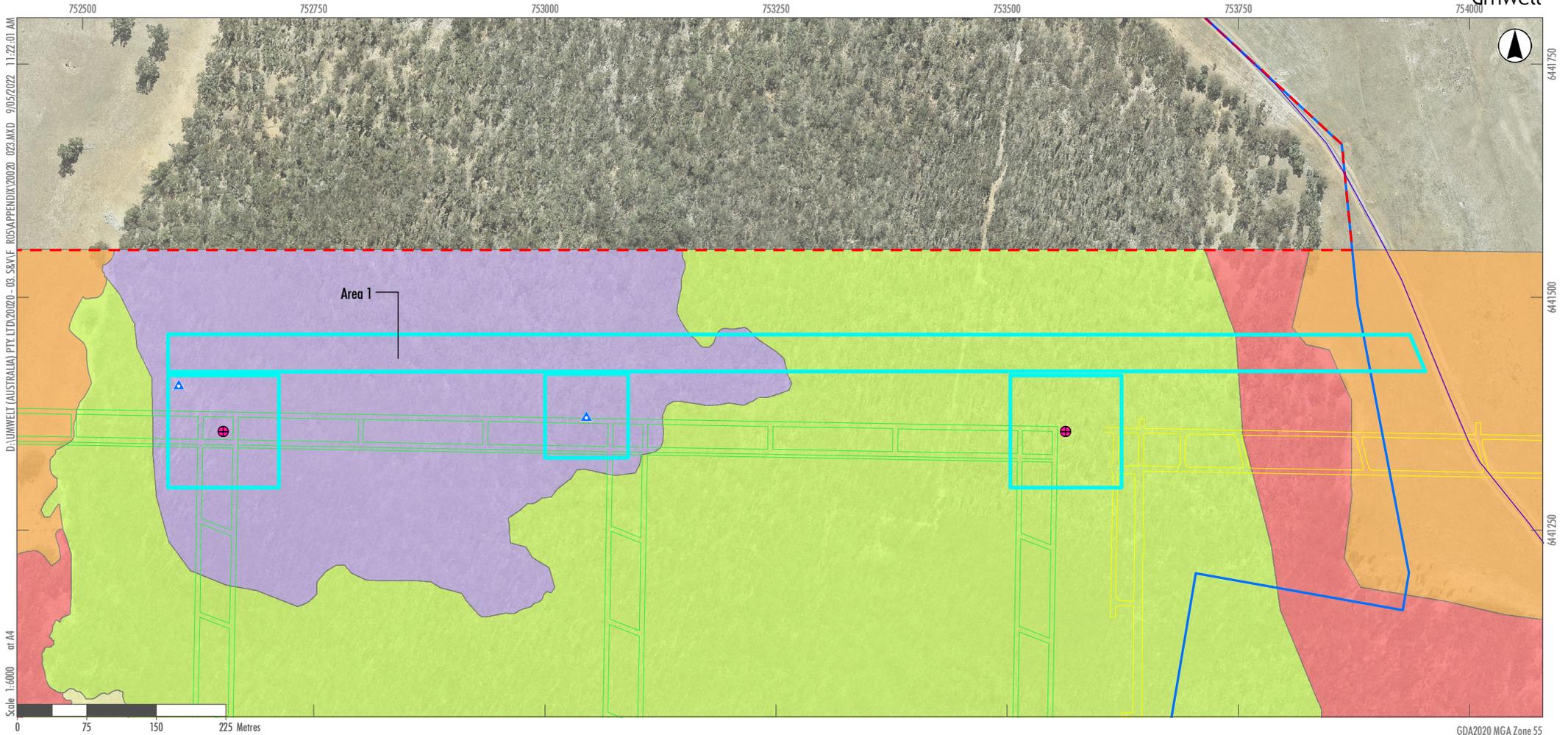


Legend	
[Green Box]	281 - Intact
[Light Green Box]	281 - Derived Native Grassland
[Yellow Box]	281 - Thinned
[Light Purple Box]	476 - Intact
[Light Blue Box]	476 - Thinned
[Light Green Box]	478 - Intact
[Brown Box]	478 - Regenerating
[Yellow Box]	479 - Intact
[Orange Box]	481 - Derived Native Grassland
[Light Orange Box]	481 - Intact
[Light Orange Box]	481 - Regeneration
[Blue Box]	481 - Thinned
[Purple Box]	618 - Derived Native Grassland
[Light Purple Box]	618 - Thinned
[Yellow Box]	1661 - Intact
[Pink Box]	1674 - Intact
[Dark Purple Box]	Cleared/Pasture
[Blue Box]	Water

Legend			
[Blue Outline]	Project Approval Boundary	[Yellow Circle]	Proposed Borehole
[Red Outline]	Proposed Project Approval Boundary	[Red Circle]	Proposed Vent Shaft
[Purple Outline]	Referral Area	[Blue Triangle]	Proposed Dewatering Bores
[Green Hatched]	Brokenback Conservation Area	[Blue Triangle]	Proposed Infrastructure
[Blue Outline]	Bobadeen Quarry	[Pink Line]	Proposed Access Track Corridor
[Brown Line]	Roads	[Yellow Hatched]	Proposed Ulan Underground Mine Plan Modification
[Black Line]	Railway	[Green Hatched]	Proposed Ulan West Underground Mine Plan Modification
[Blue Wavy Line]	Major Watercourses	[Black Line]	Existing Surface Infrastructure
[Red Hatched]	Approved Ulan Underground Mine Plan	[Black Line]	Approved Ulan West Mine Plan
[Green Hatched]	Approved Ulan West Mine Plan	[Black Line]	Approved Infrastructure

FIGURE 3.1

Vegetation Communities of the Referral Area



Legend

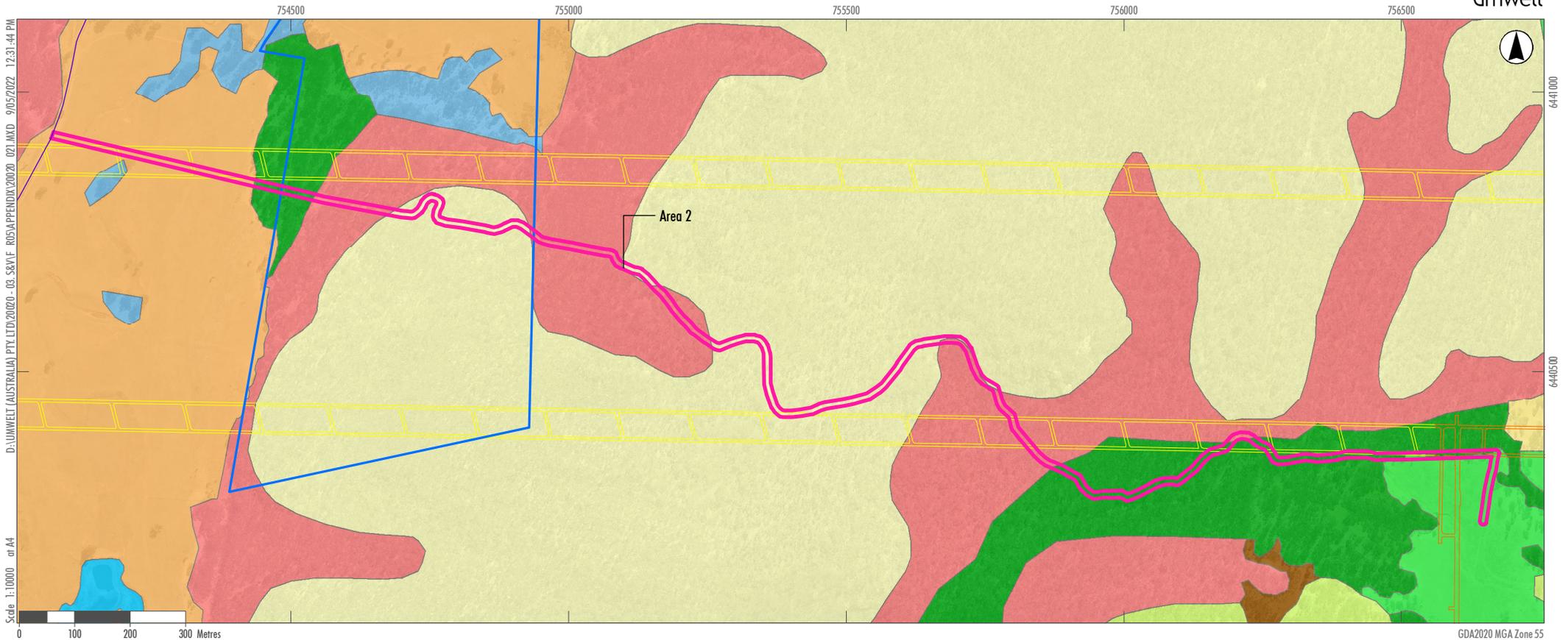
- Project Approval Boundary
- Proposed Project Approval Boundary
- Approved Infrastructure
- ⊕ Proposed Vent Shaft
- ▲ Proposed Dewatering Bores
- Proposed Infrastructure
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification

Vegetation Communities

- 476 - Narrow-leaved Wattle low open forest / very tall shrubland on ridges in northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion - Intact
- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion - Intact
- 479 - Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion - Intact

- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Derived Native Grassland
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Intact

FIGURE 3.2
Vegetation Communities
(Area 1)



D:\UMWELT (AUSTRALIA) PTY.LTD\2020 - 03_S&WV ROS\APPENDIX\2020_021.MXD 9/05/2022 12:31:44 PM
Scale 1:10000 at A4

GDA2020 MGA Zone 55

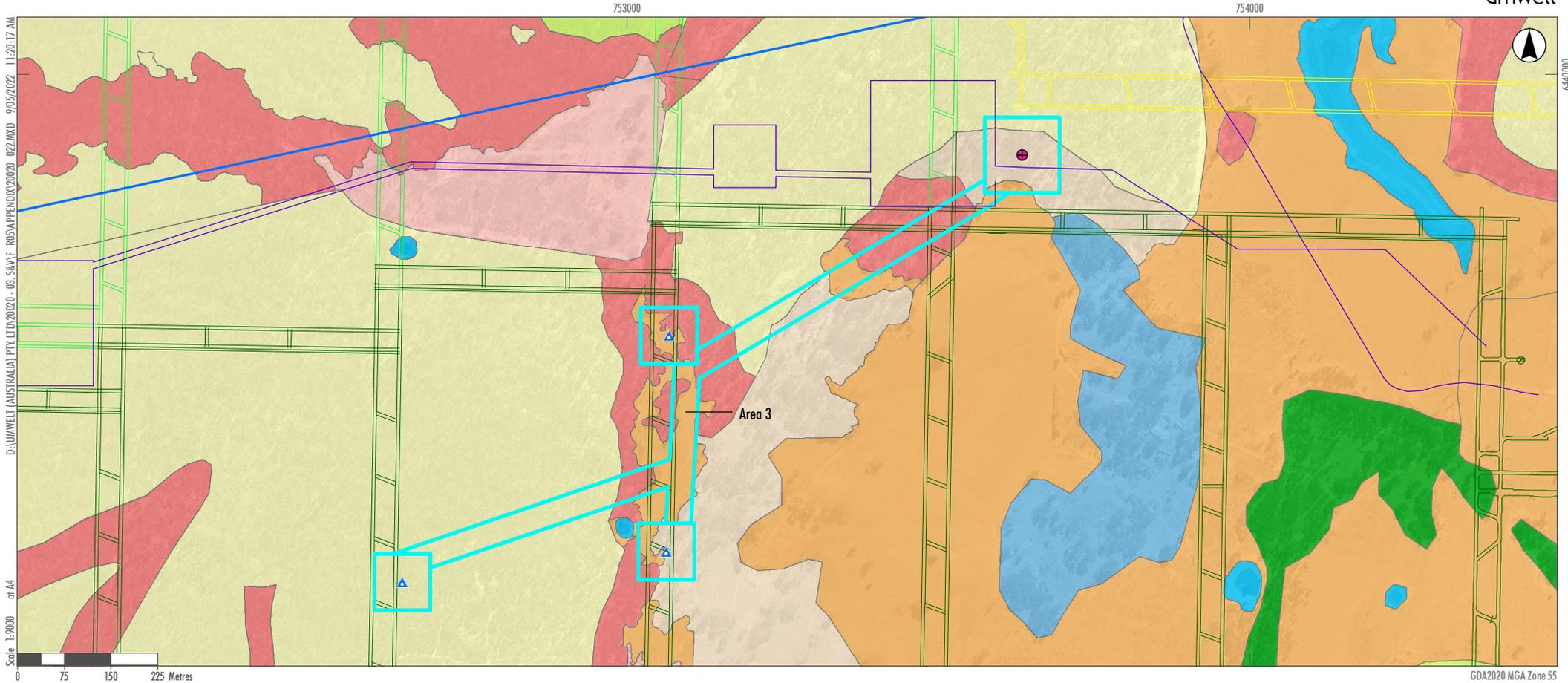
Legend

- Project Approval
- Approved Ulan Underground Mine
- Approved Infrastructure
- Proposed Access Track
- Proposed Ulan Underground Mine Plan

Vegetation Communities

- 281 - Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion - Intact
- 281 - Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion - Derived Native Grassland
- 281 - Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion - Thinned
- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion - Intact
- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion - Regenerating
- 479 - Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion - Intact
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Derived Native Grassland
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Intact
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Thinned

FIGURE 3.3
Vegetation Communities
(Area 2)



D:\UMWELT (AUSTRALIA) PTY.LTD\2020 - 03_S&W\F_R05\APPENDIX\2020_022.MXD 9/05/2022 11:20:17 AM
Scale 1:9000 at A4

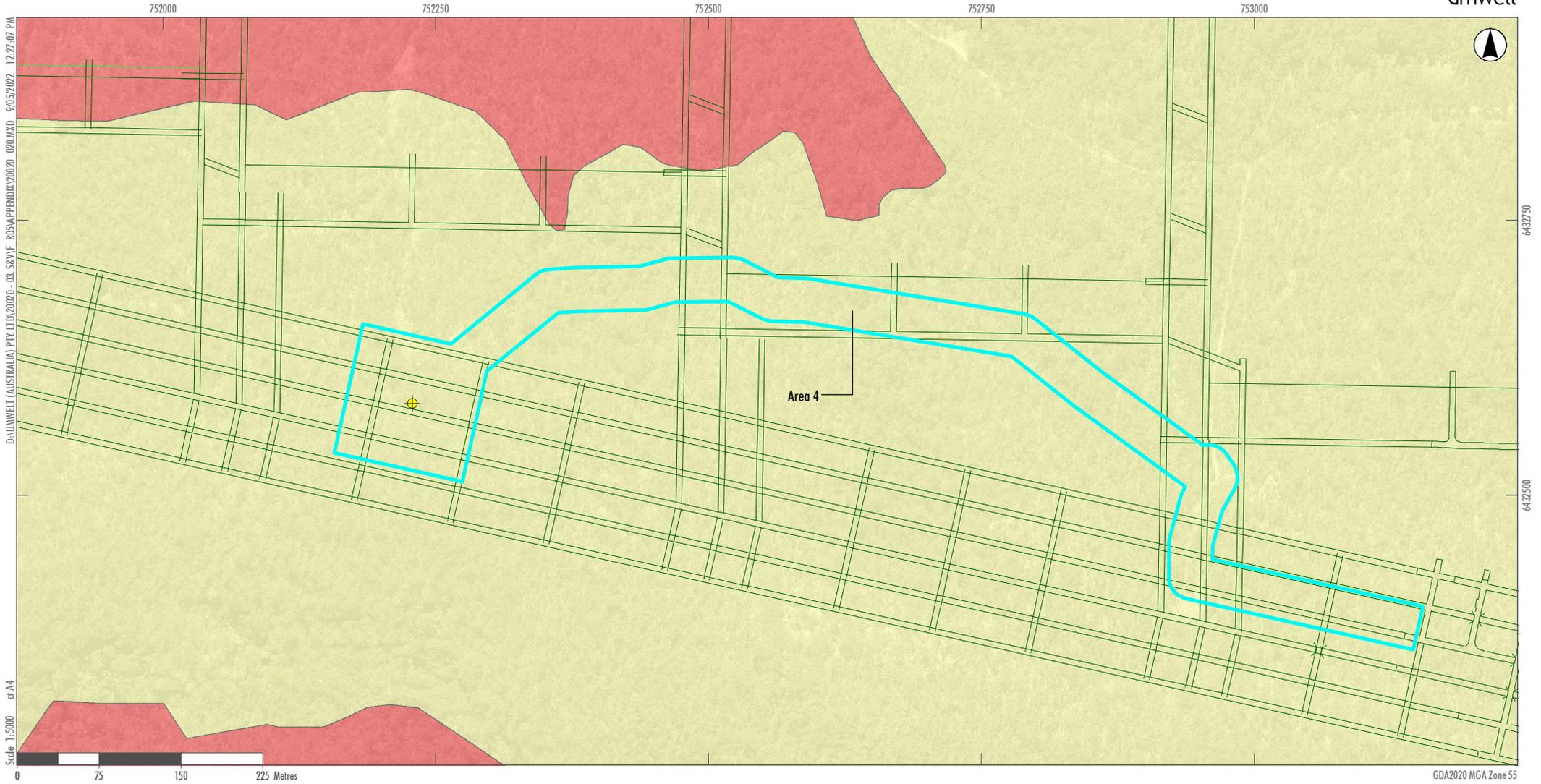
GDA2020 MGA Zone 55

- Legend**
- Project Approval Boundary
 - Approved Ulan West Mine
 - Approved Infrastructure
 - ⊕ Proposed Vent Shaft
 - ▲ Proposed Dewatering
 - Proposed Infrastructure
 - Proposed Ulan Underground Mine Plan
 - Proposed Ulan West Underground Mine Plan

Vegetation Communities

- 281 - Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion - Intact
- 478 - Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion - Intact
- 479 - Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion - Intact
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region - Regeneration
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Derived Native Grassland
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Intact
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Thinned
- 618 - White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley - Thinned
- Water

FIGURE 3.4
Vegetation Communities
(Area 3)



Legend

- Approved Ulan West Mine Plan
- Proposed Ulan West Underground Mine Plan Modification
- Proposed Borehole
- Proposed Infrastructure

Vegetation Communities

- 479 - Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion - Intact
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region - Intact

FIGURE 3.5
Vegetation Communities
(Area 4)

3.2 Threatened Ecological Communities

A range of EPBC Act listed Threatened Ecological Communities were considered for their potential to occur within the Referral Area. Of these, only the White Box – Yellow Box – Blakely’s Red Gum Woodland and Derived Native Grassland CEEC was found to be present.

A summary of the outcomes of the assessment of other EPBC Listed TECs that was found not to occur in the Referral Area is provided in **Table 3.2**.

Table 3.2 Summary of Threatened Ecological Community Assessment for Communities that Do Not Occur in the Referral Area

Threatened Ecological Community	Summary of Assessment Outcomes
<p><i>Central Hunter Valley Eucalypt Forest and Woodland CEEC</i></p>	<p>The <i>Central Hunter Valley Eucalypt Forest and Woodland</i> is listed as a CEEC under the EPBC Act and occurs in the Hunter River catchment (including the Goulburn Valley). The CEEC occurs mainly in the Central Hunter Valley – in the Muswellbrook, Singleton and Cessnock LGAs.</p> <p>The Commonwealth guideline to the CEEC (Commonwealth of Australia 2016) provides an indicative map of the extent to which the CEEC is most likely to occur, with Denman being the furthest western extent. The Referral Area is approximately 130 km west of Denman and therefore does not occur within the most likely area of distribution of the CEEC. The Commonwealth Guidelines also indicates a broader area in which the CEEC may occur, and the Referral Area is also west of that extent. Furthermore, the Referral Area lies within the Central Tablelands catchment area, not within the Hunter River Catchment area.</p> <p>The Referral Area does not support the landscape and soils characteristic of the Central Hunter Valley Eucalypt Forest and Woodland. The CEEC does not occur on alluvial flats or Triassic sediments or escarpments, which are landscape elements characteristic of the Referral Area.</p> <p>Of the four characteristic canopy species of the TEC, the Referral Area supports only one, being <i>Eucalyptus crebra</i>. There are some other species that were recorded within the Referral Area that may occur in the CEEC.</p> <p>While there are some broad floristic similarities between the CEEC and the vegetation types of the Referral Area, the geographic distribution and geophysical characteristics of the community are not consistent. As such, the <i>Central Hunter Valley Eucalypt Forest and Woodland CEEC</i> does not have potential to occur in the Referral Area.</p>
<p><i>Hunter Valley Weeping Myall (Acacia Pendula) Woodland CEEC</i></p>	<p>While the Commonwealth Conservation Advice lists known occurrences of the Weeping Myall Woodland to include the Kerrabee subregion (in which the Referral Area occurs), it also states that it is limited to the Hunter Valley geographic region of NSW. The Referral Area lies within the Central Tablelands catchment area, which is west of the Hunter River Catchment Area in which this CEEC is known to occur. As such, the Referral Area falls outside of the range of the Hunter Valley Weeping Myall (<i>Acacia pendula</i>) Woodland CEEC as documented in the Commonwealth listing advice. Furthermore, no records of weeping myall (<i>Acacia pendula</i>) were made during surveys within the Referral Area.</p> <p>The <i>Hunter Valley Weeping Myall (Acacia pendula) Woodland CEEC</i> does not have potential to occur in the Referral Area or surrounding areas.</p>

Threatened Ecological Community	Summary of Assessment Outcomes
<p><i>Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Penepplain, Murray-Darlin Depression, Riverina and NSW South Western Slopes Bioregions</i></p>	<p>This EEC occurs along the eastern parts of the Murray-Darling river system and typically occurs on red-brown earths and heavy textured alluvial soils. The EEC occurs as a low woodland or open shrubland dominated by weeping myall (<i>Acacia pendula</i>). No records of weeping myall (<i>Acacia pendula</i>) were made during surveys within the Referral Area or surrounding areas and the characteristic soil types of the EEC are not consistent with those observed within the Proposed Direct Impact Area.</p> <p>The <i>Myall Woodland EEC</i> does not have potential to occur in the Referral Area or surrounding areas.</p>
<p><i>Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions EEC</i></p>	<p>No PCTs comprising species characteristic of the species assemblage of the Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions EEC The <i>Coolibah – Black Box Woodlands EEC</i> were identified in the Proposed Direct Impact Area and this EEC does not have potential to occur.</p>
<p><i>Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia EEC</i></p>	<p>No PCTs comprising species characteristic of the species assemblage of the Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia EEC were recorded. The <i>Grey Box Grassy Woodlands and Derived Native Grasslands EEC</i> does not have potential to occur in the Referral Area.</p>
<p><i>Inland Grey Box Woodland on the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions</i></p>	<p>No PCTs comprising species characteristic of the species assemblage of the Inland Grey Box Woodland EEC were recorded. The <i>Grey Box Woodlands EEC</i> does not have potential to occur in the Referral Area.</p>
<p><i>Natural Grasslands on basalt and fine textured alluvial plains of northern NSW and southern Qld CEEC</i></p>	<p>The Referral Area does not support soil types that are consistent with this CEEC. The <i>Natural Grasslands CEEC</i> does not have potential to occur in the Referral Area.</p>

The White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland (hereafter referred to as White Box CEEC) is listed as a CEEC under the EPBC Act. This community occurs along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria. It is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of white box, yellow box or Blakely’s red gum trees.

Vegetation potentially conforming to the White Box CEEC (based on floristic composition) was identified within the Referral area and therefore further detailed assessment was undertaken. Detailed assessment of this vegetation within the Proposed Direct Impact Area of the Referral Area was undertaken to determine whether it met the condition class thresholds identified in the Conservation Advice (Threatened Species Scientific Committee (TSSC) 2006) for the White Box Woodland CEEC. These thresholds have been incorporated into an identification flowchart for the CEEC within the EPBC Act Policy Statement (Department of Environment and Heritage 2006) for the community which was also utilised during the

assessment. It is noted that the vegetation of the entire Referral Area was not surveyed with the same level of detail as the Proposed Direct Impact Area. Therefore, for the purposes of this assessment, PCTs that were found to comprise the CEEC in the Proposed Direct Impact Area were also assumed to comprise the CEEC in areas of the Referral Area that were not surveyed, including the contingency areas for the maximum parameters assessment.

As a result of detailed analysis, the following PCTs in the Referral Area were identified as having (or likely to previously have had) Blakely's red gum (*Eucalyptus blakelyi*), yellow box (*Eucalyptus melliodora*) or white box – grey box intergrades (*Eucalyptus albens* x *Eucalyptus moluccana*) as the dominant overstorey species (refer to **Figure 3.1** to **Figure 3.5**):

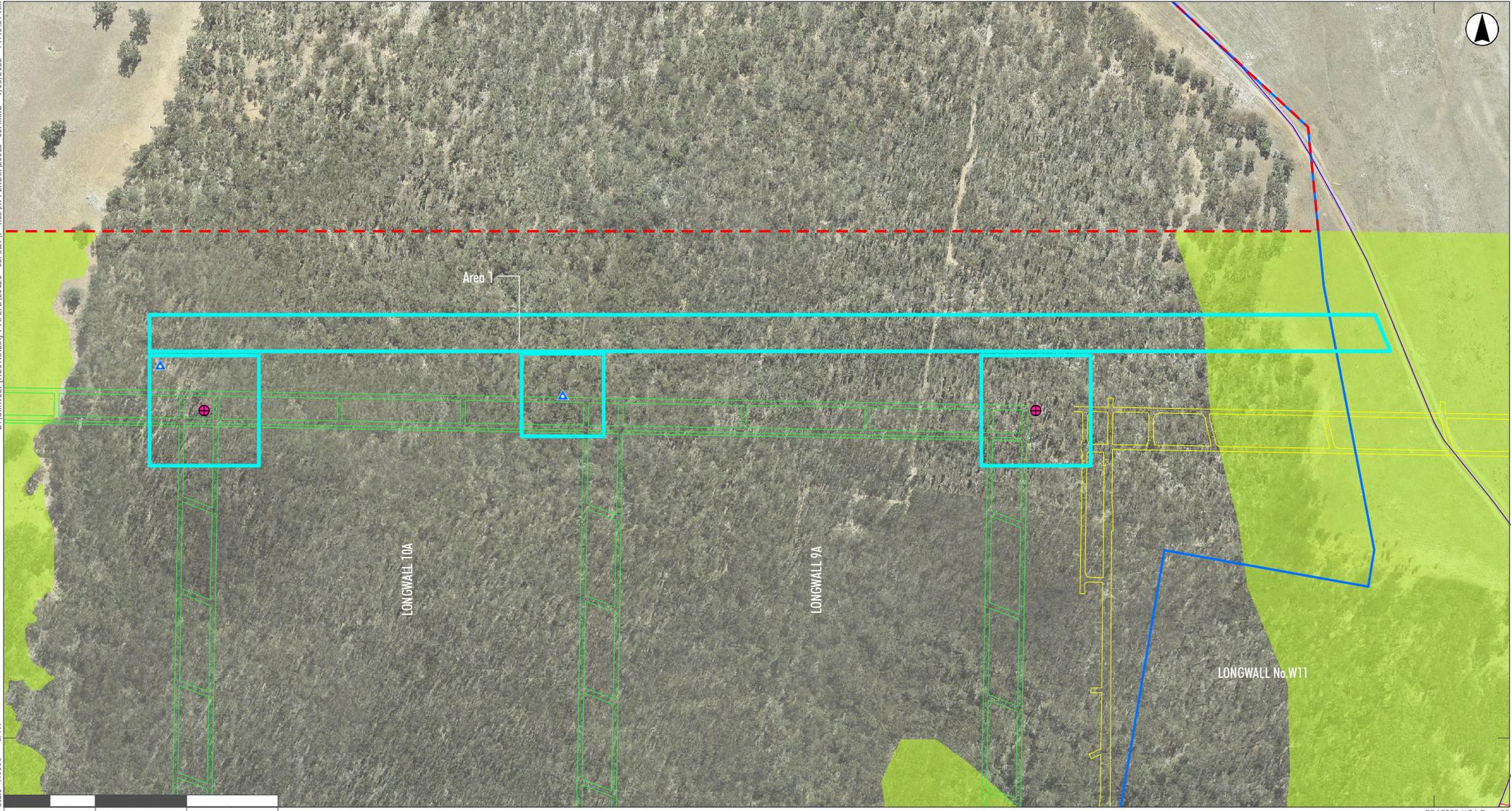
- 281 Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
- 481 - Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region
- 618 - White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley.

The area of each vegetation zone that is considered to comprise the CEEC is listed in **Table 3.3**. Assessment against the NSW and Commonwealth listing descriptions and criteria has concluded that each of these vegetation zones conforms to the NSW and Commonwealth listing of the CEEC. **Figure 3.6** to **Figure 3.8** show the extent of the White Box CEEC within the Proposed Direct Impact Area and **Figure 3.9** shows the extent within the Potential Indirect Impact Area.

Table 3.3 Vegetation Zones within the Referral Area Comprising the White Box Woodland CEEC

PCT	PCT Name	Condition	Area (ha)		
			Referral Area	Proposed Direct Impact Area	Potential Area of Indirect Impact (subsidence affectation area, excluding Direct Impact Areas)
281	Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Derived Native Grassland	23.8	0.3	23.5
281	Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Intact	43.4	1.0	41.7
281	Rough-barked Apple - red gum - yellow box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Thinned	4.1	0.0	4.1
481	Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region	Intact	213.8	3.4	204.1
481	Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region	Derived Native Grassland	137.6	2.7	110.4

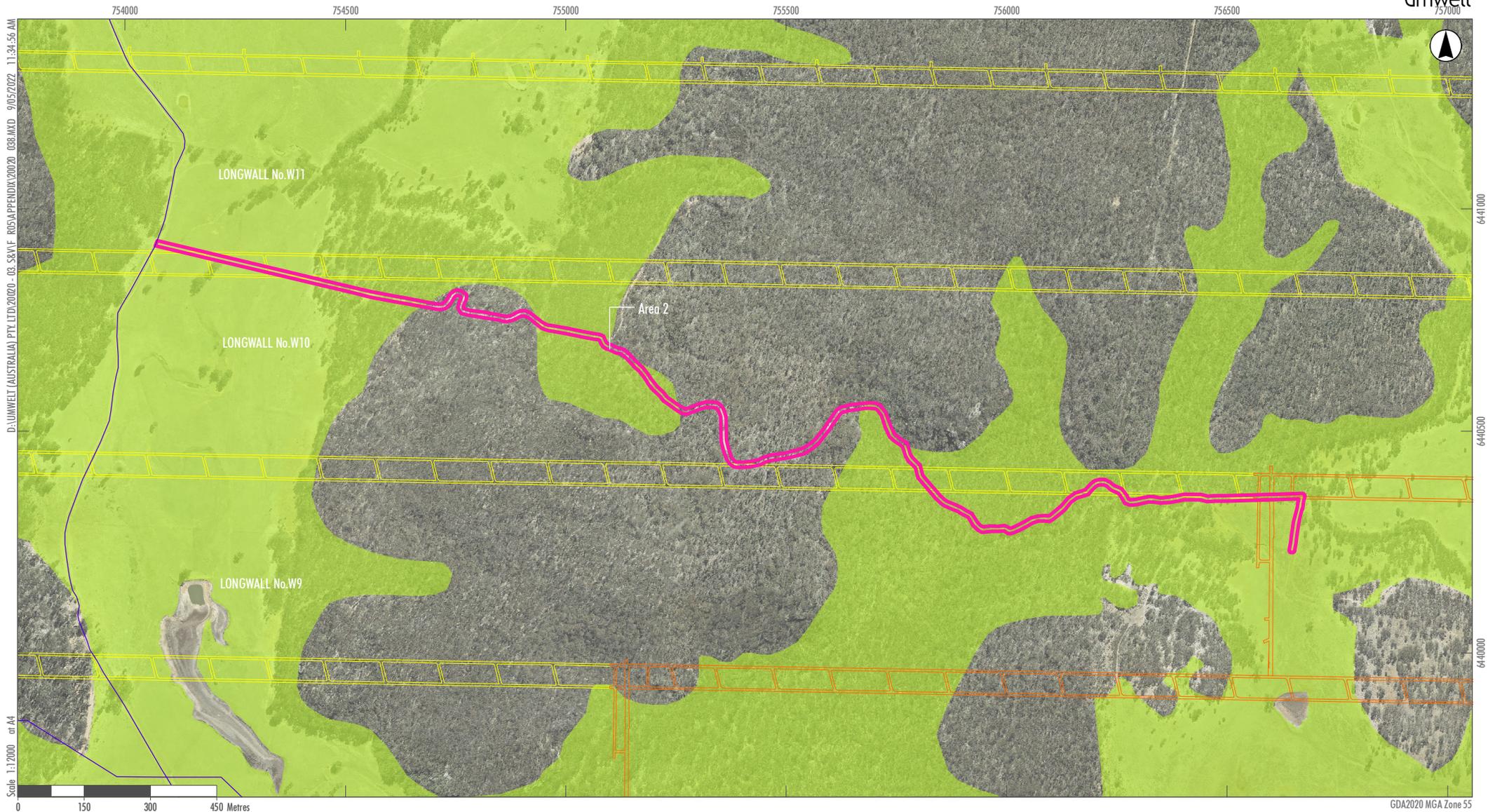
PCT	PCT Name	Condition	Area (ha)		
			Referral Area	Proposed Direct Impact Area	Potential Area of Indirect Impact (subsidence affectation area, excluding Direct Impact Areas)
481	Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region	Regeneration	8.8	0.0	8.8
481	Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on the southern Brigalow Belt South Bioregion and Upper Hunter region	Thinned	10.9	0.0	9.1
618	White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Thinned	3.8	2.1	1.5
618	White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	Derived Native Grassland	6.0	0.0	6.0
TOTAL DNG			167.4	3.0	139.9
TOTAL Woodland			284.8	6.5	269.3
TOTAL			452.2	9.5	409.2



Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Approved Infrastructure
- ⊕ Proposed Vent Shaft
- △ Proposed Dewatering Bores
- Proposed Infrastructure
- Proposed Access Track Corridor
- Proposed Ulan West Underground Mine Plan Modification
- Proposed Ulan Underground Mine Plan Modification
- White Box - Yellow Box - Blakely's Red Gum CEEC

FIGURE 3.6
Extent of White Box - Yellow Box - Blakely's Red Gum CEEC (Area 1)

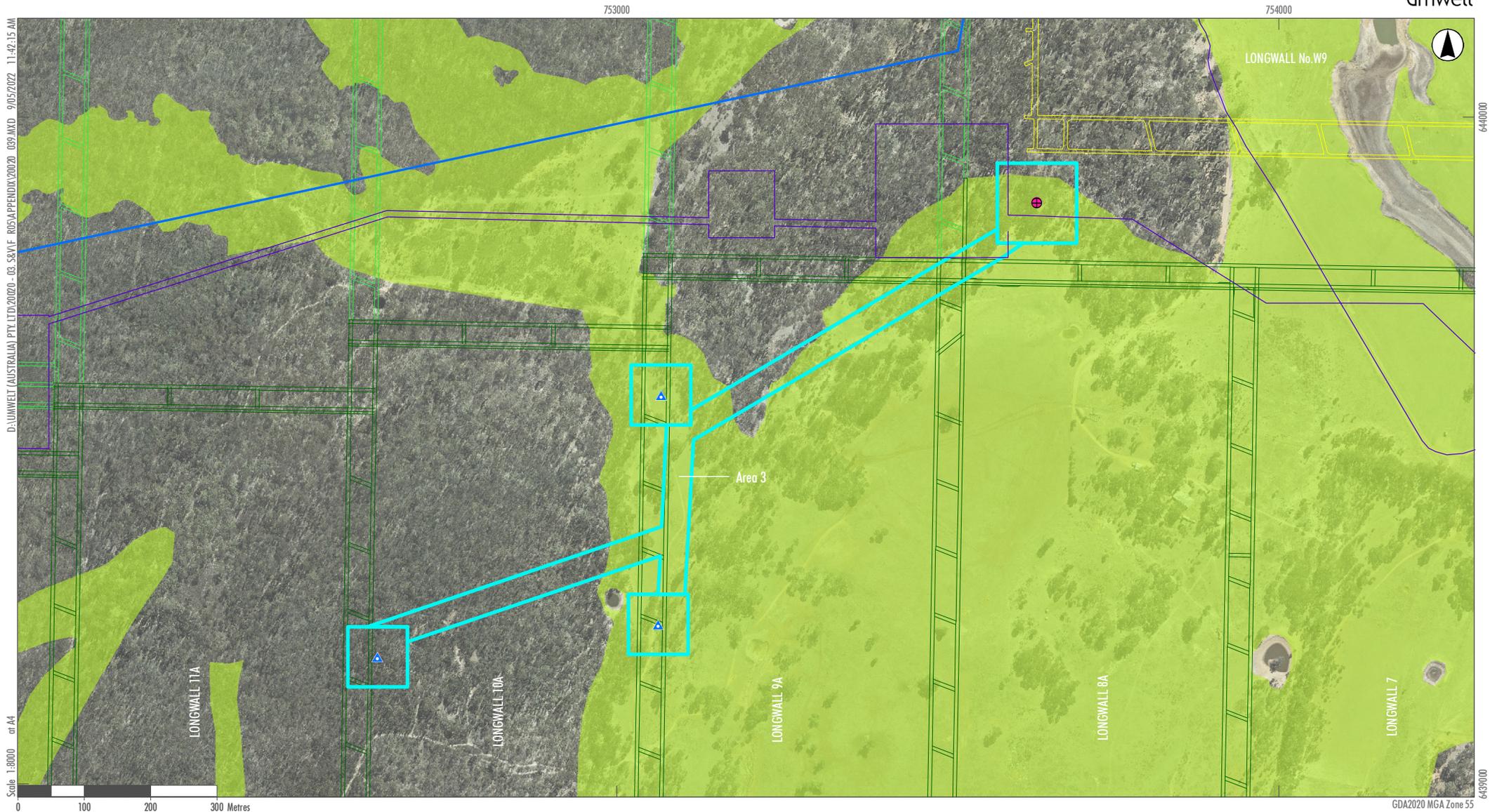


Legend

-  Approved Infrastructure
-  Approved Ulan Underground Mine Plan
-  Proposed Ulan Underground Mine Plan Modification
-  Proposed Access Track Corridor
-  White Box - Yellow Box - Blakely's Red Gum CEEC

FIGURE 3.7

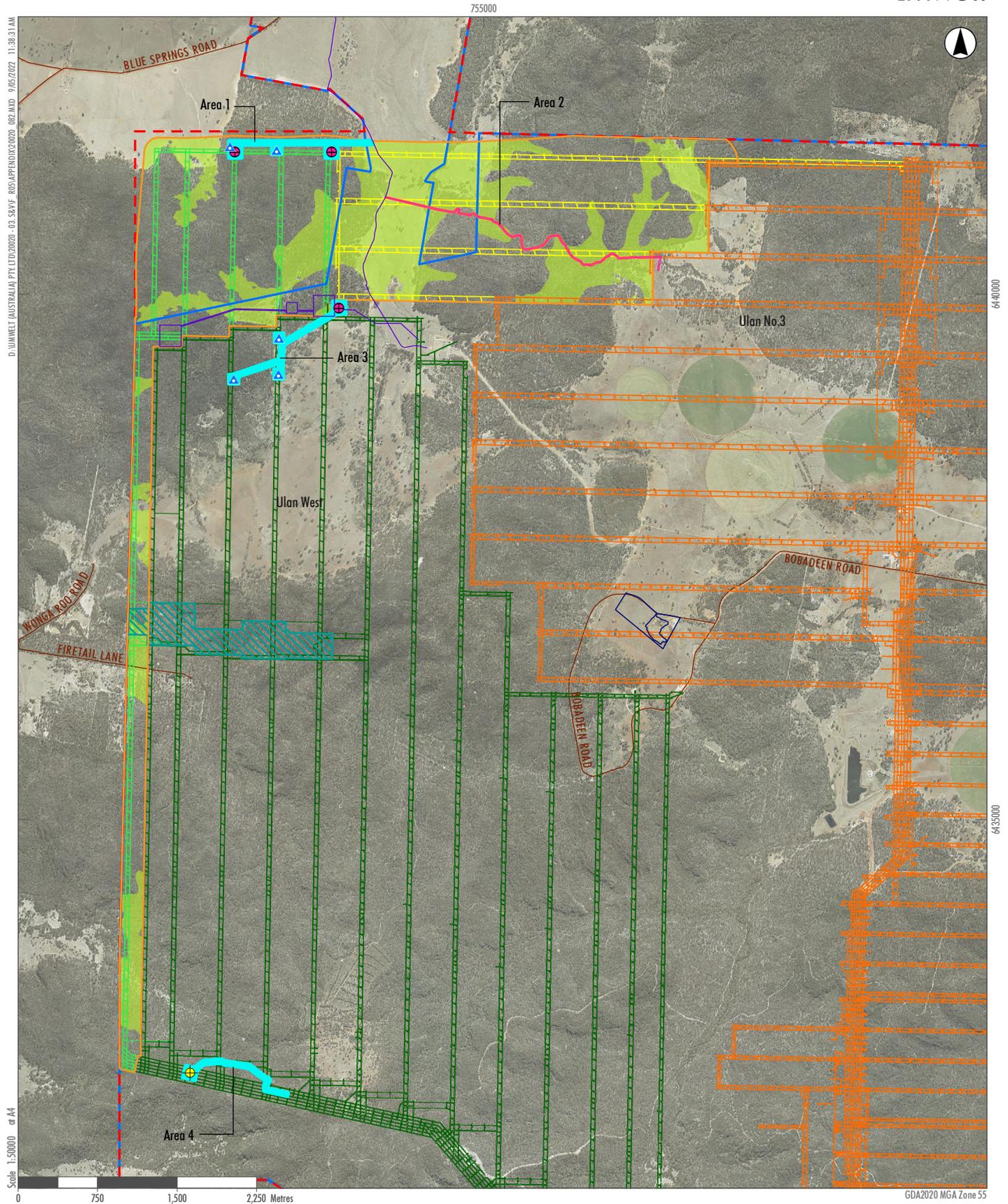
Extent of White Box - Yellow Box - Blakely's Red Gum CEEC (Area 2)



Legend

- Project Approval Boundary
- Approved Ulan West Mine Plan
- Approved Infrastructure
- Proposed Infrastructure
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification
- ⊕ Proposed Vent Shaft
- ▲ Proposed Dewatering Bores
- White Box - Yellow Box - Blakely's Red Gum CEEC

FIGURE 3.8
Extent of White Box - Yellow Box - Blakely's Red Gum CEEC (Area 3)



Legend

- | | | |
|------------------------------------|-------------------------------------|---|
| Project Approval Boundary | Existing Surface Infrastructure | Proposed Borehole |
| Proposed Project Approval Boundary | Approved Ulan Underground Mine Plan | Proposed Vent Shaft |
| Potential Indirect Impact Area | Approved Ulan West Mine Plan | Proposed Dewatering Bores |
| Brokenback Conservation Area | Approved Infrastructure | Proposed Infrastructure |
| Bobadeen Quarry | | Proposed Access Track Corridor |
| Roads | | Proposed Ulan Underground Mine Plan Modification |
| Railway | | Proposed Ulan West Underground Mine Plan Modification |
| Major Watercourses | | White Box - Yellow Box - Blakely's Red Gum CEEC |

FIGURE 3.9

Extent of White Box - Yellow Box - Blakely's Red Gum CEEC within the Potential Indirect Impact Area

The condition thresholds of the CEEC as per the Commonwealth listing advice are listed below:

- At least one of the most common overstorey species is (or was previously) White Box, Yellow Box or Blakeley's Red Gum
- The patch has a predominantly native understorey (i.e. at least 50% of the perennial vegetation cover in the ground layer is made up of native species)
- The patch is >0.1 ha in size
- There are 12 or more native understorey species present (excluding grasses), including at least one important species.

The PCTs listed in **Table 3.3** above, all exhibited a predominantly native understorey and exceeded the minimum patch size of 0.1 ha that is specified in the Listing Advice (TSSC 2006). The dominant canopy tree in PCT 481 (excluding DNG condition) was Blakeley's red gum (*Eucalyptus blakelyi*), in PCT 618 this was white box – grey box intergrades (*Eucalyptus albens* – *moluccana*) and PCT 281 it was yellow box (*Eucalyptus melliodora*). These PCTs also met the Listing Advice criteria of containing at least 12 or more native understorey species (there may be small patches of the DNG condition types at times may not meet this criteria, however overall the DNG was found to meet these thresholds).

Note that PCT 618 contains *Eucalyptus albens* x *moluccana* hybrid as the dominant tree species, however is still considered to comprise the CEEC. The Commonwealth TSSC released formal advice on 20 December 2010 in relation to the presence of hybrids in listed ecological communities. The advice states that “the opinion of the TSSC is that the presence of natural hybrids of any taxa within any ecological community currently listed under the EPBC Act does not render the areas of the ecological community in which hybrids occur ineligible for protection”. Similarly, the NSW Scientific Committee Final Determination (July 2020) for the White Box Woodland CEEC states that in the upper Hunter and Goulburn River Valleys, “the CEEC can be dominated by *Eucalyptus* ‘albemol’ (a presumed intergrade between *E. albens* and *E. moluccana*)”.

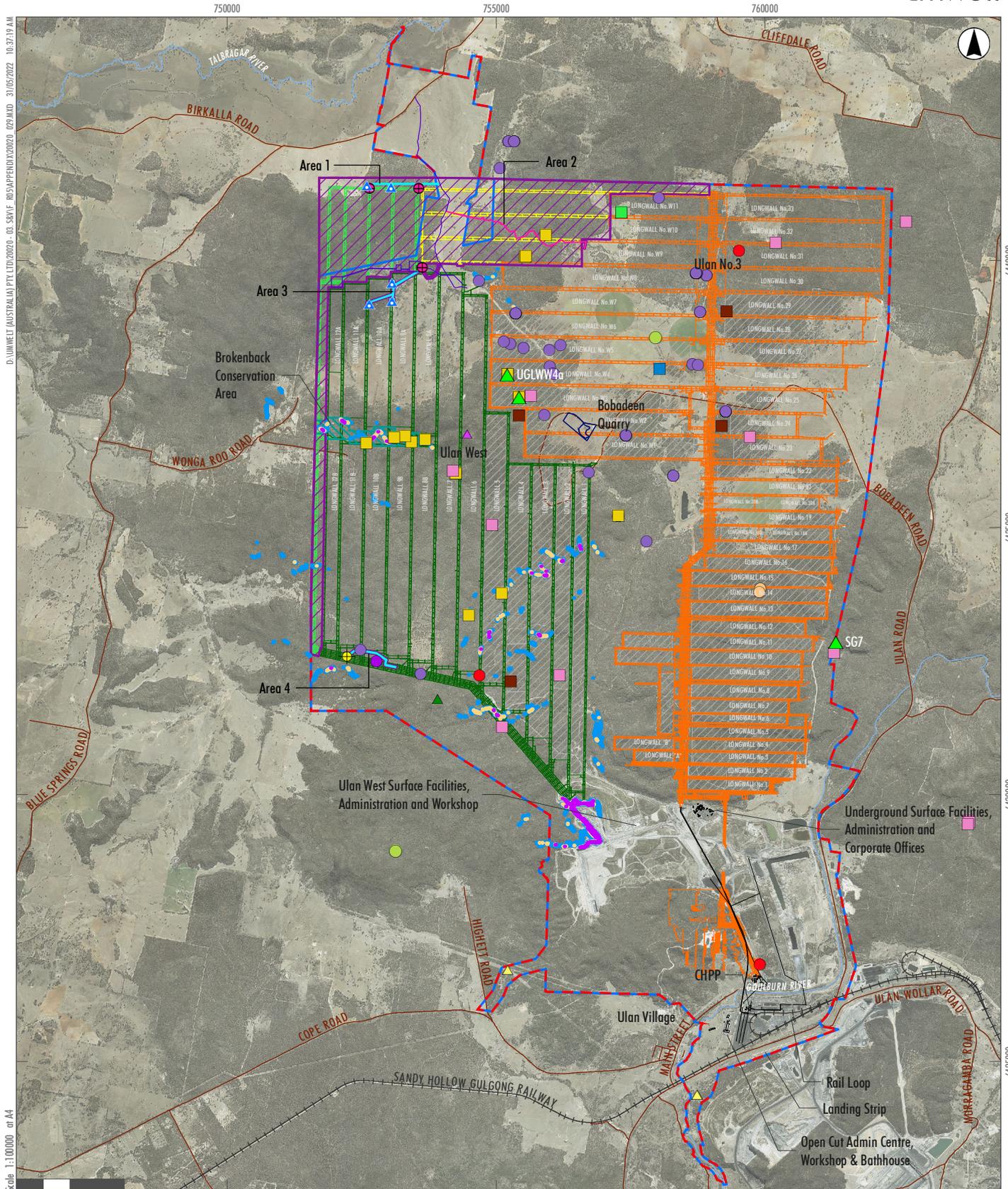
Approximately 6.5 ha of woodland and 3 ha of derived native grassland of *White Box – Yellow Box – Blakeley's Red Gum Woodland and Derived Native Grassland* CEEC will be directly impacted by the Proposed Action for the development of surface infrastructure (a total of 9.5 ha). The CEEC occurs within the proposed longwall mining expansion areas, however indirect impacts associated with subsidence are anticipated to be negligible based on the subsidence assessment findings and the previous ecological monitoring in subsided areas. Further analysis of the significance of the Proposed Action on this CEEC is provided in **Section 4.0**. To date, there have not been any repairs due to subsidence required in any areas of the CEEC as a result of any past mining at Ulan. Eco Logical Australia Pty Ltd undertook a detailed study of vegetation communities up to 20 years post mining in 2015, with the aim of determining whether longwall mine-related subsidence at Ulan Underground has had an impact upon the condition of vegetation communities onsite. This study found no statistically significant difference between vegetation communities where mining had previously occurred and vegetation communities remote to mining (Eco Logical 2015a).

3.3 Threatened Species

One EPBC Act listed threatened species was recorded within the Proposed Direct Impact Area (painted honeyeater) and one species was recorded within the wider Referral Area (large-eared pied-bat).

A painted honeyeater (*Grantiella picta*) was recorded by call during the October 2020 field survey, in Area 4 of the Proposed Direct Impact Area (**Figure 3.10**). No other EPBC Act listed threatened species were recorded within the Referral Area despite extensive survey over multiple seasons between August 2020 and February 2022.

Further detail on the large-eared pied-bat records are provided in **Section 3.4**.



D:\UMWELT (AUSTRALIA) PTY LTD\2020 - 03_S&VF_RS\APPENDIX\2020_039.MXD 31/05/2022 10:37:19 AM
 Scale 1:1,000,000 at A4

GDA2020 MGA Zone 55

- | | |
|--|--|
| <p>Legend</p> <ul style="list-style-type: none"> Project Approval Boundary Proposed Project Approval Boundary Referral Area Brokenback Conservation Area Bobadeen Quarry Existing Surface Infrastructure Approved Ulan Underground Mine Plan Approved Ulan West Mine Plan Previously Mined Approved Infrastructure ● Proposed Borehole ▲ Proposed Vent Shaft ▲ Proposed Dewatering Bores ■ Proposed Infrastructure — Proposed Access Track Corridor Proposed Ulan Underground Mine Plan Modification Proposed Ulan West Underground Mine Plan Modification ▲ Monitoring Site/Known Breeding Roost for Large-eared Pied-bat ▲ Potential Micro-bat scats in small sandstone crevice ▲ <i>Commersonia procumbens</i> | <p>Cliff Lines</p> <ul style="list-style-type: none"> 20m 30m 35m <p>Threatened Species</p> <ul style="list-style-type: none"> ● Brush-tailed Rock Wallaby ■ Corben's Long-eared Bat ● Grey-headed Flying-fox ● Koala ■ Large-eared Pied Bat ■ Latham's Snipe ● Painted Honeyeater ■ Swift Parrot ■ White-throated Needletail ▲ <i>Leucochrysum albicans</i> var. <i>tricolor</i> ▲ <i>Homoranthus darwinioides</i> |
|--|--|

FIGURE 3.10
EPBC Act listed Threatened Species

Image Source: Glenore (2018) Data source: Glenore (2020); NSW DFSI (2020)

3.4 Targeted Microbat Assessment

3.4.1 Cliff Line Habitat Assessment

Cliff lines within the Proposed Direct Impact Area and surrounds were investigated for their suitability for roosting and/breeding by threatened micro-bat species, in particular EPBC Act listed large-eared pied bat (*Chalinolobus dwyeri*).

UCC's modelled cliff line mapping was consulted to determine the locations of potential cliff line habitat in proximity to the Proposed Direct Impact Area and within the wider Potential Indirect Impact Area. Modelled cliff line mapping is shown on **Figure 3.10**, along with the locations of two known breeding sites for the large-eared pied-bat.

In the Proposed Direct Impact Area, habitat assessment identified potentially suitable roosting habitat in Areas 1, 2 and 4. Area 1 traverses a section of low sandstone boulders and outcropping. This and other rocky habitat runs through the proposed Ulan West Underground Mine Modification area, south of the Area 1 Direct Impact Area, although none of these officially confirm to 'cliff lines' (i.e. all lower than 10m). Examples of the rocky habitats in Area 1 are shown on **Photo 3.1** and **Photo 3.2**. No evidence of microbats was observed during searches however very small overhangs and caves are present which are potentially suitable roosting habitat of low quality, which could only support small numbers. No habitats suitable as large maternity roosts were identified.



Photo 3.1 Example of sandstone outcropping, Area 1



Photo 3.2 Example of low sandstone outcropping, near Q18, Area 1