



**Licence Number** L8912/2015/1

**Licensee** Halls Creek Mining Pty Ltd

**ACN** 168 093 347

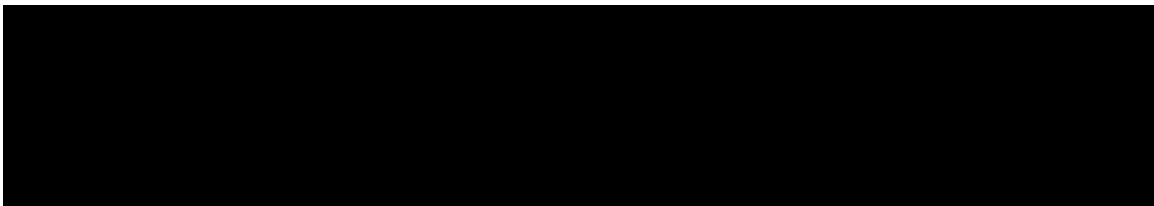
**File Number:** DER2015/001934

**Premises** Lamboo Gold Project  
M80/343, M80/355, M80/359, M80/362, M80/503,  
M80/471, L80/70 and L80/71  
MUELLER RANGES WA 6770

**Date of Amendment** 11/07/2017

## Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act and follows.



## Definitions and interpretation

### Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
AACR	Annual Audit Compliance Report means Annual Audit Compliance Report in a format approved by the CEO as presented by the Licensee or as specified by the CEO (guidelines and templates may be available on the Department's website)
ACN	Australian Company Number
AER	Annual Environment Report
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering Part V, Div.3 of the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 <a href="mailto:info@der.wa.gov.au">info@der.wa.gov.au</a>
CIP	carbon-in-pulp plant
CS Act	<i>Contaminated Sites Act 2003 (WA)</i>
DWER	As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER).  DWER was established under section 35 of the <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
Decision Report	refers to this document
Delegated Officer	an officer under section 20 of the EP Act
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>

	(Cth)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
HCN	Hydrogen cyanide
Licensee	Halls Creek Mining Pty Ltd
m <sup>3</sup>	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
mtpa	million tonnes per annum
NEPM	National Environmental Protection Measure
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
OEPA	Office of the Environmental Protection Authority
PM	Particulate Matter
PM <sub>10</sub>	used to describe particulate matter that is smaller than 10 microns (µm) in diameter.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
tpa	tonnes per annum
TSF	Tailings Storage Facility
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>
VWP	Vibrating Wire Piezometer
µg/m <sup>3</sup>	micrograms per cubic metre
µg/L	micrograms per litre

## Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for Category 5. No changes to the aspects of the original Licence relating to Category 64 have been requested by the Licensee.

The following DER guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

## Amendment description

On 6 April 2017, Halls Creek Mining Pty Ltd (Licensee) submitted an application to DER for amendment to the Lamboo Gold Project (Lamboo) operational licence L8912/2015/1 to allow for the reconstruction and embankment raise of a previously used Tailings Storage Facility (TSF1) and construction of upstream embankment raises for the existing TSF (TSF2). The amendment is also to allow operation of the altered facilities, following construction.

The proposed TSF amendments are to be located wholly within M80/359 and M80/362, held by the Licensee.

There is no change to the processing plant or approved Category 5 throughput of 200,000 tonnes per annual (tpa) period as part of the Licence amendment. The staged TSF amendments are designed to cater for an additional 3.25 years of tailings deposition with an estimated volumetric storage capacity of 485,000 tpa (for the 3.25 year duration) which equates to a total of 1,455,000 tonnes of total tailings deposition.

There is no change to the landfill or approved Category 64 throughput of 100 tpa as part of this amendment.

### Processing

Product and tailings are produced in a carbon-in-pulp (CIP) plant which uses cyanide to dissolve the gold from the crushed and ground ore. A by-product of CIP processing is hydrogen cyanide (HCN) which is transferred as part of the tailings slurry to the TSFs. Tailings slurry properties comprise:

- TDS: 2,000 mg/L
- pH: 9-10 (operational recording of 9.27 as at May 2017)
- Solids content: 36.8%
- Solids deposited density: 1.4 t/m<sup>3</sup>
- WAD CN: 48.3 mg/L (initial HCN content at discharge)
- Total CN: 79.86 mg/L

## TSF Characteristics

### *Embankment construction, staging and composition*

The amendment involves construction of new embankments for TSF1 on the western and northern sections of the existing facility. The western TSF1 embankment will partially consist of the existing bank while the northern embankment will be reconstructed slightly north from the existing embankment and will require clearing of approximately 0.5 ha of native vegetation. All future embankment raises will be within the existing disturbed footprint (for both TSF1 and TSF2).

The TSF1 embankments are being rebuilt as Cone Penetration Testing (CPT). Analyses by SGS Australia (Pty Ltd) indicated that the embankments, particularly the northern embankment was not well compacted at the time of construction (TailCon Projects, 2017b).

The western embankment of TSF1 will intersect the TSF2 embankment at the current diversion wall, whilst the embankment will intersect into the existing wrapped embankment at the waste rock dump ('Nicolsons WRD' within Figure 1) to the immediate east of the two TSF cells.

The starter embankments (north and west) at TSF1 will be raised using upstream construction material from the existing embankments and adjacent waste rock dump. The embankment section will have a crest width of 5m, a downstream slope of 1V:3H and an upstream slope of 1V:5H and a 3 m wide key trench. The embankment fill will be homogeneous fill (HCM Supporting Document, 2017) and constructed in three stages:

**Stage 1:** comprises the crest level of the TSF1 embankment being raised from 402 mRL to 405 mRL. This stage will provide approximately 9 months of tailings storage (in TSF1) before Stage 2 construction and commissioning is required.

**Stage 2:** construction involves a 3 m upstream raise to both TSF1 and TSF2. The TSF1 crest level will be built to 408 mRL and the TSF2 crest level will be built to 405 mRL. The raise of the TSF2 embankment in this stage will provide approximately 13 months of tailings storage before the Stage 2 raise of TSF1 is to receive tailings.

**Stage 3:** construction involves a final 3 m upstream raise of TSF2 to a crest level of 408 mRL.

The existing dividing wall between TSF1 and TSF2 will be reconstructed by upstream or centre line method depending on the foundation condition at that time.

The embankment fill materials will:

- be free of visible organic and deleterious material;
- not exceed 100 mm in particle size; and
- have a plasticity index not less than 10 % and the liquid limit shall not be greater than 50 %.

In – situ and laboratory testing will be carried out during embankment construction to ensure that moisture-density and compaction requirements are met and able to be certified as compliant to relevant Australian Standards, by a qualified engineer.

### *Vegetation in TSF1*

TSF1 was used during former operations in the 1990's and has not been used during current operations. With the exception of wetting by sporadic rainfall, the upper surface is currently dry. Vegetation has sparsely colonised TSF1 during its inactive period (see Figure 1 for aerial view). The Licensee has advised that little native vegetation (with the exception of some native *Acacia* sp.) has colonised the TSF basin and that *Calotropis procera* (known as Rubber Bush) forms the dominant invasive species in the basin. This species has been declared as a pest species by the WA Department of Agriculture and Food (Control Category C3 = management, which requires the landholder to alleviate the impact, reduce, prevent or contain the spread of

the declared pest in the area under the *Biosecurity and Agriculture Management Regulations 2013*).

The Licensee has advised that the vegetation on the embankments will be stripped prior to construction works and stockpiled outside the construction area. To avoid spreading the Rubber Bush, the vegetation in the existing TSF cell will be pushed over and tailings deposition will occur over the top, therefore flooding and killing the vegetation. This will also aim to retain Rubber Bush seed within the TSF and not spread the pest species to other areas during construction of the embankment raises.

#### *Basin permeability*

Both TSF basins are currently covered with deposited tailings, with the exception of the new section of the TSF1 basin to the north (180m in length and 5-17m width). Permeability testing carried out during construction of TSF2 confirmed that following compaction, the foundation basin permeability was  $1 \times 10^{-9}$  m/s (TailCon Projects 2015). To ensure the same foundation permeability of  $1 \times 10^{-9}$  m/s, the new section required for the TSF1 basin will be ripped to a minimum 150 mm depth, moisture conditioned and re-compacted to the specifications outlined in TailCon Projects (2017) to minimise seepage within this section of impoundment basin. The remaining basin area (i.e. within the existing TSF1 cell) will not be reworked as it consists of 2m thick tailings material.

The basin permeability of the existing TSF1 has not been formally tested (due to the presence of tailings) however, CPT testing within the TSF1 basin has indicated that the bottom 0.5 m to 1 m (of tailings) appears to be “very stiff sand to clayey sand” before refusal (TailCon, 2017). In addition, no standing water has been recorded in the TSF monitoring bores to date (i.e. no recordable seepage is occurring at the present time).

#### *External TSF water and sediment capture*

A sediment trench will be excavated downstream of the downstream toe of the TSF1 embankments which will drain to one or more sumps. Silt eroded from the TSF embankment will be captured and any water will be pumped out and returned to the TSF or to the processing plant. The sediment trench has been designed also to capture seepage from the toe of the embankments, should seepage occur.

#### *Internal Drainage*

An underdrain system comprising of an elevated toe drain near the upstream toe of the east and south embankments will be installed in TSF2 (TailCon, 2017 drawing 2013-006, Ref F [TailCon Projects, 2017a], Revision B). Depth of the trench will be approximately 1m as estimated by the site investigations conducted for TailCon, 2017.

An external sediment collection drain has already been constructed (and is in use) around the base of the TSF2 embankment. This collection drain will receive any discharge from the elevated toe drain via an outlet pipe.

#### *Tailings Deposition and pipelines*

Tailings pipelines will be buried with above ground sections located in a v -trench. The pipelines will be fitted with pressure transmitters at both ends of the pipeline with alarms to indicate variation in flow pressure. The aboveground pipelines will undergo daily inspections during operation.

The TSF has been designed to operate as a sub aerial, no release facility. The tailings will be discharged into the TSF from HDPE pressure pipelines placed along the upstream edges of all the embankment crests. The tailings discharge will be rotated around all the embankments to maintain the free water pond around the decant tower. Spigot off takes from the HDPE tailings pipework will be provided every 10 m. The tailings slurry will be discharged from 4-6 outlets or spigots at any one time, with the active outlets regularly changed to allow an even build up of the tailings solids over the whole area of the storage (D E Cooper & Associates,

2012).

Tailings deposition will be carried out in one TSF while the embankment raise (construction) is carried out in the other TSF.

Tailings deposition will create a tailings beach which slopes towards the central decant area. The resultant cone, which will be formed on the surface of the tailings, will have adequate capacity to store water which could result from rainfall. A slope on the surface of the tailings beach of 1% has been assumed (TailCon, 2017).

#### *Decant return*

A (new) rock mound style decant tower will be constructed within the central area of TSF1 and connected to the eastern embankment of the facility by a decant causeway. The decant tower will be constructed from slotted concrete pipe sections placed vertically on a concrete base pad and surrounded by selected competent mine waste rock, sourced from underground mine waste. A new decant causeway will not be required for TSF2 as one already exists.

The decant tower in each TSF will be raised at the time of each embankment raise. The causeway will also be raised at the same time, utilising mine waste rock for stability and armouring. Deposited tailings from the basin area may also be recycled to assist in constructing the causeway area.

The decant tower will be fitted with an electro-submersible pump capable of returning up to 90% of the plant make-up water requirements. Water will be removed as soon as possible following rainfall to limit contact of pooled water on the TSF internal embankments (D E Cooper & Associates, 2012). A flushing manifold exists within TSF2 decant system so that the tailings and distribution pipeline can be flushed using the return water when required. A flushing manifold will be installed within the new TSF1 decant system.

#### *Freeboard*

The following freeboard will be constructed and maintained for both TSF1 and 2:

- Operational: 0.3m
- Beach: 0.3m
- Total minimum (to be maintained): 0.5m

The beach freeboard minimum is defined based on the 1 in 100 year, 72 hour rainfall event adopted in the design, with normal operating pond size – 50m from decant (1,300 m<sup>3</sup>) (TailCon, 2017).

Freeboard markers will be installed for each embankment raise.

#### *Monitoring – water quality*

Piezometers will be installed in the TSF1 embankments (and in successive embankment raises) to detect the phreatic surface of any water within the embankments. Specifically, two new vibrating wire piezometers will be installed inside the impoundment area adjacent to the northern and western wall raise areas. Two new standpipe piezometers will be installed within the northern and western wall raise areas (Figure2).

Piezometers have been installed at TSF2 along four selected transect lines – two on the western wall, one on the southern wall and one on the eastern wall near the decant access.

Each transect line has one standpipe (Casagrande) piezometer installed at the downstream crest of the embankment while one Vibrating Wire Piezometer (VWP) installed at the TSF basin near upstream toe. The pore pressure data is recorded by a data logger and downloaded on a monthly basis or directly after major natural events.

Monitoring bores GW1 to GW9 exist to the north, west, south and southeast of TSF1 and TSF2 (Figure 1). Annual audits of both the monitoring and piezometer bores will be carried

out by the Licensee to review the previous year's operations and to confirm the stability of the embankments.

No standing water has been recorded in the TSF monitoring bores to date which infers there is no recordable seepage from the TSFs at present (TailCon, 2017). With the exception of the new piezometers in TSF1, no additional monitoring bores are proposed to be drilled for this amendment.

#### *Monitoring – tailings facility*

Monitoring of the tailings system and both TSF's will continue, which includes:

- Monitoring cyanide levels at the spigots;
- Monitoring cyanide levels in the decant water pond;
- Monitoring cyanide levels in the decant water return pipeline;
- Inspection of the tailings discharge and return pipelines a minimum once per shift (twice every 24 hrs);
- Inspection of the TSF embankments for any indication of seepage (daily during commissioning and operations); and
- Inspection of the TSF for any fauna that may have become trapped in the tailings.

#### *Commissioning of TSF and pipework*

Tailings will be discharged to TSF1 as part of TSF commissioning. Under this amendment, commissioning is to occur when construction of each embankment raise is completed. Commissioning is estimated to take between 2-4 weeks in duration. Initially, the tailings will not contain cyanide. Cyanide will be progressively added (HCM Commissioning Plan, 2015) to the tailings feed entering the TSF.

During the commissioning phases the following parameters will be monitored:

- Feed rate;
- Slurry densities;
- pH; and
- Cyanide levels by titration (assays at the laboratory).

These parameters are already monitored for TSF 2 and monitoring will re-commence once commissioning of the first TSF2 embankment raise and pipework re-instatement has occurred.

During commissioning, proposed target values may be exceeded. If this occurs, commissioning activities will continue as planned whilst a formal investigation is undertaken.

During the commissioning phase, malfunction of pumps, pipelines or conduits may occur. If a failure of any of these items occurs, then the system will be shut down until the fault is rectified. Failure of the tailings pipelines will result in cessation of commissioning until the fault is rectified. If tailings are discharged it will be retained within the pipeline bund system prior to clean up.



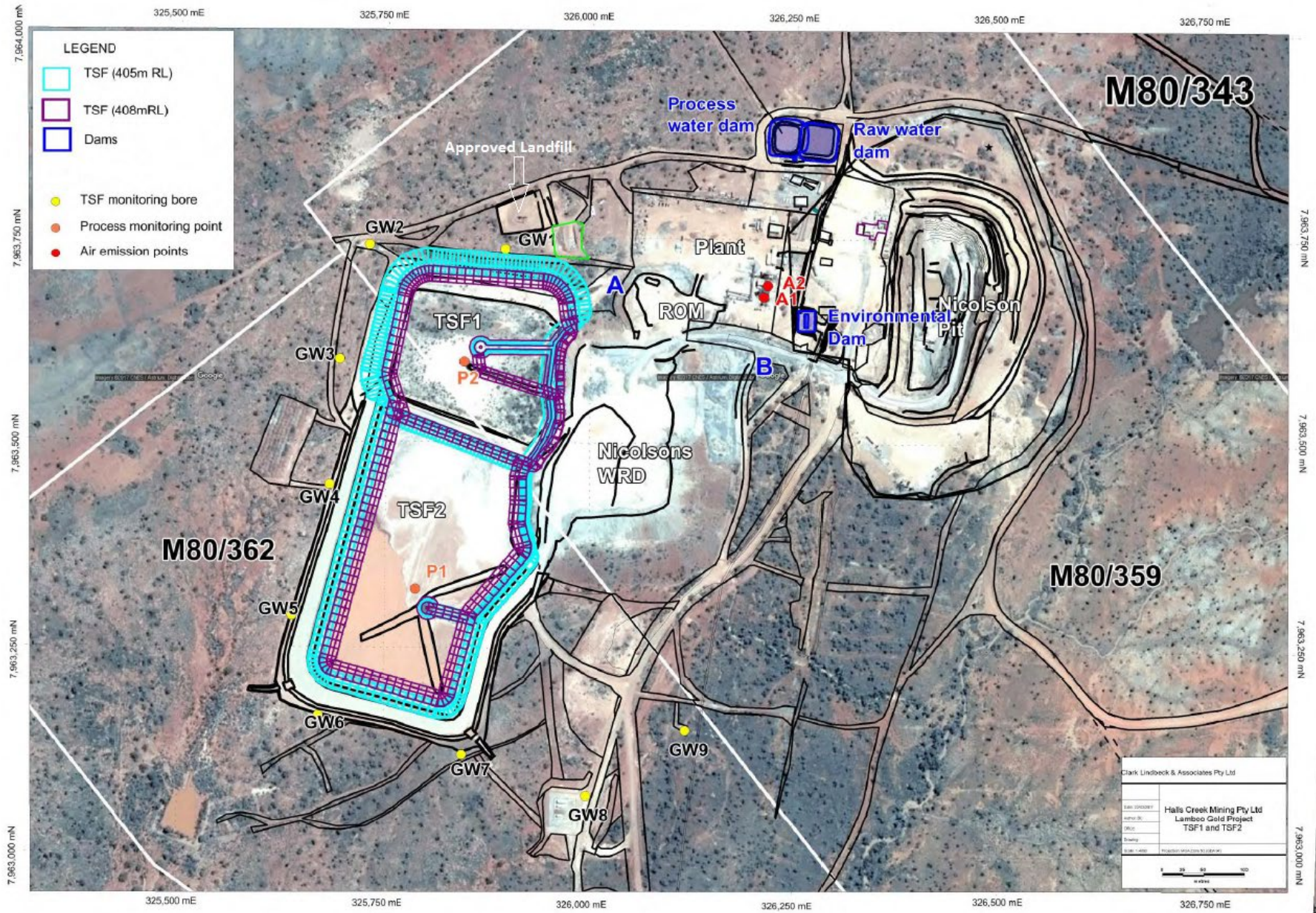


Figure 1. Lamboo Gold Project Site Layout (includes containment infrastructure, process and groundwater monitoring points)



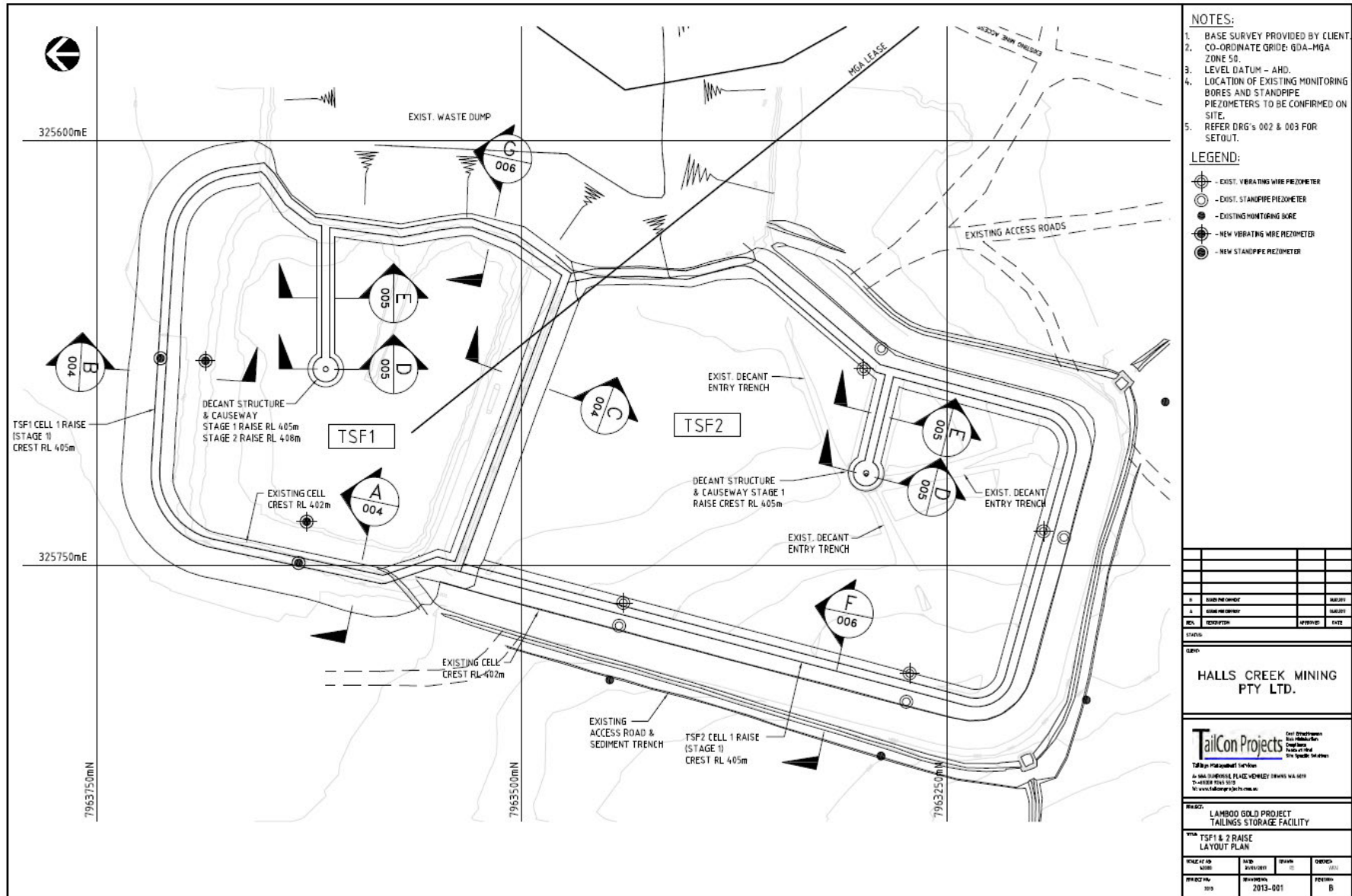


Figure 2. Lamboo Gold Project TSF1 and TSF2 Raise Layout Plan (includes piezometer locations)

## Other approvals

The following Table (Table 2) outlines other approvals sought for this amendment.

**Table 2: Relevant approvals**

Legislation	Number	Approval
Mining Act 1978	Reg ID: 66034	Mining Proposal Approval for 'LAMBOO GOLD PROJECT - TSF Design Amendment MP - M80/359 & M80/362' as submitted to the Department of Mines and Petroleum (DMP) on 10/4/17.  <i>Note: This approval had not been obtained at the time of this Amendment Notice (July 2017).</i>

## Amendment history

Table 3 provides the amendment history for L8912/2015/1.

**Table 3: L8912/2015/1 amendments**

Instrument	Issued	Amendment/Issue
L8912/2015/1	05/11/2015	First issue of operating Licence
L8912/2015/1	29/04/2016	Notice of amendment on 29 April 2016, amending licence expiry date to 8 November 2035
L8912/2015/1	29/04/2016	Notice of amendment of licence expiry date, section 59b(9) and section 59(1)(k) <i>Environmental Protection Act 1986</i> : extension of licence expiry date to 8 November 2035. Administrative amendment only.
L8912/2015/1	11 July 2017	Issue of this amendment notice to allow for embankment lifts to TSF1 and TSF2.

## Location and receptors

Table 4 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 4: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises
Lamboo Pastoral Station Homestead	~5.3km southwest from the TSF construction and operation area
Pastoral bores	5 pastoral bores are located within a 5km radius of the TSF construction and operation area. Of these, the closest, 'Drill Well' is located approximately 2.3 km south east of the TSF construction and operation area

Table 5 lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 5: Environmental receptors and distance from activity boundary**

Environmental receptors	Distance from Prescribed Premises
Laura River tributaries	<p>There are several ephemeral tributaries within the Project area that only flow following heavy rainfall. The nearest tributary to the TSF construction and operation area (subject of this amendment) is approximately 90 m to the west southwest of the TSF2 cell. There is an existing dam to the southwest of TSF2 that intersects the nearest Laura River tributary within M80/362. However the dam is not currently listed as containment infrastructure within L8912/2015/1.</p> <p>All surface drainage flow within the Project area drains to the south eventually joining the Laura River, Margaret River and eventually the Fitzroy River to the west.</p> <p>The main body of Laura River is located within 3km of the Project area (at the closest point).</p>
Groundwater	<p>Groundwater in the general project area is limited and was encountered at an average depth of 46.46 m (below top of bore casing) in 2012 stygofauna investigation holes located near the TSFs.</p> <p>There are no basins of sedimentary strata thick enough to be significant aquifers.</p> <p>Groundwater occurs in limited quantities in fractures in the predominantly impermeable bedrock, and in some weathered material. Overall, the rocks have low permeability, and groundwater would flow at low rates south-westerly and westerly: parallel to the main structural elements and towards areas of lower ground-elevation. Groundwater recharge is local – by infiltration of rainfall on outcrop and from water in creeks, the Laura River, and associated alluvium.</p> <p>Groundwater supplies have been developed for homestead water use and stock watering on the Lamboo pastoral lease. The produced water is of domestic and stock quality (generally less than 1,000 and 5,000 mg/L TDS respectively).</p> <p>Useful supplies of low-salinity water are available from two bores drilled along a regional fault (the Mary River Fault) about 5 km north of the mine. Here, the groundwater resources are enhanced by the fractured, quartzose nature of the rocks along the fault, and the proximity of the Laura River. Water levels in the bores are about 30 m below ground surface (Rockwater, 2015).</p>
Vegetation	<p>A vegetation condition survey conducted in 2011 has indicated that vegetation surrounding the TSF 1 and TSF2 cells (<i>Eucalyptus brevifolia</i> over <i>Acacia tumida</i> over <i>Triodia wiseana</i>) is in very good <sup>2</sup> condition.</p>

<sup>2</sup>Vegetation Structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeating fires, the presence of some more aggressive weeds, dieback, logging and grazing (Keighery, 1994).

## Risk assessment

Tables 6 and 7 below describe the construction, commissioning and operational Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments Part V, Division 3, Environmental Protection Act 1986*. Both tables identify the determined risk to public health or the environment from the amendment, and whether activities require further regulatory controls.

At the time of this amendment, DWER has also updated the Licence to align with administrative changes implemented within the Department as described in Table 8.

**Table 6: Risk assessment for proposed amendments during construction and commissioning**

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
Cat 5 Processing or beneficiation of metallic or non-metallic ore	Construction of TSF infrastructure	Dust: associated with construction activities	Lamboo Pastoral Station residence ~5.3km southwest from the TSF construction and operation area	Air	Health and amenity impacts	Slight	Unlikely	Low	The use of water trucks and reduction of site-speed limits are dust mitigation measures employed by the Licensee to suppress dust lift-off. Given the separation distance from the nearest residence, the risk of impact is considered to be low. No additional regulatory controls are deemed to be required to mitigate this risk.
		Noise associated with construction activities	Lamboo Pastoral Station residence ~5.3km southwest from the TSF construction area	Air	Health and amenity impacts	Slight	Rare	Low	Given the separation distance from the nearest residence, the risk of impact by noise is considered to be low. No additional regulatory controls are deemed to be required to mitigate this risk.
		Sheet wash during heavy rainfall events carrying sediment laden water	Nearby Laura River tributaries	Land	Increased sedimentation of creek lines causing localized vegetation inundation	Minor	Rare	Low	The off-site local scale impacts are considered to be minimal due to existing and natural sediment laden sheet wash that occurs in creek lines of this area.  During construction, a sediment trap will be excavated downstream of the downstream toe of each TSF embankment. The trench will drain to one or more small sumps (outside the TSFs) and has been designed to contain sediment and runoff water around the facility, preventing further sheet flow depositing suspended sediment to the environment outside the Project area.  The Delegated Officer considers that the proposed runoff mitigation measures are satisfactory and the risk to the environment



Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
								is low.
	Hydrocarbon spill from construction machinery	Nearby Laura River tributaries	Land and waterways	Surface water contamination causing reduction in quality of surface water, health impacts to aquatic fauna and birdlife	Minor	Rare	Low	<p>Fuel spills from refueling of construction machinery or oil from blown hydraulic hoses adjacent to the TSF working areas is likely to be low in volume and localized to the spill site. Given the local soil type around the construction area, overland flow of a spill would be limited, and seepage limited to the surface layers of the soil, therefore retarding the flow.</p> <p>The large site diesel fuel (lined and banded) storage facility is not located near the TSF construction areas. The WRD to the east of the TSFs separates the fuel storage facility from the TSFs. There is an environmental dam to the southeast of the plant and fuel storage area that has been operating to contain runoff and spills from the plant and workshop that are not captured within the concrete bunding.</p> <p>Spill equipment will be maintained at site. In the event of a spill the contaminated soil will be collected and disposed of at the designated (clay lined and banded) bioremediation facility within the waste dump on site.</p> <p>The Delegated Officer considers that the existing hydrocarbon management measures are satisfactory and the risk to the environment is low.</p>
	Hydrocarbon spill from construction machinery	Groundwater below the construction area	Land	Groundwater contamination causing reduction in quality of	Minor	Rare	Low	Groundwater in the general project area is limited and was encountered at an average depth of 46.46 m (below top of bore casing) in 2012 stygofauna investigation holes located near the TSFs. The closest

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
				groundwater				stygofauna investigation hole is approximately 350m east of TSF2. Based on the above, it is deemed rare that hydrocarbon spills would reach the groundwater table below the TSFs.
	Hydrocarbon spill from construction machinery	Vegetation surrounding the TSFs	Land	Adverse impacts to the health and survival of vegetation	Minor	Unlikely	Low	The large site diesel fuel (lined and banded) storage facility is not located near the TSF construction areas so a large spill is not anticipated around the TSF area. Minor spills during refueling are not anticipated to drain far from the site of the spill. Spill equipment will be maintained at site. In the event of a spill the contaminated soil will be collected and disposed of at the designated (clay lined and banded) bioremediation facility within the waste dump on site. The Delegated Officer considers that the existing hydrocarbon management measures are satisfactory and the risk to the environment is <b>low</b> .
Commissioning of HDPE tailings pipeline	Tailings spillage from pipeline failure outside TSF from pipeline integrity failure	Nearby Laura River tributaries (drainage lines)	Land and waterways	Surface water contamination causing reduction in quality of surface water, health impacts to aquatic fauna and birdlife	Moderate	Rare	Medium	Tailings pipelines will be buried with above ground sections located in a v-trench, therefore spillages during commissioning should be contained and release to external drainage lines will be rare. Pipelines will be fitted with pressure transmitters at both ends of the pipeline with alarms to indicate variation in flow pressure which will be tested during commissioning. Failures identified during commissioning will be identified and rectified before the facility is able to be operated. The Delegated Officer considers that the proposed commissioning spill management measures are satisfactory, distance to nearby drainage lines, adequate however

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
								the risk to the environment remains <b>medium</b> .
	Tailings spillage from pipeline failure outside TSF from pipeline integrity failure	Vegetation surrounding the TSFs	Land	Adverse impacts to the health and survival of vegetation	Moderate	Rare	Medium	<p>There are no threatened / priority flora or Threatened or Priority Ecological Communities within 8km of the Project area.</p> <p>Tailings pipelines will be buried with above ground sections located in a v-trench, therefore spillages during commissioning should be contained and release to vegetation outside the site, rare. Pipelines will be fitted with pressure transmitters at both ends of the pipeline with alarms to indicate variation in flow pressure which will be tested during commissioning. Failures identified during commissioning will be identified and rectified before the facility is able to be operated.</p> <p>The Delegated Officer considers that the proposed commissioning spill management measures are satisfactory, distance to significant vegetation, adequate however the risk to the environment remains <b>medium</b>.</p>



**Table 7: Risk assessment for proposed amendments during operation**

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
Cat 5 Processing or beneficiation of metallic or non- metallic ore	Transport of tailings via HDPE pipeline	Tailings or decant spillage outside TSF	Laura River tributary adjacent to TSF	Land: Seepage of tailings/ decant water through soil profile	Contamination of surrounding soils with metals and metalloids, sulphide minerals (if present), dissolved solids and cyanide affecting soil and groundwater quality and causing vegetation stress or death.	Minor	Possible	Medium	Tailings pipelines will be buried with above ground sections located in a v-trench, therefore spillages during operation should be contained and release to external drainage lines rare. Pipelines will be fitted with pressure transmitters at both ends of the pipeline with alarms to indicate variation in flow pressure which will be tested during commissioning. The Delegated Officer considers that the proposed operational management measures are satisfactory, and distance to nearby drainage lines, adequate however the risk to the environment remains <b>medium</b> .
		Tailings disposal into TSF and subsequent seepage below the facility	Groundwater	Land: Seepage of tailings through soil profile	Adverse impacts to the health and survival of vegetation dependent upon groundwater	Moderate	Unlikely	Medium	Groundwater in the general project area is limited and was encountered at an average depth of 46.46 m (below top of bore casing) in investigation holes located near the TSFs. The closest sampled bore is approximately 350m east of TSF2. The foundation basin permeability of TSF2 has been confirmed as $1 \times 10^{-9}$ m/s. Although permeability of the existing TSF1 facility cannot be confirmed (and new deposition will occur on 2m of existing dried tailings), the new section of TSF1 foundation basin will be treated during construction to ensure a permeability of $1 \times 10^{-9}$ m/s. The decant pond within the facility has been designed to be minimal and to reside centrally around the decant tower (away from embankment walls).

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
								Based on the above, the Delegated Officer considers unlikely that seepage would reach the groundwater table below the TSFs, with the risk to the environment remaining <b>medium</b> .	
Cat 5 Processing or beneficiation of metallic or non- metallic ore cont..	Exposed external surfaces of TSF	Sheetwash during heavy rainfall events	Nearby creek tributaries	Land and water	Contamination of surrounding drainage lines with increased sediment runoff from the TSFs.  Vegetation stress or death	Slight	Unlikely	Low	A sediment trap will be excavated downstream of the downstream toe of each TSF embankment. The trench will drain to one or more small sumps (outside the TSFs) and contain sediment and runoff water around the facility, preventing further sheetwash flow depositing suspended sediment to the environment outside the Project area. The Delegated Officer considers that the proposed runoff mitigation measures are satisfactory and the risk to the environment is <b>low</b> .
	Exposed surfaces of TSF (internal basin and external embankments)	Dust associated with operational activities and drying of tailings surface	Nearby residents of Lamboo Pastoral Station (~5.3km southwest from the TSF)	Air (particulate matter)	Health and amenity impacts to humans	Slight	Possible	Low	The Delegated Officer considered there is no material risk from the generation of dust on site due to the distance to the nearest sensitive receptor of Lamboo Pastoral Station. The risk rating remains <b>low</b> . No additional regulatory controls are deemed to be required to mitigate this risk.
	Tailings pond	Overtopping of tailings due to heavy rainfall resulting in /decant water outside of containment infrastructure	Terrestrial ecosystems - surrounding soils, vegetation and surface water	Land and water	Contamination of surrounding soils with metals and metalloids, sulphide minerals (if present), dissolved solids and cyanide	Moderate	Rare	Medium	Overtopping of the TSFs is anticipated to be unlikely given the designed freeboard of 0.5m, pond design to be maintained around the central decant structure, decant operation removing excess water and inspection management measures proposed by the Licensee. The Delegated Officer considers 0.5m freeboard, water removal (via decant) and inspection measures will act as adequate controls to reduce potential for

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
				affecting soil and groundwater quality and causing vegetation stress or death.				TSF overtopping. Therefore the likelihood is determined to be rare and the risk to the environment remains <b>medium</b> .	
Cat 5 Processing or beneficiation of metallic or non-metallic ore cont..	Tailings pond	Supernatant water accessibility to surrounding wildlife	Terrestrial wildlife and birdlife	Direct discharge (to TSF)	Consumption of tailings /decant water containing cyanide, metals and metalloids and dissolved solids could cause fauna mortality.	Slight	Unlikely	Low	Whilst it is possible that fauna may access the unlined TSF or TSF pond, the Delegated Officer considers that the daily inspection management measures as proposed by the Licensee will reduce the likelihood of impact to fauna as <b>unlikely</b> .
	Tailings embankment failure	Tailings and decant spillage outside TSF	Terrestrial ecosystems - surrounding soils, vegetation and surface water	Land and water	Contamination of surrounding soils with metals and metalloids, sulphide minerals (if present), dissolved solids and cyanide affecting soil and groundwater quality and causing vegetation stress or death.	Moderate	Unlikely	Medium	Likelihood of impact to public health and amenity from tailings embankment failure is considered to be unlikely, given the proximity of the TSFs to the nearest residential receptor.  Standpipe piezometers exist with the current operating TSF2. New piezometers will be installed in the Stage 1 TSF1 embankment (and successive raises) and the internal basin to monitor the phreatic surface within the tailings. The embankment piezometers will assist in determining if seepage is present, indicating a reduction in embankment integrity that could lead to eventual embankment failure and tailings/ decant spillage outside the TSF. The monitoring of seepage (9 monitoring bores around TSFs) coupled with the monitoring of (potential) phreatic surface will indicate

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
								<p>whether additional management measures are required on site. The current HCM operating strategy (of monthly pore pressure data capture) is deemed adequate.</p> <p>Given the abovementioned management measures and HCM review of operational monitoring data, the likelihood of the emissions occurring has been deemed as unlikely, but the overall risk of tailings embankment failure remains <b>medium</b>.</p> <p>No additional regulatory controls are deemed to be required to mitigate this risk.</p>
<b>Cat 5</b> Processing or beneficiation of metallic or non-metallic ore cont..	Noise associated with operational activities	Lamboo Pastoral Station residence ~5.3km southwest from the entire operational area	Air	Health and amenity impacts	Slight	Rare	Low	Given the separation distance from the nearest residence, and the dominant wind being easterly in the region, the risk of impact by operational noise is considered to be <b>low</b> .

**Table 8: Administrative changes – Conditions removed**

Condition number	Condition removed	Justification	Replacement condition
n/a : Licence expiry	<i>Expiry date: 8 November 2020</i>	DER initiated 'Notice of amendment' on 29 April 2016, amending licence expiry date.	Licence expiry date to 8 November 2035
L1.1.5	<i>Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to: (a) pollution; (b) unreasonable emission; (c) discharge of waste in circumstances likely to cause pollution; or (d) being contrary to any written law.</i>	This condition is not enforceable as it is not sufficiently clear or certain.	NA
L1.2.1	<i>The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.</i>	This condition is not enforceable as it is not sufficiently clear or certain.	NA
L1.2.2	<i>The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.</i>	This condition is not enforceable as it is not sufficiently clear or certain.	The general provisions of the <i>Environmental Protection Act 1986</i> are applicable. The <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> are applicable.
L1.2.3	<i>The Licensee shall: (a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and (b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.<sup>1</sup></i>  <i>Note1: The Environmental Protection (Unauthorised Discharges) Regulations 2004 make it an offence to discharge certain materials into the environment.</i>	This condition is not enforceable as it is not sufficiently clear or certain.	The <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> are applicable.  Sheet flow runoff (stormwater) has been assessed for the proposed amendment in Tables 6 and 7.
L3.1.3	<i>The Licensee shall record production or throughput data and any other process parameters relevant to any non-continuous or CEMS monitoring undertaken.</i>		
Schedule 2	<i>Annual Audit Compliance Report Proforma</i>	This Proforma is superseded by DER's Guideline: Annual Audit Compliance Reports (August 2016)	Applicable form is downloadable from DER's website.



## Decision

### Category 5 - Processing or beneficiation of metallic or non-metallic ore

The Delegated Officer has determined that the key potential emissions associated with the proposed embankment raises of TSF1 and TSF2 are via tailings seepage, possible TSF overtopping, or pipeline spills. There may also be potential for fauna or birds to be harmed if they access the tailings pond.

The Delegated Officer has determined that the construction and operation of the lift will not result in emissions which are unacceptable to public health or the environment.

The Licensee is required to operate in accordance with existing licence conditions relating to TSF management.

### Administrative changes

The Delegated Officer considers the administrative changes outlined in Table 8 above should be included in the amendment.

## Licensee comments

The Licensee was provided with the draft Amendment Notice on 6 July 2017. Comments received from the Licensee have been considered by the Delegated Officer as shown in Appendix 2.

## Amendment

1. The licence is amended by the extension of the licence expiry date from 8 November 2020 to 8 November 2035.
2. The licence is amended by the insertion of the definitions underlined as shown below and the deletion of the definitions as shown in strikethrough below.

'AACR' means an Annual Audit Compliance Report in a format approved by the CEO as presented by the Licensee or as specified by the CEO (guidelines and templates may be available on the Department's website).

'AS 1289.2.1.1' means the Australian Standard AS 1289.2.1.1 -2005 (R2016) Methods of testing soils for engineering purposes. Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method (standard method).

'AS 1289.5.1.1' means the Australian Standard AS 1289.5.1.1 Methods of testing soils for engineering purposes. Method 5.1.1: Soil compaction and density tests—  
Determination of the dry density/moisture content relation of a soil using standard compactive effort.

'AS 1289.5.4.1' means the Australian Standard AS 1289.5.4.1-2007 (R2016) Methods of testing soils for engineering purposes. Soil compaction and density tests -  
Compaction control test - Dry density ratio, moisture variation and moisture ratio

'Stage 1' means construction of the new northern and western embankments,  
embankment raise to 405 mRL and install of new piezometers at TSF1

'Stage 2' means construction of embankment raise at TSF1 to 408 mRL and 405 mRL

and install of new piezometers at TSF2.

'Stage 3' means construction of final embankment raise and install of new piezometers at TSF2 to 408 mRL.

'TSF1' means Cell 1 within the Tailings Storage Facility located in Schedule 1 Figure 2.

'TSF2 - Cell 1' means Cell 2 within the Tailings Storage Facility located in Schedule 1 Map of containment locations (2) Figure 2.

3. The Licence is amended by the deletion of the following Condition 1.1.5 (shown in strikethrough):

~~1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:~~

- ~~(a) pollution;~~
- ~~(b) unreasonable emission;~~
- ~~(c) discharge of waste in circumstances likely to cause pollution; or~~
- ~~(d) being contrary to any written law.~~

4. The Licence is amended by the deletion of the following Condition 1.2.1 (shown in strikethrough) and the insertion of underlined text and Table 1.2.1 below:

~~1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.~~

1.2.1 The Licensee shall ensure that the requirements as detailed in Table 1.2.1 are met during the construction of Stages 1 to 3 embankment raises.

<b>Table 1.2.1: Construction requirements</b>		
<u>Location</u>	<u>Stage</u>	<u>Requirements</u>
<u>TSF1 and surrounds</u>	<u>Stage 1</u>	<u>Vegetation clearing required outside TSF1 is to be felled and available topsoil stockpiled for future access and use</u>  <u>Vegetation on embankments is to be stripped prior to construction commencing and stockpiled outside the working area</u>  <u>Vegetation inside TSF1 to be felled prior to tailings input during commissioning</u>
<u>TSF1</u>	<u>Stage 1</u>	<u>Embankment section to have a minimum crest width of 5 m, a downstream slope of 1V:3H, an upstream slope of 1V:1.5H</u>
<u>TSF1</u>	<u>Stage 1</u>	<u>Key trench excavated beneath the upstream toe of the (new) northern and western starter embankments. The key trench is to be 3 m wide and a minimum of 1m in depth</u>

<u>TSF1</u>	<u>Stage 1</u>	<p><u>New pump out rock mound style decant tower to be positioned close to the centre of TSF 1 with a decant causeway connecting from eastern embankment</u></p> <p><u>The decant tower will be constructed from slotted concrete pipe sections placed vertically on a concrete base pad. The tower will be surrounded by selected competent mine waste rock</u></p> <p><u>The decant mound rock shall comply with the following:</u></p> <ul style="list-style-type: none"> <li>• <u>The material shall be free of visible organic and deleterious material;</u></li> <li>• <u>Maximum particle size shall not exceed 300 mm; and</u></li> <li>• <u>No more than 10%, by weight, shall pass a 20 mm sieve.</u></li> </ul>
<u>TSF1 basin (new section of 180m in length and 5-17m width)</u>	<u>Stage 1</u>	<u>Basin compacted to a permeability coefficient of 10<sup>-9</sup> m/s or less</u>
<u>TSF1</u>	<u>Stage 1</u>	<u>Construction of new northern and western embankments and embankment raise to 405 mRL and install new piezometers</u>
<u>TSF1</u>	<u>Stage 1</u>	<u>The plasticity index of the embankment shall not be less than 10 % and the liquid limit shall not be greater than 50 %</u>
<u>TSF2</u>	<u>Stage 1</u>	<u>Underdrain system comprising of an elevated toe drain near the upstream toe of the eastern and southern embankments to be installed during Stage 1 and linked to an external TSF collection sump</u>
<u>TSF1 and TSF2</u>	<u>Stage 2</u>	<u>Embankment raise of TSF1 to 408 mRL Embankment raise of TSF2 to 405 mRL and install new piezometers</u>
<u>TSF1 and TSF2</u>	<u>Stages 2 and 3</u>	<p><u>Decant tower raised using slotted concrete pipe sections of sufficient height to effectively operate the decant during the next stage of operation</u></p> <p><u>Causeway raised using waste rock material or coarse tailings sourced from the tailings basin area</u></p>
<u>TSF2</u>	<u>Stage 3</u>	<u>Final embankment raise to 408 mRL and install new piezometers at TSF2</u>
<u>TSF 1 and TSF2 (downstream toe)</u>	<u>All stages</u>	<u>Sediment trench excavated downstream of the downstream toe of the embankments. The trench will drain to one or more small sumps</u>
<u>TSF 1 and TSF2</u>	<u>All stages</u>	<u>Piezometers installed in all new embankment raises and in the storage basin to enable monitoring of the phreatic surface within the tailings. Locations of</u>



		<u>piezometer installation are provided in Schedule 1 Figure 2</u>
<u>TSF 1 and TSF2</u>	<u>All stages</u>	<u>Freeboard markers installed for each embankment raise to allow measurement of 0.3m and 0.5m freeboard</u>
<u>TSF 1 and TSF2</u>	<u>All stages</u>	<u>Spigot off takes from the HDPE tailings pipework installed from the embankment crest every 10 m</u>
<u>TSF1 and TSF2 (pipelines)</u>	<u>All stages</u>	<u>Operational tailings distribution pipeline installed on the impounding embankments of each TSF to enable deposition from the embankment crest</u>  <u>Change over pipelines are to be installed to allow for transfer of tailings between operating TSFs</u>
<u>TSF1 and TSF2 (embankments)</u>	<u>All stages</u>	<ul style="list-style-type: none"> <li>• <u>The material shall be free of visible organic and deleterious material;</u></li> <li>• <u>The maximum particle size shall not exceed 100 mm;</u></li> <li>• <u>and</u></li> <li>• <u>Undertake at least one Atterberg Limits Test<sup>1</sup> and one gradation test for every 5,000 m<sup>3</sup> of fill placed and document results.</u></li> </ul>
<u>TSF1 and TSF2 (embankments)</u>	<u>All stages</u>	<u>Field dry density testing is to be conducted on each embankment layer to achieve 95% of Standard Maximum Dry Density (as per AS 1289.5.1.1) and document results and any re-work required</u>  <u>Compaction control is to be certified by a qualified engineer as having been conducted in accordance with AS 1289.5.4.1</u>

<sup>1</sup> Atterberg Limits Test to determine critical water contents of a fine-grained soil: its shrinkage limit, plastic limit, and liquid limit.

5. The Licence is amended by the deletion of the following Condition 1.2.2 (shown in strikethrough):  
~~1.2.2 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.~~
  
6. The Licence is amended by the deletion of the following Condition 1.2.3 (shown in strikethrough):  
~~1.2.3 The Licensee shall:~~
  - ~~(a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and~~
  - ~~(b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.~~<sup>1</sup>~~Note1: The *Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.~~
  
7. Condition 1.3.2, Table 1.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of underlined text below:

<b>Table 1.3.1: Containment infrastructure</b>		
<b>Containment cell or dam number(s)</b>	<b>Material</b>	<b>Infrastructure requirements</b>
<u>TSF1 (new floor section of 180m in length and 5-17m width)</u>	TSF floor construction material	Compacted to a permeability coefficient of 10 <sup>-9</sup> m/s or less.
<del>TSF 2 Cell 1</del> <u>TSF1 and TSF2</u>	Decant Water	To be contained within the <del>TSF 2 Cell 1</del> <u>TSF1 and TSF2</u> close to the decant tower and returned to the process as required.
Raw water dam	Underground mine dewater and bore water	Lined with High Density Polyethylene (HDPE). Minimum 300mm freeboard shall be maintained.
Process water dam	Tails return water and raw water	Lined with High Density Polyethylene (HDPE). Minimum 300mm freeboard shall be maintained.
Bioremediation pad	Hydrocarbon contaminated soils.	Within the waste dump. Clay lined and banded.

8. Condition 1.3.3 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of underlined text below:

The Licensee shall manage ~~TSF 2 Cell 1~~ TSF1 and TSF2 such that:

- (a) a minimum top of embankment freeboard of 500mm is maintained;
  - (b) a seepage collection and recovery system is provided and used to capture seepage from the ~~TSF 2 Cell 1~~ TSF1 and TSF2;
  - (c) seepage is returned to the ~~TSF 2 Cell 1~~ TSF1 or TSF2 or the process plant;
  - (d) methods of operation minimise the likelihood of erosion of the embankments by wave action; and
  - (e) the supernatant pond on the ~~TSF 2 Cell 1~~ TSF1 and TSF2 is minimised as far as possible.
9. Condition 1.3.4, Table 1.3.2 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of underlined text below:

<b>Table 1.3.2: Inspection of infrastructure</b>		
<b>Scope of inspection</b>	<b>Type of inspection</b>	<b>Frequency of inspection</b>
Tailings delivery pipelines	Visual integrity	Daily
Return water lines	Visual integrity	
<del>TSF 2 Cell 1</del> <u>TSF1 and TSF2</u> embankment freeboards	Visual to confirm required freeboard capacity is available	
Seepage from embankments	Visual integrity	

10. Condition 2.3 is added to the Licence as demonstrated by the insertion of underlined text below:

**2.3 Production Limits**

2.3.1 The Licensee shall not cause or allow emissions above the Approved Premises production or design capacity specified in Table 2.3.1.

<b>Table 2.3.1: Production Limits</b>			
<u>Category number</u>	<u>Category description</u>	<u>Category production or design capacity</u>	<u>Approved Premises production or design capacity</u>
<u>5</u>	<u>Processing or beneficiation of metallic or non-metallic ore</u>	<u>50 000 tonnes or more per year</u>	<u>200 000 tonnes per annual period</u>
<u>64</u>	<u>Class II putrescible landfill site</u>	<u>20 tonnes or more per year</u>	<u>100 tonnes or more per year</u>

11. Condition 3.3.1, Table 3.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of underlined text below:

<b>Table 3.3.1: Process monitoring</b>							
<b>Monitoring point reference as depicted in Schedule 1: Map of Process Monitoring Point</b>	<b>Process description</b>	<b>Parameter</b>	<b>Limit</b>	<b>Units</b>	<b>Averaging period</b>	<b>Frequency</b>	<b>Method</b>
<u>P1 and P2</u>	<u>Decant water</u>	<u>Total cyanide (CN)</u>	<u>80</u>	<u>mg/L</u>	<u>Spot sample</u>	<u>Once, during commissioning of each new embankment raise</u>	<u>None specified</u>
		<u>Weak acid dissociable cyanide (CN<sub>WAD</sub>)</u>	<u>50</u>				
<u>P1 and P2</u>	<u>Decant water</u>	<u>Total cyanide (CN)</u>	<u>80</u>	<u>mg/L</u>	<u>Spot sample</u>	<u>Quarterly when water standing</u>	<u>None specified</u>
		<u>Weak acid dissociable cyanide (CN<sub>WAD</sub>)</u>	<u>50</u>				

12. The Licence is amended by the deletion of the text shown in strikethrough below and insertion of the underlined text as shown below.

**Table 5.2.1: Annual Environmental Report**

Condition or table (if relevant)	Parameter	Format or form <sup>1</sup>
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
-	Comparison of the approved production and design capacities and actual production/throughput for the Annual period.	Brief summary
Table 3.2.1	Records of waste types and quantities received and disposed of at the site	None specified
Table 3.3.1	Process monitoring results	None specified
Table 3.4.1	Groundwater monitoring results	None specified
5.1.3	Compliance	Annual Audit Compliance Report (AACR)
5.1.4	Complaints summary	None specified

Note 1: Forms ~~are~~ is in Schedule 2.

13. The Licence is amended by the deletion of the text shown in strikethrough below and insertion of the underlined text as shown below.

**Table 5.3.1: Notification requirements**

Condition or table (if relevant)	Parameter	Notification requirement <sup>1</sup>	Format or form <sup>2</sup>
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
-	Production ceasing for an unspecified period of time	As soon as practicable after the decision has been made.	None Specified
-	Production recommencing	At least 28 days prior to production recommencing.	None specified

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

Note 2: Forms ~~are~~ is in Schedule 2.

14. The Licence is amended by the insertion of the underlined text as shown below.

New condition 5.2.4 The Licensee shall submit staged compliance documents to the CEO within 1 month following construction and commissioning of Stage 1, Stage 2 and Stage 3 of the works outlined in this amendment.



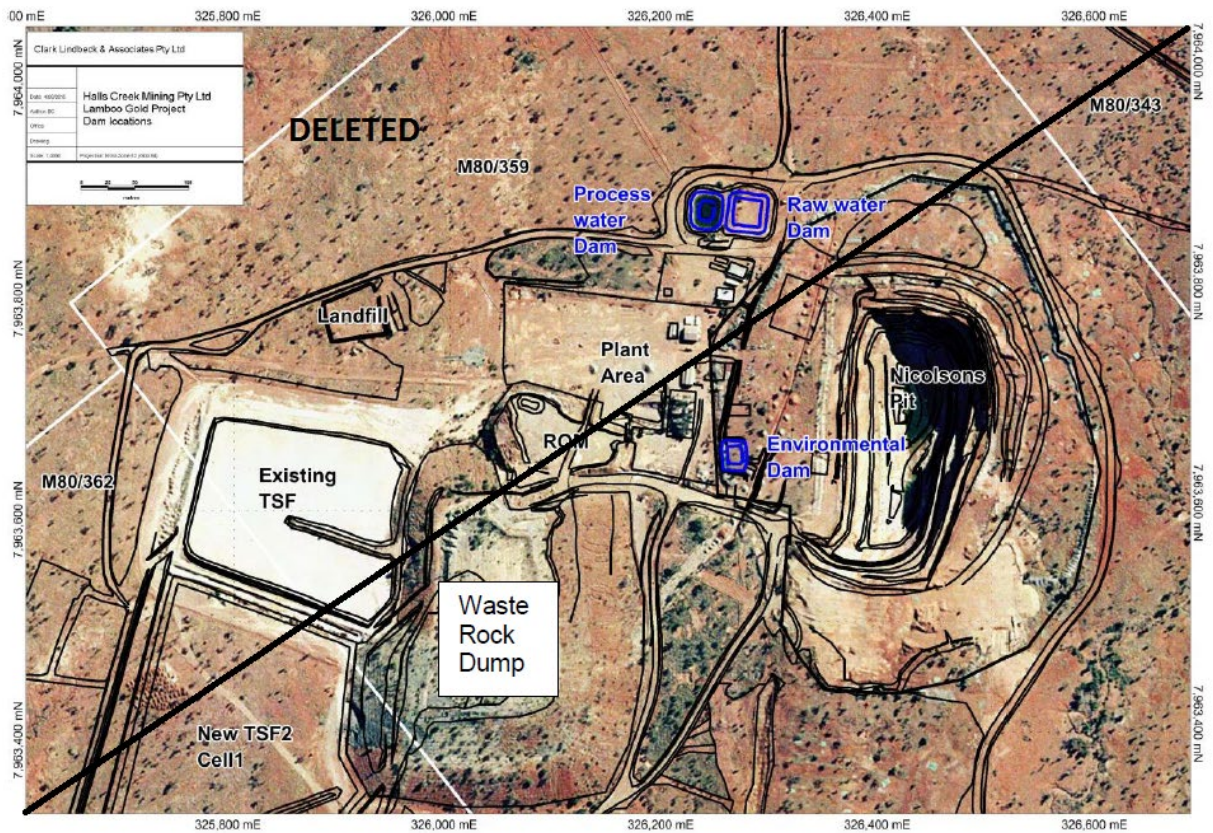
15. The Licence is amended by the insertion of the underlined text as shown below.

New condition 5.2.5 The compliance documents shall:

- (a) Certify that the works were constructed in accordance with the construction conditions of this Licence; and
- (b) Be signed by a qualified engineer and a person authorized to represent the Licensee and contain the printed name and position of that person within the company.

16. This Licence is amended by the deletion of the following Schedule 1 Figure 2 and associated label as shown in strikethrough.

The locations of the dams as defined in Table 1.3.1 and for the landfill and waste rock dump as defined in Table 1.3.3 are shown below.

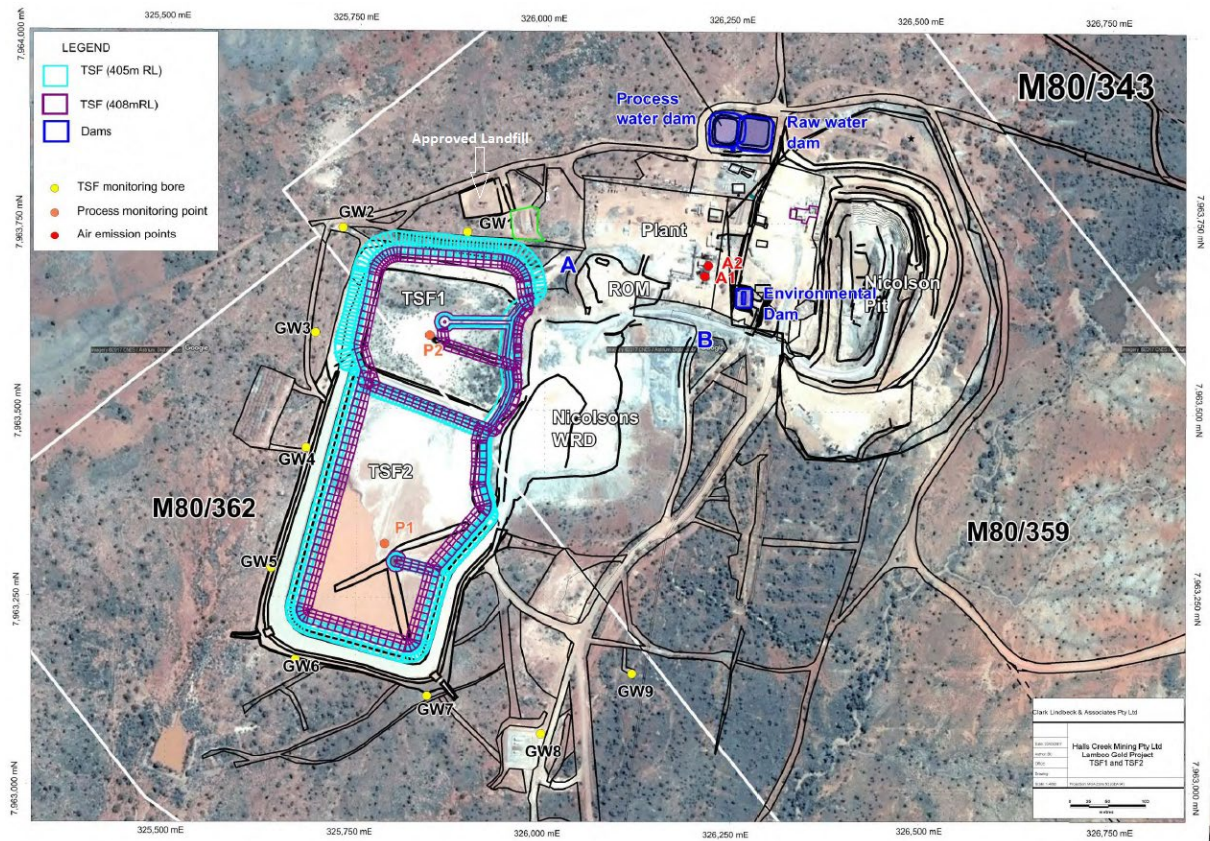


~~Figure 2 The location of the dams, landfill and waste rock dump.~~

17. This Licence is amended by the insertion of the following Schedule 1: Maps Figure 2 and associated label as shown in underlined text below.

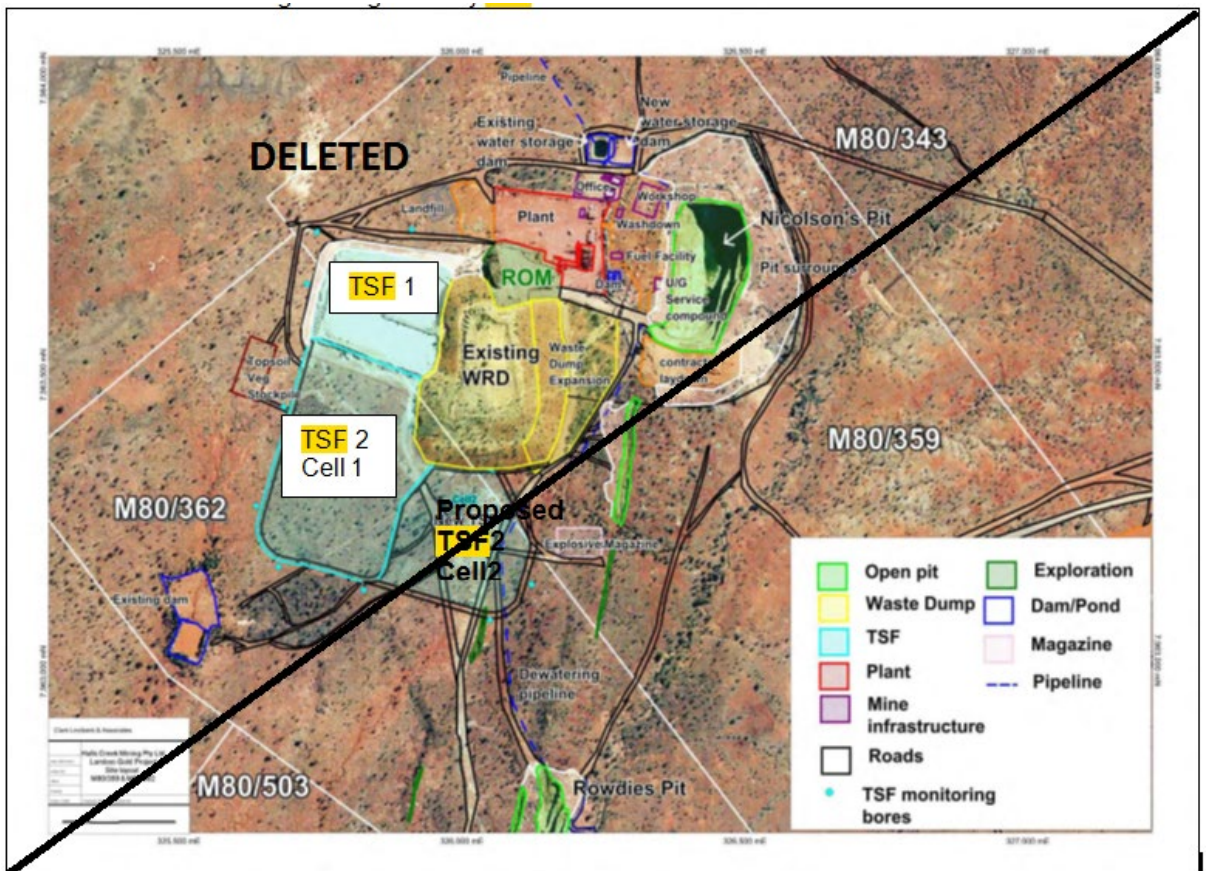
The locations of the dams as defined in Table 1.3.1, the landfill and waste rock dump as defined in Table 1.3.3 and process monitoring locations as defined in Table 3.3.1 are shown below.





**Figure 2. Lamboo Gold Project Site Layout (includes containment infrastructure, landfill, waste rock dump, process and groundwater monitoring points)**

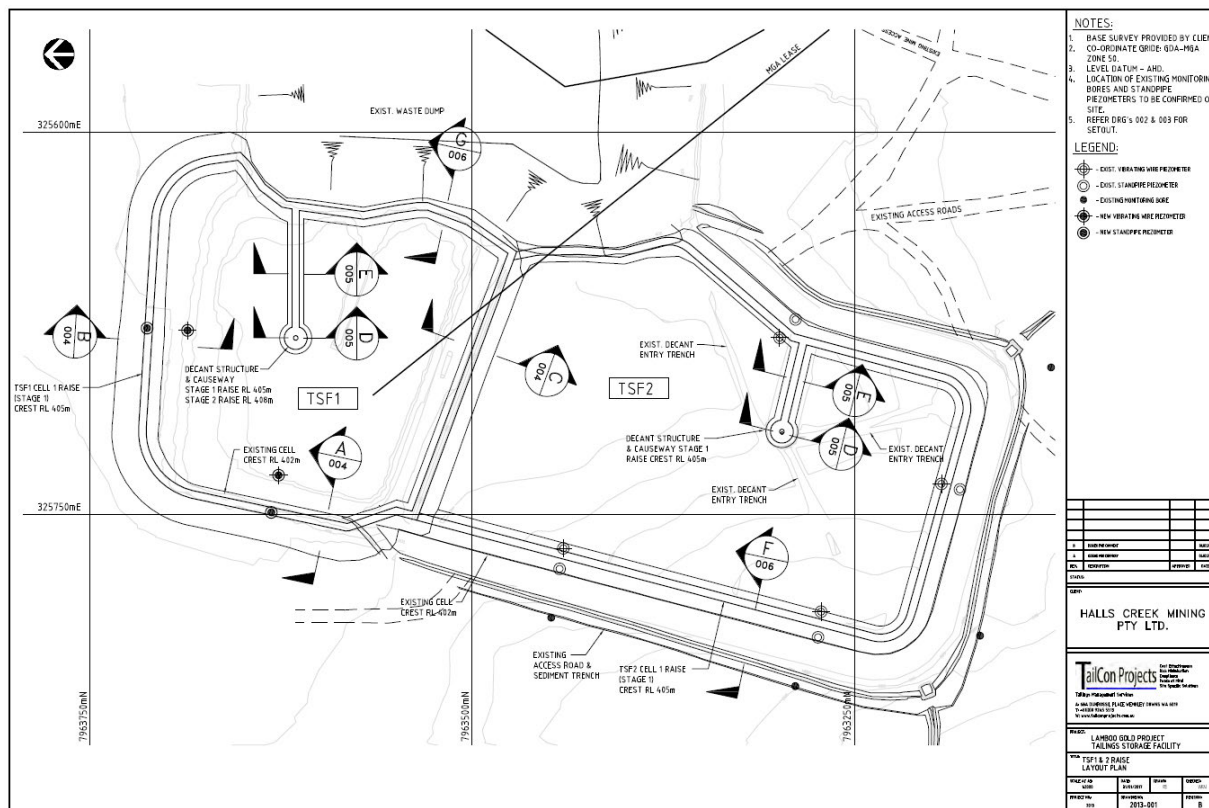
18. The Licence is amended by the deletion of the following Schedule 1: Maps Figure 3 shown in strikethrough as shown below.



**Figure 3 — The locations of the Tailings Storage Facilities**



19. This Licence is amended by the insertion of the following Schedule 1: Maps Figure 3 and associated label as shown in underlined text below.



**Figure 3. Lamboo Gold Project TSF1 and TSF2 Raise Layout Plan (includes piezometer locations)**

20. The Licence is amended by the deletion of the following Schedule 1: Maps Figure 5 shown in strikethrough as shown below.





## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L8912/2015/1 – Lamboo Gold Project	L8912/2015/1	Accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2	Halls Creek Mining Pty Ltd Lamboo Gold Project Operating Licence (L8912/2015/1) Amendment Supporting Document TSF1 and TSF 2, April 2017	HCM Supporting Document, 2017	Provided with application, available from Licensee.
3	Halls Creek Mining – Lamboo Project – TSF 1 & 2 Stage 2 Design Explanatory note Elevated Drain.	TailCon Projects, 2017a	Available from Licensee.
4	Halls Creek Mining Pty Ltd Lamboo Gold Project TSF Design Amendment 2017 (Rev 1, May 2017)	TailCon Projects, 2017b	Available from Licensee.
5	Tailcon Projects (2015 a). Lamboo Gold Project – TSF 2 Cell 1 Construction Report. July 2015. TailCon Projects, Perth, WA.	TailCon Projects, 2015a	Available from Licensee.
6	TailCon Projects (2015 b) Lamboo Gold Project - TSF Operations, Maintenance and Surveillance Manual (Rev 0, July 2015)	TailCon Projects, 2015b	Available from Licensee.
7	Surface Water Assessment for Lamboo Gold Project Mining Proposal August 2014 Report for Halls Creek Mining Pty Ltd (Report no. 163.3/14/02)	Rockwater, 2014	Available from Licensee.
8	Lamboo Gold Project New Tailings Storage Facility Project Management Plan. D E Cooper & Associates TSF Design Report, 2012.	D E Cooper & Associates, 2012	Available from Licensee.
9	Halls Creek Mining Pty Ltd Lamboo Gold Project Commissioning Plan Works Approval (5366/2013/1) June 2015	HCM, 2015	Available from Licensee.
10	Level 1 Flora and Vegetation Survey Bulletin Resources, Halls Creek. Unpublished Report, August 2011. Native Vegetation Solutions, Kalgoorlie, WA.	NVS, 2011	Available from Licensee.
11	Bushland Plant Survey; A guide to plant community survey for the Community, Wildflower Society of Western Australia (Inc.) Nedlands	Keighery, 1994	Publicly available

12	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	DER, 2015a	accessed at <a href="http://www.der.wa.gov.au">www.der.wa.gov.au</a>
13	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	DER, 2015b	
14	DER, November 2016. <i>Guidance Statement: Environmental Siting.</i> Department of Environment Regulation, Perth.	DER, 2016	
15	DER, February 2017. <i>Guidance Statement: Land Use Planning.</i> Department of Environment Regulation, Perth.	DER, 2017a	
16	DER, February 2017. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	DER, 2017b	
	DER, February 2017. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	DER, 2017c	

## Appendix 2: Summary of Licensee comments

The Licensee was provided with the draft Amendment Notice on 6 July 2017 for review and comment. The Licensee responded on 7 July 2017. The following comments were received on the draft Amendment Notice.

Condition	Summary of Licensee comment	DER response
Condition 1.2.1, Table 1.2.1	Amendment requested to condition regarding <i>'The requirements relating to PI of 10% and an LL of &lt;50%...'</i> and request that this part of the condition only relates to the starter embankment of TSF 1, Stage 1	Noted and amended
Condition 1.2.1, Table 1.2.1	Amendment requested to condition regarding <i>'Underdrain system comprising of an elevated toe drain near the upstream toe of the embankment to be installed during the Stage 1 and linked to an external collection sump'</i> and request put forward for construction of elevated toe drain installation to be at the discretion of a <i>'Tailings Engineer ....not more than three months prior to the construction of Stage 2'</i> .	DER consulted with HCM with regards to additional queries on the elevated toe drain. HCM provided additional clarification (TailCon Projects, 2017a). The amendment notice was updated accordingly.
Condition 1.3.2, Table 1.3.1	Amendment requested to condition regarding amendment to the first two rows of the draft table to limit the compaction requirement of 10 <sup>-9</sup> m/s to be for the new floor of TSF1 (Stage 1) that is not already covered in tailings.	Noted and amended