



Works Approval

Works Approval Number	W6178/2018/1
Works Approval Holder	Galena Mining Limited
ACN	616 317 778
Registered business address	Suite 5, 245 Churchill Avenue Subiaco WA 6008
File Number	DER2018/001469
Duration	13/03/2019 to 12/03/2022
Date of issue	13/03/2019
Prescribed Premises	Category 85 – sewage facility Category 89 – putrescible landfill
Premises	Abra Base Metals Project General Purpose Lease G52/292 Meekatharra WA 6642

This Works Approval is granted to the Works Approval Holder, subject to the following conditions, on 13 March 2019, by:

Alana Kidd

Manager, Resource Industries

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

Explanatory notes

These explanatory notes do not form part of this Works Approval.

Defined terms

Definition of terms used in this Works Approval can be found at the start of this Works Approval. Terms which are defined have the first letter of each word capitalised throughout this Works Approval.

Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation (DWER) is 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 *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences and works approvals, takes enforcement action and develops and implements licensing and industry regulation policy.

Works Approval

Section 52 of the EP Act provides that an occupier of any premises commits an offence if any work is undertaken on, or in relation to, the premises which causes the premises to become, or to become capable of being, Prescribed Premises, except in accordance with a works approval.

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered or permitted to be altered from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Works Approval does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to, the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007*;
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Works Approval Holder to ensure that any action or activity referred to in this Works Approval is permitted by, and is carried out in compliance with, statutory requirements.

The Works Approval Holder must comply with the Works Approval. Contravening a Works Approval Condition is an offence under s.55 of the EP Act.
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Responsibilities of Works Approval Holder

Separate to the requirements of this Works Approval, general obligations of Works Approval Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Works Approval Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under s.61; and

- 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 (s.53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Works Approval Holder has a duty to report to the Department all Discharges of Waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

Offences and defences

The EP Act and its regulations set out a number of offences including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)*.
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA)*.

Section 53 of the EP Act provides that a Works Approval Holder commits an offence if Emissions are caused, or altered, from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a closure notice or an environmental protection notice.

Defences to certain offences may be available to a Works Approval Holder and these are set out in the EP Act. Section 74A(b)(iii) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Works Approval Holder can prove that an Emission or Discharge occurred in accordance with a Works Approval.

This Works Approval specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

The specified and general Emissions and Discharges from the Works authorised through this Works Approval are authorised to be conducted in accordance with the Conditions of this Works Approval.

Amendment of Works Approval

The Works Approval Holder can apply to amend the Conditions of this Works Approval under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Works Approval at any time on the initiative

of the CEO without an application being made.

[Duration of Works Approval](#)

The Works Approval will remain in force for the duration set out on the first page of this Works Approval or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

[Suspension or revocation](#)

The CEO may suspend or revoke this Works Approval in accordance with s.59A of the EP Act.

Definitions and interpretation

Definitions

In this Works Approval, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 <i>Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples</i> .
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 <i>Water Quality – Sampling – Guidance on sampling of waste waters</i> .
Averaging period	means the time over which a limit is measured or a monitoring result is obtained.
Books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 10, JOONDALUP DC WA 6919 info@dwer.wa.gov.au
cfu/100 mL	means colony-forming units per 100 millilitres.
Commission	means the process of operation and testing that verifies the Works and all relevant systems, plant, machinery and equipment associated with the WWTP have been installed and are performing in accordance with Table 2.
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 <i>Public Sector Management Act 1994</i> 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: (a) compliance with the EP Act or this Works Approval; (b) the Books or other sources of information maintained in accordance with this Works Approval; or (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.
Environmental Harm	has the same meaning given to that term under the EP Act.
EP Act	means the <i>Environmental Protection Act 1986</i> (WA).
EP Regulations	means the <i>Environmental Protection Regulations 1987</i> (WA).
HDPE	means high density polyethylene.
Implementation Agreement or Decision	has the same meaning given to that term under the EP Act.
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
kL	means kilolitres.
Material Environmental Harm	has the same meaning given to that term under the EP Act.
NATA	National Association of Testing Authorities, Australia.
pfu/100 mL	means plaque forming units per 100 millilitres.
Pollution	has the same meaning given to that term under the EP Act.
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.
Reportable Event	means an exceedance above the target limit specified in Column 4 of Table 6, in Schedule 3.
Serious Environmental Harm	has the same meaning given to that term under the EP Act.
Spot sample	means a discrete sample representative at the time and place at which the sample is taken.
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.

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	means Wastewater Treatment Plant.
m ³ /day	means cubic metres per day.

Interpretations

In this Works Approval:

- (a) the words 'including', 'includes' and 'include' will be read as if followed by the words 'without limitation';
- (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 means the version of the standard, guideline or code of practice in force at the time of granting of this Works Approval and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Works Approval; and
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

Conditions

Infrastructure and equipment

1. The Works Approval Holder must install and undertake the Works for the infrastructure and equipment:
 - (a) specified in Column 1;
 - (b) to the requirements specified in Column 2; and
 - (c) at the location specified in Column 3 of Table 2 below.
2. The Works Approval Holder must not depart from the requirements specified in Column 2 of Table 2 except:
 - (a) where such departure does not increase risks to public health, public amenity or the environment; and
 - (b) all other Conditions in this Works Approval are still satisfied.
3. Subject to Condition 1, within 30 days of the completion of the Works specified in Column 1 of Table 2, the Works Approval Holder must provide to the CEO a report from a suitably qualified professional confirming each item of infrastructure or component of infrastructure specified in Column 1 of Table 2 below has been constructed with no material defects and to the requirements specified in Column 2.
4. Where a departure from the requirements specified in Column 2 of Table 2 occurs and is of a type allowed by Condition 2, the Works Approval Holder must provide to the CEO a description of, and explanation for, the departure along with the certification required by Condition 2(b).

Table 2: Infrastructure and equipment requirements table

	Column 1	Column 2	Column 3																
	Infrastructure/ Equipment	Requirements (design and construction)	Site plan reference																
1	WWTP	<ul style="list-style-type: none">• WWTP tanks installed on an impermeable concrete pad.• All storage components - corrosion resistant and impermeable (i.e. polyethylene, concrete or lined with HDPE).• WWTP master control panel equipped with an audible and visual alarm.• Flow meter installed directly on the outlet of the treated effluent tank.• WWTP to include:<ul style="list-style-type: none">- influent screening;- balance tank mixing;- anoxic and aerobic treatment;- clarification;- effluent sterilization (chlorine tablets);- bag filtration (100 micron);- auto backwashing filter (25 micron);- secondary chlorination via tank recirculation and residual trim hypochlorite dosing; and- analysers for online monitoring of treated effluent turbidity, free chlorine and pH.• Designed and constructed to meet the following emission standards: <table><tr><th>Parameter</th><th>Concentration including units</th></tr><tr><td>Biochemical Oxygen Demand</td><td><20 mg/L</td></tr><tr><td>Total Suspended Solids</td><td><30 mg/L</td></tr><tr><td>Total Nitrogen</td><td><40 mg/L (or 10 mg/L reduction from inlet valve)</td></tr><tr><td>Total Phosphorus</td><td><12 mg/L</td></tr><tr><td><i>E.coli</i></td><td><10 cfu/100 mL</td></tr><tr><td>Residual chlorine</td><td>0.2 – 2.0 mg/L</td></tr><tr><td>pH</td><td>6.6 – 8.5 pH units</td></tr></table>	Parameter	Concentration including units	Biochemical Oxygen Demand	<20 mg/L	Total Suspended Solids	<30 mg/L	Total Nitrogen	<40 mg/L (or 10 mg/L reduction from inlet valve)	Total Phosphorus	<12 mg/L	<i>E.coli</i>	<10 cfu/100 mL	Residual chlorine	0.2 – 2.0 mg/L	pH	6.6 – 8.5 pH units	Schedule 1: Site plan - WWTP area; and WWTP arrangement.
Parameter	Concentration including units																		
Biochemical Oxygen Demand	<20 mg/L																		
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Total Phosphorus	<12 mg/L																		
<i>E.coli</i>	<10 cfu/100 mL																		
Residual chlorine	0.2 – 2.0 mg/L																		
pH	6.6 – 8.5 pH units																		

	Column 1	Column 2	Column 3
	Infrastructure/ Equipment	Requirements (design and construction)	Site plan reference
2	Spray irrigation field and pipeline	<ul style="list-style-type: none"> • Irrigation field is 1.5 hectares. • Irrigation field located a minimum of 100 m away from sensitive water sources (includes water abstraction bores). • Minimum 2 m vertical clearance from highest known water table. • Irrigation field not to be subject to inundation or flooding. • Irrigation field is enclosed with a two strand 1.2 m high wire fence. • Danger signs fitted to all sides of the perimeter fence. • Minimum distance of 5 m between the fence and the sprinkler spray pattern. • Pipelines are constructed with HDPE material. 	Schedule 1: Site plan – Irrigation field.
3	Landfill	<ul style="list-style-type: none"> • Each trench is to be a maximum of 30 m in length, 3 m in depth and 3 m in width. • A minimum separation distance of 3 m is maintained between the base of the trench and the highest level of the water table aquifer. • A 0.5 m earthen safety bund is installed around the crown of each trench. • Perimeter fence around boundary to prevent the entry of stock into the landfill area. • A firebreak of at least 3 m width around the boundary. 	Schedule 1 Site plan – Landfill Trenches.

Emissions

5. The Works Approval Holder must not cause any Emissions from the Works authorised through this Works Approval 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	
Treated wastewater from the WWTP to the spray irrigation field during commissioning	Subject to compliance with: <ul style="list-style-type: none"> • Rows 1 and 2 of Table 2; and Conditions 1 to 4
General Emissions (excluding Specified Emissions)	
Emissions which arise from undertaking the Works set out in Schedule 2.	Emissions excluded from General Emissions are: <ul style="list-style-type: none"> • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or • Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy; or • Emissions or Discharges which do not comply with prescribed standard; or • Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or • Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i>.

Commissioning

6. The Works Approval Holder shall Commission the WWTP for a period of no longer than 3 months, in accordance with the Conditions of this Works Approval, following submission of the report required by Condition 3.
7. The Works Approval Holder must monitor the Emissions:
 - (a) from the monitoring location;
 - (b) for the corresponding parameter;
 - (c) in the corresponding unit;
 - (d) at the corresponding frequency;
 - (e) for the corresponding Averaging Period; and
 - (f) using the corresponding method,
 as set out in Table 4 during the commissioning period.

Table 4: Commissioning monitoring

Monitoring location	Parameter	Unit	Frequency	Averaging period	Method
Treated wastewater outlet to the spray irrigation field	Effluent flow rate	m ³ /day	Continuous	24 hours	-
	Biochemical Oxygen Demand	mg/L	Weekly	Spot sample	AS/NZS 5667.1 AS/NZS 5667.10
	Total Suspended Solids				
	Total Nitrogen				
	Total Phosphorus				
	E.coli	cfu/100 mL			
	Residual chlorine	mg/L			
	pH ¹	pH units			

Note 1: In-situ, non-NATA accredited analysis permitted.

8. The Works Approval Holder shall submit a commissioning report for the WWTP, to the CEO within 30 days of the completion of commissioning. The report shall include but not be limited to:
 - (a) a summary of the monitoring results recorded under Condition 7;
 - (b) a list of any original monitoring reports submitted to the Works Approval Holder from third parties for the commissioning period;

- (c) a summary of the environmental performance of the plant as installed, against the design specification set out in condition 1; and
- (d) where they have not been met, measures proposed to meet the design specification and/or works approval conditions, together with timescales for implementing the proposed measures.

Record-keeping

9. 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 way 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.
10. 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.

Schedule 1: Maps

Premises map

Figure 1: Premises location map

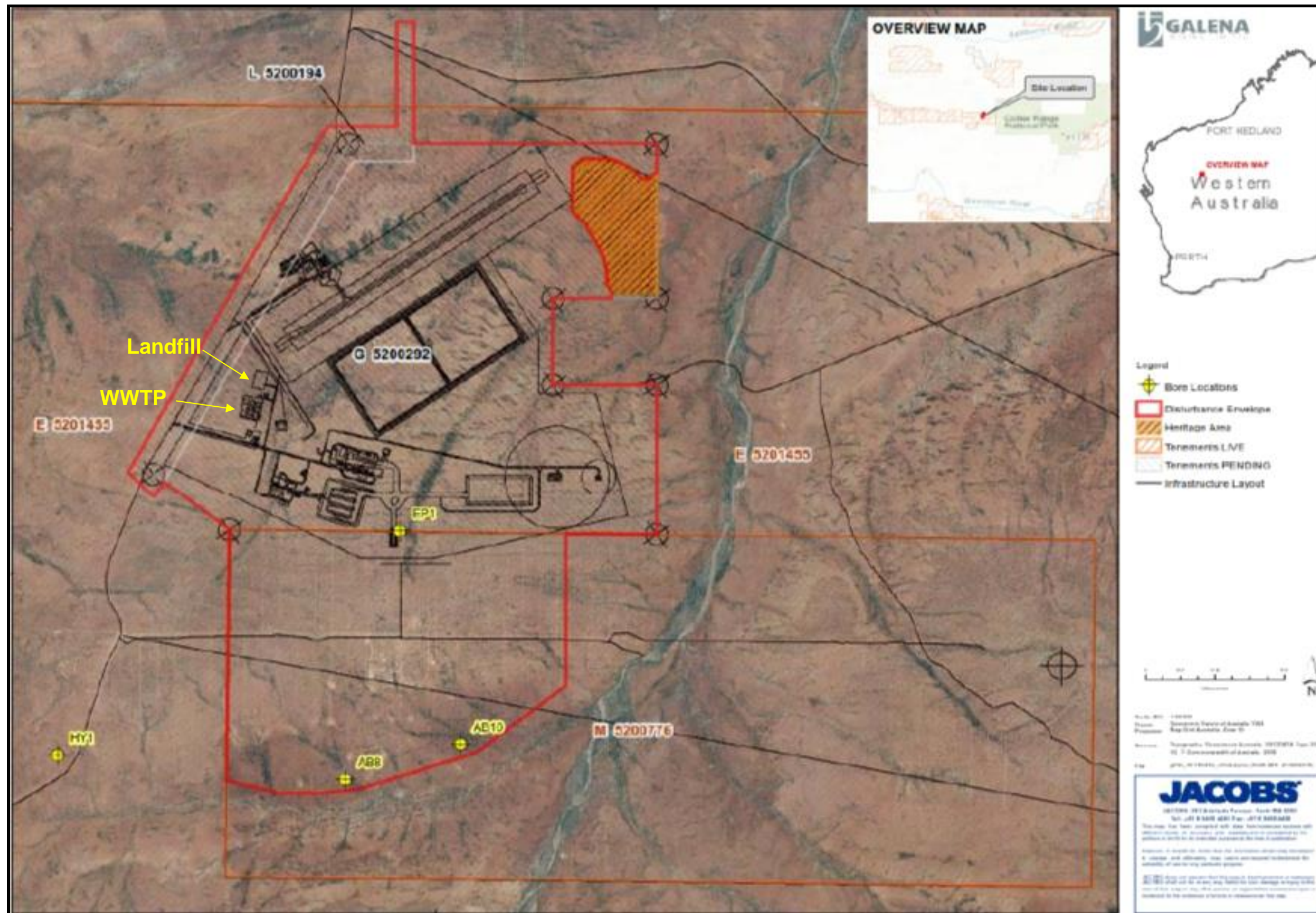
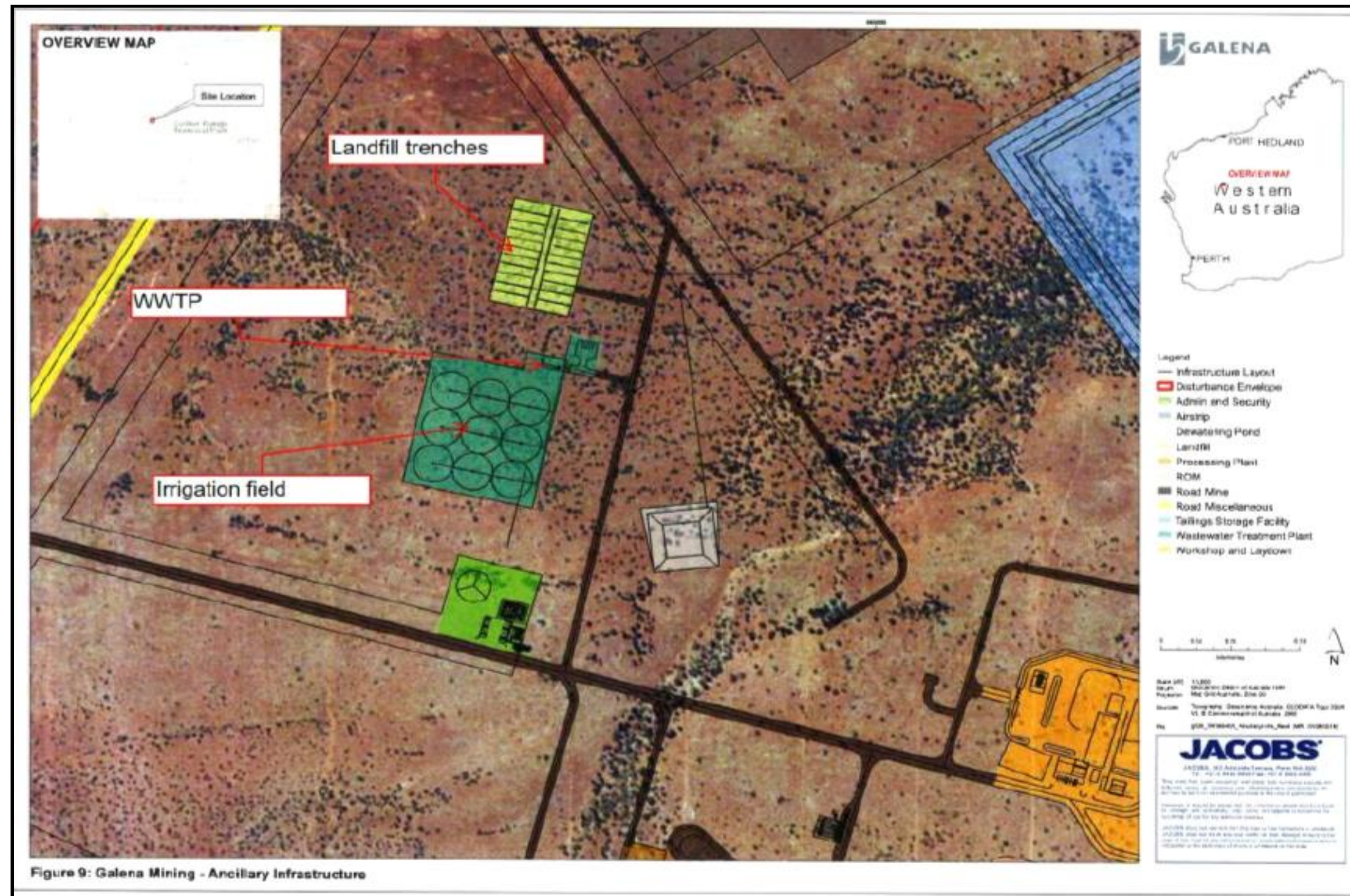
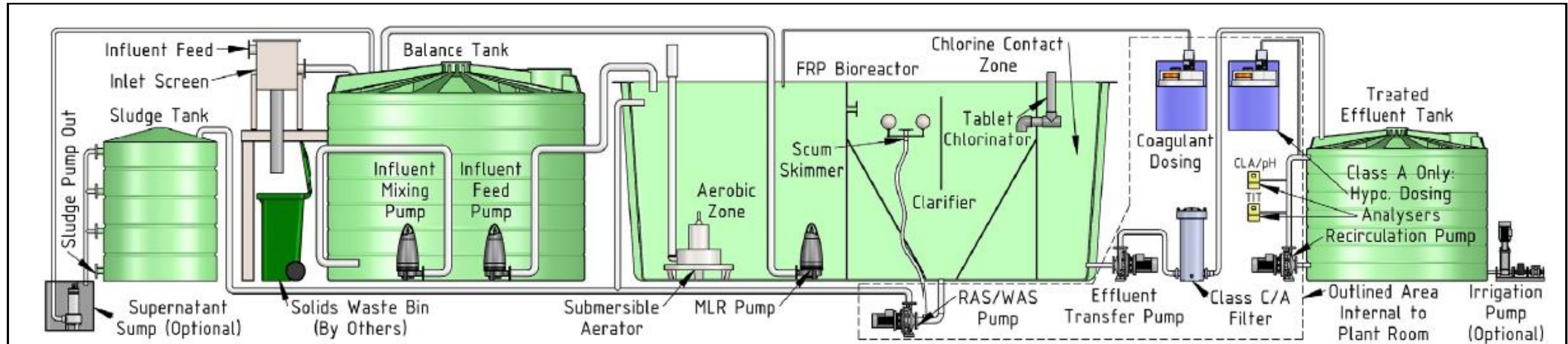


Figure 2: Permisses site plan



Infrastructure

Figure 3: WWTP



Schedule 2: Works

At the time of assessment, Emissions and Discharges from the Works listed in Table 5 were considered in the determination of the risk and related Conditions for the Works Approval.

Table 5: Authorised Works

Works	Specifications/Drawings
WWTP	Specifications as per Table 2. Schedule 1 Premises site plan identifies the location of the WWTP and irrigation field. Schedule 1 Infrastructure shows the infrastructure associated with the WWTP.
Spray irrigation field	
Abra Base Metals Project Landfill	Specifications as per Table 2. Schedule 1 Premises site plan identifies the location of the landfill.