

Memorandum

Date: 5 September 2025

To: Juliana McCosker and Jessica Johnson – DETSI

CC: Jessica Edgar – DETSI

Subject: BMA Goonyella Riverside and Broadmeadow Mine PRCP – Information Request Response EPML00853413

BMA Goonyella Riverside and Broadmeadow Mine PRCP Information Request Response

The purpose of this memo is to address the Information Request Notice relating to the Progressive Rehabilitation and Closure Plan (PRCP) for Goonyella Riverside and Broadmeadow Mine (GRM and BRM) – environmental authority (EA) EPML00853413.

The transitional PRCP was submitted on 29 November 2024 in accordance with the Transition Notice. The administering authority (currently the Department of Environment, Tourism, Science and Innovation (DETSI)) issued an Information Request Notice on 4 March 2025, requiring a response to this Information Request and revised PRCP by 5 September 2025.

During the information stage, the administering authority and BMA had the following engagements:

- A meeting was held with Chris Loveday (Acting Director – Business Centre Coal) and Jessica Johnson (Acting Manager – Business Centre Coal) on 30 June 2025 to specifically discuss the administering authority's current approach to transitional PRCPs, including:
 - A refocus on transitional provisions and transitioning EA rehabilitation criteria. The administering authority advised BMA to transition the EA (land outcome document) rehabilitation acceptance criteria.
 - Limiting information requests to only the items required to make a decision on the PRCP schedule. The GRM and BRM Information Request Notice was issued prior to this change in approach being communicated to BMA. The administering authority has acknowledged that numerous items in the Information Request Notice are not required to make a decision. The administering authority instructed BMA to only respond to those items that BMA consider are needed to make a decision, using the recently received BMA Peak Downs Mine Information Request Notice (25 June 2025) as a guide to the items the administering authority considers are required.
- BMA provided a review of the GRM and BRM information request items BMA considered not required to make a decision on the PRCP schedule to the administering authority on 21 July 2025 (*BMA Transitional PRCP Information Request Review - GRM_BRM.pdf*). Jessica Johnson (Acting Manager – Business Centre Coal) responded on 12 August 2025 with general advice only, indicating that matters that are critical to achieving the final proposed rehabilitated landform should be the focus for further information and these matters should be addressed with as much supporting information as possible. No response was provided to the individual item reviews provided by BMA.

BMA has provided the information request responses below. An updated PRC plan, PRCP schedule and spatial data have been provided with this memo.

Section, figure and table references within this memo refer to the updated PRC plan, PRCP schedule and appendices provided with this Information Request response unless otherwise specified.

Yours sincerely

Jacqueline Lakoumentas
Lead PRCP - Rehabilitation and Closure Planning
0403 882 144

Item	PRCP Plan/ Schedule	Issue	Required Information
Spatial data			
1	Spatial data, Tables and figures from PRC Plan	Missing specifications - Spatial - The spatial identifies the only sensitive receptors as 'watercourse'. - The areas affected by both open cut and UG disturbance are not clearly identified. For example, the above ground overburden area and NUMA that likely to be affected by subsidence are not clearly shown under 'subsidence' layer in spatial data. (Refer to below images) - The NUMA area and improvement area are identified in one polygon, but the polygon does not delineate between the NUMA components such as the void water body, high-wall area, safety bund area. - Voids in the floodplain are shown however the entire extent of the floodplain (that is other areas of mine that could potentially be affected by the floods or are within the floodplain) is not shown.  	Provide a spatial data – - That clearly shows areas that are affected by overlapping opencut and UG disturbance. - That clearly delineates each NUMA area components including void, high-wall, safety bund and other critical components; and - Polygons depicting the full floodplain extent to support a comprehensive flood risk assessment for the entire site. - Showing all sensitive receptors. Provide revised PRC plan – - Table 2 and Figure 3 clearly showing mining domains under title of 'relevant activities', - Table 12 to clearly specify predicted duration of each relevant activity in its active phase and duration required for its rehabilitation; and - Table 19 to provide progressive rehabilitation till 2094.

Item	PRCP Plan/ Schedule	Issue	Required Information
		Missing specifications – Table and Figure PRC Plan Table 2: Primary mine features at GRM & BRM lists the mine domains and their description. The mine domains can be inferred as referring to all relevant activities that is ERA 13: Coal mine and ancillary ERAs such as STP and mineral processing and chemical storage etc. Table 2 and Figure 3: GRM & BRM site map, do not clearly categorise mining domain and their description under title of 'relevant activities'. The PRC plan Table 12: Relevant activities requiring rehabilitation outlines the predicted duration for the 'Spoil dump' domain however other domains are specified generally as 'until the end of rehabilitation', thus no specific duration for relevant activity provided. The end of rehabilitation activity may be until end of mining or beyond that, inferring the relevant activity duration to be beyond mining, which could be incorrect. The PRC plan Table 19 provides a summary of progressive rehabilitation until 2059. It is noted that life of mine for GRM is 2059 but some components of GRM will not be rehabilitated or surrendered at 2059 due to connecting operation of RHM. As such, further information is needed to understand rehabilitation planning until planned surrender which could be at closure of RHM (2094).	

- a) It is not a PRCP Guideline requirement to provide spatial data that shows areas that are affected by overlapping opencut and UG disturbance. Therefore, BMA has not provided this information.
- b) It is not a PRCP Guideline requirement to provide spatial data delineating non-use management area (NUMA) components. Therefore, BMA has not provided this information.
- c) The PRCP Guideline requires spatial data of the void in floodplain extent to be provided. It is not a PRCP Guideline requirement to provide spatial data of the closure landform floodplain extent which supports the comprehensive flood risk assessment for the entire site. BMA provided the required void in floodplain spatial data with the submission of the PRCP on 29 November 2024.
- d) Sections 126C(1)(b) and (c)(ii) of the *Environmental Protection Act 1994* (EP Act) refer to sensitive receptors. However, there is no definition of 'sensitive receptor' in the EP Act or PRCP Guideline. BMA submits that the PRC Plan identifies sensitive receptors to the degree necessary to demonstrate compliance with the relevant requirements of the EP Act.

A definition of 'sensitive receptor' post-mining has been included in the PRC plan in Section 1.2.13, as well as detail on how sensitive receptors were considered in the PRCP. The sensitive receptors provided with the original spatial data submission align to this definition, and include waterway ecosystems within the GRM and BRM EA boundary.
- e) BMA has not made any updates to Table 2 or Figure 3. This is because Table 2 is a list of the primary mine features to address the project description details specified in Section 3.1 of the PRCP Guideline and is not related to relevant activities. Figure 3 shows the general site layout to support the project description, including the location of the industrial areas, train load outs, pits and tailings storage facilities, it is not intended to show all the relevant activities discussed in Section 1.4.1 of the PRC plan.
- f) Table 12 has been updated to provide the requested information.

- g) The intent of Table 19 (Table 18 in the updated version submitted with the information request response) was to demonstrate the proportion of rehabilitation that has progressed to the point of revegetation by the end of mining at GRM and BRM. This table has been updated to include a summary of progressive rehabilitation to 2094 as requested.

RFI 2

Item	PRCP Plan/ Schedule	Issue	Required Information
Surface water			
2	Water Management, PRC plan section 6.1.7 Post-mining conceptual site model, PRC plan section 6.1.1.5	Water management Both sections state that seepage from mine waste (TSF, rejects, MIA) and spoil areas is predicted to be captured by residual void. The section does not provide sufficient information on pro-active and reactive measures to be adopted to monitor and ensure the flow of seepage is directed towards residual voids.	Provide a revised PRC plan inclusive of – a) A description of proactive methods adopted to control the seepage direction and manage any deviations, b) Intervention and control measures to monitor and ensure seepage flows towards residual voids; and c) A monitoring and control strategy for seepage pathways, designed to maintain alignment with the intended landform drainage design.

The controls are already detailed in the PRC plan, therefore no changes to the PRC plan are required.

- As outlined in the groundwater numerical model and the particle tracking model results (Appendix D), the residual voids act as groundwater sinks and provide passive on-going management of seepage from the site. Also, the proposed landform design, including capping where required, will provide landforms that do not release contaminants to the surrounding environment through seepage that result in environmental harm beyond that authorised under the EA in the post-mining environment. Therefore, as stated in the PRC plan, no proactive post-mining/rehabilitation controls are required to manage seepage. If during future monitoring/modelling, proactive controls are identified to be required post-mining, a PRCP amendment will be sought if required.
- The submitted PRC plan details the monitoring program, 5-yearly groundwater model revision and contaminated land tasks that provide for the identification of potential unacceptable seepage risks. This will provide confirmation that seepage is occurring as per the current predictive models. Based on the current model results, there are no requirements for additional seepage control measures.
- Monitoring requirements are detailed in Section 8 of the PRC plan and includes groundwater monitoring wells and surface water monitoring points that provide for the assessment of water quality impacts.

RFI 3

Item	PRCP Plan/ Schedule	Issue	Required Information
Hydrogeology			
3	Groundwater monitoring,	Groundwater monitoring data	Provide a revised PRC plan and Appendix G <i>(BMA note: the</i>

Item	PRCP Plan/ Schedule	Issue	Required Information
	PRC plan section 8.6, Appendix D Hydrogeology Section 7, 8.	Section 8.6 states that groundwater monitoring data currently held for the site is not suitable for the development of site-specific criteria. Appendix D Hydrogeology, section 8.0 provides a summary of groundwater quality data across the project site collected through the existing groundwater monitoring network. Appendix D section 7.1 notes that there are 46 monitoring sites (it is assumed these are bores) but there is very little detail in regard to these bores. Additionally, of the 46 monitoring bores, hydrographs are presented for only 5 bores in section 7.3. A table should be included identifying each monitoring bore, its drilled date, ground elevation, depth, screened depth, geologic unit monitored and length of record available for water level and water quality data. This will provide a much clearer understanding of the groundwater monitoring data available to support the assessment. Understanding the data available from the monitoring bore network is important in understanding what data supports the groundwater assessment and modelling. Appropriate groundwater parameters and limits must be included in the PRCP schedule. Site-specific values based on site specific monitoring data are required to determine appropriate milestone criteria. This will help inform the schedule requirements to also reflect default WQOs and ANZG 2018 values which will be imposed as limits. Quality characteristics should be based on relevant contaminants of concern (CoC). CoC should be the same for surface water and groundwater and be based on mining process (dams and seepage) and waste characterisation. At least 8 data points are required to determine site-specific values in most cases. For groundwater, the 95th percentile of baseline (ideally pre mining) data can be used to determine site-specific limits for all indicators. As per the Groundwater Guideline if there are less than 8 data points or the site-specific value is less than the default ANZG 2018 value, then the default guideline value is applied as a limit. See DES 2021 Groundwater Guideline - https://www.publications.qld.gov.au/dataset/groundwater-quality-assessment-guideline/resource/472cc88a-000a-4bb8-a60d-204cfe7e0238	<i>Hydrogeology report is Appendix D) – that includes -</i> a) A revised table with details of all monitoring bores including drilled date, ground elevation, depth, screened depth, geologic unit monitored, length of record available for water level and water quality data, b) Additional hydrographs from existing monitoring bores, and c) Identification of the relevant contaminants of concern (CoC) for the site.

As per RFI 22, the PRC plan has been updated to remove the north-west Goonyella Lower Seam (GLS) underground panels. As advised by DETSI (email from Juliana McCosker on 16/4/2025), the updated groundwater modelling required due to changes to the underground layout will be conditioned in the PRCP schedule instead of BMA receiving an extension to the information response period. The additional information requested for Appendix D does not impact on the PRCP schedule and will be considered as part of the model revision.

- a) Additional information on the groundwater monitoring bores will not impact the model results or the PRCP schedule. Therefore, no change has been made to this initial Hydrogeology Assessment report.
- b) Key hydrographs are provided within Appendix D and Section 7 includes figures, which show the monitoring bores for the various hydrogeological units. The provision of additional hydrographs will not alter the model results or the PRCP schedule. Therefore, no change has been made to this initial Hydrogeology Assessment report.
- c) Geochemical Characterisation (Appendix I) provides details on the potential contaminant sources from wastes and Section 6.1.7 of the PRC plan provides additional detail on industrial contaminants of potential concern.

As per previous PRCP negotiations, BMA cannot put forward closure groundwater limits that are not established in accordance with relevant standards and guidelines and as such cannot be defended. The water quality data held has been collected for a variety of purposes with variable data quality objective processes applied. Therefore, the water quality data held does not form a suitable data set to derive site-specific criteria. Also note, as per the ANZG 2018 guidelines, the default guideline values are not appropriate for use as water quality limits. Where any additional water quality limits are required, BMA's position is that they should be site specific and developed in accordance with ANZG 2018.

RFI 4

Item	PRCP Plan/ Schedule	Issue	Required Information
4	Groundwater use, PRC plan section 1.2.5.5	Groundwater Dependent Ecosystems (GDEs) It is noted in section 1.2.5.5. that the Isaac River and its tributaries have terrestrial ecosystems present which are potentially facultative GDEs. However, the PRC plan does not identify these potential GDEs or outline how watercourse monitoring will be undertaken so that any impacts on GDEs resulting from post closure changes in water balance, surface water and groundwater interactions due to rehabilitated landform and NUMA.	Provide a revised PRC plan and Appendix G which - a) Identifies potential GDEs; and b) Commits to implement the necessary monitoring designed to detect change in GDE health resulting from post closure groundwater impacts due to final rehabilitated landform and NUMA.

The required information is already detailed in the PRC plan, therefore no changes to the PRC plan are required.

- a) An assessment of available groundwater dependent ecosystem (GDE) data, numerical model predictive hydrographs at select GDE locations and consideration of GDEs within the conceptual model has been provided in Appendix D. Therefore, no change has been made to this initial Hydrogeology Assessment report.
- b) The scope of work completed and provided in Appendix D address the minimum information requirements outlined in the PRCP Guideline Section 3.6.1 General Rehabilitation Practices – Hydrogeology. Appendix D does not provide commitments or details of the monitoring program, which is outlined in Section 8 of the PRC plan. Section 8 of the PRC plan provides for the monitoring of alluvial and tertiary aquifers that will assess the quality and levels of the shallower aquifers that may interact with the GDEs. The proposed

PRCP schedule conditions also commit to 5-yearly updates of the numerical groundwater model later in the mine life to confirm and assess potential impacts to GDEs from the closure landform.

RFI 5

Item	PRCP Plan/ Schedule	Issue	Required Information
Groundwater Modelling			
5	Groundwater use, Appendix D Hydrogeology, section 7.3.4.3	Groundwater extraction volumes The section states that, ‘<i>The goaf K and S parameters were adjusted by comparing computed extracted groundwater volumes from the goaf areas to the measured and recorded groundwater ingress pumped from the underground between 2018 and 2023</i>’. Apart from an estimated groundwater inflow to Broadmeadow underground for 2020-21 in Table 16 there does not appear to be any measured and recorded groundwater ingress pumped from the underground between 2018 and 2023 provided in the report. These figures should be provided to demonstrate how the model was able to simulate these figures.	Provide a revised Appendix D inclusive of - a) Measured and recorded groundwater ingress pumped from underground between 2018 and 2023; and b) A comparison of recorded ingress with the model stimulated extraction volumes.

No change has been made to the initial Hydrogeology Assessment in Appendix D.

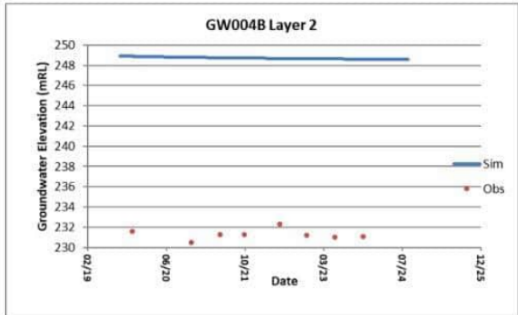
- a) The groundwater ingress pumped from the underground workings between 2018 and 2023, which has been used in the groundwater model is as follows.

Financial Year	Volume (ML)
2019	310
2020	332
2021	247
2022	570
2023	490

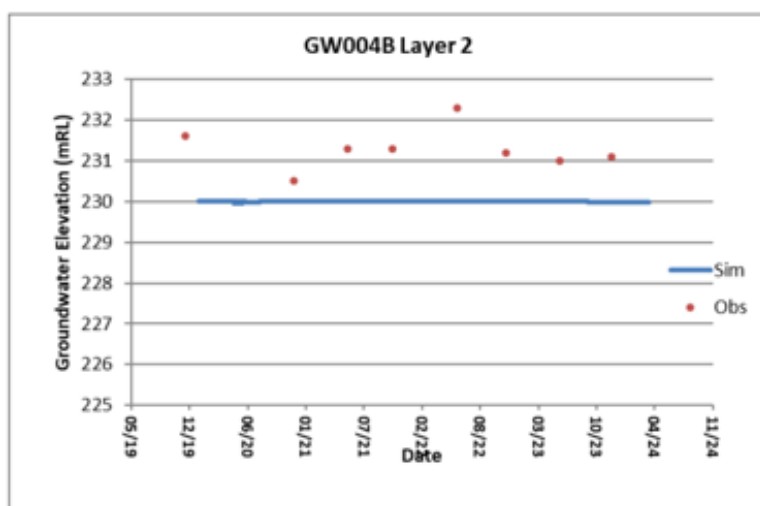
- b) The comparison will not impact the model outputs or the PRCP schedule, therefore no change has been made to the initial Hydrogeology Assessment in Appendix D. BMA can include additional detail on the recorded ingress and simulated extraction volumes in the next revision of the groundwater model.

RFI 6

Item	PRCP Plan/ Schedule	Issue	Required Information
6	Appendix D, section 14.3 Calibration	Transient data hydrographs Section 14.3.3 states that, ‘<i>The transient water level data recorded between 2020 to 2024 is presented in hydrographs with the model simulation results. The hydrographs indicate trend matching across the model domain (Figure 33).</i>’	Provide a revised Appendix D inclusive of - a) Calibration hydrographs for all target bores used in the transient calibration. b) A comparison and discussion of the

Item	PRCP Plan/ Schedule	Issue	Required Information																																																																
		Figure 33 provides transient hydrograph examples and only four examples are provided. This compares with the 50 bores used to provide target heads as advised in section 14.3. Transient calibration hydrographs should be provided for all target bores. Additionally, there is a concern about the match between the four example calibration hydrographs provided and the data provided in Appendix C. As an example, in the calibration hydrograph provided in Figure 33 for GW004B (extract below), the difference between the observed and model simulated water level elevations appears to be about 16 – 17 metres for each observation.  However, in Appendix C (extract also below) the 6th column of the table appears to report the residual between the observed and simulated levels which appear to range from 0.5 to 2.3 m for this bore. These same issues appear to exist with the other three bores where calibration hydrographs are presented. <table><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>231.6</td><td>2.30E+02</td><td>1.60</td><td>2.56</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>230.5</td><td>2.30E+02</td><td>0.50</td><td>0.25</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>231.3</td><td>2.30E+02</td><td>1.30</td><td>1.69</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>231.3</td><td>2.30E+02</td><td>1.30</td><td>1.692601</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>232.3</td><td>2.30E+02</td><td>2.30</td><td>5.294601</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>231.2</td><td>2.30E+02</td><td>1.20</td><td>1.444804</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>231</td><td>2.30E+02</td><td>1.00</td><td>1.004004</td><td>2</td></tr><tr><td>GW004B</td><td>604809</td><td>7590705</td><td>231.1</td><td>2.30E+02</td><td>1.10</td><td>1.216609</td><td>2</td></tr></table> This provides doubt as to the calibration results reported.	GW004B	604809	7590705	231.6	2.30E+02	1.60	2.56	2	GW004B	604809	7590705	230.5	2.30E+02	0.50	0.25	2	GW004B	604809	7590705	231.3	2.30E+02	1.30	1.69	2	GW004B	604809	7590705	231.3	2.30E+02	1.30	1.692601	2	GW004B	604809	7590705	232.3	2.30E+02	2.30	5.294601	2	GW004B	604809	7590705	231.2	2.30E+02	1.20	1.444804	2	GW004B	604809	7590705	231	2.30E+02	1.00	1.004004	2	GW004B	604809	7590705	231.1	2.30E+02	1.10	1.216609	2	example calibration hydrographs in Figure 33 of Appendix D and the information provided in Appendix C.
GW004B	604809	7590705	231.6	2.30E+02	1.60	2.56	2																																																												
GW004B	604809	7590705	230.5	2.30E+02	0.50	0.25	2																																																												
GW004B	604809	7590705	231.3	2.30E+02	1.30	1.69	2																																																												
GW004B	604809	7590705	231.3	2.30E+02	1.30	1.692601	2																																																												
GW004B	604809	7590705	232.3	2.30E+02	2.30	5.294601	2																																																												
GW004B	604809	7590705	231.2	2.30E+02	1.20	1.444804	2																																																												
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GW004B	604809	7590705	231.1	2.30E+02	1.10	1.216609	2																																																												

- The provision of the additional data will not impact the model outputs or the PRCP schedule, therefore no change has been made to Appendix D. BMA can include additional calibration hydrographs in future revisions of the Hydrogeology Assessment.
- An older (initial calibration) hydrograph was included in Appendix D Figure 33 (a set of hydrograph examples), which was not updated for the most up-to-date model calibration run Tr26. The results of Tr26 were included in Appendix C of the Hydrogeology Assessment, which led to the mismatch between Figure 33 and Appendix C. Please use Appendix C of the Hydrogeology Assessment for the correct version of the hydrographs. Future revisions of the Hydrogeology Assessment will update the model calibration and the figures. The correct figure is provided below. A correction of Appendix D Figure 33 will not impact the model outputs or the PRCP schedule and therefore no change to the Appendix D report has been provided.



RFI 7

Item	PRCP Plan/ Schedule	Issue	Required Information
7	Appendix D, section 14.5 Model performance and limitations	Model limitations Appendix D, Table 23 Groundwater model classification table, identifies that there is an inadequate distribution of data. Considering the above, the limited groundwater level data being available in the area of the Redhill mine, and the lack of monitoring bores adjacent the Broadmeadow underground mine as discussed in Section 7.3.4, there should be more discussion of what limitation this places on the modelling.	Provide a revised Appendix D inclusive of - a) A discussion in section 14.5 on the limitations that existing groundwater level data places on model calibration and how the limited existing groundwater level data impacts model predictions including the post mining predictions of connection between the underground mines and the residual voids.

Additional discussion on the limitations will not impact the outcomes of the hydrogeological assessment or impact the PRCP Schedule. All available data at the time of modelling was utilised. Therefore, Appendix D has not been revised.

- a) Noting that this is a transitional PRCP, the groundwater data utilised within the model is consistent with and exceeds the monitoring requirements of the EA.

A suitable hydraulic conductivity range has been calibrated for the hydrostratigraphic units (model layers) across the entire model domain. The uncertainty is more related to the initial groundwater levels (heads) adopted in the model in this area. As groundwater flow is related to hydraulic conductivity and head difference, the range of groundwater flow rates can vary. This range in groundwater flow rates may vary but is less sensitive within a regional scale model, such that the flow rate does not markedly influence model predictions.

The potential variation in flow rates does not materially influence the strong groundwater sink conditions provided by Goonyella Pit in the long term. The sink conditions of the Goonyella Pit provide long term passive groundwater management post mining, which is the key finding of the groundwater modelling and is a critical element to the suitability of the closure landform.

Future revisions of the model will include data from additional new groundwater monitoring bores where available.

RFI 8

Item	PRCP Plan/ Schedule	Issue	Required Information
8	Appendix D, section 15.2, Figure 39 Head contours at the start of Prediction Modelling (2024)	Groundwater elevation contours Figure 39 presents predicted groundwater elevation contours at the start of predictive modelling from 2024. However, the contours are difficult to interpret in the mine impacted areas because of the large area the contours cover. Additional contours zoomed into the mine areas would assist in interpretation.	Provide a revised Appendix D inclusive of - An updated Figure 39 with some additional contours over a smaller area which provides more detail around the mine leases for the predicted groundwater elevations at the start of the predictive modelling.

Although the requested information will provide for a better visualisation of the data, the revised figure will not impact the model results, the key findings or the PRCP schedule. Therefore, Appendix D Figure 39 has not been revised, but revision of the figure will be considered within future revisions of the model.

RFI 9

Item	PRCP Plan/ Schedule	Issue	Required Information
9	Appendix D, section 15.4.2. Residual void groundwater inflow	Goonyella residual void predicted water level The section states, ' <i>Pseudo-steady residual void water level is around 20 mAHD (> 100 m deeper than other residual void water levels).</i> ' This generally agrees with Appendix O Table 4.1 which states the modelled mean void water elevation is 21 m AHD. However, Plate 39 in Appendix D Section 15.4.2.6 appears to have an error throughout the graphs as the average water level appears to be plotted at about 2 m AHD. An extract from Plate 39 is provided below.	Provide a revised Appendix D inclusive of - Review of section 15.4.2.6 and Plate 39 and Appendix O to provide consistent advice on the modelled average water level in Goonyella residual void post closure.

It is important that accurate information is plotted on the graphs when predicting the flow of water between the aquifers and the residual voids.

Section 15.4.2, Appendix O and Plate 39 of Appendix D are correct and do not need to be changed.

- In the Hydrogeology Assessment report (PRC plan Appendix D), Plate 39 provides an average water level over the recovery period.
- Section 15.4.2 of Appendix D and Appendix O of the report provide steady state average water levels.
- The use of the red line average in Plate 39 allows for a comparison/assessment of the hypothetical simulated groundwater level fluctuation over time, compared to the average residual void water level.

RFI 10

Item	PRCP Plan/ Schedule	Issue	Required Information
10	Appendix D, section 15.5 Figure 46 Initial groundwater elevation at start of P1 and change in water level (in m) at end of P3 and P4 in Model Layer 1,	Predicted groundwater drawdown Figure 46 provides three sets of contours, starting simulated groundwater elevations in layer 1, and then predicted changed water level (drawdown) in layer 1 at the end of P3 and at the end of P4. The predicted changes in water level are presented in 20 m interval contours. These contours are too coarse to provide any detail around the Isaac River alluvium. Additionally, the areal extent of the contours are too wide to allow a detailed understanding of predicted changes in water level around the mine leases.	Provide a revised Appendix D inclusive of - Updated Figure 46 showing predicted changes in water levels in layer 1 over a zoomed in area around the mine leases and with contour intervals of 1 m.

Although the requested information will provide for a better visualisation of the data, the revised figure will not impact the model results, the key findings or the PRCP schedule. Therefore, Appendix D Figure 46 has not been revised, but revision of the figure will be considered within future revisions of the model.

RFI 11

Item	PRCP Plan/ Schedule	Issue	Required Information
11	Appendix D, section 15.8.2 Figure 66 Water level change from the 2024 groundwater elevations post-closure.	Predicted groundwater drawdown Figure 66 provides changes in surficial sediments water level from the initial 2024 levels at the end of 2199 in m. This figure is used in Section 15.8.2 to discuss potential impacts to GDE's. However, the change in water level contours are presented in 20 m intervals. Additional change in water level contours should be provided for the area around the mined area and at 1 m contour interval to more clearly understand impacts in the surficial sediments adjacent the mine leases.	Provide a revised Appendix D inclusive of - Additional change in water level contours in the surficial sediments, for the area around the mine leases at 1 m contour intervals.

Although the requested information will provide for a better visualisation of the data, the revised figure will not impact the model results, the key findings or the PRCP schedule. Therefore, Appendix D Figure 66 has not been revised, but revision of the figure will be considered within future revisions of the model.

RFI 12

Item	PRCP Plan/ Schedule	Issue	Required Information
12	Appendix D, section 15.5 Figure 47 Groundwater elevations at start of P1 and water level change end of P3 and P4 (in m) in Model Layer 10 GMS	Predicted long term groundwater flow Figure 47 shows change in water level contours at the end of P4 (year 2199) layer 10, GMS (Goonyella Middle seam). These contours demonstrate a long-term drawdown of 100 m extending off to the north-east of Redhill Mine, extending to what appears to be the model boundary in that direction. However, in the report there appears to be no predicted long term groundwater elevation contours provided for the Goonyella Middle seam which captures the full Redhill Mine area and the model area to the north-east. These contours are required to demonstrate the predicted long term groundwater flow direction around all parts of the Redhill Mine and its connection with the Goonyella Riverside residual voids and underground mines post mining.	Provide a revised Appendix D inclusive of - Predicted post mining equilibrium groundwater elevation contours for layer 10, Goonyella Middle Seam which demonstrate predicted groundwater flow direction from all areas of proposed mining in the Red Hill mine and Goonyella Riverside mine areas.

Although the requested information will provide for a better visualisation of the data, the revised figure will not impact the model results, the key findings or the PRCP schedule. Therefore, Appendix D Figure 47 has not been revised, but revision of the figure will be considered within future revisions of the model.

The north-eastern underground workings shown on Figure 47 of Appendix D are the approved/planned BMA Red Hill Mine (RHM) underground workings. Therefore, the report does provide predicted groundwater levels in the GMS for the area covering the RHM.

RFI 13

Item	PRCP Plan/ Schedule	Issue	Required Information
13	Appendix O Void closure plan	Goonyella residual void modelled depth and average water level Appendix O appears to provide no detailed information about the elevation of the base of the Goonyella residual void used in determining the modelled average void water levels. In Appendix D, Section 15.4.2.6, in relation to Goonyella residual void northern section initially, and then the middle section of the void, it states: <i>'Note: The pit floor is some -35 mAHD at this location, the pit floor adopted in the residual void (surface water) water balance model is set at a uniform -45 mAHD (it is assumed that the specialist modellers used the deepest pit floor elevation in their water balance model).'</i>	Provide a revised Appendix O inclusive of - a) Clarification if the modelling of Goonyella residual void with a uniform base is considerate of proposed backfill of the void at the northern end; and b) Information on how the modelling of Goonyella residual void with a uniform base of -45 m AHD may impact the modelled average void water level and the void behaviour predictions as a sink.

Item	PRCP Plan/ Schedule	Issue	Required Information
		This results in the water level dip or decrease at the start of the water level hydrographs when the groundwater model drain cells (at bottom of pit) are changed to CHD and adopt the predicted water balance model pit water levels (Section 15.4.1). This dip in the water level hydrographs is recognised in all of the hypothetical observation point hydrographs. This is particularly evident in the middle set of hydrographs where the Goonyella open cut mine only extends to a depth of around 25 mAHD in this area (mining is shallower in this area due to environmental constraints in this area). It appears then that the Goonyella residual void has been modelled in Appendix O as having a uniform void base of -45 m AHD when in places it will be higher than this and in the middle as high as +25 m AHD. It is not clear how this has impacted the modelled void water level? Is it possible that by using a deeper base for the void, than actually will exist, the modelled void water level is lower than that which will actually result. The PRC plan section 4.3 states that Goonyella void will be partially backfilled at the northern end, it is not clear if the above modelling has considered the void base after the intended backfill level. Further clarification is needed to understand how the consideration of deeper base for void and partial backfill of the void for flood mitigation purposes might impact sink/ source relationships.	

- a) No revised Appendix O is required as all the modelling includes the proposed backfill of the voids, including the void at the northern end.
- b) The groundwater model is constructed to include actual final void depths and variations in pit floor elevation along the entire Goonyella Pit, including the shallower section.

The initial groundwater model run (Model Run 1) used drain cells at the base of the Goonyella Pit (final mine depths), such that groundwater ingress was provided for use in the water balance model (WBM) for the maximum groundwater ingress when the final void is dewatered (dry). These predictions were used in the WBM model to provide a simulated pit water level (referred to as Rev B) in Section 15.4.1 of the PRC plan Hydrogeology Assessment report (Appendix D). Thus, the groundwater model did not over predict ingress due to a uniform (-45mRL) floor.

Noting that the predicted residual void water level is >100m deeper than groundwater levels across the model domain, the relatively small variations in floor depth will not have a material impact on the model predictions and the void will remain a strong groundwater sink.

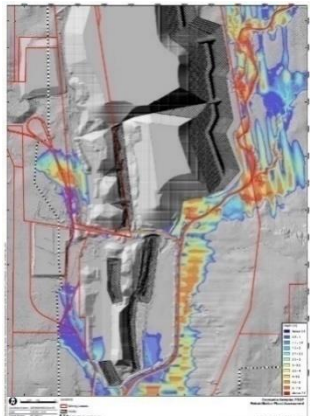
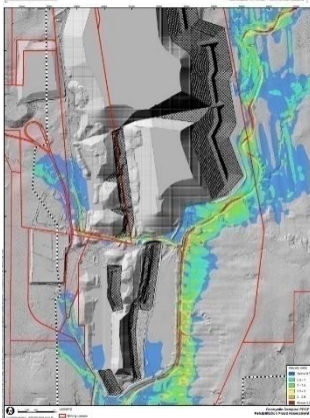
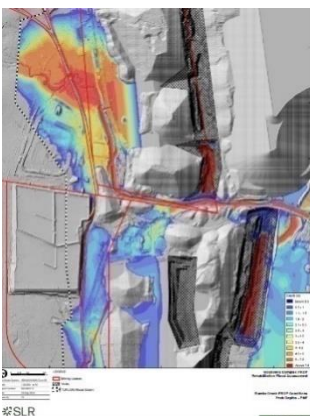
RFI 14

Item	PRCP Plan/ Schedule	Issue	Required Information
Flood management			
14	PRC plan section 6.1.2 Flooding	Modelling Section 6.1.2.1 indicates that, 'Three climate change scenarios (6%, 11% and 20% increase in rainfall intensities) were also run for the 0.1% AEP'. The Australian Rainfall and Runoff (ARR) guideline states 'for flood stimulation, all flood estimations must include the impact of climate change, maps without integrated climate change impacts are not required to be presented'. Further clarification is required to confirm if the flood stimulation undertaken for the PRC plan aligns with the above-mentioned ARR guideline.	Provide a revised PRC plan inclusive of – A clarification of whether all three climate change scenarios included in the flood stimulation as per PRC plan section 6.1.2.1, include the impacts of climate change as per the ARR guideline.

Details of the model set up and alignment with the Australian Rainfall and Runoff (ARR) is contained in Appendix H. As outline in Section 4.6 of Appendix H, three climate change scenarios (6%, 11% and 20% increase in rainfall intensities) were utilised based on BMA's CTD-WTR-GLD-001 Guideline for Climate Change Adaptation in Mine Water Planning and Hydrologic Assessments, which was based on the ARR at the time of development and modelling.

RFI 15

Item	PRCP Plan/ Schedule	Issue	Required Information
15	Appendix H Rehabilitation flood modelling Section 5.5.1, 5.5.2	Flood flow force along diversions The Appendix H shows that shear stress in Eureka Creek exceeds 80 N/m² during even a 2% AEP flooding, which poses a significant risk of ingress into Ramp 2 void. Further, under PMF conditions, there is confirmed ingress into Ramp 2. It seems the presented maps, assume stability of the diversion during 2% and 0.1% AEP, despite high erosive forces, and assumes stability of the diversion in the PMF event even in the case of overtopping. The <i>Watercourse Diversion Guideline</i> mandates integration of sediment regimes into analysis, which appears to be absent. Sediment hydraulic forces should be clearly considered in the modelling to completely understand the risks to the landform during flood event. Also, in relation to Ramp 2, it is important to clarify whether tailings material will be present and exposed to ingress. The PRC plan should address PMF design for closure, per the mandated requirements of ANCOLD 2012.	Provide a revised Appendix H inclusive of – a) A detailed analysis of how high shear stresses (>80 N/m²) are managed to prevent erosion and void ingress during 2% and 0.1% AEP events, b) Modelling that considers sediment hydraulic forces using the TUFLOW sediment module; and c) Mitigative measures to prevent ingress and subsequent contamination, in relation to any tailings material present for Ramp 2.

Item	PRCP Plan/ Schedule	Issue	Required Information
		0.1%AEP depth (left), 0.1%AEP velocity (right):   PMF depth: 	

- a/b) Stability of the watercourses has been addressed by the watercourse diversion concept designs (Appendix K to Appendix N) not the rehabilitation flood modelling (Appendix H). The information provided within the Appendix H is suitable for the PRC plan and PRCP schedule, and therefore no change has been made. BMA has provided a response to RFI 15a/b) in Appendix AA of this information request response.
- c) No revised Appendix H is required as Ramp 2 remains a residual void in the final landform and is not planned for tailings disposal in the PRCP. As per Sections 1.1.3, 6.1.3, 6.1.6 and 6.2 of the PRC plan, tailings are disposed in Ramp 32 (Airstrip pit), not Ramp 2. The tailings will be covered to form a post-mining land use (PMLU) that has a predominantly free draining surface with an elevation that is commensurate with surrounding natural landforms. This facility will not remain a residual void in the final landform. In the very unlikely extreme probable maximum flood (PMF) event, the modelling shows relatively shallow water depth and low flow velocities occur on the Ramp 32 landform surface. Noting the

extreme nature of a PMF event that would cause extensive widespread flooding, the relatively low risk for environmental harm associated with the shallow inundation over the covered coal tailings in the void, does not present an unacceptable risk in a PMF scale event.

RFI 16

Item	PRCP Plan/ Schedule	Issue	Required Information
16	Appendix H Rehabilitation flood modelling Section 5.5.1	Flood ingress into pits and interaction with TSF The PMF scenario results in void ingress, i.e., into Ramp 2 (airstrip), Goonyella pit, and R32 Satellite (APPENDIX B1-2-4, APPENDIX B3-2-4). With respect to the interaction of flood waters with the TSF and void, section 5.5.1 states that the R32 residual void is subject to inundation from the R32/Airstrip TSF facility rehabilitated surface to the north and Isaac River from the south in PMF events. In conclusion, PMF influences and inundates TSF R32 and R32 Satellite pit (APPENDIX B1-2-4, APPENDIX B3-2-4). To ensure compliance with section 126C(1)(j) of the <i>Environmental Protection Act 1994</i>, provided information must demonstrate how the final landform is designed to be safe and stable. Information expanding on whether the ANCOLD 2012 guideline has been considered, and an explanation on how the design flood was considered for protecting TSF to avoid environmental risks will help in demonstration of safe, stable final landform design. Risk management strategies for void ingress under PMF conditions must be clearly explained, including measures for minimising flood ingress and mitigating associated risks of contamination with specific reference to waste material characterisation is needed.	Provide a revised Appendix H inclusive of – a) Consideration to ANCOLD 2012 guideline and explanation on how the design flood was considered for protecting TSF to avoid environmental risks, b) Risk management strategies for void ingress under PMF conditions, c) Management measures to minimise flood ingress; and d) Mitigative measure for contamination risk in consideration to ingress and in-pit waste material characterisation.

- a) Ramp 32 is an in-ground TSF (former mining void) that will have the remaining void above the tailings backfilled with spoil to form a predominantly free draining rehabilitation area that is commensurate with the surrounding natural topography. The modelling shows only relatively shallow flooding over part of this backfilled residual void. There are no dams, embankments or other risks for failure identified and no consideration of ANCOLD 2012 is required.
- b) BMA has designed flood protection for the voids up to 0.1% AEP. The site is located on the Isaac River flood plain and a very unlikely PMF scale event would cause widespread inundation. Residual voids impacted by a PMF scale event are not tailings storage structures. Protecting the residual voids from an extremely unlikely PMF event will require significant disturbance and landforms that are not commensurate with the risks presented.
- c/d) Appendix H addresses the minimum information requirements detailed in the PRCP Guideline Section 3.6.1. The requested information is provided in the PRC plan Sections 4.2, 6.1.2, 6.1.7 and 6.3 and not Appendix H.

RFI 17

Item	PRCP Plan/ Schedule	Issue	Required Information
17	Appendix H Rehabilitation flood modelling	Flood modelling adjustments due to subsidence impact Subsidence generally alters the topography of a landscape and affects flood behaviour. Subsidence is expected across portions of the Broadmeadow Underground Mine and therefore a re-evaluation of flow velocities and depths post-subsidence will be required to understand flow paths and any implications for diversions and NUMAs. This should also include an assessment determining the requirement for additional flood mitigation measures, due to changes in topography.	Provide a revised Appendix H inclusive of – a) Detailed information on the effect of subsidence-induced changes to overland flow paths impacting diversions and NUMAs. b) An assessment of the need to implement any flood mitigation measures as a result of subsidence – induced changes discussed in part a).

As per the Rehabilitation flood assessment in Appendix H, the conceptual landform and drainage design is based on modelled subsidence and is a proof of concept only. As detailed within the PRC plan, the actual drainage and rehabilitation works to be undertaken within areas subject to subsidence will need to be based on actual subsidence and not model predictions. The proof of concept drainage presented in the PRC plan confirms that most of the subsidence areas can be free draining. The PRC plan therefore sufficiently addresses the risk based on the modelled subsidence and no flood mitigation measures have been identified as needed to support the post-mining landform. Therefore, no further changes to Appendix H are required.

RFI 18

Item	PRCP Plan/ Schedule	Issue	Required Information
Creek Diversion			
18	Appendix K, M, N, L Concept design reports for Isaac, Holding Paddock, Fisher and Eureka Creek	Diversion rehabilitation The concept reports for Isaac River, Holding Paddock, Fisher and Eureka Creek diversions exhibit significant gaps when evaluated against the provided Watercourse Diversion Guideline. The reports fall short in addressing design elements for ensuring hydrological, geomorphic, and hydraulic stability as outlined in the <i>Watercourse Diversion Guideline</i> and the key design considerations. These gaps could compromise the long-term functionality, self-sustainability, and regulatory compliance of the diversions. Immediate focus is needed to incorporate detailed assessments and robust design measures to address these deficiencies. It must be noted that diversions are part of the final landform and under PRCP guideline section 3.1 outlines the need to provide information about how progressive rehabilitation and closure will achieve a stable condition, which includes ensuring safety, structural stability, and environmental	Provide revised PRC plan/relevant appendix inclusive of information on – a) Rehabilitative design elements for diversions ensuring hydrological, geomorphic, and hydraulic stability as outlined in the <i>Watercourse Diversion Guideline</i>; and b) Rehabilitation criteria based on SMART principles for diversions targeting hydraulic stability, sediment management, and vegetation integration to achieve safe, stable, non-polluting landform. Example includes but not limited to –

Item	PRCP Plan/ Schedule	Issue	Required Information
		compliance of the final landform, this is to be aligned with 126C(1)(j) EP Act 1994.	- Criteria for flood plain development, - rock armouring of diversion channels if required at high erosion prone areas etc.

BMA has provided a response to RFI 18 in Appendix AA of this information request response. The information provided within the appendix reports is suitable for the PRC plan and PRCP schedule, and therefore not required to be updated to address this RFI.

RFI 19

Item	PRCP Plan/ Schedule	Issue	Required Information
19	Appendix K, M, N, L Concept design reports for Isaac, Holding Paddock, Fisher and Eureka Creek	In accordance with the <i>Watercourse Diversion Guideline</i>, the proposed diversions must: - maintain the natural hydrological and hydraulic characteristics of the original watercourse, - maintain natural geomorphic and riparian vegetation similar to the original watercourse, - maintain a sediment transport regime, with minimal impact on sediment deposition or erosion, - achieve equilibrium condition, - minimise erosion, and do not increase flood risks. - provide an appropriate floodplain corridor width to accommodate natural processes - be designed to be self-sustaining, with minimal ongoing maintenance, - be integrated into the overall rehabilitation plan. - be considered in floodplain modelling regarding the impact of diversions on flood behaviour, ensuring stability of the final landform design. - have structural stability analysis if is located through spoil - be designed to be hydraulically and structurally stable e.g., armouring The proposed rehabilitation criteria for diversions and given information through the concept design reports lack adequate provisions for –	Provide revised PRC plan/relevant appendix inclusive of information on – Rehabilitation criteria for creek diversion addressing: - floodplain width, - prevention of floodwater ingress to nearby landforms, and - structural and erosional stability of diversion banks.

Item	PRCP Plan/ Schedule	Issue	Required Information
		- hydraulic stability, - sediment management, and - vegetation integration. To comply with the <i>Watercourse Diversion Guideline</i>, design plans must demonstrate that the diversions will be self-sustaining without requiring ongoing maintenance. It is essential to address critical gaps in floodplain width, ingress prevention, and structural and erosional stability to ensure they meet long-term functional and environmental outcomes.	

BMA has provided a response to RFI 19 in Appendix AA of this information request response. The information provided within the appendix reports is suitable for the PRC plan and PRCP schedule, and therefore not required to be updated to address this RFI.

RFI 20

Item	PRCP Plan/ Schedule	Issue	Required Information
20	PRC plan section 6.4.1 Geotechnical study, Appendix P Geotechnical report. Appendix K, M, N, L Concept design reports for Isaac, Holding Paddock, Fisher and Eureka Creek	Stability of diversions considering subsidence impact The Isaac River Diversion (Stream Order 6) and Eureka Creek Diversion are located in areas affected by subsidence from Broadmeadow UG mining. Subsidence poses risks to achieving a stable post-mining land use (PMLU) due to: - Channel instability from deformation, erosion, and altered hydraulic connectivity. - Disruptions to sediment transport, increasing deposition and erosion risks. - Bank instability, reducing the ability to sustain riparian vegetation. Additional subsidence after mine flooding is identified as a potential concern. Also, report suggests that consolidation of caved rock after flooding may increase subsidence beyond initial estimates, but this effect does not seem to be included in the subsidence model.	Provide a revised PRC plan or relevant appendix which clarifies – a) How the PRC plan and PRCP schedule incorporates subsidence related assessments into the final diversion design, b) How the PRC plan satisfies EA Schedule J: Watercourse Subsidence, specifically: - demonstrate how the Subsidence Management Plan assesses subsidence impacts on the Isaac River and floodplain, defines mitigation measures, and incorporates structured monitoring and rehabilitation strategies. - explain how rehabilitation objectives, completion criteria, and schedules ensure that subsided areas achieve stability

Item	PRCP Plan/ Schedule	Issue	Required Information
			without requiring ongoing artificial maintenance.

- a) BMA has provided a response to RFI 20 in Appendix AA of this information request response. To address the required information, the Isaac River diversion concept design, provided in PRC plan Appendix K, has been updated to incorporate subsidence management into the diversion design by providing locations of concept drainage and subsidence inlets (Appendix K Sections 6.5.3 and 6.7.5 and Figure 6.6). The information provided within Appendix L to Appendix N is suitable for the PRC plan and PRCP schedule, and therefore not required to be updated to address this RFI. No revised Appendix P was required.
- b) The EA includes conditions J1 to J14 which require the site to develop a Subsidence Management Plan. The current BRM Subsidence Management Plan has been assessed, and certified by an independent appropriately qualified person (AQP), that the plan is compliant in all respects with the EA. The PRC plan therefore does not need to also satisfy the EA schedule J conditions. The PRC plan Sections 6.4.4 and 6.4.4.6 include the required rehabilitation strategies for watercourses. PRC plan Section 6.1.7.4 states that the Isaac River diversion, including the reach impacted by subsidence, requires a realignment. A concept diversion design for the Isaac River alignment has been provided in Appendix K.

The PRCP schedule includes milestone criteria that ensure watercourses impacted by subsidence are rehabilitated to achieve a stable condition.

RFI 21

Item	PRCP Plan/ Schedule	Issue	Required Information
21	PRC plan section 1.4.5.2, PRCP schedule RA2	Proposed delay in rehabilitation The EA holder proposes delaying diversion rehabilitation until 2061, with final stability targeted for 2120. PRC plan section 1.4.5.2 provides a rationale that final subsidence impacts will only be realised after underground workings are flooded post closure of BRM, GLS, and RHM GMS. The extended timeline for rehabilitation presents the following risks: • Unnecessary delays if subsidence stabilises earlier. • Environmental degradation from prolonged exposure to erosion. • Regulatory misalignment as the <i>Watercourse Diversion Guideline</i> expects diversions to stabilise within a reasonable timeframe post-mining. Considering the above risks, further justification supported by subsidence monitoring data required to support the 2016 (<i>BMA note: assume this is meant to be 2061</i>) - 2120 rehabilitation timeline. From the provided information it is not clear why interim rehabilitation measures have not been developed to mitigate potential erosion risks, before 2061. It is noted that EA schedule J: Watercourse subsidence requires EA holder to provide a	Provide a revised PRC plan and PRCP schedule inclusive of – a) Justification supported by subsidence monitoring data for the proposed delay in rehabilitation timeline for RA2, b) Consideration of interim rehabilitation measures to mitigate potential erosion risks, before 206, (<i>BMA note: assume this is 2061</i>) c) Information establishing a clear link between subsidence timing and final rehabilitation; and d) Defined triggers to determine commencement of rehabilitation for the creek diversion area before 2061.

Item	PRCP Plan/ Schedule	Issue	Required Information
		clear link between subsidence timing and final rehabilitation, also requires to define triggers for determining when rehabilitation can begin.	

- a) Watercourses not impacted by subsidence are mapped as RA2 and watercourses impacted by subsidence are mapped as RA11.

Rehabilitation timing of RA2 is not related to subsidence. For RA2, the majority of the area is available for rehabilitation in 2061, at the end of mining and major rehabilitation activities at GRM. The remaining area is associated with Eureka Creek, which due to the close proximity to the access corridor to RHM, is available for rehabilitation at the end of mining and major rehabilitation activities at RHM in 2097.

As the issue and required information is related to subsidence, BMA assumes the RFI item is referring to RA11, not RA2 as written in the item.

RA11 is available for rehabilitation in the PRCP schedule once all subsidence has been realised based on Section 3.6.1 of the PRCP Guideline which states “*Key considerations of the landform design report must also include... settling and subsidence over time, which may impact the availability of areas for rehabilitation*”. For RA11, the majority of the area is available for rehabilitation in 2057, after final subsidence is realised after flooding of the underground workings at BRM. The remaining minor areas are positioned above the RHM underground workings, therefore are available for rehabilitation in 2097, after final subsidence is realised post flooding of the underground workings at RHM.

As stated in the PRC plan, as underground mining progresses, areas will undergo initial operational repair works to manage cracks and erosion once initial subsidence of panels occur. Operational watercourse subsidence impacts are managed through compliance with the EA conditions. Drainage is installed to control and limit the entry of surface flows from the subsidence areas into the Isaac River. Rock armour and timber pile fields are also used to reduce erosion of the banks where required, and major surface cracks are repaired.

Appendix P Section 3.4 indicates that there may be a small amount of additional vertical subsidence related to the softening and consolidation of the caved rock when the underground workings are flooded at the end of mining. Therefore the PRCP schedule reflects the final rehabilitation activities to achieve a PMLU to a stable condition, which can only be undertaken once all subsidence has been realised to ensure drainage works are accurate for the actual final subsided landform.

- b) As detailed above and stated in the PRC plan, areas will undergo initial operational repair works once underground mining progresses and initial subsidence of panels occur. Operational watercourse subsidence impacts are managed through compliance with the EA conditions.
- c) As detailed above and in Appendix P Section 3.4, there may be a small amount of additional vertical subsidence when the underground workings are flooded at the end of mining. Therefore, final rehabilitation activities to achieve a PMLU to a stable condition can only be undertaken once all subsidence has been realised to ensure drainage works are accurate for the actual final subsided landform.
- d) The defined trigger for the PRCP schedule for RA11 is once all subsidence has been realised to ensure that any drainage works are successful. As detailed in (a), cracks and erosion from the initial subsidence will be managed through operational repair works and operational watercourse subsidence impacts are managed through compliance with the EA conditions.

RFI 22

Item	PRCP Plan/ Schedule	Issue	Required Information
Design for closure			
22	PRC Plan section 1.3	Explanation of consideration of progressive rehabilitation and closure in design of mine site The EP Act s126C(1)(j) and PRCP guideline s3.1 requires the rehabilitation planning part	Provide a revised PRC plan that includes – a) Evidence the proposed north-west UG panels in the GLS are part of

Item	PRCP Plan/ Schedule	Issue	Required Information
		to explain how progressive rehabilitation and closure has been considered in the design of mine site including aspects of location of mine features, size shape and design of mine features and mining methods. As per the transitional provisions from EP Act, transitional PRC plans are not required to demonstrate how aspects of mine features design considered in closure planning for approved disturbance. However, PRCP guideline states that any expansion to an existing site must demonstrate how it has been designed for closure. The Department has reviewed available documents to verify the approval status of proposed UG disturbance associated with the Broadmeadow Underground via UG panels in the north-west targeting the Goonyella Lower Seam (GLS) and is of the opinion that the proposed disturbance has not been assessed for impacts and does not form part of the approved layout in accordance with the EA based on the available information The following available documents were reviewed in support of above opinion: • EA Figure 2 (Authorised Subsidence Extent), • Figure 2.2 of the 2015 revised EA amendment application for GRM, showing the project components and extent of UG disturbance that was taken into consideration when approved the EA amendment application, • The 2011, 2015, and 2019 Subsidence Management Plan; and • Figure 4 of the GRBM Later Development Plan 2020-2024. Further information is required to demonstrate the disturbance associated to north-west panels in the GLS, is part of the existing approved disturbance. If evidence of previous approval cannot be produced, the panels should be removed from the proposed PRC plan. There cannot be inconsistency between the EA and the proposed PRCP.	existing approved disturbance; or b) Alternatively, if definitive evidence cannot be produced that clearly demonstrates existing approval of the disturbance, the PRC plan should be revised to remove all references to disturbance areas which are not approved in accordance with the EA.

The PRC plan has been updated to remove the north-west GLS underground panels. The proposed duration of mining at BRM has been reduced to 2051 (Section 1.1.5) and Section 6.4 of the PRC plan has been updated to remove reference to the north-west GLS underground panels in the text and the figures (Figure 20 and Figure 21).

As advised by DETSI (email from Juliana McCosker on 16/4/2025), the updated modelling required due to changes to the underground layout will be conditioned in the PRCP schedule to be updated prior to mining, instead of BMA applying for an extension to the information response period.

BMA propose the following condition is included in the PRCP schedule:

PRCP#: The holder must amend the Hydrogeological Assessment and groundwater model based on the BRM GLS PRCP underground layout prior to commencement of mining of the BRM GLS.

RFI 23

Item	PRCP Plan/ Schedule	Issue	Required Information
23	PRC Plan section 1.4	Duration and extent of all relevant activities The EP Act s126C(1)(b) requires the EA holder to identify all relevant activities predict the duration of each activity and, specify the size/extent of each activity. The EP Act defines 'relevant activity' for PRC plan as activities to be carried out on land subject of the plan. For the primary ERA – Schedule 13 Mining Black Coal the information provided in the PRC plan does not clearly state the disturbance extent and duration separately for the open cut and underground operations. The area of open cut and underground overlaps in certain areas, for example across ML1763. Similarly certain mine domains overlap with each other, for example the extent of the underground mining operation overlaps the NUMA area and overburden dump area. Understanding the extent of overlapping impacts helps to assess the risks to the PMLU or NUMA assigned to these areas and if the proposed criteria will ensure adequate management of the areas.	Provide a revised PRC plan, spatial data that a) Clearly identifies all relevant activities including ancillary, b) Clearly states the size/extent and predicted duration for all relevant activities including ancillary for life of mine; and c) Includes a figure showing maximum disturbance extent for open cut mining for life of mine.

- a) ERAs, including the ancillary ERAs are listed in the Introduction of the GRM and BRM PRC plan. The PRC plan has been updated to include the ERA name.

As defined in the EP Act Schedule 4, relevant activity for an EA “*means the environmentally relevant activity the subject of the authority*” (ERA), but relevant activity for a PRCP “*means the relevant activities to be carried out on land the subject of the plan*” (different to an ERA). PRC plan Section 1.4.1 Table 12 clearly identifies the relevant activities for a PRCP.

- b) PRC plan Section 1.4.1 Table 12 has been updated to include the size/extent and predicted duration of the relevant activities.
- c) The PRC plan reference map (Figure 29) shows the rehabilitation areas and improvement areas. This figure delineates the different proposed rehabilitation and management methodologies based on whether rehabilitation/management needs to address open cut mining activities or underground. Therefore, no additional figure is required.

Item	PRCP Plan/ Schedule	Issue	Required Information
24	PRC plan section 1.4.5	Summary of rehabilitation The PRC plan in sections 1.4.4 and 1.4.5 provides information on progressive rehabilitation since the commencement of the operation (1990). The PRC plan Table 19 provides a summary of progressive rehabilitation until 2059. It is noted that PRC plan states the life of mine for GRM as 2059 but some components of GRM will not be rehabilitated or surrendered at 2059 due to connecting operation of RHM. The PRCP schedule shows progressive rehabilitation planned till approximately 2137 and beyond for some areas, which is not reflected in PRC plan Table 19. As such, further information is needed to understand rehabilitation planning until surrender (likely to be at closure of RHM (2094)). <u>Area available for rehabilitation</u> The PRC plan in section 1.4.5 provides an explanation that spoil dump areas which cover almost 30% of the disturbance area are planned to achieve rehabilitation milestones up to 'Revegetation' by 2059 and rest of the milestones are scheduled for completion beyond the RHM mine life. The overall rationale for the delay is the mining and dumping sequence. Similarly, areas impacted by subsidence are proposed to be unavailable for progressive rehabilitation up until the flooding of underground areas occurs, which is predicted to be in 2061 as per the PRCP schedule. Progressive rehabilitation of infrastructure areas is delayed with a similar rationale, on the basis that the area will not be available while being utilised for RHM. The PRCP guideline section 4.1, step 3 determines that land is available for rehabilitation unless that land is being used for operating infrastructure, contains permanent infrastructure, or has a probable or proved ore reserve to be mined in 10 years, or the land is required for mining the proved ore reserve. The justification provided by in the PRCP for the spoil dump and subsidence domains being unavailable for progressive rehabilitation does not meet the PRCP guideline requirement.	Provide a revised PRC plan that includes – a) A discussion of rehabilitation timing that proposes accelerated scheduling of progressive rehabilitation until surrender (compared to the current proposed timeframe) which nominates rehabilitation as soon as areas become available in accordance with the definition of available land under the PRCP guideline; and b) A revised Table 19, and PRCP schedule to reflect earlier timeframes of progressive rehabilitation for spoil dumps and subsidence.

Item	PRCP Plan/ Schedule	Issue	Required Information
		A revised mining and dumping sequence should be developed and discussed in the PRC plan to allow the timing of rehabilitation for the spoil dump to be accelerated. Further, the timing of subsidence rehabilitation should be reviewed, and the PRC plan should discuss opportunities to accelerate progressive rehabilitation. In the PRCP Schedule, the rehabilitation areas should be revised to represent earlier progressive rehabilitation.	

- a) The PRCP schedule rehabilitates areas as soon as practicable after they become available for rehabilitation as per the definitions in the PRCP guideline.

Spoil dumps

DETSI have misunderstood Section 1.4.5 of the PRC plan – 70% of the spoil areas are available for rehabilitation and are scheduled to be rehabilitated up to revegetation (RM8) by 2059. These areas continue to progress through the remaining rehabilitation milestones (RM11 and RM14) as per the same timing as all other woodland habitat areas. This can be seen in the PRCP schedule for RA1 which shows 3,771ha achieving surface requirements (RM11) by 2073 and achieving the PMLU to a stable condition (RM14) by 2083. Section 1.4.5 of the PRC plan has been reworded to try to make clear that the RA1 spoil areas not yet available for rehabilitation by 2059, include the Goonyella Pit low wall area within RA1 (available in 2060 once mining in that pit is complete) and spoil areas required for RHM operations, including rejects disposal and access (available in 2092 once RHM mining is complete).

As detailed in PRC plan Section 1.4.1 Table 12, spoil dump areas are available for progressive rehabilitation once dump areas reach final position and are no longer required for associated infrastructure, access requirements, or to support RHM operations – this justification does meet the PRCP Guideline requirements. The RA1 schedule for when spoil dump areas are available for rehabilitation is aligned to the economic mining schedule and therefore progressive rehabilitation of spoil dumps cannot be accelerated. The EP Act does not require the EA holder to modify their mine plan or mining schedule to accelerate rehabilitation as is indicated in the issue.

Subsidence

Note: proposed PRCP schedule has been updated to reflect reduced mining duration due to the removal of the north-west GLS underground panels (RFI 22).

RA11, RA20 and RA21 are available for rehabilitation in the PRCP schedule once all subsidence has been realised based on Section 3.6.1 of the PRCP Guideline which states “*Key considerations of the landform design report must also include... settling and subsidence over time, which may impact the availability of areas for rehabilitation”.*

As detailed in PRC plan Section 1.4.1 Table 12, subsidence areas are available for initial operational repair of cracks and drainage works progressively during mining operations once the initial subsidence of panels occurs. These operational repair works will be undertaken after mining the GMS (current to 2032), again after mining the GLS (below the GMS) (2032 to 2051), and during the operations as required to manage risk. Appendix P Section 3.4 indicates that there may be a small amount of additional vertical subsidence related to the softening and consolidation of the caved rock when the underground workings are flooded (completed 2056) at the end of mining at BRM. Therefore, the PRCP schedule reflects the final rehabilitation activities to achieve a PMLU to a stable condition, which can only be undertaken once all subsidence has been realised to ensure drainage works are accurate for the actual final subsided landform.

- b) Table 19 (Table 18 in the updated version submitted with the information request response) has been updated to align to the proposed PRCP schedule.

Item	PRCP Plan/ Schedule	Issue	Required Information
25	PRC plan s1.4.4	Existing Rehabilitation The PRC plan in Table 18 and section 1.4.4 indicates that progressive rehabilitation commenced in 1990. However, it is not clear from the information provide when any of the rehabilitation works were completed. Other details about the existing rehabilitation areas are limited, and further information is required to understand the current condition of these areas. This information is important to ensure that any maintenance or repairs of existing rehabilitation are adequately captured by the PRCP.	Provide a revised PRC plan section 1.4.4 to: a) Clarify the mine domains that are included in the existing rehabilitation area, b) Discuss the relevancy of RM2 (Remediation) to existing rehabilitation areas, c) Include an approximate timeline of when each rehabilitation activity was commenced and completed for the existing rehabilitation area that corresponds to the proposed rehabilitation milestone, d) Clarify the current status of existing rehabilitation in terms of meeting compliance with rehabilitation milestones it has been subjected to so far; and e) Identify any re-work required for any particular rehabilitation milestone to progress to demonstrating achievement stable PMLU.

The existing rehabilitation included in the PRC plan (Section 1.4.4) has been updated. The PRCP schedule includes 293ha of existing rehabilitation progressing towards achievement of the nominated PMLUs, including 118ha of cattle grazing PMLU (RA7) and 175ha of woodland habitat PMLU (RA10).

- a) The mine domain of RA7 was dams. The mine domain of RA10 was spoil dumps.
- b) The RM2 (remediation and/or management of contaminated land) was not a requirement when existing rehabilitation was executed. Rehabilitation was undertaken to achieve the EA Table E1 rehabilitation requirements. The inclusion of RM2 for spoil dump rehabilitation is a new requirement that was included in the Saraji Mine PRCP, approved in October 2024. The likelihood of spoil dump rehabilitation requiring remediation for contamination is low as activities with the potential to cause contamination (such as refuelling or chemical storage) are generally not undertaken within spoil dump areas. However, if routine rehabilitation monitoring identifies any potential contamination concerns, further investigations will be undertaken and appropriate mitigation measures implemented, if required.

c/d/e) Additional information on the existing rehabilitation is detailed in the table below. As detailed in PRC plan Section 1.4.4, several areas of existing rehabilitation have not been included in the PRCP schedule. One reason for excluding existing rehabilitation areas was because substantial corrective action would be required to achieve the nominated PMLU, and in some case the planned PMLU was changed to better align with the landforms and surrounding PMLUs. Existing rehabilitation areas assessed as on track to achieve the next rehabilitation milestone have been included in PRCP and scheduled accordingly.

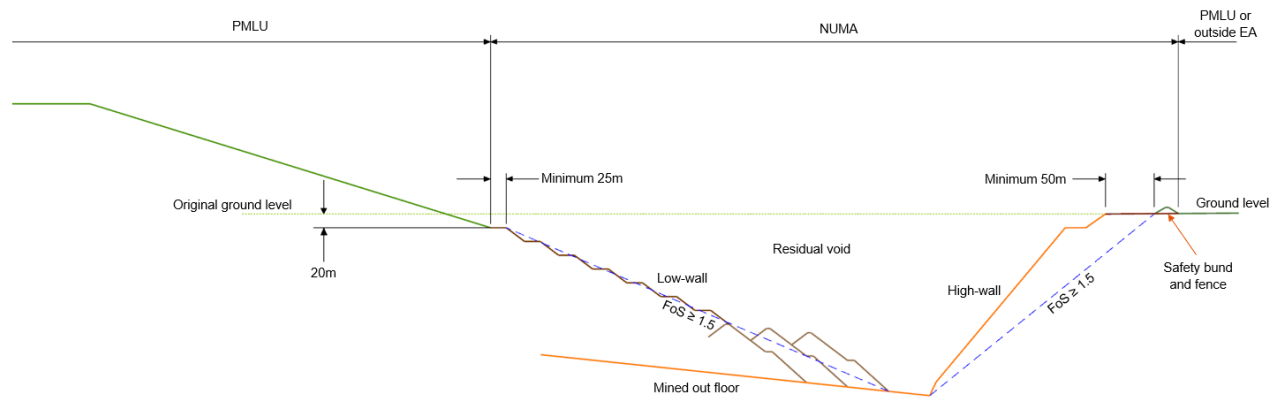
Rehabilitation identification	RA	Area (ha)	Year rehabilitation commenced	Next RM scheduled	Current status
Weip Dam	RA7	118	2024	RM10	Reshaped, topsoiled and revegetated with the PRCP cattle grazing seed mix. Achieved RM7 in November 2024.
GRM_R16	RA10	78	2023	RM8	Reshaped, topsoiled and revegetated with pasture species in 2023. Requires erosion management and re-seeding with woodland habitat seed mix. Once the slope has stabilised, the contours will be disconnected from the drains and rehabilitated to the same standard as the surrounding rehabilitation.
GRM23	RA10	10	1997/1998	RM5	Areas have required substantial maintenance works to manage extensive leucaena (<i>Leucaena leucocephala</i>) thickets. Leucaena management activities in 2025 have included intrusive mechanical clearing/removal. Once completed, growth media will be applied prior to revegetation with a woodland habitat seed mix.
GRM24	RA10	10	1997/1998	RM5	
GRM26	RA10	21	1997/1998	RM8	Area requires some maintenance works to manage erosion and leucaena. Area to be revegetated with woodland habitat seed mix.
GRM_R24_01	RA10	12	>10 years ago	RM11	Area has good groundcover (>90%) and establishing woodland habitat species. Routine monitoring and maintenance.
GRM22	RA10	23	1995/1997	RM8	Area requires some maintenance works to manage erosion and leucaena. Area to be revegetated with woodland habitat seed mix.
GRM13	RA10	21	1995/1997	RM18	Area has sufficient groundcover (80%) and establishing woodland habitat species. Routine monitoring and maintenance.
Total (ha)		293			

RFI 26

Item	PRCP Plan/ Schedule	Issue	Required Information
Landform Design - NUMA			
26	PRC plan section 4.3 NUMA Area	Minimisation of NUMA Area The PRC plan in section 4.3 provides the final iteration of the closure landform submitted in the PRCP to demonstrate further minimisation of the NUMA including,	Update the PRC plan to – a) Specify how much of low-wall area (in hectares) associated to each NUMA planned for

Item	PRCP Plan/ Schedule	Issue	Required Information
		'extending the PMLU on the low wall into the residual void, 20m below ground level for those pits with further mining'. Further details are required regarding the PMLU on the low wall the understand the full extent of NUMA minimisation and ensure that all PMLU areas are captured in the Schedule accurately. PRC plan section 4.2 states that following voids will have some backfill including – • Goonyella void – partial backfill of northern end, • Thiess void – backfill of ramps to reduce catchment, • Airstrip void – complete backfill of void above tailings (R32 TSF), eliminating the NUMA Specific details are required on the exact extent of partial backfill for each of the abovementioned void so that measurable improvement area milestone criteria can be applied. It is noted that Department's pre-wet inspection 2024/2025 formally (Post inspection letter dated 09 December 2024) raised concerns about the increasing Mine affected water (MAW) inventory onsite, the environmental risk associated to it. During the inspection itself one of the potential solution to the issue was raised as reducing the pit catchment area to reduce accumulation of MAW water. With reference to above, EA holder must revisit the proposed first milestone of improvement commencement timeframe which is proposed to be 2032 and consider an earlier commencement to achieve progressive rehabilitation resulting in reduction of void catchment area.	rehabilitation inclusion as Improvement area milestone criteria, b) Provide figures to explain/show low-wall area subjected to rehabilitation to a PMLU, c) Specify assigned PMLU for the abovementioned low-wall area, d) Specify associated Rehabilitation Area (RA) for low-wall, e) Specify associated Rehabilitation Area (RA) for complete backfill of Airstrip void above tailings and associated PMLU, f) Include a figure showing extent of backfilled Airstrip void, g) Discuss issue of increasing MAW inventory and potential solution of reducing the void catchment area to reduce accumulation of MAW; and h) Propose an earlier timeframe for first milestone commencement for NUMA addressing void catchment reduction work.

- a) PRC plan Section 4.1 Table 25 clearly defines the area within the NUMA extents and the hectares. The low-wall area within the NUMA is the area that is below 20m below ground level.
- b) Representative cross section (not to scale) illustrates the low-wall area subjected to rehabilitation to a PMLU.



- c) Section 3.1.2.1 of the PRC plan specifies that the spoil dumps, including the low-wall within RA1 is woodland habitat PMLU.
- d) Section 3.1.2.1 of the PRC plan specifies that the spoil dumps rehabilitated to a PMLU are within RA1.
- e) Section 6.1.6.5 of the PRC plan specifies R32 TSF is included in RA9, which is proposed to be rehabilitated to a grassland PMLU. PRC plan Section 6.2.1 Table 39 and Section 6.2.3 have been updated to include the RA associated with each TSF.
- f) The backfill is shown in the conceptual closure landform in Figure 17 and Figure 19.
- g) The mine affected water (MAW) mentioned in the RFI issue is an operational issue and will not be addressed in this response. The hydrogeological modelling and water balance modelling presented in the PRC plan are based on the conceptual closure landform and the associated catchments, and the modelling results indicate the catchments at closure are suitable to minimise risk to the environment.
- h) Void reduction catchment work to manage MAW inventory is an operational issue and no changes have been made to the PRCP schedule.

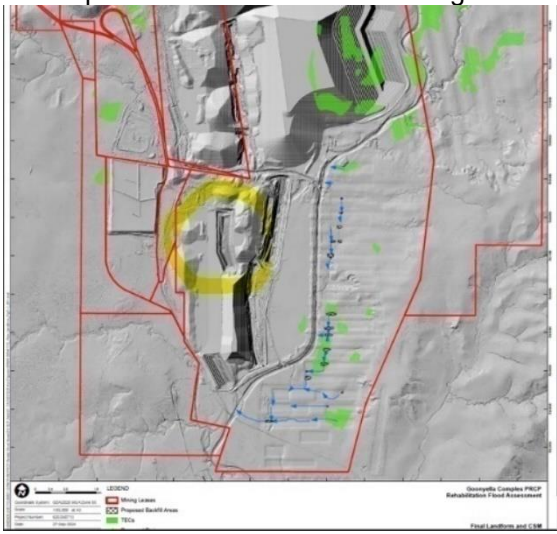
RFI 27

Item	PRCP Plan/ Schedule	Issue	Required Information
27	PRC plan section 4.3 NUMA Area	Ramps Figure 28 of the PRC Plan indicates that ramps will be included in the NUMAs, however it is unclear whether ramp batters will be pushed down to achieve an erosionally stable gradient (as per Appendix J) and assigned a PMLU or left at the angle of repose and included in NUMAs. If ramp batters are intended to be left at the angle of repose and included in the NUMA, more information is required to demonstrate how this approach contributes to minimising NUMA area.	Provide a revised PRC Plan that includes: a) Further information to clarify whether ramp batters are included in NUMA's or assigned a PMLU, b) A detailed description and justification of the final landform characteristics and treatments proposed for ramp batters; and c) Figures to clearly illustrate the proposed final landform and PMLU arrangement.

- a) Section 4.1 of the PRC Plan has been updated to clarify that ramps voids are part of the residual void. The extent of the ramps within the NUMA are as detailed in Section 4.1 and include the area from 20m below ground level and the associated wall set-backs to achieve FoS of 1.5 (Goonyella void); and the area below natural ground level and the associated wall set-backs to achieve FoS of 1.5 (other voids). The ramp batters outside the NUMA are part of the spoil dumps that are assigned a PMLU.

- b) Ramp batters within the PMLU area are part of the spoil dump and therefore are treated the same as other parts of the spoil dump within the same RA. Ramp batters within the NUMA are treated the same as other batters within the IA. Therefore, ramp batters are included in the landform treatments already detailed in the PRC plan and no further justification is required.
- c) PRC plan Figure 17 clearly illustrates the proposed final landform. Figure 14 and Figure 28 clearly show the PMLU arrangement, with only minor area of ramp batters within the NUMA.

RFI 28

Item	PRCP Plan/ Schedule	Issue	Required Information
28	PRC plan section 4.3 and s6.1.1.2	Discrepancies in the provided information Section 4.3 states that the Ramp 2 (Airstrip void) will be completely backfilled above the tailings (R32 TSF). Section 6.1.1.2 confirms that this complete backfill aims to form a stable and free-draining landform, addressing concerns related to hydraulic gradients, flood ingress, and potential contamination. However, in the final landform map of the PRCP, Ramp 2 is still shown as a residual pit (see below image). This inconsistency requires clarification to ensure alignment between stated plans and the final closure design. 	Provide a revised PRC plan that – a) Clarifies the inconsistency between the PRC plan sections and the final landform map regarding the backfill status of Ramp 2, and b) Revises the final landform map to show backfilled ramp 2.

No revision to the PRC plan was required as the information in the plan and Appendices is correct.

- a) The residual void circled in the RFI issue is the R32 East void. Airstrip void is located directly to the west/south-west and this void is backfilled above the tailings. Figure 3.1 from the Void Closure Plan (Appendix O) is shown below with R32 East void labelled and the backfilled Airstrip void circled in red. Ramp 2 is not referred to in the PRC plan.
- b) The R32 East residual void is planned to remain, therefore the landform map in the PRC plan Section 6.1.5 and the various appendices are correct.

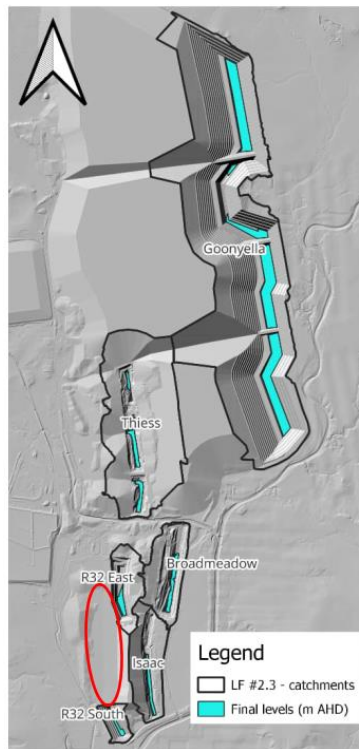


Figure 3.1: 3D void design plan: an overview of GRBM residual voids and void lakes at the end of the water balance model simulation

RFI 29

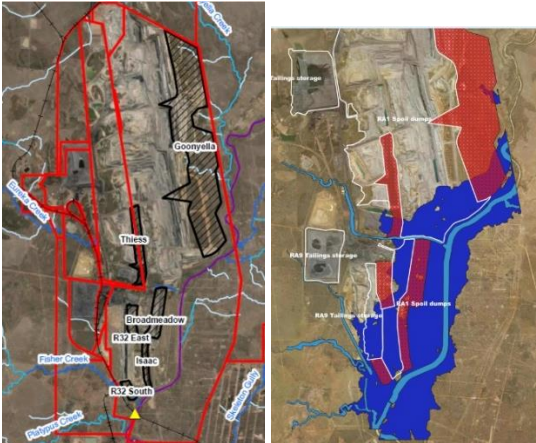
Item	PRCP Plan/ Schedule	Issue	Required Information
29	Appendix O: Void closure plan	Void closure With respect to Appendix O: Void closure plan, further information is required on the following aspects which are outlined in s3.6.3 of the PRCP guideline, and not provided for in PRC plan – Description of improvement work for pit wall geotechnical stability considering the potential subsidence impact. Also Figure 4.11 of the Appendix O shows particle tracking simulation, and show the modelling based on UG mine layout inclusive of disputed GLS north-west panels. Depending on the response to item 22 the modelling may require revision to remove the disputed panels, pending further information justifying their approval status.	Provide a revised PRC Plan and Appendix O inclusive of – a) A description of subsidence impact on stability of NUMA walls, b) A description of improvement work to achieve pit walls stability to mitigate stability issues arising from subsidence impact; and c) Revised modelling to generate Figure 4.11: Particle tracking simulations excluding north-west panels.

- a) Roadways to access the longwall panels are driven from the open cut voids, therefore any impact to the NUMA walls is only due to roadways and not longwall panels. As detailed in Appendix P Section 3.1, the mains pillars and the associated roadways are designed to be stable during the operations – both in terms of roof collapse in the roadways and stability of the pillars. The mains pillars are designed with high stability factors such that failure over the long term is unlikely and the vertical subsidence on the surface is expected to be minimal, if any. Therefore no, to minimal subsidence impact is expected on the NUMA walls. PRC plan Section 6.3.1 has been updated to provide this additional clarification.
- b) The proposed milestone criteria requires the high-wall to achieve a FoS ≥ 1.5 . The FoS stability assessment of the high-wall takes into account the underground workings. As stated in Appendix O Section 7.1.3, high-

wall stability in areas where there are underground access points is a focus during the design of the final wall during operations. Further assessment of the long-term geotechnical stability will be undertaken as part of the final assessment prior to closure. Therefore, no changes to the PRC plan or Appendix O are required.

c) Refer to response for RFI 22b.

RFI 30

Item	PRCP Plan/ Schedule	Issue	Required Information
30	PRC plan section 1.2.4	Flood protection measures The spatial data shows south portion of Goonyella and Thiess pit, and Broadmeadow, Isaac, R32 South pits completely within floodplain as shown in below image (left image is Figure 1-1 from Appendix H and right image from spatial data). The PRC plan states that, <i>'during operational phase of mine levees are utilised where appropriate to provide suitable level of flood protection to the voids and to the mine's operational areas. At closure, alternative flood mitigation measures will be utilised for the residual voids where required.'</i> The PRC plan or other relevant appendix such as Appendix G: Voids in flood plain assessment, does not discuss further what alternative flood mitigative measures are proposed for Goonyella, Thiess, Broadmeadow, Isaac, R32 South pits. The associated improvement area criteria also does not specify flood protection levee measures apart from a criteria requiring residual voids not subjected to inundation from floodwaters including 0.1% AEP. 	Provide a revised PRC Plan inclusive of – a) Information on existing flood protection levees including their nature (permanent or temporary); and b) A discussion of alternative flood mitigative measures to avoid ingress to Goonyella, Thiess, Broadmeadow, Isaac, R32 South pits from flood waters up to and including 0.1% AEP.

The PRC plan already details the flood mitigation measures; therefore, no changes have been made to address this RFI.

a) Operational mine levees are considered temporary.

- b) The flood modelling shown in the right image of the RFI issue is the 'Void in flood plain' modelling (Appendix G). This modelling is not relevant to the closure landform or the flood risk of the residual voids at closure, as it represents the flood plain within the mining tenure without 'artificial features' i.e. pre-mining.

Appendix H and PRC plan Section 6.1.2 detail the rehabilitation flood modelling which is undertaken on the closure landform. The results of the hydraulic model showed the proposed final voids are not subject to inundation for the modelled flood events up to and including the 0.1% AEP event for the closure landform. PRC plan Section 4.2 and Section 6.1.5.2 details the flood mitigation measures for the NUMAs:

- Goonyella void: landform on the southern end-wall and sections of the high-wall to mitigate the risk of flooding into the residual void up to the 0.1% AEP.
- Isaac void: landform on the southern end-wall and sections of the high-wall to mitigate the risk of flooding into the residual void up to the 0.1% AEP.

RFI 31

Item	PRCP Plan/ Schedule	Issue	Required Information
Landform design – Other domains			
31	Appendix J landform design	Final landform design The PRCP guideline, section 3.6.1 Landform design states that a final landform design must be based on the proposed PMLUs and NUMAs and demonstrate that the land will be safe and structurally stable. The guideline is not specific about a particular mining domain with respect to landform and considering the objective of the PRCP (EP Act s126B), the PRCP guideline requirement relating to final landform could be inferred as taking into consideration the entire site. The provided Appendix J targets only waste landforms at GRM. The EA holder needs to provide a revised landform design meeting requirements of 'Landform design' outlined in s3.6.1 of PRCP guideline considering the entire mine site, which is inclusive of all mine domains not just 'Waste landforms'.	Provide a revised Appendix J in accordance with PRCP guideline requirement s3.6.1 Landform design that includes the following for taking into consideration the entire site's final landform design - a) 3D design plans of the final landform of all mine domains, b) Modelling which predicts the long-term stability of the final landform design for all mine domains, c) Trial methodology to verify the predicted success of the final landform design; and d) Limitations and assumptions of the landform design.

- a) PRC plan Section 6.1.5 Figure 17 shows the conceptual 3D landform design for the site.
- b) It is industry practice to do modelling on post-mining elevated landforms constructed from excavated materials, such as spoil dumps. This aligns to the application detailed in the Office of the Queensland Mine Rehabilitation Commissioner technical paper "*Applying erosion and Landscape Evolution Models to assess post-mining landform stability*" released February 2025. When scoping the PRCP landform modelling work, most consultants indicated they only run landform evolution modelling over representative sections of various spoil dumps, whereas we have undertaken modelling on all the dumps in Appendix J. Therefore, no further landform evolution modelling is required.
- c) PRC plan Section 6.1.5.6 covers trial methodology.
- d) PRC plan Section 6.1.5.6 covers limitations and assumptions.

Item	PRCP Plan/ Schedule	Issue	Required Information
32	PRC Plan Section 6.1.5, Appendix J, PRCP Schedule	Erosion control measures Section 7 of Appendix J includes a recommendation against the construction of permanent berms or graded banks and rock chutes on batter slopes. Qld Globe imagery indicates that several areas of existing rehabilitation (RA7, RA10) include contour drains and rock-lined batter chutes, contrary to this recommendation. These structures are not discussed in the rehabilitation planning part. Qld Globe imagery indicates numerous failures of these structures. If these structures are to be retained, it is necessary to provide detailed justification for their retention against the above recommendation and despite evidence of their instability, as well as further discussion of their expected life and residual risk. If they are to be removed, this intention should be captured in relevant milestone criteria. If the structures are to be removed, sufficient information should be provided to demonstrate that the affected batters will continue to meet all necessary landform geometry and stability requirements.	Provide a revised PRC Plan that includes either - a) A justification for the retention of contour banks and batter chutes as permanent drainage features contrary to the advice given in Appendix J and despite evidence of their instability, and b) A detailed discussion demonstrating how and why contour banks and batter chutes can be expected to remain stable and functional in a post-closure context. Or A revised PRCP schedule including appropriate milestone criteria to capture the intention to remove these drainage structures and to demonstrate that the affected areas remain stable and meet all relevant performance criteria following removal of the structures.

The existing rehabilitation included in the PRC plan Section 1.4.4 has been updated. The PRCP schedule includes 293ha of existing rehabilitation progressing towards achievement of the nominated PMLUs, including 118ha of cattle grazing PMLU (RA7) and 175ha of woodland habitat PMLU (RA10).

a/b) The GRM Ramp 32 cattle grazing rehabilitation (132ha), which had contour banks, has been excluded from the PRCP existing rehabilitation. Recent monitoring data has indicated that this area is more suited to a woodland habitat PMLU. The area has been included in RA1 and will be subject to additional landform development and reshaping prior to growth media application and seeding with woodland habitat species.

The existing rehabilitation at Ramp 16 has contour banks and rock lined drains, and these will remain until the slope has stabilised and vegetation has established. Once the slope has stabilised, the contours will be disconnected from the drains and rehabilitated to the same standard as surrounding rehabilitation. The contours and drains will be monitored and maintained to ensure they are effectively managing surface water. If monitoring identifies the contours are contributing to an unstable landform, corrective actions will be undertaken and could include removal of the contours.

Item	PRCP Plan/ Schedule	Issue	Required Information
33	PRC Plan Section 6.1.5, Appendix J, PRCP Schedule	Erosion control and vegetation cover Appendix J found that some materials present onsite should not be used on steeper and/or longer slopes. This finding is not reflected in any milestone criteria, and insufficient information is provided in Section 6.1.5 of the PRC Plan to demonstrate that appropriate material handling/placement strategies are in place to ensure that the recommendation has been implemented. Appendix J also found that certain levels of vegetation cover are necessary to ensure erosional stability, and that these levels vary based on slope gradient and between materials due to the inherent erodibility properties of the materials. Section 6.1.5 of the PRC Plan notes that <i>“Total groundcover manages erosion risk, which includes a combination of rock, vegetation and organic litter cover. In Goonyella Riverside and Broadmeadow Mine (EPML00853413) Progressive Rehabilitation and Closure Plan Version 1.0 (29 November 2024) Uncontrolled when printed Page 125 the WEPP and SIBERIA models, the rock cover component is incorporated into the material parameters and a range of vegetation cover is modelled.”</i> Consequently, recommendations arising from the modelling presented in Appendix J for vegetation cover must be considered to be over and above any rockiness inherent to the materials tested. As such, the groundcover level criteria proposed in the PRCP schedule do not meet the recommendations arising from the erosion assessment and are not sufficient to fulfil the assumption <i>“provided the target levels of vegetation cover are achieved”</i>.	Provide a revised PRC Plan inclusive of – a) Appropriate milestone criteria for slope geometry, material placement, and vegetative groundcover (consistent with the definitions used in Appendix J) that are informed by and consistent with the findings and recommendations of the erosion assessment presented in Appendix J. b) Revised criteria should be appropriately and clearly justified in the Rehabilitation Planning Part. c) Alternatively, provide a revised Appendix J that includes updated model scenarios that reflect the proposed landform design and surface treatment criteria to demonstrate that they can be expected to be stable in the long term.

As stated in the PRC plan Section 6.1.5.3, total groundcover manages erosion risk, which includes a combination of rock, vegetation and organic litter cover, therefore the proposed landform and groundcover milestone criteria, updated to align to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025), is justified by the modelling in Appendix J. The vegetation milestone criteria ensure the vegetation is suitable for the PMLU.

The definition of vegetation groundcover used in the PRCP was written and given to BMA by DETSI (Hayley Gottke) on 19/08/2024 for SRM (*SRM Draft PRCP Schedule_DESI Meeting_items to resolve 19082024.pdf*). The SRM landform design report included the identical wording for vegetation groundcover as the GRM landform design report (Appendix J). Therefore, BMA has used the DETSI provided definition for GRM (and the other BMA PRCPs).

Item	PRCP Plan/ Schedule	Issue	Required Information
34	Appendix P Geotechnical report	Subsidence impact on mining areas impacted by open-cut disturbance As mentioned in Item 1 of this RFI, the spatial data does not clearly identify areas to be impacted by both above ground and underground mining activity impacts, such as the south portion of Goonyella pit and nearby above ground overburden dump. Consequently Appendix P does not seem to have geotechnical assessment of subsidence impacts on aboveground dump, NUMA wall, and Isaac River diversion stability. The PRC plan and relevant appendices do not specify – • how subsidence-related channel deformation and stability risks will be managed, • subsidence effects on topography and hydraulic pathways, • if revised modelling post-subsidence is planned, • specific criteria for diversions, NUMA, above ground rehabilitated overburden dump to adopt the post-subsidence conditions. The PRC plan should clarify if reinforcement or drainage measures are required for diversions, overburden dumps and NUMAs, which are impacted by subsidence.	Provide a revised PRC Plan or Appendix P inclusive of information on – a) How subsidence-related channel deformation and stability risks will be managed, b) Any reinforcement or drainage measures required for diversions, c) Subsidence effects on topography and hydraulic pathways, d) If revised modelling post-subsidence is planned; and e) Specific criteria for diversions, NUMA, above ground rehabilitated overburden dump to adopt the post-subsidence conditions.

The pluvial modelling in subsidence areas is detailed in PRC plan Section 6.1.2 and Appendix H. The PRC plan includes conceptual drainage design based on the modelled subsidence (PRC plan Section 6.1.2.1, Section 6.1.2.3 and Section 6.4.3). Actual subsidence could vary significantly from the modelling, therefore final drainage design and works will be undertaken once subsidence is fully realised to ensure modelling and drainage works are accurate for the actual final subsided landform and a PMLU to a stable condition is achieved (PRC plan Section 6.1.2.3 and Section 6.4.3).

As detailed in RFI 21a, drainage is installed to control and limit the entry of surface flows from the subsidence areas into the Isaac River. Rock armour and timber pile fields are also used to reduce erosion of the banks where required. Section 6.4.3 of the PRC plan has been updated to indicate that the drainage channels will be designed by an AQP on a case by case basis and will include an assessment of the surface materials and application of ameliorants, if required. The AQP may also recommend the use of rock for stability, particularly where the drainage channels flow into watercourses to limit head cut erosion.

The Isaac River diversion conceptual design (Appendix K) has been updated to incorporate subsidence management controls (refer to RFI 20).

The proposed milestone criteria is appropriate to achieve a stable condition in diversions impacted by subsidence; as well as the low risk subsidence presents to NUMAs (refer to RFI 56); and the low risk subsidence presents to the spoil dumps (refer to RFI 36).

Item	PRCP Plan/ Schedule	Issue	Required Information
35	PRC plan section 6.5	Infrastructure to be retained Table 51 from section 6.5 lists the categories of infrastructure associated to the approved GRM mining activities. The section further states that, 'BMA owned surface infrastructure not beneficial to the PMLU will be decommissioned and infrastructure supportive to the PMLU will be retained which may include: fencing; access tracks; services related infrastructure; sheds and buildings; hardstand areas/transport logistics areas; and water related infrastructure. It is not clear what comprises services related infrastructure, nor how sheds and buildings; hardstand areas/transport logistics areas will be beneficial for cattle grazing and woodland habitat PMLU. The section does not discuss ongoing maintenance requirements as such further information is required. It is noted that there are some portions of the mining lease categorised as 'non-BMA owned land' and 'BMA leasehold land'. Clarification is required on if any of the proposed infrastructure to be retained is on non-BMA or leasehold land. Where infrastructure proposed to be retained is located on land not owned by BMA, a landholder agreement accepting retention of infrastructure is required.	Provide a revised PRC plan and PRCP schedule inclusive of – a) A revised table 51 clarifying which particular infrastructure is to be decommissioned, and which is to be retained, b) A revised section 6.5 to justify how proposed infrastructure to be retained beneficial to a PMLU, c) Clarification if any of the proposed infrastructure to be retained is on non-BMA or leasehold land . Where infrastructure proposed to be retained is located on non BMA land, provide evidence of a landholder agreement accepting retention of infrastructure. d) A PRCP schedule with a separate RA for infrastructure to be retained, to ensure appropriate rehabilitation criteria applied to ensure safe use of structures for PMLU, including desilting of the dams if proposed to be retained and supported by the landholder agreement.

- a) PRC plan Section 6.5 details a list of example BMA infrastructure that may be retained if it has a demonstrable benefit to the PMLU. Mining is scheduled to 2059 with infrastructure required to support RHM operations (final mining 2091), therefore it is not feasible to nominate the infrastructure to be retained and obtain landholder agreements at this stage in the operation. Table 51 (Table 49 in the updated version submitted with the information request response) has therefore not been revised.
- b) As above, it is not feasible to nominate the infrastructure to be retained and obtain landholder agreements at this stage in the operation, therefore PRC plan Section 6.5 has not been revised.
- c) As above, there are no landholder agreements currently in place. Milestone criteria 1.1, 1.2 and 1.4 cover the requirements for any retained infrastructure to ensure it is: safe, stable, will not cause environmental harm and is accepted by the landholder.
- d) Separate RAs are not required, the proposed milestone criteria is written to be suitable for both infrastructure to be removed or be retained.

RFI 36

Item	PRCP Plan/ Schedule	Issue	Required Information
Subsidence			
36	PRC plan section 6.4.1 Geotechnical study, Appendix P Geotechnical report	Subsidence impact and stability of above ground overburden dumps Subsidence may de-stabilise overburden dumps, leading to tilting, and cracking. The stability modelling is required for dumps included in the final landform to ensure long-term integrity.	Provide a revised Appendix P inclusive of – a) Geotechnical assessments of settlement rates.

- a) As indicated in the response for RFI 22, the north-west GLS underground panels have been removed from the mine design. Only a small area of subsidence is remaining under the southern end of the Goonyella Pit spoil dumps. Maximum modelled subsidence in this area at ground level is less than 6m. The dump above this area is planned to be up to 150m above ground level. Destabilisation of the spoil dumps from subsidence is therefore very low risk, however as the majority of the subsidence in this area occurs during operations, the stability of the dump will be monitored as part of operations. (Also, operationally, underground mining will not occur if the geotechnical assessment prior to mining indicates it is not safe to do so). The risk assessment has been updated to reflect the low risk of subsidence impacting on spoil dump stability.

As mining at GRM continues after final mining at BRM, active spoil dumping from the open cut operation will continue in this area until after final subsidence is realised (after BRM underground workings are flooded). The proposed milestone criteria ensures that subsidence will not impact achieving a PMLU and is appropriate for all spoil dump areas, regardless of whether or not they are above underground mining areas.

As subsidence is fully realised during operations, no further geotechnical assessment of settlement rates are required, therefore Appendix P has not been updated.

RFI 37

Item	PRCP Plan/ Schedule	Issue	Required Information
37	PRC plan section 6.1.5.2, 6.4.3 Geotechnical study, Appendix P Geotechnical report	Subsidence impact and stability of NUMA PRC plan section 6.1.5.2 states that, 'except for the catchment into the residual void and limited areas of temporal ponding within the subsidence areas, the final landform will predominately be free draining where required to limit impacts.' This suggest, residual void catchment areas likely to be impacted by subsidence may have ponding issues. NUMAs must remain stable and non-polluting post-mining. Subsidence can cause differential settlement, erosion, or unintended ponding. The ponding must not exceed three consecutive months per year. The current EA does not authorise extended ponding. PRC plan section 6.4.3 states that predominantly backfilling and drains are the mitigative measures planned for areas likely to be impacted by subsidence to reduce risk of ponding. The section does not clearly discuss which of the NUMA areas likely to be	Provide a revised Appendix P inclusive of – 37.1 A subsidence monitoring plan demonstrating how NUMA ponding impacts are assessed and managed.

Item	PRCP Plan/ Schedule	Issue	Required Information
		affected by subsidence/ponding issues, its associated impact to the stability of NUMA and discussion on relevant mitigative measures for the same.	

PRC plan Section 6.1.5.2 extract referred to in the RFI issue “*except for the catchment into the residual void and limited areas of temporal ponding within the subsidence areas (Section 6.1.2), the final landform will predominately be free draining where required to limit impacts*”, has been misunderstood. This section has now been re-worded in the PRC plan to be clearer that the “*catchment into the residual void*” and “*limited areas of temporal ponding within the subsidence areas*” are totally separate areas across the site.

The limited areas of temporal ponding were introduced in Section 6.1.2.3 of the PRC plan and include three areas in the southernmost subsidence panels to the east of Isaac River. The rewording of Section 6.1.5.2 now clarifies that there is no temporal ponding within the NUMA area. Therefore, a subsidence monitoring plan for the NUMA has not been included in Appendix P.

RFI 38

Item	PRCP Plan/ Schedule	Issue	Required Information
Material Characterisation			
38	PRC Plan section 6.1.3.3 Geochemical classification of mineral waste	Risk of Acid and metalliferous drainage (AMD) The section states that – - Approximately half (51%) of tailings samples tested (aged and fresh) have a moderate to high potential to generate AMD as either acid drainage (AD) and/or neutral and metalliferous drainage (NMD) and/or Saline drainage (SD), - Remaining 49% have a relatively low to low-moderate potential to generate AMD as either AD/NMD/SD; and - Overall, bulk tailings are assessed as having a moderate-high potential to generate AMD and should be regarded as a high risk. Further the section states that test work indicated that about 30-60% of the Acid neutralising capacity (ANC) may be available under field conditions, however the ‘field availability’ of ANC ranged from 9% to 100%. Carbonate concentrations were generally higher in fresh CHPP tailings (and rejects) samples compared to aged samples probably due to carbonate being consumed in the aged samples due to buffering reactions associated with sulphide oxidation. Consumption of carbonate is also consistent with the lower ANC values in aged tailings compared to fresh tailings. The above observation is evident of a PAF oxidation on site, particularly during operational stage. It is possible that non-	Provide a revised PRC plan inclusive of – - Information on PAF oxidation on site if present; and - Explanation on how the proposed TSF conceptual cover design considers the AMD risk.

Item	PRCP Plan/ Schedule	Issue	Required Information
		aged tailings which may be the last materials to be placed in the TSF pose a risk of AMD if the soil cover is inadequate. Further information required to explain how the proposed conceptual cover design fulfills requirement of 'adequate soil cover' considering the AMD risk.	

The PRC plan commits that detailed cover designs will be developed by an AQP prior to construction. This ensures the design is based on the latest information and data available for each specific facility and appropriately manages the risk of acid and metalliferous drainage (AMD). Additional milestone criteria, aligned to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025), has been included in RM3 for cover design and installation to ensure the risk is managed.

RFI 39

Item	PRCP Plan/ Schedule	Issue	Required Information
39	PRC Plan section 6.1.3	Drainage Flux The section provides information on leaching potential of waste material when subjected to different controlled conditions. The tailings samples were subjected to freshwater and conditions designed to promote oxidation and following results were obtained – - Most tailings samples subjected to freshwater showed leaching of low concentrations of soluble metals and metalloids. - PAF samples produced weakly acidic to pH neutral leachate with moderate metals and metalloid concentrations; and - PAF samples under oxidation conditions produced weakly to highly acidic leachate with moderate to high soluble metals and metalloids. The above results are indicators that under acid/acidic conditions, some tailings can generate elevated metal and metalloid loads. Based on this finding, the cover design must demonstrate that the expected drainage flux into the TSF will not generate acidic seepage. this may only be possible by complex 2-D hydro chemical modelling of the full TSF landform.	Provide a revised PRC plan inclusive of – - Information on potential drainage flux to be generated from TSF material based on material characterisation results, - Future consideration of 2-D hydro chemical modelling of the full TSF landform, - Proactive management measures to avoid/reduce drainage flux into the TSF, - Monitoring mechanism to measures drainage flux into TSF, - Mitigative measure to collect/treat acidic seepage; and - A revised cover design rehabilitation criteria capturing the above items.

The PRC plan commits that detailed cover designs will be developed by an AQP prior to construction. This ensures the design is based on the latest information and data available for each specific facility and appropriately manages the risk of drainage flux. Additional milestone criteria, aligned to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025), has been included in RM3 for cover design and installation to ensure the risk is managed.

RFI 40

Item	PRCP Plan/ Schedule	Issue	Required Information
40	PRC Plan section 6.1.3	Potential for salt rise Tailings on-site are expected to generate contact water that is slightly to moderately saline (i.e. EC less than 2,000µS/cm) in nature due to salinity linked to both non-oxidative processes (i.e. from the dissolution of salts and not oxidation of pyrite) and oxidative processes (i.e. from the oxidation of pyrite to produce sulphate). It is noted that due to the generally low to low-moderate total S concentration (with some exceptions) the sulphate loads are not expected to be high. Irrespective, the potential for salt rise from the tailings/spoil needs to be investigated and if necessary managed.	Provide a revised PRC plan inclusive of – Discussion on the potential for salt rise from the tailings/spoil due to saline drainage potential.

The PRC plan commits that detailed cover designs will be developed by an AQP prior to construction. This ensures the design is based on the latest information and data available for each specific facility and appropriately manages the risk of salt rise. Additional milestone criteria, aligned to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025), has been included in RM3 for cover design and installation to ensure the risk is managed.

RFI 41

Item	PRCP Plan/ Schedule	Issue	Required Information
Cover design			
41	Section 6.1 Appendix I: Geochemical Characterisation assessment	Saline drainage considerations in cover design PRCP guideline section 3.6.1 states that a cover design is required for surface treatment of a mine waste landform or other waste landform. The guideline requires cover design to take into consideration results from geotechnical characterisation. Section 6.1 of the Appendix I: Geochemical Characterisation assessment states that – • carbonaceous spoil has potential to generate low-level saline drainage, • approximately 51% of tailings has a moderate to high potential to generate AMD as either AD and/or NMD and/or SD, and remaining 49% (approximately) has a relatively low to low-moderate potential to generate AMD as either AD and/or NMD and/or SD; and • 22% of the rejects (aged and fresh) has a moderate to high potential to generate AMD as either AD and/or NMD and/or SD, whereas the remaining 78% (aged and fresh) has a relatively low to low	Provide a revised PRC plan that - a) Explains how the geochemical characterisation results from Appendix I, specifically the saline drainage risks have been considered through proposed conceptual cover design; and b) Updates the cover design to adopt a conservative approach pending further material characterisation results and detailed cover design.

Item	PRCP Plan/ Schedule	Issue	Required Information
		moderate potential to generate AMD as either AD and/or NMD and/or SD. The Appendix I thus suggests potential of saline drainage from the spoil owing to its sodic and dispersive nature and from tailings and rejects material. The issue is evident by current situation of GS1 TSF facility generating seepage which is flowing in the nearby paddock. Thus, as per PRCP guideline the waste rock dumps and waste emplacement landforms which are used as in-situ disposal of CRE likely to require a cover design suitable to manage saline drainage risk. The proposition to incorporate 2 m of spoil in the (conceptual) cover designs needs more information in terms of as-constructed permeability and salt capillary rise. It is recommended field trials be undertaken to demonstrate the most appropriate cover design. It is not clear why PRC plan section 6.1.6.1 proposes a minimal conceptual cover design without saline risk management features when a specific risk has been flagged by the Appendix I for saline drainage.	

The PRC plan commits that detailed cover designs will be developed by an AQP prior to construction. This ensures the design is based on the latest information and data available for each specific facility and appropriately manages the risk of saline drainage. Additional milestone criteria, aligned to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025), has been included in RM3 for cover design and installation to ensure the risk is managed.

RFI 42

Item	PRCP Plan/ Schedule	Issue	Required Information
42	PRC plan section 6.1.6.1	Conceptual cover design for TSF EA holder has proposed an interim TSF design of non-ponding landform with at least 2m of spoil cover. PRC plan states that, <i>'Construction design for the TSF cover cannot be finalised until in-situ strength profiles of the tailings are measured. Testing for strength profiles should be done as soon as practicable before cover works commence, once the tailings are dewatered with a sufficient crust to safely work on. In-situ infiltration tests to confirm construction materials and methodology may be undertaken after suitable spoils have been identified and must be completed before the design is finalised'</i>. The PRC plan states that geotechnical characterisation has been carried out for	Provide a revised PRC plan, PRCP schedule and relevant appendix inclusive of – a) An interim conservative TSF cover design criteria to ensure infiltration is minimised (e.g. <5% average annual rainfall), no salt rise (e.g capillary break) and bearing capacity (e.g. compaction density), b) An interim conservative TSF cover design criteria that addresses risks of acidic seepage, saline drainage issues,

Item	PRCP Plan/ Schedule	Issue	Required Information
		samples collected at CHPP, and dried rejects but any in-situ strength assessment is pending. Further information is required as per s3.6.2 of PRCP guideline on following tailings geochemical aspects to support a cover design – • Particle size distribution analysis based on conditions in the TSF. Particle size distribution of tailings affects their hydraulic sorting down the tailings beach, and their settling, consolidation and desiccation on atmospheric exposure. • Specific gravity testing. The specific gravity of tailings affects their hydraulic sorting down the tailings beach, and their settling and consolidation. • Settling testing of the tailings used as an indicator of the settling density of the tailings. • Consolidation testing of the tailings to estimate their consolidated density and saturated hydraulic conductivity. Soil water characteristic curve testing to assess the unsaturated behaviour of the tailings on desiccation and calculate the unsaturated hydraulic conductivity function. It is not clear, in the absence of the abovementioned geochemical data, what inputs, risk factors have been considered to propose an interim cover design which appears to be for low-risk material. Considering limited site-specific geochemical data, and material characterisation showing potential of AMD and saline drainage generation a conservative interim TSF cover design criteria seem prudent than the proposed low-risk cover design criteria. As proposed in PRCP schedule a geochemical sampling and analysis is scheduled to be undertaken in next few years as such, the conservative cover design-based rehabilitation criteria could be amended later when TSF cover design report is ready.	c) A revised schedule reflective of earlier rehabilitation timeline if TSF material characterisation assumed to be similar to adjacent BMA mines, and/or; d) Information required as per s3.6.2 of PRCP guideline.

The PRC plan commits that detailed cover designs will be developed by an AQP prior to construction. This ensures the design is based on the latest information and data available for each specific TSF and appropriately manages the risks. Additional milestone criteria, aligned to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025), has been included in RM3 for cover design and installation to ensure the risk is managed.

PRC plan Section 6.2 does include all the required information as per s3.6.2 of the PRCP Guideline.

Item	PRCP Plan/ Schedule	Issue	Required Information
43	PRC plan section 6.2.1	Proposed progressive rehabilitation timeframe for TSFL The PRC plan section 6.2 provides information on the four TSFs namely, GS1, RS1, DRE5 and R32. GS1 and RS1 have been decommissioned in 2020-21. R32 is the active facility while DRE5 is a backup. The PRCP schedule proposes RA9 which consolidates area under all four TSF's. The proposed commencement of first rehabilitation milestone is 2026. Further with consideration that RM0.1 – RM0.3 do not involve actual progressive rehabilitation, the actual commencement of on ground rehabilitation work is delayed until 2037. This timeframe is not supported considering two of the TSFs are already decommissioned. Facilities GS1 and RS1 should be available for rehabilitation at present. If required, the PRCP Schedule should split the decommissioned facilities from the active facilities to enable different rehabilitation scheduling that better reflects the operational status.	Provide a revised PRC plan and PRCP schedule inclusive of – A separate RA for decommissioned TSFs to show progressive rehabilitation first milestone commencement in accordance with PRCP guideline. ¹ PRCP guideline Step 6, page number 45 states what constitutes as soon as possible for commencement of first rehabilitation milestone after area becomes available.

BMA do not agree that separate RAs are required to show progressive rehabilitation of TSFs with different operational status, the PRCP schedule enables this through scheduling TSFs at different times. The PRCP Guideline states rehabilitation areas must be based on the proposed rehabilitation or management methodology applicable to the PMLU. All TSFs included in RA9 require the same rehabilitation milestones and the same proposed rehabilitation methodology to achieve the same PMLU.

RM0.1 – RM0.3 has been removed from the PRCP schedule and the PRCP schedule has been updated to reflect rehabilitation of each area as soon as practicable (refer to RFI 55).

GS1 is available for rehabilitation now, however as detailed in Section 6.2.3 of the PRC plan and shown to DETSI during the site visit in May 2025, the tailings are not sufficiently dried out to undertake the required testing and sampling to inform the detailed cover design. This includes measuring in-situ strength profiles as well as sourcing additional geochemical and geotechnical data. The as soon as practicable timing reflects the level of uncertainty associated with dewatering of GS1, as well as the time needed for the data collection required to develop the detailed cover designs.

The PRCP risk assessment (Appendix Q) has been updated to clearly identify the risks associated with the knowledge base gaps and the controls needed to mitigate the risk. The commencement of the first rehabilitation milestone for RA9 reflects the time required to implement the controls. This aligns to Section 11 of the DETSI *Common Issues with Progressive Rehabilitation and Closure Plan (PRCP) Applications Information Sheet*. The PRC plan has been updated to be clearer and provide more details on the knowledge base gaps, the activities required to address the gaps, and the timings in the Knowledge Base Refinement section, Section 6.1.6 and Section 6.2.3. The PRC plan and PRCP schedule have been updated to remove RM0.1 - RM0.3.

RS1 is not available for rehabilitation as it is still being used for operational purposes for rejects dumping as was detailed in the PRC plan Section 1.4.1 Table 12.

RFI 44

Item	PRCP Plan/ Schedule	Issue	Required Information
Cover design			
44	Section 6.1.4, Appendix E, PRCP Schedule RM4, RM5, RM6	Growth media Appendix E and Section 6.1.4.1 of the PRCP indicate that some soil and spoil materials have limitations which may impact their suitability for use as growth media. The proposed criteria RM4.2, RM5.2 and RM6.2 do not provide sufficient assurance that unsuitable materials are excluded from use as primary or secondary growth media, and section 6.1.4.1 and 6.1.4.3 do not include sufficient information to demonstrate that materials will be managed appropriately.	Provide a revised PRC plan inclusive of - a) Detailed justification for the proposed growth media thresholds. b) Clear growth media quality targets that would exclude unsuitable materials from use.

The proposed milestone criteria has been updated to align with the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025) and includes an assessment of growth media characteristics by an AQP and application of ameliorants and physical treatment to target land suitability class ≤ 3 for cattle grazing areas or the target vegetation for grassland, woodland habitat and watercourse areas.

RFI 45

Item	PRCP Plan/ Schedule	Issue	Required Information
Revegetation			
45	PRC Plan, Table 11: Regional ecosystems (p 32-33)	Remnant ecosystems A list of Regional Ecosystems within GRM and BRM is provided in Table 11, but this does not supply any information about which remnant ecosystems are prevalent or their extent across the area and in surrounding areas. Further information is needed to clarify which remnant ecosystems are dominant in the area as this provides guidance as to the target regional ecosystems for the proposed PMLUs and associated species mixes.	Provide a revised PRC plan inclusive of - a) Clarification on which remnant ecosystems from PRC plan Table 11 are prevalent; and b) The area (ha) of each regional ecosystem listed in the table as this is difficult to infer from Figure 8.

- PRC plan Section 1.2.8.1 has been updated to list the prevalent ground-truthed regional ecosystems within GRM and BRM.
- The information required by PRCP Guideline Section 3.1 has been provided in PRC plan Section 1.2.8, therefore no change has been made.

Item	PRCP Plan/ Schedule	Issue	Required Information
46	PRC plan section 3.1.2 and 6.1.8.7	Woodland PMLU A hybrid ecosystem with average benchmarks derived from surrounding REs is proposed to comprise the Woodland Habitat. This is acceptable but may not be necessary. RE 11.5.3 is widely distributed in the area and would be a suitable target as evident by PRC plan Table 67. The PRC plan should consider RE 11.5.3 only, or an 11.5.3/11.5.9 hybrid if greater flexibility in species selection is desirable. Additionally, hay mulch application is proposed, however the PRC plan does not include any details of management measures that will ensure the hay mulch applied is weed free Monitoring of the woodland habitat includes two reference sites shown through Figure 23. The two reference sites do not cover the range of RE's proposed for the hybrid. At least one of reference site is required to ensure complete representation of the target RE's.	Provide a revised PRC plan inclusive of - a) A discussion on the appropriateness of using RE 11.5.3 as a target regional ecosystem, rather than a hybrid ecosystem. b) Management measures that ensure hay mulch used is weed free. c) At least one more Woodland reference site, ensuring the REs used in the hybrid ecosystem (if used) are represented. It would be useful to have a reference site on the eastern side, giving better representativeness (ensuring it is in remnant vegetation). This is in addition to assessing baseline condition where remnant vegetation intersects subsidence areas.

- a) Woodland habitat revegetation of the spoil dumps aims to achieve a 'hybrid' ecosystem as the elevated spoil dump landforms vary from pre-mining landforms and do not align with any specific land zone under the regional ecosystem framework. The revegetation species seed mix is based on key framework tree, shrub and grass species from RE 11.5.3, RE 11.5.9 and RE 11.7.2 as these regional ecosystems best align with the woodland habitat rehabilitation landforms (i.e. hilly, rocky terrain and/or substrates with poorer soils), and are more appropriate than a target regional ecosystem of RE 11.5.3.
- b) The requirement for hay mulch to be weed free will be specified when sourcing the resource. Where possible, cattle grade hay mulch will be sourced.
- c) As per PRC plan Section 8.4.2, additional or alternative woodland habitat reference sites may be established in the future. A third woodland habitat reference site located in RE 11.5.9 can be established as part of the next scheduled rehabilitation monitoring.

RFI 47

Item	PRCP Plan/ Schedule	Issue	Required Information
PRCP Schedule			
47	PRC plan section 8.2.5 and PRCP schedule RM17 – Achievement of PMLU to a stable condition (existing rehabilitation)	BioCondition for existing rehabilitation and watercourse The BioCondition scores and timeframes proposed via Table 64 of the PRC plan for achieving the Woodland PMLU are best practice. Section 8.2.5 concludes that RA10 Existing rehabilitation and RA21 Subsidence will be monitored for the site-based attributes listed in Table 64. However on review of the relevant rehabilitation milestones (RM) for existing rehabilitation, only RM11 has reference to Table 64. References to Table 64 should ideally be replicated in RM18. Watercourse For watercourse areas, however, the milestone criteria are minimal, and attainment will not result in stable, self-sustaining riparian vegetation. Also, there is no explanation regarding the sampling procedures for monitoring the stated criteria in PRC plan Table 65.	Provide a revised PRC plan and PRCP schedule inclusive of - a) Revised RM18 criteria to adopt/reference BioCondition benchmarks milestone criteria from PRC plan Table 64; and b) A revised Table 64, BioCondition-based milestone criteria inclusive of the riparian RE for watercourse PMLU.

The proposed milestone criteria for RM18 woodland habitat vegetation and RM15 watercourse vegetation aligns to the criteria agreed for Saraji South Mine PRCP (approved 29 August 2025). A BioCondition score based on PRC plan Section 8.2.6 Table 64 (Table 63 in the updated version submitted with the information request response) will apply to RA1 and RA4.

RFI 48

Item	PRCP Plan/ Schedule	Issue	Required Information
48	PRC plan section 6.1.8.7	Effect of subsidence impact on remnant vegetation There is insufficient information about where remnant vegetation will intersect with long wall panels in RA21 (PRCP schedule). Clarification is needed on the baseline condition of that remnant vegetation (i.e. BioCondition), or if there's a comprehensive plan to assess and monitor subsidence. This will be needed to assess the impacts of subsidence on remnant vegetation, and subsequently understand suitable remnant vegetation such as the fringing vegetation type proposed through PRC plan to target rehabilitation. It is noted that if residual ponding in subsidence area is inevitable (after appropriate drainage measures are in place),	Provide a revised PRC plan inclusive of - a) A discussion on subsidence impact on remnant vegetation, b) Identification of the baseline condition of that remnant vegetation, c) A commitment to mitigative measures to reduce ponding d) BioCondition-based milestone criteria with achieving 66% of the baseline condition of base RE or substitute RE

Item	PRCP Plan/ Schedule	Issue	Required Information
		the proposed use of substitute RE is justifiable. Any areas requiring rehabilitation can be monitored using the modified BioCondition-based milestone criteria with achieving 66% of the baseline condition of that RE, or benchmark for the substitute RE, as the completion target.	

The PRC plan has not been revised as the required information is already sufficiently provided in the plan.

a/b) The PRC plan includes the required information in Sections 1.2.8, 6.4.3 and 6.4.4.4. The ground-truthed regional ecosystems are also shown in Figure 8 (Section 1.2.8).

c) The PRC plan Section 6.4.4.3 details the rehabilitation strategies for inundation areas which is based on the pluvial modelling (Section 6.1.2.3). The rehabilitation of subsided areas is proposed to include:

- RA20: areas to the west of the Isaac River, which have been subject to mining related surface disturbances, are proposed to be backfilled in order to create a predominantly free draining final landform. Drains are not practical in this area due to the depth of modelled subsidence, however they may be utilised if the actual subsidence is less than modelled.
- RA21: areas to the east of Isaac River are proposed to use a combination of backfill and drains to minimise inundation to a maximum of 1m depth in a 2% AEP rainfall event, where practical
- Topsoil placement over backfilled areas or larger crack repairs
- Seeding backfill or disturbed areas
- Installation of temporary fencing if required to restrict access while vegetation re-establishes.

d) The final woodland habitat vegetation criteria for RA21 has been transitioned from the EA rehabilitation acceptance criteria. The revegetation objective for RA21 is *“establishment of vegetation from substitute REs (RE 11.3.2b and RE 11.3.27f) suited to temporal ponding (applicable if ponded areas remains)”*. Therefore, the representative regional ecosystems (RE 11.5.3, RE 11.5.9 and RE 11.7.2) included in PRC plan Table 64 (Table 63 in the updated version submitted with the information request response) and the associated BioCondition site-based attribute benchmarks are not relevant for RA21.

RFI 49

Item	PRCP Plan/ Schedule	Issue	Required Information
49	PRC plan section 3.1.3 and 8.4	Watercourse PMLU Watercourses provide landscape connectivity and important habitat for wildlife. As such they should be rehabilitated and managed to maintain or regain their value post-disturbance. The Isaac River is identified as a conservation corridor (DETSI mapping). Native riparian vegetation should extend either side of the watercourse for at least 100 m to ensure retention/re-connection of this habitat corridor. The watercourse PMLU should also be designed and established to provide habitat for greater glider and koala by identifying suitable feed trees and ensuring these are included in the riparian species mix.	Provide a revised PRC plan inclusive of - a) Species mix with glider/koala feed trees that occur in RE11.3.25, b) Watercourse PMLU (with riparian vegetation) on both sides of the Isaac River for its entire path through GRM & BRM MLs, c) Specific width of the riparian corridors and ensure these are adequate to provide connectivity along watercourses and buffering from adjacent

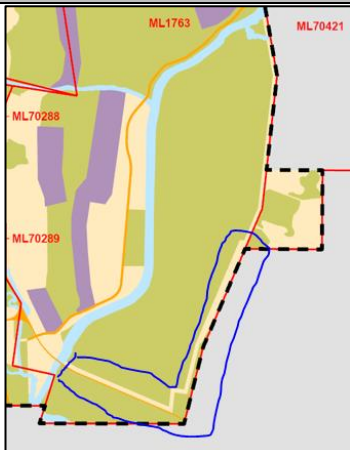
Item	PRCP Plan/ Schedule	Issue	Required Information
			grazing where this is planned, recommended width minimum 200m, d) Identified riparian reference sites added to Figure 23; and e) Identification of any areas where remnant riparian vegetation will intersect with long-wall panels thus affected by subsidence and describe its baseline condition (BioCondition).

The PRC plan has not been revised as the required information is already sufficiently provided in the plan.

- a/b) The entire length of the Isaac River is planned as a watercourse PMLU (PRC plan Section 3.1.4) with riparian vegetation on both sides. The seed mix for the watercourse PMLU is based on RE 11.3.25 species (PRC plan Section 6.1.8.9).
- c) The watercourse PMLU riparian corridors are adequate to provide connectivity along watercourses. As detailed in PRC plan Section 3.1.4, the RA2 and RA11 lateral limits (widths) were determined considering aerial imagery of the creeks and associated riparian vegetation/regional ecosystems, Strahler stream orders, flood modelling and diversion designs.
- d) The creek diversion and riparian references sites are shown on PRC plan Section 8.4.3 Figure 24.
- e) PRC plan Section 1.2.8 provides details the ground-truthed regional ecosystems, and they are shown on Figure 8. There is no requirement to provide BioCondition details.

RFI 50

Item	PRCP Plan/ Schedule	Issue	Required Information
50	PRC Plan section 3.1.1 and Figure 28 Final site design	Grazing PMLU The figure shows thin sections of grazing PMLU bisecting Woodland PMLU, exposing the rehabilitating woodland to potential impacts such as weed spread. It is unclear if the woodland PMLU will be grazed. The thin sections of grazing poses a risk to achievement of self-sustaining, stable woodland PMLU, due to use of introduced pasture species in revegetation which likely to spread and take over the woodland habitat PMLU unless there's an effective barrier in place.	Provide a revised PRC plan inclusive of - a) Explain why the thin fringing of grazing section that bisect woodland PMLU is required; and b) Reconfigured final design to change PMLU of the abovementioned thin sections to woodland PMLU.

Item	PRCP Plan/ Schedule	Issue	Required Information
		 Figure 1: The thin strip of grazing PMLU going through the woodland habitat	

- The area highlighted in the RFI issue is part of the Queensland stock route network (SR: 831ISAA), therefore it is mapped as cattle grazing PMLU. The PRC plan Section 3.1.1 has been updated to include this information.
- As this area is part of the Queensland stock route network (SR: 831ISAA), the PMLU has not been changed.

RFI 51

Item	PRCP Plan/ Schedule	Issue	Required Information
Revegetation			
51	PRC plan section 6.1.4.2	Permian spoil use as growth media There are no rehabilitation trials proposed at GRM. The section 6.1.4.2 states that for the woodland habitat PMLU, an alternative growth media may be used prepared by ameliorating suitable permian spoil. There is no information provided to demonstrate reliability of proposed rehabilitation approach of use of permian spoil as a primary growth media in absence of topsoil coupled with low vegetation in achieving long term rehabilitation success. Confirm if above rehabilitation approach of use of permian spoil as primary growth media has been adopted at GRM for any existing rehabilitation. If not, provide basis/evidence to demonstrate success of the proposed novel approach. *Note: 'Primary Growth Media' is defined as the ability of materials to be used as a topsoil or topsoil surrogate.	Provide a revised PRC plan inclusive of – - Area details (area in hectares, and break up per domain) that is proposed to use permian spoil as primary growth media; and - Details of existing rehabilitation on site that demonstrate successful use of permian spoil as primary growth media for rehabilitation and able to support growth of vegetation long term.

Item	PRCP Plan/ Schedule	Issue	Required Information
		'Secondary Growth Media' is defined as the ability of materials to be used as substrate or substrate surrogate.	

- a) As detailed in PRC plan Section 6.1.4.2, ameliorated Permian spoil may be used as an alternative (primary) growth media on some woodland habitat areas where it is assessed by an AQP to be suitable to achieve the PMLU. Ameliorated Permian spoil will be used as an alternative growth media for spoil dump low-wall PMLU areas (RA1) and may also be used as a growth media for other spoil dump woodland habitat areas, where assessed by an AQP to be suitable to achieve the PMLU.

PRCP plan Section 6.1.4.2 has been updated to include the woodland habitat area proposed to use ameliorated Permian spoil as an alternative growth media.

- b) Multiple BMA sites have undertaken rehabilitation with Permian spoil as the primary growth media. Prior to 1990, topsoil was not pre-stripped and stockpiled. It was therefore common practice for rehabilitation undertaken during that time to not use topsoil and apply fertilisers with grass seeds (mostly buffel grass and Rhodes grass) to establish pastures for cattle grazing, however detailed records of these rehabilitation areas are not available.

An example of rehabilitation using Permian spoil as the growth media to establish woodland habitat is the GRM bucketwheel dump.

In 1992, a rehabilitation trial was undertaken to investigate different rehabilitation methods, growth media and surface treatments (Henderson Geotech, 1999). The trial landform was a spoil matrix dominated by weathered tertiary materials that were dispersive and markedly stronger when unsaturated than when saturated. The trial included several growth media and surface treatments. The growth media, slope and revegetation details of the two most effective trial treatments for reducing erosion and establishing diverse vegetation species were:

- Rock armouring - uniform layer of Permian spoil as the growth media, slopes 34 – 42%, seeded aurally with a woodland mix of *Eucalyptus sp.* and *Acacia sp.*
- Rock armouring - Permian spoil in rows along the contour as the growth media, slopes 34 – 42%, seeded aurally with a woodland mix of *Eucalyptus sp.* and *Acacia sp.*

In 1999, the GRM bucketwheel dump rehabilitation treatments were reviewed (Henderson Geotech, 1999). The trial indicated blocky spoil (rock armouring) on batters was the most effective measure for reducing erosion damage and providing sites for establishment of diverse vegetation species. Placement to achieve an irregular slope surface was more effective than a controlled uniform layer. Prior to the trial, the preference was to use highly durable rock as armouring; however, the treatments indicated that it is not essential for spoil to be extremely durable, as long as it degrades predominantly to sand and gravel sized fragments, rather than to clay. Only a small proportion of the armour rock area was degraded, and no progressive gully erosion or piping was observed (Henderson Geotech, 1999).

The GRM bucketwheel dump has supported native open woodland vegetation for about 30 years. Monitoring in 2022 (Ecological Australia, 2023) indicated that groundcover was high (72 – 100%), comprising of varying percentages of vegetation and rock cover, with rocky material providing erosion protection on steeper slopes. The monitoring sites had species richness ranges of 1 - 4 trees, 2 - 5 shrubs and 2 – 3 grasses. Established species included *Acacia sp.*, *Atalaya hemiglaucula*, *Eremophila mitchellii* and *Terminalia oblongata*. This rehabilitation provides evidence that Permian spoil can successfully be used as a growth media to achieve a woodland habitat PMLU.

Reference:

Henderson Geotech. (1999). *Geotechnical Stability of the Eastern Bucketwheel Landform*. Taringa

Ecological Australia. (2023). *Goonyella Riverside Mine Major Monitoring Report*. Brisbane. Prepared for BMA.

Item	PRCP Plan/ Schedule	Issue	Required Information
52	PRC plan section 8.1.2, Table 60.	Erosion Classification The PRC plan Table 64 shows the erosion classification proposed by the EA holder based on the CSIRO publication. The proposed classification does not have criteria for tunnel erosion and mass movement. PRC plan section 8.1.2 states that an AQP will assess all minor, moderate and tunnel erosions and it will be remediated if assessed as requiring intervention. This suggests that an AQP will have discretion to determine – • Method of monitoring, assessing different classified erosions; and • If remediation is required to achieve the PMLU. Clarify how the proposed approach for erosion monitoring meets the PRCP guideline section 3.8 requirement. • Further, the proposed erosion criteria allow for the presence of tunnel erosion. It is the department's position that the presence of tunnel erosion in post-mining land use (PMLU) landforms poses an unacceptable safety hazard and is not compatible with a stable condition. Milestone criteria must demonstrate that rehabilitated areas are stable and can be expected to remain stable and support the proposed PMLU.	Provide a revised PRC plan inclusive of – a) Identify critical areas from site where presence of tunnel erosion and mass movement will not be acceptable for demonstrating stable rehabilitation, example: TSF area, b) A clear methodology for monitoring and assessing different types of erosion as well as the criteria for determining when remediation is required, c) Confirmation that the proposed approach complies with the PRCP guideline requirements for erosion monitoring and remediation; and d) Revised milestone criteria reflecting the above items that adequately demonstrate that erosion has been minimised to a degree that it will not pose a risk to the ability of rehabilitated areas to achieve and sustain a stable PMLU.

- a) As discussed with DETSI at the GRM site visit (21 May 2025), BMA agree that the critical areas on site where the presence of tunnel erosion and mass movement are not acceptable include tailings and rejects areas. The milestone criteria for the achievement of surface requirements and achievement of the PMLU for higher risk areas (tailings and rejects) has been updated to include tunnel erosion is absent (refer to (d)). The proposed milestone criteria requires mass movement to be absent for all areas.

It is not practical to have no tunnel erosion in lower risk rehabilitation areas as extensive tunnel erosion is common throughout the Bowen Basin in areas not even disturbed by mining activities. Milestone criteria requiring tunnel erosion to be 'absent' in low risk areas is too absolute and may result in hundreds or thousands of hectares of rehabilitation failing if there is one small tunnel present.

- b) The PRC plan Section 8.1.2 details the monitoring and assessment of erosion.
- c) The monitoring and remediation of erosion aligns with the PRCP Guideline. No further changes are required.
- d) BMA has amended the proposed milestone criteria to restrict tunnel erosion on TSFs and rejects dumps (the previously proposed criteria already required mass movement to be absent).

RFI 53

Item	PRCP Plan/ Schedule	Issue	Required Information
53	PRC plan section 8.1.3	Subsidence cracking The section provides method for subsidence cracking monitoring (Lindar/on ground inspection) and frequency of monitoring. The section does not provide a benchmark against which the monitoring results will be assessed, or perhaps a benchmark that warrants further remedial action.	Provide a revised PRC plan inclusive of – A defined benchmark/trigger for subsidence monitoring results.

The monitoring program includes assessing surface cracking (PRC plan Section 8.1.3). Providing a trigger does not change the outcomes or PRCP schedule, as the schedule includes sufficient milestone criteria to manage the risk from subsidence cracking.

RFI 54

Item	PRCP Plan/ Schedule	Issue	Required Information
PRCP Schedule			
54	PRCP schedule	Final site design PRCP guideline section 4.1, step 1 states that, <i>'final site design must delineate the total area of the PRC plan as planned for surrender, including all proposed undisturbed areas (and their proposed uses identified as PMLUs)'</i> . The final site design is a map showing: - the maximum disturbance footprint - resource tenure boundaries - PMLU(s) and NUMA(s) for the land within the resource tenure(s) - flood plain extent. In consideration to above requirement, the provided final site design figure is missing following details – - Delineation of disturbed area from proposed undisturbed areas, - PMLU of undisturbed areas, - Flood plain extent.	Provide a revised final site design figure inclusive of – a) Delineation of disturbed area from proposed undisturbed areas, b) PMLU of undisturbed areas; and c) Flood plain extent.

- Due to the PRCP condition allowing exploration and minor ancillary activities outside of RAs, the maximum disturbance footprint was aligned to the EA boundary.
- The final site design figure provided in the original submission included the PMLU for all undisturbed areas.
- The flood plain extent (void in flood plain model as per PRCP Guideline Section 3.4) has been included in the updated final site design figure (Figure 28).

Item	PRCP Plan/ Schedule	Issue	Required Information
55	PRCP schedule RM0.1 to 0.3 Rehabilitation Milestone Criteria, PRCP Guideline s4.1, step 5	Rehabilitation milestone criteria The PRCP guideline section 4.1, step 5 states that <i>milestone criteria are used to demonstrate completion of <u>progressive rehabilitation</u> and improvement steps and events.</i> GRM EA defines Progressive Rehabilitation as following - - Progressive means, rehabilitation undertaken at a staged approach to rehabilitation as mining operations are ongoing; and - Rehabilitation means the process of <u>reshaping and revegetating land</u> to restore it to a stable landform in accordance with criteria set out in the EA and where relevant includes remediation of contaminated land. The proposed RM0.1 - RM0.3 criteria mainly consist of monitoring and modelling does not actually reflect 'progressive rehabilitation' of the available area for rehab. As such the proposed RM0.1 to RM0.3 rehabilitation criteria are unlikely to meet the PRCP guideline and SSM EA requirement. - An alternative option may be converting the criteria of RM0.1 to RM0.3 into PRCP condition.	Provide a revised PRCP schedule inclusive of – a) PRCP condition/s to reflect completion of project data collection, modelling, design and plans work within a defined reasonable timeframe; and b) Active rehabilitation criteria for all RAs that align with step 5 of the PRCP guideline, ensuring each milestone reflects tangible rehabilitation progress for available areas.

- a) Discussions with DETSI during the Information Request period clarified that DETSI do not think inclusion of PRCP condition/s in the PRCP schedule is suitable to address the RFI item. Therefore, BMA has not proposed condition/s.
- b) The activities listed in the EA definition of rehabilitation are generic and do not mention many other rehabilitation activities that are critical to achieve a stable condition including removal of infrastructure, covering tailings, placement of rock and growth media, amelioration, etc. It is therefore inappropriate to use this definition as evidence that establishing a sufficient knowledge base for the cover design is not rehabilitation.

Neither the EP Act nor the PRCP Guideline define rehabilitation. The EP Act definition of a rehabilitation milestone "*for the rehabilitation of land, means each significant event or step necessary to rehabilitate the land to a stable condition*", does not specify what a significant event or step is. The PRCP Guideline provides a list of common milestones but states the list is not exhaustive and applicants should develop site-specific milestones where appropriate.

In this Information Request DETSI indicate that rehabilitation milestones must be "active" rehabilitation, and they do not believe that establishing the knowledge base is part of rehabilitation. Rehabilitation is part of closure, and government and industry bodies alike are clear that an adequate knowledge base is essential to plan for successful closure and to achieve a stable condition. The International Council on Mining and Metals states in their Integrated Mine Closure: Good Practice Guide, that the knowledge base is the "*ongoing collection of background data to inform all aspects of closure and execution*"; "*is the information that will inform site-specific closure planning*"; and "*will inform all aspects of the closure plan, from setting the vision and objectives, through to designing engagement programmes, evaluating risks, selecting closure activities and defining success criteria*" (ICMM, 2025). They also indicate that "*Gaps and uncertainties will be identified over the mining life cycle, with studies, research and trials undertaken as*

needed to close knowledge gaps” and “The plans to address gaps and uncertainties over the life of the mine should be incorporated into the closure execution plan and used to inform closure planning and implementation” (ICMM, 2025).

The Australian Government state in their Leading Practice Sustainable Development Program for the Mining Industry Mine Rehabilitation handbook that *“Rehabilitation comprises the design and construction of landforms as well as the establishment of sustainable ecosystems or alternative vegetation, depending upon desired post-operational land use” and “At worst, initiating closure operations when the site has not developed the skills, equipment and necessary technical knowledge to successfully carry out a large rehabilitation program can result in very poor outcomes requiring very costly remediation, and with greatly reduced probability of successful closure” (DIIS, 2016).*

The Queensland Government also acknowledge the importance of the knowledge base in their Abandoned Mine Lands Program, stating *“Where there is uncertainty in the risk analysis or with the control options, additional technical studies may need to be commissioned to inform these decisions” (State of Queensland, 2021).*

Internal BHP guidance states that studies are part of closure activities and without a robust, relevant and fit for purpose knowledge base, decisions may be made without the right level of detail or erroneous information, resulting in sub-optimal closure outcomes, increased closure risk and destruction of asset value through increased cost and/or time for closure implementation.

The PRC plan has been updated to be clearer on the knowledge base gaps, the risks associated with these gaps, and the controls required to mitigate the risk. As supported by the references above, it is unreasonable to expect rehabilitation activities (RM1 – RM20) to be executed earlier in the PRCP schedule with these known knowledge base gaps. This indicates hectares of progressive reshaping and revegetation is more important than the legislative requirement on BMA to achieve land to a stable condition. Work to obtain sufficient data to close the knowledge base gaps, assess the closure risks and develop a detailed cover design is considered a crucial step by BMA. Without it, the risk of rehabilitation failing and requiring rework is high as a result of an inappropriate solution being implemented without having closed key knowledge base gaps.

Considering DETSI do not support including the required studies to close the knowledge base gaps as a rehabilitation milestone, BMA has removed RM0.1 - RM0.3 and updated the PRCP schedule for RA6 and RA9 to reflect rehabilitation as soon as practicable after areas become available for rehabilitation. The PRCP Guideline lists considerations for determining as soon as practicable can include, but are not limited to:

- *“the size of the area to be rehabilitated or improved*
- *the complexity of the rehabilitation or improvement methods*
- *the suitability of weather seasonality for the rehabilitation or improvement.”*

The rehabilitation of TSFs require a detailed cover design and construction methodology to be developed once the tailings have sufficiently dried out and sufficient data is sourced to close the knowledge base gaps. For TSFs this includes measuring in-situ strength profiles, along with additional geochemical and geotechnical data. This is an essential part of successful closure to enable facility specific risks to be assessed and the development of a cover design that adequately mitigates the risks. The ‘as soon as practicable’ timing reflects the level of uncertainty associated with dewatering of the TSFs, as well as the collection of data required to develop the detailed cover designs.

Rejects areas also require a detailed cover design based on the facility specific geochemical and geotechnical data. The ‘as soon as practicable’ timing for rejects areas is less than TSFs as no drying time is required.

The PRCP risk assessment (Appendix N) has been updated to clearly identify the risks associated with the knowledge base inputs of a detailed cover design and the controls needed to mitigate the risk. The commencement of the first rehabilitation milestone reflects the time required to implement the controls. This aligns to Section 11 of the DETSI *Common Issues with Progressive Rehabilitation and Closure Plan (PRCP) Applications Information Sheet*.

The PRC plan has been updated to be clearer and provide more details on the knowledge base inputs of a detailed cover design, the activities required to obtain the inputs, and the timings. The updates have been made in the Knowledge Base Refinement section, Section 6.1.6 and Section 6.2.3 of the PRC plan.

Item	PRCP Plan/ Schedule	Issue	Required Information
56	PRCP schedule	Subsidence area PRCP schedule RA20 and RA21 shows the area impacted by subsidence, but it does not include the area under waste rock dump and NUMA which is also to be impacted by subsidence, as the footprint overlaps under RA1 and NUMA. However, this approach limits the department's and EA holder's ability to clearly identify and define relevant rehabilitation/improvement criteria for the portion of WRD and NUMA area likely to be affected by subsidence impact. It is recommended to – - Develop a specific rehabilitation/improvement criteria targeted to ensure safe, stable, non-polluting, self-sustaining PMLU/NUMA for WRD and NUMA area to be affected by subsidence, - Develop a separate RA to ensure application of relevant rehabilitation/improvement criteria or - Inclusion of abovementioned specific criteria in relevant rehabilitation/Improvement milestones. Refer to below images showing modelled subsidence Vs proposed RA20 & 21 not showing subsidence extent for WRD and NUMA – 	Provide a revised PRCP schedule inclusive of – a) A specific rehabilitation/improvement criteria targeted to ensure safe, stable, non-polluting, self-sustaining PMLU/NUMA for WRD and NUMA area to be affected by subsidence, b) A separate RA to ensure application of relevant rehabilitation/improvement criteria, or c) Inclusion of abovementioned specific criteria in relevant rehabilitation/Improvement milestones.

- a) As indicated in the response for RFI 22, the north-west GLS underground panels have been removed from the mine design. Only a small area of subsidence is remaining under the southern end of the Goonyella Pit spoil dumps. Maximum modelled subsidence in this area at ground level is less than 6m. The dump above this area is planned to be up to 150m above ground level. As open cut mining at GRM continues after final underground mining at BRM, active spoil dumping from the open cut operation will continue in this area until after final subsidence is realised (after BRM underground workings are flooded). Areas of

the spoil dump impacted by subsidence do not require any further milestone criteria to achieve a PMLU to a stable condition and the proposed milestone criteria is applicable for all spoil dump areas, regardless of whether or not there is subsidence.

Minimal subsidence is modelled within the NUMA area. Appendix H (Rehabilitation Flood Assessment) shows there is no ponding modelled near the residual voids. The proposed milestone criteria ensures a safe, stable and non-polluting NUMA regardless of whether or not there is subsidence.

As the proposed milestone criteria achieves a PMLU to a stable condition and achieves sufficient improvement of the NUMAs:

- b) No separate RAs are required.
- c) No further milestone criteria is required.

RFI 57

Item	PRCP Plan/ Schedule	Issue	Required Information
57	PRCP schedule RA1, RA2, RA6, RA9, RA11, RA20, RA21	Progressive rehabilitation of areas available for rehabilitation. Subsidence area The PRC plan states that underground area will be available for rehabilitation when final subsidence is realised after flooding of underground workings at the end of BRM GLS and RHM GMS operations. The section provides justification for delay as to ensure occurrence of geotechnical stabilisation and no further subsidence to impact drainage works. The above justification does not align with the 'available for rehabilitation' definition provided in the PRCP guideline, which states land considered available for rehabilitation unless in use for mining infrastructure, containing a proven resource, a proven reserve or permeant infrastructure. The plan does not provide information on risks associated to delaying rehabilitation work of UG work areas and mitigative measures if it in fact results in additional subsidence. Decommissioned TSF facility GS1 and RS1 have been decommissioned in 2020-21, as discussed in Item 43 above, requires a separate RA and earlier timeframe for commencement of first milestone.	Provide a revised PRCP schedule inclusive of – Earlier commencement dates for relevant rehabilitation milestones applicable to RA9 TSF, RA20, 21 Subsidence, RA1 portion may affected by subsidence to ensure progressive rehabilitation as defined in the EA.

RA9: As detailed in RFI 43, GS1 is available for rehabilitation now, however as detailed in Section 6.2.3 of the PRC plan and shown to DETSI during the site visit in May 2025, the tailings are not sufficiently dried out to undertake the required testing and sampling to inform the detailed cover design. This includes measuring in-situ strength profiles as well as sourcing additional geochemical and geotechnical data. The as soon as practicable timing reflects the level of uncertainty associated with active dewatering of GS1, as well as the time needed for the data collection required to develop the detailed cover designs.

The PRCP risk assessment (Appendix Q) has been updated to clearly identify the risks associated with the knowledge base gaps and the controls needed to mitigate the risk. The commencement of the first

rehabilitation milestone for RA9 reflects the time required to implement the controls and earlier commencement is not practical. This aligns to Section 11 of the DETSI *Common Issues with Progressive Rehabilitation and Closure Plan (PRCP) Applications Information Sheet*.

RA20/21: As detailed in RFI 24 and stated in the PRC plan, subsidence areas will undergo initial operational repair works as underground mining progresses and initial subsidence of panels occurs. These operational repair works will be undertaken after mining the GMS (current to 2032), again after mining the GLS (below the GMS) (2032 to 2051) and as required during operations. Appendix P Section 3.4 indicates that there may be a small amount of additional vertical subsidence related to the softening and consolidation of the caved rock when the underground workings are flooded (2052-2056) at the end of mining at BRM. Therefore, final rehabilitation activities to achieve a PMLU to a stable condition can only be undertaken once all subsidence has been realised to ensure drainage works are accurate for the actual final subsided landform.

RA20 and RA21 are available for rehabilitation in the PRCP schedule once all subsidence has been realised based on Section 3.6.1 of the PRCP Guideline which states “*Key considerations of the landform design report must also include... settling and subsidence over time, which may impact the availability of areas for rehabilitation*”.

RA1 portion affected by subsidence: As indicated in the response for RFI 22, the north-west GLS underground panels have been removed from the mine design. Only a small area of subsidence is remaining under the southern end of the Goonyella Pit spoil dumps. As open cut mining at GRM continues after final underground mining at BRM, active spoil dumping from the open cut operation will continue in this area until after final subsidence is realised (after BRM underground workings are flooded). The availability for rehabilitation for all areas of the spoil dumps is based on the economic mining schedule and therefore earlier commencement of rehabilitation is not possible.

RFI 58

Item	PRCP Plan/ Schedule	Issue	Required Information
58	PRCP Schedule RA7, RA10	Existing Rehabilitation Both Existing Rehabilitation RA's (RA7 and RA10) include areas that are not scheduled to pass their surface preparation milestones until December 2026. It is unclear how an area can be considered to be existing rehabilitation^{Error! Bookmark not defined.} if it has not been reshaped and revegetated.(). It is noted that the PRCP guideline when referring to 'Existing rehabilitation' indicates a rehabilitation area that has already completed rehabilitation^{Error! Bookmark not defined.} at the time of submission of the proposed PRC Plan. Further information is required to justify why these areas cannot achieve relevant 'surface preparation' and 'revegetation' milestones sooner, given that they are reported to be as “existing rehabilitation”.	Provide a revised PRC planning part inclusive of – Clear explanation for the delay in rehabilitation and justifies why rehabilitation areas that have not been topsoiled, seeded and shown to have established vegetation should be considered “existing rehabilitation”. Provide revised PRCP schedule that provides for – All “existing” rehabilitation areas to have at least passed their 'Revegetation' milestone by the PRCP application decision date.

BMA has updated the existing rehabilitation included in the PRC plan (Section 1.4.4), PRCP schedule and the spatial data.

BMA does not agree that rehabilitation needs to have passed the revegetation milestone to be considered existing rehabilitation. As per the GRM and BRM EA EPML00853413 (26 February 2024) definition of rehabilitation: “*means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land*”, this limited definition of rehabilitation activities/processes includes

reshaping and revegetation. Prior to the PRCP, when land become available for rehabilitation, earthwork to reshape the landform was the first step, and it was a significant portion of the rehabilitation cost.

As detailed in RFI 25, some RA10 rehabilitation still requires growth media application and revegetation as substantial maintenance works has been underway to manage extensive leucaena (*Leucaena leucocephala*) thickets. Leucaena management activities have included intrusive mechanical clearing/removal.

All existing cattle grazing rehabilitation (RA7) has been topsoiled and revegetated and is included in the schedule to achieve RM10 (surface requirements) next.

RFI 59

Item	PRCP Plan/ Schedule	Issue	Required Information
PRCP Schedule			
59	RM5 Surface preparation (Woodland habitat)	Topsoil/Growth media application The PRC plan in section 6.1.4.2 states that an alternative (assumably primary) growth media may be used if required. PRCP schedule RM5 Surface preparation for woodland habitat criteria states that topsoil or alternative growth media will be used where it is assessed by AQP to be suitable to achieve the PMLU. Table 31 of PRC plans provides quantity of topsoil volumes required by GRM for PMLU's which shows woodland habitat to have 0.10m (100mm) growth media depth. From PRC plan section 6.1.4.2 it can be inferred that GRM has sufficient topsoil as per volume requirement outlined in Table 31 and the onsite topsoil inventory. As such when the RM5 criteria is read it is not clear – • Why woodland habitat PMLU requires alternative growth media, and • if the proposal of alternative growth media of 300mm depth includes topsoil as primary growth media. If only alternative growth media application is proposed, sufficient evidence and appropriate milestone criteria are required to support – • Successful use of secondary growth media such as permian spoil for raising a stable, self-sustaining vegetation in absence of topsoil and; • To ensure unsuitable materials are not used as growth media.	Provide PRCP schedule with revised criteria – a) Specify ratio of topsoil to secondary growth media application for RA's with woodland habitat PMLU.

a) The secondary growth media is the spoil, therefore a ratio is not relevant.

Item	PRCP Plan/ Schedule	Issue	Required Information
60	RM10, RM11, RM12 Achievement of Surface Requirements. RM13, RM14, RM15, RM17, RM18 Achievement of post-mining land use to a stable condition.	Gully erosion criteria Timeframe Milestone criteria relating to gully erosion include an item requiring demonstration of stabilised condition over a number of years. The amount of time required by the proposed criteria appears too low to demonstrate a stable condition. For example, for RA1, the schedule allows 10 years for rehabilitated areas to progress from RM8 (Revegetation) to RM11 (Achieves surface requirements), and another 10 years to progress from RM11 to RM14 (Achievement of post-mining land use to a stable condition), however milestone criterion RM11.5 e requires only two years of monitoring data demonstrating that any gullies present are in a stabilised state, and criterion RM14.3 e requires only 5 years of monitoring data demonstrating that gullies are in a stabilised state. For the achievement of surface requirements milestone or all RA's (not just RA1), the very short length of monitoring data demonstrating that gullies are stable appear inadequate and must be properly justified or extended, as active gully erosion up to eight years after revegetation completed can be expected to indicate a significant design or management issue. For the achievement of PMLU to stable condition milestones for all RA's should be the period of time since achievement of the previous milestone (e.g. 10 years for the RA1 example) plus the period required to demonstrate stability in order to achieve the previous milestone. Gully frequency The proposed erosion criteria do not include any limit on gully frequency, effectively allowing for any number of gullies to be present provided they meet the other criteria, which DETSI does not consider to be compatible with rehabilitation goals. Milestone criteria must be SMART and provide for the achievement of a safe, stable, non-polluting condition and support the PMLU.	Provide a revised PRCP schedule that includes – a) Sensible periods of monitoring demonstrating continuity of the stabilised state once achieved for all RA's, for all achievement of surface requirements and achievement of PMLU to stable condition milestones; and b) Milestone criteria for erosion which include an appropriate frequency limit for gully erosion that supports the proposed PMLU and is compatible with a safe, stable and non-polluting condition.

The erosion milestone criteria in the PRC Plan has been modified considering the negotiations with DETSI on the Saraji South Mine PRCP (approved 29 August 2025).

RFI 61

Item	PRCP Plan/ Schedule	Issue	Required Information
61	MM1 Achievement of structural stability IA1.1	Void backfill criteria The PRC plan section 4.2 states measures to minimise NUMA environmental impacts. The section provides a combination of backfill and landform construction as measures to mitigate flood risk. For example, Goonyella and Isaac voids to have a landform on the southern end-wall and sections of high-wall to mitigate flood risk, whereas other pits such Thiess partially backfilled and area between fully backfilled Airstrip void and R32 south void will be reshaped to mitigate flooding risk. The PRCP schedule improvement milestone MM1 provides a criteria IA1.3 as, '<i>Final residual voids are not subject to inundation from floodwaters up to and including the 0.1% AEP</i>'. It is not clear how above sentence covers the detailed commitments provided in PRC plan regards to flood mitigation measures for respective residual voids. One of the conceptual ideas of PRCP schedule is, it should be a standalone document to guide EA holder and employees managing site on exact rehabilitation/improvement actions to be taken at a specified timeframe. The schedule criteria does not specify residual voids that will be partially backfilled to mitigate flooding risk. The criteria further require specifying the approximate depth for backfill, such as above the regional groundwater table etc. to meet the 'measurable' attribute of SMART criteria.	Provide a revised PRCP schedule – Provide a revised criteria IA1.3 to reflect commitments for flood mitigation measures planned specific to each residual void, as stipulated in the PRC plan.

The proposed milestone criteria IA1.3 already provides commitment for flood mitigation of the residual voids, and the NUMA area being restricted to the hectares in the IA PRCP schedule (which factors in the backfill), is sufficient to ensure the NUMAs minimise risk to the environment. Revised criteria IA1.3 specifying the amount of backfill is redundant and not required to manage the risk.

DETSI accepted this position for the same information request item for Saraji South Mine on 20 February 2025.

RFI 62

Item	PRCP Plan/ Schedule	Issue	Required Information
PRCP Schedule			
62	MM1 Achievement of structural stability IA1.6	Set back distance The PRC plan in section 4.3 provides final iteration of closure landform submitted in the PRCP to include further minimisation of NUMA including, '<i>increasing the set-back of the high-wall and end-wall from the lease</i>'	Provide a revised PRCP schedule – Reword the criteria to identify minimum set back

Item	PRCP Plan/ Schedule	Issue	Required Information
	<i>BMA note: IA1.5</i>	<i>boundary and watercourse to achieve the required Factor of Safety (FOS)'. IA1.6 criteria specify a 50m minimum distance from external perimeter of mining lease for NUMA area (including safety bund) but does not specify minimum set back distance from watercourse for NUMA area.</i>	distance from mining lease boundary and watercourse.

Milestone criteria IA1.5 has been re-worded to also include the minimum set-back distance from watercourse.

Appendices

Appendix AA: GRM and BRM Diversions RFI Response

MEMORANDUM

Project:	BHP Coal PRCP	Date:	24 July 2025
To:	BHP	From:	Ben Kiernan/Louis North
ATT:	Jacqueline Lakoumentas	CC:	Trudy Mazucco
Subject:	PRCPs (Scope Directive): 14 - GRM and BRM Diversions RFI Response		

INTRODUCTION

As part of the Goonyella Riverside (GRM) and Broadmeadow Mine (BRM) Progressive Rehabilitation and Closure Plan (PRCP), Engeny Australia (Engeny) provided a concept design report for the four licenced watercourse diversions across the site:

- Isaac River Diversion.
- Eureka Creek Diversion.
- Fisher Creek Diversion.
- Holding Paddock Creek Diversion.

These reports were developed to present works that would be required at a conceptual level to achieve a state of dynamic equilibrium for ultimate relinquishment as part of the overall closure of GRM and BRM. Following the submission of the GRM and BRM PRCP, the Department of the Environment, Tourism, Science and Innovation (DETSI) has issued a request for information (RFI), with specific items required for the diversion concept design reports. This memorandum provides a response to each RFI item associated with the concept design reports for GRM and BRM. Key documents referenced as part of this RFI response include:

- Department of Natural Resources, Mine and Energy (DNRME) - Guideline: Works that interfere with water in a watercourse for a resource activity—watercourse diversions authorised under the Water Act 2000 (DNRME Guideline) (DNRME, 2019).
- BHP Mitsubishi Alliance (BMA) – Progressive Rehabilitation and Closure Plan Goonyella Riverside and Broadmeadow Mine (BMA, 2024):
 - SLR – Goonyella Complex Progressive Rehabilitation and Closure Plan Rehabilitation Flood Assessment (SLR, 2024) (Appendix H).
 - Engeny – PRCP Concept Design Report Isaac River Diversion (Engeny, 2024a) (Appendix K).
 - Engeny – PRCP Concept Design Report Holding Paddock Creek Diversion (Engeny, 2024b) (Appendix M).
 - Engeny – PRCP Concept Design Report Fisher Creek Diversion (Engeny, 2024c) (Appendix N).
 - Engeny – PRCP Concept Design Report Eureka Creek Diversion (Engeny, 2024d) (Appendix L).
- Memorandum: BHP / DES Workshop for PRCPs – Flood plain modelling and flood risks (BHP, 2020a).
- Memorandum: BHP / DES Workshop for PRCPs – Watercourse Diversions (BHP, 2020b).

The GRM and BRM PRCP Information Request items related to the diversion concept design reports are listed in Table 2.

Concept Diversion Design Scope

Prior to the submission of the PRCPs, BHP and the Department of Environment and Science (DES) participated in a workshop to define what constitutes sufficient description of any surface water diversion and long-term management requirements (BHP, 2020b). Outcomes discussed in this workshop were agreed to by DETSI to be in accordance with the DES Guideline: Progressive rehabilitation and closure plans. A key outcome outlined that concept level designs will be provided to support the PRCP and associated schedule milestones. Table 1 outlines the design requirements of concept and functional design (listed in the DNRME Guideline) as per the ACARP Project C20017 *Criteria for functioning river landscape units in mining and post mining landscapes* (Alluvium, 2014).

The reports have been prepared based on current approved state of the watercourse diversions. Concept designs for each diversion should not be regarded as an approved design. For the purposes of PRCP Flooding scopes the concept diversion designs should be disregarded, for this reason. The purpose of the diversion Concept Design Reports is to demonstrate the concept diversion designs are able to meet an outcome acceptable for closure and scope of the PRCP, in addition to future DNRME approvals requirements. Each concept diversion design has utilised independent flood modelling to demonstrate suitability for closure.

TABLE 1: COMPARISON OF CONCEPT DESIGN REQUIREMENTS AND FUNCTIONAL DESIGN REQUIREMENTS

Component	Element
Concept design	Collect background information Concept level investigation and development of options, both field based and desktop – geomorphology, vegetation, hydrology and hydraulics
Functional design	Review objectives for preferred option Functional level investigation of the preferred option, both field based and desktop –geomorphology, vegetation, geotechnical, hydrology and hydraulics. Compare existing conditions with the preferred option

Relevant Diversion RFI Items – A-PRCP-NEW-100779183

TABLE 2: INFORMATION REQUEST (A-PRCP-NEW-1007791830 ITEMS RESPONDED TO IN THIS MEMORANDUM)

Item	Issue	Required Information
15	Flood flow force along diversions The Appendix H shows that shear stress in Eureka Creek exceeds 80 N/m² during even a 2% AEP flooding, which poses a significant risk of ingress into Ramp 2 void. Further, under PMF conditions, there is confirmed ingress into Ramp 2. It seems the presented maps, assume stability of the diversion during 2% and 0.1% AEP, despite high erosive forces, and assumes stability of the diversion in the PMF event even in the case of overtopping. The Watercourse Diversion Guideline mandates integration of sediment regimes into analysis, which appears to be absent. Sediment hydraulic forces should be clearly considered in the modelling to completely understand the risks to the landform during flood event. Also, in relation to Ramp 2, it is important to clarify whether tailings material will be present and exposed to ingress. The PRC plan should address PMF design for closure, per the mandated requirements of ANCOLD 2012.	Provide a revised Appendix H inclusive of – (a) A detailed analysis of how high shear stresses (>80 N/m²) are managed to prevent erosion and void ingress during 2% and 0.1% AEP events, (b) Modelling that considers sediment hydraulic forces using the TUFLOW sediment module; and
18	Diversion rehabilitation The concept reports for Isaac River, Holding Paddock, Fisher and Eureka Creek diversions exhibit significant gaps when evaluated against the provided Watercourse Diversion Guideline. The reports fall short in addressing design elements for ensuring hydrological, geomorphic, and hydraulic stability as outlined in the <i>Watercourse Diversion Guideline</i> and the key design considerations. These gaps could compromise the long-term functionality, self-sustainability, and regulatory compliance of the diversions. Immediate focus is needed to incorporate detailed assessments and robust design measures to address these deficiencies. It must be noted that diversions are part of the final landform and under PRCP guideline section 3.1 outlines the need to provide information about how progressive rehabilitation and closure will achieve a stable condition, which includes ensuring safety, structural stability, and environmental compliance of the final landform, this is to be aligned with 126C(1)(j) EP Act 1994.	Provide revised PRC plan/relevant appendix inclusive of information on – (a) Rehabilitative design elements for diversions ensuring hydrological, geomorphic, and hydraulic stability as outlined in the <i>Watercourse Diversion Guideline</i>; and (b) Rehabilitation criteria based on SMART principles for diversions targeting hydraulic stability, sediment management, and vegetation integration to achieve safe, stable, non-polluting landform. Example includes but not limited to – • Criteria for flood plain development, • rock armouring of diversion channels if required at high erosion prone areas etc.

Item	Issue	Required Information
19	In accordance with the <i>Watercourse Diversion Guideline</i>, the proposed diversions must: • maintain the natural hydrological and hydraulic characteristics of the original watercourse, • maintain natural geomorphic and riparian vegetation similar to the original watercourse, • maintain a sediment transport regime, with minimal impact on sediment deposition or erosion, • achieve equilibrium condition, • minimise erosion, and do not increase flood risks. • provide an appropriate floodplain corridor width to accommodate natural processes • be designed to be self-sustaining, with minimal ongoing maintenance, • be integrated into the overall rehabilitation plan. • be considered in floodplain modelling regarding the impact of diversions on flood behaviour, ensuring stability of the final landform design. • have structural stability analysis if is located through spoil • be designed to be hydraulically and structurally stable e.g., armouring The proposed rehabilitation criteria for diversions and given information through the concept design reports lack adequate provisions for – • hydraulic stability, • sediment management, and • vegetation integration. To comply with the <i>Watercourse Diversion Guideline</i>, design plans must demonstrate that the diversions will be self-sustaining without requiring ongoing maintenance. It is essential to address critical gaps in floodplain width, ingress prevention, and structural and erosional stability to ensure they meet long-term functional and environmental outcomes.	Provide revised PRC plan/relevant appendix inclusive of information on – (a) Rehabilitation criteria for creek diversion addressing: • floodplain width, • prevention of floodwater ingress to nearby landforms, and • structural and erosional stability of diversion banks.

Item	Issue	Required Information
20	Bank and Bed Protection Measures in Areas of Geomorphic Instability The Isaac River Diversion (Stream Order 6) and Eureka Creek Diversion are located in areas affected by subsidence from Broadmeadow UG mining. Subsidence poses risks to achieving a stable post-mining land use (PMLU) due to: • Channel instability from deformation, erosion, and altered hydraulic connectivity. • Disruptions to sediment transport, increasing deposition and erosion risks. • Bank instability, reducing the ability to sustain riparian vegetation. Additional subsidence after mine flooding is identified as a potential concern. Also, report suggests that consolidation of caved rock after flooding may increase subsidence beyond initial estimates, but this effect does not seem to be included in the subsidence model.	Provide a revised PRC plan or relevant appendix which clarifies – (a) How the PRC plan and PRCP schedule incorporates subsidence related assessments into the final diversion design,

INFORMATION REQUEST RESPONSES

Hydrologic and Hydraulic Basis of Design

Hydrologic modelling differs from hydraulic modelling in that it describes how water moves through a catchment and provides peak inflows for a given catchment outlet. Hydrologic modelling is typically used as an input to hydraulic modelling. Hydraulic modelling describes the characteristics of flow over a given topography (or other external parameters).

When designing the closure concepts for the diversions at GRM and BRM, the DNRME Guideline required outcomes were adopted as required design outcomes for each diversion design. These are:

- **Outcome 1** – The permanent watercourse diversion incorporates natural features (including geomorphic and vegetation) present in the landscape and in local watercourses.
- **Outcome 2** – The permanent watercourse diversion maintains the existing hydrologic characteristics of surface water and groundwater systems.
- **Outcome 3** – The hydraulic characteristics of the permanent watercourse diversion are comparable with other local watercourses and suitable for the region in which the watercourse diversion is located.
- **Outcome 4** – The permanent watercourse diversion maintains sediment transport and water quality regimes that allow the watercourse diversion to be self-sustaining, while minimising any impacts on upstream and downstream reaches.
- **Outcome 5** – The permanent watercourse diversion and associated structures maintain equilibrium and functionality and are appropriate for all substrate conditions they encounter.

The DNRME Guideline only provides detailed design requirements for functional and detailed levels on design. As discussed, and outlined in Table 1, the diversion designs for GRM and BRM were agreed by DETSI to be conducted at a concept design level. As such, not all processes listed in the DNRME Guideline are relevant for the concept designs.

In relation to specific hydrologic and hydraulic criteria which should be adopted for diversion designs, the DNRME Guideline provides specific design threshold values in:

- Table 5 – Key outcomes for functional design report for permanent watercourse diversions
 - Outcome 2 (hydrologic modelling): “peak flows (m³/s) for annual exceedance probability (AEP) 50%, 2%, 1% , 0.1% peak flows for lowflow channel and bankfull capacity for the existing watercourse and proposed watercourse.”
- Table 12 – Guidance notes for functional design of watercourse diversions
 - Outcome 3 (Hydraulic modelling): “**the relevant ACARP projects’** findings on critical thresholds for stream hydraulic conditions identified in Table 1 of this document should be referenced when comparing the hydraulic conditions of the proposed watercourse diversion”
- Table 13 – Guidance notes for design plan of watercourse diversion
 - Outcome 3 (Hydraulic modelling): “The hydraulic criteria of the existing watercourse should be used as first preference to develop design parameters for the watercourse diversion. **The ACARP guideline values** (Table 1) were derived to assist watercourse diversion design within the Bowen Basin for velocity, stream power and shear stress. The designer should also consider other design principles where relevant when undertaking the design process.”
 - Outcome 3 (Hydraulic modelling): “The minimum requirement when undertaking a hydraulic analysis is to review the watercourse and diversion energy conditions for the 2% and 50% AEP flood events.”

For all diversion concept designs, these hydrologic and hydraulic criteria were adopted as parameters to demonstrate the long-term stability and suitability of the diversion alignments. For the purposes of closure modelling, the closure landform was considered for all hydrologic and hydraulic modelling.

Hydrologic Modelling

As outlined in the appendices of each of the PRCP Concept Design Reports, a benchmarked and validated hydrologic model (WBNM model) was developed for the GRM and BRM to provide hydrologic inputs. In accordance with Table 5 (Outcome 2) of the DNRME Guideline, the (AEP) 50%, 2%, 1%, 0.1% peak flows were included in modelling. For conservancy and assuming an ultimate closure case, upstream Burton Gorge Dam and Teviot Dam were not considered in the model, allowing for natural flows. This hydrologic modelling method was deemed suitable to estimate long term hydrologic impacts of the diversion designs.

Hydraulic Modelling

Hydraulic modelling was conducted using a two-dimensional (2D) TUFLOW model, as discussed in the appendices of each PRCP Concept Design Report. In addition to flood depths, velocity, stream power and shear stress were output as required by the DNRME Guideline.

It should be noted that threshold values for velocity, stream power and shear stress listed in the ACARP Guidelines (Table 13 of the DNRME Guideline) were determined using a 1D HEC-RAS model. HEC-RAS (1D) calculates hydraulic conditions on a cross-sectional basis, outputting results as a cross-sectional mean. Due to this, the threshold values listed in the ACARP and DNRME guideline should be considered as cross-sectional average values.

TUFLOW outputs results in a 2D grid, for a nominated grid cell size. To provide a cross-sectional mean comparison with the threshold values listed in the ACARP and DNRME Guideline, a cross-sectional mean was taken along the TUFLOW 2D grid output. A visual representation of this discrepancy can be seen in Figure 1. As such, 2D flooding outputs, like those in Appendix H, don't represent the cross-sectional values compared against the threshold values specified in the DNRME Guideline.

During the initial ACARP study on Bowen Basin Creeks, 2D modelling wasn't widely adopted across industry, due to its early development. Since then, 2D modelling has become the industry standard. In addition, 2D modelling can estimate complex flow conditions, limited by 1D modelling. For these reasons, TUFLOW was adopted as an appropriate modelling method for the concept design, instead of 1D HEC-RAS.

The DNRME Guideline does not state any requirement to hydraulically analyse the 0.1% AEP or PMF event. The 0.1% AEP event is required to be modelled for watercourse diversion functional designs, in relation to hydrologic outcomes (Outcome 2), while the 39% AEP and 2% AEP event is required to be analysed for hydraulic outcomes (Outcome 3). Geomorphic change in waterways and diversions primarily develops over frequent flow events. While rare floods (0.1% and PMF events) can initiate erosion, the long-term geomorphic changes are driven by more frequent flows. As a result, the diversion designs prioritise maintaining stability under frequent events rather than withstanding extreme floods, aligning with the DNRME Guideline.

Sediment Transport Modelling

In relation to specific sediment transport (Outcome 4) criteria which should be adopted for diversion designs. The guideline does not nominate specific values to adopt, however, lists the following in relation to functional designs and design plans:

- Table 5 – Key outcomes for functional design report for permanent watercourse diversions
 - Outcome 4: “An appropriate sediment transportation model should provide an investigation of the current watercourse and proposed watercourse diversion sediment transportation regime.”
- Table 6 – Key outcomes for design plan of permanent watercourse diversions
 - Outcome 4: “The design plan should include a sediment transport analysis that identifies how the watercourse diversion will manage erosion or deposition events such that they are consistent with the existing sediment regime.”
- Table 13 – Guidance notes for design plan of watercourse diversion
 - Outcome 4: “Analysis of the current and predicted hydraulic conditions within the watercourse diversion footprint should provide direct input into the sediment transportation dynamics that could be expected during the evolution processes of the watercourse diversion. Proposed changes to the existing regime should be for the purposes of improved river health.”

To provide accurate sediment transport modelling with current industry software packages, relevant sediment testing of riverbed material would be required. This is not a requirement of a concept level design. Additionally, infrastructure (e.g. culverts, dams, ESC measures) throughout the catchments of Fisher, Holding Paddock, Eureka, and the Isaac River disrupts the transport of sediment downstream. Sampling riverbed material during active mining may not be reflective of the sediment conditions during a rehabilitated scenario. Due to these reasons, sediment transport modelling software was not used during the concept design process and is not considered key to deriving a conceptual level design to define channel geometry and overall planform.

Sediment transport is linked to the hydraulic outcomes of waterways. Key hydraulic outcomes of the DNRME Guideline are:

- Shear stress – which is a function of discharge, flow depth and hydraulic gradient and represents the tractive force acting on sediment particles and is used to determine the threshold of motion for sediment. High shear stress provides an indication of potential erosion in cohesive sediments or movement of non-cohesive sediments. It also provides a measure of the ability of vegetation to withstand flow.
- Stream power – which is a function of hydraulic gradient, flow width and flow rate and represents the energy available to do work on the channel. High stream power values generally result in elevated erosion potential.
- Velocity – which is a function of flow rate and cross-sectional area and is a simplified measure of erosion potential. Generally higher velocities result in higher erosion potential; however, stream power and shear stress are more reliable indicators of erosion and sediment transport potential.

As the analysis of sediment transport is at a concept level, a desktop geomorphic analysis has been utilised to design sediment transport characteristics. Both stream power and shear stress are dependent on energy grade / stream bed gradient (longitudinal grade). For each diversion concept design, the natural cross-section and longitudinal grades have been replicated. This is not a replication pre-mining reach of the diversion, however, in lieu of an accurate representation of the pre-mining conditions, replication of the natural downstream channel is the best available method to provide geomorphic continuity at closure. The replication of this natural feature allows the sediment transport hydraulics of the concept diversion design to be comparable to the downstream sections of each diversion.

Additionally, the diversions have been designed to have a consistent longitudinal gradient. This reduces the risk of excess deposition (at flat gradients) or erosion (at steep gradients) along the diversion reach. This approach maintains a consistent sediment transport regime throughout the entire length of the diversion design.

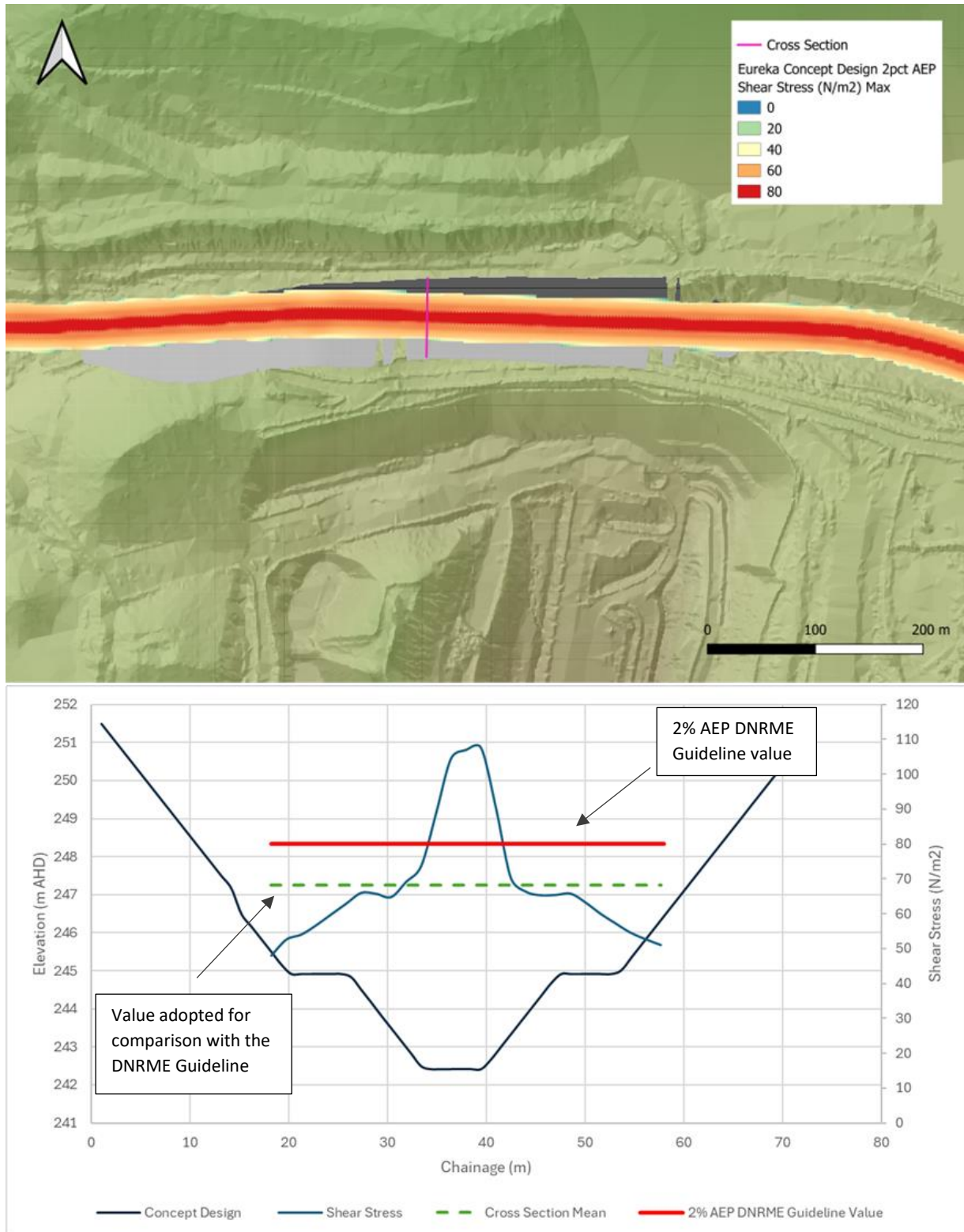


Figure 1: Representation of Cross-Sectional Mean vs 2D Grid Results in Eureka Creek

Item 15

Rehabilitation flood modelling included in Appendix H of the PRCP has not included the concept diversion design for Eureka Creek, in addition to the concept diversion designs for Fisher Creek, Holding Paddock Creek, and the Isaac River, as these concepts design are not approved landforms. Separate to the flood modelling conducted in Appendix H, a 2D-hydraulic model was developed during the concept diversion design, to demonstrate appropriate hydraulic and flooding outcomes for closure. As can be seen from Appendix D and Section 6.5 of the Eureka Creek Diversion PRCP Concept Design Report, hydraulic modelling of the Eureka Creek Diversion concept design indicates the concept design will satisfy the hydraulic requirements listed in the DNRME Guideline. Additionally, hydraulic conditions modelled for the 2% AEP are significantly below that required in the DNRME Guideline, indicating a further reduced risk of long-term instability in the Eureka Creek concept diversion design.

As discussed in the hydraulic basis of design, there is no requirement to model the 0.1% AEP event for hydraulic outcomes, and no acceptable hydraulic outcomes are nominated for this event. Additionally, there is no requirement to use a nominated sediment transport package. Stream power and shear stress parameters are acceptable indicators of sediment transport at a concept level of design. Additionally, the Eureka Creek concept diversion design features a consistent longitudinal gradient to mitigate areas of deposition or erosion.

Item 18

All concept diversion designs have incorporated natural geomorphic elements into the design. These elements are the same as those listed in Table 13 (Outcome 1) of the DNRME Guideline, that is:

- (a) Bed width.
- (b) Top width.
- (c) Bank/batter slope.
- (d) Benches and terraces.
- (e) Length of watercourse to be diverted.
- (f) Channel capacity.
- (g) Meander characteristic.
- (h) Other features such as riffles, point bars and large woody debris.

Section 6.3 of each Concept Design Report details how features of a natural reference reach were incorporated into the diversion designs. It should be noted that item h) of the above list was not included as a site visit was not conducted for the concept design.

As stated in the hydraulic basis of design, detailed hydrologic and hydraulic modelling has been conducted for each diversion design. This modelling has considered the PRCP closure landform for modelling cases. Criteria for modelling has been based on measurable hydraulic criteria outlined in the DNRME Guideline. Satisfying these criteria indicates the diversion will achieve long-term hydraulic stability as hydraulic conditions during frequent events will be consistent with stable baseline conditions of waterways throughout the Bowen Basin.

Engeny acknowledges the importance of vegetation establishment in the natural functionality of each diversion concept design. As the closure designs are only a concept phase design, future studies will be required to ensure full establishment of vegetation associated with the PMLU. Further works include:

- A detailed soil survey which should be conducted in the functional design stage to determine characteristics of topsoil and subsoil within the diversion alignment.
- The detailed engineering in functional design which should specify requirements for cover materials, including rock and rock mulch, to protect diversion batters from erosion.
- Temporary erosion sediment controls which should be designed to minimise risk of erosion until vegetation establishment. This plan should be developed and approved by an appropriately qualified person informed by site specific soils data.
- An appropriately qualified person should develop a suitable growth media for the diversion banks with recommendation of ameliorants and fertilisers and surface treatments.
- Excess supply of sediment from upstream and adjacent mining activities (spoil dumps, haul roads, coal stockpiles etc.) can impact vegetation establishment within the new diversion. Controls should be established to reduce sediment influx from surrounding landforms during the establishment of the diversion channel.
- Consideration of irrigation and other controls required to promote vegetation establishment in response to changing climatic conditions.
- Detailed revegetation design which should focus on re-establishing riparian vegetation for upper banks, mid banks and lower bank (including bank toe) revegetation zones.

Once vegetation has fully established, the hydraulic performance of the diversion, in accordance with the DNRME Guideline, provides a natural self-sustaining equilibrium without the use of grade control structures, none of which are proposed as part of the concept designs. These diversions are modelled to be safe, structurally stable, not cause environmental harm, and able to sustain a watercourse PMLU based on the hydraulic outcomes modelled under a closure scenario.

Item 19

Floodplain Width

Eureka, Fisher, and Holding Paddock Creek diversions are all 1st to 3rd stream order incised creeks. In the Bowen Basin, incision lowers the bed level of the creek forming terraces as this process repeats (Fisher Stewart, 2000). Terraces left by the incision process will often become floodplains of incised creeks in the Bowen Basin. This process is displayed in Figure 2.

In addition to the incision process, these 1st – 3rd stream order waterways are at the top of their catchment. Typically, in a geomorphic sequence, these waterways are classed as source zones. Source zones typically lack floodplains and instead transport sediment downstream due to high energy from higher grades, resulting in channel confinement. This process is illustrated in Figure 3.

The 0.1% AEP design event is contained within the concept diversion designs. This replicates the natural processes of these creeks. As the 0.1% AEP is contained within the diversion design, the floodplain corridor is restricted to the diversion design extents. As such, vegetation types and elements associated with the floodplain are consistent with those described in the concept diversion design.

The typical cross section for the diversion design is displayed in Concept Design Report appendices. The Eureka, Fisher, and Holding Paddock Creek sections have been designed to have an active channel (low flow channel), bench, and high flow channel. The benching and high flow channel acts as the floodplain corridor during rare storm events. Typically, waterways in source zones don't undergo significant channel migration, however, benching adjacent to the active channel allows for some migration of the active channel, ensuring natural processes can take place without maintenance.

The Isaac River is a significantly larger major system (6th stream order) than the other diversions at GRM and BRM. As such, greater engagement with the floodplain is expected. The cross-section geometry was based on geomorphic analysis of the Isaac River (Hydrobiology, 2019). These design considerations allow the Isaac River to naturally engage with the floodplain, replicating pre-mining conditions. The replication of natural conditions is expected to return the system to the stable hydraulic conditions along the Isaac River diversion reach.

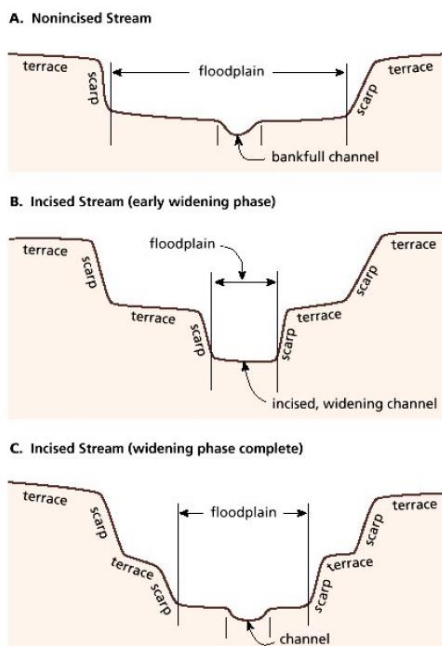


Figure 2: Example of Terrace Formation by Channel Incision (Fisher Stewart, 2000)

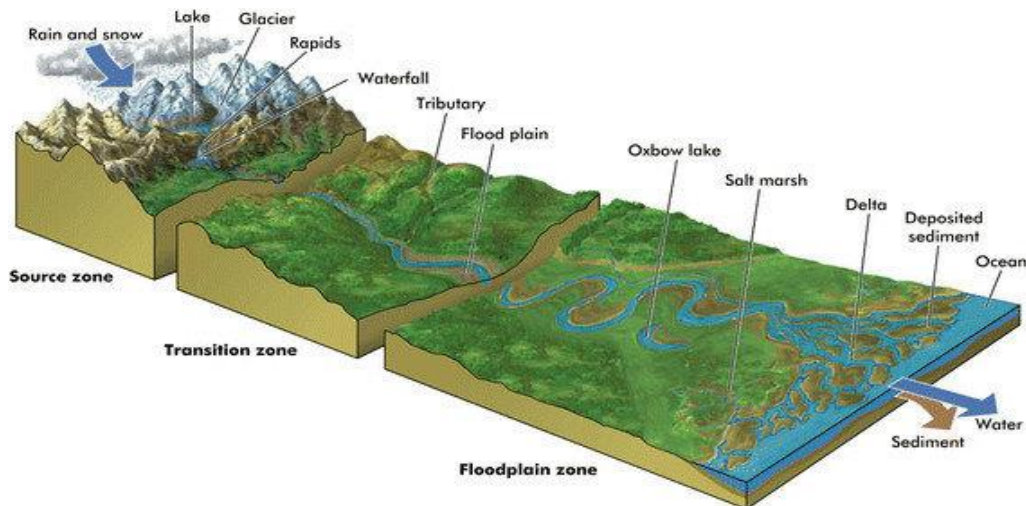


Figure 3: Basic Geomorphic Zones (Nepal, et al., 2014)

Floodwater Ingress

As part of the concept diversion designs, flood impacts of the 0.1% AEP event were modelled to determine potential adverse interactions with the final landform. Eureka, Fisher, and Holding Paddock Creek diversions were all modelled to prevent ingress into the adjacent final voids. Results from 0.1% AEP flood modelling along the Isaac River concept design indicate flow ingress into Ramp 0 and Ramp 2, located west of the diversion. It's important to note that these results are based on landform version 2. However, the latest landform version 2.3 includes flood protection measures that mitigate this risk. A cross-section representation of landform version 2.3 against the 0.1% AEP results for landform 2 is presented in Figure 4. As can be seen landform 2.3 provides an additional 6 m during a 0.1% AEP event, providing flood immunity to the void.

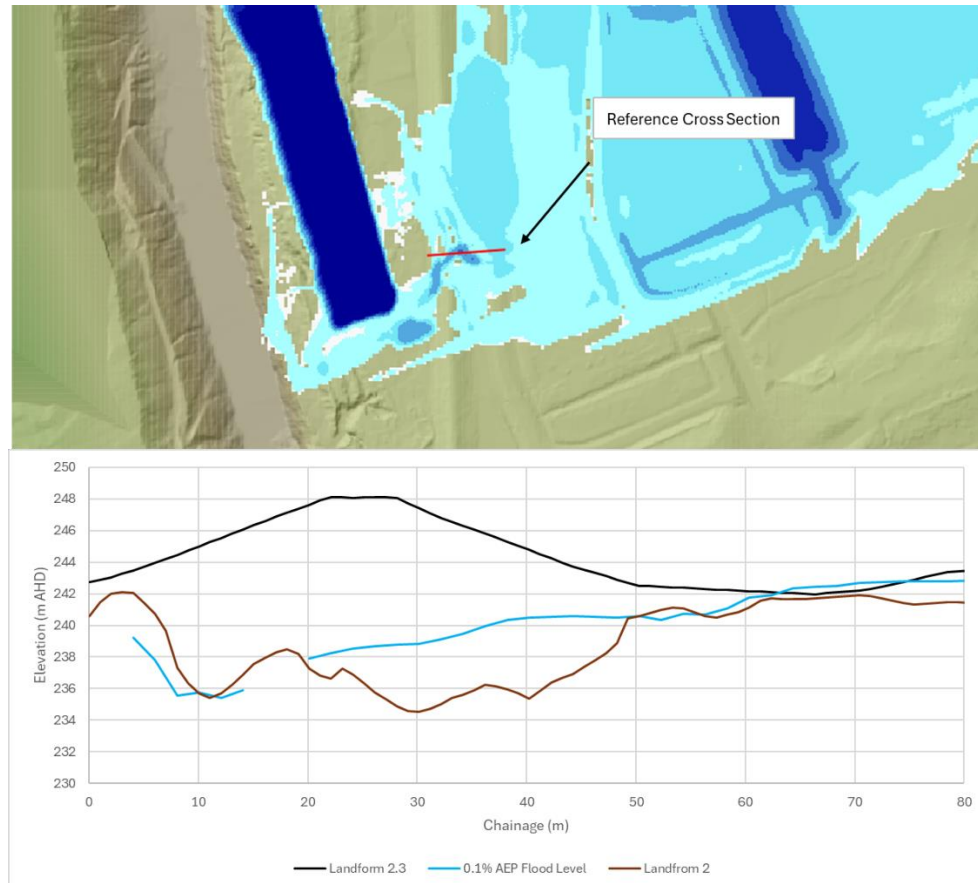


Figure 4 Landform 2.3 Additional Flood Immunity

It should be noted that these flood modelling results are for the purposes of diversion design and should not be considered the final flooding results for the GRM and BRM PRCP. These results are provided in Appendix H of the PRCP. The diversion design has not been included in Appendix H, however, flood modelling indicates ingress into the final voids will not occur during a 0.1% AEP event.

On 23 July 2020 BHP provided a memorandum (BHP, 2020a) to DES detailing the approach BHP will take in relation to flood plain modelling as agreed with the DES and the DES Guideline: Progressive rehabilitation and closure plans. Table 2 of the memorandum lists the following as a BHP PRCP Deliverable:

- If required to address risk, a range of events up to 0.1% AEP will be used, not PMF.

As floodplain mapping for a PMF event has been excluded from the BHP PRCP deliverables, it has not been considered as part of the Concept Diversion Design Reports. In addition to this, the DNRME Guideline does not state any requirement to model the PMF event. The 0.1% AEP event is required to be modelled for watercourse diversion functional designs, in relation to hydrologic outcomes (Outcome 2), while the 2% AEP event is required to be analysed for hydraulic outcomes (Outcome 3).

Structural and Erosional Stability of Diversion Banks

As stated in the hydraulic modelling basis of design, the hydraulic outcomes achieved by each concept diversion design indicate long term stability of the diversion. As stated in this memorandum, in response to Item 18, Engeny acknowledges the importance of vegetation establishment to achieve stability. Future studies will be required in subsequent design phases to ensure the growth media is suitable for vegetation establishment.

As stated in Section 6.3 of each GRM Diversion Concept Design Report, diversion batters (banks) will have hydro mulch and hydroseed applied as part of construction, in addition to topsoil. Hydroseeding ensures adequate coverage of seed application, while hydro mulch provides soil stability, while vegetation is establishing. These construction methods increase the likelihood of vegetation establishment before erosion forming flows interact with the diversion reach.

Item 20

Hydraulic interactions, other than flooding, of subsidence were not considered as part of Isaac River Concept Diversion Design Report. It's expected that water ponding in areas of subsidence will drain to the Isaac River diversion, as it will be a natural low point. Subsidence drainage overtopping the diversion banks increases the risk of local bank erosion and gully erosion. Engeny proposes to add rock armoured inlet points to limit bank or head cut erosion formed as a part of lateral drainage. In addition to these chutes, a drain will be required to convey water away from the old diversion, as it will be backfilled. These locations can be seen in Figure 5. Appendix H of the GRM and BRM PRCP provides a conceptual drainage design for the present diversion alignment, as part of the pluvial model. As seen from the concept drainage design, subsidence voids can remain free draining and reduce inlet points into the Isaac River limiting bank erosion risk.

In both cases of subsidence drainage flows are expected to be low energy, detaining in subsidence voids before reaching the Isaac River inlet. The additional rock armouring at inlet points are included to mitigate the risk of long-term head-cut migration forming at the inlet points. Velocities and hydraulic conditions modelled in the subsidence drainage is not likely to result in the erosion or long-term instability in areas of subsidence ponding on the floodplain.

Engeny acknowledges a reduction in stream power will be caused as a result of subsidence troughs along the riverbed. This ultimately results in a disruption to the sediment transport regime, causing sediment to deposit and leading to potential downstream channel widening. As described in Table 4-1 of the Goonyella Riverside and Broadmeadow Mine Subsidence Management Plan (Lucas, et al., 2015), This channel deepening and widening has both negative (bank erosion) and positive (habitat creation) impacts. Negative impacts can be mitigated through channel bed and bank protective measures initialled during monitoring periods. Adaptive methodologies to be utilised during monitoring are described in the Broadmeadow Subsidence Management Plan (BMA, 2023).

Disruptions to sediment transport as a result of subsidence, will only be temporary, relative to a closure scale. Boarder sediment transport impacts are discussed the Isaac River Cumulative Subsidence Impacts Assessment (IRCI), which investigated the impacts subsidence will have on sediment transport throughout the Isaac River (Crerar, et al., 2008). This study was later updated to include updated mining plans (Lucas & Crerar, 2013). This estimated that subsidence infilling will occur between 10 – 100 years following the completion of mining. These studies demonstrate that disruptions to sediment transport, as a result of subsidence, will not result in long-term instability of the Isaac River post closure as the riverbed will infill to a natural state.

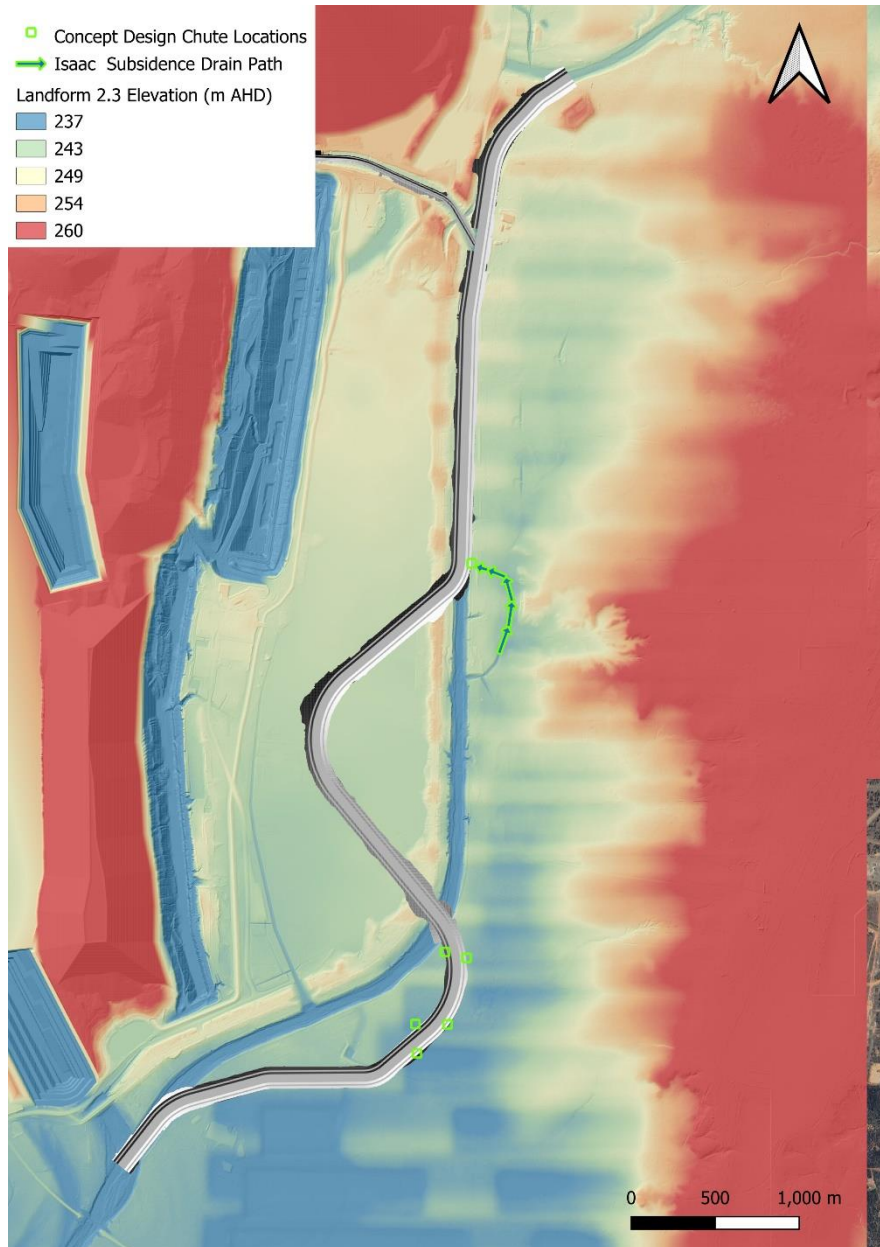


Figure 5: Proposed Chute Locations

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