Decision Report

Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W2872/2025/1
Applicant	Kalgoorlie Consolidated Golod Mines Pty Ltd
ACN	009 377 619
File number	APP-0026907
Premises	Fimiston Processing Plant – Fimiston III Legal description Mining tenements M26/489, M26/495, M26/496, M26/552, M26/646, and M26/747. As defined by the premises maps attached to the issued works approval
Date of report	23 October 2025
Decision	Works approval granted

Table of Contents

1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W2872/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 16 December 2024, Kalgoorlie Consolidated Gold Mines Pty Ltd (the applicant, or KCGM) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to the construction of the Fimiston III tailings storage facility (TSF) starter embankment to a maximum height of approximately 10 m, along with associated supporting infrastructure, e.g. access corridors, production and monitoring bores, pipelines and power corridors, surface water diversion, decant ponds and toe drains at the premises. The maximum height of Fimiston III is expected to be 43 m above ground level and the construction of the raise increment will be an ongoing activity, requiring up to two (~1.5 m) raises per year. The department has assessed the proposed Fimiston III at its final height in this assessment of the facility's design, but TSF raises after the initial embankment construction are intended to be managed via licence amendments.

The premises is located immediately east of the City of Kalgoorlie-Boulder in the goldfield's region of Western Australia

The premises relates to the category and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W2872/2025/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W2872/2025/1.

2.3 Applicant and premises overview

Kalgoorlie Consolidated Gold Mines Pty Ltd is a wholly owned subsidiary of Northern Star Resources Ltd (NSR). Northern Star Resources own and operate Kalgoorlie Consolidated Gold Mines and Fimiston Operations on a 50/50 basis between Northern Star (Saracen Kalgoorlie) Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Ltd and Northern Star (KLV) Pty Ltd, a wholly owned subsidiary of Northern Star Resources Limited.

The proposed Fimiston III TSF is part of Fimiston Operations, owned and operated by Northern Star Resources (NSR) and will be sited across multiple mining tenements as shown in Figure 1.

Northern Star Resources (NSR) are in the process of expanding the Fimiston Processing Plant, with a resultant increase in throughput from approximately 13 Mtpa to approximately 27 Mtpa. The construction of the new Fimiston III tailings storage facility (TSF) is required to provide additional storage for tailings generated as part of the planned plant expansion.

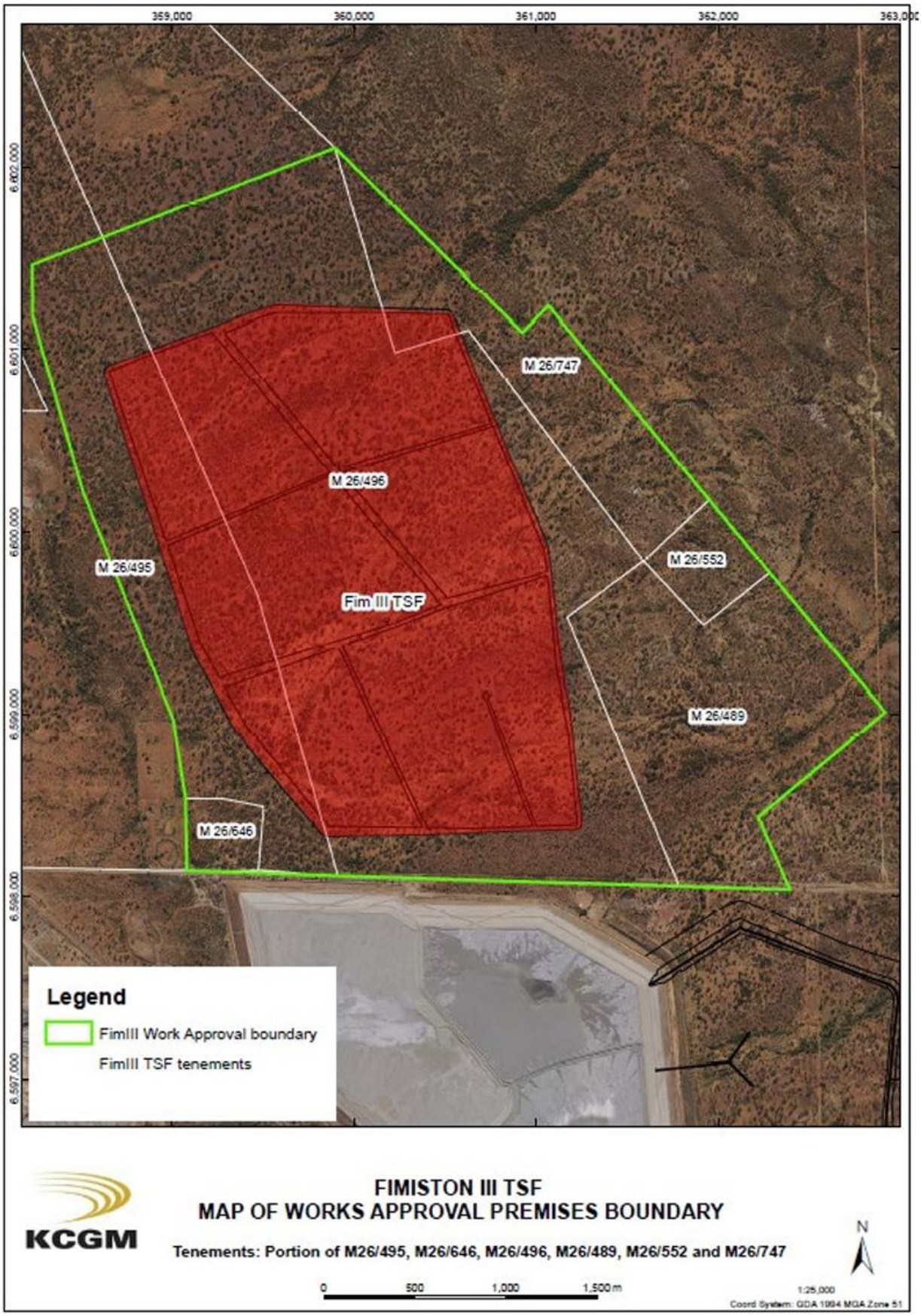


Figure 1: Fimiston III TSF prescribed premises boundary

2.4 Fimiston III Tailings Storage Facility (TSF)

The proposed Fimiston III TSF comprises of a final design of three cells (Cell 1, Cell 2 and Cell 3) raised to a maximum final height of approximately 43 m above ground level (Figure 2).

The TSF is expected to be classified as a 'Category 1, High Hazard' facility in terms of the code of practice published by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), and a 'High A' under the ANCOLD guidelines by virtue of a Major severity level and population at risk of more than 1 but less than 10.

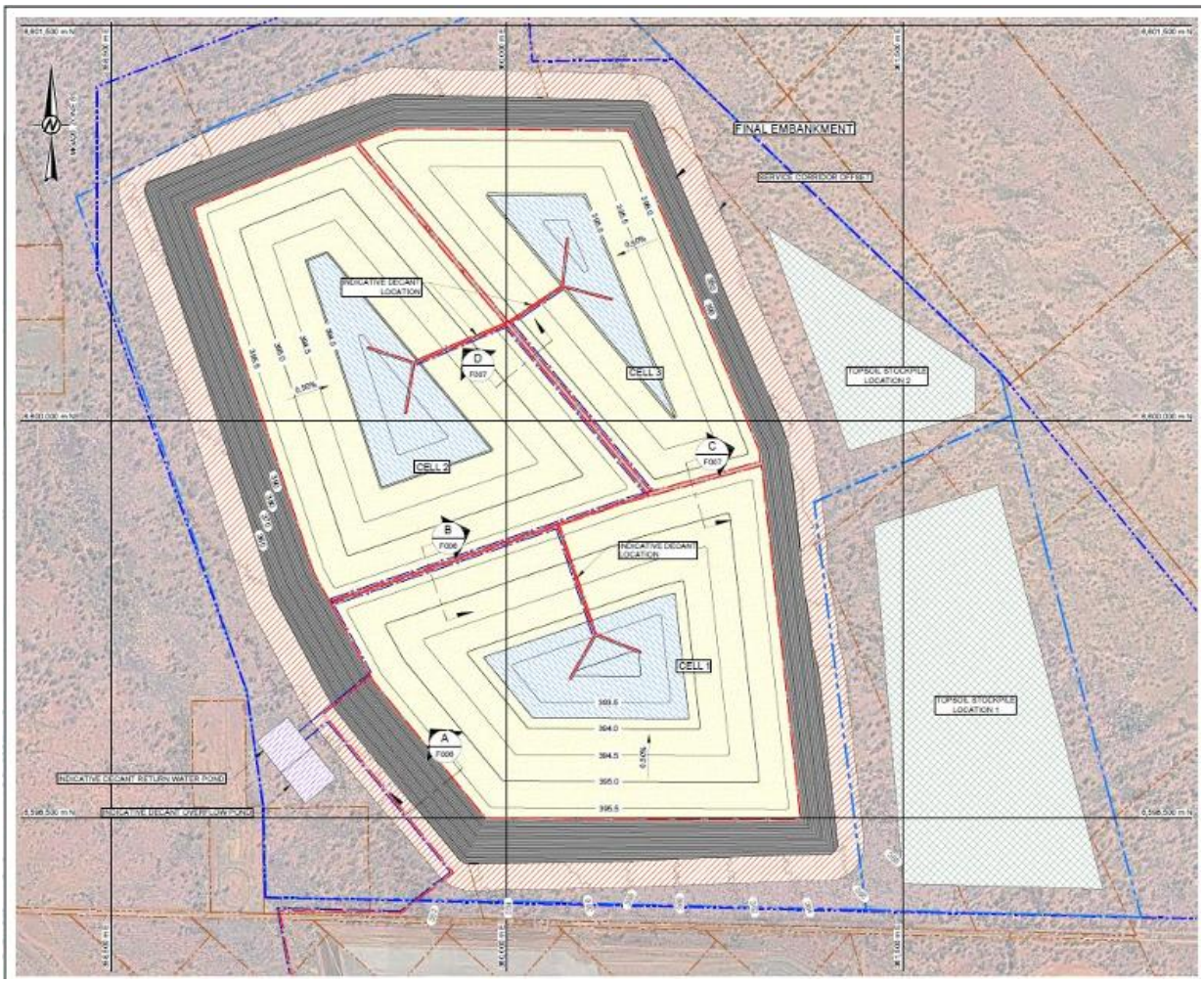


Figure 2: Fimiston III final tailings cell layout

The geometry of proposed embankments and future embankment raise will be similar to those currently employed at the existing tailing storage facilities, as follows:

- Overall downstream batter slope (external batters): 1V:4H
- Nominal upstream batter slope (internal batters): 1V:2H
- Nominal crest widths: 6.0m

Figure 3 presents the typical starter embankment and upstream raises to 43 m above ground level of Fimiston III TSF.

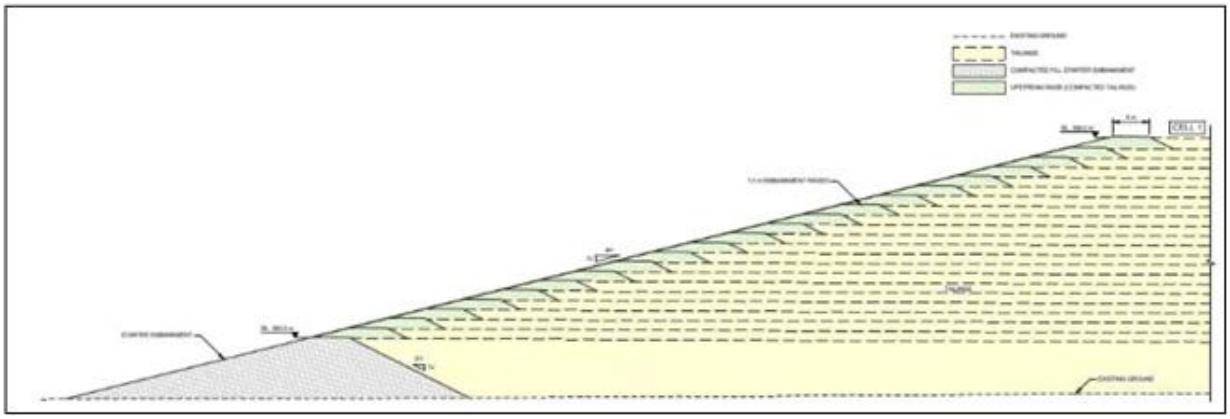


Figure 3: Fimiston III proposed starter embankment and upstream raises

During initial operations (first two years), the proposed Fimiston III cells will be subdivided into smaller sub-cells by constructing depositional bunds to increase the available depositional area (Figure 4).

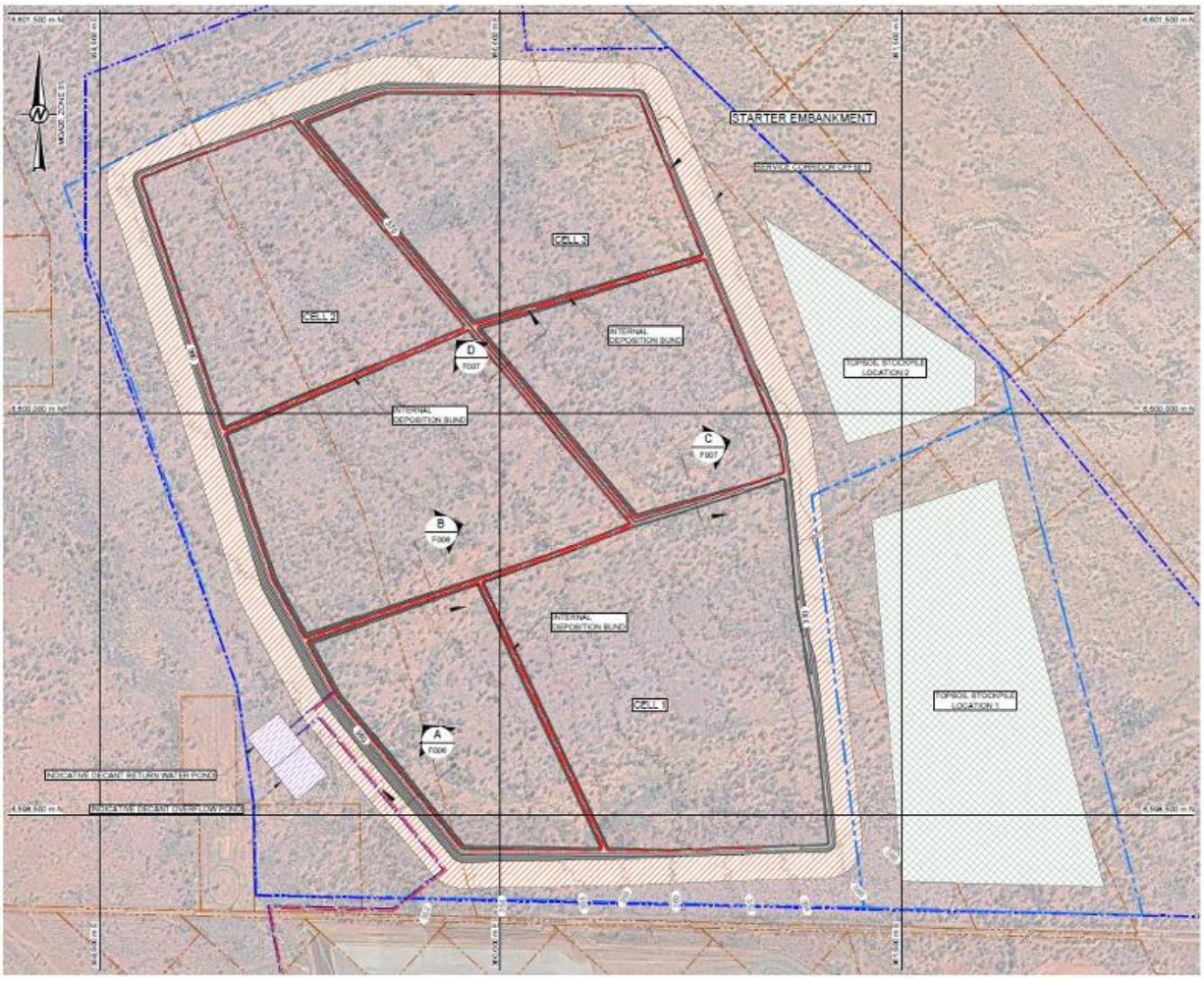


Figure 4: Fimiston III starter embankment cell layout with internal deposition bunds

2.5 Earthworks

2.5.1 Starter embankment construction

The starter embankment for Fimiston III will be constructed to a maximum height of

approximately 10 m using select, low permeability borrow materials sourced from within the TSF basin. The embankment fill will be moisture conditioned to a minimum of -1 / +2% of the optimum moisture content (OMC), placed in 300 mm thick layers and compacted to at least 98% standard maximum dry density (SMDD) to form the starter embankment.

In areas where a starter embankment is not necessary for tailings containment (areas where the natural topography elevation exceeds the elevation of the maximum starter embankment height), a 3 m high starter bund has been proposed to increase stormwater retention capacity, provide additional tailings line/spigot locations and to divert surface water from entering this facility during the initial stages of operation.

2.5.2 Embankment raise construction

The proposed method of incremental embankment construction for Fimiston III will be consistent with the method currently utilised by the applicant for existing TSFs at the Fimiston Operations. The method utilises tailings excavated from the adjacent tailings beach as fill for construction of each embankment raise. The material that would form the foundation for each successive wall raise is anticipated to be unsaturated and the applicant considers this makes the likelihood of liquefaction to be negligible.

As part of each wall raise, the freeboard zone on each tailings beach is then prepared to receive a raise by initial trafficking by an excavator followed by placement of borrowed tailings material along the formation alignment to bring the tailings beach up to the formation level. This ‘freeboard’ layer is then compacted in preparation for the first complete layer of tailings fill.

Excavation is carried out using excavators equipped with low ground pressure tracks that progressively work around the perimeter of the beach immediately upstream of the raise footprint, leaving at least 5 m between the borrow zone and the upstream toe of the wall raise.

The excavated tailings are placed onto the perimeter embankment in layers not exceeding 500 mm in compacted thickness.

A heavy, vibratory pad-foot roller provides compaction, with compaction control tests are undertaken for quality assurance. After the final layer for a raise has been placed and compacted, a 2% inward crossfall is achieved on the crest, directing surface water into the TSF basin. Both upstream and downstream batters will then be trimmed using an excavator, and a safety bund is constructed on the downstream side.

The tailings delivery pipeline forms the safety bund on the upstream side.

2.6 Freeboard assessment

A freeboard assessment has been carried out for the Fimiston III TSF starter embankment and at final height. The assessment considered the applicable design guidelines and codes, including DEMIRS, ANCOLD (2019), and KCGM internal closure criteria.

For each guideline, the design storm event and contingency requirements were applied, and the available freeboard from the applicant’s modelling was compared against these requirements. The design achieves greater than the minimum contingency required under DEMIRS, meets ANCOLD (2019) criteria including wave run-up allowances, and maintains positive freeboard under the KCGM closure scenario (Probable Maximum Precipitation (PMP) 12-hour event).

The assessment results are summarised in Table 1.

Table 1: Freeboard compliance summary

Guideline	Requirement	Design storm event	Available freeboard (range)	Compliance
DEMIRS	≥0.5 m	1-in-100 yr, 72 hr.	0.3–0.9 m	✓ Meets
ANCOLD 2019	≥0.5 m + wave run-up	1-in-10,000 yr, 72 hr.	0.0–0.4 m (after allowances)	✓ Meets
KCGM	Positive freeboard under PMP	PMP, 12 hr.	0.2–0.6 m	✓ Meets

The results indicate that the proposed Fimiston III TSF provides sufficient freeboard to comply with all three guidelines.

2.7 Geotechnical instrumentation

The Department of Water and Environmental Regulation does not manage geotechnical aspects of TSF construction and operation (see section 4), but the department does note that KCGM has undertaken a large-scale instrumentation upgrade in 2023. The applicant states that all geotechnical monitoring of the TSFs is now connected to telemetry which can be accessed via a remote server. This allows data collection and interpretation in real time and has removed the requirement for manual data collection.

The Fimiston III TSF will incorporate a network of vibrating wire piezometers (VWPs) to monitor the phreatic conditions developing within the facility.

VWPs will be installed in the early stages of operation of Fimiston III and be progressively added to the TSF throughout the life of facility to identify the developing conditions beneath the upstream embankment raises. The VWPs will also be installed at select locations to monitor the phreatic head build up across the underdrainage strip drain network and act as an early warning indicator if the underdrainage is not performing as intended.

2.8 Pipelines

Pipelines are designed in accordance with the International Cyanide Management Code.

The applicant states that pipelines are to be operated and monitored though a telemetry system with leak detection and regular inspections, in which:

- The system will automatically shut down pumping in the event of a pipe failure.
- Any small leaks are reported through daily inspections and repaired.
- All pipelines are in secondary containment corridors, with windrows and appropriately sized scour pits located at low points in topography in the event of a pipeline spill; and
- Personnel are educated in spill procedures and clean up.

Location and layout of proposed Fimiston III tailings delivery and return water pipeline is shown in Figure 7.

2.9 Tailing deposition

In line with existing operations, tailings will be split between Fimiston I, Fimiston II, Kaltails, and the proposed Fimiston III TSF (Figure 5) with the deposition ratio varying annually, although the ratio is anticipated to favour the new Fimiston III TSF.

The depositional split ratio between facilities is aimed at drying and consolidation of deposited

tailings, while maximising the approved storage capacity of the TSFs and maintaining a rate of rise in operational TSFs below 2.7 m/year.

Tailings will be actively discharged into Fimiston III TSF through multiple spigots, with deposition adjusted as required to maintain the supernatant pond around a centralised decant pump, located near the centre of the TSF basin (Figure 6).

Tailings deposition will periodically be rotated through the available paddocks/cells to allow the tailings to dry and consolidate prior to each embankment raise. Supernatant water from the Fimiston III TSF will be removed via floating turret pump-out decant systems, as is the current practice on the Fimiston facilities. An annualised average of between 15% and 35% of process water contained within the deposited tailings should be available for recycling to the process plant under normal operating conditions.

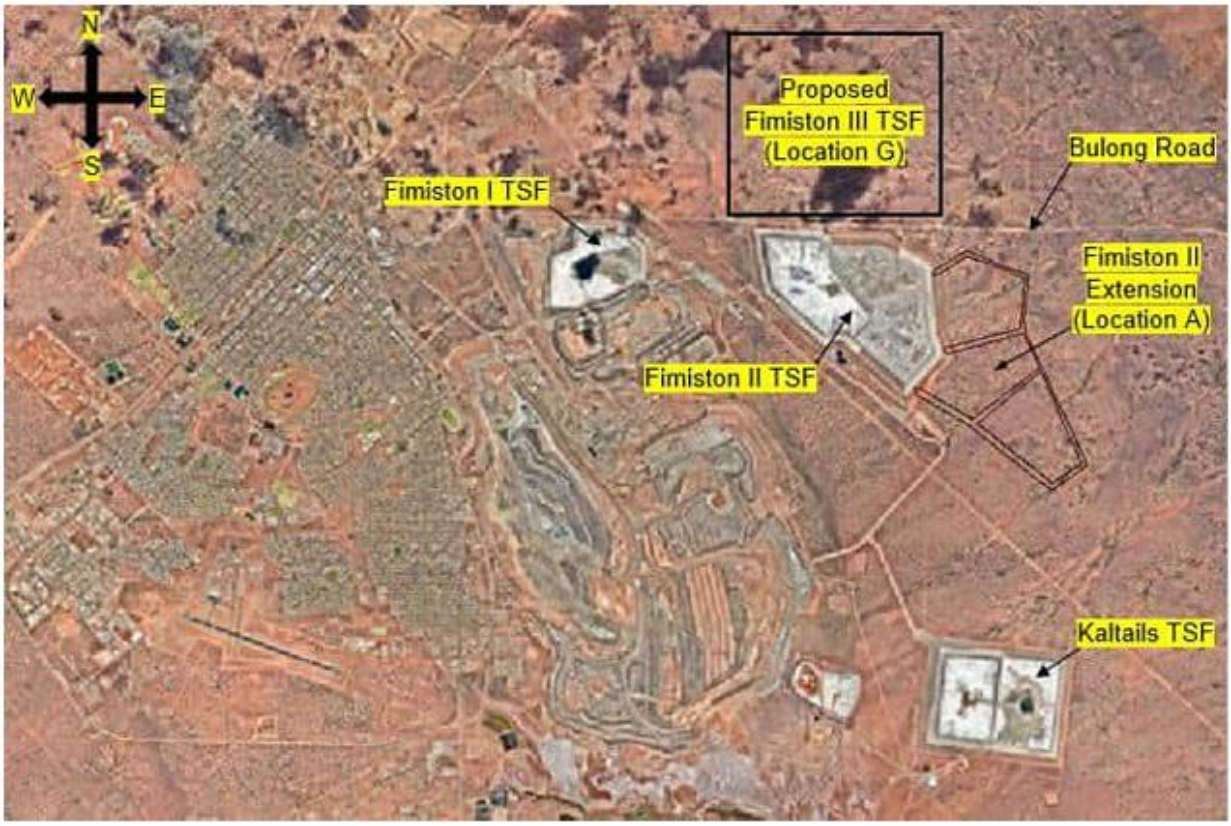


Figure 5: Locations of KCGM tailings storage facilities

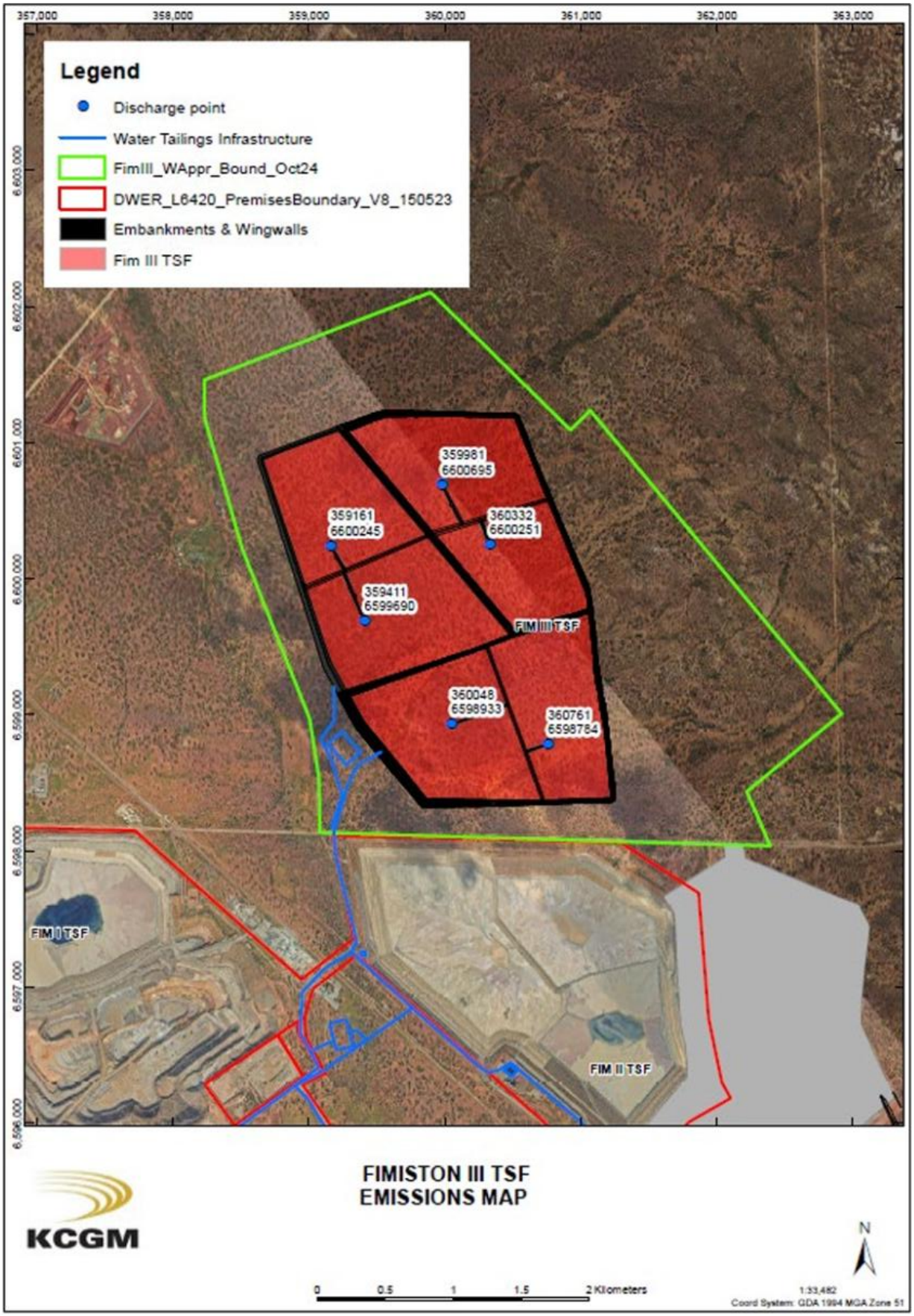


Figure 6: Fimiston III TSF tailings deposition discharge points

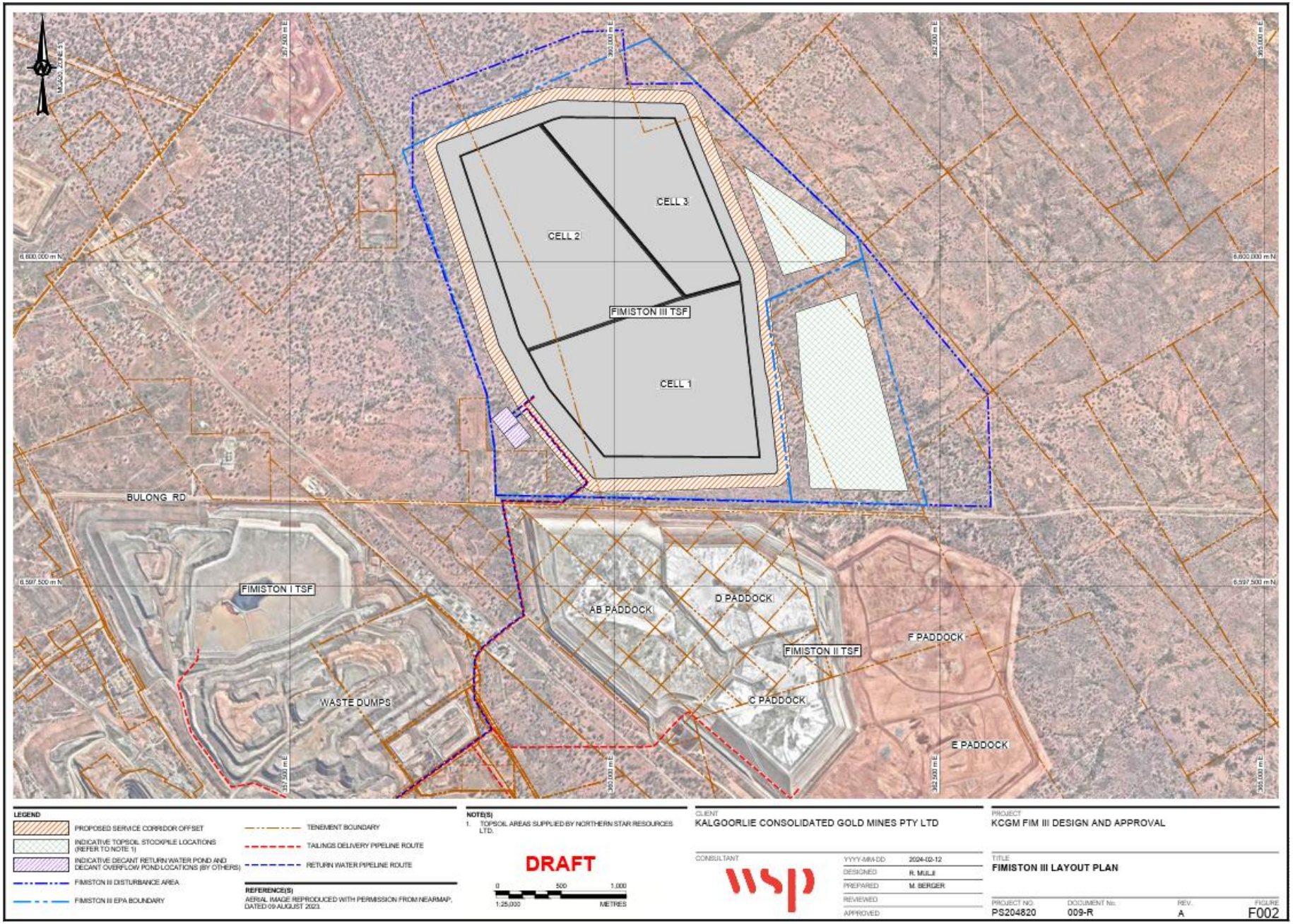


Figure 7: Fimiston III tailing delivery and return water pipeline layout

2.10 Water recovery

2.10.1 Decant systems and water return facilities

The applicant states that a pump-out decant system will be used to remove supernatant water from the surface of the TSF.

A turret system and skid mounted pump, in line with the existing systems at KCGM, is proposed. This system can abstract water from a pond to a minimum depth of 250 mm. This system will allow the pond depth, and hence the pond surface area, to be maintained at the minimum practical amounts.

Water will be pumped from the decant system, over the crest of the TSF to newly constructed decant ponds located adjacent to the south-west corner of Fimiston III for temporary storage.

Water will be transferred from the decant ponds to the Fimiston Processing Plant for re-use in the processing circuit.

At the start of the Fimiston III operations, additional trenches and sumps might be required to allow the decant pond to form near the location of the decant access, and for the decant water to be collected and pumped out. Recovery of these 'remote' ponds is practicable using a floating turret system which is easily moved; therefore, the applicant believes trenches and sumps are expected to be minimal.

2.10.2 Rainfall management

Incidental rain falling on the tailings beach will naturally flow towards the central decant system. The embankment crest will gently slope towards the tailings beach ensuring all runoff from the crest is collected by the decant pumps.

Incidental rainfall falling on the outer TSF slopes will be collected by engineered toe drains. Water will flow down under gravity to a low spot where a sump will be used to collect and pump the water back to the return water ponds.

2.11 Underdrainage

The underdrainage networks will comprise of a series of perforated collection pipes encompassed by a dual filter system (to prevent the migration of tailings fines into the pipework), joined to solid main pipes, constructed with a nominal grade to facilitate gravity flow towards the lowest section of the embankment footprint for collection.

The Fimiston III TSF underdrainage pipe system design is shown below in Figure 8.

Implementation of an underdrainage system is to promote controlled seepage and reduce phreatic surface level within the tailings stack. The applicant indicates that the benefits of the underdrainage system include:

- Decreases to the potential volume of seepage into the environment which might otherwise affect groundwater conditions.
- Water captured by the underdrainage system can be reused at the Fimiston processing plant.
- Phreatic levels within the TSF remain as low as practicable which largely benefits slope stability of the perimeter embankments.

The underdrainage system comprises two major components and will be consistent with underdrainage design recently implemented at the Fimiston II Extension E and F and proposed Fimiston II Extension G Paddock:

- A series of perforated strip drains located at regular centres adjacent to the upstream

toe of the starter embankment to reduce the phreatic surface development within the tailings, adjacent to the confining embankment.

- A herringbone style network of perforated drains beneath the ultimate supernatant pond location to promote controlled seepage and limit potential for groundwater mounding.

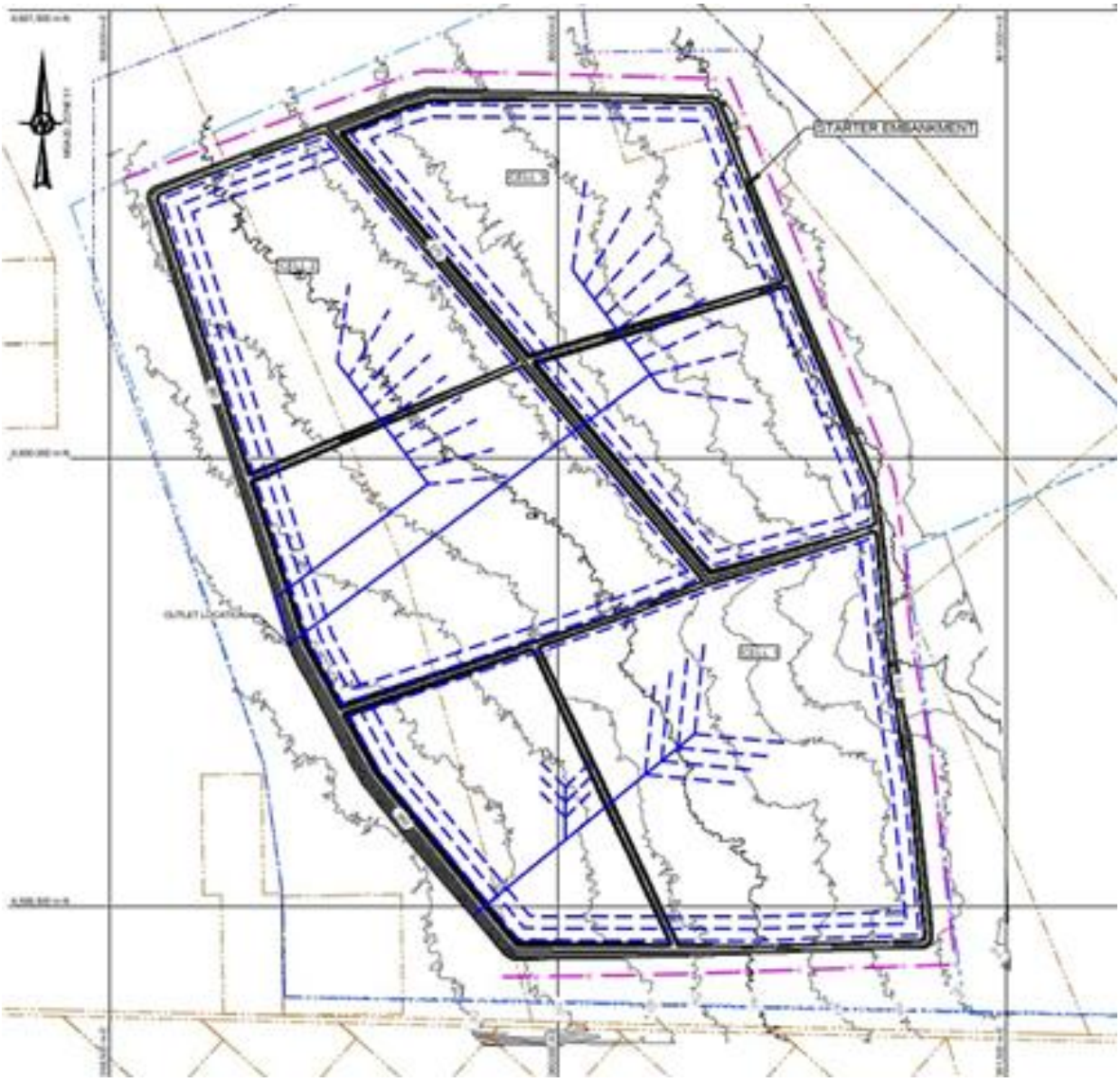


Figure 8: Fimiston III underdrainage system (blue dashed lines)

2.12 Monitoring and production bores

2.12.1 Monitoring bores

The applicant has identified that several bores are already defined as compliance monitoring bores on licence L6420/1988/14 and that these are suitable to undertake groundwater monitoring for the Fimiston III TSF, with another 13 new monitoring bores proposed to be installed to the north, south, west and east of Fimiston III.

The final locations and construction parameters of these new bores are yet to be determined and will be installed in tandem with the construction of the new TSF but are represented indicatively in Figure 9.

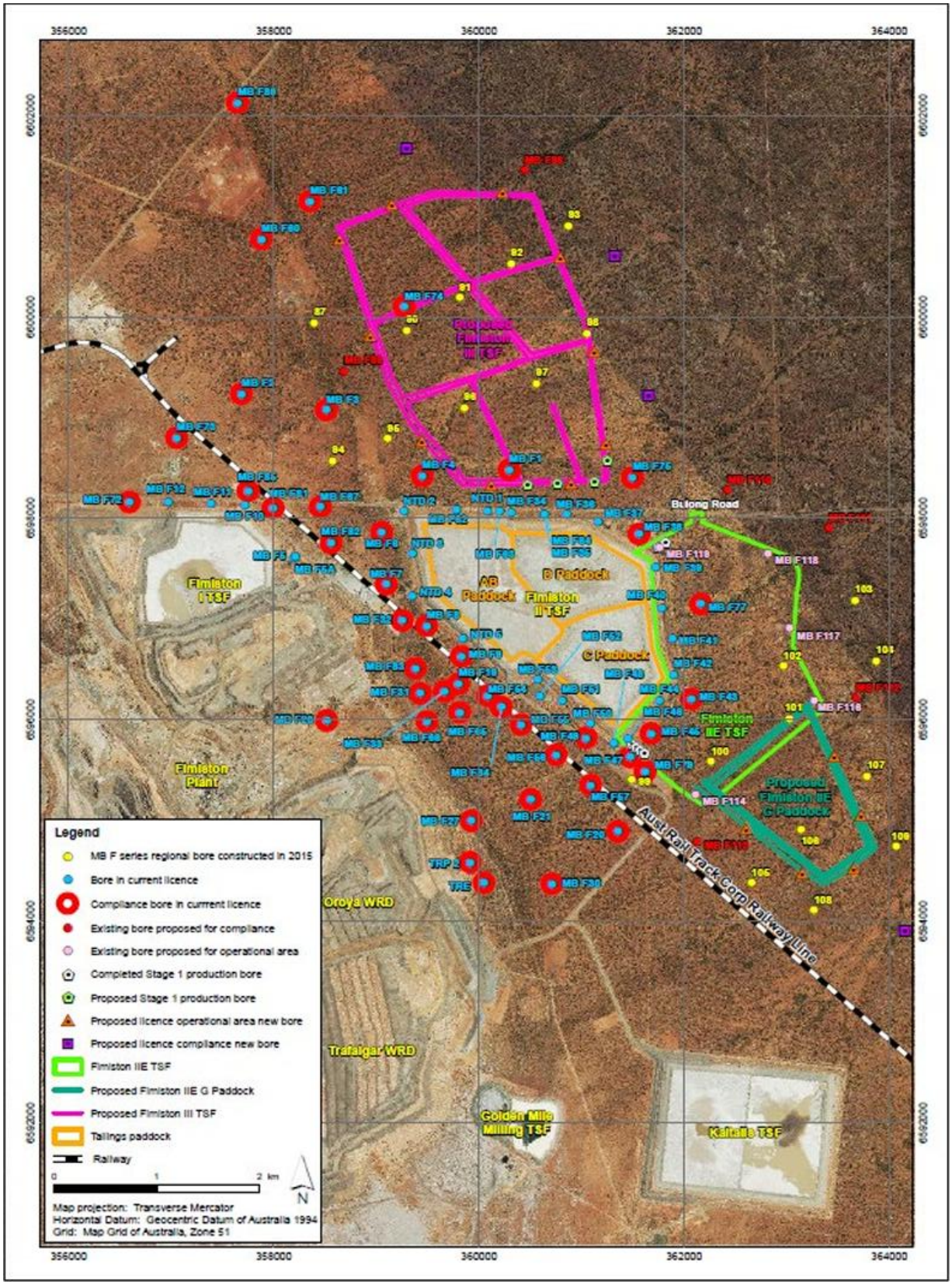


Figure 9: Monitoring and production bores surrounding Fimiston III TSF

In total, the applicant estimates that there will be ten compliance bores around the Fimiston III TSF for the purpose of groundwater and seepage monitoring.

There are 2 licensed monitoring bores that are located in the Fimiston III TSF footprint (MB F01

and MB F74) and these will be decommissioned. Decommissioning of any bores will adhere to the “Minimum construction requirements for water bores in Australia”.

2.12.2 Production bores

Four production bores will be installed during the construction stage of Fimiston III TSF. These will be located along the eastern portion of the southern embankment to ensure initial seepage can be managed.

The requirement for adaptive production bores to be installed will be assessed from reviews of monitoring data collected during operation of the Fimiston III TSF.

Any potential seepage migration pathways within clayey sediments and weathered bedrock around the perimeter of this TSF will be identified from groundwater depth trends in operational area bores. If required, Stage 2 production bores will subsequently be installed targeting those groundwater flow pathways and operated to control groundwater depths in the receiving environment.

The applicant states that the designs for the Fimiston III TSF will make allowance for pipeline and power reticulation along the entire perimeter of the embankment. Designs for production bores will be determined from monitoring data collected during operations.

For costing and scheduling purposes for the Fimiston III TSF, internal project allowances will be made for Stage 2 production bores as follows:

- If found to be required, between five and twenty Stage 2 production bores may potentially be installed over life of mine.
- The installed pumping capacity in each bore is expected to be between 0.5 L/s and 1.0 L/s, and the average operating rate from each bore is expected to be less than 1.0 L/s.
- Bore construction depths are expected to average 30 m.
- If seepage is identified in the operational area monitoring bores, and installation of the Stage 2 production bores is found to be required, it is likely that at least some of the Stage 2 bores will be installed around two years after commencing operation of the Fimiston III TSF.

2.13 Tailings physical and chemical characteristics

Key tailings physical characteristics are summarised in Table 2.

Table 2: Fimiston TSF tailings properties

Material characteristic	Unit	Value
Particle size distribution	% passing 75 µm	55 to 85
Slurry concentration	% solids	45 to 55%, with a potential increase to 60%
Average tailings solids density (particle density)	Specific gravity	2.9
Average in situ dry density	t/m3	~1.6
Time to achieve maximum dry density in winter	days	6 to 14
Beach slope	Vertical: Horizontal	1:150 to 1:200
Shear strength	Drained	Friction angle (ϕ`) = 30° to

		35°

Geochemical results indicate that tailings are non-acid forming and tailings liquor is hypersaline and expected to have total cyanide (CNTot) concentrations within a range of 150 to 200 mg/L, dominated by weakly complex forms of cyanide. The weakly dissociable forms of cyanide are expected to degrade rapidly to the extent that weak acid dissociable cyanide (CNWAD) concentrations would be less than 125 mg/L, as recommended for hypersaline conditions by the International Cyanide Management Institute (ICMI) for protection of wildlife.

Ongoing monitoring of the CNWAD levels of the supernatant pond water have generally shown the levels to be significantly lower than this benchmark, partly attributed to a decrease in the CN operating target concentration in the leach circuit, as implemented over the last decade (WSP, 2024).

2.14 Process water characteristics and water balance

Process water characteristics

The characteristics of the water used to transport tailings to existing TSFs at KCGM is summarised in Table 3. This information is based on analyses carried out by the applicant on samples collected from the decant at the Fimiston II and Kaltails TSF and is representative of the process water used in the Fimiston Processing Plant.

Table 3: Fimiston TSF process water general characteristics

Sample location	pH	EC [1]	Ca	Mg	Na	K	Cl	SO4	F	HCO3 [2]	CO3 [2]
Fimiston II	7.9	154.9	2,475	3,616	41,812	497	68,419	7,511	0.23	131	<5
Kaltails	7.9	150.6	2,237	3,420	39,991	506	66,292	6,352	0.20	128	<5

Note 1: mS/cm Note 2: mg $CaCO_3$/L All other units are in mg/L

Water balance

The applicant has developed a water balance assessment for the facility to provide an understanding of TSF water management and expected water return for re-use in the Fimiston Processing Plant circuit.

The process flow diagram (PFD) below (Figure 10) conceptualises water flows around the facility.

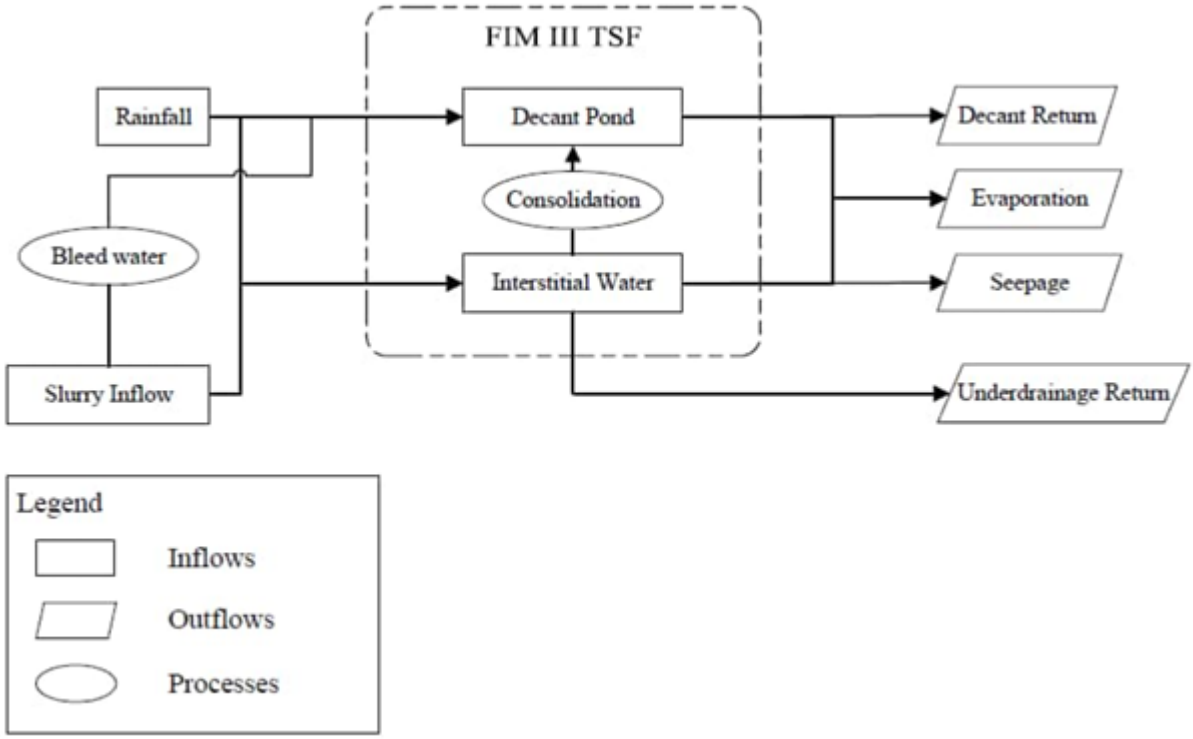


Figure 10: Water balance flow chart - provided by the applicant.

A detailed breakdown of the water balance can be seen in Table 4. Inflows and outflows are represented as follows:

- Inflows into the TSF are rainfall and tailings slurry water. Bleed water refers to excess water that emerges from the deposited tailings within a TSF due to gravity and particle settling after slurry deposition, a natural dewatering process called consolidation.
- Outflows are evaporation, seepage, and decant water recovery; and
- Water entrained in the TSF in form of interstitial water or unrecoverable decant pond (i.e., decant pond <250 mm deep).

Table 4: Life of mine (LOM) water balance summary

Fimiston III TSF	Inflows (m^3/year) averaged over 21-year LOM			Outflows (m^3/year) averaged over 21-year LOM				
	Rainfall	Tailing slurry	Sum Inflows (m^3/yr)	Evaporation	Interstitial water	Seepage	Decant return	Sum Outflows (m^3/yr)
Cell 1	442,142	3,423,476	3,867,498	1,154,914	1,498,475	432,200	828,247	3,867,498
Cell 2	421,906	3,302,429	3,724,927	1,148,324	1,471,462	214,892	916,105	3,724,927
Cell 3	350,320	2,105,429	2,451,463	847,383	890,854	172,815	544,753	2,451,463

2.15 Surface water hydrological assessment

The existing Fimiston TSFs are located in a catchment of Hannan Lake, which is a saline playa lake located about 10 km south of Kalgoorlie.

The catchment which contains the TSFs is referred to by KCGM as the Central Drainage (Eastern Floodway). The Central Drainage catchment is around 18 km long and between 8 km and 13 km wide.

Significant flows of surface water move through the Central Drainage only after heavy rainfall events. Heavy rains associated with tropical depressions in 1992, 1995 and 1999 caused extensive flooding in the Kalgoorlie area, and on these occasions floodwater in the Central Drainage between the Fimiston I and Fimiston II TSFs spread laterally over several hundred metres. Flooding in the catchment also occurred in response to above average rainfall in March 2013 and January 2014.

The direction of natural surface water drainage is to the south towards Hannan Lake; however, floodwaters can accumulate and stand for long periods, controlled by man-made structures such as crossings along Mt Monger Road and the Trans Australian Railway.

Following a site-wide surface water study undertaken in 2022, the applicant conducted a review of surface water diversion requirements against guidance such as ANCOLD (2019), GISTM (2020) and DMPE (2013), with subsequent recommendations made.

The primary concept for surface water management for the Fimiston III site involves the implementation of surface water diversion channels. Two channels are proposed:

- A northern diversion channel will divert uncontaminated stormwater runoff from upslope catchments around the northern flank of the TSF, discharging into existing natural drainage line near to the north-east corner of the TSF.
- A southern diversion channel will divert uncontaminated stormwater runoff from upslope catchments around the southern flank of the landform, discharging into existing natural drainage line southwest of the TSF.

Proposed stormwater diversions and hydrology and surface water diversion drains are shown below in Figure 11.

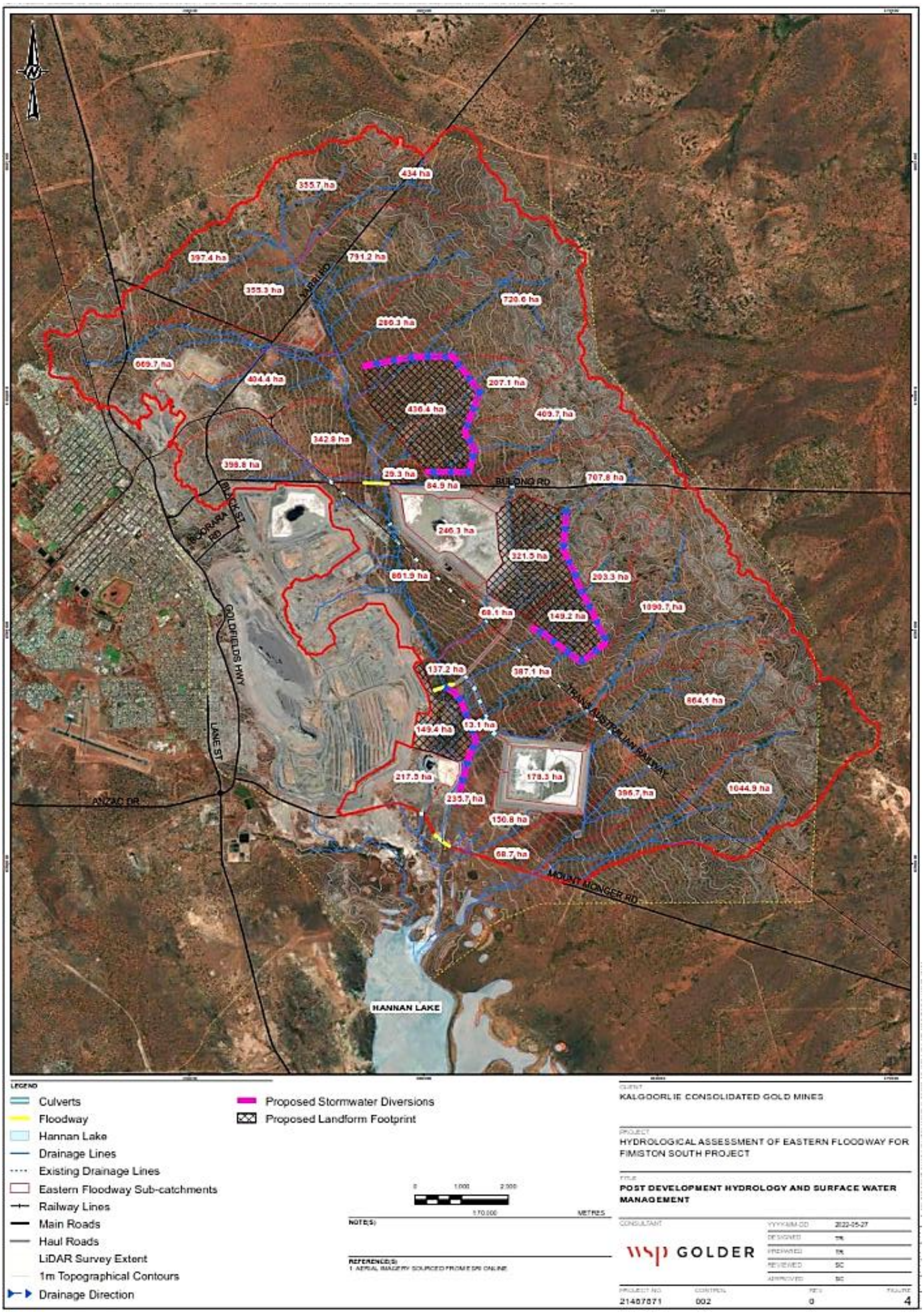


Figure 11: Hydrology and surface water diversion drain design

The applicant also updated its Eastern Floodway hydrological model to assess peak flows associated with the selected 1:100 AEP (1%) design event for the Fimiston III diversion channels. Peak flows associated with this event are approximately 284 m³/s.

To manage the identified peak flows for this chosen design event, the diversion drains are required to be an excavated channel with the following characteristics:

- Minimum cut depth 1.6 m (north channel), 1.3 m (south channel)
- Minimum base width: ~4 m
- Batter slopes: 1V:3H
- Minimum grade: 0.3%

These drains would extend around the perimeter of the Fimiston III facility, and tie into the Eastern Floodway, running north-south immediately west of the Fimiston III site. Indicative alignments of the surface water diversion channels are represented in Figure 11 above.

2.16 Groundwater hydrogeological assessment

The geological conditions at the Fimiston Gold Mine Operations are well defined and documented from historical mining operations. Prior to mining, the Golden Mile was a south-plunging ridge of mostly mafic and ultramafic rocks forming part of the Kalgoorlie-Kambalda Greenstone Belt.

Away from the KCGM mines (Fimiston Open Pit and Mt Charlotte Underground Mine), the greenstones along the Golden Mile comprise predominantly the Black Flag Beds, which are overlain by tertiary and younger sedimentary deposits to the west, south, and east towards the Fimiston III TSF, which in some locations include the presence of palaeodrainages.

There are three major active groundwater systems in the project area:

- Ferricrete and alluvial sedimentary system; sand, gravel and fractured ferricrete within clay deposits between 5 to 40 m below ground level. These deposits are present in the lower elevation areas at the centre of the surface water catchments.

  The groundwater production and monitoring facilities at Fimiston are collectively known as the Eastern Borefield. The Eastern Borefield predominantly draws groundwater from the ferricrete and alluvial sedimentary system, and this is the groundwater system through which seepage from the Fimiston TSFs travel.

- Paleochannel systems; a localised but extensive network of alluvial sands at around 60 m depth. This system is well defined and is the primary source of process water for Fimiston and by other mining operations.

- Fractured bedrock system; where groundwater flow occurs in fractured and weathered zones within basement rocks at depth. Fimiston Pit is entirely situated within the fractured bedrock zone. Regional investigations in the Eastern Goldfields suggest these formations typically have very low primary permeability and are not expected to store or transmit large quantities of groundwater except through major secondary structures.

  Some portions of the Eastern Borefield may extract small amounts of groundwater from the upper weathered portion of bedrock but flows from this unit are generally low.

A report from Big Dog Hydrogeology (BDH, 2022) indicates that background groundwater within the ferricrete and alluvial sediment groundwater system in the Central Drainage catchment is saline with TDS concentrations in the range 20,000 mg/L to 70,000 mg/L and most commonly around 50,000 mg/L.

Groundwater in the Central Drainage is naturally very acidic, typically with a pH less than 4,

which has been attributed to naturally occurring ferrolysis reactions. As a result of the elevated TDS concentrations, there are no environmental values recognised for the groundwater in the ferricrete and alluvial groundwater system, other than the beneficial use of the groundwater as a water supply for mineral processing, which is the use all flow from the Eastern Borefield is applied to.

2.16.1 Seepage and groundwater mounding

Operation of the unlined cells in the existing Fimiston TSFs has allowed some tailings water to seep into the shallow formations underlying the facilities. Within two years of commencing deposition in the Fimiston II TSF in 1991, seepage and groundwater recovery was instituted, and has been progressively expanded during the operating period.

In accordance with conditions of the prescribed premises licence L6420/1988/14, KCGM developed and implemented Seepage and Groundwater Management Plans (2020) for the Fimiston (FSGMP) and Kaltails (KSGMP) TSFs. These plans incorporate practices to manage and control groundwater levels around the TSFs, to prevent impact to vegetation because of rising groundwater levels, due to seepage from the TSFs.

Seepage and groundwater recovery are achieved using both interception trenches and production bores. The trenches are located around the TSF perimeter and act as immediate seepage controls, capturing shallow groundwater inflows close to the facility. Because trenches alone cannot fully control groundwater mounding at depth or further away from the TSFs, KCGM has progressively developed the Eastern Borefield since 1993. This network of production bores now provides the majority of recovery, managing groundwater levels across a broader area and reducing hydraulic mounding not intercepted by trenches.

Total recovery from the borefield progressively increased to 110 L/s in the period 1991 to 2012, reflecting the expansion and optimisation of production bores, and efforts to maximise the production rates from the existing bores. Between 2012 and 2021, total production reduced to 70 L/s, due to declining groundwater elevations in many production bores which reduce the flow rate available from the individual bores.

The reduction in total pumping at the Fimiston TSFs in 2012 corresponds with the recommissioning of the Kaltails TSF for tailings deposition and the commencement of seepage and groundwater pumping from the Kaltails TSF Borefield.

The applicant considers the observed reduction in total pumping to reflect lower deposition rates in the Fimiston TSFs, resulting in lower seepage volumes.

2.16.2 Groundwater depth trends

The applicant undertakes monthly measurement of groundwater depth at routine monitoring bores around the existing Fimiston TSFs. This is a greater frequency than the minimum monitoring requirements of quarterly under licence L6420/1988/14 and the six-monthly frequency specified in the Licence to Take Water GWL66252(8). The applicant believes this monitoring provides an extensive dataset defining groundwater depth trends.

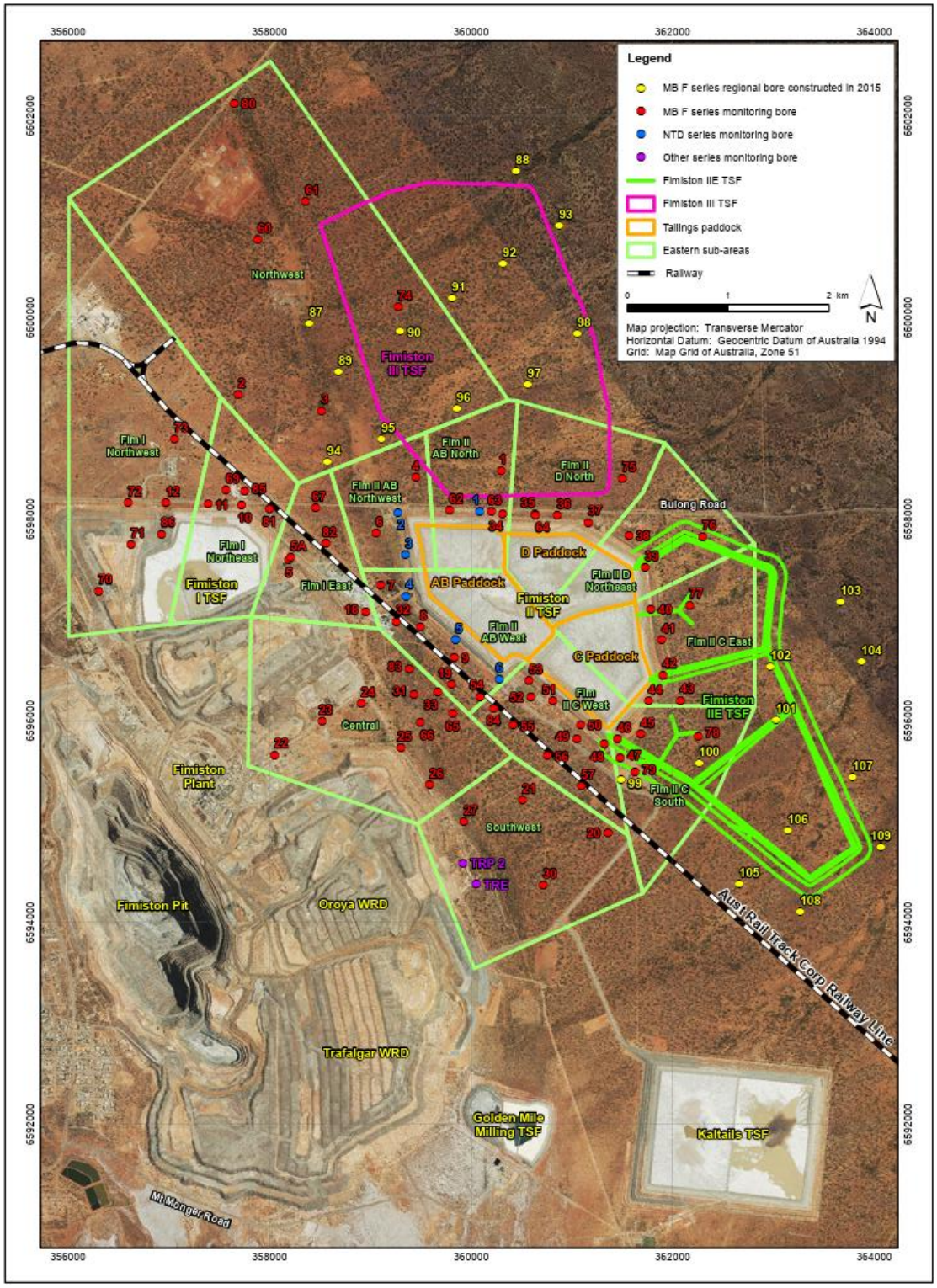
Groundwater investigation bores installed during design studies for the Fimiston IIE TSF and Fimiston III TSF (Golder, 2016) have been monitored quarterly since 2016. The collar elevation has been accurately surveyed by the applicant for all monitoring and investigation bores allowing groundwater depths to be converted to groundwater elevations.

Big Dog Hydrogeology (BDH, 2022) notes that L6420/1988/14 specifies a compliance criterion of greater than 4 m depth to groundwater below surface across 45 compliance monitoring bores. No compliance limits are set for groundwater chemistry, as the background groundwater is naturally saline and acidic. Protection of downgradient vegetation is therefore achieved through the management of groundwater depths, rather than chemistry.

BDH (2022) concluded that monitoring bores in the Eastern Borefield display depth responses

to a combination of TSF seepage influences, natural recharge from rainfall, and abstraction from local production bores.

Figure 12 shows the distribution of groundwater monitoring bores around the Fimiston TSFs.



BIG DOG HYDROGEOLOGY

Groundwater monitoring locations

Figure 6

Date: March 2022

Report: Hydrogeological Review of the Fimiston TSFs

Figure 12: Fimiston groundwater monitoring sub-areas

Groundwater was relatively shallow in most sub-areas prior to around 2000, when increases in pumping capacity caused groundwater levels to deepen in most locations. Where monitoring was established before seepage was observed, the response varied with hydraulic conductivity. In higher conductivity zones (e.g. Fimiston II AB West and AB North), groundwater depth shallowed gradually by up to 10 m over three to four years. In lower conductivity zones (e.g. MB F39 in the Fimiston II D Northeast sub-area), groundwater responded more abruptly, with shallowing of up to 20 m over only two years. These rapid changes were localised, with seepage effects not propagating far from the TSF.

Figure 13 provides a perimeter section constructed around the Fimiston III TSF, starting at the northwest corner, and following the embankment clockwise to finish back at the northwest corner. The natural surface elevation along the perimeter can be seen, along with the groundwater elevation interpolated from the contours in Figure 14.

Groundwater mounding associated with seepage from the Fimiston II TSF is evident near the southeast corner of the Fimiston III TSF where groundwater occurs at around 10 mbgl to 15 mbgl. Groundwater depths are interpreted to exceed 30 mbgl in the northern part of the facility.

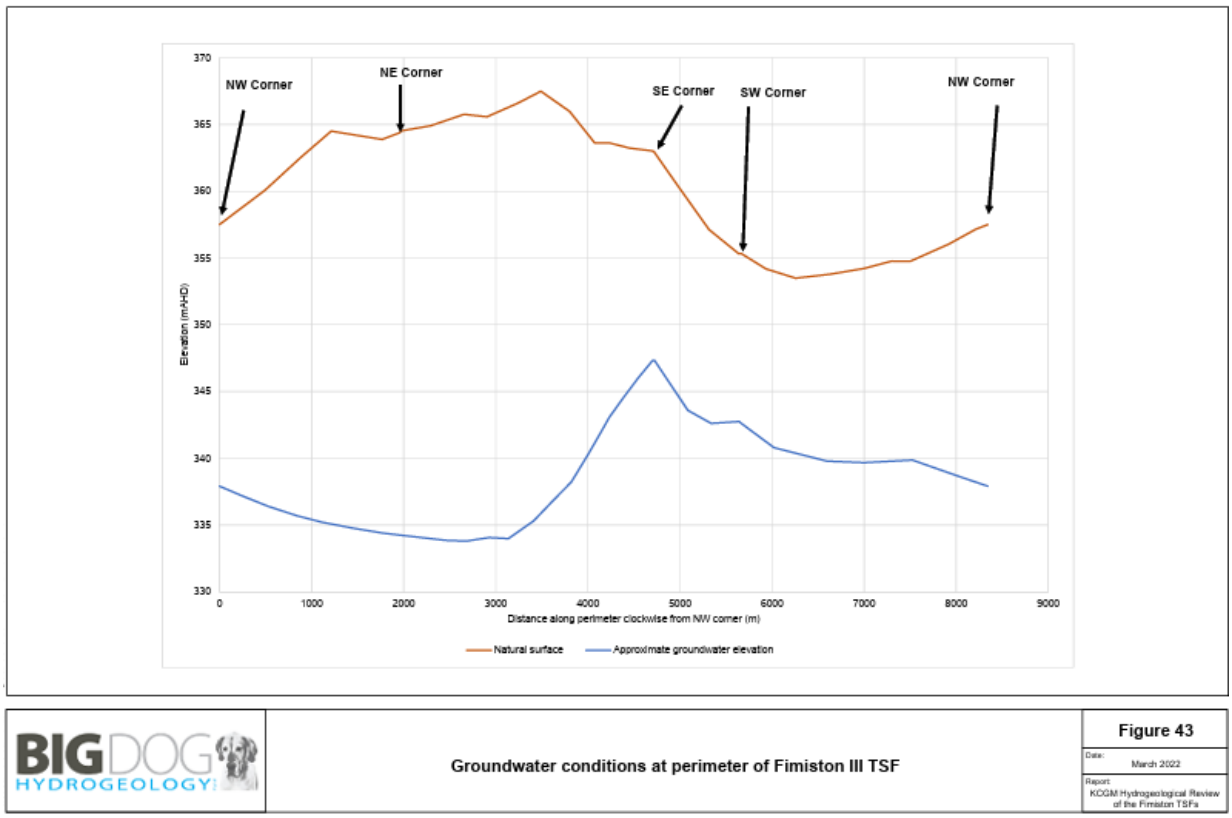
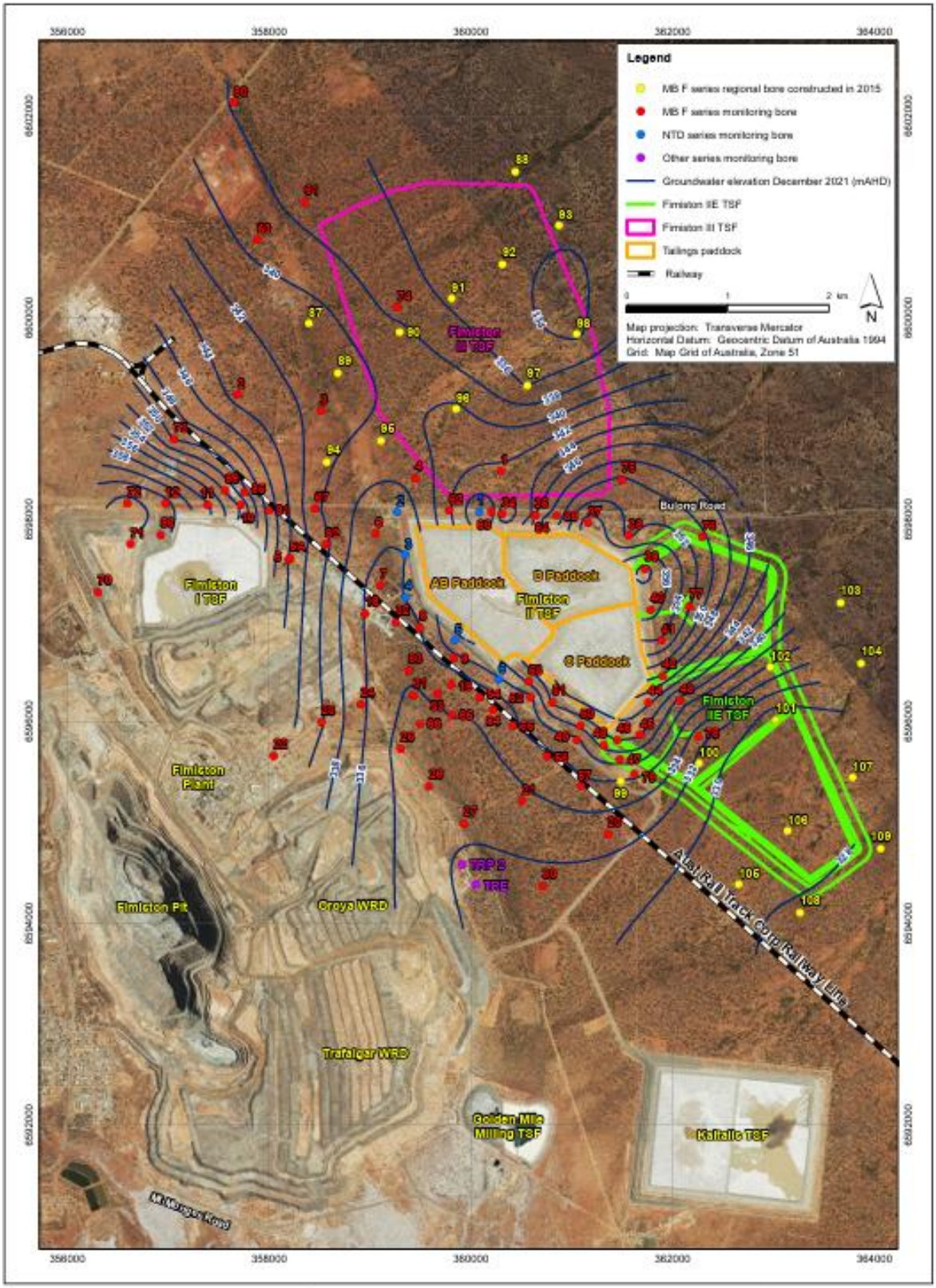


Figure 13: Groundwater levels at perimeter of Fimiston III TSF



BIG DOG HYDROGEOLOGY

Groundwater elevations in December 2021

Figure 33

Date: March 2022

Report: Hydrogeological Review of the Fimiston TSFs

Figure 14: Groundwater elevations surrounding Fimiston TSFs

Overall trendlines of groundwater levels in the northwest area of the premises (in the project envelope of Fimiston III TSF) (Figure 15) show there has been a rise in groundwater levels between 1995 – 2005 with a leveling out (and slight decrease) in groundwater levels since 2005.

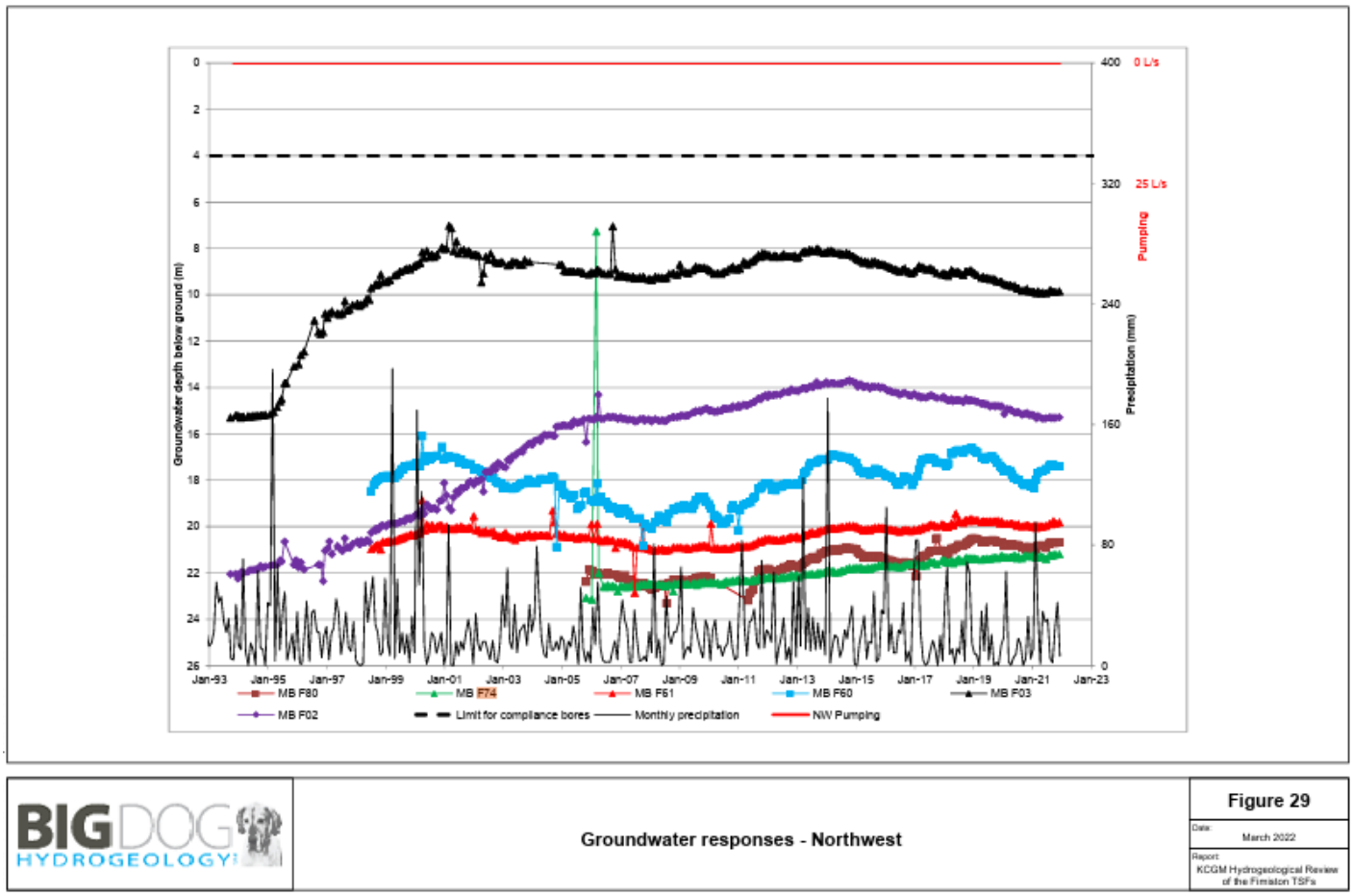


Figure 15: Groundwater level trends in northwest region of the premises.

2.17 Dust and noise emissions

2.17.1 Dust emissions assessment

The Fimiston operations are located immediately next to the urban areas of the City of Kalgoorlie-Boulder. Mining has been carried out here for more than 100 years, including open cut mining, underground mining and ore processing activities. This long history of mining, combined with the semi-arid climate and the proximity of current and proposed mining activities to the city, means that dust emissions remains an important concern for the community.

Dust can affect both human health and local amenities. To manage the risk, the applicant has developed and regularly updated a Fimiston Air Quality Management Plan (FAQMP). The FAQMP was first prepared in 2009 (as required by Ministerial Statement 782) and has been revised several times, most recently in 2024, to include the proposed Fimiston South project (Stage 3 extension and closure planning).

The FAQMP identifies tailings storage facilities as potential sources of fugitive dust, particularly when strong winds cause surface erosion of deposited tailings waste. The plan includes measures to minimise these risks.

The applicant commissioned Ramboll (2022, revised 2023) to undertake an air quality impact assessment. Air dispersion modelling found the most significant change to air quality are

expected to occur within the open pit. The modelling indicated that dust levels at sensitive locations in the community are not expected to increase. Construction and operation of the proposed Fimiston III TSF were also not predicted to cause additional dust impacts on nearby residents.

2.17.2 Dust monitoring

Dust emissions are targeted via the Dust Monitoring and Management Programme (DMMP), a component of the FAQMP. A key performance target of the DMMP is to manage the mining operations such that there are no more than five events above the National Environmental Protection Measure (NEPM) 24-hour PM_{10} (particulate matter with an equivalent aerodynamic diameter of 10 microns or less) standard (i.e., 50 micrograms per cubic metre [µg/m3]) at any dust monitoring site per annum, where the applicant is a significant contributor.

The DMMP utilises a network of seven ambient PM_{10} monitoring stations (refer Figure 13), six of which are established in the residential and light industrial area near the Fimiston Operations. These comprise Boulder Shire Yard (BSY), Hewitt Street (HEW), Clancy Street (CLY), Hopkins Street (HOP), Mt Charlotte (MTC) and Metals Exploration Yard (MEX) sites (Figure 16).

The seventh monitor, Hannan's Golf Course (HGC), is located northwest of Fimiston Operations and generally provides background PM_{10} concentrations. Meteorological monitoring stations are located at the MEX site and the Cassidy Headframe (CAS).

The applicant obtains real time ambient PM_{10} monitoring data which are compared to alert and action levels at the individual monitoring sites. Condition 7-5 of Ministerial Statement 782 requires KCGM to make available continuous particulate monitoring data online within 24 hours of recording of that data. To meet this requirement a Dust Monitoring Report is made publicly available on the KCGM website (www.superpit.com.au).

Both the department and DMPE receive notifications from residents in the Kalgoorlie-Boulder area regarding nuisance dust emissions from KCGM operations. These are generally due to ongoing work, including remediation work, within the open/super pit.

The applicant has responded to previous requests for information from the department, stating that the KCGM Social Performance team meets with concerned residents and local business owners to understand concerns and resolve their complaints. When the likely source of visible dust is identified, a dedicated water cart is available and used for dust suppression for general site works. Additional actions have been undertaken including the use of a portable windsock to view real-time wind conditions to support better operational decision-making.

The Delegated Officer reviewed the Annual PM_{10} Dust Monitoring Review 2023-24 prepared for KCGM by MRP Technical Consulting (MRP, 2025) and noted that a summary of the annual average PM_{10} concentrations measured at the monitoring stations between December 2023 and November 2024 show that annual concentrations at all monitoring stations remained below the NEPM guideline of 25 µg/m^3. HEW had the highest annual average of 24.3 µg/m^3 (97% of the guideline) (closest monitor to the pit).

As noted above the Dust Monitoring and Management Programme (DMMP) target is to manage KCGM's operations such that there are no more than five events above the 24-hour PM_{10} NEPM standard of 50 µg/m^3 at any dust monitoring site per annum where KCGM is a significant contributor. Where a 24-hour average PM_{10} concentration of >50 µg/m^3 is recorded (PM_{10} Dust Event), KCGM completes a review of the monitoring data, in combination with meteorological and operational data.

According to MRP (2025) there were 55 events between December 2023 and November 2024 for which the 24-hour average PM10 concentration was >50 µg/m^3. The review by MRP of the PM_{10} Dust Events found that most of the 24-hour PM_{10} exceedances (43 events) were not significantly influenced by KCGM's operations.

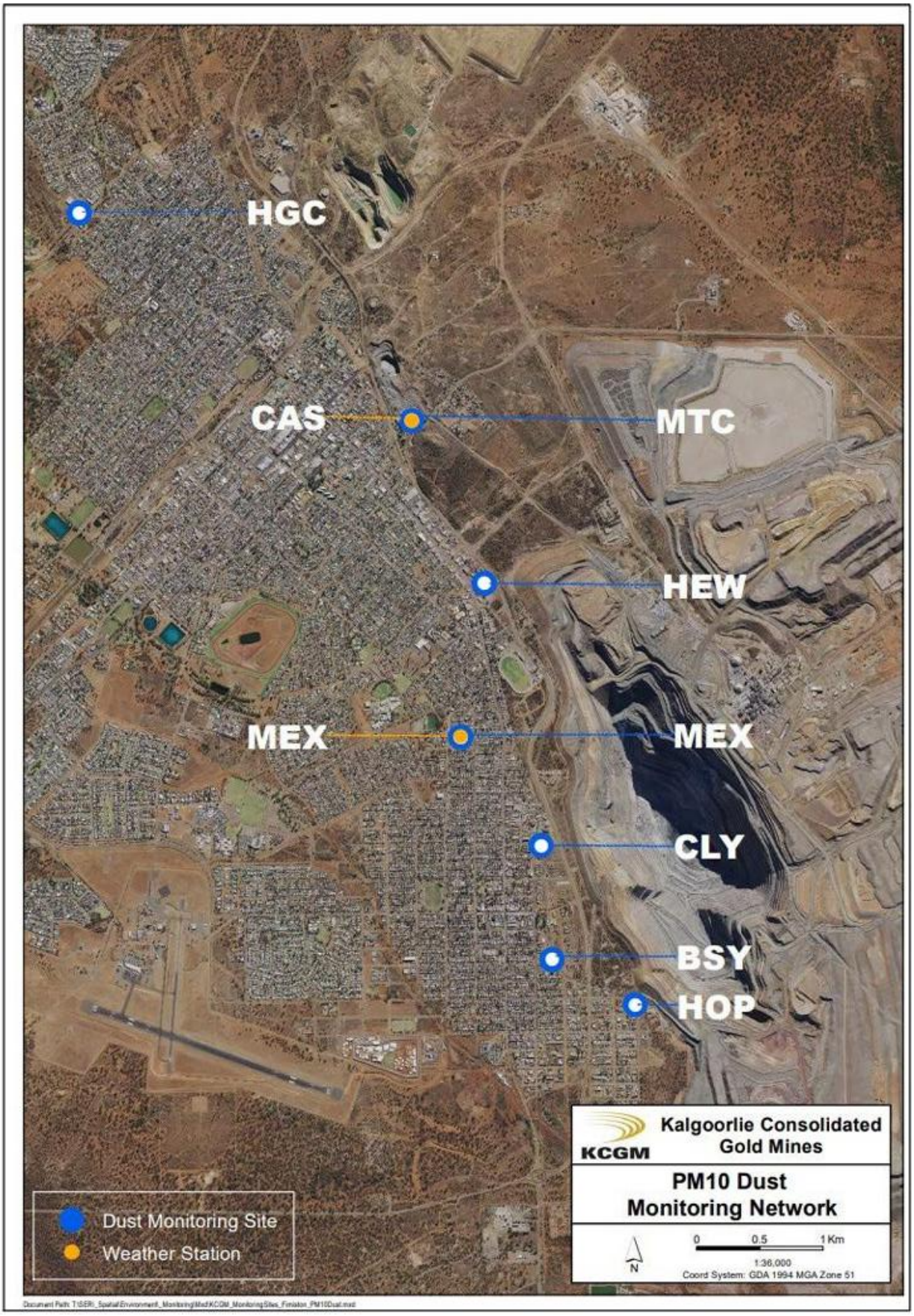


Figure 16: Particulate (dust) monitoring network locations

2.17.3 Noise emissions assessment

Fimiston Operations operate under specific noise criteria where allowable noise levels are prescribed by the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016 granted under regulation 17(7) of the *Environmental Protection (Noise) Regulations 1997*.

The applicant has previously submitted a Noise and Vibration Monitoring and Management Plan (NVMMP) to the department and Environmental Protection Authority. The currently approved NVMMP (v7, 2018) was originally prepared by KCGM to satisfy Condition 8.1 of Ministerial Statement 782 (MS782), originally approved on 29 January 2009 by the Minister for Environment.

A revised 2024 NVMMP (v10) was provided to the department in support of this works approval assessment and had been developed by the applicant to satisfy submission requirements inclusive of the proposed Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project).

The NVMMP is predominantly concerned with noise, ground vibration and air-blast overpressure associated with execution of the FS Project Ivanhoe cut back and all ongoing future mining and processing operations.

Since the early 1990s KCGM has consulted with noise consultants Herring Storer Acoustics to undertake numerous noise modelling and compliance assessments in and around the Fimiston Operations over this time.

An environmental acoustic assessment was undertaken by Herring Storer Acoustics in September 2021 and revised in June 2023 to identify noise sources and therefore potential risks. Results of this modelling identified the following major noise emission sources: haul trucks, dozers, loaders, diggers and graders. In this instance the FS Project and continuance of normal mining and processing operations are both considered. The department recognizes that several of these pieces of equipment will be relevant to the construction of Fimiston III TSF.

The department notes that the NVMMP does not specifically apply to the Fimiston III TSF project area and is more concerned with the open pit and nearby receptors in Kalgoorlie Boulder.

In relation to the Fimiston TSF construction, specific noise reduction measures include:

- Installation of broadband frequency sound (white noise) reversing alarms on mobile equipment.
- New haul trucks to be fitted with quieter engines and fans as standard, biannual sound power level testing on individual haul trucks to enable analysis of noise performance trends and identify if additional maintenance is required, and investigation of the use of sound suppressant mufflers.
- Using additional noise barriers where required (including the Environmental Noise Bund (ENB) located between residential areas of Kalgoorlie-Boulder and the western edge of the Fimiston pit).

2.17.4 Noise monitoring

In accordance with Ministerial Statement Condition 8(1) of the 2016 Fimiston Noise Approval, KCGM has carried out continuous environmental noise monitoring at Metal Exploration Premises (MEP) and Boulder Primary School (BPS) (Figure 17).

Figure 17: Noise monitoring locations

KCGM's "Continuous Environmental Noise Monitoring Program" includes:

- Continuous noise monitoring undertaken at BPS and MEP using Bruel and Kjaer 2250 Sound Level Meter (SLM) equipment, which are NATA calibrated every two years in accordance with the manufacturer's recommendation.
- Noise data at BPS is recorded in decibels as L10, L50, and L90 which are averaged over 1- hour.
- The SLM at BPS records any trigger events. The noise trigger function is set to operate between the hours of 1900 0700. A noise trigger event is recorded when:
    - the noise level exceeds 60 dB(A) between the hours of 1900 and 2200; and

- the noise level exceeds 55 dB(A) between the hours of 2200 and 0700 for greater than two minutes.

- Trigger recordings are reviewed as required.
- Noise data at MEP is recorded in decibels as Leq which are averaged over five minutes. The MEP site is used to record real-time noise monitoring data for the KCGM website (refer to Section 2.6.4. below).

3. Part IV of the EP Act

The current Fimiston Gold Mine Operations Extension (Stage 2) and Mine Closure Plan is approved under Ministerial Statement 782 (MS 782), operated by Kalgoorlie Consolidated Gold Mines (KCGM).

KCGM propose the expansion of the Fimiston operations in Kalgoorlie by widening and deepening the Superpit by means of the Ivanhoe Cutback and include expansion of Fimiston II Tailings Storage Facility (TSF), the new Fimiston III TSF, an extended waste rock landform, topsoil stockpiles, relocated and modified Environmental Noise Bund, and other supporting infrastructure (Revised Proposal).

The Revised Proposal includes the additional clearing of up to 1,868 hectares (ha) of which 1,580 ha is native vegetation.

KCGM sought approval from the Environmental Protection Authority (EPA) under the *Environmental Protection Act 1986*, Part IV via the Revised Proposal to develop the Fimiston South Project and make changes to supporting infrastructure as mentioned above.

The Ministerial Statement for the Revised Proposal was signed by the Minister for Environment on 20 October 2025.

4. Department of Mines, Petroleum and Exploration (DMPE)

Numerous mining proposals have been submitted and approved under the Mining Act 1978 since individual leases along the Golden Mile were combined in 1989 to form Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM).

Separate mining proposals are currently being prepared to include the expansion referred to as ‘Fimiston South’ and includes the Fimiston III TSF (this works approval) and the new Fimiston G Paddock extension to the current Fimiston II TSF (separate works approval, W2940/2025/1).

In accordance with MS782 and tenement conditions, NSR is required to submit a Mine Closure Plan (MCP) every three years to the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) (now the Department of Mines, Petroleum and Exploration (DMPE)) as the lead agency, however MCP co-ordination is undertaken by both DMPE and DWER.

The 2022 v1 and v2 Mine Closure Plan was updated to reflect the Fimiston South Project; the MCP 2022 v1 document and submitted to DMPE and DWER in August 2022 and the MCP 2022 v2 was submitted in November 2024. The KCGM MCP 2022 v2 was 'Accepted' by DMPE on 9 September 2025.

The department requested a geotechnical review from DMPE, and DMPE note the works approval is for the construction of the Fimiston III starter embankment to a maximum height of 10 m, along with associated supporting infrastructures such as access corridors, production and monitoring bores, pipelines, power corridors, surface water diversion, decant ponds and toe drains.

The following aspects were noted and understood from the submitted information:

- The TSF has been designed in recognition of:
    - ANCOLD Guidelines on Tailings Dams; Planning Design, Construction, Operation and Closure.
    - DMPE Code of Practice – Tailings Storage Facility.
    - DMPE Guidelines on Safe Design and Operating Standards for Tailings Storage.
    - DMPE Guide to preparation of a design report for Tailings storage facilities
    - DMPE Statutory Guidelines for Mine Closure Plans
- Fimiston III TSF will comprise of 3 Cells 1, 2 and 3, and raise to a maximum height of 43 m.
- Facility is classified as a 'Category 1, High Hazard' in terms of the DMIRS COP.
- Deposition of tailings will be split between all existing facilities, Fimiston I, II and Kaltails.
- The rate of embankment wall rise at the operating facilities is designed to be <2.7 m/year

Investigations, analysis and assessments were carried out in support of the design as noted in the documentation. Tailings storage facility description and design aspects were noted.

Based on the submitted information it is the opinion of DMPE that the applicant has demonstrated that geotechnical aspects to support the design of the Fimiston III TSF have been considered. Thus, from a geotechnical aspect, should this documentation be submitted in support of a Mining Proposal, DMPE will recommend approval of this project with the inclusion of tenement conditions specifically relating to geotechnical matters.

5. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

5.1 Source-pathways and receptors

5.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operations which have been considered in this decision report are detailed in Table 5 below. Table 5 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 5: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Vehicle movements, earthworks etc.	Air / windborne pathway	A Dust Monitoring and Management Programme is included in the Fimiston Air Quality Management Plan. The objective of the program is to ensure 24-hour average PM_{10} concentrations as a result of Fimiston

Emission	Sources	Potential pathways	Proposed controls
			Operations are less than 50 µg/m^3 at monitoring locations. Control strategies relevant to this works approval include: • Restricting activities as a function of wind direction, to ensure fugitive dust is not blown towards the City of Kalgoorlie-Boulder or other residential areas. • Applying dust suppression i.e. water trucks in areas that produce dust such as haul roads, service corridors and other active surface areas (this includes the TSF access roads). • Undertaking progressive rehabilitation to minimise exposed areas (this includes the TSF embankments).
Noise	Vehicle movements, earthworks etc.	Air / windborne pathway	KCGM has been granted approval under regulation 17 of the *Environmental Protection (Noise) Regulations 1997*, to allow the level of noise emitted from the Fimiston Gold Mine Operations to exceed the standard prescribed under regulation 7 and 11. The Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016 was published in the Government Gazette on 22 March 2016. KCGM also has a Noise and Vibration Monitoring and Management Plan (Condition of MS 782) that includes the use of broadband reversing alarms. The Environmental Noise Bund (ENB) is located between residential areas of Kalgoorlie-Boulder and the western edge of the Fimiston pit.
Operation			
Leachate	Seepage through base and sides of TSF	Groundwater mounding coming into contact with vegetation root zones	Seepage from the Fimiston TSFs is already managed in accordance with conditions of L6420/1988/14 and KCGM Fimiston Seepage and Groundwater Management Plan. Seepage controls include: • Fimiston III TSF is designed to minimise seepage using an underdrainage system. • Groundwater monitoring will continue to be undertaken in accordance with conditions of L6420/1988/14. Installation of new monitoring and production bores to replace those decommissioned during construction.

Emission	Sources	Potential pathways	Proposed controls
	Spills and leaks from pipelines	Direct contact with soil contaminating ground. Contamination of storm water. Direct contact with vegetation	In accordance with the conditions of the licence L6420/1988/14, all pipelines containing environmentally hazardous substances are either: • equipped with automatic cut-outs in the event of a pipe failure; or • provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections. Pipelines are located within earthen bunds so that any spills can be contained and cleaned up. Overland stormwater flow is redirected away from the TSF to reduce the potential for contact with spills within the pipeline corridors.
	Overtopping of TSF	Direct contact with soil contaminating ground. Contamination of storm water. Direct contact with vegetation	The minimum operational freeboard of 300 mm is marked for easy assessment of the tailings height at each spigot. Minimum 500 mm total freeboard is maintained by maintaining a supernatant pond of less than 15% of the basin area. (Total freeboard is the vertical distance between the highest point of the water in the cell and the lowest point of the perimeter crest.) Active pumping of water from supernatant pond.

5.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 6 and Figure 18 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 6: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Ninga Mia residential receptors	Approximately 3.2 km from the western edge of Pit III TSF
Expired lease on Lot 143 and 144 on Deposited Plan 185502	Residences / homes 300 m, 320 m, and 345 m from the prescribed premises boundary, (750 m, 770 m, and 795

	m from the Fimiston III TSF footprint). See green shape of land tenure in Figure 19 below
Expired lease on Lot 191 on Deposited Plan 187551	Dam on the premises 90 m from prescribed premises boundary, (750 m from Fimiston III TSF footprint.) *The department notes that this is likely a freshwater dam that would not be fed by groundwater, given the water table is approximately 20 m below ground level in the vicinity. The groundwater in the area is hypersaline (~20,000 mg/L) and therefore would not be suitable for drinking or use by animals.* Residences / homes 180 m from prescribed premises boundary, (800 m from Fimiston III TSF footprint.) See red shape of land tenure in Figure 19 below and zoomed in Figure 20.
Environmental receptors	**Distance from prescribed activity**
Native vegetation (no conservation significant vegetation species; potentially affected vegetation communities widespread regionally)	Adjacent to the Fimiston I TSF mostly to the west and around Fimiston II TSF.
Underlying groundwater (non-potable purposes) RIWI Act 1914 Proclaimed Groundwater Area	Located within the Goldfields Groundwater Area. Groundwater is hypersaline. Groundwater is generally around 20 to 25 m below ground level (bgl) in Fimiston III TSF project area.

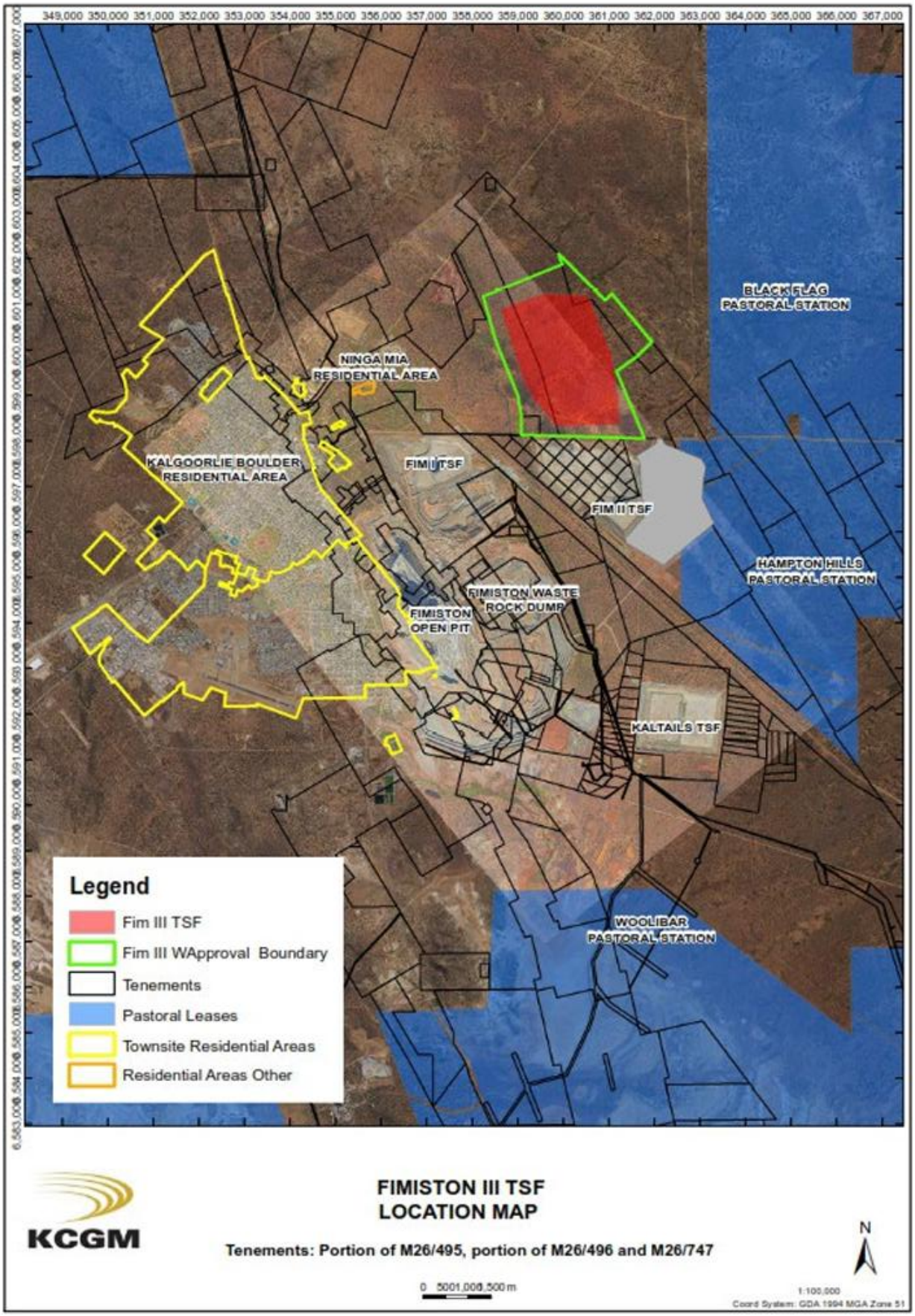


Figure 18: Fimiston III TSF distance to receptors

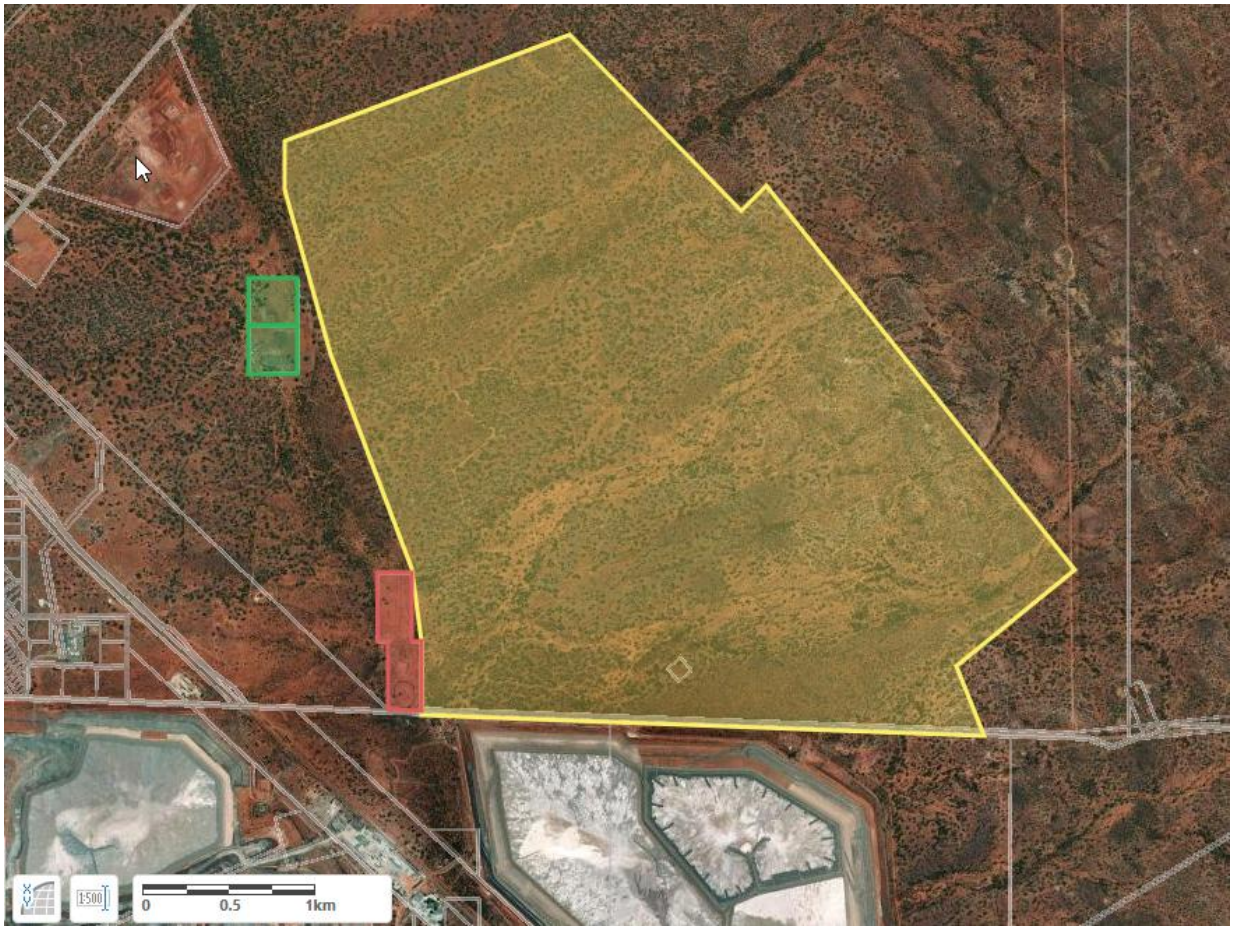


Figure 19: Fimiston III TSF premises boundary and distance to Lot 143, 144 and 191.

Figure 20: Fimiston III TSF premises boundary to nearest resident on expired lease on Lot 191 on Deposited Plan 187551

5.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 5.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 5.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 7.

Works approval W2872/2025/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 7 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the operation of the premises i.e. Category 5 tailings discharges into a containment cell. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 7: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls and/or explanatory notes
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction of TSF III Earthworks and vehicle movements	Dust	Air / windborne pathway causing impacts to health and amenity	Residences within 200 m west of the prescribed premises boundary. Ninga Mia residential area 3.2 km to the west	Refer to Section 5.1	C = Moderate L = Possible **Medium Risk**	N	**<u>Condition 11: Visible dust prevention</u>** Condition 17 - 19: Complaint reporting	The dust emissions during construction of Fimiston III TSF are not likely to exceed those already produced by mining and processing activities for residents in Ninga Mia and Kalgoorlie Boulder, however two sensitive receptors have been identified adjacent to the premises western boundary. The Fimiston Air Quality Management Plan is active over the operations, including those not currently covered by the prescribed premises licence L6420/1988/14 but the Delegated Officer has included a specific condition related to visible dust prevention to minimise the impact on expired lease Lots 143, 144 and 191.
	Noise			Refer to Section 5.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The emissions are not likely to exceed the noise from the mining and processing operations. Residence (expired lease Lot 143 and 144) are more than 700 m from the Fimiston III TSF construction activity. The Noise and Vibration Management Plan is active across all activities, including those not currently covered by the prescribed premises licence L6420/1988/14.
Operation (including time-limited-operations operations)								
Discharge of tailings into the Fimiston III TSF	Dust	Air / windborne pathway causing impacts to health and amenity	Residences within 200 m west of the prescribed premises boundary. Ninga Mia residential area 3.2 km to the west	Refer to Section 5.1	C = Slight L = Unlikely **Low Risk**	Y	**<u>Condition 11: Visible dust prevention</u>** Condition 17 - 19: Complaint reporting	Tailings will be deposited as slurry and the moisture content will reduce dust generation and lift-off from the facility under the duration of the works approval time limited operations. Any dust emissions from the Fimiston III TSF are not likely to exceed those already produced by mining and processing activities for residents in Ninga Mia and Kalgoorlie Boulder. Residence (expired lease Lot 143 and 144) are more than 700 m from the Fimiston III TSF footprint and the Fimiston Air Quality Management Plan is active over the operations, including those not currently covered by the prescribed premises licence L6420/1988/14. Following time limited operations, the applicant will apply to add Fimiston III TSF and associated infrastructure to the operating licence L6420/1988/14, which includes conditions related to dust prevention and management.
	Tailings and decant water from spills and leaks from pipelines	Direct contact with soil contaminating the ground surrounding the TSF and pipelines. Contamination of storm water from contact with contaminated soil. Direct contact with vegetation	Dam on expired lease Lot 191 on Deposited Plan 187551, 90 m west of the prescribed premises boundary. Surrounding soil and vegetation causing impacts to health of vegetation including death of vegetation. Stormwater coming into contact with contaminated soil causing the spread of contaminants into the surrounding environment.	Refer to Section 5.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1: Infrastructure table outlining the infrastructure to be constructed including specifications. Conditions 12 - 16: Identifies the emissions, discharge points, monitoring and compliance reporting parameters required for operating the facility.	These are standard conditions for works approvals where critical containment infrastructure is being authorised for time limited operations. The risk rating justifies the inclusion of emission management infrastructure such as bunding on pipelines, underdrainage and production bores.
	Leachate	Seepage through base and sides of TSF entering soil and groundwater causing mounding of groundwater around the TSF.	Dam on expired lease Lot 191 on Deposited Plan 187551, 90 m west of the prescribed premises boundary. Groundwater mounding coming into contact with root zones of surrounding vegetation causing health impacts and death.	Refer to Section 5.1	C = Moderate L = Possible **Medium Risk**	Y	Conditions 2 and 4: Monitoring and production bore installation conditions Condition 7: Baseline ambient environmental conditions – provides for the monitoring of background groundwater conditions in the bores constructed under condition 2 prior to tailings discharge to the new TSF cells. Conditions 12 - 16: Identifies the emissions, discharge points, monitoring and compliance reporting parameters required for operating the facility.	These are standard conditions for works approvals where critical containment infrastructure is being authorised for time limited operations. The risk rating justifies the inclusion of emission management infrastructure such as seepage and groundwater recovery systems. The management of the seepage and groundwater will be via the already established Seepage and Groundwater Management Plan as detailed in Section 2.16.1 of this report Table 2 of Schedule 1 of the Licence (L6420/1988/14), identifies a total of 73 groundwater monitoring bores for the Eastern Borefield. Two of these bores will be decommissioned during construction of the Fimiston III TSF and replaced with 13 new bores. These monitoring bores will be added to the licence when it is amended to authorise the operation of the new TSF infrastructure.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **<u>Bold and underlined text</u>** depicts additional regulatory controls imposed by department.

6. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website and West Australian newspaper on 3 March 2025	None received	N/A
Local Government Authority (LGA) – City of Kalgoorlie-Boulder advised of proposal on 28 February 2025	None received *The department undertook a concurrent works approval assessment (W2940/2025/1) for construction works relating to the Fimiston II Extension TSF, Cell G.* *The City of Kalgoorlie-Boulder responded on 1 May 2025 to the W2940/2025/1 application and the Delegated Officer believes the comment is relevant to this works approval assessment of Fimiston III TSF and has included it here.* The LGA responded with concerns regarding the mining approval process for Fimiston and the potential impacts on the local community. The LGA states that it is essential that management plans for dust, noise and air quality are not only implemented on paper but are actively followed to mitigate any negative impacts on public health. The community's wellbeing should be a top priority, and the department is urged to ensure these management plans are regularly monitored and updated, as needed, to prevent any harm to the health of the residents. Additionally, in the event of serious health concerns raised by the community, the LGA strongly recommend that the applicant collaborate with the local city authorities to address these concerns promptly and transparently, rather than disregarding or ignoring calls for action. The LGA states that open communication and cooperative	The department undertakes a risk-based approach to environmental assessment. Potential risks are assessed on emission-pathway-receptor basis. Potential emissions related to this application are listed in Table 7 and proposed controls are listed in Table 5. The department notes that the applicant has various management plans, and the works approval is issued with conditions related to the identified potential risk events. The department also notes that a prescribed premises contravening a condition of a works approval or licence may be committing an offense under sections 55 and 58 of the EP Act. Third parties are encouraged to report pollution, illegal dumping and other environmental matters to the Environment Watch hotline on 1300 784 782, or via the WA government website.

	efforts are essential in maintaining the trust and safety of the community.	
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 28 February 2025	DEMIRS replied on 2 April 2025 Refer to Section 4	The Delegated Officer notes that the applicant has demonstrated that geotechnical aspects to support the design of the Fimiston III TSF have been considered.
Applicant was provided with draft documents on 24 September 2025.	Applicant replied on 14 October 2025. Refer to Appendix 1	Refer to Appendix 1

7. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Australian National Committee on Large Dams (ANCOLD) 2019, *Guidelines on Tailings Dams; Planning Design, Construction, Operation and Closure,* Hobart, Tasmania
2. Big Dog Hydrogeology (BDH) 2022, *Hydrogeological Review of the Fimiston I, Fimiston II, Fimiston IIE, and Fimiston III TSFs*, Albany, Western Australia.
3. Big Dog Hydrogeology (BDH) 2025, *KCGM 2024 Annual Audit Fimiston I and Fimiston II Tailings Storage Facilities Seepage and Groundwater Management Plan*, Albany, Western Australia.
4. Department of Mines, Petroleum and Exploration (DMPE) 2013, Formerly DMIRS/DEMIRS, *The Code of Practice for Tailings Storage Facilities*, East Perth, Western Australia
5. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
6. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
7. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
8. Department of Water and Environmental Regulation (DWER) 2024, *Licence L6420/1998/14 Kalgoorlie Consolidated Gold Mines Pty Ltd - Fimiston Processing Plant*, Perth, Western Australia.
9. Environmental Protection Authority (EPA) 2018, *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual*, Perth, Western Australia.
10. Herring Storer Acoustics 2023, *Revised Acoustic Assessment, Fimiston South Project, report prepared for Kalgoorlie Consolidated Gold Mines Pty Ltd*, Como, Western Australia.
11. International Council of Mining and Metals 2020, *Global Industry Standard on Tailings Management* (GISTM, 2020), London, United Kingdom.
12. Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) 2020, *Fimiston Seepage and Underground Management Plan*, Subiaco, Western Australia.
13. Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) 2024, *Fimiston III TSF Works Approval Supporting Application 1.0*, Subiaco, Western Australia.
14. Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) 2024, *Fimiston Air Quality Management Plan* (FAQMP, v12), Subiaco, Western Australia.
15. Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) 2024, *Fimiston Noise and Vibration Monitoring: Management Plan (*NVMMP, v10*) Fimiston Gold Mine Operations Extension (Stage 3) Fimiston South Project*, Subiaco, Western Australia.
16. Minister for Environment 2009, *Ministerial Statement No. 782: Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning*, Perth, Western Australia.
17. Minister for Environment 2017, *Environmental Protection (Noise) Regulations 1997,* Perth, Western Australia.
18. MRP Technical Consulting 2025, *Annual PM10 Dust Monitoring Review 2024-24 Kalgoorlie Consolidated Gold Mines Pty Ltd*, Perth, Western Australia.
19. National Uniform Drillers Licensing Commission 2012, *Minimum Construction Requirements for Water Bores in Australia*, West Lakes, South Australia.
20. Ramboll Australia Party Ltd (Ramboll) 2022, revised in 2023, *Fimiston South Project: Air*

Quality Impact Assessment, Perth, Western Australia.

21. WSP Australia Pty Ltd (WSP) 2024, *Design Report to Support Application to Construct Fimiston III Tailings Storage Facility*, Perth, Western Australia.
22. WSP Australia, formerly Golder Associates (Golder) 2016, *Fimiston Life of Mine Tailings Stage 2A - Hydrogeological Investigation*, Perth, Western Australia

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Works approval W2872/2025/1		
Figure 2: Existing KCGM pipeline corridor between processing plant and TSFs	The applicant noted that revised pipeline corridor layout has been developed since the application for this works approval was submitted to the department. The figure in the draft works approval was therefore outdated, and the applicant supplied a revised figure to replace Figure 2 in the final version of W2872/2025/1.	The Delegated Officer does not believe the changes to pipeline location will significantly increase environmental risk and had replaced Figure 2 in the works approval with the updated version, provided by the applicant.
Decision report		
Section 4: Department of Mines, Petroleum and Explorations (DMPE)	The applicant confirmed that the most recent KCGM MCP 2022 (v2) has been accepted by DMPE on 9 September 2025.	The Delegated Officer has noted this, and this up-to-date information has been included in the decision report.
Section 5.1.2: Receptors	The applicant has provided an update on the status of nearby sensitive receptors on Lot 143 and 144 on Deposited Plan 185502, and Lot 191 on Deposited Plan 187551. The lease over Lots 143 and 144 on Deposited Plan 185502 expired 30 June 2016. The lessee had remained a tenant on a month-to-month, monthly rental, but the lessee has been issued a notice of non-renewal of lease allowing until 15 November 2025 to remove all improvements and personal property from the land. Once 'yielding up' provisions have been completed the lease will be removed from the Crown land titles. Expired lease on Lot 191 on Deposited Plan 187551 is currently occupied by a camper. The latest lease for this lot expired on 26 June 2000. The current camper has never held / does not hold a lease in his name and resides in a caravan. In addition, the dam on Lot 191 is not used for pastoral activities. The dam is used by the local camper to water his horses and other animals at the property. The camper has informed the applicant that he brings his drinking water in from town sources. The camper has stated that the	The additional tenancy information of nearby lots to the project area has been assessed by the department. The applicant provided correspondence with the Department of Planning, Lands and Heritage (DPLH) as part of its response to the draft package, and DPLH confirmed the status of leases for Lot 143, 144 and 191. Lots have been renamed in Table 6 to indicate that they are currently expired.

Condition	Summary of applicant's comment	Department's response
	small dam does not provide sufficient water for horses in the drier months of the year. The applicant has discussed potential options with the camper regarding water supply and will continue to do so.	
Figures 18 - 20	The applicant requested that the title of figures be slightly amended to accurately state that leases on lots in the vicinity of the TSF project area were expired, and that specified receptors were not residential neighbourhoods, as labelled.	The Delegated Officer has accepted these proposed changes and updated the title of Figures 18 – 20 in the decision report.
Table 7: Risk assessment	Update receptor information for the lots in proximity of the TSF project area to clarify its lease status, as noted above.	The additional tenancy information of nearby lots to the project area has been assessed by the department. Receptors in Table 7 have been updated to provide additional clarity around the status of leases.