



Memo information	
Date	10 February 2024
To	Department of Environment and Science
Prepared by	QCoal Sonoma Pty Ltd
Subject	Sonoma Coal Mine PRCP – Information Request Notice Response

On 30 September 2022, QCoal Sonoma Pty Ltd (QCS) submitted a PRC Plan and PRCP Schedule for the Sonoma Coal Mine (SCM) to the Department of Environment and Science (DES). DES subsequently issued an Information Request Notice to QCS on 28 November 2022, requiring QCS to provide additional information to address identified potential issues with the submitted PRC Plan by 31 May 2023 (subsequently extended to 10 February 2024).

This memo documents QCS's responses to the DES Information Request Notice, as well as detailing other updates that have been made to the SCM PRC Plan and PRCP Schedule.

The memo is structured as follows:

- **Response to DES Progressive Rehabilitation and Closure Plan Items** – addresses Items 1-8 of the DES Information Request Notice.
- **Response to DES PRCP Schedule Items** – addresses Items 9-16 of the DES Information Request Notice.
- **Additional SCM Update** – outlines updates made to the PRC Plan and PRCP Schedule by QCS to reflect updates to the SCM mine plan, including the addition of ML700075 to the SCM. These changes have also consequently influenced the Rehabilitation Areas and timeframes nominated in the PRCP Schedule. While this update does not relate to specific actions/recommendations in the Information Request Notice, it was identified during the timeframe nominated for consideration of the issues raised in the Information Request Notice and would otherwise need to be addressed via an immediate amendment to an approved PRCP Schedule.

This memo is submitted together with a revised SCM PRC Plan (V2) and PRCP Schedule (V2), which are intended to replace the originally submitted documents.

1.0 RESPONSES TO DES IRN ITEMS RELATING TO PROGRESSIVE REHABILITATION AND CLOSURE PLAN

DES ITEM 1

DES Issue

Spatial data requirements

The department notes spatial data has yet to be validated via the spatial submissions process.

Note that ‘Attachment 1 – Spatial data requirements for PRC plan’ of the Application form – ‘Submission of a progressive rehabilitation and closure plan’ (ESR/2019/4957) provides guidance to assist in submitting spatial information.

DES Information Request

Pending any revisions to the spatial files in response to the below items, re-submit spatial data for validation at spatialsubmit@des.qld.gov.au.

QCoal Response

QCS notes that:

- The GIS software used to prepare the polygon shapefiles contains a full validation function and all spatial files are validated by QCS prior to submission. The submission of spatial files via DES’s Spatial Submission Unit is impeded by DES’s automated validation software detecting self-intersecting polygons.
- The self-intersecting polygons ‘error’ can occur where there is a single self-intersecting point out of hundreds of thousands of points (as is the case for the Sonoma PRCP), or where there is a polygon within a polygon. In the case of a polygon within a polygon, this occurrence is often a key feature of the output requested by DES, for example for flood modelling which, by its nature, contains polygons within polygons due to the presence of islands within the modelled flood extent. In such cases, the information required by DES will fail validation and the files must manually adjusted to remove that information in order to continue through the spatial submit process. It is noted that the self-intersecting polygons ‘issue’ does not impact the shapefile’s usability for assessment as the calculated areas, Map ID and other relevant data and metadata are unaffected. This is

evident by fact that the shapefiles have clearly been utilised by DES in the preparation of the Information Request Notice.

In order to respond to the IRN, QCS has reviewed in detail, and in some instances, completely redrawn the polygons in the spatial data. The spatial files have also been updated in accordance with the changes outlined in this memo and have been re-submitted via Spatial Submit. The submission of files on 12/02/2024 represents the 3rd submission and attempt at validation of these shapefiles.

As this is an ongoing issue associated with the methods of submission imposed on industry by DES, QCS considers that the as-submitted shapefiles are fit for purpose, and no further spatial data submissions are proposed to be made should self-intersecting polygons again be detected by DES' automated validation tool.

DES ITEM 2

DES Issue

Post-mining land use

The PRC plan does not clearly state the extent to which each post-mining land use (PMLU) and non-use management area (NUMA) is consistent with the outcomes of community consultation, and any strategies or plans for the land of a local government, the State or the Commonwealth.

These information requirements are prescribed for all PRC plans under section 126C(1)(d) of the EP Act.

DES Information Request

Provide additional details within the PRC plan regarding consistency of the PMLUs and NUMAs with:

- outcomes of community consultation; and
- strategies or plans of local, State or Commonwealth governments.

QCoal Response

The PMLU and NUMAs proposed for the SCM are consistent with ongoing community consultation which commenced during the SCM EIS. The PMLUs and NUMAs are also detailed in the SCM Land Outcome Documents (LODs), which are the SCM EA as the primary LOD and the RMP as a subsidiary LOD. The PMLUs and NUMAs therefore have pre-existing approval not requiring justification

The PMLU and NUMAs proposed for the SCM are consistent with strategies and plans of local, State and Commonwealth governments as follows:

- **Local Government (Whitsunday Regional Council (WRC)) Plans and Strategies:**

- As noted in Section 2 of the PRC Plan:

The SCM area is subject to the WRC Planning Scheme, in which the underlying real property is zoned as 'rural'. The rural zoning is consistent with both the pre-mining grazing land-use and the adopted PMLU for the SCM. Initial consultation was undertaken with WRC during the EIS process for the SCM, and ongoing consultation occurs through ongoing community meetings (refer to Section 2.3), as well as specific consultation as required.

- Rural zoning under the WRC Planning Scheme does not preclude extractive industries, instead requiring that:

'development for extractive industry... is appropriately designed, operated and managed to minimise significant nuisance and environmental impacts on surrounding premises';

The WRC Planning Scheme does not preclude the retention of voids associated with extractive industries.

- It is noted that a significant number of existing third-party coal and other mines and quarries which also include NUMAs/residual voids are present within the WRC area (and are therefore subject to the WRC Planning Scheme).
- As such, the proposed SCM PMLU and NUMAs are considered to be consistent with the WRC Planning Scheme.

- **State Government Plans and Strategies:**

- The most relevant State Government 'strategies/plans' are the pieces of legislation which govern the mining industry, being the *Mineral Resources Act 1989* (MR Act) and the *Environmental Protection Act 1994* (EP Act).
- The SCM EIS process was undertaken to address the EIS Terms of Reference and was subject to consultation with relevant stakeholders including state government bodies and subsequent public notification.
- The SCM EIS Assessment Report was issued by the then-Environmental Protection Agency (EPA) in August 2006.
- The SCM MLs were subsequently granted under the MR Act, with the ML conditions not precluding the retention of voids/NUMAs following the completion of mining.

- The SCM EA was granted in March 2007 (current version dated 29 September 2022) and specifically nominates a general PMLU of grazing pasture (Condition H1), as well as permitting the retention of specific residual voids Table H1.
- The adoption of residual voids as NUMAs was described in s1.1.5 of the PRC Plan as follows:

The QNH Rehabilitation Management Plan (RMP) was submitted to DES on 27 April 2020 and was subsequently approved as an LOD on 2 July 2020. The RMP reflects the approach that has been adopted for rehabilitation works to date at the SCM and includes the approved rehabilitation methodology, adopted parameters for design of the final landforms, and acceptance and completion criteria to demonstrate achievement of the PMLU for rehabilitated areas at the SCM.

The RMP also references the residual voids listed in Table 5 above. The RMP states that because the SCM voids are groundwater sinks which will have degrading void lake water quality, they are therefore unable to sustain a PMLU and are considered to be NUMAs.

- As such, the proposed SCM PMLU and NUMAs are considered to be consistent with the relevant State Government legislation and policy governing the resources sector (considered to incorporate any relevant State Government plans and strategies).
- **Commonwealth Government Plans and Strategies:**
 - No specific Commonwealth Government strategies or plans are relevant to the SCM site other than the overarching Environment Protection and Biodiversity Conservation Act (EPBC Act);
 - As noted in s1.1.4 of the PRCP:

The SCM was referred to the (then) Department of Environment, Water, Heritage and the Arts in April 2005 under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). QCS was notified in June 2005 that the SCM was determined to be 'not a controlled action' requiring assessment under the EPBC Act.
 - A subsequent EPBC referral was undertaken specifically in relation to impacts of Black Ironbox populations associated with the Coral Creek Diversion which is not directly relevant to the SCM PMLU/NUMAs.
 - As such, the proposed SCM PMLU and NUMAs are considered to be consistent with the relevant Commonwealth Government legislation and

policy governing the resources (considered to incorporate any relevant Commonwealth Government plans and strategies).

The above text has been added to a new Section 2.4 in the V2 PRC Plan to address this issue.

DES ITEM 3

DES Issue

Rehabilitation trials

The PRC plan does not clearly meet the requirements of section 3.7.1 Rehabilitation trials with respect to the proposed grazing trials.

As per section 6.2.2 of the proposed PRC plan, “the grazing trials are intended to provide evidence that the carrying capacity and other relevant milestone criteria are being achieved at representative site[s]”. Further, the trials are required to “confirm the carrying capacity of the rehabilitated land as part of the certification that the land has achieved a stable condition.”

DES Information Request

Provide additional information within the proposed PRC plan to meet the information requirements of section 3.7.1 of the PRCP Guideline.

QCoal Response

Further detail has been added Section 6.2.2 of the V2 PRCP Plan in relation to the proposed grazing trials.

DES ITEM 4

DES Issue

Location and extent of setback

The PRC plan and schedule provides for the establishment of fencing, signage and bunding for the high-walls and end-walls of the IAs – assumed to be located in a setback area.

Further, the department notes the close proximity of IA2 (Sonoma East Pit 1 Void) and IA3 (Sonoma East Pit 2 Void) to the boundary of ML10327.

It is unclear if the IAs as depicted include the necessary setback area for the management of access to the voids. Further, if the IAs as currently proposed do not account for this setback area, it is unclear if there is sufficient area between each respective void and the tenure boundary.

Finally, if a setback area is proposed, the land outcome of this area should be confirmed as it is not clear if this area will be incorporated in the NUMA or will be an adjacent PMLU.

DES Information Request

Provide additional details as to the location and extent of the setback area around the high-walls and end-walls – including updates to mapping and spatial files as required for consistency; and

Provide additional details as to land outcome (PMLU vs. NUMA) for the setback area and the treatments to be applied to the setback area (e.g. revegetation).

QCoal Response

The SCM residual voids as initially proposed included a 10m setback from the crest of the highwall to a bund, with a fence located immediately adjacent to the outside toe of the bund but due to the scale of the provided maps, this is not visible. For clarity, the area inside the fence (i.e. including the bund and setback) is considered to be part of the NUMA. The NUMAs as proposed in the V1 PRC Plan included the setback and bund area, with sufficient area for access along the highwall outside the bund/fence available.

It is noted that with the change to the mine plan as outlined in Section 3 of this memo (namely the addition of ML700075 to the SCM EA), the NUMA will no longer be located as close to the boundary of the SCM MLs as previously depicted.

Additional wording as per the above has been added to Section 4 to address this issue.

DES ITEM 5

DES Issue

Recalibration and update of groundwater modelling

It is unclear if the groundwater modelling is sufficient to demonstrate with confidence that the residual voids at Sonoma Coal Mine will remain as sinks, or otherwise achieve a state which is non-polluting.

The department notes that the groundwater model (as per Appendix J) has not been recalibrated since 2015. Further, it appears that subsequent monitoring data has been used in the 2020 QNH groundwater model update – but not for the purposes of recalibrating the model and updating relevant parameters.

Additionally, section 7.4.4 of Appendix J identifies the transient calibration for the model to have a ‘scaled root mean squared error’ (SRMS) of 16.4%. As per the “Australian groundwater modelling guidelines” (Barnett et al, 2012), the SRMS is a performance measure which should ideally be less than 10% (or even less than 5%). This SRMS appears to indicate the model is poorly calibrated.

Finally, section 10 of Appendix J includes a series of recommendations for the groundwater model to ensure it remains fit-for-purpose for future predictions and continues to be informed by field observations. It appears that these recommendations have not been implemented despite the additional information made available since 2015.

DES Information Request

Provide updated groundwater modelling which includes a recalibrated groundwater model and updated parameters. The update and recalibration must be informed by the most recently available data and include the implementation of the recommendations as per section 10 of Appendix J.

Pending the outcome of the above, update the proposed PRC plan. The updated plan should:

- Identify voids which will be groundwater sinks or sources;
- Update relevant figures of groundwater modelling; and
- Justify the site as being able to achieve a state which is non-polluting (i.e. groundwater from all voids acting as groundwater sources will ultimately report to another residual void which acts as a groundwater sink).

QCoal Response

QCS notes that the Groundwater Modelling Report (appended as Appendix J of the V1 PRC Plan) was initially provided as part of QNH RMP which itself was approved by DES as a LOD in July 2020. The Groundwater Modelling Report document was relied upon as supporting information for the SCM voids as NUMAs for a transitional PRCP; however, QCS considers that it has been previously accepted for the intended purpose and no further updates are warranted.

The ‘Australian groundwater modelling guideline’ referred to by DES is not referred to in the PRCP Guideline or elsewhere as being a mandatory guideline for groundwater model.

DES quoting that “*the SRMS is a performance measure which should ideally be less than 10% (or even less than 5%)*” as an indicator that the model is poorly calibrated is an overly simplistic assessment of the suitability of the model and the groundwater modelling process in general – the referenced guideline itself states:

The scaled root mean squared error (SRMS) is a useful descriptor of goodness of fit when the only objective is to fit historical measurements of heads, but is less useful when automated calibration methods are used. A target SRMS of 5% or 10% is only meaningful when those setting the target know that it is achievable for a particular kind of problem and a particular environment with a known density of informative data.

While the steady state SRMS for the AGE (2020) model was 4.5%, the transient SRMS calibration was 16.4%. The higher transient SRMS was noted as being likely influenced by groundwater units which are influenced by proximity to and flow height in the Bowen River. As the SCM is located approximately 10.5km north of the Bowen River and the Bowen River alluvium does not extend beyond the immediate floodplain, these impacts are unlikely to extend to the SCM. The model did note satisfactory matching of trends (i.e. declines) where mine impacts are apparent. Further, it is noted that the assumptions used in the model render it inherently conservative.

Barnett et al (2012) also includes a classification system to rank the confidence level for groundwater models (Class 1-3, with Class 3 being the highest level of confidence). This classification system is based on multiple factors rather than a single calibration metric. As stated in AGE (2020), the Groundwater Model was considered to be of Class 2 confidence level which was ‘*suitable for predicting groundwater responses to arbitrary changes in applied stress or hydrogeological conditions and the evaluation and management of potentially high-risk impacts.*’

Regardless of the above, the QNH Groundwater Model has been fully updated. Specifically, due to the proposed SCM mine plan changes (as outlined in Section 3 of this memo and included in the V2 PRC Plan), as well as mine plan changes to other QNH mines (Jax and Drake), the QNH Groundwater Model has been updated accordingly. This update included a full rebuild of the model to contemporise it in accordance with current practice, as well as simulation using the updated mine plans from the SCM and other QNH sites. The updated QCoal Northern Hub Groundwater Modelling Report (AGE, 2023) has been included as a replacement Appendix J in the V2 PRC Plan, while a discussion of the results of the updated model has been included in an updated Section 5.2.1.1.1. QCS notes the SRMS for the updated model is 7.5% for the calibrated steady state model and 6.8% for the calibrated transient model; however, the model is still considered to have a Class 2 confidence level.

DES ITEM 6

DES Issue

Rerun and update of void modelling

The recalibration and update to numerical groundwater modelling necessitates the rerun and update of void modelling. Void modelling will need to be repeated with the updated inputs resultant from the updated groundwater model. Additionally, the proposed PRC plan and its appendices (i.e. Appendix K) will need to be updated accordingly.

DES Information Request

Pending the response to the item above, provide updated void modelling which incorporates the relevant inputs from the updated groundwater modelling.

Pending the outcome, update the proposed PRC plan to reflect updated void modelling.

QCoal Response

QCS notes that the Void Modelling Report (appended as Appendix K of the V1 PRC Plan) was initially provided as part of the QNH RMP which itself was approved by DES as a LOD in July 2020. The Void Modelling Report document was relied upon as supporting information for the SCM voids as NUMAs for a transitional PRCP; however, QCS considers that it has been previously accepted and no further updates are warranted.

Regardless of the above, (as noted in the response to **Item 5**), due to the proposed SCM mine plan changes (as outlined in Section 3 of this memo and included in the V2 PRC Plan), as well as mine plan changes to other QNH mines (Jax and Drake), the QNH Groundwater Model has been updated accordingly.

QCS has engaged Engeny to undertake an update of the previous void water balance model to quantify the impacts/changes from the updated groundwater model and predict the final void lake levels and quality for all voids at the QNH as previously reported in Engeny (2020). Due to circumstances beyond QCS' control, this void modelling report is not yet available, with the final output due to be provided by the end of February 2024.

QCS proposes to provide this report to DESI when it is received and to update Section 5.2.1.1.2 in the V3 PRC Plan (which will be provided upon agreement of the final PRCP Schedule to update the proposed milestone criteria as stated in various locations throughout the PRC Plan).

In the absence of the updated modelling, the discussion of the results of the 2020 void modelling is retained within the V2 PRC Plan as the proposed void configuration for both

the Sonoma Main Pit and Sonoma East Pit remains similar to that previously proposed (in regards to the groundwater units/strata encountered, and the depth and area of the voids). As such, the previous void modelling remains relevant, and is retained within the V2 PRC Plan.

DES ITEM 7

DES Issue

Seed mix for riparian areas of permanent watercourses

The department notes that the seed mix included in Table 10.3 of Appendix I includes *Bothriochloa pertusa* (Indian Bluegrass, a.k.a. Indian Couch). This species is recognised as an environmental weed with the propensity to affect soil health, reduce land productivity and dominate other native pasture grasses.

Section 10 of Appendix I indicates riparian areas of permanent watercourse diversions will be native habitat or a hybrid gradation of low intensity grazing and native habitat.

It is unclear if the intentional introduction of Indian Couch, with consideration for its ability to invade native pasture and establish monocultures, will prevent the achievement of a sustainable PMLU (native or grazing).

DES Information Request

Provide additional information to clarify if the inclusion of Indian Couch will undermine the achievement of a sustainable PMLU where applied.

QCoal Response

Refer to discussion in Response to Item 13 in relation to the adopted PMLU for creek diversions at the SCM.

As stated in the V1 PRC Plan, Coral Creek within ML10326 and ML10327 was previously assessed as a watercourse under the *Water Act* 2000, and the diversion therefore required a Water Licence for interfering with flow in a watercourse. As part of the Water Licence application process, a certified Design Plan was developed which addressed the required content, and a Water Licence for the Coral Creek Diversion was issued in 2012. The Water Licence Conditions were subsequently transferred into the SCM EA. An updated Design Plan (updated hydraulic modelling, improvements to the channel geometry and establishment) was prepared in 2018 (North Sonoma Creek Diversion Design Plan (Engeny 2018) (included as Appendix I to the V1 PRC Plan)), and submitted to DES for review. The Coral Creek diversion was constructed and commissioned in 2018

to replace the original alignment which was removed by the mining of the Sonoma North Pit and has been subject to ongoing RPEQ inspection since that time.

As such, the Design Plan for the Coral Creek diversion was previously assessed and approved, and the diversion was subsequently constructed. The Design Plan included a list of revegetation grass (as part of a seed mix), which included Indian bluegrass (*Bothriochloa pertusa*). At no time during that process were concerns raised by DES in relation to Indian bluegrass or any other species within the proposed species list. The diversion was completed ~6 years ago, therefore any delayed concerns about a single species used in the stabilisation of the diversion cannot be addressed.

QCS notes that any invasive naturalised species is technically an 'Environmental Weed' – this could be extended to include buffel and rhodes grasses (which are also listed in the Sonoma North Creek Diversion Design Report). Indian bluegrass is not listed as a Restricted Invasive Plant under the Qld *Biosecurity Act*, nor is it a Weed of National Significance or listed as a priority pest plant in Whitsunday Regional Council's Biosecurity Plan.

QCS further notes that an ecological surveys are undertaken on a regular basis within the Coral Creek diversion (i.e. Sonoma North Creek diversion), which includes grass and tree species observations..

DES ITEM 8

DES Issue

Risk Assessment – Treatments for RM8

Table 36 of the proposed PRC plan includes the risks to the completion of rehabilitation milestones (RMs) and management milestones (MMs), including impacts, risk treatments and residual risks.

The majority of treatments within Table 36 are identified as capable of reducing risk from the categories of 'medium' and 'high' to give a 'low' residual risk.

However, the risk treatments applied to RM8 for the 'medium' risk of "*Surface water contamination from unexpected waste rock material geochemical issue*" appears insufficient. Specifically, despite the risk treatments proposed, the residual risk is unable to be reduced below that of 'medium'. The department notes that several other risks identified in Table 36 have risk treatments which reduce both the consequence and likelihood of adverse events.

DES Information Request

Propose additional or modified risk treatments sufficient to reduce the residual risk of “*Surface water contamination from unexpected waste rock material geochemical issue*” for RM8 from ‘medium’ to ‘low’; or

Where the above is not practicable or reasonable – provide additional details to justify why the current risk treatments are sufficient as opposed to additional or modified treatments.

QCoal Response

QCS has reassessed the identified risk treatments for RM8 and determined that the existing proposed controls are sufficient to reduce the residual consequence to ‘2’, which will therefore reduce the residual Risk Rating to ‘Low’. Table 36 has been updated accordingly in the V2 PRC Plan.

2.0 RESPONSES TO DES IRN ITEMS RELATING TO PRCP SCHEDULE

DES ITEM 9

DES Issue

Incomplete Worksheets (Rehabilitation Areas)

The worksheets for Rehabilitation Areas (RAs) 1 through 7 are incomplete. Details of ‘Commencement of first milestone’ have not been provided fully/correctly. The below screenshot demonstrates how each worksheet should be completed in red.

DES Information Request

Update the proposed PRCP schedule to complete worksheets RA1 through RA7.

QCoal Response

This issue has been rectified in the V2 PRCP Schedule.

DES ITEM 10

DES Issue

Incomplete worksheets (Improvement Areas)

The worksheets for Improvement Areas (IAs) 1 through 3 are incomplete. Details including the ‘Commencement of first milestone’ and ‘NUMA’ have not been completed. Further, IA2 lacks area entries against each milestone reference.

DES Information Request

Update the proposed PRCP schedule to complete worksheets IA1, IA2 and IA3.

QCoal Response

This issue has been rectified in the V2 PRCP Schedule.

DES ITEM 11

DES Issue

Conflict between RAs

As per section 5.3.3 of the proposed PRC plan, RA3 (infrastructure to be removed) includes support infrastructure (e.g. workshops and fuel/chemical stores) and processing infrastructure (e.g. CHPP and ROM pad).

However, with reference to the unvalidated spatial data provided, RA7 (infrastructure to be retained) occupies areas of mine infrastructure which appears to include fuel farms, ROM pads and workshops.

Therefore, the spatial extent of RA7 appears to overlap with areas of infrastructure which according to the plan are intended to be RA3. Consequently, the milestone criteria for retained infrastructure will be applied to areas which are likely intended to be subject to the treatments for removed infrastructure – i.e. decontamination, etc.

DES Information Request

Update the proposed PRC plan and schedule to clearly delineate the infrastructure incorporated by each RA. Where necessary reflect any changes in the spatial extent of each RA, the spatial files and maps contained within the plan may also require update.

QCoal Response

The spatial data provided outlined the correct areas for RA3 and RA7, while s5.3.3 incorrectly referred to certain support and process infrastructure being within the RA3 area when the majority of this infrastructure sits within the RA7 area, with only a small area within the Sonoma East area in the V2 PRC Plan being included in RA3.

The intention for RA7 (Retained Infrastructure) is that where built infrastructure is present that is not covered by the Belmore West Landholder Agreement, this infrastructure will be removed – this includes the CHPP and associated infrastructure, rail spur and load-out, fuel farm, workshops, etc. Upon removal of the built infrastructure, the underlying hardstand pads will be retained.

In the specific case of the SCM ROM pad, the underlying engineered pad is intended to be retained, therefore rehabilitation works for the ROM pad will consist of removing built infrastructure and scalping surficial coaliferous material from the pad.

The wording within Section 5.3.3 and Section 5.3.7.3 of the V2 PRC Plan has been updated to clarify the above position. The V1 PRCP Schedule Rehabilitation Milestones do not require updating as part of this clarification.

DES ITEM 12

DES Issue

Investigation and remediation of contamination

RA7 does not include milestone criteria for the investigation and remediation of contamination – however section 5.3.7 of the proposed PRC plan does contemplate these works.

The department notes, with reference to the unvalidated spatial data provided, that RA7 occupies areas of mine infrastructure which appears to include fuel farms, ROM pads and workshops. These areas likely merit land investigations and will require remedial actions to be completed (e.g. removal of contaminated material or treatment of contaminated areas [likely includes carbonaceous material, hydrocarbons and other contaminants]).

As per section 3.2 *Post-mining land use* of the PRCP Guideline all retained infrastructure must be safe, stable and not cause environmental harm. It is unclear if RA7 could demonstrate compliance with these requirements if contamination is not addressed.

Further, section 3.6.5 *Built infrastructure* of the PRCP Guideline further reinforces the need for the management of contamination to be included.

DES Information Request

Pending the response to the item above, update the proposed PRC plan and schedule to include milestone criteria to account for the completion of land contamination investigations and any remedial works for RA7.

QCoal Response

To address this Item, equivalent criteria to that already proposed in RM2 (which applies to RA1, RA2 and RA3) is proposed for RM11 as follows:

Undertake contaminated land assessment if required and if necessary undertake remedial activities (supervised by a suitably qualified person).

The V2 PRCP Schedule reflects this proposed additional criteria.

DES ITEM 13

DES Issue

PMLU for riparian areas of permanent watercourses

RM10 indicates diversions are to be rehabilitated as per the Design Plan (i.e. Appendix I of the PRC plan). Section 10.1 of the Design Plan states that the PMLU for both diversions will be “...native habitat, including a riparian zone grading into low intensity grazing”.

DES Information Request

Provide a revised rehabilitation planning part and PRCP Schedule that addresses the identified issues.

QCoal Response

DES has quoted from Section 10.1 of the Design Plan without including the previous paragraph which provides context. The full extent of the relevant wording is as follows:

Condition 14 of the EA requires that the North Sonoma Creek Diversion be rehabilitated in accordance with the approved Rehabilitation Plan as per Condition F5 of the EA, which details what must be addressed within the Rehabilitation Plan. Condition F3 of the EA stipulates that a revised Rehabilitation Plan must be submitted to the administering authority (to account for the North Sonoma Creek Diversion). As such, the North Sonoma Creek Diversion rehabilitation requirements will be addressed in the revised Rehabilitation Plan.

The existing Sonoma Coal Mine Rehabilitation Plan December 2015 (NRA, 2016) identifies the post-mine land use for disturbed areas as ‘low intensity grazing’ (i.e. Class 4 land as defined in the EA at the time). It is proposed that the North Sonoma Creek Diversion post-mine land use will be a self-sustaining community suitable for native habitat, which includes a riparian zone grading into low intensity grazing. This land use is also defined for the existing Two Mile Creek Diversion at the SCM.

The second paragraph discusses the PMLU as outlined in the 2015 SCM Rehabilitation Plan. The previous paragraph, however, makes it clear that this Rehabilitation Plan will be superseded by a subsequent revision of the Rehabilitation Plan that is required to be submitted under EA Condition F3.

As such, the PMLU and rehabilitation outcomes in the SCM Rehabilitation Plan supercedes the PMLU and outcomes from the 2015 Rehabilitation Plan discussed in the Design Plan.

The current Rehabilitation Plan for the SCM is the 2020 QNH Rehabilitation Management Plan (RMP), which was approved by DES as an LOD and was extensively relied upon and appended to the V1 PRC Plan. Table 10 of the RMP outlines the PMLU for each relevant domain within the SCM and other QNH mines. Creek diversions are specifically listed as having a 'Grazing Pasture and Permanent Watercourse' PMLU.

Within the V1 PRC Plan, QCS had specifically nominated a PMLU (refer to Table 4 of the V1 PRC Plan) of 'Permanent Infrastructure previously approved under the Water Act/currently approved under the EP Act'. This is considered to be a suitable PMLU for constructed watercourse diversions in and of itself without the inclusion of grazing pasture due to the following:

- The primary function of the engineered watercourse diversions at the SCM is the conveyance of flow events while maintaining the as-designed channel stability and geomorphology in the long-term;
- The groundcover/vegetation nominated in the RMP/Design Plan is primarily intended to stabilise the bed and banks of the diversion channel during general rainfall events as well as during flow events;
- Regional watercourses in the SCM area are generally degraded due to clearing and cattle access which has contributed to erosion and sedimentation;
- The design bank slopes for the watercourse diversions are (1H:4V (i.e. 25%)), which, while being a geotechnically stable slope, does not facilitate easy cattle access to the entirety of the channel. While access is available for cattle at a number of points along the diversion alignment, this is more likely to be utilised for crossing or access to watering points than specifically for grazing within the bed and banks of the creek diversion;
- The constructed channel would be unable to achieve the Class 4 grazing criteria purely due to slope, and would therefore be considered to be Class 5 (i.e. unsuitable for cattle grazing);
- The watercourse channel has been excavated into competent rock and where necessary has been lined with rock and has also been designed to encourage settlement of transported sediment (sandy material) from upstream within the creek bed, further demonstrating its unsuitability for cattle grazing;
- The riparian zone above the high-flow channel has not been included within the watercourse RAs, instead being part of the waste rock dump RA (i.e. RA1) along the southern back and undisturbed on the northern bank;

As such, the adoption of a specific watercourse diversion PMLU within a wider grazing landscape is appropriate for the watercourse diversions at the SCM. The proposed RM

criteria refer to construction and stabilisation of the watercourse diversion (in compliance with the approved Design Plan) as the key metric to be satisfied rather than the achievement of specific grazing or native vegetation criteria. This is an appropriate approach given the primary function of the engineered watercourse diversions is the conveyance of flow events while maintaining the as-designed channel stability and geomorphology in the long-term. The ongoing RPEQ inspections of the creek diversions track and monitor progress against the approved Design Plan, further demonstrating that proposed criteria are appropriate. The use of the creek diversions for opportunistic cattle watering/crossing as well as for native habitat is desirable but is secondary to the primary function as described above.

This detail has been added to the V2 PRC Plan (s1.4.3.1), while the RM10 criteria have also been altered slightly. QCS maintains that the adopted approach for the constructed watercourse diversions at the SCM is appropriate and consistent with the previously approved and constructed nature of the diversions, as well as the existing conditions within Schedule J of the SCM EA.

DES ITEM 14

DES Issue

Milestone Criteria for permanent watercourses

The diversion milestone criterion in the proposed PRCP schedule does not adhere to the SMART principles.

The milestone criterion for RM10 requires AQP certification that the diversion has been constructed and stabilised in accordance with the Design Plan. The Design Plan generally lacks completion criteria or similar objectives specific to grazing or native habitat outcomes for rehabilitation.

The proposed PRCP schedule should contain specific milestone criteria to demonstrate the completion of RM10 and achievement of a safe, stable, non-polluting and sustainable PMLU.

For riparian areas with the PMLU of low intensity grazing, the relevant RMs and milestone criteria of RAs 1, 2, 3 and 4 are likely applicable to RA5 and RA6.

For riparian areas with the PMLU of native habitat, RMs and milestone criteria should be developed to demonstrate the establishment of 'native habitat'.

RA5 and RA6 would also benefit from specific milestone criteria for the hydraulic and hydrological performance of the diversion.

DES Information Request

Update the proposed PRC plan and schedule to include additional milestone criteria for permanent watercourses and their riparian areas which:

- Adhere to the SMART principles;
- Support how the proposed PMLU(s) will be achieved; and
- Demonstrate when the milestone(s) has/have been completed.

QCoal Response

Refer to the previous response for **Item 13**.

As previously noted, the adoption of a specific watercourse diversion PMLU within a wider grazing landscape is appropriate for the watercourse diversions at the SCM. The proposed RM criteria refer to construction and stabilisation of the watercourse diversion in compliance with the approved Design Plan as the key metric rather than specific grazing or native vegetation criteria. This is an appropriate approach given the primary function of the engineered watercourse diversions is the conveyance of flow events while maintaining the as-designed channel stability and geomorphology in the long-term. The use of the creek diversions for opportunistic cattle watering/crossing as well as for native habitat is desirable but is secondary to the primary function as described above.

This detail has been added to the V2 PRC Plan (s1.4.3.1), while the RM10 criteria have also been altered slightly. QCS maintains that the adopted approach for the constructed watercourse diversions at the SCM is appropriate and consistent with the previously approved and constructed nature of the diversions, as well as the existing conditions within Schedule J of the SCM EA.

DES ITEM 15

DES Issue

Maximising progressive rehabilitation (Waste rock dumps, including backfilled voids)

The department notes that between 2028 and 2046, no additional area will become available for rehabilitation as part of RA1. It is unclear why there will be an 18-year period in which progressive rehabilitation will not be able to occur for RA1.

As per section 5.3.1 of the proposed PRC plan:

The final areas of waste rock dumps (associated with B-Pit, Q-Pit and the Sonoma East Pits) are projected to be available for rehabilitation in 2046, which aligns with completion of mining (and haulage) at the QNH.

It is unclear from the above statement as to why these areas are not available before 2046. This section of the plan would benefit from additional detail as to why mining and haulage prevents progressive rehabilitation of these areas particularly.

As per section 3.1 of the PRCP Guideline, the proposed PRC plan must demonstrate that the EA holder has maximised the progressive rehabilitation of the land to stable condition.

DES Information Request

Provide a revised rehabilitation planning part and PRCP Schedule that addresses the identified issues.

QCoal Response

The lack of area becoming available for rehabilitation reflects the mature stage of the SCM operations. Significant rehabilitation has already been undertaken at the SCM prior to the implementation of the PRCP framework, and the majority of the remaining area to be rehabilitated during the SCM LOM is either as yet undisturbed (e.g. Sonoma East), infrastructure that is required for the LOM of the QNH (e.g CHPP, rail load-out), or areas adjoining infrastructure which cannot be rehabilitated as the required bulk earthworks/ battering would impact the infrastructure (e.g. CDA batters).

As stated in Section 1.5.6 of the V1 PRC Plan:

All four mines at the QNH utilise the existing infrastructure (processing, maintenance, administration and train loading facilities) at the SCM, being the northern-most mine within the QNH. This requires that access, haulage and other mining activities cross the various tenure boundaries between the QNH mines. The requirement for ongoing access and haulage (amongst other activities) within the SCM to support the broader QNH operations also influences when some areas within the SCM become available for rehabilitation.

Figure 9 shows the extent to which the SCM is currently integrated with the other QNH Mines, including the location of key infrastructure and mining areas. Activities at the SCM which are integrated with other QNH mines include:

- *Ongoing access for ROM coal haulage and light and heavy vehicle access from the Drake 1 and Drake 2 mining areas via existing and new haul roads*

and ramps, through the SCM B-Pit area to the SCM CHPP, workshop and MIA. This will require the retention of haul roads and ramps (as well as areas above the haul road batters to enable eventual battering of these slopes), which provide access from the Drake 1 and Drake 2 Expanded areas, across the CCM B-Pit area, and into the SCM.

- *Ongoing access for waste rock haulage and light and heavy vehicle access from the Drake 1 via existing and new haul roads and ramps through the SCM B-Pit area to the SCM out-of-pit CDA for capping material. This will require the retention of haul roads and ramps (as well as areas above the haul road batters to enable eventual battering of these slopes), which provide access from the Drake 1 area, across the CCM B-Pit area, and into the SCM.*
- *Ongoing access for ROM coal haulage and light and heavy vehicle access from the Drake 5 mining area through the SCM Q-Pit area to the SCM CHPP workshop and MIA. This will require the retention of existing haul roads (as well as areas above the haul road batters to enable eventual battering of these slopes), which provide access from the Drake pits to the south-west of the CCM, across the CCM Q-Pit area, and into the SCM.*
- *Ongoing access for ROM coal haulage and light and heavy vehicle access from the Drake 3, Drake 4 and Jax Main and Jax East mining areas to the SCM CHPP workshop and MIA. This will require the retention of existing haul roads (as well as areas above the haul road batters to enable eventual battering of these slopes), which provide access from the JCM through the DCM, CCM and into the SCM.*
- *Ongoing use of and access to the SCM MIA, workshop, and associated infrastructure for the LOM of the QNH.*
- *Ongoing use of and access to the SCM Main Pit in-pit co-disposal facility for the LOM of the QNH for the deposition of reject material and recovery of decant water for re-use.*

As such, a number of areas within the SCM will not become available for rehabilitation or improvement until the cessation of mining and processing activities at the other QNH sites in ~2046.

Wording as per the above has also been added to s5.3.1 of the V2 PRC Plan to provide additional clarity as to the delay in these areas becoming available for rehabilitation at the SCM. This justification has previously been accepted in the approved Cows PRC Plan and PRCP Schedule on the basis that ongoing access is also required through Cows for the life of the QNH in much the same way as is proposed for Sonoma.

DES ITEM 16

DES Issue

Maximising progressive rehabilitation (Out-of-pit Co-disposal Area)

The department notes that a variety of timeframes are proposed for the completion of RM4 (Surface Preparation) throughout the proposed PRCP schedule.

As per worksheet RA2, 66 ha will complete RM4 over the course of 5-years (2026-2031). However, a comparable amount of 54 ha will subsequently complete RM4 over the course of only 2-years (2031-2033).

It is unclear why areas of similar size have different timeframes for the completion of the same RM and consequently, if each rehabilitation milestone is being completed as soon as practicable.

DES Information Request

Update the proposed PRC plan and schedule to ensure that RA2 is planned to maximise progressive rehabilitation.

Justification must be given for the timeframe over which each area of RA2 completes RM4.

QCoal Response

The discrepancy noted by DES is due to limitations of the PRCP Schedule template, specifically its sequential structure which does not easily allow the scheduling of concurrent activities of different duration. QCS notes the following:

- The initial 66ha of RA2 rehabilitation will become available for RM4 on 10/12/2026;
- An additional 54ha of RA2 also becomes available 10/12/2026 and will take a period of 5 years to progress through RM2 and RM3, during which time the initial 66ha will also progress through RM4 which is expected to take ~2 years;
- The final 54ha of RA2 is available for RM4 from 10/12/2031, which will take a period of ~2 years.
- Due to the sequential structure of the PRCP Schedule columns, if a column were included for the progression of the initial 66ha through RM4 for the period 10/12/2026-10/12/2028, this would mean the 5-year period for the progression of

the subsequent 54ha would need to shift back to 10/12/2028-10/12/2033, effectively delaying it becoming available.

As such, no change is proposed to the PRCP Schedule to address this Item. It is noted however, that the years stated in the V1 PRCP Schedule (and referred to in DES' Issue) have changed somewhat as a result of the mine plan changes discussed in Section 3 of this memo and included in the V2 PRCP Schedule.

3.0 DESCRIPTION OF CHANGES TO MINE PLAN AND RECONFIGURATION OF REHABILITATION AREAS

Subsequent to the submission of the V1 SCM PRC Plan and PRCP Schedule in September 2022, an application to amend the SCM EA to include a new Mining Lease (Mining Lease Application (MLA700075)) was submitted on 25 November 2022. The SCM EA amendment has progressed to Decision Stage, therefore inclusion in the V2 PRC Plan is considered to be appropriate.

ML700075 is located to the immediate south of the existing ML10327 ('Sonoma East') and will be primarily utilised for the installation of ancillary infrastructure (water management infrastructure, laydowns areas, etc) which will enable the optimisation of the mine plan on the existing ML10327. Only minor mining activities will occur on ML700075 where the endwall of the SCM East Pit extends into the MLA. The addition of ML700075 will maximise the extraction of the remaining coal resources within the SCM MLs and thereby change the areas and duration of activities within the PRC Plan and PRCP Schedule.

Similar updates to LOM Plans are a regular occurrence for coal mines due to changes in economic conditions and geological/resource considerations.

The proposed LOM Plan updates have been incorporated into the V2 PRC Plan and PRCP Schedule, which have been prepared in response to the items raised in the DES Information Request issued to QCS on 28 November 2022. The updated layout to the Sonoma East Area LOM Plan can be most clearly viewed in Figure 7 in the V2 PRC Plan. Specifically, the updated LOM Plan has resulted in the following changes to the LOM footprint for the SCM:

- LOM Pit Shells;
- LOM Voids (two voids/NUMAs instead of three);
- LOM Waste Rock Dump Areas (RA1);
- LOM At Grade Disturbance Areas (RA);
- LOM Infrastructure Areas (RA3);
- LOM Total Disturbance Area.

Relevant content in the V2 PRC Plan and PRCP Schedule has been updated to reflect these changes as required. While the V2 footprint for several of the SCM RAs have increased slightly above the disturbance areas proposed in the V1 PRCP Plan, the void areas remain consistent with the maximum footprint for voids permitted by the SCM EA.

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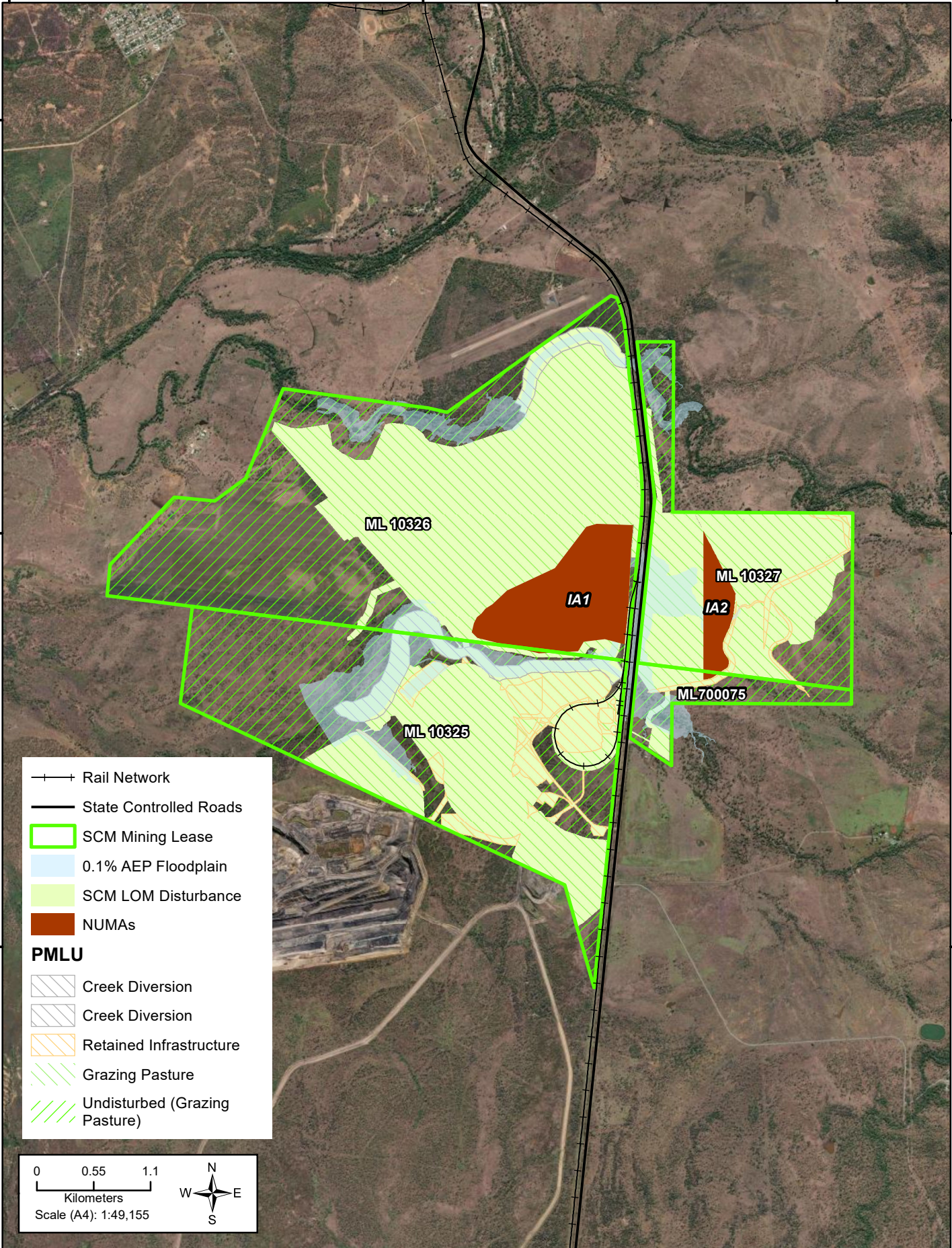
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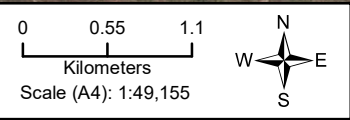
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- +— Rail Network
- State Controlled Roads
- ▭ SCM Mining Lease
- ▭ 0.1% AEP Floodplain
- ▭ SCM LOM Disturbance
- ▭ NUMAs
- PMLU**
- ▭ Creek Diversion
- ▭ Creek Diversion
- ▭ Retained Infrastructure
- ▭ Grazing Pasture
- ▭ Undisturbed (Grazing Pasture)



File Ref:

Date: 12/02/2024
 Coordinate System: WGS 1984 UTM Zone 55S
 Projection: Transverse Mercator Datum: WGS 1984
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SCM Final Site Design

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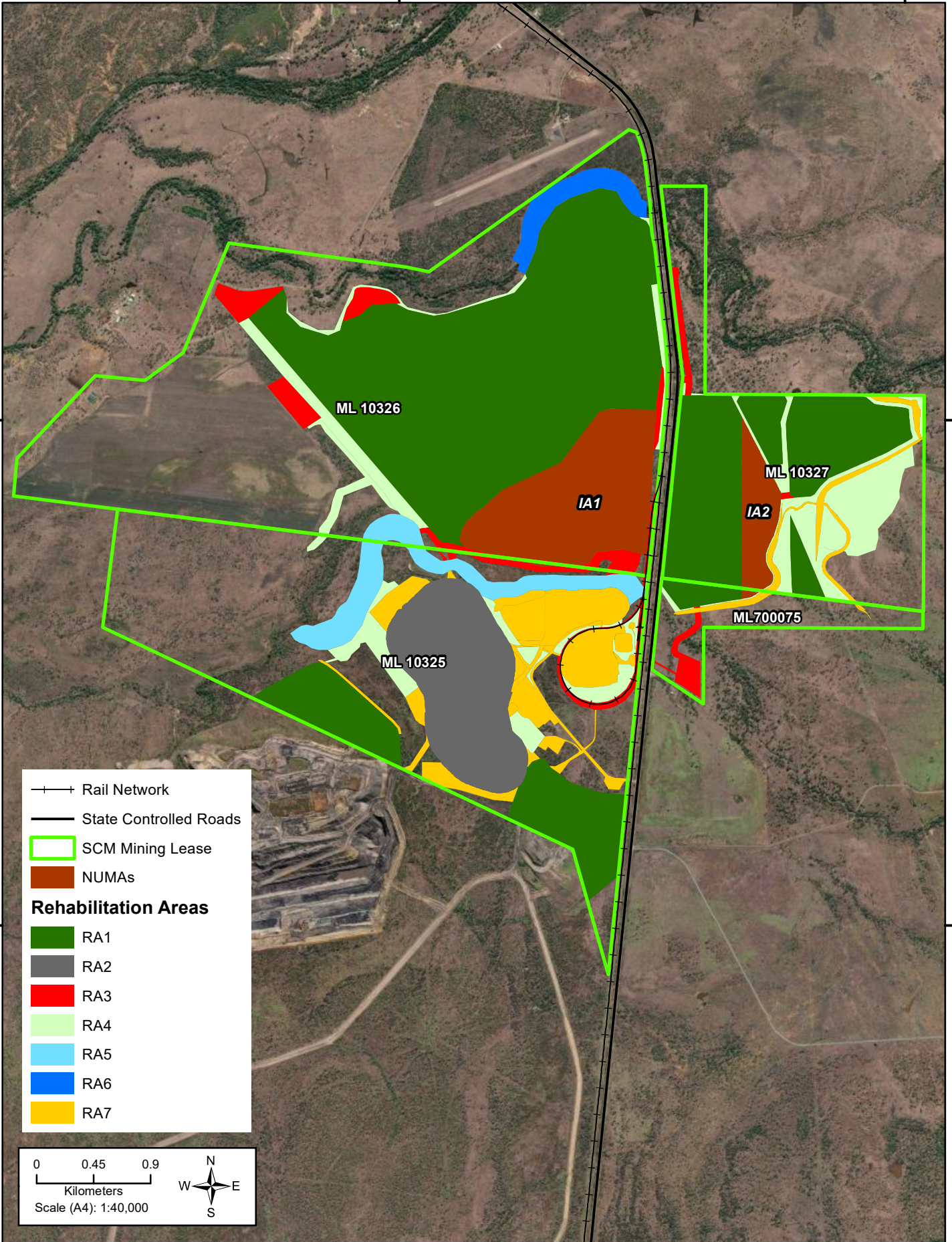
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—+— Rail Network
 — State Controlled Roads
 ◻ SCM Mining Lease
 ■ NUMAs
Rehabilitation Areas
 ■ RA1
 ■ RA2
 ■ RA3
 ■ RA4
 ■ RA5
 ■ RA6
 ■ RA7

0 0.45 0.9
 Kilometers
 Scale (A4): 1:40,000

File Ref:
 Date: 12/02/2024
 Coordinate System: WGS 1984 UTM Zone 55S
 Projection: Transverse Mercator Datum: WGS 1984
 Data sources:
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SCM Reference Map

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