



**UG4 LONGWALLS 401 TO 408**  
**BUILT FEATURES**  
**MANAGEMENT PLAN**  
**Dronvisa Quarry**

| Version | Effective Date<br>(Month/YYYY) | Revision Detail<br>(Include the main areas reviewed, trigger<br>/ why the change) | Author (Name/s) | Review Team<br>(Name/s) |
|---------|--------------------------------|-----------------------------------------------------------------------------------|-----------------|-------------------------|
| 1       | July 2022                      | Approved                                                                          | MCO and MSEC    | MCO                     |
| 2       |                                | Annual review considerations, minor<br>grammar and formatting                     | MCO             | MCO                     |

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## 1.0 INTRODUCTION

The Moolarben Coal Complex (MCC) is an open cut and underground coal mining operation located approximately 40 kilometres north of Mudgee in the Western Coalfield of New South Wales (NSW) (**Figure 1**).

Moolarben Coal Operations Pty Ltd (MCO) is the operator of the Moolarben Coal Complex on behalf of the Moolarben Joint Venture (Moolarben Coal Mines Pty Ltd [MCM], Yancoal Moolarben [YM] Pty Ltd and a consortium of Korean power companies). MCO, MCM and YM are wholly owned subsidiaries of Yancoal Australia Limited.

The UG4 Underground Mine (UG4) is a component of the approved Moolarben Coal Complex (**Figure 2**). First workings for UG4 North Mains commenced in October 2020 (**Figure 3**). Secondary extraction in UG4 of the first Longwall LW401 is scheduled to commence in 2022 (**Table 2**).

Mining operations at the Moolarben Coal Complex are currently approved until 31 December 2038 and continue to be carried out in accordance with Project Approval (05\_0117) (Moolarben Coal Project Stage 1) (as modified) and Project Approval (08\_0135) (Moolarben Coal Project Stage 2) (as modified).

Dronvisa Pty Ltd operates the Dronvisa Quarry within four mining leases (ML267, ML268, ML1209 and ML1219) and one Private Lands Lease (PLL1294) (Dronvisa Tenements) and in accordance with relevant development consents. Dronvisa Quarry also includes access mine infrastructure land adjacent to the Dronvisa Tenements for mining purposes. The Dronvisa Quarry is located above the western extents of UG4. The current and proposed Dronvisa operations are outlined in the Dronvisa Quarry Mining Operations Plan for the period 2020 to 2027 (Dronvisa, 2021). Multi Minerals Australia Pty Ltd is the Mine Operator.

This UG4 Longwalls 401 to 408 Built Features Management Plan – Dronvisa Quarry (LW401-408 BFMP-DRONVISA) forms a part of the Extraction Plan for Longwalls 401 to 408 (herein referred to as Longwalls 401-408) of the approved UG4 Underground Mine.

### 1.1 PURPOSE AND SCOPE

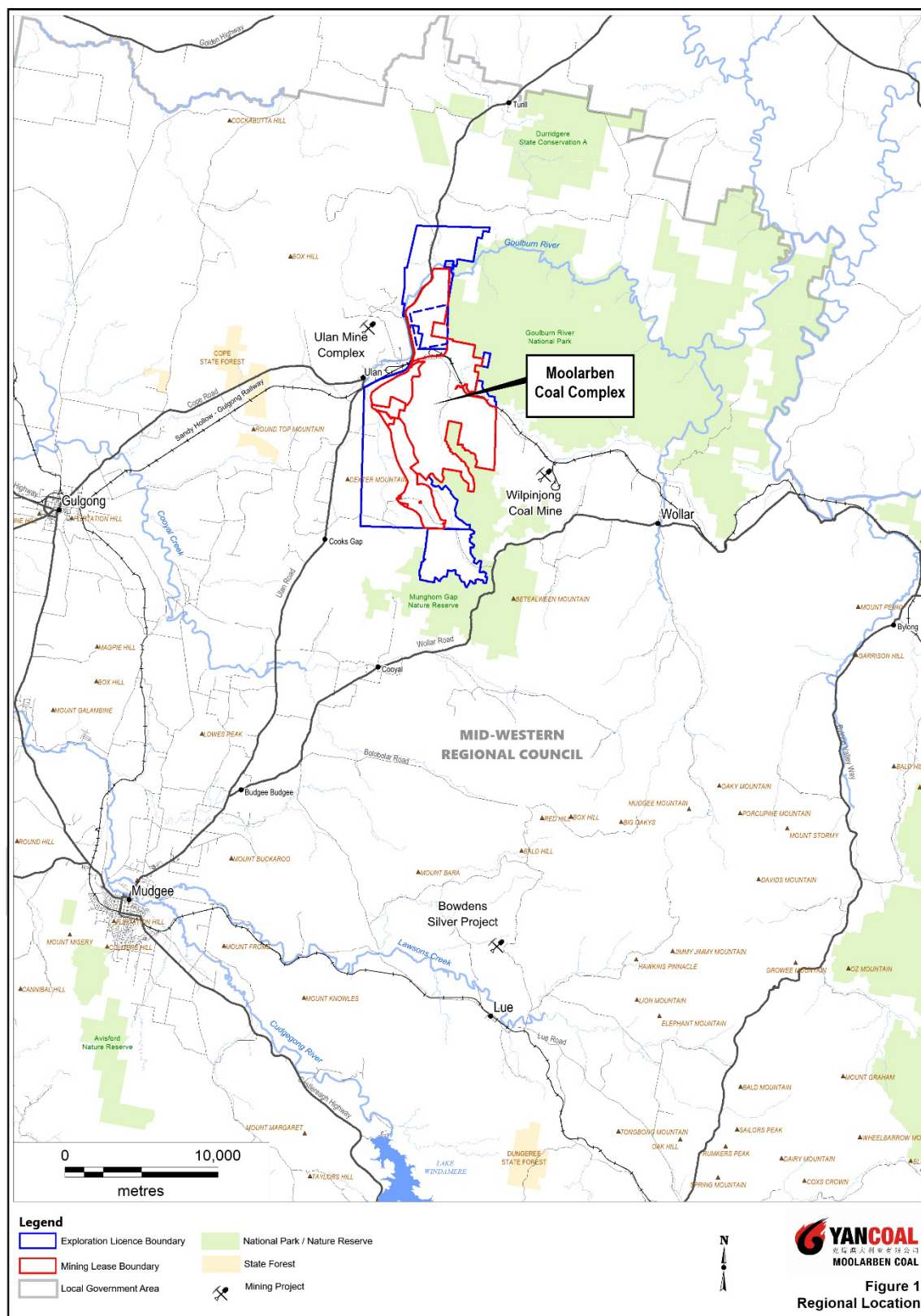
**Purpose:** This LW401-408 BFMP-DRONVISA outlines the management of potential subsidence impacts of the proposed secondary workings described in the Extraction Plan on the Dronvisa Quarry.

**Scope:** This LW401-408 BFMP-DRONVISA covers the quarry's extraction pits, water management structures, and associated infrastructure within and outside of the Study Area<sup>1</sup>, which relates to the extent of subsidence effects resulting from the secondary extraction of Longwalls 401-408 (**Figure 4**).

<sup>1</sup> Longwalls 401-408 and the area of land within the furthest extent of the 26.5 degree (°) angle of draw and 20 millimetres (mm) predicted subsidence contour.

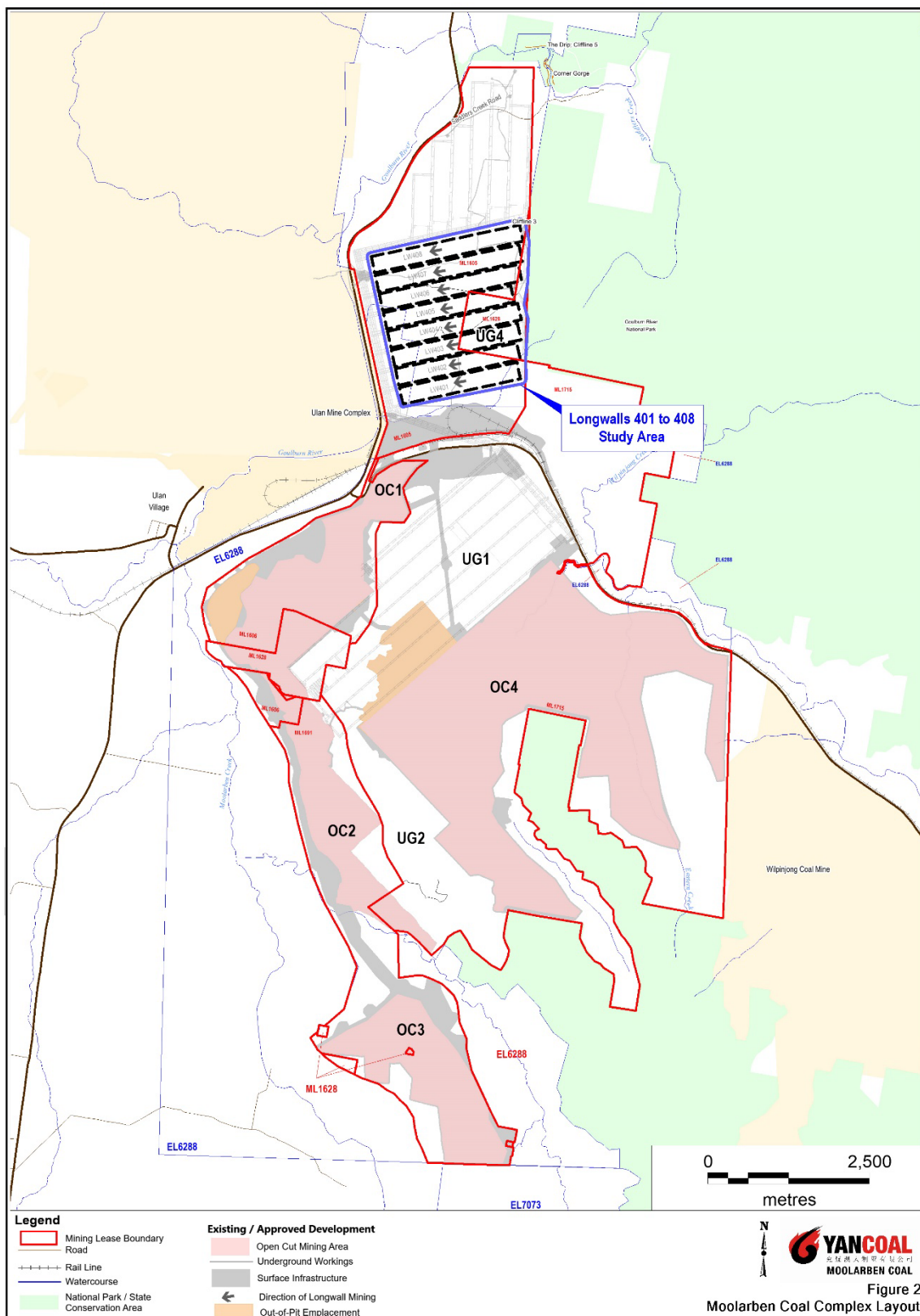
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Figure 1 Locality



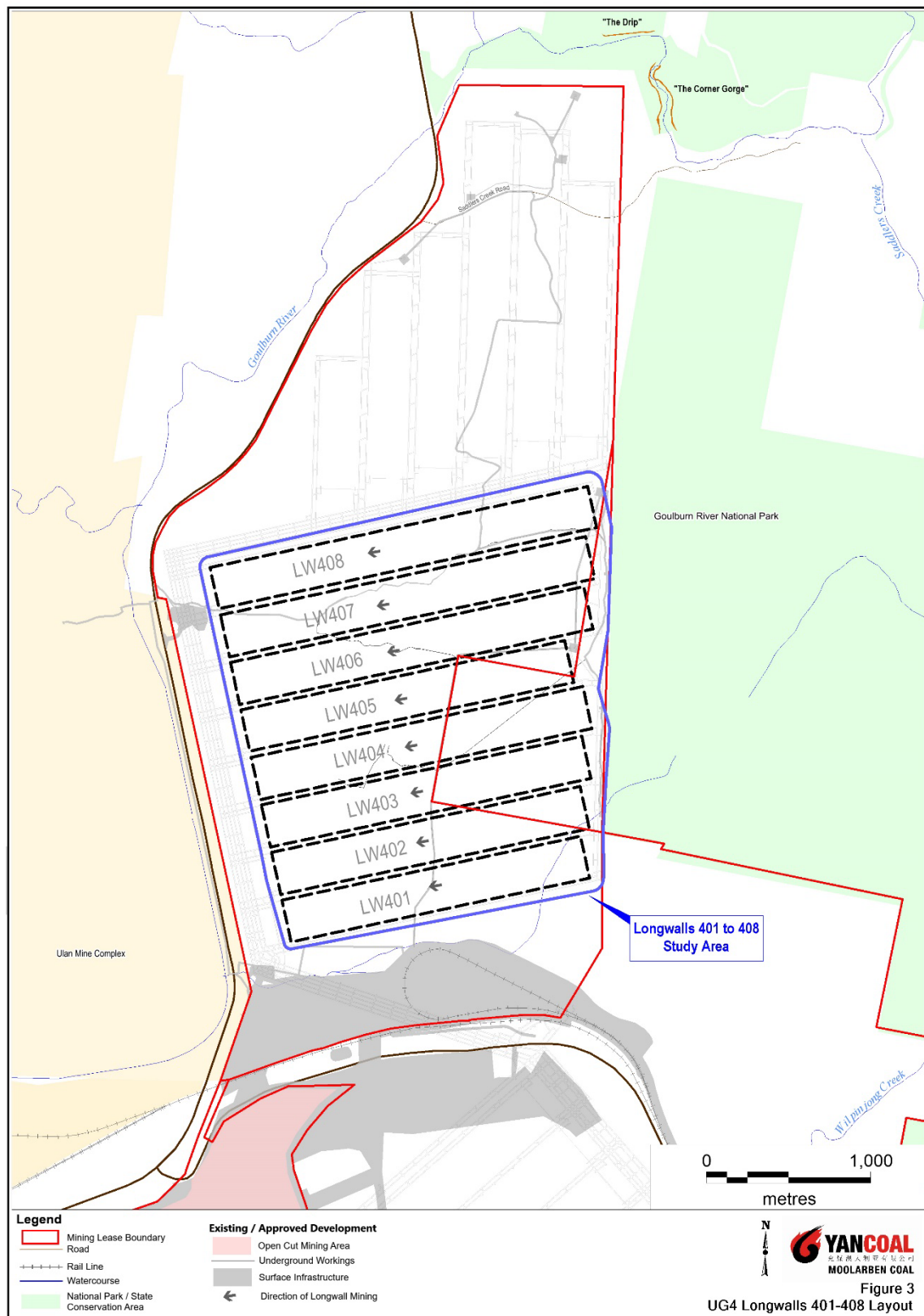
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Figure 2 Moolarben Coal Complex Layout



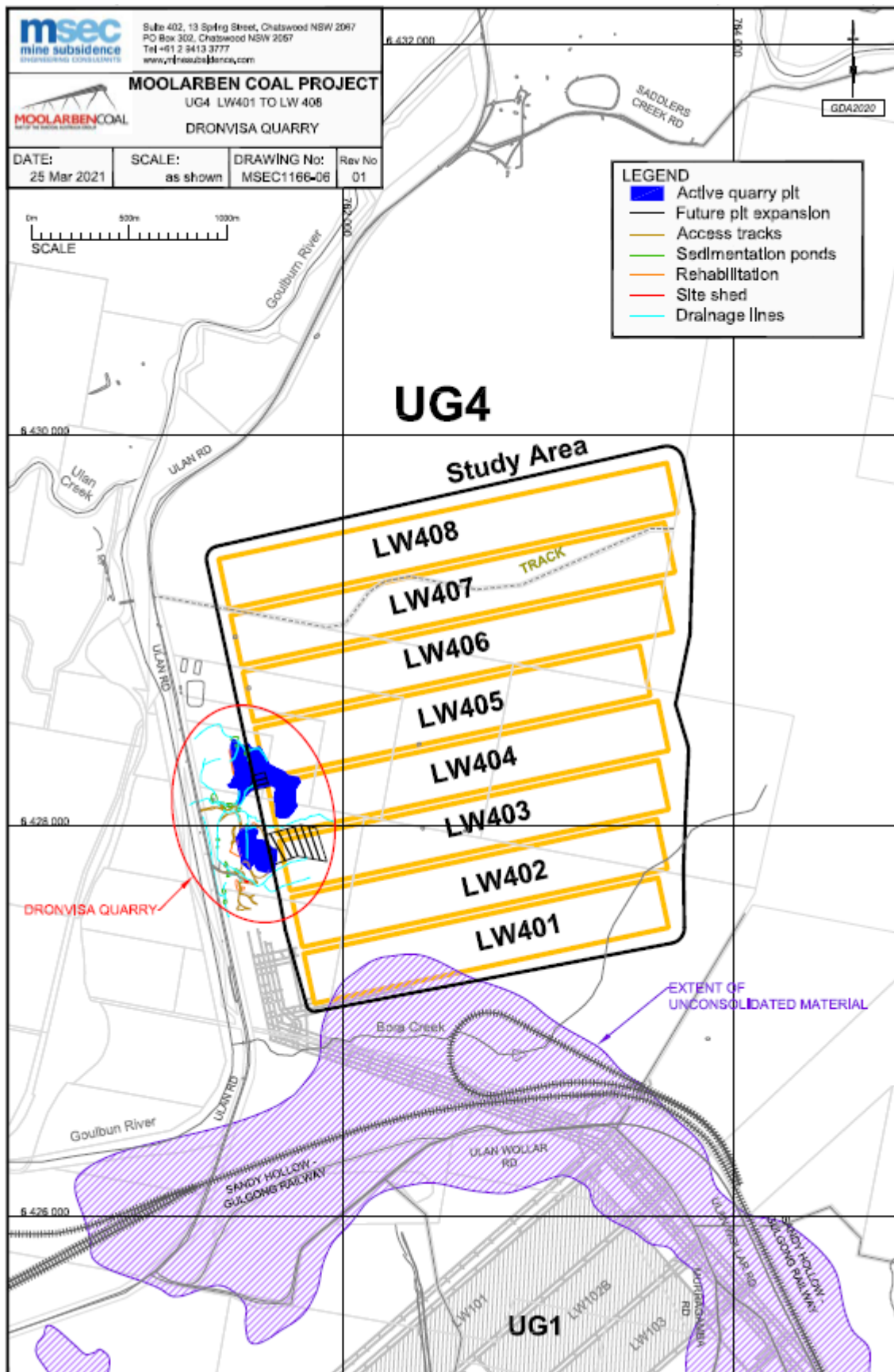
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Figure 3 UG4 Longwall 401-408 Layout



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Figure 4 Dronvisa Assets



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## 1.2 SUITABLY QUALIFIED AND EXPERIENCED PERSONS

In accordance with Condition 77(a), Schedule 3 of Project Approval (05\_0117), the suitably qualified and experienced persons that have prepared this LW401-408 BFMP-DRONVISA, namely representatives from Mine Subsidence Engineering Consultants (MSEC) and MCO, were endorsed by the Secretary of the Department of Planning and Environment (DPE).

This LW401-408 BFMP-DRONVISA has been prepared in consultation with Dronvisa (**Section 4.4**).

A list of the key responsibilities of MCO personnel in relation to this LW401-408 BFMP-DRONVISA, and a list of key contacts, is provided in **Section 11**.

## 1.3 STRUCTURE OF THE LONGWALLS 401- 408 BFMP-DRONVISA

The remainder of the LW401-408 BFMP-DRONVISA is structured as follows:

- Section 2:** Describes the review and update of the LW401-408 BFMP-DRONVISA.
- Section 3:** Outlines the statutory requirements applicable to the LW401-408 BFMP-DRONVISA.
- Section 4:** Provides baseline data, extraction schedule, revised assessment of the potential subsidence impacts and environmental consequences for Longwalls 401- 408, as well as the outcomes of the risk assessment.
- Section 5:** Details the performance measures relevant to Dronvisa assets.
- Section 6:** Describes the monitoring program.
- Section 7:** Describes the management measures that will be implemented.
- Section 8:** Details the performance indicators that will be used to assess against the performance measures.
- Section 9:** Provides a contingency plan to manage any unpredicted impacts and their consequences.
- Section 10:** Describes the Trigger Action Response Plan (TARP) management tool.
- Section 11:** Describes the roles and responsibilities for MCO personnel and key contacts.
- Section 12:** Describes the program to collect sufficient baseline data for future Extraction Plans.
- Section 13:** Describes the Annual Review, audits, regular reporting and improvement of environmental performance.
- Section 14:** Outlines the management and reporting of incidents.
- Section 15:** Outlines the management and reporting of complaints.
- Section 16:** Outlines the management and reporting of non-compliances with statutory requirements.
- Section 17:** Lists the references cited in this LW401-408 BFMP-DRONVISA.

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## 2.0 LONGWALLS 401 TO 408 BFMP-DRONVISA REVIEW AND UPDATE

In accordance with Condition 5, Schedule 5 of Project Approval (05\_0117), this LW401-408 BFMP-DRONVISA will be reviewed as follows:

5. *Within 3 months of the submission of:*
  - (a) *the submission of annual review under condition 4 above;*
  - (b) *the submission of an incident report under condition 7 below;*
  - (c) *the submission of an audit under condition 9 below; or*
  - (d) *any modification to the conditions of this approval (unless the conditions require otherwise),*

*the Proponent shall review and, if necessary, revise the strategies, plans, and programs required under this approval to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted to the Secretary for approval*

### 2.1 ACCESS TO INFORMATION

In accordance with Condition 11, Schedule 5 of Project Approval (05\_0117) MCO will make the approved Extraction Plan available on the MCO website. The LW401-408 BFMP-DRONVISA will not be published on the website.

## 3.0 STATUTORY REQUIREMENTS

MCO's statutory obligations are contained in:

- the conditions of the NSW Project Approval (05\_0117) (as modified);
- the conditions of Commonwealth Approvals (EPBC 2007/3297, EPBC 2013/6926 and EPBC 2008/4444) and 2007/7974;
- relevant licences and permits, including conditions attached to the Environment Protection Licence (EPL) No. 12932 and MLs (i.e. ML 1605, ML 1606, ML 1628, ML 1691 and ML 1715); and
- other relevant legislation.

Obligations relevant to this LW401-408 BFMP-DRONVISA are described below.

### 3.1 EP&A ACT PROJECT APPROVAL

Condition 77(g), Schedule 3 of Project Approval (05\_0117) requires the preparation of a Built Features Management Plan (BFMP) as a component of Extraction Plan(s) for second workings. In addition, Conditions 75, 76, 77(n), 77(p), and Schedule 5 of Project Approval (05\_0117) outline general management plan requirements that are applicable to the preparation of this LW401-408 BFMP-DRONVISA.

**Table 1** indicates where each component of the conditions is addressed within this LW401-408 BFMP-DRONVISA.

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**Table 1 Management Plan Requirements**

| Project Approval (05_0117) Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | LW401-408 BFMP-<br>DRONVISA<br>Section                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------|
| <b>Condition 75, Schedule 3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                 |
| <p>Notes:</p> <p>...</p> <ul style="list-style-type: none"> <li>The Proponent will be required to define more detailed performance indicators for each of these performance measures in Built Features Management Plans or Public Safety Management Plan (see condition 74 below).</li> <li>Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.</li> <li>...</li> <li>Requirements under this condition may be met by measures undertaken in accordance with the Mine Subsidence Compensation Act 1961.</li> <li>...</li> </ul>                                                                                                                                                                                                                                                                                          |  | <p><b>Section 7</b></p> <p><b>Sections 6</b></p> <p><b>Section 9</b></p>                                        |
| <b>Condition 76, Schedule 3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                 |
| <p>Any dispute between the Proponent and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 15 is to be settled by the Secretary, following consultation with the Resources Regulator. Any decision by the Secretary shall be final and not subject to further dispute resolution under this approval.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <b>Section 8</b>                                                                                                |
| <b>Condition 77(g), Schedule 3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                 |
| <p>(g) include a Built Features Management Plan, which has been prepared in consultation with Resources Regulator and the owners of affected public infrastructure, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which:</p> <ul style="list-style-type: none"> <li>addresses in appropriate detail all items of key public infrastructure and other public infrastructure and all classes of other built features;</li> <li>has been prepared following appropriate consultation with the owner/s of potentially affected feature/s;</li> <li>recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate all predicted impacts on potentially affected built features in a timely manner; and</li> <li>in the case of all key public infrastructure, and other public infrastructure except roads, trails and associated structures, reports external auditing for compliance with ISO 31000 (or alternative standard agreed with the infrastructure owner) and provides for annual auditing of compliance and effectiveness during extraction of longwalls which may impact the infrastructure;</li> </ul> |  | <p><b>Section 4.1</b></p> <p><b>Section 4.4</b></p> <p><b>Sections 7 &amp; 9</b></p> <p><b>Section 13.1</b></p> |
| <b>Condition 77(n), Schedule 3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                 |
| <p>(n) include a contingency plan that expressly provides for adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 18 and 19, or where any such exceedance appears likely;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | <b>Section 9</b>                                                                                                |
| <b>Condition 77(p), Schedule 3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                 |
| <p>(p) include a program to collect sufficient baseline data for future Extraction Plans.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <b>Section 12</b>                                                                                               |

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**Table 1 (Continued): Management Plan Requirements**

| Project Approval (05_0117) Condition                                                                                                                                                | LW401-408 BFMP-<br>DRONVISA<br>Section |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Condition 78, Schedule 3</b>                                                                                                                                                     |                                        |
| <i>The Proponent shall ensure that the management plans required under conditions 77(g)-(l) above include:</i>                                                                      |                                        |
| <i>(a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval; and</i> | <b>Section 4</b>                       |
| <i>(b) a detailed description of the measures that would be implemented to remediate predicted impacts.</i>                                                                         | <b>Section 7</b>                       |
| <b>Condition 3, Schedule 5</b>                                                                                                                                                      |                                        |
| <i>3. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:</i>                   |                                        |
| <i>(a) detailed baseline data;</i>                                                                                                                                                  | <b>Section 4.1</b>                     |
| <i>(b) a description of:</i>                                                                                                                                                        |                                        |
| • <i>the relevant statutory requirements (including any relevant approval, licence or lease conditions);</i>                                                                        | <b>Section 3</b>                       |
| • <i>the relevant limits or performance measures/criteria;</i>                                                                                                                      | <b>Section 5</b>                       |
| • <i>the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;</i>      | <b>Section 8</b>                       |
| <i>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</i>                    | <b>Sections 7 &amp; 9</b>              |
| <i>(d) a program to monitor and report on the:</i>                                                                                                                                  | <b>Sections 6, 8 &amp; 13</b>          |
| • <i>impacts and environmental performance of the project;</i>                                                                                                                      |                                        |
| • <i>effectiveness of any management measures (see c above);</i>                                                                                                                    |                                        |
| <i>(e) a contingency plan to manage any unpredicted impacts and their consequences;</i>                                                                                             | <b>Section 9</b>                       |
| <i>(f) a program to investigate and implement ways to improve the environmental performance of the project over time;</i>                                                           | <b>Sections 6 &amp; 13</b>             |
| <i>(g) a protocol for managing and reporting any:</i>                                                                                                                               |                                        |
| • <i>incidents;</i>                                                                                                                                                                 | <b>Section 14</b>                      |
| • <i>complaints;</i>                                                                                                                                                                | <b>Section 15</b>                      |
| • <i>non-compliances with statutory requirements; and</i>                                                                                                                           | <b>Section 16</b>                      |
| • <i>exceedances of the impact assessment criteria and/or performance criteria; and</i>                                                                                             | <b>Section 9</b>                       |
| <i>(h) a protocol for periodic review of the plan.</i>                                                                                                                              | <b>Section 2</b>                       |

### 3.2 OTHER LEGISLATION

The Acts which may be applicable to the conduct of the Moolarben Coal Complex includes, but are not limited to:

- *Crown Lands Act, 1989;*
- *Fisheries Management Act, 1994;*
- *Heritage Act, 1977;*
- *Coal Mine Subsidence Compensation Act 2017;*
- *Mining Act, 1992;*
- *National Parks and Wildlife Act, 1974;*
- *Biodiversity Conservation Act, 2016;*
- *Protection of the Environment Operations Act, 1997;*

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- *Roads Act, 1993;*
- *Water Act, 1912;*
- *Water Management Act, 2000;*
- *Work Health and Safety Act, 2011;* and
- *Work Health and Safety (Mines and Petroleum Sites) Act, 2013.*

Relevant licences or approvals required under these Acts will be obtained as required.

## 4.0 QUARRY

### 4.1 BASELINE DATA

The Dronvisa Quarry is located partially within the Study Area on the western side of UG4. The quarry comprises two extraction pits and associated related quarry infrastructure. The Dronvisa Quarry is a gravel/clay quarry located to the west of the finishing ends of Longwalls 403 to 405 with part of one active pit located above Longwall 404 and 405 (**Figure 5**).

The quarry selectively extracts layers of clay, mudstone, siltstone or sandstone for processing and sale. There are two main extraction pits (the northern ‘Bluegum’ and southern ‘Wattle’ pits), comprising benches at different elevations with batters up to approximately 15 m height. The average slopes of the batters are approximately 45°, with some steeper faces within the batters up to about 75°. Quarry related infrastructure includes sedimentation ponds, drains, access roads, rehabilitation areas, hardstand areas and a site shed which are located at distances between 65 m and 300 m to the west of the longwalls (MSEC, 2021). The detailed features at the quarry are shown in **Figure 5**.

The current mapped extent of the northern ‘Bluegum’ and southern ‘Wattle’ pits show the ‘Bluegum’ pit to be located partly above Longwalls 404 and 405. The ‘Wattle’ pit is located to the west of Longwall 403 and is approximately 25m from the finishing end of the longwall. Future expansion areas covering approximately the next 7 years (to 2027) at the quarry are shown in black in **Figure 5**. The proposed extraction of Longwall 403 is expected to occur in 2023, therefore the ‘Wattle’ pit expansion is likely to extend partially above Longwall 403 and 404 prior to their extraction (MSEC,2021). The planned future expansion area for year 3, representing year 2023 shown in **Figure 5**.

Dronvisa have four mining leases (ML267, ML268, ML1209 and ML1219) and one Private Lands Lease (PLL1294) which overlap MCO’s Mining lease (ML1605). MCO and Dronvisa are required, as a condition of the mining leases to enter into a cooperation agreement which covers:

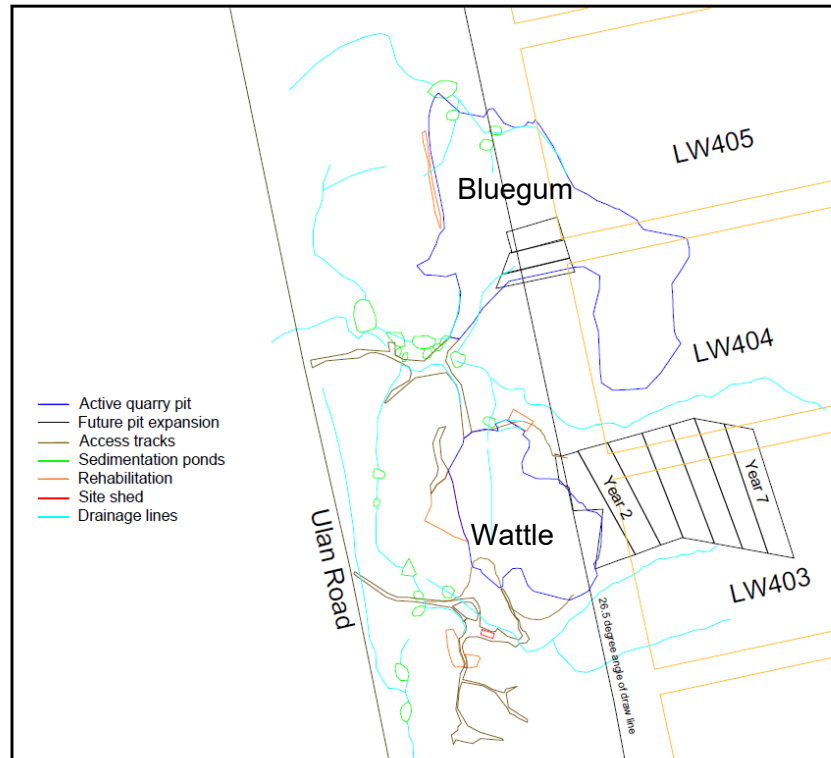
- access arrangements;
- operational interaction procedures;
- dispute resolution;
- information exchange;
- potential resource extraction conflicts; and
- rehabilitation issues.

An original Land Access and Compensation Agreement between Dronvisa and Ulan Coal Mines limited was entered into in 2005. The agreement was varied in 2014 and novated from UCML to MCM in 2015. The Land Access and Compensation Agreement will be varied (if required) as part of the Management Measures described in **Section 7.0** to manage the Subsidence Impact Performance Measures as prescribed by Project Approval (05\_0117).

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Dronvisa Pty Ltd will continue to be subject to the Mining Leases, Development Consents and obligations for its Dronvisa Quarry activities, including but not limited to the Mining Act, 1992, Environmental Planning and Assessment Act 1979, Protection of the Environment Operations Act 1997 and other relevant legislation.

**Figure 5 Dronvisa Quarry Proposed Mine Plan & Layout**



## 4.2 LONGWALLS 401- 408 EXTRACTION SCHEDULE

Longwalls 401-408 and the area of land within the Study Area are shown on **Figures 3 and 4**. Longwall extraction will occur from the east to the west. The longwall layout includes approximately 260 m panel widths (void) with 35 m width pillars (solid).

The provisional extraction schedule for Longwalls 401- 408 is provided in **Table 2**.

**Table 2 Provisional Extraction Schedule**

| Longwall | Estimated Start Date | Estimated Duration (months) | Estimated Completion Date |
|----------|----------------------|-----------------------------|---------------------------|
| LW401    | June 2022            | 4                           | October 2022              |
| LW402    | November 2022        | 4                           | March 2023                |
| LW403    | April 2023           | 4                           | August 2023               |
| LW404    | August 2023          | 5                           | January 2024              |
| LW405    | February 2024        | 4                           | June 2024                 |

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| Longwall | Estimated Start Date | Estimated Duration (months) | Estimated Completion Date |
|----------|----------------------|-----------------------------|---------------------------|
| LW406    | July 2024            | 5                           | December 2024             |
| LW407    | January 2025         | 4                           | May 2025                  |
| LW408    | June 2025            | 4                           | November 2025             |

### 4.3 REVISED SUBSIDENCE AND IMPACT PREDICTIONS

Revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, have been prepared by MSEC incorporating any relevant information obtained since approval.

The LW401-408 BFMP-DRONVISA for UG4 has incorporated the revised subsidence predictions and impacts as described in **Section 4.3.1** and **Attachment 1**.

#### 4.3.1 UG4 Revised Subsidence Impacts & Predictions

A summary of the subsidence impacts and predictions (MSEC, 2021) is provided below:

- The areas of the quarry (quarry pit and quarry infrastructure) located outside the Study Area boundary are not expected to be subjected to measurable conventional vertical subsidence, tilt, curvature or strain. However, the features may experience far-field horizontal movements<sup>2</sup> of up to 70 mm to 210 mm. Based on the low magnitude of mine subsidence movements outside the Study Area boundary the development of adverse impacts to the quarry surface features due to extraction of Longwalls 401 to 408 is considered to be unlikely to occur.
- The current and future areas of the quarry located above the longwalls will experience the full range of predicted conventional subsidence movements. Potential impacts to the quarry pits include cracking, stepping and rippling associated with ground surface deformation as the longwalls are extracted beneath. Batter stability may also be impacted if steep batters are present above the extracted longwalls. Increased surface ponding is also expected in areas with low surface grades.
- There is an increased potential for the development of tension cracks at the tops and sides of the steep slopes and batters and compression ridges at the bottoms of the steep slopes and batters.
- As Subsidence occurs, surface cracks will generally appear in the tensile zone i.e within 0.1 to 0.4 times the depth of cover from the longwall perimeters. The cracks will generally be parallel to the longitudinal edges or the ends of the longwalls. Surface cracking normally develops behind the extraction face up to a horizontal distance equal to around half the depth of cover and, hence, the cracking in any location normally develops over a period of around two to four weeks.
- At shallow depths of cover, it is also likely that transient surface cracks will occur above and parallel to the moving extraction face, i.e. at right angles to the longitudinal edges of the longwall, as the subsidence trough develops. The larger and more permanent cracks, however, are usually located in the final tensile zones around the perimeters of the longwalls. Open fractures and

<sup>2</sup> Far-field horizontal movements tend to be bodily movements towards the extracted goaf area and are accompanied by very low levels of strain. These movements generally do not result in impacts on natural or built features, except where they are experienced by large structures which are very sensitive to differential horizontal movements.

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heaving, however, can also occur due to the buckling of surface beds that are subject to compressive strains.

- The depths of cover over the underground mining beneath the quarry vary from approximately 95 m to 140 m. Where the depths of cover are less than 100 m, surface cracking is expected to be typically in the order of 150 to 200 mm wide but could be larger where the depths of cover are the shallowest. The surface crack widths are likely to be smaller where the depths of cover are greater, or where the surface cracks result from the travelling wave.
- Where the depths of cover are 100 to 150 m, the surface crack widths are expected to be typically in the order of 100 to 150 mm wide. The surface cracking and deformation could result in safety issues (i.e. trip hazards, batter stability), affect vehicle access (i.e. large deformations in access roads), or result in increased erosion (especially along the drainage lines and the steeper slopes or batters).
- The formation of stepping could also impact targeted stripping of quarry materials, particularly where thin layers are being targeted. The incidences of steps are typically isolated and infrequent.
- Future stripping activities within the quarry pits will reduce the depth of cover above the longwall panels. It is expected that the depth of cover would not reduce to below 90 m however surface levels and depth of cover should be confirmed prior to the longwall extraction beneath the quarry.
- Reducing the depth of cover will not change the maximum predicted subsidence. A reduced depth of cover will however result in an increased frequency of irregular movements and associated ground deformations above the longwalls, including increased crack width and an increased incidence of surface cracking. With the vegetation stripped within the quarry, surface deformations should be easily identified and remediated where necessary.

It is expected that impacts to the quarry pits could be remediated by standard ground surface maintenance techniques with the equipment available at the quarry. The repairs would be progressive and, therefore, could be staged to suit the mining of each longwall in sequence.

#### 4.4 RISK ASSESSMENT

In accordance with the draft *Guidelines for the Preparation of Extraction Plans* (DPIE and DRE, 2015), potential risks and potential risk control measures and procedures have been considered at a risk assessment for the Dronvisa quarry and quarry Infrastructure on 20 October 2021.

Attendees at the risk assessment meeting included representatives from MCO, Dronvisa, MSEC and a risk assessment facilitator.

The investigation included:

- Confirmation of relevant Dronvisa assets.
- Review of the revised subsidence predictions and potential impacts on Dronvisa assets (including consideration of past experience for UG1 and in the Western Coalfield).
- Consideration of the proposed monitoring program, management measures and contingency measures.

The following potential risks were identified:

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- Impacts to the Dronvisa Quarry Pits and Active Quarry Area Roads due to the extraction of Longwalls 401 to 408 including surface cracking, surface deformation, stepping resulting in loss of serviceability and/or damage.
- Impacts to the Dronvisa Access Roads due to the extraction of Longwalls 401 to 408 including surface cracking, surface deformation, stepping resulting in damage due to far field movements.
- Impacts to the Dronvisa Water Management Structures due to the extraction of Longwalls 401 to 408 due to far field movements
- Impacts to the Dronvisa buildings due to the extraction of Longwalls 401 to 408 due to far-field movements.

A number of risk control measures and procedures were identified. The proposed risk control measures and procedures have been incorporated where relevant in this LW401-408 BFMP-DRONVISA and the program for implementation is summarised in **Table 3**.

MCO considers all risk control measures and procedures to be feasible to manage all identified risks.

**Table 3 Program for Implementation of Proposed Risk Control Measures and Procedures**

| Risk Control Measure / Procedure                   |                                                                                                                                                     | LW401- 408<br>BFMP-DONVISA Section | Proposed<br>Timing    |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------|
| <b>Baseline Data / Validation</b>                  |                                                                                                                                                     |                                    |                       |
| 1                                                  | Request Dronvisa to confirm that all assets have been identified and documented in the LW401-408 BFMP-DRONVISA.                                     | <b>Section 6.2</b>                 | Prior to Longwall 401 |
| 2                                                  | Installation of the UG4 subsidence monitoring program for Longwalls 401 - 408.                                                                      | <b>Section 6</b>                   | Prior to Longwall 401 |
| 3                                                  | Establish the pre-mining condition of the quarry and infrastructure by visual inspection and baseline survey                                        | <b>Section 6</b>                   | Prior to Longwall 403 |
| <b>Management / Monitoring / Response Measures</b> |                                                                                                                                                     |                                    |                       |
| 5                                                  | Establish key contacts list in the LW401-408 BFMP-DRONVISA.                                                                                         | <b>Section 11.1</b>                | Prior to Longwall 401 |
| 6                                                  | Review and revise (if required) the current Land Access and Compensation Agreement                                                                  | <b>Section 7</b>                   | Prior to Longwall 403 |
| 7                                                  | Include a schedule of times/frequency of communication with Dronvisa for the status of mining of Longwalls 401- 408 in the LW401-408 BFMP-DRONVISA. | <b>Section 7 and Table 6</b>       | Prior to Longwall 401 |
| 8                                                  | Include in the TARP triggers for conditions that may need to be actioned by MCO and/or Dronvisa.                                                    | <b>Section 10 and Attachment 2</b> | Prior to Longwall 401 |

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## 5.0 PERFORMANCE MEASURES

The performance measures specified in Table 15, Schedule 3 of Project Approval (05\_0117) relevant to the Dronvisa Quarry, as a built feature, are listed in **Table 4**.

**Table 4 Built Features Subsidence Impact Performance Measures**

| Feature                                                  | Subsidence Impact Performance Measure                                                                                                                                                                             |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Other infrastructure:</b>                             |                                                                                                                                                                                                                   |
| Other built features* and improvements, including fences | Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.<br>Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated. |

**Source:** Table 15 in Schedule 3 of Project Approval (05\_0117).

**Notes:** \* Dronvisa's Quarry

In accordance with Condition 75, Schedule 3 of Project Approval (05\_0117), MCO must ensure that there is no exceedance of the performance measures listed in Table 15, Schedule 3 of Project Approval (05\_0117), to the satisfaction of the Secretary of the DPE.

**Section 6** outlines the monitoring that will be undertaken to assess the impact of Longwalls 401- 408 against the performance measures in relation to Dronvisa Quarry and Quarry Infrastructure. Management measures for the Dronvisa Quarry and Quarry Infrastructure are outlined in **Section 7** and performance indicators for the performance measures are summarised in **Section 8**.

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## 6.0 MONITORING

A monitoring program will be developed in order to monitor the impacts of the extraction of Longwalls 401-408 on the Dronvisa Quarry and Quarry Infrastructure to identify potential loss of serviceability or potential damage during or after mining. Key components of the monitoring program are summarised in **Table 5**.

**Table 5 Dronvisa Quarry Monitoring Program Overview**

| Monitoring Component                                                                                                | Parameter                                                                                                                                                                                                                                     | Timing/Frequency                                                                                                                                                     | Responsibility                                           |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>Pre-mining</b>                                                                                                   |                                                                                                                                                                                                                                               |                                                                                                                                                                      |                                                          |
| Visual inspection of the Quarry and Quarry Infrastructure                                                           | Inspect and record baseline condition of Quarry and Quarry Infrastructure: <ul style="list-style-type: none"> <li>Quarry Pits;</li> <li>Access roads;</li> <li>Water management structures; and</li> <li>Structures.</li> </ul>               | Prior to commencement of Longwall 403 secondary extraction.                                                                                                          | Underground Technical Manager / Dronvisa                 |
| UG4 subsidence monitoring described in the UG4 Longwalls 401 to 408 Subsidence Monitoring Program (LW401- 408 SMP). | Installation of survey monitoring program and baseline survey                                                                                                                                                                                 | Prior to commencement of Longwall 403 extraction.                                                                                                                    | Underground Technical Manager / Registered Mine Surveyor |
| <b>During and After Mining</b>                                                                                      |                                                                                                                                                                                                                                               |                                                                                                                                                                      |                                                          |
| Visual inspection of the Quarry                                                                                     | Record condition of Quarry and compare to baseline condition.                                                                                                                                                                                 | At the completion of Longwalls 403, 404 and 405<br>Provide a copy of the results to Dronvisa following the completion of Longwalls 403, 404 and 405.                 | Underground Technical Manager / Registered Mine Surveyor |
| Visual inspection of the Infrastructure                                                                             | Inspect and record condition of Infrastructure: <ul style="list-style-type: none"> <li>Access roads;</li> <li>Water management structures; and</li> <li>Structures.</li> </ul> Quarry works completed since baseline inspections to be noted. | Within 1 month of the completion of Longwalls 403, 404 and 405.<br>Provide a copy of the results to Dronvisa following the completion of Longwalls 403, 404 and 405. | Underground Technical Manager / Dronvisa                 |

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|                                                               |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          |
|---------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| UG4 subsidence monitoring as described in the LW401- 408 SMP. | Survey monitoring program for subsidence parameters | Weekly while the active mining face of LW403, LW404 and LW405 is within 400m of the active Quarry area and until completion of major subsidence*.<br><br>Within one month following the completion of Longwall 403, 404 and 405.<br><br>Provide a copy of the results of the subsidence parameters measured after Longwall 403, 404 and 405 to Dronvisa<br><br>(unless otherwise agree to by Dronvisa) | Underground Technical Manager / Registered Mine Surveyor |
|---------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|

Notes:

\* Major subsidence is complete when less than 20mm Vertical Movement is detected between surveys

The frequency of monitoring will be reviewed either:

- In accordance with the Annual Review; or
- If monitoring determines there has been less impact to the Dronvisa than predicted, in consultation with Dronvisa; or
- If triggered as a component of the Contingency Plan as outlined in **Section 9** of this LW401-408 BFMP-DRONVISA.

## 6.1 SUBSIDENCE PARAMETERS

Subsidence parameters associated with mining will be measured in accordance with the UG4 Longwalls 401 to 408 Subsidence Monitoring Program (LW401-408 SMP).

Surveys will be conducted via a combination of on ground subsidence measurements and by drone based on the actual quarry progression at the time of subsidence occurring. On ground surveys to measure subsidence movements in three dimensions will primarily involve using a total station survey instrument, but may also include the use of Highwall Scanning survey tools where physical access is not practicable. Subsidence movements (i.e. subsidence, tilt, tensile strain and compressive strain) will be measured along subsidence lines that have been positioned across the general landscape. Drone mounted survey instruments may also be utilised for subsidence monitoring.

Unless otherwise agreed with Dronvisa, inspection sheets detailing the outcome of the subsidence impact inspections will be provided, following confirmation of any observed ground movements.

## 6.2 SUBSIDENCE IMPACTS

Dronvisa will provide confirmation that all assets have been identified and documented in the LW401-408 BFMP-DRONVISA prior to secondary extraction of Longwall 401 commencing.

Prior to the commencement of Longwall 403 extraction, a visual inspection of the quarry and quarry infrastructure will be conducted to record baseline conditions. Quarry infrastructure includes access

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roads, water management structures, rehabilitation areas and site infrastructure in place at the time of commencement.

Additional inspections will be undertaken at the completion of Longwall 403, Longwall 404 and Longwall 405. The during and post mining inspections of the quarry and quarry infrastructure will be compared to the pre-mining baseline condition.

If subsidence related ground movements result in a greater than expected change from the pre-mining baseline condition and/or greater than predictions described in **Section 4.3**, Dronvisa will be immediately notified as outlined in **Table 6**.

Information will be recorded in the LW401-408 BFMP-DRONVISA Subsidence Impact Register (**Attachment 3**) and reported in accordance with Project Approval (05\_0117) (**Section 13**).

MCO and Dronvisa will compare the results of the subsidence impact monitoring against the built features performance measure and indicators (**Sections 5 and 8**). In the event the observed subsidence impacts from the Moolarben Coal Complex exceed the performance measure or indicators, MCO and Dronvisa will assess the consequences of the exceedance in accordance with the Contingency Plan described in **Section 9**.

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## 7.0 MANAGEMENT MEASURES

A number of potential management measures in relation to the Dronvisa Quarry and quarry infrastructure are considered to be applicable.

Follow-up inspections will be conducted to assess the effectiveness of the management measures implemented and the requirement for any additional management measures. Key management actions and timing is summarised in **Table 6**.

**Table 6 Dronvisa Quarry Key Management Actions**

| Management Measure                                                                                                                                                   | Timing/Frequency*                                                                                                                                                                                                                                                                                                                                    | Responsibility                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>Pre-mining</b>                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      |                                          |
| Subsidence Impact Assessment provided to Dronvisa                                                                                                                    | Prior to the commencement of Longwall 401 secondary extraction                                                                                                                                                                                                                                                                                       | Underground Technical Manager            |
| Notification to Dronvisa prior to commencement of secondary extraction.                                                                                              | Prior to secondary extraction of Longwall 401.                                                                                                                                                                                                                                                                                                       | Underground Technical Manager            |
| Review and update Dronvisa Quarry Safety Management System (SMS) to consider any reasonable subsidence prediction matters relating to their personnel and equipment. | Prior to the commencement of Longwall 403 secondary extraction                                                                                                                                                                                                                                                                                       | Dronvisa                                 |
| MCO and Dronvisa to finalise (if required) Compensation Agreement for potential loss of serviceability and/or damage to Dronvisa Quarry**                            | Prior to the commencement of Longwall 403 secondary extraction                                                                                                                                                                                                                                                                                       | Underground Technical Manager / Dronvisa |
| Installation and commencement of the Dronvisa Quarry subsidence monitoring program for Longwall 401-408                                                              | Prior to secondary extraction of Longwall 403.                                                                                                                                                                                                                                                                                                       | Underground Technical Manager            |
| Establish the pre-mining (baseline) visual inspection of the Dronvisa Quarry and Infrastructure                                                                      | Prior to secondary extraction of Longwall 403.                                                                                                                                                                                                                                                                                                       | Dronvisa / Underground Technical Manager |
| <b>During Mining</b>                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                      |                                          |
| Notification to Dronvisa during longwall mining of Longwalls 401-408 to facilitate management of Dronvisa Quarry activities to minimise subsidence interactions.     | Weekly while the active mining face of LW403, LW404 and LW405 is within 400m of the active Quarry area and until completion of major subsidence***.<br>Within one month following the completion of Longwall 403, 404 and 405***.<br>Provide a copy of the results of the subsidence parameters measured after Longwall 403, 404 and 405 to Dronvisa | Underground Technical Manager            |

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| Management Measure                                                                                            | Timing/Frequency*                                                                                                                                                                         | Responsibility                           |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Management of activities and access to quarry areas undergoing active subsidence.                             | While the active LW mining face is within 400m of the active Quarry area until completion of major subsidence (or as otherwise deemed appropriate by Dronvisa)                            | Dronvisa                                 |
| Visual Inspection of Dronvisa Quarry subsidence to identify management measures potentially required.         | At the completion of each of LW403, 404 and 405 major subsidence*** (or as otherwise deemed appropriate by Dronvisa)                                                                      | Dronvisa / Underground Technical Manager |
| Remediation Measures implemented for subsidence impacts to Quarry.                                            | Following completion of each of LW403, 404 and 405 Major Subsidence***                                                                                                                    | Dronvisa                                 |
| Comparative assessment of visual inspections against baseline condition of Quarry Infrastructure.             | Within one month following the completion of Longwall 403, 404 and 405.                                                                                                                   | Dronvisa / Underground Technical Manager |
| Undertake subsidence impact inspection                                                                        | If/when ground surveys identifies an exceedance of the predicted subsidence monitoring parameters.                                                                                        | Dronvisa / Underground Technical Manager |
| Provision of inspection sheets detailing the outcome of the subsidence impact monitoring program to Dronvisa. | Following exceedance of the predicted subsidence monitoring parameters and/or subsidence related impact inspections.<br>Following the completion of Inspections and comparative analysis. | Underground Technical Manager            |
| Implement TARP (Attachment 2).                                                                                | During Longwalls 403, 404 and 405 extraction.                                                                                                                                             | Underground Technical Manager / Dronvisa |
| <b>Post-mining</b>                                                                                            |                                                                                                                                                                                           |                                          |
| Notification to Dronvisa to inform longwall mining of Longwalls 401-408 is completed                          | Following completion of active mining after Longwall 408 (within 3 months)                                                                                                                | Underground Technical Manager            |

Notes:

\* If monitoring determines there has been no impact and/or no exceedance of the performance measures listed in **Table 4**, MCO in consultation with Dronvisa will review the frequency of these management measure.

\*\* Compensation agreement considers impacts as described in Moolarben Coal Operations – Longwalls 401 to 408 Subsidence predictions and impact assessments for Dronvisa Quarry (MSEC 2021)

\*\*\* Major subsidence is complete when less than 20mm movement is detected between surveys

Subsidence remediation measures applicable to the Dronvisa Quarry include:

- Quarry highwall review prior to subsidence;
- Grading (and ripping) roads and/or quarry benches;
- Re-grading of quarry high-walls;
- Backfilling cracks; and
- Repairs to water management and other infrastructure

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## 8.0 ASSESSMENT OF PERFORMANCE INDICATORS AND MEASURES

In accordance with Condition 77(d), Schedule 3 of Project Approval (05\_0117), performance indicators have been developed for the performance measures listed in **Table 4 (Section 5)**. Subsidence impacts may result in loss of, or reduced, access to portions of active quarry areas within the subsidence area (20mm subsidence line) for the duration of active subsidence. Subsidence impacts are predicted to result in some damage to the quarry as outlined in Section 4.3.

The performance indicators proposed to ensure that the performance measures for Dronvisa Quarry achieved in relation to subsidence, include:

- Subsidence monitoring indicates subsidence is consistent with approved impacts.
- Compensation Agreement between MCO and Dronvisa in place for predicted impacts to Dronvisa infrastructure serviceability and damage to the Quarry.

Monitoring conducted to inform the assessment of secondary extraction of Longwalls 401- 408 against the performance indicators for the performance measures relevant to Dronvisa's built features are outlined in **Section 6**.

Assessment of monitoring results against the performance indicators and performance measure would include comparison against the baseline to confirm any changes were not present prior to the commencement of mining at UG4.

If a performance measure is considered to have been exceeded, the Contingency Plan outlined in **Section 9** of this LW401-408 BFMP-DRONVISA will be implemented.

Any dispute between MCO and the Dronvisa over the interpretation, application or implementation of the performance measures is to be referred to the DPE to be settled by the Secretary, following consultation with the Resources Regulator. Any decision by the Secretary shall be final and not subject to further dispute resolution under this approval.

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## 9.0 CONTINGENCY PLAN

In the event the performance measures relevant to the Dronvisa Quarry (as built features, summarised in **Table 4**), are considered to have been exceeded or are likely to be exceeded, MCO will implement the following Contingency Plan:

- The observation will be reported to the Underground Technical Manager and the Environmental and Community Manager within 24 hours.
- The observation will be recorded in the Subsidence Impact Register (**Attachment 3**).
- The likely exceedance will be reported in an Incident Report (refer to the Extraction Plan).
- MCO will provide the Incident Report to relevant stakeholders (i.e. DPE, DPE-RR and Dronvisa).
- MCO will conduct an investigation to identify and evaluate contributing factors to the exceedance, including re-survey of the relevant subsidence monitoring lines, analysis of predicted versus observed subsidence parameters and a review of the subsidence monitoring program with updates to the program where appropriate.
- An appropriate course of action will be developed in consultation with relevant stakeholders and government agencies including proposed contingency measures (**Section 9.1**), and a program to review the effectiveness of the contingency measures.
- The course of action will be approved by, and implemented to the satisfaction of, Dronvisa and DPE-RR. Any dispute will be referred to the secretary of the DPE for resolution.
- This LW401-408 BFMP-DRONVISA and the performance indicators will be reviewed to adequately manage future potential impacts within the limits of Project Approval (05\_0117).

MCO will comply with the *Coal Mine Subsidence Compensation Act, 2017* (formerly *NSW Mine Subsidence Compensation Act, 1961*); in the event that property damages occur as a result of mining Longwalls 401- 408.

### 9.1 CONTINGENCY MEASURES

Contingency measures will be developed in consideration of the specific circumstances of the feature (e.g. the location, nature and extent of the impact, and the assessment of environmental consequences).

Potential contingency measures that could be considered in the event either of the performance measures for the Dronvisa is exceeded includes repairs to infrastructure where not compensated.

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## 10.0 TRIGGER ACTION RESPONSE PLAN – MANAGEMENT TOOL

The framework for the various components of this LW401-408 BFMP-DRONVISA are summarised in the TARP shown in **Attachment 2**. The TARP illustrates how the various predicted subsidence impacts, monitoring components, performance measures, and responsibilities are structured to achieve compliance with the relevant statutory requirements, and the framework for management and contingency actions.

The TARP comprises:

- baseline conditions;
- predicted subsidence impacts;
- trigger levels from monitoring to assess performance; and
- triggers that flag implementation of contingency measures.

The TARP system provides a simple and transparent snapshot of the monitoring of environmental performance and the implementation of management and/or contingency measures.

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## 11.0 ROLES AND RESPONSIBILITIES

Key responsibilities of MCO personnel in relation to this LW401-408 BFMP-DRONVISA are summarised in **Table 8**. Responsibilities may be delegated as required.

**Table 7**  
**Responsibility Summary**

| Responsibility                             | Task                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General Manager</b>                     | <ul style="list-style-type: none"> <li>Ensure resources are available to MCO personnel to facilitate the completion of responsibilities under this LW401-408 BFMP-DRONVISA.</li> </ul>                                                                                                                                                                                                                                           |
| <b>Underground Technical Manager</b>       | <ul style="list-style-type: none"> <li>Ensure the LW401- 408 SMP is implemented.</li> <li>Ensure monitoring required under this LW401-408 BFMP-DRONVISA is carried out within specified timeframes, adequately checked and processed and prepared to the required standard.</li> <li>Undertake relevant monitoring and implementation of management measures summarised in <b>Tables 5</b> and <b>6</b> respectively.</li> </ul> |
| <b>Environmental and Community Manager</b> | <ul style="list-style-type: none"> <li>Liaise with relevant stakeholders regarding subsidence impact management and related environmental consequences.</li> </ul>                                                                                                                                                                                                                                                               |
| <b>Registered Mine Surveyor</b>            | <ul style="list-style-type: none"> <li>Undertake all subsidence monitoring to the required standard within the specified timeframes and ensure data are adequately checked, processed and recorded.</li> </ul>                                                                                                                                                                                                                   |

### 11.1 KEY CONTACTS

The details of key contacts and phone numbers in relation to this LW401-408 BFMP-DRONVISA are summarised in **Table 9**.

**Table 8**  
**Key Personnel Contact Details**

| Organisation    | Position                            | Contact Name    | Phone Number |
|-----------------|-------------------------------------|-----------------|--------------|
| <b>MCO</b>      | Underground Technical Manager       | Mr Liam Mildon  | 02 6376 1614 |
|                 | Environmental and Community Manager | Mr Trent Cini   | 02 6376 1436 |
|                 | Moolarben Coal Hotline              |                 | 1800 556 484 |
| <b>Dronvisa</b> | Dronvisa Quarry Mine Manager        | Janine Campbell | 0448 696 888 |

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## 12.0 FUTURE EXTRACTION PLANS

In accordance with Condition 77(p), Schedule 3 of Project Approval (05\_0117), MCO will collect baseline data for future Extraction Plans. In addition to the baseline data collection, consideration of the environmental performance and management measures, in accordance with the review(s) conducted as part of this LW401-408 BFMP-DRONVISA, will inform the appropriate type and frequency of monitoring of the assets relevant to the next Extraction Plan.

## 13.0 ANNUAL REVIEW, REGULAR REPORTING AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

In accordance with Condition 4, Schedule 5 of Project Approval (05\_0117), MCO will conduct an Annual Review of the environmental performance of the Project by the end of March each year, or as otherwise agreed by the Secretary of the DPE. The Annual Review will:

- describe the works carried out in the previous calendar year, and the development proposed to be carried out over the current calendar year;
- include a comprehensive review of the monitoring results and complaints records of the Project over the previous calendar year, including a comparison of these results against the:
  - relevant statutory requirements, limits or performance measures/criteria;
  - monitoring results of previous years; and
  - relevant predictions in the EA;
- identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the monitoring data over the life of the Project;
- identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the Project.

In accordance with Condition 11, Schedule 5 of Project Approval (05\_0117), the Annual Review will be made available on the MCO website. As described in **Section 2**, this LW401-408 BFMP-DRONVISA will be reviewed within three months of the submission of an Annual Review, and revised where appropriate. In accordance with Condition 8, Schedule 5 of Project Approval (05\_0117), MCO will also provide regular reporting on the environmental performance of the Project on the MCO website.

### 13.1 AUDITS

In accordance with Condition 9, Schedule 5 of Project Approval (05\_0117), an independent environmental audit was conducted by the end of December 2015 and again in 2018, and will be

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undertaken every three years thereafter. A copy of the independent environmental audit will be provided to the Secretary of the DPE and made available on the MCO website.

The independent environmental audit will be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary of the DPE.

The independent environmental audit will assess the environmental performance of the Project and assess whether it is complying with the requirements of Project Approval (05\_0117), and any other relevant approvals, and recommend measures or actions to improve the environmental performance of the Project.

## 14.0 INCIDENTS

An incident is defined in Project Approval (05\_0117) as a set of circumstances that:

- causes or threatens to cause material harm to the environment; and/or
- breaches or exceeds the limits or performance measures/criteria in Project Approval (05\_0117).

In the event that an incident which causes, or threatens to cause, material harm to the environment occurs, the incident will be managed in accordance with the Pollution Incident Response Management Plan.

The reporting of incidents will be conducted in accordance with Condition 7, Schedule 5 of Project Approval (05\_0117).

MCO will notify the Secretary of DPE and any other relevant agencies immediately after MCO becomes aware of the incident which causes or threatens to cause material harm to the environment. For any other incidence associated with the project, MCO will notify the Secretary and any other relevant agencies as soon as practicable after becoming aware of the incident. Within seven days of the date of the incident, MCO will provide the Secretary of DPE and any relevant agencies with a detailed report on the incident. The report will:

- describe the date, time and nature of the exceedance/incident;
- identify the cause (or likely cause) of the exceedance/incident;
- describe what action has been taken to date; and
- describe the proposed measures to address the exceedance/incident.

## 15.0 COMPLAINTS

MCO maintains a Community Complaints Line (Phone Number: 1800 556 484) that is dedicated to the receipt of community complaints. The Community Complaints Line is publicly advertised and operates 24 hours per day, seven days a week, to receive any complaints from neighbouring residents or other stakeholders.

MCO has developed a Community Complaints Procedure which details the process to be followed when receiving, responding to and recording community complaints. The Community Complaints Procedure is supported by a Complaints Database.

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The Community Complaints Procedure is a component of the MCO Environmental Management Strategy which requires the recording of relevant information including:

- the nature of complaint;
- method of the complaint;
- relevant monitoring results and meteorological data at the time of the complaint;
- site investigation outcomes;
- any necessary site activity and activity changes;
- any necessary actions assigned; and
- communication of the investigation outcome(s) to the complainant.

In accordance with Condition 11, Schedule 5 of Project Approval (05\_0117)), the complaints register will be updated monthly and made available on the MCO website.

## 16.0 NON-COMPLIANCES WITH STATUTORY REQUIREMENTS

A protocol for the managing and reporting of non-compliances with statutory requirements has been developed as a component of MCO's Environmental Management Strategy and is described below.

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with the Moolarben Coal Complex.

The Environmental and Community Manager (or delegate) will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

As described in **Section 14**, MCO will notify the Secretary of the DPE, and any other relevant agencies, of any incident associated with MCO.

A review of MCO's compliance with all conditions of Project Approval (05\_0117), mining leases and all other approvals and licenses will be undertaken prior to (and included within) each Annual Review. The Annual Review will be made publicly available on the MCO website.

As described in **Section 13.1**, an independent environmental audit was conducted by the end of December 2015 and undertaken every three years thereafter. A copy of the audit report will be submitted to the Secretary of the DPE and made publicly available on the MCO website.

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## 17.0 REFERENCES

Department of Planning and Environment and NSW Trade & Investment – Division of Resources and Energy (2015) *Guidelines for the Preparation of Extraction Plans Required under Conditions of Development Consents, Project Approvals and Mining Lease Conditions for Underground Coal Mining*. Version 5. Draft.

Dronvisa Pty Ltd (2021) *Dronvisa Quarry Mining Operations Plan 2020 to 2027*. Version 2.

Mine Subsidence Engineering Consultants (2021) *Moolarben Coal Operations – Longwalls 401 to 408 Subsidence predictions and impact assessments for the Dronvisa Infrastructure*

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**ATTACHMENT 1**

**MOOLARBEN COAL OPERATIONS – LONGWALLS 401 TO 408 SUBSIDENCE PREDICTIONS AND  
IMPACT ASSESSMENT FOR THE DRONVISA INFRASTRUCTURE**

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**ATTACHMENT 2**

**UG4 LONGWALLS 401 TO 408 BUILT FEATURES MANAGEMENT PLAN – DRONVISA**  
**TRIGGER ACTION RESPONSE PLAN**

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| Condition                   | Normal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Level 1                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Level 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                             | Baseline Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Predicted Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Implement Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                        | Restoration/Contingency Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Trigger                     | Dronvisa assets are serviceable and repairable or as otherwise identified by pre-mining inspection.                                                                                                                                                                                                                                                                                                                                                                                                      | Subsidence impacts as per Moolarben Coal Operations – Longwalls 401 to 408 Subsidence predictions and impact assessments for Dronvisa Quarry (MSEC,2021)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Monitoring identifies impacts that are greater than predicted, but the performance measure has not been exceeded and is not likely to be exceeded.                                                                                                                                                                                                                                                                                                                   | If the Performance Measures relevant to the Dronvisa Quarry are exceeded, or are likely to be exceeded (i.e. compensated loss of serviceability).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Action                      | <p>Survey and record baseline condition of main quarry and quarry infrastructure including:</p> <ul style="list-style-type: none"><li>Quarry Pits;</li><li>Access roads;</li><li>Water management structures; and</li><li>Site infrastructure.</li></ul> <p>Installation of survey monitoring program and initial survey</p> <p>Review and update Dronvisa Quarry Safety Management System (SMS) to consider any reasonable subsidence prediction matters relating to their personnel and equipment.</p> | <p>Conduct monitoring as described in <b>Section 6</b>, including:</p> <ul style="list-style-type: none"><li>Record condition of quarry and quarry infrastructure and compare to baseline condition.</li><li>Survey monitoring program for subsidence parameters.</li></ul> <p>Undertake management measures as described in Section 7.0 including:</p> <ul style="list-style-type: none"><li>Management of Dronvisa activities and access to quarry areas undergoing active subsidence.</li><li>Visual Inspection of Dronvisa Quarry subsidence to identify management measures potentially required by Dronvisa.</li><li>Remediation Measures implemented for subsidence impacts to Quarry.</li></ul> | <p>Dronvisa will be notified in the event management measures are considered to be required.</p> <p>Management measures (as described in Section 7.0) implemented (with regard to the specific circumstances of the subsidence impact [e.g. the nature and extent of the impact]).</p> <p>Follow-up inspections will be conducted to assess the effectiveness of the management measures implemented and the requirement for any additional management measures.</p> | <p>Contingency Plan implemented (with regard to the specific circumstances of the subsidence impact). In summary:</p> <ul style="list-style-type: none"><li>The observation will be reported to the Underground Technical Manager and the Environmental and Community Manager within 24 hours.</li><li>The observation will be recorded in the Subsidence Impact Register.</li><li>The exceedance or likely exceedance will be reported in an incident report.</li><li>An investigation will be conducted to identify and evaluate contributing factors to the exceedance.</li><li>An appropriate course of action will be developed in consultation with Dronvisa, relevant stakeholders and government agencies.</li><li>The course of action will be approved by, and implemented to the satisfaction of, relevant stakeholders and government agencies. Any dispute will be referred to the secretary of the DPE for resolution.</li><li>The Built Features Management Plan – Dronvisa and the performance indicators will be reviewed to adequately manage future potential impacts.</li></ul> |
| Frequency                   | Prior to commencement of Longwall 403 secondary extraction.                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Weekly while the active mining face of LW403, LW404 and LW405 is within 400m of the active Quarry area and until the completion of LW403 to 405 major subsidence*.</p> <p>Within one month following the completion of Longwall 403, 404 and 405</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | To be implemented as required (i.e. if monitoring identifies impacts that are greater than predicted, but the performance measure has not been exceeded and is not likely to be exceeded).                                                                                                                                                                                                                                                                           | To be implemented following identification of an exceedance of the performance measure, or if the performance measure is likely to be exceeded (i.e. unsafe or loss of serviceability).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Position of Decision Making | <ul style="list-style-type: none"><li>Underground Technical Manager.</li><li>Dronvisa – Mine Manager</li></ul>                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>Underground Technical Manager.</li><li>Dronvisa – Mine Manager</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>Underground Technical Manager.</li><li>Dronvisa – Mine Manager</li></ul>                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>Underground Technical Manager.</li><li>Dronvisa – Mine Manager</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

\* Major subsidence is complete when less than 20mm movement is detected between surveys

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**ATTACHMENT 3**

**UG4 LONGWALLS 401 TO 408 BUILT FEATURES MANAGEMENT PLAN – DRONVISA**  
**SUBSIDENCE IMPACT REGISTER TEMPLATE**

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UG4 Longwalls 401 to 408 Built Features Management Plan – Dronvisa  
Subsidence Impact Register Template

| Impact Register Number | Built Feature | Impact Description | Does Impact Exceed the Built Feature Performance Measure/Indicators? (Yes/No) | Management Measures Implemented | Were Management Measures Effective? (Yes/No) |
|------------------------|---------------|--------------------|-------------------------------------------------------------------------------|---------------------------------|----------------------------------------------|
|                        |               |                    |                                                                               |                                 |                                              |
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