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23 July 2024

Phil Nevil
Senior Environmental Assessment officer
Department of Planning, Housing and Infrastructure
4 Parramatta Square, 12 Darcy Street
Parramatta, NSW 2150

Re: CGO Open Pit Continuation Project - Response to RFI #5

Dear Phil,

1 Introduction

Please find below a response to a request for information (RFI #5) in relation to the Cowal Gold Operations (CGO) Open Pit Continuation Project (SSD-42917792) (the Project) dated 5 July 2024.

2 Response to request for information

2.1 Workforce and traffic

There appears to be some discrepancy between the employment figures in the current EIS and in the EIS for the underground mine. The current EIS indicates 510 total FTE workforce of which 230 would be employed for open cut operations and therefore 280 assumed for underground operations. Please confirm the following as it relates to the proposed workforce:

a) Clarify the correct operational workforce for the open cut and underground workforce and confirm the traffic numbers in the current EIS are correct.

The Environmental Impact Statement (EIS) for the CGO Underground Development Project (SSD-10367) assessed up to 230 FTEs for the underground mining operations.

The EIS for the Project considered a total average workforce of 510 FTEs on site (inclusive of the underground mining operations) consisting of:

- approximately 230 FTEs for the open cut operations and site maintenance support
- approximately 50 FTEs providing technical services, administration and business support
- approximately 230 FTEs for the underground mining operations.

Although workforce numbers may fluctuate, the average number of employees for the underground operations are anticipated to remain consistent with the existing EIS and SSD-10367 approval.

Operational workforce traffic (including the operational workforce associated with the approved underground mining operations) were considered in the baseline traffic volumes calculated for the Project, as presented in Section 2.5 of the Traffic Impact Assessment (provided as Appendix R to the EIS). Section 3.2 of the Traffic Impact Assessment noted that as there will be no changes to operational workforce numbers or shift times, with all operational traffic following the same transport routes previously assessed and approved. Traffic relating to ongoing open pit and underground mine operational workforce numbers were not further assessed. The Traffic Impact Assessment focussed on impacts associated with construction related traffic.

Section 4.11 of the EIS identified that the estimated construction workforce would consist of an average of 64 workers across the two-year construction program, with a peak of approximately 108 construction workers in year 1 of construction.

A key assumption in the Traffic Impact Assessment was that that there would be a peak construction workforce of up 114 workers on site with:

- coaches/buses transporting up to 20 construction workers to site
- light vehicles transporting up to two workers to site.

Based on this assumption, the Project would require an additional 5 coach/buses and up to 15 light vehicles during both the peak am and peak pm periods. In addition, the Project was anticipated to generate up to 12 heavy vehicle one way trips per day consisting of material, building and earthmoving fleet deliveries.

A review of the assumptions in the Traffic Impact Assessment has been completed which confirms the Traffic Impact Assessment numbers are correct if not slightly conservative in terms of the maximum number of construction workers accessing the site during peak construction activities.

b) Confirm percentage of operational workforce that currently use shuttle buses, and whether that proportion is proposed to continue to use them.

There are 64 designated car parking spaces on site at the CGO with a small number of additional overflow carparking areas within the site. Private vehicle travel to CGO is limited with Company-provided transport to and from the CGO encouraged as this forms an integral part of the site fatigue management strategy. Private vehicles are not permitted to travel to and from the CGO unless an Essential Driver Authority or temporary exemption is provided by Evolution. These are provided by exception.

Approximately 85% of the workforce travel to/from the CGO site via bus. This assumption is consistent with the assumptions in the Traffic Impact Assessment for bus/private transport ratio for the construction workforce.

It is assumed that the percentage of the operational workforce travelling to and from the site via bus will remain consistent for the life of the Project.

c) Clarify whether the worker/vehicle numbers referenced in the last paragraph of 3.1.3 of the Traffic Impact Assessment refers to additional traffic or existing traffic and whether vehicle trips refers to one-way movements or return movements.

One trip is equal to two movements (one inbound and one outbound). As such, 15 light vehicle and 17 heavy vehicle trips means that there are 30 light vehicle and 34 heavy vehicle movements occurring in each direction during these periods.

2.2 Amenity

Please confirm whether the application is seeking approval to undertake only supplementary IWL activities 24 hours per day (as currently approved by a nominee of the Secretary on 7 Feb 2022), or to undertake all IWL activities, including TSF lifts and rock buttressing, 24 hours per day.

Evolution seeks to only undertake supplementary IWL activities 24 hours per day consistent with the current approval as outlined in correspondence from the Department dated 7 February 2022.

The visual impact assessment prepared for the EIS noted that residences to the east of the Project currently experience impacts from night-time lighting. Please confirm if these residences would experience any cumulative lighting impacts from the additional open cut pits and temporary LPB construction lighting.

The lighting from construction activities would result in a cumulative visual impact. Residences exposed to a cumulative impact from night-time lighting are located approximately 6.6 km from the construction areas, and as such, cumulative visual impacts from lighting are predicted to be minimal. As outlined in the EIS, CGO will implement measures to minimise off-site lighting impacts from construction activities where lighting is required, which will include:

- direct light downwards, not upwards
- use of shielded fittings
- avoiding 'over' lighting
- switching lights off when not required
- use of asymmetric beams, where floodlights are used
- ensuring lights are not directed towards reflective surfaces.

2.3 Water and geotechnical

Please confirm if the three government trigger bores used for managing water levels in the Bland Creek paleochannel borefield are specific to the Project or are used to manage abstraction from the aquifer from all users

There are three regional government groundwater monitoring trigger bores located within the paleochannel - GW036553, GW036597 and GW036597. CGO understands that these monitor groundwater levels in the Lachlan Formation.

Only GW036553 (located near the mine borefield) governs the operation of the CGO borefields, as the Development Consent for the existing CGO operations states that Evolution must "Implement all reasonable and feasible measures to ensure that extraction of groundwater from the borefields does not result in exceedances of established mitigation trigger response levels". Trigger bore GW036553 is the only monitoring bore with a mitigation trigger level.

Irrigators at the Billabong and Maslin farms also extract groundwater volumes from the paleochannel. The NSW government monitors groundwater levels in the Lachlan Formation at the Billabong and Maslin Farms using the following monitoring piezometers (with respective trigger levels):

- Billabong Area: GW036597 (Trigger Level 143.7 m AHD)
- Maslin Area: GW036611 (Trigger Level 145.8 m AHD).

Please clarify the water balance figures (90th percentile) for wet conditions for the LPB north and LPB south, as there appear to be differences between the figures in the submissions report and in Appendix M of the submissions report.

Section 4.1.1 of the Submissions Report noted that for the 90th percentile of water trapped behind the northern LPB during wet conditions was 1,458ML and identified as 1,446 ML in Table 3.1 of Appendix M to the submissions report.

The differences in numbers presented in the submissions report and associated Appendix M of the submissions report is a rounding error with both volumes representing the 90th percentile. 1,458/year represents the 90.07 percentile, to illustrate that two times the full entitlement of the water access licence is sufficient to cover the anticipated water take. The 1,446 ML/year number is the 90.00 percentile, which is a minor difference in the statistics presented, with the 12 ML/year discrepancy representing the 0.07% difference between the two reports.

Currently, all drawdown figures appear to represent the impacts of privately owned bores in addition to mining and the Evolution owned Bland Creek Paleochannel borefield. To inform our understanding of the Project impacts without private landholder pumping, please provide figures showing predicted drawdown contours for:

a) Approved mining plus pumping from the Bland Creek Paleochannel borefield (Evolution's borefield only).

b) Approved mining plus pumping from the Bland Creek paleochannel borefield (Evolution's borefield only) plus the proposed Project (including pumping from the Bland Creek Paleochannel borefield only).

c) Incremental drawdown from the proposed Project only (including pumping from the Bland Creek Paleochannel borefield (Evolution's borefield only).

The Groundwater Impact Assessment (presented as Appendix H to the EIS) and associated groundwater modelling considered three scenarios being:

1. **Null scenario:** no mining scenario but includes landholder bore use (irrigation, and stock and domestic) from the paleochannel.

2. **Approved scenario**: the base case of existing and approved open pit and underground, and borefield groundwater pumping (plus landholder bore use).

3. **Proposed scenario**: the proposed project (pit expansion) plus approved scenario and landholder bore use.

The current cumulative drawdown figures presented in the Groundwater Impact Assessment **do not** represent any impacts of privately owned bores. The modelling of drawdown from the Project ('Proposed scenario'), when offset by the 'Null scenario', effectively cancels the extraction of water from privately owned bores out, and therefore these impacts do not appear as a contribution to the cumulative groundwater drawdown for the Proposed scenario in the figures presented (i.e. cumulative drawdown figures = Proposed scenario – Null scenario). Therefore scenario (b) drawdown figures in the request above are already presented in the Groundwater Impact Assessment and includes:

- *Figure 6.1a Cumulative drawdown Upper Cowra groundwater system (Layer 2) map 1 of 2* (at end of mining)

- *Figure 6.1b Cumulative drawdown, Upper Cowra groundwater system (Layer 2) map 2 of 2* (20 years and 100 years post mining under a dry case and fast recovery rate scenario)

- *Figure 6.2a Cumulative drawdown, top Lachlan Fold Belt (Layer 7), map 1 of 2* (at end of mining)

- *Figure 6.2b Cumulative drawdown, top Lachlan Fold Belt (Layer 7), map 2 of 2* (20 years and 100 years post mining under a dry case and fast recovery rate scenario)
- *Figure 6.3a Cumulative drawdown (at end of mining), continuous Lachlan Fold Belt (Layer 12), map 1 of 2* (at end of mining)
- *Figure 6.3b Cumulative drawdown, continuous Lachlan Fold Belt (Layer 12), map 2 of 2 (*20 years and 100 years post mining under a dry case and fast recovery rate scenario)
- *Figure 6.4 Cumulative drawdown, likelihood of exceedance for 2 m drawdown* (at any stage during the Project)

These figures have been provided in Appendix A for reference.

The Groundwater Impact Assessment also includes a figure of incremental drawdown (likelihood of exceedance for 2 m drawdown) for the Project (requested scenario (c) above). This scenario however does not show any impact from pumping from the Bland Creek Paleochannel borefield as, when the 'Proposed scenario' is compared to the 'Approved scenario' (which also includes pumping from the Bland Creek Paleochannel borefield) the impacts of this activity cancel each other out (i.e. Incremental drawdown = Proposed scenario – Approved scenario). As such, the information presented in Figure 6.5 of the Groundwater Impact Assessment illustrates the incremental impact on groundwater drawdown from the proposed Project only. This figure has been provided in Appendix B for reference.

Section 6.4 and Appendix F of the Groundwater Impact Assessment includes an assessment of predicted impacts on private landowner bores as a result of the Project. This assessment was undertaken in accordance with the requirements of the Aquifer Interference Policy (AIP). The assessment of impacts to landowner bores does not include extraction of water by the Project from the Bland Creek Paleochannel, as approved works that are for the primary purpose of extracting groundwater do not require assessment against the AIP minimal impact consideration.

Four privately owned bores were identified and assessed as being potentially impacted, whereby the drawdown from mining activities is predicted to exceed 2 m. The locations of these bores were illustrated in Figure 6.8 of the Groundwater Impact Assessment and are summarised in Table 2.1 below. Figure 6.8 of the Groundwater Impact Assessment is provided as Appendix C for reference.

Table 2.1 Details of landholder bores exceeding AIP 2 m drawdown criteria

Bore ID	Purpose	Groundwater source	Bore depth (m)	Status	Salinity description	Yield (L/s)
GW028040	Stock and Domestic	Upper Lachlan Alluvial GW Source (Lower Cowra Formation)	43.6	Use	7,001-10,000 ppm	
GW702262	Stock and Domestic	Upper Lachlan Alluvial GW Source (Lachlan Formation)	126	Use	1,000 mg/L	2.5
GW704641	Irrigation	Upper Lachlan Alluvial GW Source (Lachlan Formation)	108	Use	Good	15
GW065263	Stock and Domestic	Lachlan Fold Belt MDB GW Source	83	Unknown		0.13-0.19

Three of the bores exhibited drawdown in excess of 2 m during the proposed Project, while the remaining bore (GW065263) exhibited drawdown in excess of 2 m during the post-mining recovery phase only.

The presentation of groundwater model drawdown and impacts as presented in the Groundwater Impact Assessment was undertaken in accordance with relevant guidelines including:

- Guidelines for the preparation and review of groundwater assessments for major projects in NSW:
  - Groundwater Assessment Toolbox (DPE 2022a)
  - Guidelines for Groundwater Documentation for SSD/SSI projects (DPE 2022b)
  - Minimum Requirements for Groundwater Modelling (DPE 2022c).
- Australian Groundwater Modelling Guidelines National Water Commission (Barnett 2012).
- Uncertainty analysis – Guidance for groundwater modelling within a risk management framework (IESC explanatory note) Middlemis and Peeters (2018).

It is considered that the potential drawdown impacts of the Project, both cumulative and incremental, as requested above are adequately presented within the GIA (as detailed above and in the relevant appendices attached) and in accordance with relevant guidelines.

Update advice commits to design and construct the LPB to a height equal to the 0.1% annual exceedance probability (AEP) flood event. Please confirm what the 0.1% AEP flood height is and that it will be applied to the LPB along its full length.

Whilst in operation, Evolution is proposing to build the LPB to accommodate the 0.1% AEP. The 0.1% AEP flood level in Lake Cowal was presented by ATC Williams in Table 2 of Appendix L to the submissions report. The 0.1% AEP flood level in Lake Cowal as a result of the Project was predicted to be at 209.276 mRL.

The LBP, as presented in Appendix A to the EIS, will be constructed to 209.64 mRL across the entire length of the LPB, which exceeds the predicted 0.1% AEP flood level in Lake Cowal, and includes additional provision for freeboard.

As noted in the previous response to a request for information dated 27 June 2024, Evolution will increase the height of the LPB progressively during operations, to meet or exceed the probably maximum flood (PMF) level during closure, as determined by flood modelling which, as presented by ATC Williams in Table 2 of Appendix L to the Submissions Report, will be at 210.544 mRL.

Please provide consideration of any impacts to the lacustrine clay layer from the construction of the LPB, noting that this layer is inferred to provide hydraulic separation between the lake and the paleochannel aquifers.

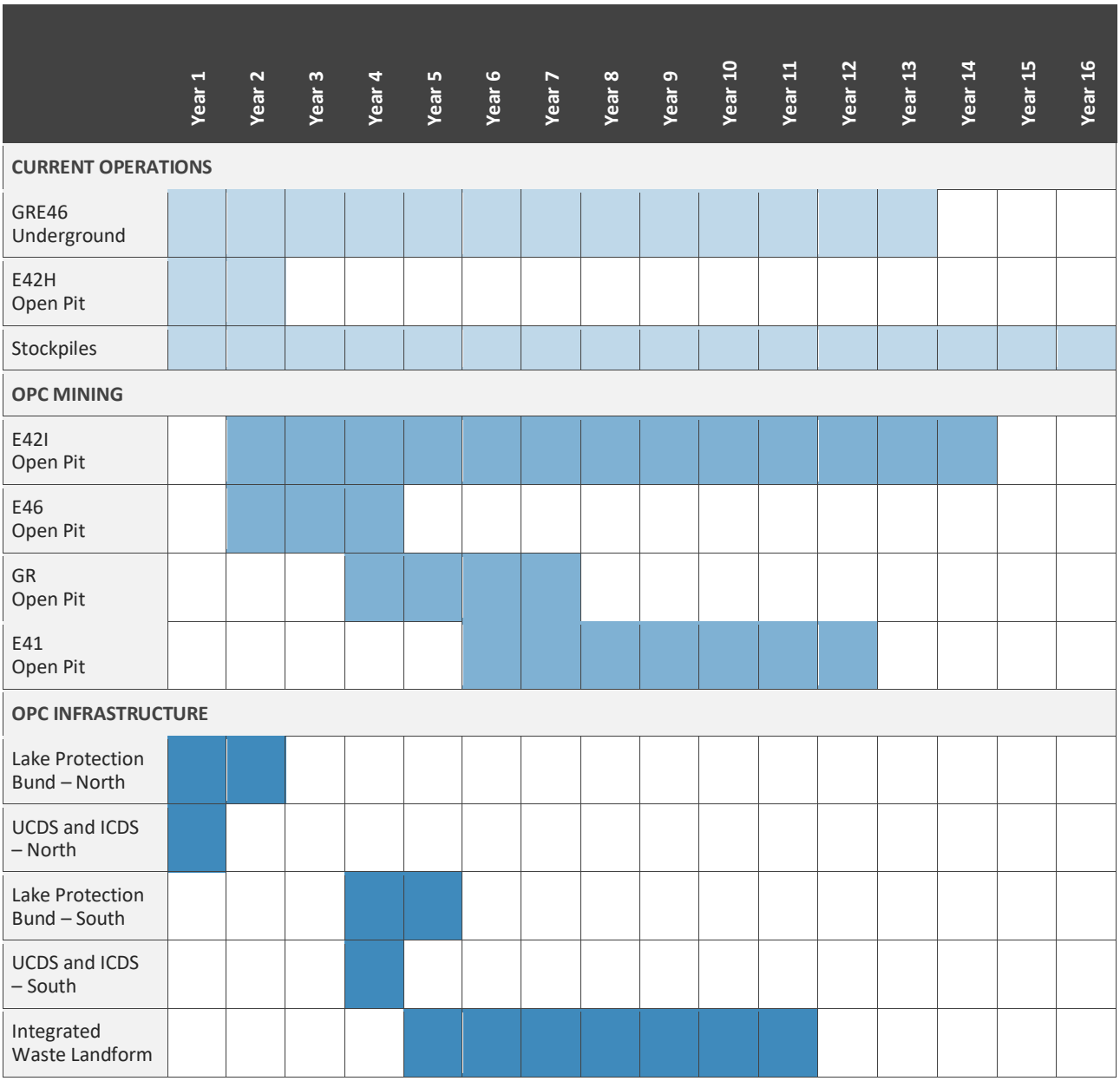
The lacustrine clay layer provides the hydraulic separation between the lake and the paleochannel aquifers. During construction of the LPB the lacustrine clay layer will be isolated from the lake area before a shallow key (shallow channel) is excavated into it. The key will then be backfilled with compacted clays, the purpose of this is to ensure that the impermeable LPB construction is appropriately connected to the lacustrine clay layer as to achieve a continuous hydraulic separation between the lake and the proposed mining area. The effectiveness of the LPB strategy has been developed on the premise that the hydraulic separation between the lacustrine clays and the paleochannel aquifers is maintained.

The rock groyne and cut off trench are illustrated on design drawings provided as Appendix A to the EIS.

Please provide an indicative Project schedule that includes construction of the UCDS and underground development (in addition to the open cut developments).

An updated indicative schedule for the Project including underground mining, open pit mining and construction activities is provided as Figure 2.1.

Figure 2.1 Indicative Project schedule



Please provide a figure of the proposed Project layout including the underground mine layout.

The figure requested is presented in Appendix C.

Please confirm progress of development on the underground mine and the status of the workforce accommodation village in West Wyalong.

The underground mine construction phase was completed in Quarter 3 of 2023 with first paste delivered in September 2023.

Construction of the workforce accommodation village in West Wyalong is complete and the accommodation village is currently in operation.

3 Closing

I trust this information is sufficient for your purposes. Please feel free to contact me on 0407 207 530 or email jwearne@emmconsulting.com.au if you have any questions or wish to arrange a time to discuss these matters further.

Yours sincerely

James Wearne
Associate
jwearne@emmconsulting.com.au

Appendix A

Groundwater modelling cumulative drawdown figures

EMM
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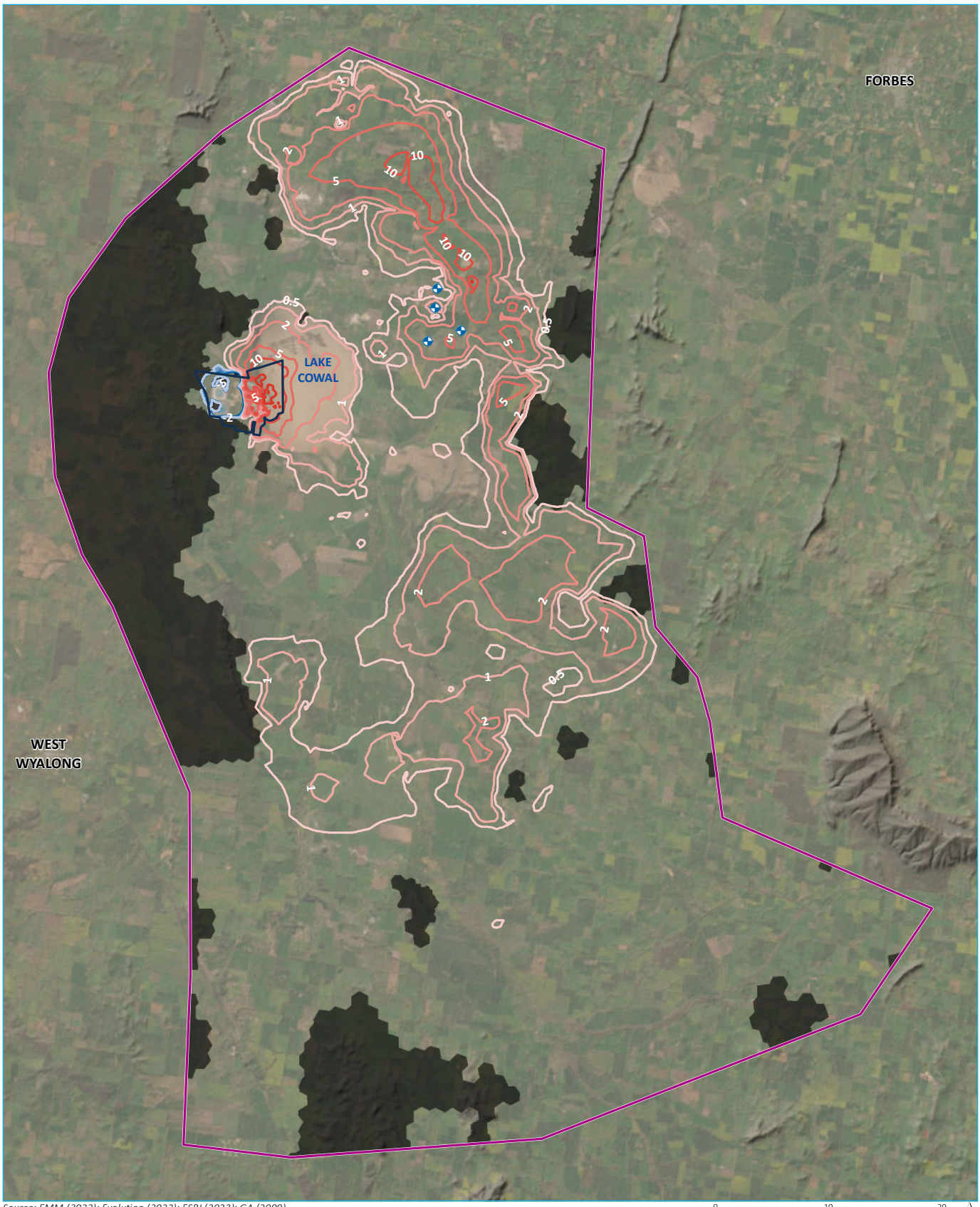

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Not present

Cumulative drawdown (m)

- -5
- -2
- -1
- -0.5
- 0.5
- 1
- 2
- 5
- 10
- 25

Cumulative drawdown, Upper Cowra (Layer 2) map 1 of 2 (end of mining)

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.1a

EMM creating opportunities

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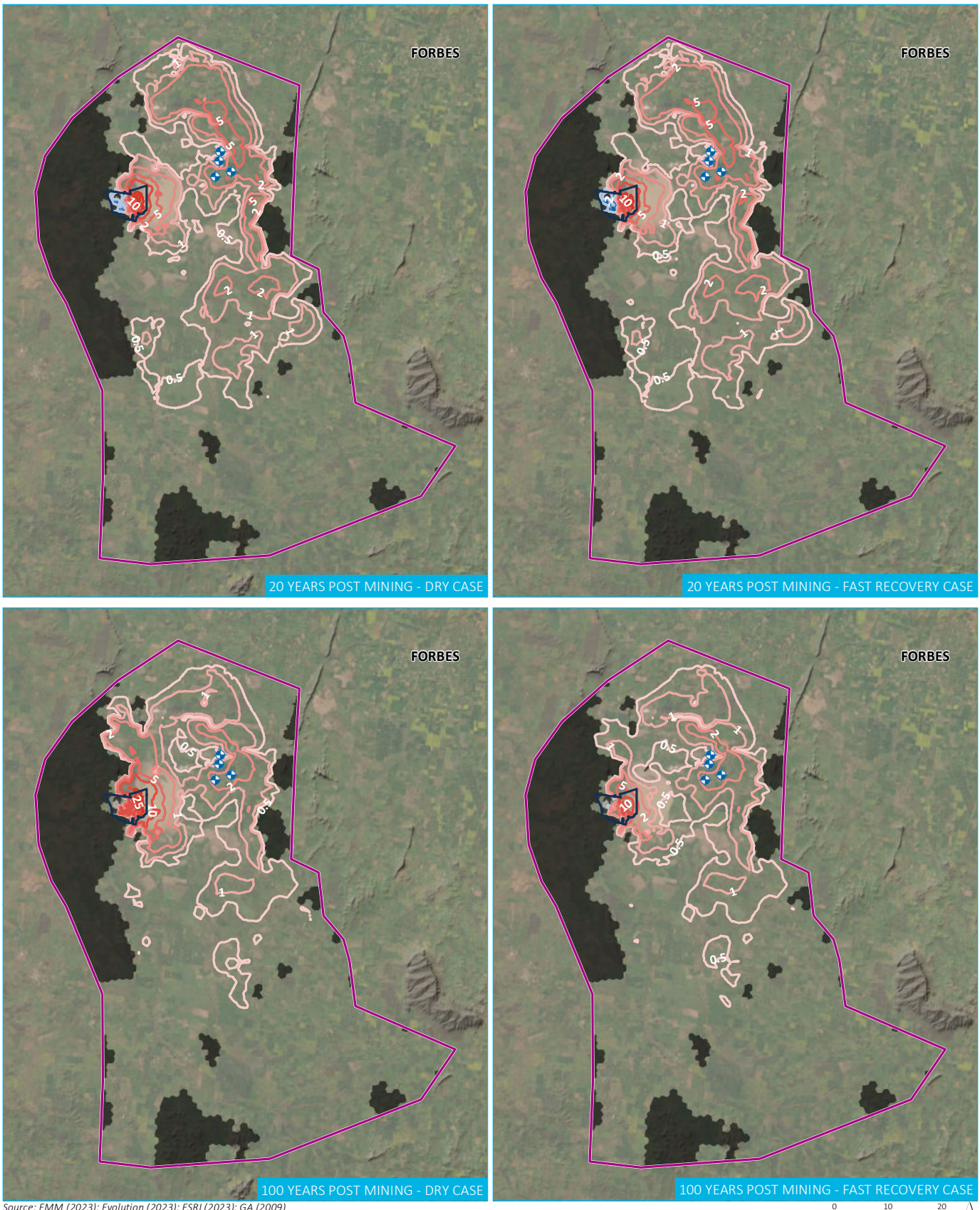

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km
GDA 1994 MGA Zone 55
N

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KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Not present

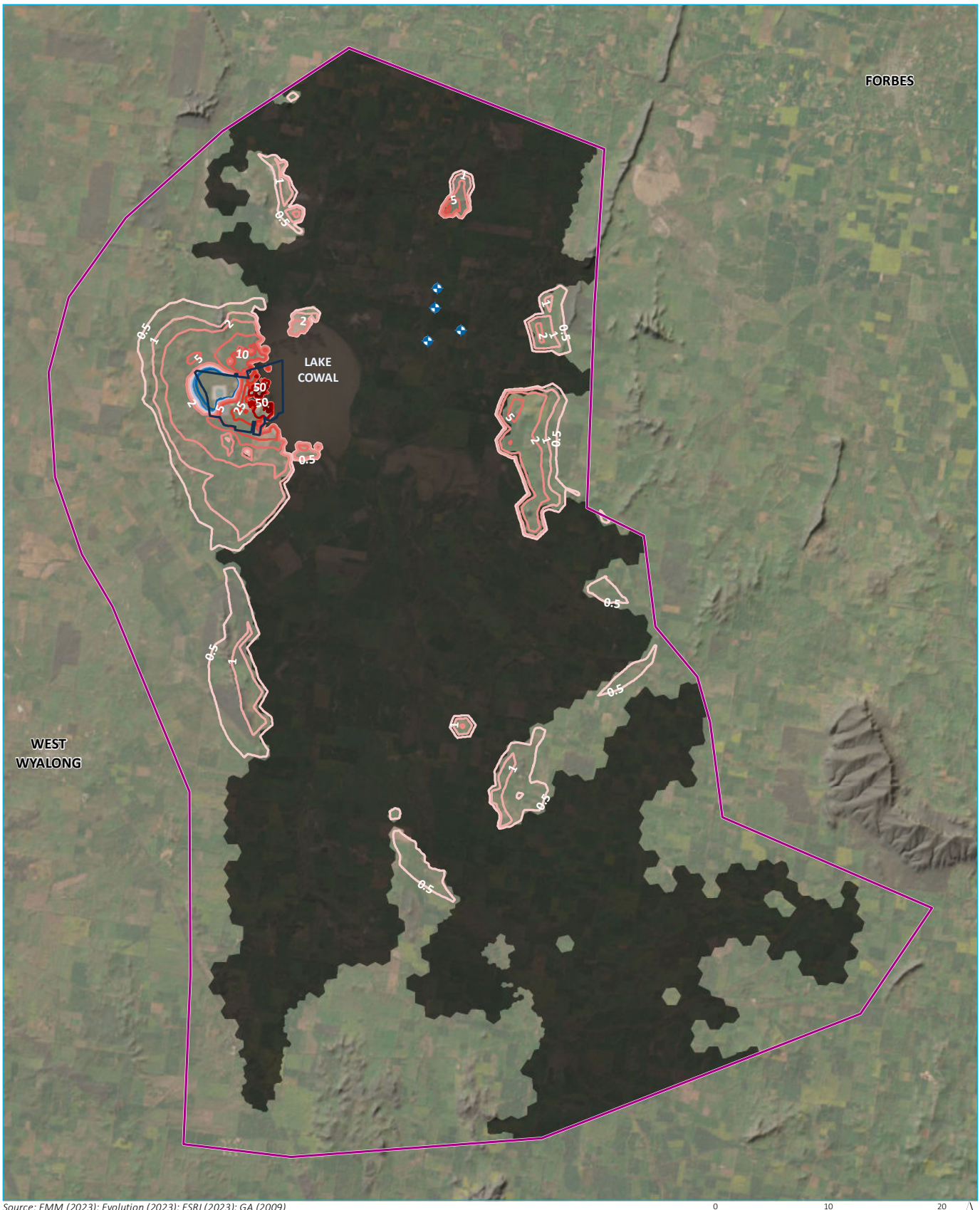
Cumulative drawdown (m)

- -5
- -2
- -1
- -0.5
- 0.5
- 1
- 2
- 5
- 10
- 25

Cumulative drawdown, Upper Cowra (Layer 2) map 2 of 2

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.1b

EMM creating opportunities



Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Not present

Cumulative drawdown (m)

- -5
- -2
- -1
- -0.5
- 0.5
- 1
- 2
- 5
- 10
- 25
- 50
- 100

Cumulative drawdown, top Lachlan Fold Belt (Layer 7)
map 1 of 2 (end of mining)

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.2a

EMM creating opportunities

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Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

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KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Not present

Cumulative drawdown (m)

- -1
- -0.5
- 0.5
- 1
- 2
- 5
- 10
- 25
- 50
- 100

Cumulative drawdown, top Lachlan Fold Belt (Layer 7)

map 2 of 2

Evolution Mining
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Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.2b

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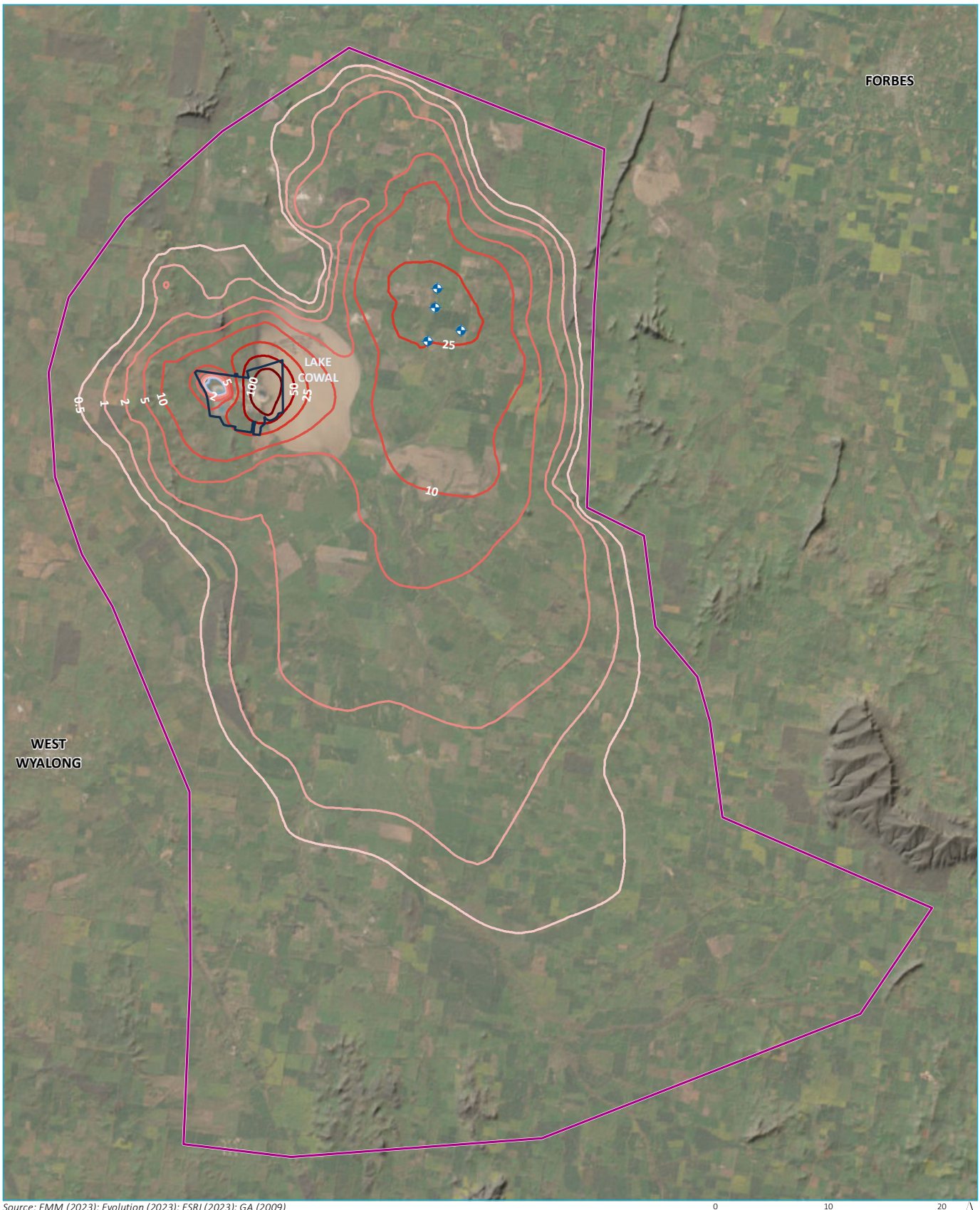

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)

Cumulative drawdown (m)

- -1
- -0.5
- 0.5
- 1
- 2
- 5
- 10
- 25
- 50
- 100

Cumulative drawdown, continuous Lachlan Fold Belt (Layer 12)
map 1 of 2 (end of mining)

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.3a

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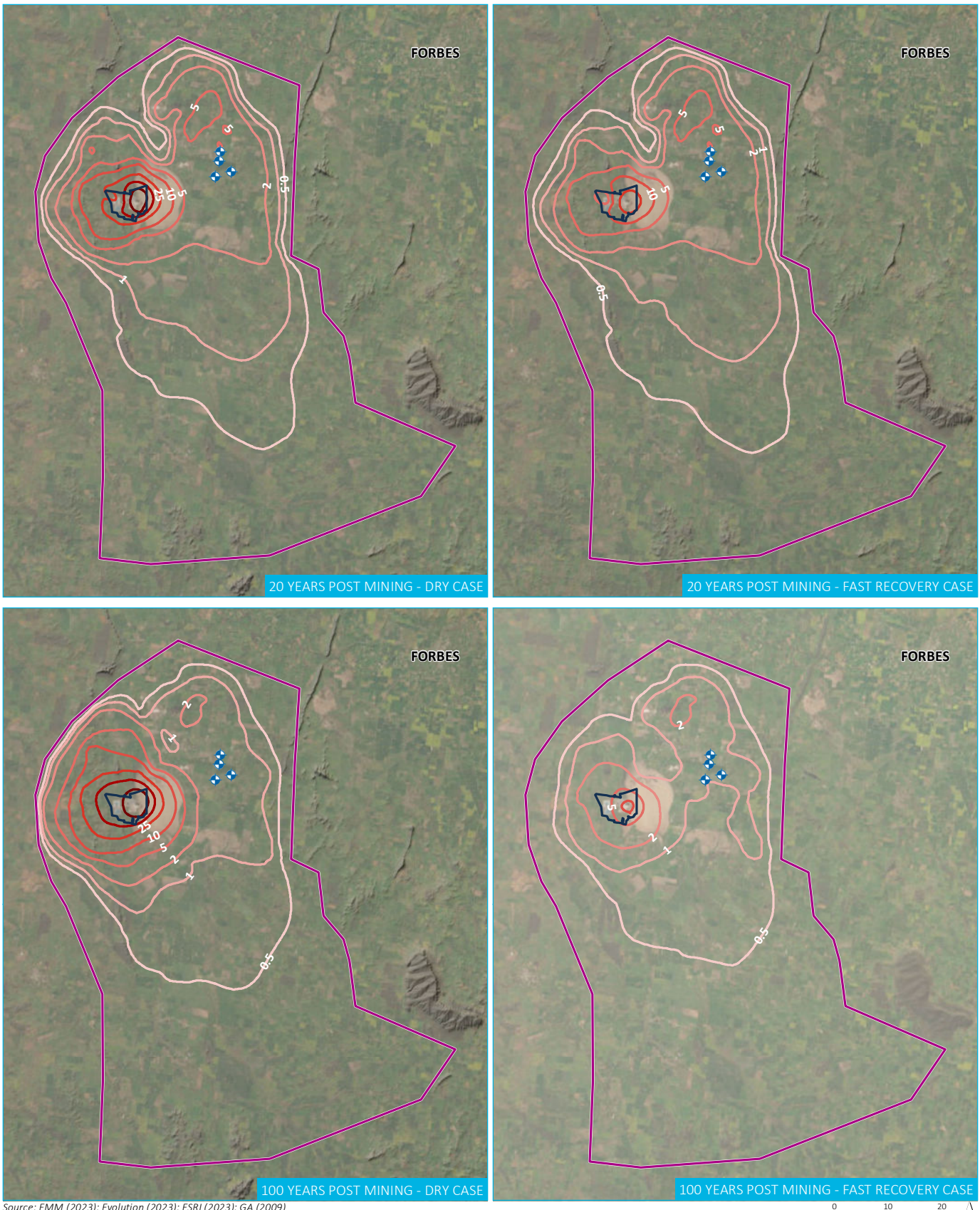

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km
GDA 1994 MGA Zone 55
N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)

Cumulative drawdown (m)

- 0.5
- 1
- 2
- 5
- 10
- 25
- 50
- 100

Cumulative drawdown, continuous Lachlan Fold Belt (Layer 12)
map 2 of 2

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.3b

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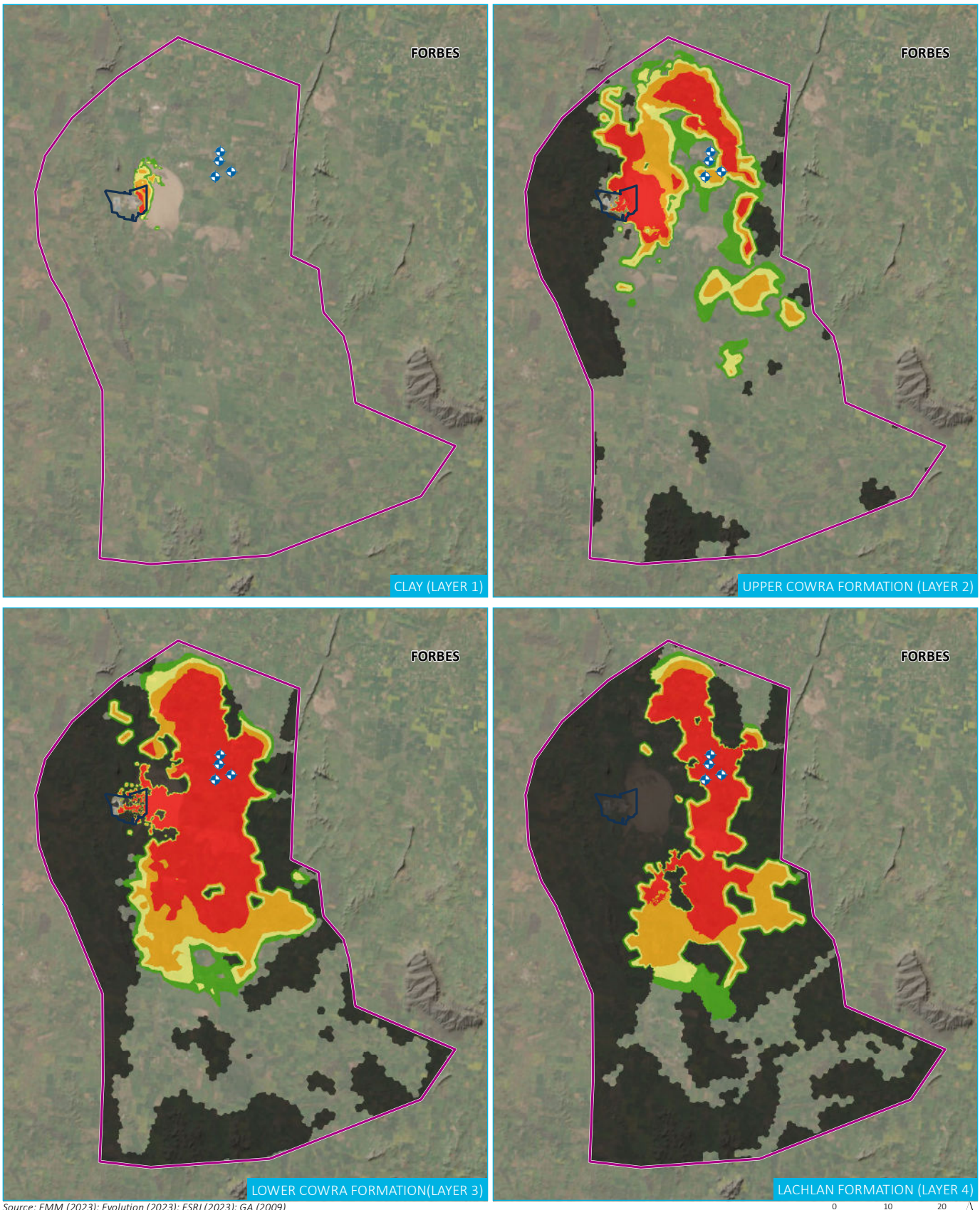

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

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KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Not present

2 m cumulative drawdown (likelihood of exceedance)

- 10 %
- 33 %
- 66 %
- 90 %

Cumulative drawdown, likelihood of exceedance for 2 m drawdown

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.4

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Appendix B

Groundwater modelling incremental drawdown figure

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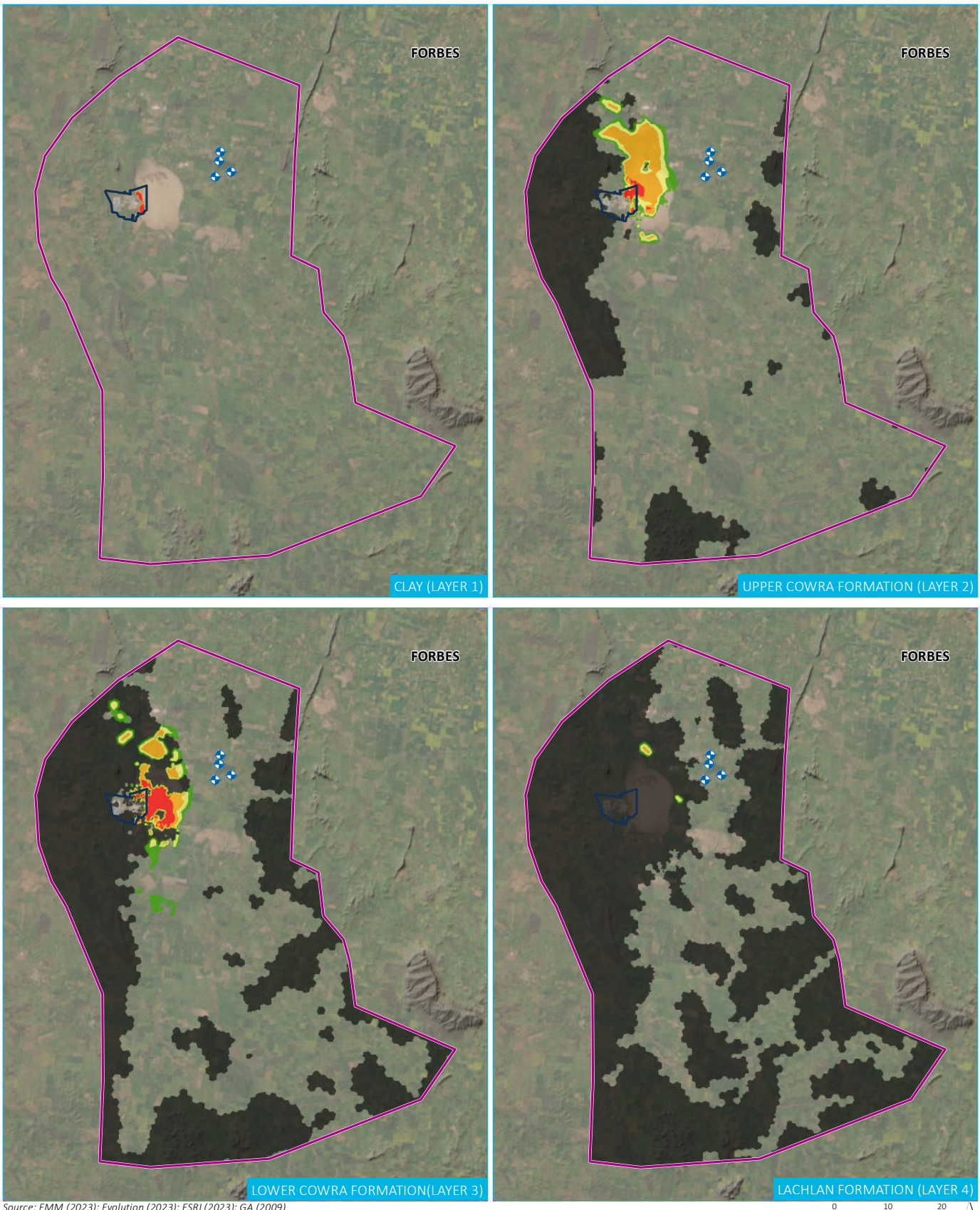

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

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GDA 1994 MGA Zone 55
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KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Not present

2 m incremental drawdown (likelihood of exceedance)

- 10 %
- 33 %
- 66 %
- 90 %

Incremental drawdown, likelihood of exceedance for 2 m drawdown

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Groundwater Impact Assessment
Figure 6.5

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Appendix C
Project layout figure

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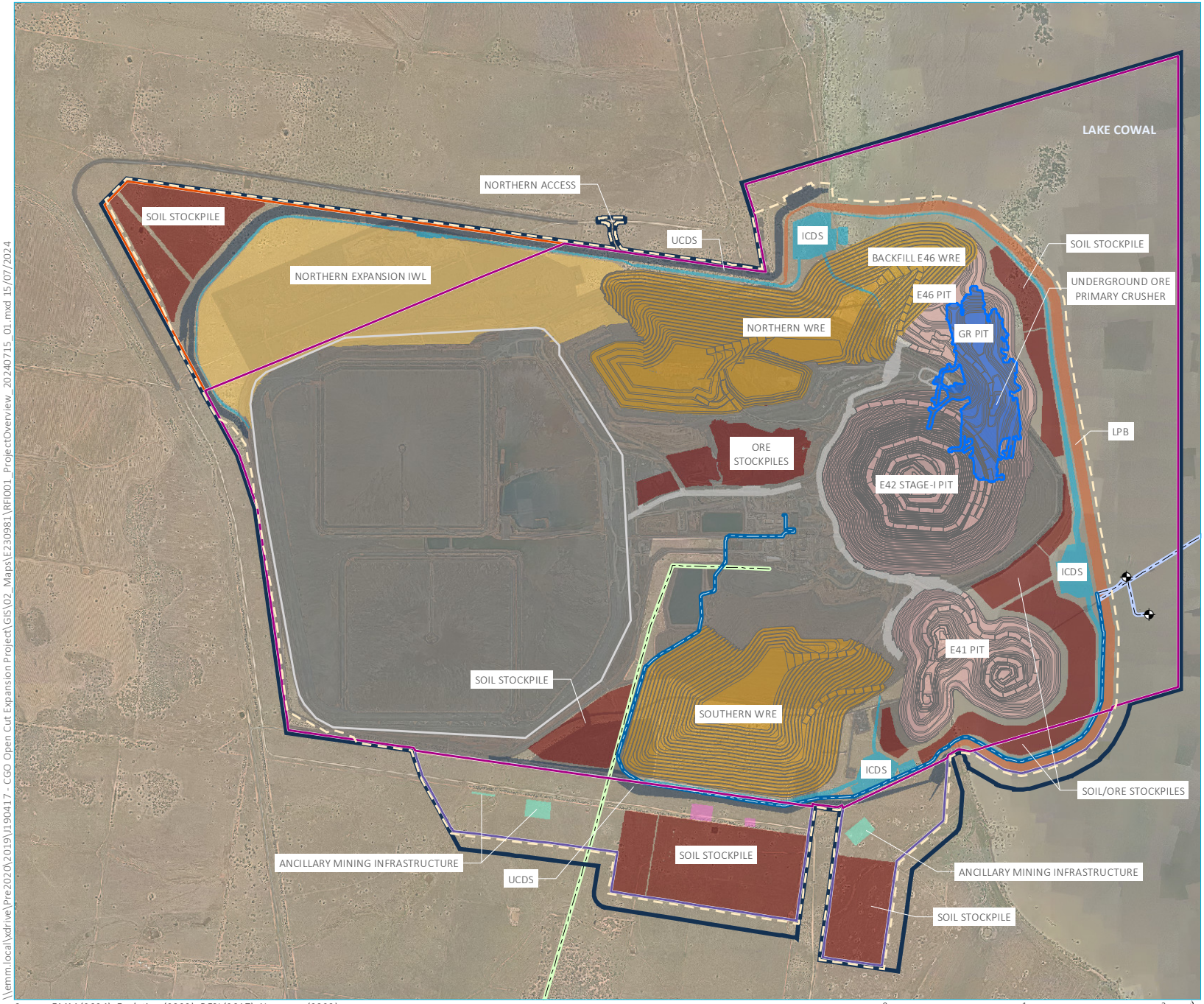

KEY

- Project area
- Additional disturbance area
- Approved disturbance area
- SSD 10367 approved underground
- Approved IWL footprint
- Mining lease (ML1535) (offset for clarity)
- Mining lease (ML1791) (offset for clarity)
- Mining lease application (MLA638) (offset for clarity)
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line

Conceptual project infrastructure

- Open cut pit footprint
- Northern expansion IWL
- Waste rock emplacement (WRE)
- Lake protection bund (LPB)
- Stockpile
- Up catchment diversion system (UCDS)
- Internal catchment drainage system (ICDS)
- Ancillary mining infrastructure
- Magazine
- Road
- Water supply pipeline realignment

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Source: EMM (2024); Evolution (2023); DFSI (2017); Nearmap (2023)

0 1 2 km

GDA 1994 MGA Zone 55

N

Project overview

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Response to Request for Information
Figure C1

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