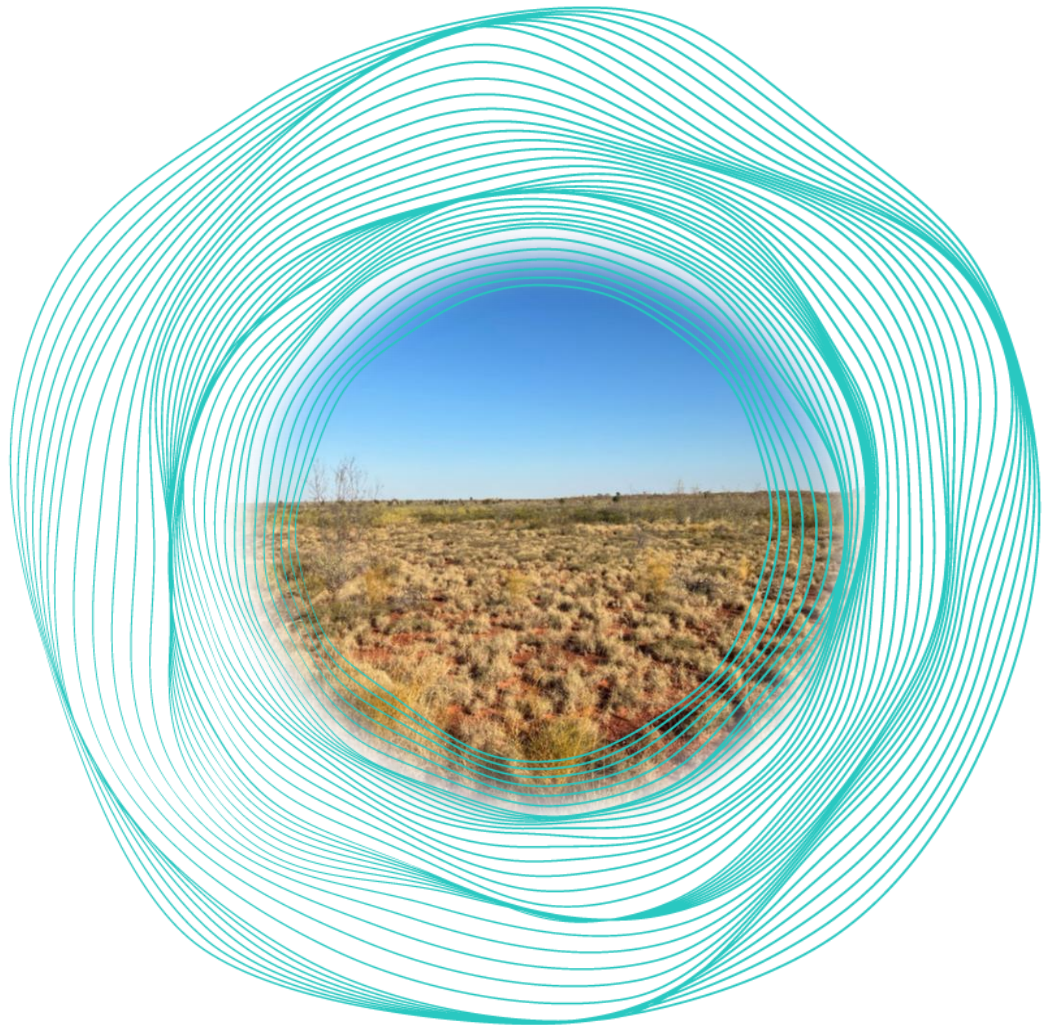


Draft Groundwater Operating Strategy - Rimfire

Subject	Rio Tinto Copper - Winu		
Date	11/6/2026		
To	Emma McGiven	From	Gerhard Jacobs
Project No	311012-01475	Doc No	311012-01475-MEM-HG-052
Project	Winu Project – DRAFT Rimfire Groundwater Operating Strategy.		



1. Introduction

Rio Tinto Winu Pty Limited (RTC) is proposing to develop a copper-gold mine targeting the Winu deposit, located approximately 320 km east of Port Hedland in Western Australia (Figure 9-1). The Winu Project ('the Project') is located on land where native title is held by the Nyangumarta and Martu peoples.

The Project encompasses a vein and breccia-hosted copper and gold deposit discovered by Rio Tinto Exploration (RTX) in 2017. The ore body is situated below the water table and will be mined from an open cut pit, with a planned depth of approximately 450 m BGL. The planned operational period is 32 years for LoM.

Development of the project will require water management activities to be implemented, including:

- Dewatering and potential depressurisation to enable mining below water-table
- Water supply, proposed to be taken from a combination of bores (borefields) in the immediate and regional Rimfire area.
- Surplus water management, where dewatering exceeds demand for peak periods

This document provides a draft operating strategy (GOS) for operation of the proposed regional borefield at Rimfire.

This draft has been prepared in accordance with the DWER policy for *Use of operating strategies in the water licensing processes* (DWER, 2020). This document summarises the GOS that will cover groundwater abstracted from the regional aquifer system at Rimfire.

This GOS does not cover groundwater proposed to be abstracted from Winu main mining area, other regional borefields or the Winu Mine Access Road; these will be covered by separate GOS documents if needed.

2. Administrative requirements

The required administrative arrangements to ensure compliance with this GOS are summarised in the following subsections.

No	Detail	Description
1.1	Current GWL Licence	GWL201165(8)
	Other relevant groundwater licences	None
1.2	Is staged development occurring under the water licence?	Yes, refer to section 2.2.
1.3	Has there been any investigation and reporting on the water source and/or environment involving the development?	Yes, a H3 Hydrogeological Impact Assessment, Baseline GWMP, AAR and Water balance report has been completed.
1.4	Is your development within an area covered by a water resource management/allocation plan that the Department of Water and Environmental Regulation has produced?	NA
1.5	Contact details of person responsible for implementing GOS	Emma McGivern Principal Hydrogeologist; Copper Phone: +61 429 549 271 Email: emma.mcgivern@riotinto.com
1.6	Water use (metering) data reporting dates	Quarterly water metering of previous water year will be submitted to DWER within 30 days of the end of the water year (31 December).
1.7	Dates for groundwater monitoring summaries	Groundwater monitoring data will be submitted to DWER as part of the AAR for the preceding year, with submissions due by March 31 each year.
1.8	Major review date of operating strategy	Review of this GOS will be made in conjunction with the next GWL renewal, or as part of a major change to the GOS and/or associated management plans

2.1 Groundwater use licence

A single Groundwater licence is currently active for the Winu Project encompassing the Rimfire borefield area (Appendix D) with details summarized below in Table 2-1.

Table 2-1 Groundwater use licence details

Detail	Description
GWL No	GWL201165(8)
Duration of licence	14 April 2025 to 13 April 2030 (8)
Annual Water Entitlement	300,000 kL
Water Year Definition	1 January – 31 December
Licensee	Rio Tinto Exploration Pty Limited
Scheme Description	Winu Project
Groundwater Area – Sub Area	Canning-Kimberley* and Canning-Wallal
Location of activity	E45/2876*, E45/4212, E45/4832, E45/4833, E45/5118, E45/5124, E45/5125, E45/5167, E45/5212, E45/5560, L45/476, L45/491, L45/494, L45/521, L45/522, L45/548, L45/549, L45/550, L45/551, L45/552, L45/623 and L45/706
Authorised activities	• Dust suppression for earthworks and construction purposes* • Mineral exploration activities* • Mining camp purposes* • Road maintenance purposes* • Well construction and Supply (pump) testing* • Trail injection of water into ground

*Relevant to Rimfire borefield

2.2 Rimfire Borefield staged approach

Based on the site-wide water balance (Worley, 2025c) the proposed Rimfire Borefield will have a staged operation, with varying flows from 0 to approximately 2,000 Megalitres per year (ML/yr) for the conservative case (P90). Abstraction is anticipated to start after 13 years of mining, and peak in 26 years as shown in Figure 2-1.

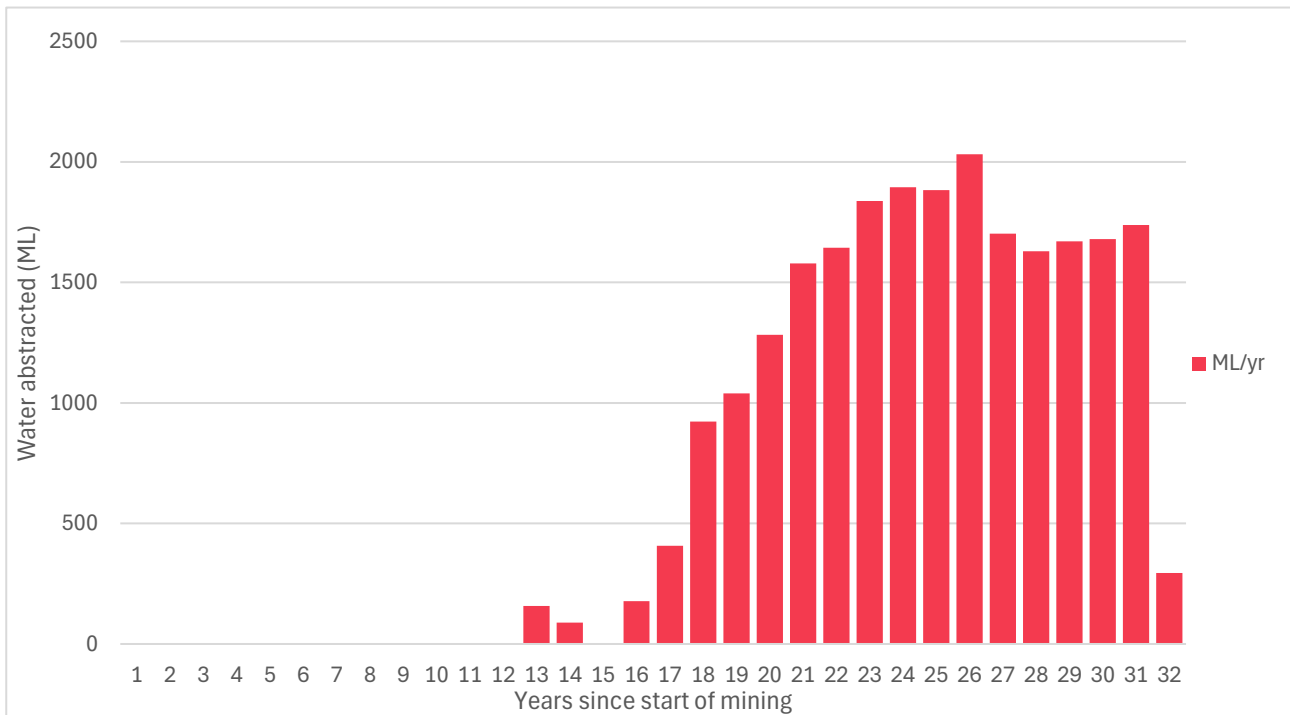


Figure 2-1 Rimfire Regional borefield extraction (P90 water balance)

3. Rimfire setting

3.1 Climate

The Project is located in an arid environment within the Great Sandy Desert bioregion of Western Australia, which experience high intensity rainfall events associated with cyclonic activity, typically between the months of December and April.

The nearest BoM rainfall station Telfer Aero (ID: 13030) is located approximately 100 km south of Winu where daily rainfall data has been recorded from January 1974 to present.

The overall average annual rainfall (by water year) is 362 mm. Higher rainfall was recorded for the period from 2000 to 2019 (average 393 mm), before again trending to the lower long-term average (362 mm) since 2019 (Worley, 2024a).

Variability in annual rainfall experienced in the region is substantial, with some years annual totals occurring practically in one or two months.

The average maximum and minimum temperatures in January are 36.5 °C and 21.1°C respectively, and the average maximum and minimum temperature in July are 18.6 °C and 5.5 °C respectively.

Average evaporation between 1974 and 1995 (recorded at the Telfer Aero weather station) was 4,125 mm/yr, which is approximately 10 times the average annual rainfall.

3.2 Hydrology

With the dune dominated topography across the area and aeolian sand cover extending to depths of ~10 m BGL, there are no clearly defined surface water courses.

Internal drainage systems have resulted in the formation of several claypans across the region, which are likely associated with localised areas of ephemeral, perched water table which expresses at surface after high rainfall events.

Aerial electromagnetic surveys and watershed analysis performed using the SRTM elevation data suggest a potential drainage pathway that coincides with the Percival Palaeovalley southeast of the study area.

Surface water features are few in the area surrounding Rimfire and Winu which include:

- Claypans: South-east of Winu mining area

- Mandora Salt Marsh Ramsar wetland area located over 100 km north of Rimfire
- Lake Waukarlycarly located approximately 60 km south of Rimfire
- Wallal and Percival palaeovalley systems (WASANT, 2012)

3.3 Hydrogeology

The hydrogeological system at Rimfire has been divided into six (6) hydrostratigraphic units (HSU's) based on lithology and hydrogeological function (Table 3-1).

Analysis and interpretation completed during the H3 hydrogeological assessment suggested:

- A regional unconfined water table in weathered basement (sandstone, metasediments and granites), connected to the fresh fractured basement rocks.
- A shallow unconfined water table exists in the area of the Percival palaeovalley exists, however, conceptually connected to the regional aquifer.

For a comprehensive description of the hydrogeology of the Winu Project, refer to the H3 Hydrogeological Assessment report (Worley, 2024b).

Table 3-1 Description of hydrostratigraphic units within the project area (Worley, 2024b).

Hydrostratigraphic unit (HSU)	Lithology	Thickness (m)	Hydrogeological function	Description
Quaternary aeolian sand	Silty sand, very fine to medium grained	0 to 10	Unsaturated	Occurs over majority of the study area, unsaturated except following periods of increased rainfall
Unconfined Sandstone and Silcrete	Fine to coarse grained silcretised sandstone with variable ferricrete	10-30	Unsaturated or partially saturated unconfined aquifer	Occurs over majority of the study area, unsaturated or partially saturated. Variable spatial coverage and thickness.
Percival palaeovalley	Highly weathered claystone, sandstone and fine sand	0 - 40	Unconfined sedimentary aquifer	Unconfined aquifer overlaying the basal metasediments and granites
Weathered Granite	Moderately to highly weathered granite	20 - 80	Unconfined aquifer	The weathered zones act as an unconfined primary aquifer
Weathered Metasediment	Moderately to highly weathered metasediment	20 - 80	Unconfined aquifer	The weathered zones act as an unconfined primary aquifer
Metasediment Granite	Slightly weathered to fresh metasediment, massive, fine to coarse	> 80	Fractured aquifer Intrusive aquitard	Divided into different zones due to faulting and weathering. The fresh zones are inferred to act as a fractured aquifer.
	Slightly weathered to fresh, granite, generally occurs as quartz, feldspar, and biotite in a matrix	> 80		These are interpreted to function as low permeability facies and presumably inhibit groundwater flow in the metasediment aquifer

4. Water source description

The main purpose of the Rimfire borefield is to supply the main project with additional water where pit dewatering and Winu water supply does not meet the various operational water demand.

An extensive water balance assessment has been completed for the project (Worley, 2025c) including a probabilistic evaluation of the impacts of variable climate conditions, and uncertainties in dewatering rates. Standard probabilistic analysis of the potential range of borefield demand indicated that for the conservative case (P90): the proposed borefield would be required from Year 13 with demands steadily increasing to 2 GL/a in Year 26, then declining to approximately 1.7 GL/a thereafter.

4.1 Existing borefield

The Rimfire area bore infrastructure as of June 2026 comprises of four test production bores (not equipped, investigation bores), eight monitoring bores and seventeen Stygo monitoring bores

A summary of Rimfire bores is provided in Table 4-1, while construction details for individual bores are summarised in Appendix B-Table 9-1 and Table 9-2 and spatially presented in Appendix B -Figure 9-2.

Table 4-1: Summary of existing Rimfire borefield

Borefield/ Area	Bore/ sensor type	Screened aquifer	No. of bores/ sensors
Rimfire	4 test production bores	Unconfined metasediment / granite	4
	8 monitoring bores	Unconfined metasediment / granite	8
	17 Stygo holes	Unconfined sedimentary aquifer	6

4.2 Proposed borefield operation

The proposed Rimfire bore field will require additional bores for operation:

- 7 Production bores
- 2 Deep monitoring bores
- 4 Shallow monitoring bores

The borefield will operate to supplement water levels in the clean water dam (CWD) as part of the projects main operation, with demand determined by dam level.

The current bore locations and number of bores are nominal and would be determined during further field investigations and drilling programs.

5. Identifying and managing impacts

The pumping activities required for water supply, can significantly affect groundwater levels, groundwater quality, environmental and heritage values. To ensure sustainable operations, a comprehensive approach has been developed, focusing on identifying potential impacts and implementing management strategies.

Table 5-1 outlines the key management objectives, associated actions, and responses designed to mitigate the potential impacts of water supply on groundwater resources at Rimfire. Each objective addresses specific concerns related to groundwater levels, quality, potential interactions with other users and the broader environment, including sensitive ecosystems, species and heritage values.

Table 5-1 Management objectives and responses

Management Objective	Measurement	Management Response
Maintain groundwater quality	Monitor field pH and electrical conductivity (EC) quarterly and collect annual water samples for analysis.	Analyse trends in water quality to assess potential impacts and ensure no significant degradation during pumping operations.
Minimise impact on other groundwater users	Assess potential impacts of pumping on nearby users and conduct ongoing evaluations.	Limited impacts expected due water supply pumping.
Protect sensitive aquifer ecosystems	Establish Trigger/Threshold levels to safeguard potential groundwater dependent ecosystems (GDE's) and groundwater dependant vegetation (GDV).	Continuous monitoring of groundwater levels to protect sensitive ecosystems.
Manage groundwater recovery post pumping	Conduct groundwater modelling and calibration to predict recovery rates	Acknowledge that recovery to pre-abstraction levels may not occur within 50 years post pumping.
Ensure groundwater levels do not exceed agreed Trigger/threshold levels	Follow proposed groundwater monitoring program.	Regular reviews of monitoring data to ensure compliance with environmental standards and readiness for reporting in groundwater summaries.

6. Monitoring and reporting

An overview of the monitoring schedule for the Rimfire borefield is detailed in Table 6-1.

Monitoring data is reviewed and evaluated for its validity prior to entry into the licensee's central database (EnviroSys) in readiness for reporting requirements. All data collected through the monitoring program is included in the AAR report to DWER.

Table 6-1 Monitoring Schedule

Bore Type	Frequency	Parameter
Production Bores (Appendix B - Table 9-3)	Quarterly	Abstraction Volume (via flow meter)
	Quarterly	Field Chemistry (EC, pH)
	Annually	Laboratory analysis set out in Appendix C - Table 9-5.
Monitoring Bores (Appendix B - Table 9-4)	Quarterly	Water Level
	Quarterly	Field Chemistry (EC, pH)
	Annually	Laboratory analysis set out in Appendix C - Table 9-5.

7. Contingency program

Monitoring data collected in accordance with this Groundwater Operating Strategy (GOS) will underpin an adaptive management approach, informing ongoing performance assessment and contingency actions. Groundwater levels obtained from monitoring bores will be analysed against historical trends, including seasonal variability, while abstraction rates recorded from production bores (via flow meters) will be assessed monthly against year-to-date targets aligned with planned abstraction rates and licensed volumes.

On an annual basis, all monitoring data including groundwater levels, abstraction rates and water chemistry will undergo internal review and be reported in the relevant Annual Aquifer Review (AAR). This reviews will include reconciliation of observed and predicted groundwater responses, and an assessment of aquifer and borefield performance to confirm the sustainability of current or proposed abstraction rates. Operating strategies will be reviewed and updated as required based on these outcomes.

If monitoring indicates that abstraction is adversely affecting the aquifer or other users, the GOS will be reviewed and appropriate contingency actions implemented, commensurate with the cause and magnitude of the impact.

The contingency action taken will be based on the cause and extent of the impact, with operational water use to be limited to prevent any potential impacts to potential GDE/GDV's.

Current understanding indicates that there are no other licensed groundwater users likely to be impacted by abstraction at Rimfire.

7.1 Triggers

Trigger levels are important to maintain groundwater levels within a range that would maintain and protect sensitive receptors. Potential stygofauna habitat and GDE/GDV's have been identified in the Rimfire area, associated with the Percival Palaeovalley. Current studies are ongoing to determine the extent of vegetation and their likely reliance on groundwater, while further drilling and testing is ongoing to improve the conceptual hydrogeological connection between the Rimfire area and the Percival paleovalley.

Current potential drawdown is predicted by a high-level groundwater model and indicates that drawdown contours might reach the paeovalley/potential GDE/GDV's, therefore, a set of trigger values and mitigation measures have been assigned to the proposed monitoring locations (Appendix D - Table 9-6).

Due to the limited monitoring data currently available, and as this GOS predominantly applies to proposed (yet-to-be-installed) bores, no trigger limits have been defined for groundwater quality at this stage.

Ideally for groundwater levels, a baseline needs to be established for each of the proposed bores before a trigger can be set, however, a preliminary base water level has been assigned based on groundwater modelling.

Variation triggers are assigned to the proposed bores to identify potential drawdown from abstraction. Accordingly, trigger levels are currently defined conceptually from interpolated water levels and will be refined once baseline water level data become available.

Water level triggers were assigned to the 6 monitoring bores associated with the palaeovalley and would allow for early detection of drawdown and potential impacts to stygofauna habitat and/or GDE/GDV's (Appendix D - Table 9-6).

These bore:

- Are not proposed as operational water supply bores,
- Are not predicted to go dry during water supply operation
- Have a predicted drawdown of less than 5 metres at end of water supply operation

Trigger levels have been established to detect and mitigate potential impacts within the palaeovalley. The groundwater environmental management provisions to protect both stygofauna and GDE/GDV's are included in Appendix D.

Drawdown triggers have been defined using predicted groundwater drawdown from the groundwater model, considering two scenarios: the median water use case and the P90 conservative water balance case.

A nominal 2 meters has been added to trigger levels to account for seasonal fluctuations (to be updated with long term monitoring data).

To ensure that the water level triggers are not natural, long-term monitoring of these bores are recommended to establish natural variation and trends due to climate conditions. The proposed borefield is not planned to operate for the first 13 years of LoM and there would be sufficient time to determine baseline conditions prior to operations of the nominal borefield.

A maintenance schedule will be implemented to ensure water infrastructure is operating optimally. Maintenance personnel will visually check the condition of the pipelines and infrastructure associated with transporting water from the borefield for potential leaks and ruptures.

The water balance (Worley, 2025c) provides the basis for assessing and quantifying potential improvements in water use efficiency and recycling within the operation.

8. Operating commitments

A summary of the operating commitments is presented below in Table 8-1.

Table 8-1 Operating commitments within this GOS

Activity	Action	Frequency
Scheme Description	Maintain updated schedule of pumping and monitoring bores.	Annually
Administration	Submit Annual Monitoring summary by 31 March.	Annually
	This operating strategy will be reviewed and updated, as required: - Annually after submission of the AAR - In response to revision of any of the early warning, trigger and threshold criteria - When major changes to the system occur, and as existing operations are amended and will be formally reviewed prior to the expiry of the Groundwater use licence	Annually/As required
	Minor amendments to the existing operations will be document as part of the AAR	Annually
	Any potential breach of the commitments contained within this operating strategy will be reported to the DWER – Water in the AAR, or as required by a condition of the Groundwater use licence	As required
	The annual aquifer review shall include figures showing the contoured measured drawdown at the end of the reporting period relative to the predicted drawdown at the end of water supply pumping	Annually
Monitoring	Ensure compliance with monitoring schedule (Table 6-1)	Annually
	Include monitoring data in the AAR	Annually
	Monitoring data associated with identifying drawdown impacts to the potential GDE's will be discussed in the AAR	Annually
	Monitoring bores will be tracked during operations and active monitoring bores will be reported through the annual and triennial aquifer reporting process	Annually
	Review water management performance through water	Annually

Water use Efficiency	balance and reassess water usage targets.	
	Review site water balance	Annually
	Review abstraction to determine if adversely impacting aquifer and report to DWER – Water in AAR.	Annually
Triggers	Review triggers	As required
	DWER – will be notified of triggers and/or threshold exceedances, including response actions implemented consistent with the GOS.	As required
	If the trigger and threshold criterion was exceeded during the reporting period, the AAR will include relevant complementary/supporting results, if available and if relevant to the exceedance.	As required

9. References

DWER. (2020). *Use of operating strategies in the water licensing process*. Joondalup: Government of Western Australia, Department of Water and Environmental Regulation.

Worley. (2024a). *H3 Hydrogeological Assessment: Winu Project Area*. Perth: Worley.

Worley. (2024b). *Rimfire H3 Assessment*. Document no. REP-HG-31-Rev0.

Worley. (2025b). *Winu Baseline Groundwater Monitoring Plan, 2025 Update*.

Worley. (2025c). *Winu Copper Gold Project - Water Balance*. Document No. REP-WB-039.



Appendix A. Map book



Legend

- | | |
|-----------------------|--------------------------|
| ● Rimfire | Roads & Tracks |
| ★ Winu Project | — Winu Access Road |
| ● Towns | — Great Northern Highway |
| ▲ Mining_Receptors | — State road |
| ■ Regional Roadhouses | — Local road |
| | — Winu tracks |

Winu Site Location

Rimfire Groundwater Operating Strategy

Project No.	Client
311012-01475	Rio Tinto Copper

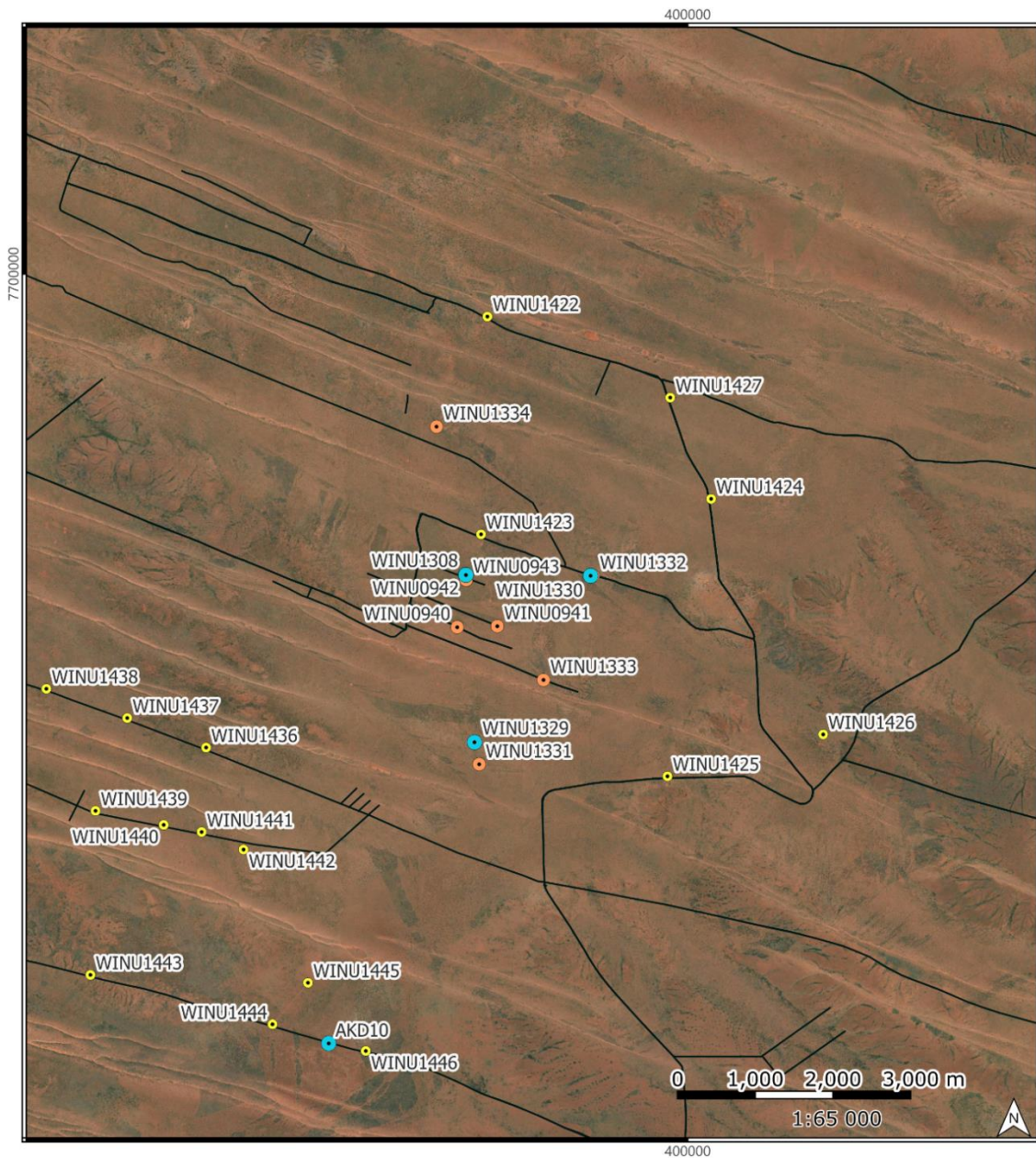
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References

Consultant	Client
 worley consulting	 RioTinto

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Figure 9-1 Winu and Rimfire Project location



Legend

- Winu Tracks
- Rimfire existing bores
 - Production
 - Monitoring
 - Stygo Monitoring

Rimfire existing bores

Rimfire Groundwater Operating Strategy

Project No. 311012-01475 Client Rio Tinto Copper

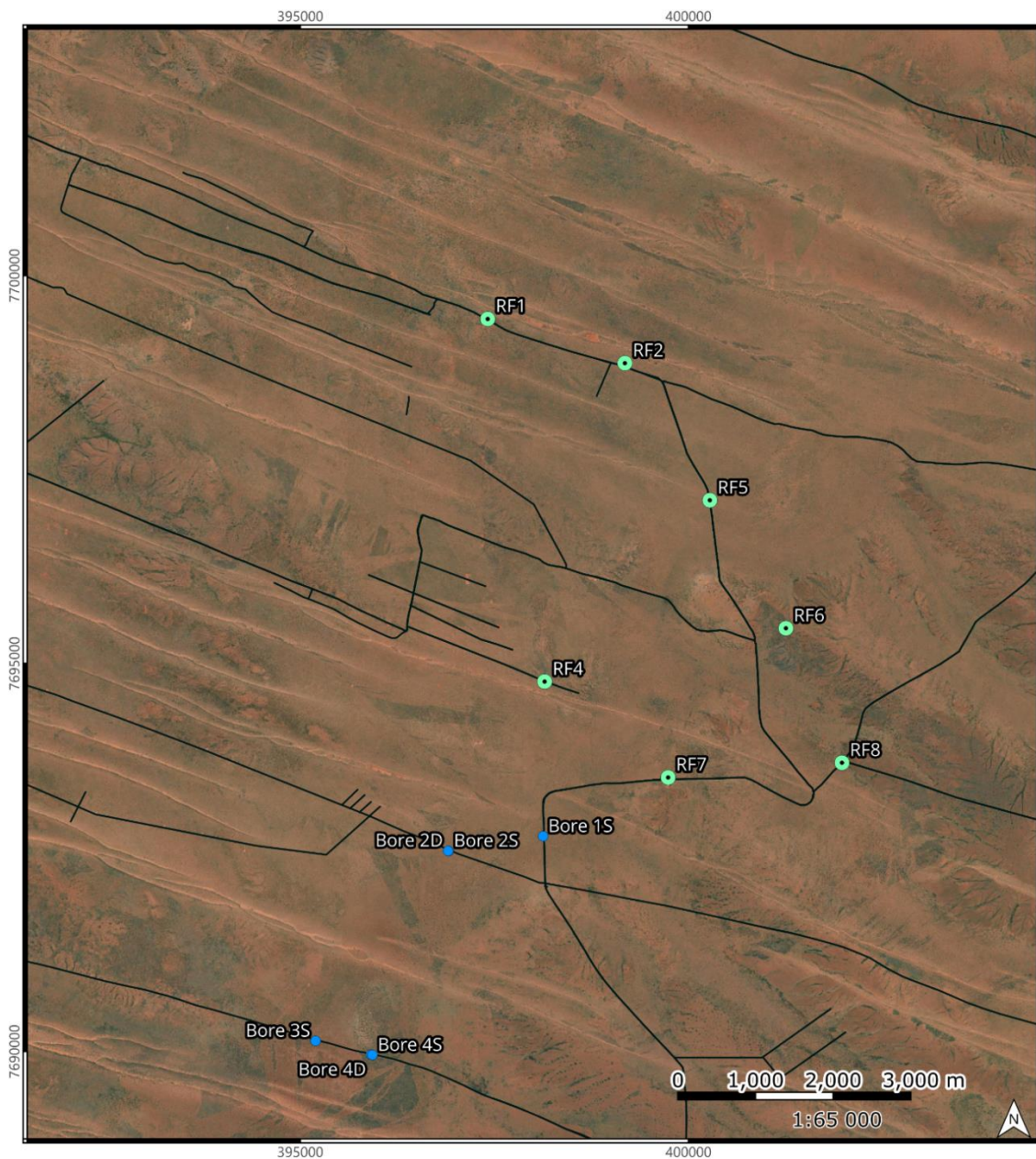
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Figure 9-2 Existing bore locations



Legend

- Winu Tracks
- Proposed monitoring bores
- Proposed production bores

Rimfire proposed bores

Rimfire Groundwater Operating Strategy

Project No.	Client
311012-01475	Rio Tinto Copper

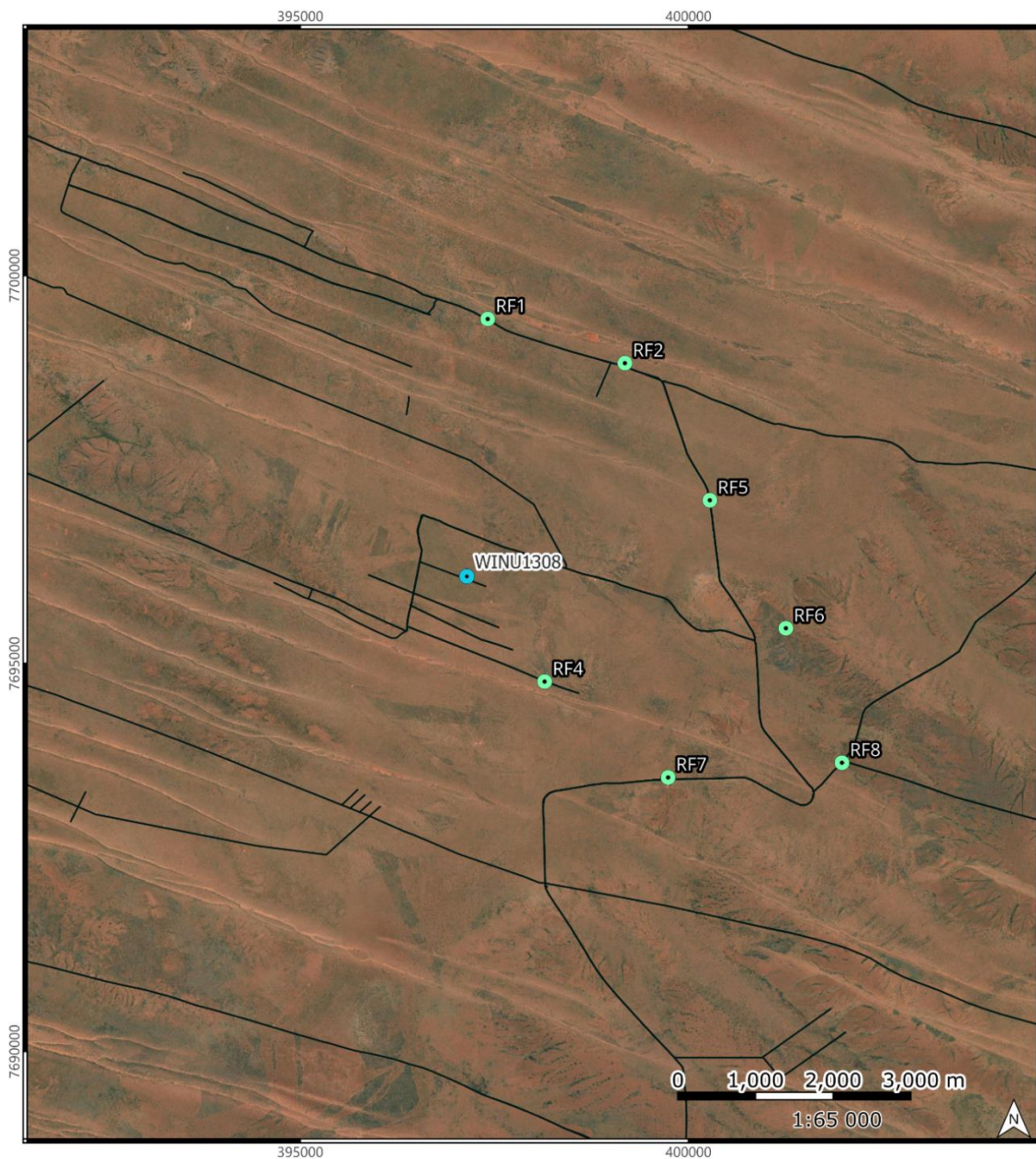
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Figure 9-3 Proposed bore locations



Legend

- Winu Tracks
- Existing bores
 - Production
- Proposed bores
 - Production bores

Rimfire proposed bores for water supply

Rimfire Groundwater Operating Strategy

Project No.	Client
311012-01475	Rio Tinto Copper

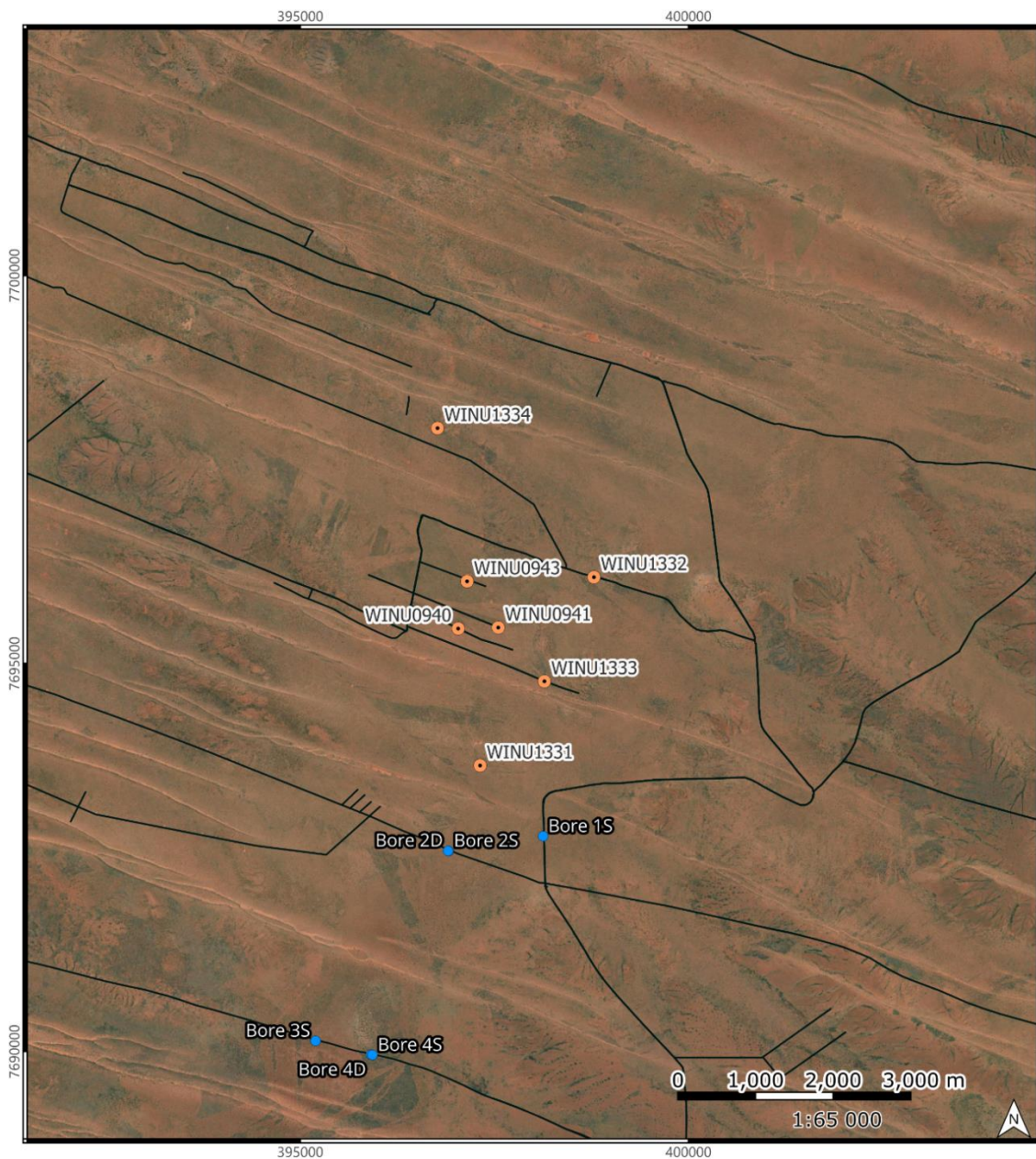
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Figure 9-4 Proposed locations of bore used for water supply pumping



Legend

- Winu Tracks
- Existing bores
 - Monitoring
- Proposed bores
 - Monitoring bores

Rimfire proposed bores for monitoring

Rimfire Groundwater Operating Strategy

Project No.	Client
311012-01475	Rio Tinto Copper

Notes:
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Figure 9-5 Proposed locations of bores used for monitoring

Appendix B. Borefield details

Table 9-1 Rimfire existing monitoring bores

BH_ID	Location/Alternative Name	Bore Function	Easting	Northing	TOC (m AHD)	Bore Depth (m)	Screen from (mbgl)	Screen to (mbgl)	Screened Length (m)	Screened Aquifer
WINU0940	RIMFIRE-MB-02	Monitoring	397033.719	7695451	262.05	180	156	180	24	Unconfined Granite / Metasediment
WINU0941	RIMFIRE-MB-03	Monitoring	397549.756	7695464	259.02	180	156	180	24	Unconfined Granite / Metasediment
WINU0943	Rimfire-MB01A	Monitoring	397148.587	7696060	261.32	129	105	129	24	Unconfined Granite / Metasediment
WINU1331	RF_MB01	Monitoring	397317.54	7693989	261.24	142	34	142	108	Unconfined Granite / Metasediment
WINU1332	RF_MB02	Monitoring	398789.45	7696094	264.95	170	42	162	120	Unconfined Granite / Metasediment
WINU1333	RF_MB03	Monitoring	398149.56	7694770	259.15	190	30	180	150	Unconfined Granite / Metasediment
WINU1334	RF_MB04	Monitoring	396764	7698033	268.96	182	40	182	142	Unconfined Granite / Metasediment
AKD10	Texas; Franklin Bore	Monitoring	395380.154	7690091	251.156	46	40	46	6	Unknown
WINU0942	Rimfire-PB01	Production	397140.089	7696128	261.35	201.6	80	200	120	Unconfined Granite / Metasediment
WINU1308	Rimfire-PB02 (PB01 REDRILL)	Production	397145.75	7696123	261.019	140	30	138	108	Unconfined Granite / Metasediment
WINU1329	RF_PB1	Production	397258.141	7693975	260.99	142	40	142	102	Unconfined Granite / Metasediment
WINU1330	RF_PB2	Production	398734.72	7696106	264.17	171	42	162	120	Unconfined Granite / Metasediment
WINU1422	Rimfire24_RC02_STYGO	Stygo Monitoring	397421.485	7699452	273.4	58	4	58	54	Unconfined sedimentary
WINU1423	Rimfire24_RC06_STYGO	Stygo Monitoring	397340.301	7696648	263.733	70	4	70	66	Unconfined sedimentary
WINU1424	Rimfire24_RC09_STYGO	Stygo Monitoring	400301.451	7697104	256.994	70	4	70	66	Unconfined sedimentary
WINU1425	Rimfire24_RC11_STYGO	Stygo Monitoring	399739.071	7693531	255.417	46	4	46	42	Unconfined sedimentary
WINU1426	Rimfire24_RC13_STYGO	Stygo Monitoring	401743.454	7694070	261.665	52	4	52	48	Unconfined sedimentary
WINU1427	Rimfire24_RC16_STYGO	Stygo Monitoring	399775.143	7698408	262.867	60	6	60	54	Unconfined sedimentary
WINU1436	Rimf_South_Stygo_03	Stygo Monitoring	393802.122	7693901	268.716	48	6	48	42	Unconfined sedimentary
WINU1437	Rimf_South_Stygo_02	Stygo Monitoring	392786.953	7694281	260.304	42	6	42	36	Unconfined sedimentary
WINU1438	Rimf_South_Stygo_01	Stygo Monitoring	391746.327	7694658	266.533	48	6	48	42	Unconfined sedimentary
WINU1439	Rimf_South_Stygo_04	Stygo Monitoring	392378.791	7693086	264.977	42	6	42	36	Unconfined sedimentary
WINU1440	Rimf_South_Stygo_05	Stygo Monitoring	393256.852	7692905	257.007	48	6	48	42	Unconfined sedimentary
WINU1441	Rimf_South_Stygo_06	Stygo Monitoring	393744.181	7692814	257.564	60	6	60	54	Unconfined sedimentary
WINU1442	Rimf_South_Stygo_07	Stygo Monitoring	394283.508	7692587	263.036	48	6	48	42	Unconfined sedimentary
WINU1443	Rimf_South_Stygo_08	Stygo Monitoring	392313.483	7690973	262.652	48	6	48	42	Unconfined sedimentary
WINU1444	Rimf_South_Stygo_09	Stygo Monitoring	394656.871	7690337	251.514	48	6	48	42	Unconfined sedimentary
WINU1445	Rimf_South_Stygo_10	Stygo Monitoring	395112.995	7690872	252.902	60	6	60	54	Unconfined sedimentary
WINU1446	Rimf_South_Stygo_11	Stygo Monitoring	395856.776	7689993	250.053	66	3	63	60	Unconfined sedimentary

Table 9-2 Rimfire proposed bores

Bore ID	Type	Easting	Northing	Screened Aquifer	Bore Target Depth (m)	Proposed Screen Interval (m)
Bore 1S	Monitoring	398127	7692775	Palaeovalley	54	10 – 52
Bore 2S	Monitoring	396910	7692583	Palaeovalley	60	10 – 58
Bore 2D	Monitoring	396904	7692586	Metasediment / Granite	84	70 – 82
Bore 3S	Monitoring	395196	7690137	Palaeovalley	58	8 – 56
Bore 4S	Monitoring	395928	7689956	Palaeovalley	65	9 – 63
Bore 4D	Monitoring	395910	7689960	Metasediment / Granite	89	75 – 87
RF1	Production	397414	7699441	Metasediment / Granite	249	197 - 247
RF2	Production	399181	7698872	Metasediment / Granite	247	195 - 245
RF4	Production	398147	7694768	Metasediment / Granite	232	180 - 230
RF7	Production	399738	7693532	Metasediment / Granite	231	179 - 229
RF5	Production	400275	7697105	Metasediment / Granite	229	177 - 227
RF6	Production	401255	7695455	Metasediment / Granite	235	183 - 233
RF8	Production	401976.8	7693722	Metasediment / Granite	239	187 - 237

Table 9-3 Rimfire bores to be used for water supply

Bore ID	Status	Type	Easting	Northing	Screened Aquifer	Bore Depth (m)	Proposed Screen Interval (m)
WINU1308	Existing	Production	397145.75	7696123	Metasediment / Granite	140	30-138
RF1	Proposed	Production	397414	7699441	Metasediment / Granite	249	197 - 247
RF2	Proposed	Production	399181	7698872	Metasediment / Granite	247	195 - 245
RF4	Proposed	Production	398147	7694768	Metasediment / Granite	232	180 - 230
RF7	Proposed	Production	399738	7693532	Metasediment / Granite	231	179 - 229
RF5	Proposed	Production	400275	7697105	Metasediment / Granite	229	177 - 227
RF6	Proposed	Production	401255	7695455	Metasediment / Granite	235	183 - 233
RF8	Proposed	Production	401976.8	7693722	Metasediment / Granite	239	187 - 237

Table 9-4 Rimfire bores to be used for monitoring

Bore ID	Status	Type	Easting	Northing	Screened Aquifer	Bore Target Depth (m)	Proposed Screen Interval (m)
Bore 1S	Proposed	Monitoring	398127	7692775	Palaeovalley	54	10 – 52
Bore 2S	Proposed	Monitoring	396910	7692583	Palaeovalley	60	10 – 58
Bore 2D	Proposed	Monitoring	396904	7692586	Metasediment / Granite	84	70 – 82
Bore 3S	Proposed	Monitoring	395196	7690137	Palaeovalley	58	8 – 56
Bore 4S	Proposed	Monitoring	395928	7689956	Palaeovalley	65	9 – 63
Bore 4D	Proposed	Monitoring	395910	7689960	Metasediment / Granite	89	75 – 87
WINU0940	Existing	Monitoring	397033.719	7695451	Metasediment / Granite	180	156 -180
WINU0941	Existing	Monitoring	397549.756	7695464	Metasediment / Granite	180	156 – 180
WINU0943	Existing	Monitoring	397148.587	7696060	Metasediment / Granite	129	105 – 129
WINU1331	Existing	Monitoring	397317.54	7693989	Metasediment / Granite	142	34 - 142
WINU1332	Existing	Monitoring	398789.45	7696094	Metasediment / Granite	170	42 – 162
WINU1333	Existing	Monitoring	398149.56	7694770	Metasediment / Granite	190	30 – 180
WINU1334	Existing	Monitoring	396764	7698033	Metasediment / Granite	182	40 - 182

Appendix C. Water quality analytical Suite

Table 9-5 Analytical Suite – Speciation (comprehensive analysis, DoW 2009)

Speciation - Comprehensive Analysis ¹	Units	Limits of reporting (LOR)
Physico-chemical		
pH	pH_Units	0.01
Conductivity	µS/cm	1µS/cm
Total dissolved solids (calculated @ 180 °C)	mg/L	1
Total suspended solids (surface water only)	mg/L	5
Total Hardness (as CaCO ₃)	mg/L	1
Total Alkalinity (as CaCO ₃)	mg/L	1
Ions		
Calcium	mg/L	1
Magnesium	mg/L	1
Sodium	mg/L	1
Potassium	mg/L	1
Ammonia	mg/L	0.01
Phosphate	mg/L	0.01
Carbonate	mg/L	1
Bicarbonate	mg/L	1
Chloride	mg/L	0.005
Fluoride	mg/L	0.1
Sulphate	mg/L	0.1
Nitrate	mg/L	0.01
Nitrite	mg/L	0.01
Silica	mg/L	0.05
Metals (Filter and acidify samples)		(ICP-MS)
Aluminium *	mg/L	0.01
Arsenic *	mg/L	0.001
Cadmium *	mg/L	0.0001
Chromium *	mg/L	0.001
Iron *	mg/L	0.05
Lead *	mg/L	0.001
Manganese *	mg/L	0.001
Mercury *	mg/L	0.0001
Selenium *	mg/L	0.01
Zinc *	mg/L	0.005
Copper *	mg/L	0.001
Molybdenum *	mg/L	0.001
Nickel *	mg/L	0.001
Silver *	mg/L	0.001
Boron *	mg/L	0.05

Speciation - Comprehensive Analysis ¹	Units	Limits of reporting (LOR)
Barium *	mg/L	0.001
Beryllium *	mg/L	0.001
Bismuth *	mg/L	0.001
Cobalt *	mg/L	0.001
Antimony *	mg/L	0.001
Thallium *	mg/L	0.001
Uranium *	mg/L	0.001
Nutrients		
Total Kjeldahl Nitrogen	mg/L	0.05
Total Phosphorus	mg/L	0.01

* All metals are dissolved and need to be filtered (0.45µm)

¹ Department of Water 2009 Operational policy no. 5.12- Hydrogeological reporting associated with a groundwater well licence, Department of Water, Perth, November 2009

Appendix D. Trigger Criteria - Groundwater Drawdown

The triggers will be implemented concurrently for the duration of the Groundwater EMP.

In this case, triggers are established to measure, review and refine the accuracy of the Rimfire modelling which is used as the base. Proposed triggers apply to groundwater levels only and use the site-wide water balance as the base of abstraction.

Environmental criteria are defined to assess performance against the environmental outcome. These are:

- **Early response indicator** measures groundwater levels deviating from natural fluctuation.
- **Trigger Criteria** measures set at a conservative level to forewarn the approach of threshold criteria and ensure trigger level actions are implemented well in advance of the environmental outcome being compromised.
- **Threshold Criteria** indicate there is risk that the environmental outcome will not be met.

The trigger level criteria and proposed mitigations are shown in Figure 9-6, while individual trigger values and responses are shown in Table 9-6:

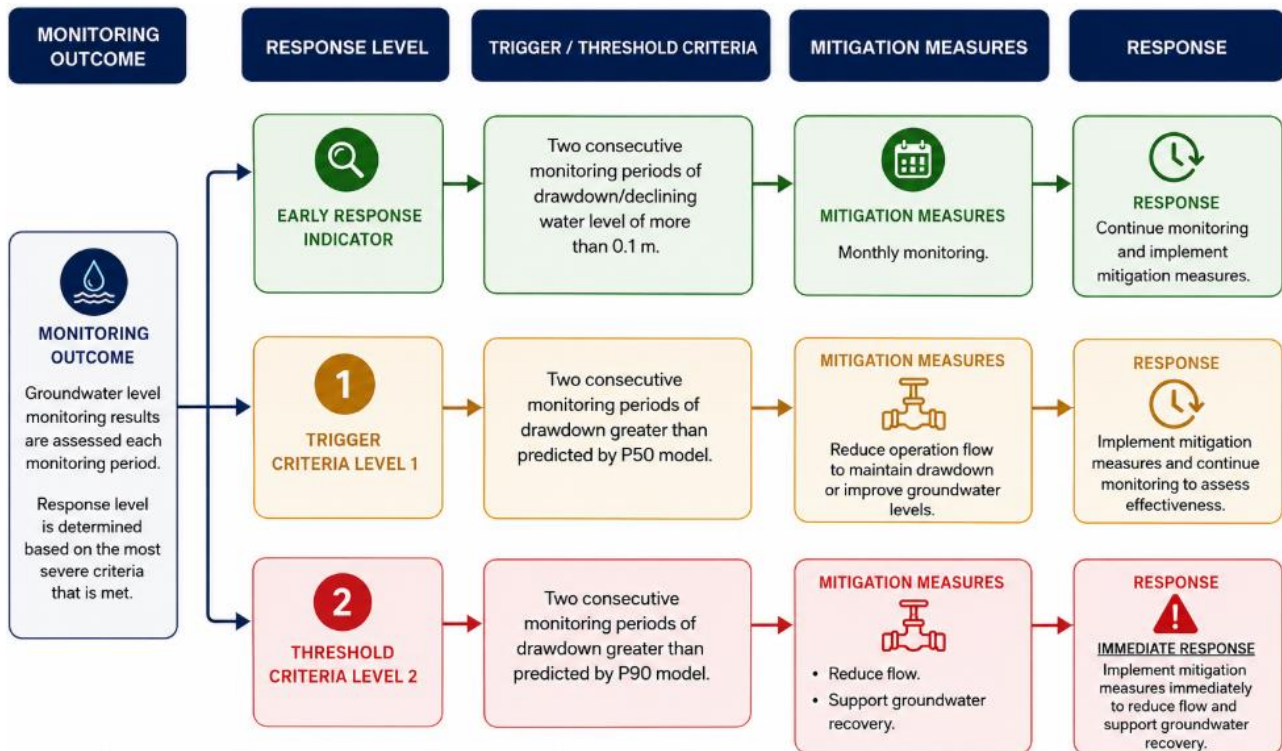


Figure 9-6 Proposed trigger criteria and response actions

Table 9-6 Proposed Rimfire monitoring bores and groundwater level triggers

Bore ID	Baseline Groundwater level (m AHD)	Early response indicator	Trigger Criteria Level 1		Threshold Criteria Level 2		Management response
			Predicted drawdown P50 (m)	Trigger level P50 (m AHD)	Predicted drawdown P90 (m)	Trigger level P90 (m AHD)	
Bore 1S	243.89	241.79	2.23	239.66	3.60	238.29	• Early response indicator: • Increase monitoring frequency from quarterly to monthly • Review groundwater trends and modelled predictions • Prepare contingency mitigation options (no operational change yet) • Trigger Criteria level 1: observed drawdown exceeds natural fluctuation and modelled P50 prediction for two consecutive monitoring periods • Initiate operational adjustments as required to stabilise groundwater levels • Consider reducing abstraction from production bores closest to impacted area • Begin staged redistribution planning (e.g. northern borefield expansion or reallocation) • Threshold Criteria level 2: drawdown approaches or exceeds natural fluctuation and P90 modelled prediction for two consecutive monitoring periods • Implement stronger flow reductions where required to maintain groundwater levels above P90 • Suspend or significantly reduce abstraction from production bores closest to impacted area • Activate alternative water supply / borefield expansion options (e.g. northern development)
Bore 2S and 2D	243.56	241.46	1.80	239.76	2.90	238.66	
Bore 3S	245.97	243.87	0.85	243.12	1.38	242.59	
Bore 4S and 4D	246.63	244.53	0.89	243.74	1.44	243.19	

*Baseline water level assumed from Rimfire H3 report (Worley, 2024b), to be updated once drilled

Appendix E. Groundwater use license - Winu



Rio Tinto Exploration Pty Limited
PO BOX 175
BELMONT WA 6984

Attention: Jarl Anderson
Via email: Jarl.Andersen@riotinto.com

Dear Licensee,

Issue of a licence under the *Rights in Water and Irrigation Act 1914*.

Properties: E45/2876, E45/4212, E45/4832, E45/4833, E45/5118, E45/5124, E45/5125, E45/5167, E45/5212, E45/5560, L45/476, L45/491, L45/494, L45/521, L45/522, L45/548, L45/549, L45/550, L45/551, L45/552, L45/623 and L45/706

Please find enclosed the following:

- Your licence to take water **GWL201165(8)**

Please take time to read these documents as they contain important information about your rights and responsibilities.

Threatened fauna has been identified. Please contact the Department of Biodiversity Conservation and Attractions on (08) 9219 9511 for further information.

Under provisions of the *Rights in Water and Irrigation Act 1914*, you have a right to apply to the State Administrative Tribunal for a review of our decision within 28 days from the date of this letter.

Under provisions of the *Rights in Water and Irrigation Act 1914*, you have a right to apply to the State Administrative Tribunal for a review of our decision within 28 days from the date of this letter.

For further information please contact the State Administrative Tribunal:

In person: State Administrative Tribunal
Level 6, 565 Hay Street PERTH WA 6000

In writing: State Administrative Tribunal
GPO Box U1991
PERTH WA 6845

By telephone: Metro: (08) 9219 3111
Regional: 1300 306 017 (for the cost of a local call)

Northwest Region
Locked Bag 10, Joondalup DC, WA 6919
Telephone (08) 6364 7600 Fax (08) 6364 7601
www.dwer.wa.gov.au

By fax: (08) 9325 5099

Website: <http://www.sat.justice.wa.gov.au/>

You can now use online services to manage all of your licensing and metering needs. Water Online provides the easiest, fastest and most efficient way to:

- Apply for a new licence or permit
- Apply to amend, renew or transfer an existing licence
- Submit meter readings in accordance with a licence; and
- Manage your account details.

Register for Water Online at online.water.wa.gov.au by clicking on the 'Register' icon.

The instructions for registering, checking your details and updating them where required can be found by selecting the Quick Reference Guides link on the Water Online home page.

Please check your details to ensure that they are correct. If they are not correct, please contact the department's online business support unit on 1800 508 885 (select option 2).

If you have any queries about this or any other water licensing matter, please contact Anurdha Karavita Arachchi by telephone on 6364 7081.

Yours faithfully,



Stephanie Pham
District/Program Manager
Northwest Region
14 April 2025

Northwest Region
Locked Bag 10, Joondalup DC, WA 6919
Telephone (08) 6364 7600 Fax (08) 6364 7601
www.dwer.wa.gov.au



LICENCE TO TAKE WATER

Granted by the Minister under section 5C of the Rights in Water and Irrigation Act 1914

Licensee(s)	Rio Tinto Exploration Pty Limited		
Description of Water Resource	Canning-Kimberley Canning - Wallal	Annual Water Entitlement	300,000kL
Location of Water Source	E45/2876 E45/4212 E45/4832 E45/4833 E45/5118 E45/5124 E45/5125 E45/5167 E45/5212 E45/5560 L45/476 L45/491 L45/494 L45/521 L45/522 L45/549 L45/550 L45/551 L45/552 L45/623 L45/706		

Authorised Activities	Taking of water for	Location of Activity
	Dust suppression for earthworks and construction purposes	E45/2876 E45/4212 E45/4832 E45/4833 E45/5118 E45/5124 E45/5125 E45/5167 E45/5212 E45/5560 L45/476 L45/491 L45/494 L45/521

This Licence is granted subject to the Rights in Water and Irrigation Regulations 2000.



LICENCE TO TAKE WATER

Granted by the Minister under section 5C of the Rights in Water and Irrigation Act 1914

		L45/522
		L45/548
		L45/549
		L45/550
		L45/551
		L45/552
		L45/623
		L45/706
	Mineral exploration activities	E45/2876
		E45/4212
		E45/4832
		E45/4833
		E45/5118
		E45/5124
		E45/5125
		E45/5167
		E45/5212
		E45/5560
	Mining camp purposes	E45/2876
		E45/4212
		E45/4832
		E45/4833
		E45/5118
		E45/5124
		E45/5125
		E45/5167
		E45/5212
		E45/5560
	Road maintenance purposes	E45/2876

This Licence is granted subject to the Rights in Water and Irrigation Regulations 2000.



LICENCE TO TAKE WATER

Granted by the Minister under section 5C of the Rights in Water and Irrigation Act 1914

		E45/4212
		E45/4832
		E45/4833
		E45/5118
		E45/5124
		E45/5125
		E45/5167
		E45/5212
		E45/5560
		L45/476
		L45/491
		L45/494
		L45/521
		L45/522
		L45/548
		L45/549
		L45/550
		L45/551
		L45/552
		L45/623
		L45/706
	Trial injection of water into ground	E45/4833
	Well construction and Supply (pump) testing	E45/2876
		E45/4212
		E45/4832
		E45/4833
		E45/5118
		E45/5124
		E45/5125

This Licence is granted subject to the Rights in Water and Irrigation Regulations 2000.



LICENCE TO TAKE WATER

Granted by the Minister under section 5C of the Rights in Water and Irrigation Act 1914

		E45/5167 E45/5212 E45/5560 L45/476 L45/491 L45/494 L45/521 L45/522 L45/548 L45/549 L45/550 L45/551 L45/552 L45/623 L45/706
Duration of Licence	From 14 April 2025 to 13 April 2030	

This Licence is subject to the following terms, conditions and restrictions:

1. The annual water year for water taken under this licence is defined as 1 January to 31 December.
2. The licensee shall submit combined abstraction volumes to the Department of Water and Environmental Regulation every 12 Months using the Department's electronic online system provided for that purpose within 30 days of the end of the water year, commencing 31/12/2025.
3. The licensee is to comply with the excel spreadsheet "20250307_GWL-201165 - Bore Schedule" received via email on 14 March 2025 and any amendments made by or with the approval of the Department.
4. Every 12 Months the licensee shall provide to the Department of Water and Environmental Regulation a Groundwater Monitoring Summary for the preceding water year. The first report is due 31/03/2026.

End of terms, conditions and restrictions

This Licence is granted subject to the Rights in Water and Irrigation Regulations 2000.