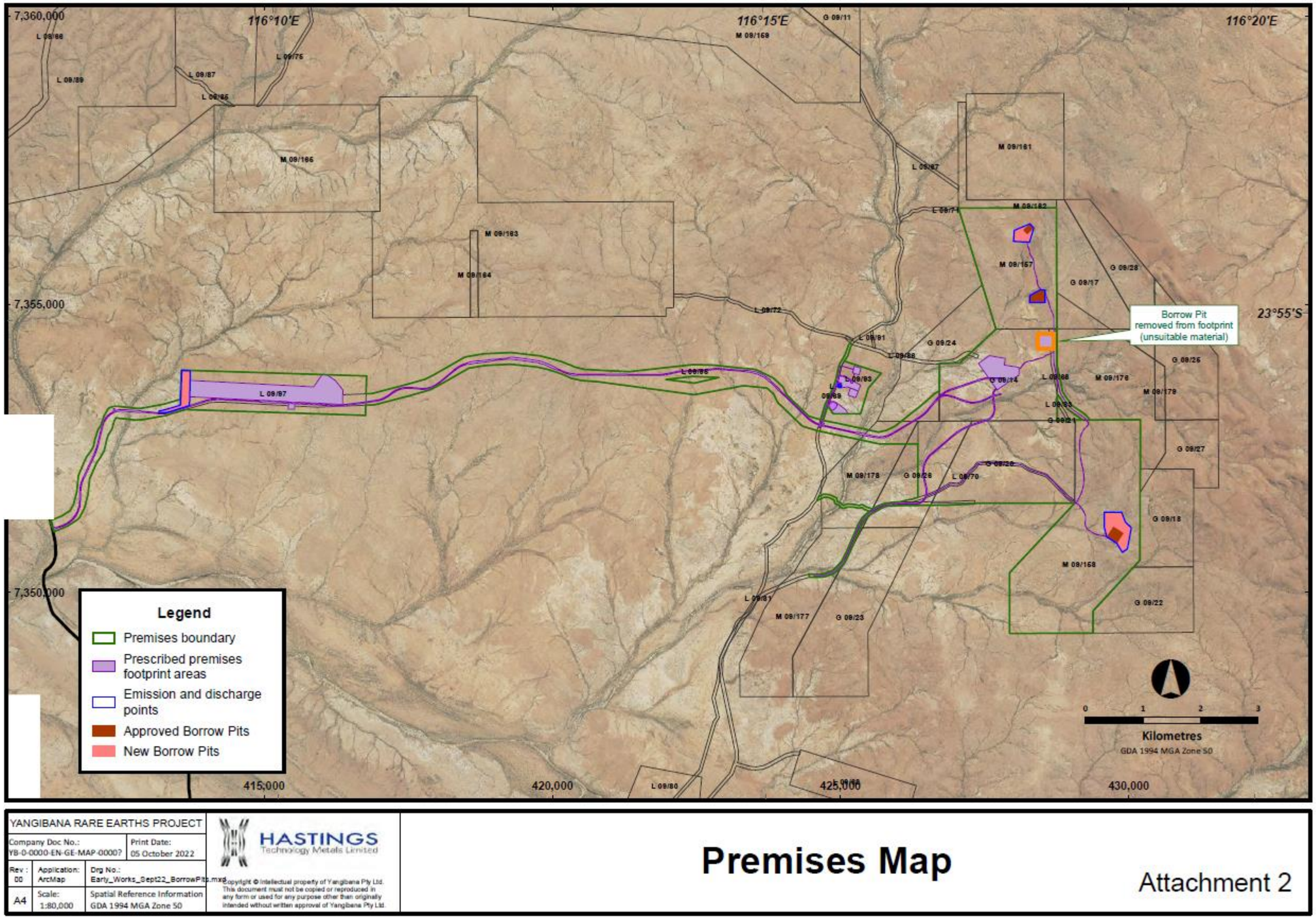



**Figure 1: Map of the boundary of the prescribed premises**

## Wastewater treatment plant siting

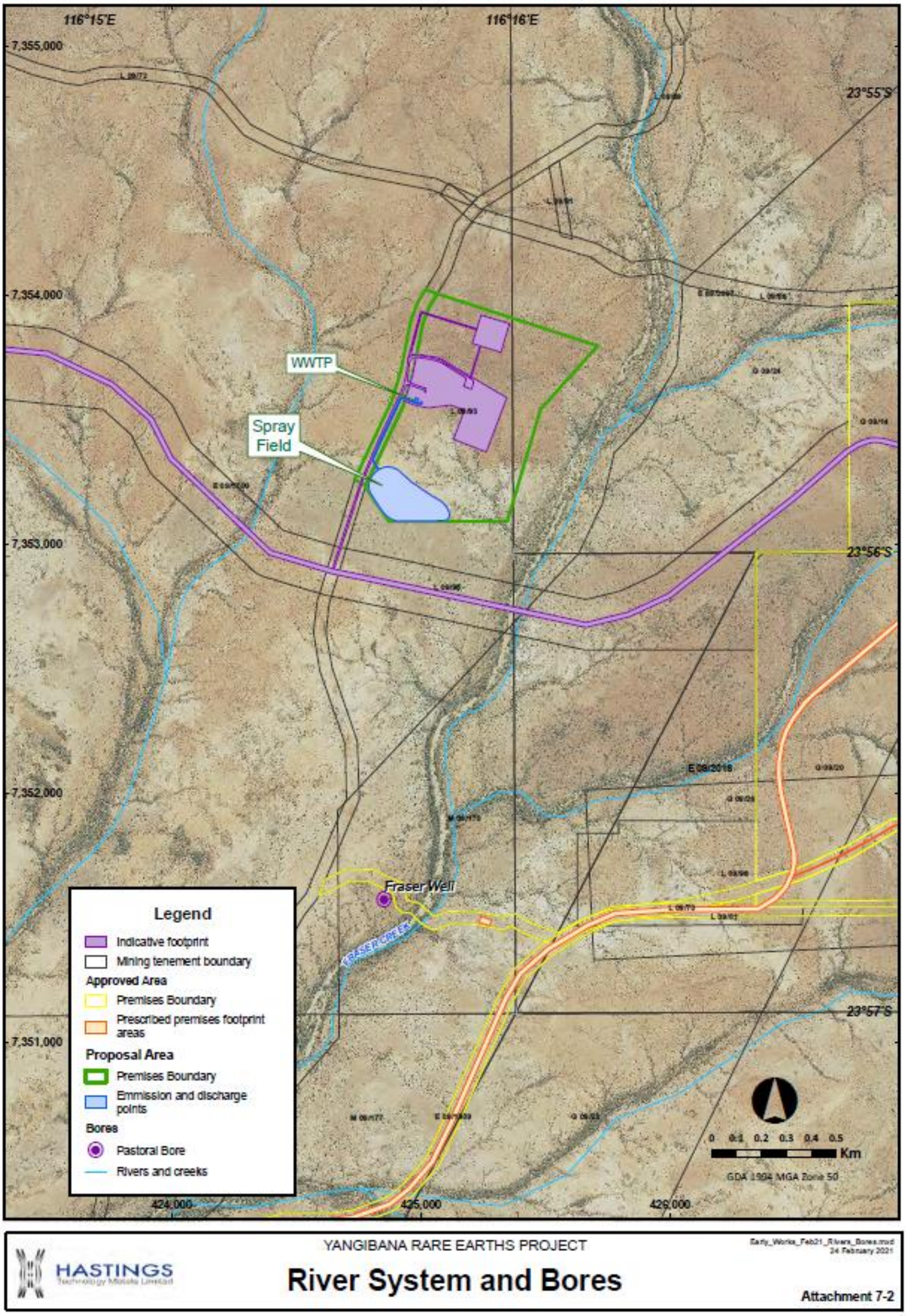



**Figure 2: Siting of WWTP and irrigation sprayfield relative to surrounding creek lines**