Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6640/2022/1
Works approval holder	Aurenne MIT Pty Ltd
ACN	611 002 709
Registered business address	Level 1, 10 Ord Street WEST PERTH 6005
DWER file number	INS-0002522
Duration	21/06/2022 to 19/12/2025
Date of issue	21/06/2022
Date of amendment	04/06/2025
Premises details	Mt Ida Gold Project; Bottle Creek Premises Mining tenements: M29/150, M29/151, G29/29, G29/30, L29/145, L29/154, L29/137, E29/1007, E29/1014 As defined in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production / design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	1.4 million tonnes per annual period
Category 7: Vat or insitu leaching of metal: premises on which metal is extracted from ore with a chemical solution	1.4 million tonnes per annual period
Category 64: Class II or III putrescible landfill	360 m^3 per annual period

This amended works approval is granted to the works approval holder, subject to the attached conditions, 4 June 2025 by:

Christine Pustkuchen
Digitally signed by Christine Pustkuchen
Date: 2025.06.04 15:18:35 +08'00'

Manager, Resource Industries
Officer delegated under section 20 of the Environmental Protection Act 1986

Works approval history

Date	Reference number	Summary of changes
21/06/2022	W6640/2022/1	Works approval granted.
21/07/2023	W6640/2022/1	Amendment to category 5 activities (decant structure and other minor amendments)
24/08/2024	W6640/2022/1	Amendment to fix cross-referencing errors
04/06/2025	W6640/2022/1	Amendment to extend the time limited operations period and the works approval duration.

Interpretation

In this works approval:

- the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- 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;
- where tables are used in a condition, each row in a table constitutes a separate condition;
- any reference to an Australian or other standard, guideline, or code of practice in this works approval:
  - if dated, refers to that particular version; and
  - if not dated, refers to the latest version and therefore may be subject to change over time;
- unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- 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:

General

1. The works approval holder must manage dust generation at the premises by wetting down:

(a) construction activities associated with the IWL TSF, pipelines, landfill and processing plant; and

(b) limiting all vehicle traffic within the premises to speeds of less than 40 km/hr.

2. Where the works approval holder uses saline water for dust suppression during both construction and time limited operations activities, the water must be applied in a manner to avoid damage to native vegetation (such as from over-spraying or runoff).

3. Where construction authorised under this works approval is to occur between 1 September and 31 January, the works approval holder must:

(a) Within two weeks prior to undertaking any construction activity, engage a fauna specialist to conduct a survey of the area 100m surrounding where construction activities to be undertaken, to identify and record active (in use) Malleefowl (*Leipoa ocellata*) mounds; and

(b) Where an active (in use) Mallefowl mound is identified under condition 3(a) of this works approval, the works approval holder must:

i. record the location;

ii. initiate management action(s) to reduce the disturbance/impact to the Malleefowl mound as far as reasonably practical; and

iii. record all management actions undertaken.

Construction phase

Infrastructure and equipment (critical containment infrastructure – tailings storage facility)

4. The works approval holder must:

a) construct all critical containment infrastructure;

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

c) at the corresponding infrastructure location;

as set out in Table 1.

Table 1: Critical containment infrastructure design and construction requirements

	Infrastructure	Design and construction requirements (tailings storage facility)	Infrastructure location
1	Tailing storage facility starter embankment	(a) Height of starter embankment 498m RL with max crest height of 10 m above natural surface (b) Total footprint 29 hectares (ha); (c) Constructed to provide a minimum 0.7 metre (m) total freeboard (including an allowance for the 1% annual exceedance probability [AEP] 72 hour rain event) above the normal operating period; and	As shown in Figure 1 and Figure 2 of Schedule 1

	Infrastructure	Design and construction requirements (tailings storage facility)	Infrastructure location
		(d) Layout as specified in Figure 4 of Schedule 1.	
2	Foundation preparation	(a) Grout and cap all known existing drill holes located within the TSF foundation; and (b) Grout and decommission all known existing wells located within the TSF foundation in accordance with ASTM D5299/D5299M-18 Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities.	
3	Cut-off trench	(a) Cut-off trench, to nominally 0.5 to 1 metres below ground level (mbgl); and (b) Constructed as specified in Figure 6 of Schedule 1.	
4	Underdrainage system	(a) Underdrainage lines to collect seepage from the southern section of the TSF; and (b) Constructed as specified in Figure 6 of Schedule 1.	
5	Compacted clay liner	(a) Constructed with a 300mm clay liner at the base of the IWL with permeability 1 x 10^{-6}m/s.	
6	Water reclamation	(a) Decant removed from central concrete decant tower with rock and geotextile and pumped direct to process plant for reuse; and (b) Constructed as specified in Figure 4 and Figure 6 of Schedule 1.	
7	Pipelines carrying tailings and decant return water	(a) Constructed according to Australian Standards AS/NZS 2033, 4129, 4130 and 4131 for polyethylene pipes; (b) Pipelines fitted with flow meters and telemetry pressure transmitters to allow remote monitoring and flow control; (c) The system must be set to trigger an operator alarm and automatic shut-off of pumping systems should a variation in flow rates by more than 5% for 10 minutes or more than 10% for two minutes be detected; (d) Tailings pipeline located within bunds to contain spillage/leaks; (e) Pipelines must be located within a bund of sufficient capacity to completely contain any spills from pipeline leakage or breach for a period equal to the time between routine inspections. The works approval holder must provide evidence of such capacity within the Critical Containment Infrastructure Report as required by condition 8; and (f) Constructed as specified in Figure 10 of Schedule 1.	

	Infrastructure	Design and construction requirements (tailings storage facility)	Infrastructure location
8	Vibrating wire piezometers (VWP)	(a) 6 VWP to be installed around the TSF perimeter as shown in Figure 8 of Schedule 1; and (b) VWP to have instrument readout stations (to download data to a central storage location)	

Infrastructure and equipment (non-critical containment infrastructure)

5. The works approval holder must construct and/or install the infrastructure listed in Table 2 in accordance with;

(a) the corresponding construction requirement / installation requirement; and

(b) at the corresponding infrastructure location;

as set out in Table 2.

Table 2: Design and construction/installation requirements

	Infrastructure	Design and construction requirements	Infrastructure location
1	Gold processing plant and associated infrastructure	(a) Gold processing plant comprises the following infrastructure and equipment: i. Run of mine (ROM) pad; ii. Crushing circuit – primary jaw crusher and secondary cone crusher; iii. SAG mill; iv. Carbon in pulp (CIP) circuit; and v. Elution and gold recovery circuit. (b) Plant area to be constructed upon a concrete pad (c) Reagents, dangerous goods, and diesel to be stored in concrete bunded areas; (d) Carbon in Pulp (CIP) circuit to be located on a concrete floor and bunded with a capacity of 110% of the largest CIP tank; (e) Surface water diversions/sumps to be installed to divert stormwater away from operational areas; and (f) Layout of the processing plant to be in accordance with Figure 7 in Schedule 1.	As shown in Figure 1 and Figure 7 of Schedule 1
2	Process water pond	(a) HDPE lined (2.0 mm minimum) with a low permeability liner of 1 x 10^{-9} m/s and designed to contain a one in one hundred-year 72 hours ARI rainfall event; (b) Constructed to maintain a minimum 300 mm freeboard; and (c) Layout in accordance with Figure 7 of Schedule 1.	
3	Raw water pond	(a) HDPE lined (2.0 mm minimum) with a low permeability liner of 1 x 10^{-9} m/s; (b) Constructed to maintain a minimum 300 mm freeboard; and (c) Layout in accordance with Figure 7 of Schedule 1.	

	Infrastructure	Design and construction requirements	Infrastructure location
4	Landfill	(a) Landfill maximum capacity of ≤360m^3 per annual period; (b) Located at least 100 m from any permanent or perennial watercourse; (c) Fenced to prevent fauna from accessing waste material; and (d) Signage placed to indicate the types of waste accepted for burial.	Location as per Figure 9 of Schedule 1

Construction of groundwater monitoring wells

6. The works approval holder must design, construct, and install new groundwater monitoring wells in accordance with the requirements specified in Table 3.

Table 3: Groundwater monitoring well construction requirements

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring well(s): IWL-1 IWL-2 IWL -3 IWL – 4 IWL – 5 and P-1 P-2 P-3 P-4	<u>Well design and construction:</u> Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores.* Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened.	Monitoring well as shown in Figure in Schedule 1 and Schedule 2: Groundwater monitoring well coordinates Table 13 – Groundwater monitoring well coordinates	Must be constructed, developed (purged) and determined to be operational no later than 30 calendar days prior to the commencement of time limited operations under condition 17
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring wells. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining/odours or other indications of contamination must be included in the bore log.		
	<u>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with ASTM D5092/D5092M-16. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the		

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	ground surface protective installations.		
	Well development: All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		
	Installation survey: The vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	Well network map: A well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.		

Note[1]: refer to Section 8 of Schedule B2 of the Assessment of Site Contamination NEPM for guidance on well screen depth and length.

Baseline groundwater monitoring

7. The works approval holder must monitor baseline groundwater conditions for concentrations of the identified parameters in accordance with Table 4:

a) at the corresponding monitoring location;

b) for the corresponding parameters;

c) in the corresponding unit;

d) at no less than the corresponding frequency;

e) using the corresponding method,

as set out in Table 4.

Table 4: Monitoring of baseline ambient groundwater concentrations

Monitoring location	Parameters	Unit	Frequency	Sampling Method
As per Figure and Schedule 2: Groundwater monitoring well coordinates Table 13: Groundwater	Standing water level	Metres below ground level (mbgl)	A single sampling event undertaken prior to commencement of time limited operations (e.g. operation of processing plant and tailings being deposited into TSF).	AS/NZS 5667.1 and AS/NZS 5667.11
	pH[1]	pH units		
	Electrical conductivity (EC)	µS/cm		
	Total Dissolved Solids	mg/L		

Monitoring location	Parameters	Unit	Frequency	Sampling Method
monitoring well coordinates IWL TSF groundwater monitoring well(s): IWL-1 IWL-2 IWL -3 IWL – 4 IWL – 5 AND Process plant groundwater monitoring well(s): P-1 P-2 P-3 P-4	Weak acid dissociable cyanide (CNwad)	mg/L		
	Acrylamide Aluminium (Al) Antimony (Sb) Arsenic III (As III) Arsenic V (As V) Beryllium (Be) Boron (B) Cadmium (Cd) Calcium (Ca) Chloride (Cl) Chromium III (Cr III) Chromium VI (Cr VI Cobalt (Co) Copper (Cu) Iron (Fe) Lead (Pb) Magnesium (Mg) Manganese (Mn) Mercury (Hg) Molybdenum (Mo) Nickel (Ni) Nitrate (NO_3) Nitrite (NO_2) Potassium (K) Selenium (Se) Silver (Ag) Sodium (Na) Sulphate (SO_4^{2-}) Strontium (Sr) Total Sulfur Zinc (Zn)	mg/L		

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

Compliance reporting (critical containment infrastructure)

8. The works approval holder must within 30 calendar days of the critical containment infrastructure required by condition 4 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 4; and

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

9. The Critical Containment Infrastructure Report required by condition 8, must include as a minimum the following:

(a) certification by a suitably qualified geotechnical engineer that each item of critical containment infrastructure or component(s) thereof, as specified in condition 4, has been constructed in accordance with the relevant requirements specified in condition 4;

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component of infrastructure specified in condition 4;

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

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

(e) groundwater monitoring data indicating the baseline ambient groundwater conditions prior to construction of the critical containment infrastructure, as per condition 7, Table 4; and

(f) a Quality Control/Quality Assurance certificate from an independent third party which demonstrates that the compacted clay liner meets the requirements specified in condition 4, Table 1.

Compliance reporting (non-critical containment infrastructure)

10. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 5 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 5 and

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

11. The works approval holder must ensure that the Environmental Compliance Report required by condition 10, includes as a minimum the following:

(a) certification by a suitably qualified geotechnical or civil engineer that the items of infrastructure or component(s) thereof, as specified in condition 5, have been constructed in accordance with the relevant requirements specified in condition 5;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 5; and

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

Compliance reporting (monitoring wells)

12. The works approval holder must, within 60 calendar days of the monitoring bores being constructed, submit to the CEO a bore construction report evidencing compliance with the requirements of condition 6.

Environmental commissioning phase

Environmental commissioning requirements and emission limits

13. The works approval holder may only commence environmental commissioning of an item of infrastructure listed in condition 14 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 5 of this works approval.

14. The works approval holder must ensure that any environmental commissioning activities undertaken for an item of infrastructure specified in Table 5 are conducted:

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

(b) for the corresponding authorised commissioning duration.

as specified in Table 5

Table 5: Environmental commissioning requirements

	Infrastructure	Commissioning requirements	Authorised commissioning duration
1	Processing plant and associated infrastructure	(a) Bunds and sumps shall be leak tested; and (b) Process control alarms for loss of containment shall be tested.	For a period not exceeding 6 months in aggregate.
2	Pipelines (tailings and return water) between processing plant and tailings facility	(a) Pipelines shall be tested; (b) All flow meters to be calibrated; and (c) All pressure meters to be calibrated.	

Monitoring during environmental commissioning

15. 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 5.

16. The works approval holder must ensure the Environmental Commissioning Report required by condition 15 of this works approval includes the following:

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

(i) hydro-testing of pipelines

(ii) calibration of flow meters and pressure transmitters

(iii) commissioning of the process control system.

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

(c) 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

17. The works approval holder may only commence time limited operations for an item of critical containment infrastructure identified in condition 4 where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 4 meets the requirements of that condition.

18. The works approval holder may only commence time limited operations for an item of

infrastructure identified in condition 5:

(a) where the item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 10 has been submitted by the works approval holder for that item of infrastructure

(b) where the item of infrastructure is authorised to undertake environmental commissioning under condition 13, the Environmental Commissioning Report for that item of infrastructure as required by condition 15 has been submitted by the works approval holder.

19. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 21 (as applicable):

(a) for a period beginning the day the works approval holder meets the requirements of both conditions 17 and 18 for those items of infrastructure until 30 November 2025; 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 19(a).

Time limited operations requirements and emission limits

20. The works approval must ensure that only tailings sourced from the Mt Ida Gold project area are permitted to be deposited into the tailings storage facility.

21. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 6 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 6.

Table 6: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Tailings storage facility starter embankment	(a) To be maintained as per the design and construction/installation requirements in condition 4, Table 1; (b) Maintain a minimum operating freeboard of 0.7 m; (c) During time limited operations, the decant pool area is to be equal to or less than 5% of the total tailings surface area; (d) Decant pond upper limit of 50mg/L weak acid dissociable cyanide (WAD) OR tailings storage facility to be netted and fenced to restrict access to birds and wildlife; and (e) Visual inspections every 12 hours and prior to and following significant rainfall events to check: i. Freeboard capacity; ii. Location and size of the decant pond (expressed as a total percentage of the surface area of the TSF);	TSF as shown in Figure 2 and Figure 4 of Schedule 1

	Site infrastructure and equipment	Operational requirement	Infrastructure location
		iii. Change in seepage conditions or sudden change in water level; iv. Signs of erosion; and v. Observations of fauna interacting with the TSF.	
2.	Pipelines carrying tailings and decant return water.	(a) To be maintained as per the design and construction/installation requirements in condition 4; (b) Visual inspections every 12 hours when in operation to check the integrity of pipelines and bunding; (c) Weekly inspection of flow metres, leak detection telemetry and automatic shut-off systems; and (d) Constructed as per the specifications listed in Figure of Schedule 1	Between the TSF and the process plant as shown in Figure 2, Schedule 1
3.	Vibrating wire piezometers (VWPs)	(a) Weekly inspections to ensure integrity of VWPs and to ensure telemetry data is downloading to a central storage location.	As shown in Figure 8 of Schedule 1
4.	Gold processing facility and associated infrastructure	(a) Stormwater to be managed so that contaminated or potentially contaminated stormwater is captured to prevent release into the environment; (b) Routine shift inspection for spillage and sump clearance and recording of spills/incidents; and (c) Dust suppression to be used on crushing circuit as required.	As shown in Figure 2 and Figure 10 and of Schedule 1
5.	Process water pond	(a) Inspected daily and monitored for overflow and to ensure HDPE liner integrity; and (b) Maintain a minimum operating freeboard of 500 mm.	As shown in Figure 7 of Schedule 1
6.	Raw water pond	(a) Daily inspection for overflow and to ensure HDPE liner integrity; and (b) Maintain a minimum operating freeboard of 500 mm.	As shown in Figure 7 of Schedule 1
7.	Landfill	(a) Waste to be placed in trenches and covered on a weekly basis. Frequency of wase covering to be increased if fauna is observed trapped in trenches or scavenging; (b) The type and volume of waste disposed of to landfill facility must be recorded; (c) Fencing at the putrescible landfill facility will be inspected monthly for damage and cleared of waste; (d) Maintain signage at the landfill that	Location as per Figure 9 of Schedule 1

	Site infrastructure and equipment	Operational requirement	Infrastructure location
		clearly defines what waste is authorised for acceptance; (e) Surface water management structures (i.e. bunding) to be maintained to divert surface water flows away from landfill facilities; (f) Trenches to be a maximum of 100m long, by 4m wide, by 2m deep; (g) Authorised waste for acceptance: i. Clean fill; ii. Inert Type 1 waste; iii. Inert Type 2 waste; iv. Putrescible waste; v. Special Type 1 waste; and vi. Other wastes that comply with the class II criteria as defined in the Landfill Definitions.	

Emissions and discharges

22. The works approval holder must ensure that the emissions specified in Table 7 are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 7: Authorised discharge points

Emission	Discharge point	Discharge point location
Tailings from Mt Ida Gold project area	Tailings storage facility (TSF)	TSF as shown in Figure 2 of Schedule 1
TSF decant return water and overflow from raw water pond	Process water pond	TSF as shown in Figure 7 of Schedule 1
Pit lake dewater, mine dewater and bore water	Raw water pond	TSF as shown in Figure 10 of Schedule 1

Tailings characterisation

23. During the first 60 calendar days of time limited operations, the works approval holder must collect at least 10 individual representative tailings samples (including pore-water) to determine the likely behavior of elements under a range of leaching conditions, to include, but not limited to:

(a) testing for the contaminants listed in Table 8; and

(b) testing using the LEAF Test Method 1313 pH dependant leaching test (US EPA, 2017).

All test results shall be collated in excel format and provided in a report to the CEO no more than 60 calendar days after sample collection.

Table 8: Tailings characterisation parameters

Stream	Contaminants	Unit
Tailings leachate	Acrylamide Aluminium (Al) Antimony (Sb) Arsenic III (As III) Arsenic V (As V) Beryllium (Be) Boron (B) Cadmium (Cd) Calcium (Ca) Chloride (Cl) Chromium III (Cr III) Chromium VI (Cr VI Cobalt (Co) Copper (Cu) Iron (Fe) Lead (Pb) Magnesium (Mg) Manganese (Mn) Mercury (Hg) Molybdenum (Mo) Nickel (Ni) Nitrate (NO_3) Nitrite (NO_2) Potassium (K) Selenium (Se) Silver (Ag) Sodium (Na) Sulphate (SO_4^{2-}) Strontium (Sr) Thallium (Tl) Total Sulfur Vanadium (V) Zinc (Zn)	mg/L
	Total dissolved solids	
	pH	pH units

TSF decant pond monitoring during time limited operations

24. The works approval holder must ensure, should the tailings storage facility be constructed without netting and fencing to restrict access to birds and wildlife, that monitoring of the tailings storage facility decant pond is conducted;

a) for the corresponding parameter;

b) at the corresponding frequency;

c) with the corresponding limit;

d) in the corresponding unit; and

e) using the corresponding method,

as set out in Table 9.

Table 9: Tailings storage facility decant pond monitoring

Parameter	Frequency	Limit[1]	Unit	Sampling method
Weak Acid Dissociable Cyanide (CN_{WAD})	Monthly	50	mg/L	AS/NZS 5667.1

Note 1: As per condition 21: decant pond upper limit of 50mg/L Weak Acid Dissociable Cyanide (CN_{WAD}) OR tailings storage facility to be netted and fenced to restrict access to birds and wildlife.

Groundwater monitoring during time limited operations

25. The works approval holder must monitor groundwater during time limited operations for concentrations of the identified parameters in accordance with Table 10:

a) at the corresponding monitoring location;

b) for the corresponding parameters;

c) in the corresponding unit;

d) with the corresponding limit;

e) at no less than the corresponding frequency;

f) using the corresponding method,

as set out in Table 10.

Table 10: Monitoring of ambient groundwater concentrations during time limited operations

Monitoring location	Parameters	Triggers management action	Limit	Unit	Frequency	Sampling Method
As per Figure and Schedule 2: Groundwater monitoring well coordinates Table 13: Groundwater monitoring well coordinates IWL TSF groundwater monitoring well(s): IWL-1 IWL-2 IWL -3 IWL – 4 IWL – 5 AND Process plant groundwater	Standing water level	6	4	Metres below ground level (mbgl)	Monthly[1]	AS/NZS 5667.1 and AS/NZS 5667.11
	pH[2]	-	-	pH units	A single sampling event undertaken between 30 and 60 calendar days following commencement of time limited operations (e.g. operation of processing plant and tailings being deposited into TSF). AND A single	
	Electrical conductivity (EC)	-	-	µS/cm		
	Total Dissolved Solids	-	-	mg/L		
	Weak acid dissociable cyanide (CNwad)	-	-	mg/L		
	Acrylamide Aluminium (Al) Antimony (Sb) Arsenic III (As III) Arsenic V (As V) Beryllium (Be) Boron (B) Cadmium (Cd) Calcium (Ca) Chromium III (Cr III) Chromium VI (Cr VI	-	-	mg/L		

Monitoring location	Parameters	Triggers management action	Limit	Unit	Frequency	Sampling Method
monitoring well(s): P-1 P-2 P-3 P-4	Cobalt (Co) Copper (Cu) Iron (Fe) Lead (Pb) Magnesium (Mg) Manganese (Mn) Mercury (Hg) Molybdenum (Mo) Nickel (Ni) Nitrate (NO_3) Nitrite (NO_2) Potassium (K) Selenium (Se) Silver (Ag) Sodium (Na) Sulphate (SO_4^{2-}) Strontium (Sr) Total Sulfur Zinc (Zn)				sampling event undertaken between 120 and 180 calendar days following commencement of time limited operations (e.g. operation of processing plant and tailings being deposited into TSF).	
Vibrating wire piezometers (VWP) as shown in Figure of Schedule 2	Phreatic surface	-	-	Pore water pressure	Monthly[1]	-

Note 1: Monthly monitoring is undertaken at least 15 calendar days apart.

Note 2: In-field non-NATA accredited analysis permitted.

Groundwater monitoring limit exceedances

26. The works approval holder must record, investigate, take corrective action and report to the CEO within 14 calendar days, in the event of a parameter in Condition 25 exceeding the corresponding limit or management action trigger.

27. The works approval holder must include the following information in the report referred to in Condition 26 in relation to any exceedances of any limit identified in that condition:

a) the nature, volume and characteristics of the emissions or concentrations exceedance;

b) the time and date when the exceedance occurred;

c) whether any environmental impact occurred as a result of the exceedance and, if so, what that impact was and where the impact occurred;

d) the details of the management action(s) taken pursuant with Condition 26 in response to the exceedance;

e) the details and result of any investigation undertaken into the cause of the exceedance; and

f) what action has been taken, or will be taken, to prevent the exceedance occurring again and for the purpose of minimising the likelihood of pollution or environmental harm.

Groundwater monitoring reporting requirements

28. The works approval holder must submit to the CEO, within 30 calendar days of each sampling event, a groundwater monitoring report for monitoring undertaken associated with condition 25 and must include:

a) a clear statement of the scope of work carried out;

b) a description of the field methodologies employed;

c) a summary of the field and laboratory quality assurance / quality control (QA/QC) program;

d) copies of the field monitoring records and field QA/QC documentation;

e) an assessment of reliability of field procedures and laboratory results;

f) a tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis;

g) a diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown);

h) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites;

i) an interpretive summary and assessment of results against previous monitoring results;

j) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites; and

k) trend graphs to provide a graphical representation of historical results and to support the interpretive summary.

Note: General guidance on report presentation can be found in the Department's *Guideline: Assessment and management of contaminated sites*

Monitoring of water balance

29. The works approval holder must review and assess the water balance for the TSF each monthly period, and (as a minimum) record the following information:

a) site rainfall;

b) evaporation rate;

c) decant water recovery volumes;

d) volume of tailings deposited; and

e) estimate of seepage losses.

Baseline vegetation health assessment

30. The works approval holder must undertake a baseline assessment of vegetation health adjacent to the TSF, as detailed in Table 11 and ensure that the assessment is undertaken by a person suitably qualified in vegetation identification.

Table 11: Baseline assessment of vegetation health

Monitoring point	Parameter	Frequency
Vegetation within 500m of the IWL TSF	Information gathered by remote sensing technology: • Density and distribution; • Health of vegetation; • Undertaken using a comparable methodology to allow comparison with baseline data.	Annually between 1 June and 31 August each year

Compliance reporting – Time limited operations

31. The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 90 calendar days before the expiration date of the works approval, whichever is the sooner.

32. The works approval holder must ensure the report required by condition 31 includes the following:

a) a summary of the time limited operations, including timeframes and amount of ore processed;

b) a summary of monitoring results obtained during time limited operations under conditions 3, 23, 24, 25, 26, 27, 29 and 30;

c) a summary of the environmental performance of all infrastructure as constructed or installed;

d) a review of performance and compliance against the conditions of the works approval and the Environmental Commissioning Report; and

e) 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.

Records and reporting (general)

33. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

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

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

34. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

a) the works conducted in accordance with conditions 4, 5 and 6;

b) any maintenance of infrastructure that is performed in the course of complying with condition 21;

c) monitoring programmes undertaken in accordance with conditions 3, 23, 24, 25, 26, 27, 29 and 30; and

d) complaints received under condition 33.

35. The books specified under condition 34 must:

(a) be legible;

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

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

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

Table 12 Definitions

Term	Definition
annual period	a 12 month period commencing from 20 June until 19 June of the immediately following year.
ARI	average recurrence interval
AS1726	means the Australian Standard AS1726 *Geotechnical Site Investigations*
AS/NZS 2033	means the Australian Standard AS/NZS 2033: Installation of polyethlene pipe systems
AS/NZS 4129	means the Australian Standard AS/NZS 4129: fittings for polyethylene (PE) pipes for pressure applications
AS/NZS 4130	means the Australian Standard AS/NZS 4130 Polyethylene pipes for pressure applications
AS/NZS 4131	means the Australian Standard AS/NZS 4131 Polyethylene compounds for pressure pipes and fittings.
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality - Sampling Guidance on sampling of groundwaters*
ASTM D5092/D5092M-16	means the ASTM international standard for *Standard practice for design and installation of groundwater monitoring wells* (Designation: ASTM D5092/D5092M-16*).*
ASTM D5299/D5299M-18	means the ASTM international standard for *Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities (*Designation: D5299/D5299M–18).
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 *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au

Term	Definition
critical containment infrastructure	means the items of infrastructure listed in condition 4.
Critical Containment Infrastructure Report	means a report to satisfy the CEO that works of critical containment infrastructure have been constructed in accordance with the works approval.
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.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
environmental commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
Guideline: Assessment and management of contaminated sites	means the document titled *Assessment and management of contaminated sites, Contaminated sites guidelines* (Department of Environment Regulation, December 2014), as amended from time to time.
m	metres
mbgl	metres below ground level
mg/L	milligrams per litre
m/s	metres per second
µS/cm	microsiemens per centimetre
mm	millimetres
monthly period	means a one-month period commencing from the first day of a month until the last day of the same month.
Mtpa	mega tonnes per annual period

Term	Definition
NATA	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.
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis.
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
TDS	total dissolved solids
TSF	tailings storage facility
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
VWP	Vibrating wire piezometers
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 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.

END OF CONDITIONS

Schedule 1: Maps

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

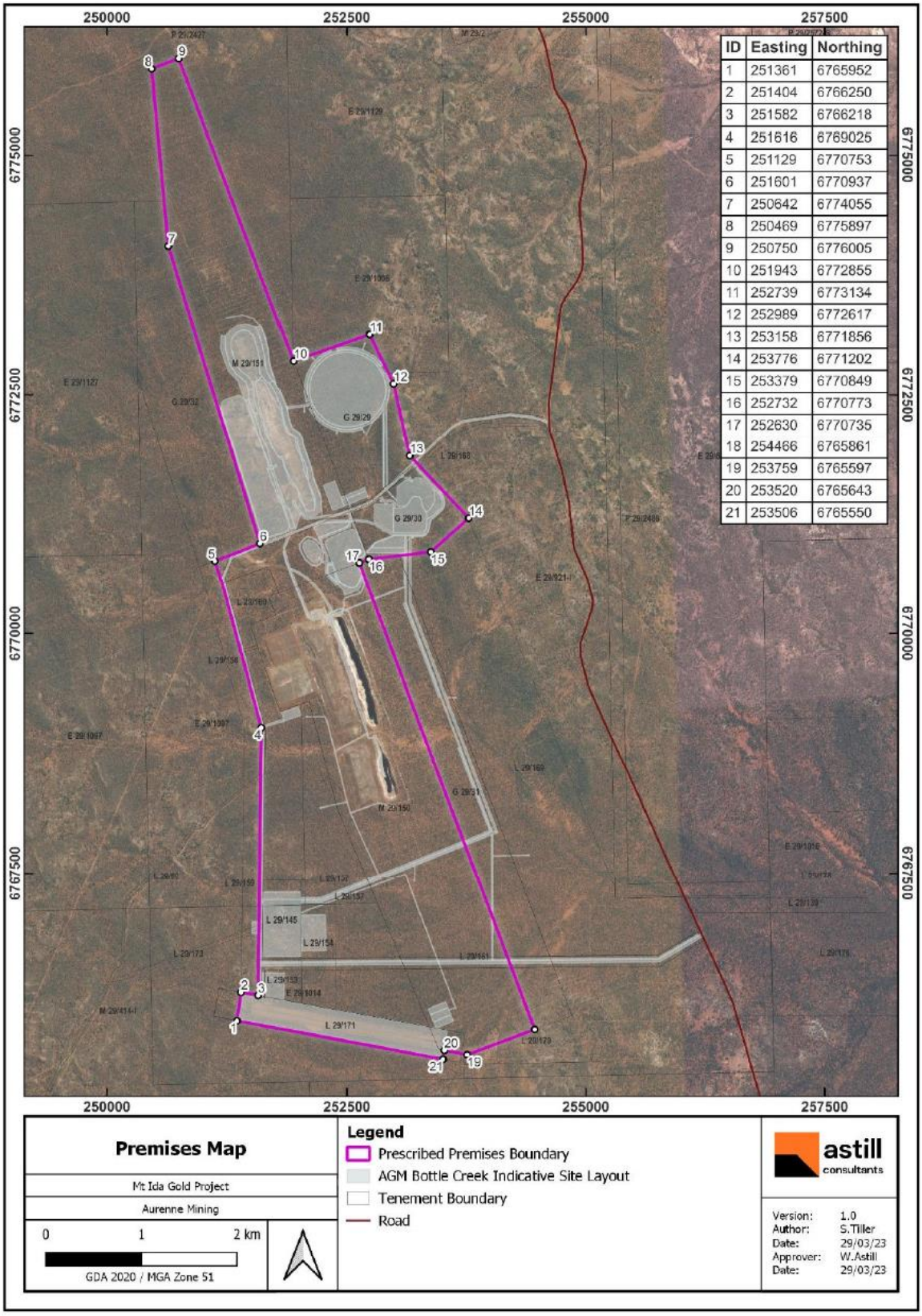

Figure 1: Prescribed premises boundary and coordinates

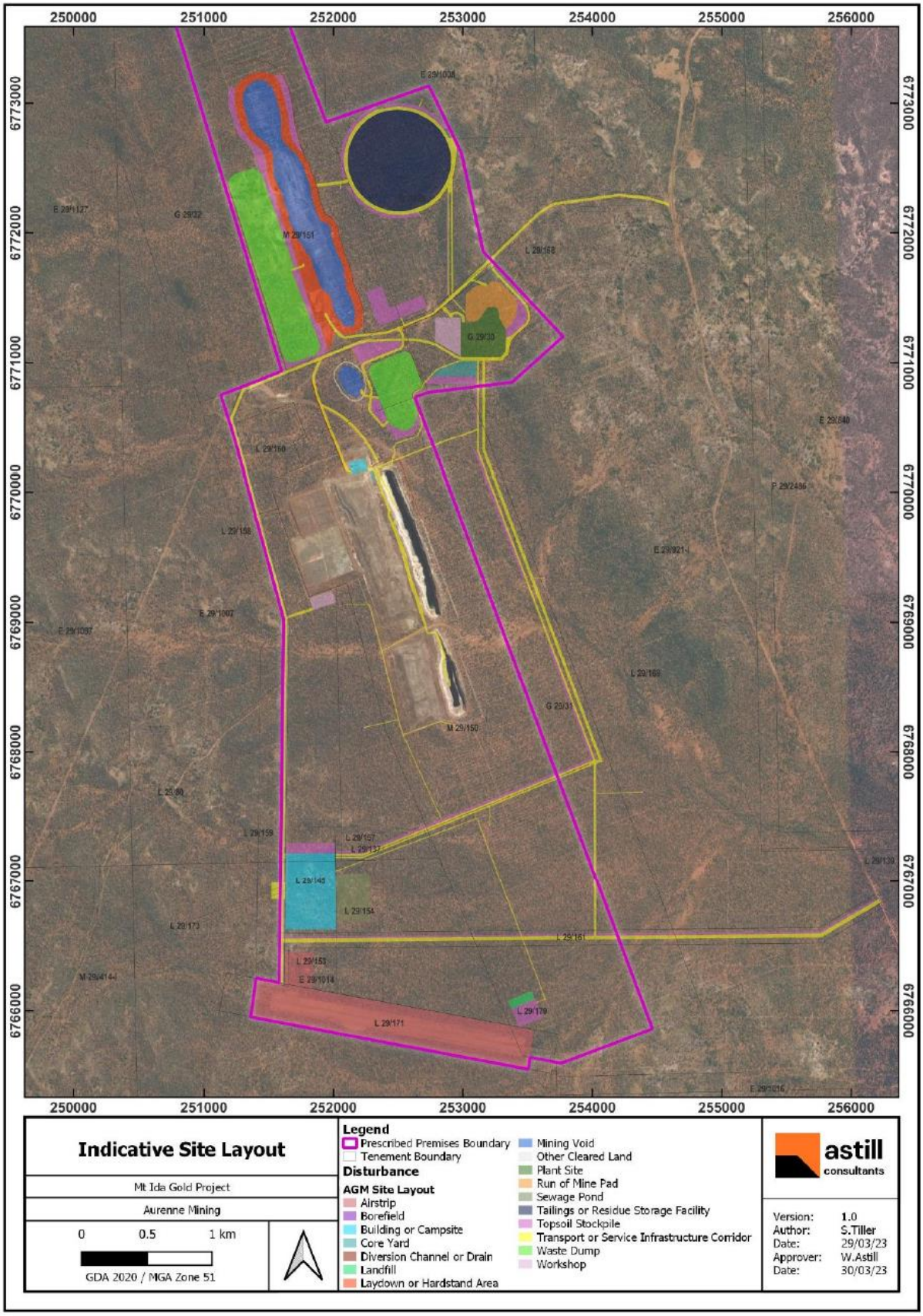

Figure 2: Site Layout

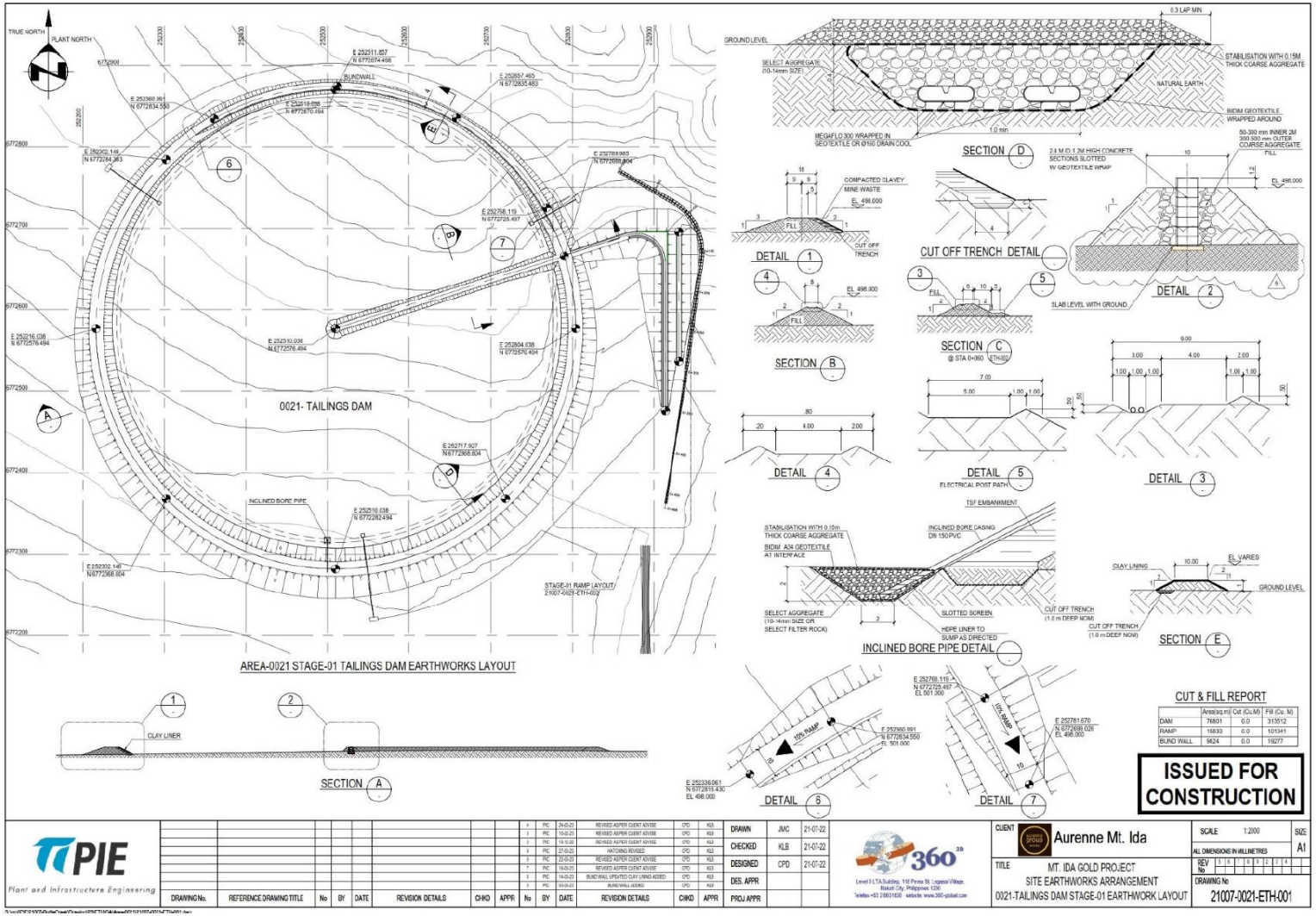

Figure 3: Integrated Waste Landform Tailings Storage Facility (IWL TSF) General Layout - Embankment St age 1

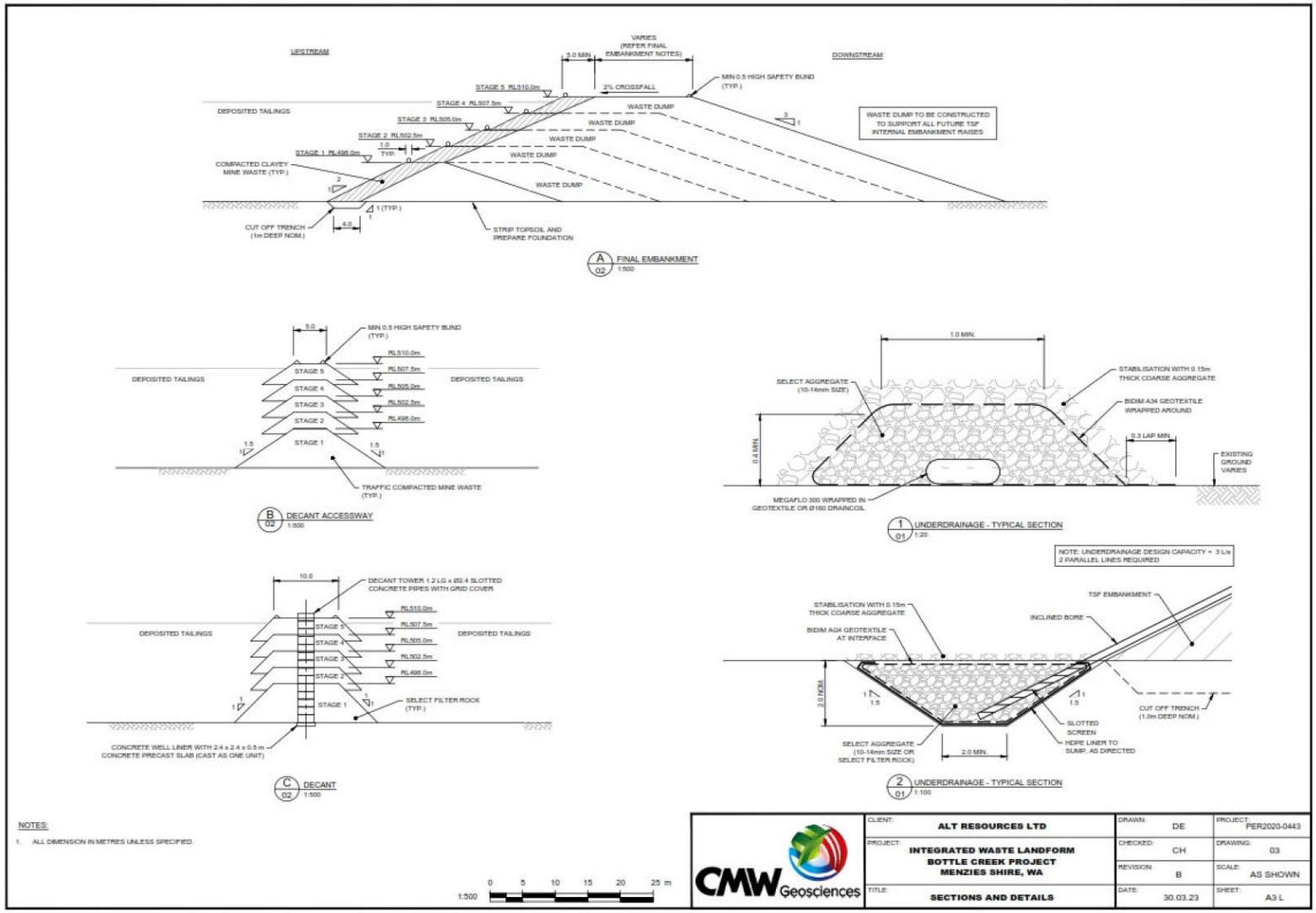

Figure 4: Integrated Waste Landform Tailings Storage Facility Section Details – Note Embankment stage 1 only approved under this works approval

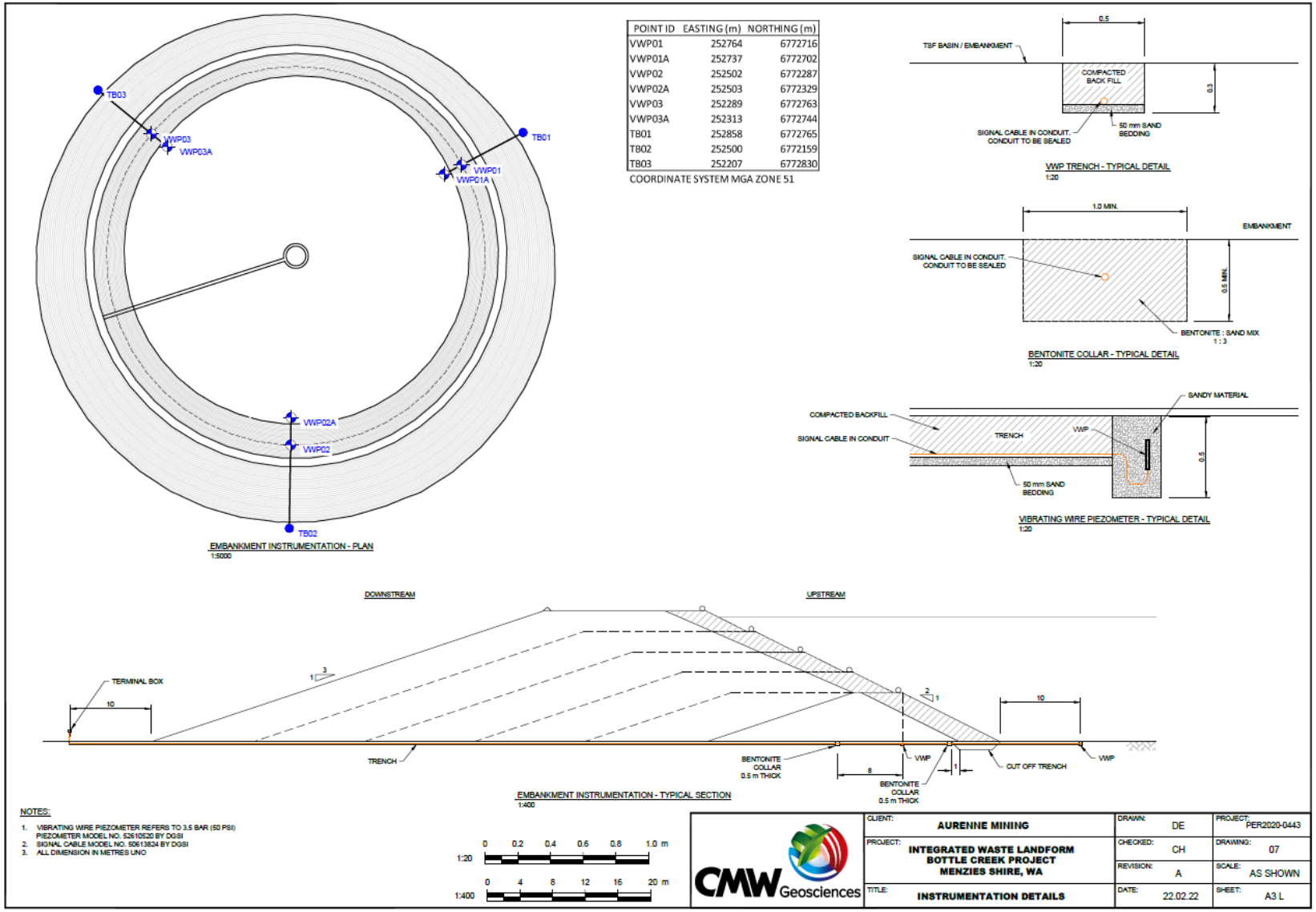

Figure 5: Integrated Waste Landform Tailings Storage Facility Instrumentation Details

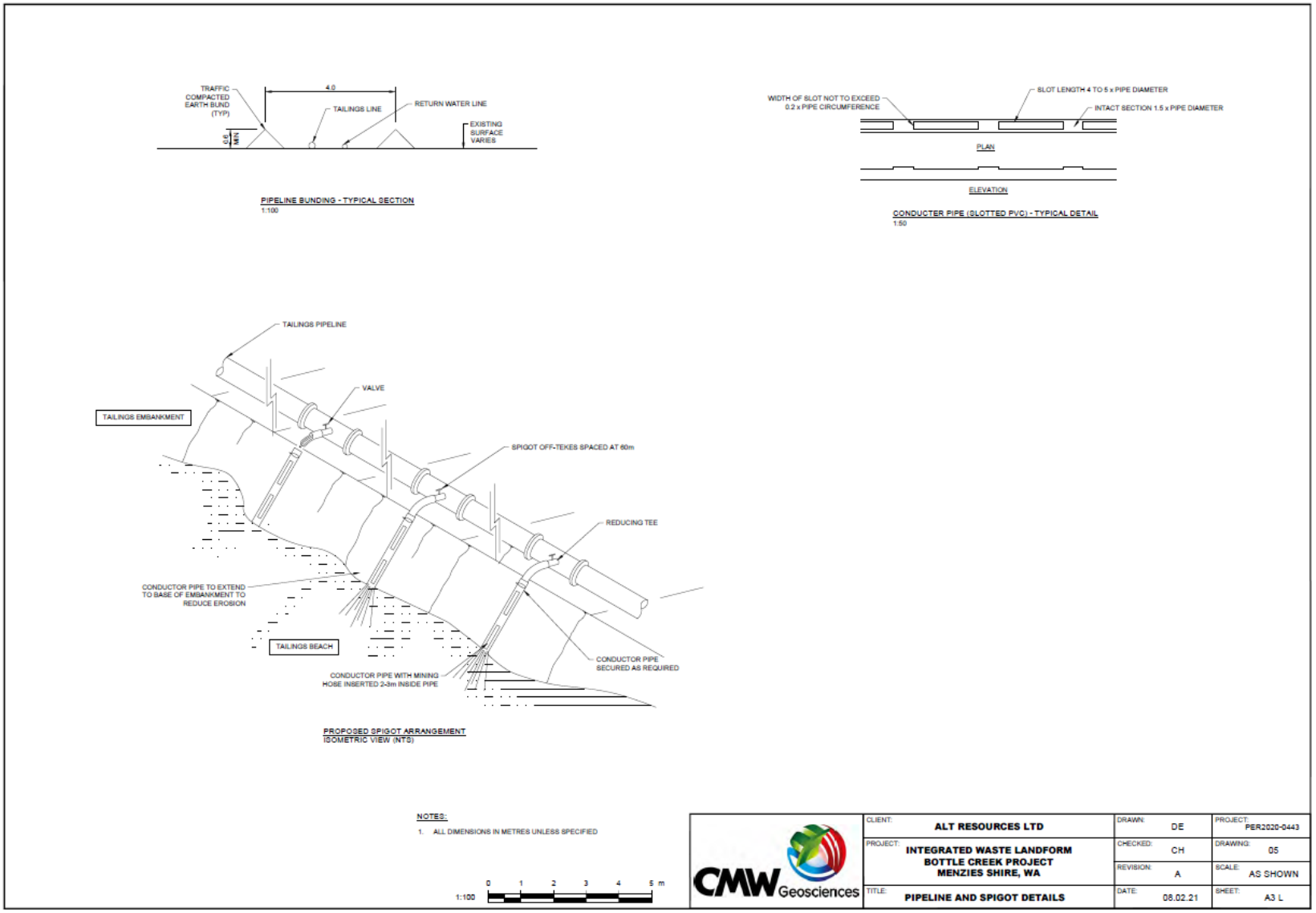

Figure 6: Integrated Waste Landform Tailings Storage Facility - Pipeline and Spigot details

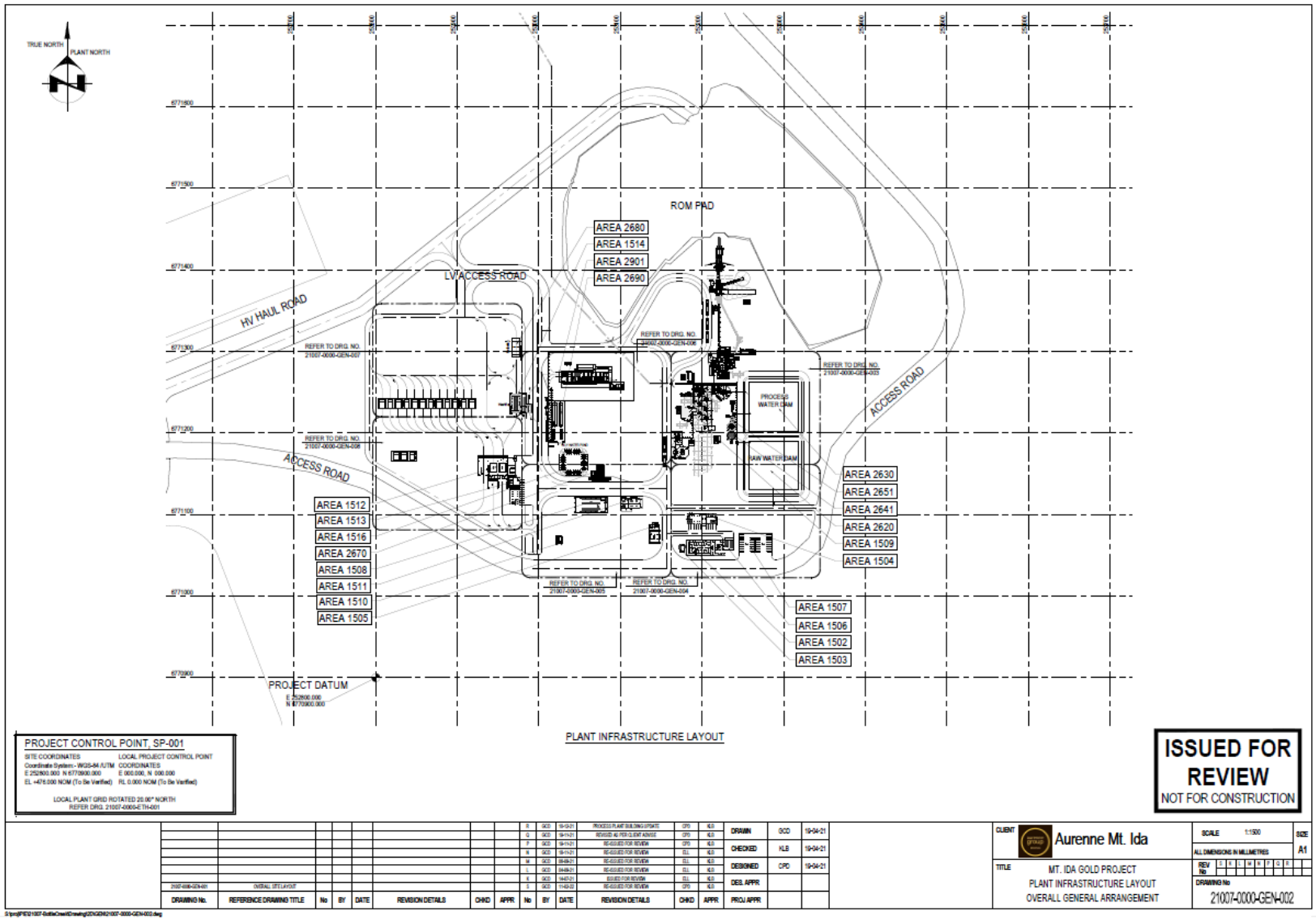

Figure 7: Process plant proposed layout

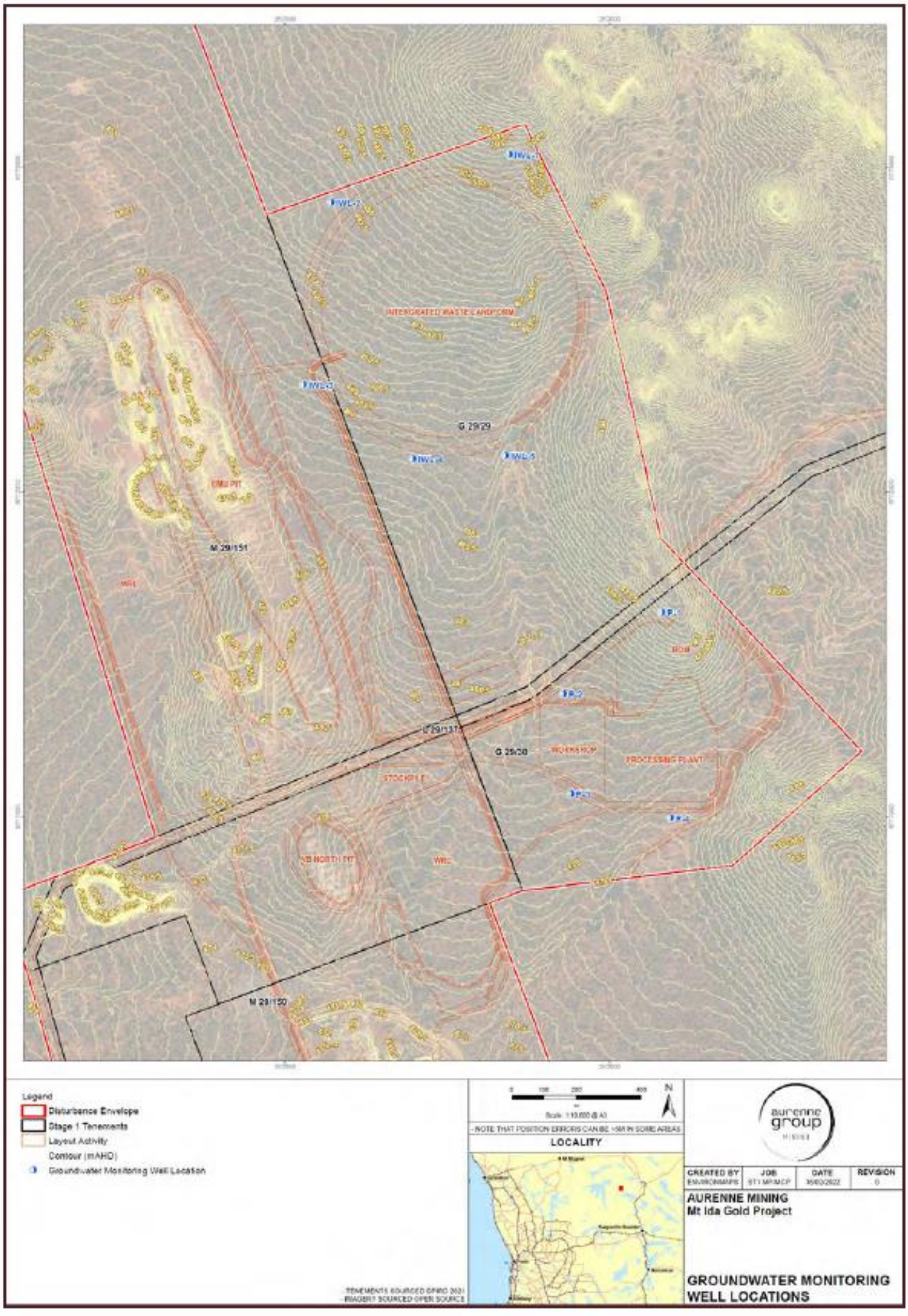

Figure 8: Groundwater monitoring well locations

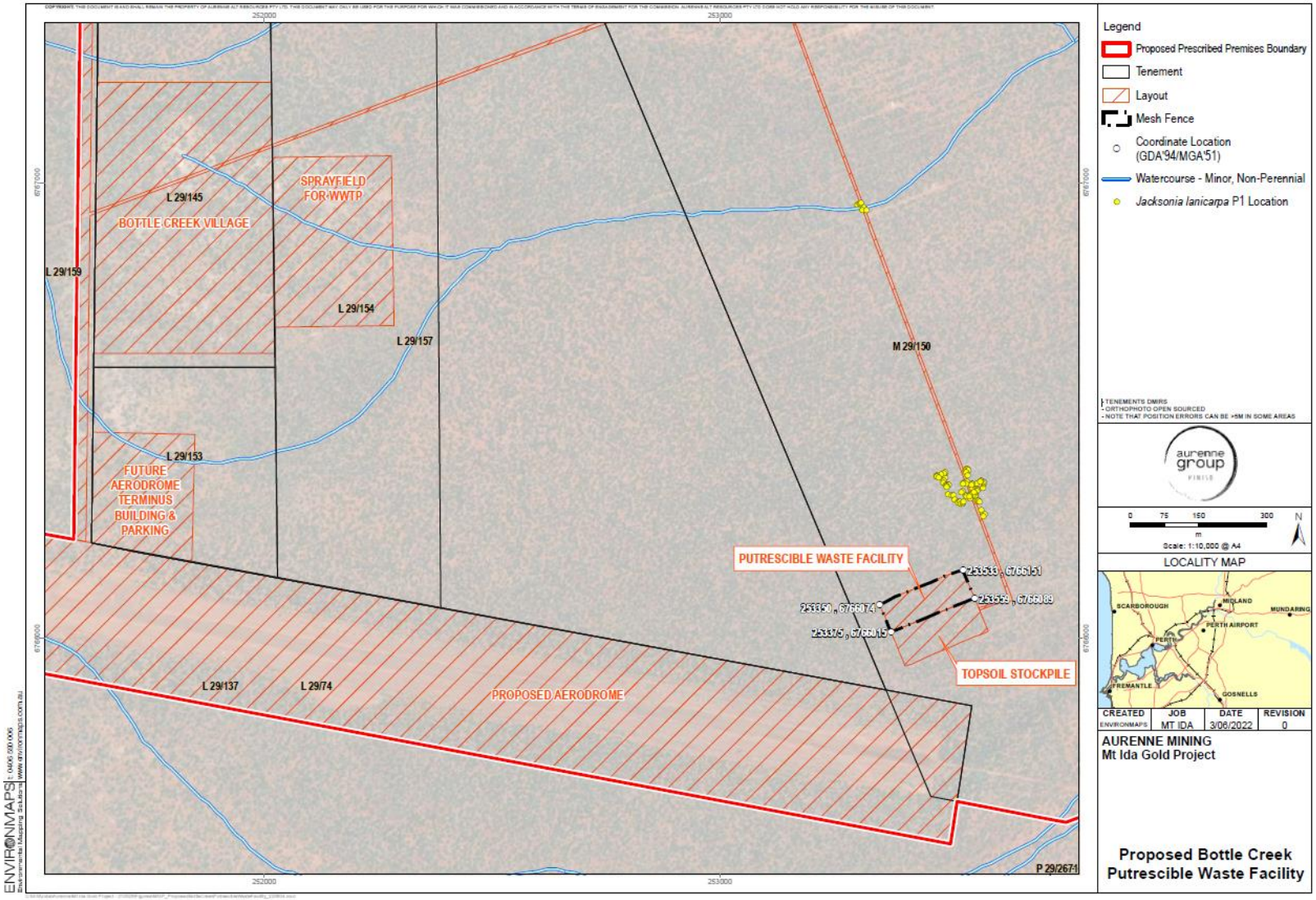

Figure 9: Location of Landfill

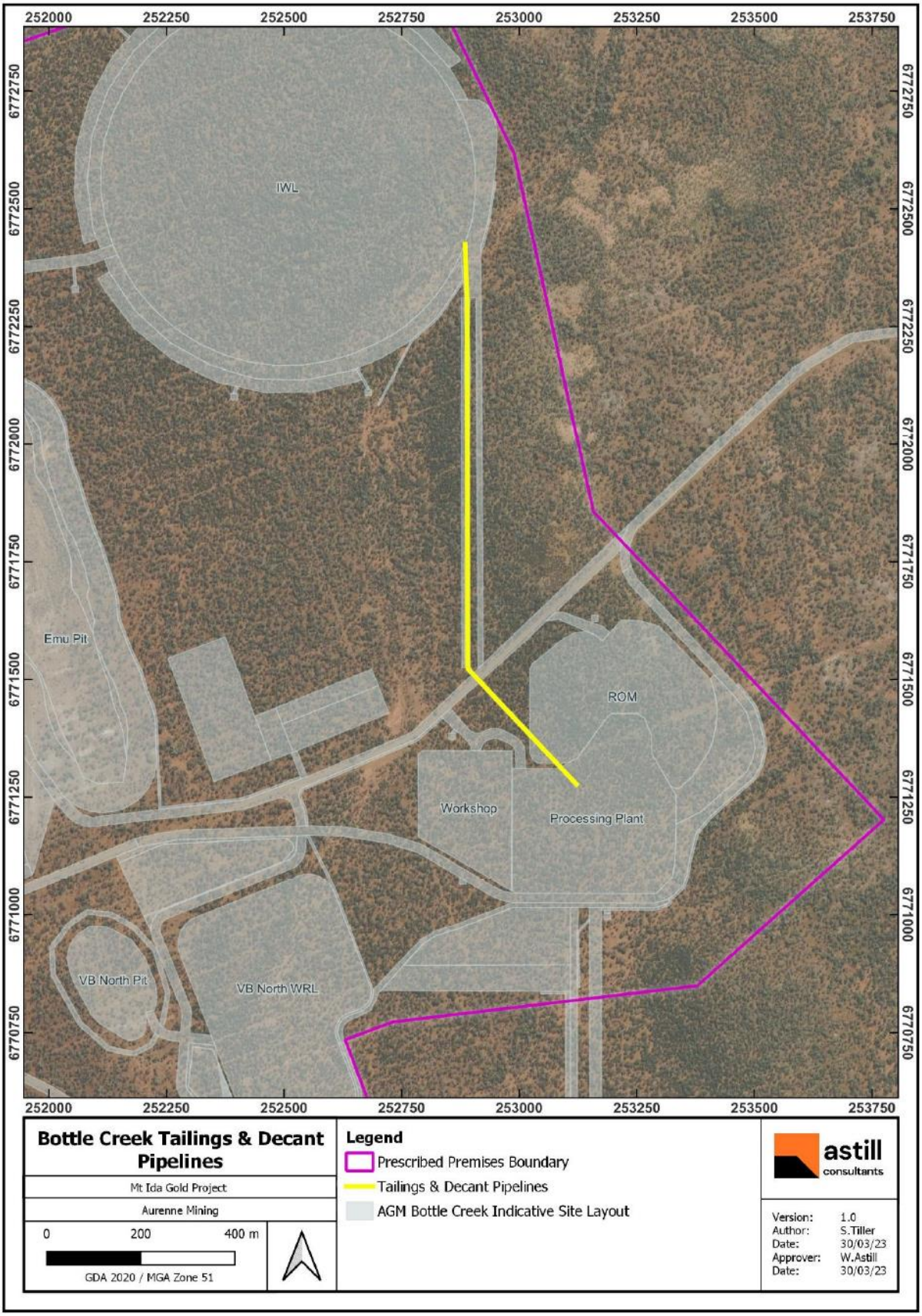

Figure 10: Bottle Creek Tailings and Decant Pipeline

Schedule 2: Groundwater monitoring well coordinates

Table 13: Groundwater monitoring well coordinates

IWL/TSF (ID-6)	Bore Number	Easting (x)	Northing (y)
Upstream and Downstream of IWL-TSF	IWL-1	252,691.53	6,773,040.04
	IWL-2	252,141.20	6,772,892.36
	IWL-3	252,056.53	6,772,329.64
	IWL-4	252,394.27	6,772,103.02
	IWL-5	252,679.22	6,772,112.54
ROM, Plant and Workshop (IDs 7, 8 and 9)			
Upstream and Downstream of the Plant/Workshop	P-1	253,161.03	6,771,629.94
	P-2	252,857.03	6,771,379.12
	P-3	252,880.57	6,771,071.54
	P-4	253,187.23	6,770,996.13