

Attachment 5

Offset Management Strategy

WINCHESTER SOUTH PROJECT

Environmental Impact Statement



WHITEHAVEN COAL



Resource
Strategies

WINCHESTER SOUTH PROJECT

OFFSET MANAGEMENT STRATEGY



JUNE 2021
Project No. WHC-18-62
Document No. 01060587

TABLE OF CONTENTS

EXECUTIVE SUMMARY	5-III
A5 OFFSET MANAGEMENT STRATEGY	5-1
A5.1 INTRODUCTION	5-1
A5.1.1 Background	5-1
A5.1.2 Commonwealth Offset Requirements	5-4
A5.1.3 State Offset Requirements	5-5
A5.2 PROJECT OFFSET STAGES	5-7
A5.2.1 Description of the Stages	5-7
A5.2.2 Staged Offset Delivery	5-7
A5.3 STAGE 1 OFFSET FOR MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE	5-11
A5.3.1 Description of the Stage 1 Offset Area for Matters of National Environmental Significance	5-11
A5.3.2 Ecological Surveys of the Stage 1 Offset Area	5-15
A5.3.3 Matters of National Environmental Significance in the Stage 1 Offset Area	5-15
A5.3.4 Reconciliation of the Stage 1 Offset Area Against Commonwealth Offset Principles	5-21
A5.3.5 Management Measures	5-22
A5.3.6 Legal Security	5-22
A5.4 STAGE 1 OFFSET FOR MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE	5-24
A5.4.1 Regulated Vegetation	5-24
A5.4.2 Regional Ecosystems within the Defined Distance of a Vegetation Management Watercourse	5-24
A5.4.3 Protected Wildlife Habitat	5-24
A5.4.4 Connectivity	5-25
A5.5 CONCLUSION	5-25
A5.6 REFERENCES	5-26

LIST OF TABLES

Table A5-1	Terms of Reference for the Project Relevant to MNES
Table A5-2	Summary of Impacts to Matters of National Environmental Significance for the Project
Table A5-3	Terms of Reference for the Project Relevant to Matters of State Environmental Significance
Table A5-4	Summary of Impacts to Matters of State Environmental Significance for the Project
Table A5-5	Potential Offset Availability within the Region for Stages 2 and 3 Impacts to MNES
Table A5-6	Stage 1 Offset Area Description
Table A5-7	Stage 1 Offset Areas for Matters of National Environmental Significance
Table A5-8	Reconciliation of the Stage 1 Offset Areas against the Commonwealth Offset Principles

LIST OF FIGURES

Figure A5-1	Project Location
Figure A5-2	General Arrangement
Figure A5-3	Biodiversity Offset Staging
Figure A5-4	Offset Area A
Figure A5-5	Offset Area B
Figure A5-6	Offset Area C
Figure A5-7	Offset Area A - Matters of National Environmental Significance
Figure A5-8	Offset Area B - Matters of National Environmental Significance
Figure A5-9	Offset Area C - Matters of National Environmental Significance

EXECUTIVE SUMMARY

This document describes the strategy proposed by Whitehaven WS Pty Ltd (Whitehaven WS) to offset the significant residual impacts from the Winchester South Project (the Project) on Matters of National Environmental Significance and Matters of State Environmental Significance in accordance the Project Terms of Reference for the Environmental Impact Statement.

Biodiversity offsets would be established for the Project in stages accounting for the progressive disturbance of the Project. This document provides the details of three land-based offset areas for impacts associated with the first stage of the Project on Matters of National Environmental Significance listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The biodiversity offsets for Stage 1 cover a total of 3,505 hectares and are referred to as Offset Area A, Offset Area B and Offset Area C.

A desktop review and field surveys have been undertaken on the offset areas and have assessed the suitability of the offset against the requirements of the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy 2012* and *Offsets Assessments Guide*. It is concluded that the three offset areas would sufficiently offset the impacts from the first stage of the Project on relevant Matters of National Environmental Significance, namely the *Poplar Box Grassy Woodland on Alluvial Plains* threatened ecological community, *Natural Grasslands of the Queensland Central Highlands and the Northern Fitzroy Basin* threatened ecological community and habitat for the Ornamental Snake (*Denisonia maculata*), Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*), Koala (combined populations of Queensland, New South Wales [NSW] and the Australian Capital Territory [ACT]) (*Phascolarctos cinereus*) and Greater Glider (*Petauroides volans*). The future quality of the Matters of National Environmental Significance habitat in the offset areas would be increased over time through the implementation of management measures.

A desktop review has also been undertaken of available properties within the region, which demonstrates that impacts to MNES associated with Stages 2 and 3 can be offset with land currently available within the region.

There are a number of mechanisms by which Whitehaven WS can legally secure and manage offset areas for the Project. The currently preferred mechanism is to establish a legally binding agreements with the current registered landholders. This could be achieved by establishing an Offset Agreement with the current registered landholders to enter a Voluntary Declaration under the *Vegetation Management Act 1999*.

An approach for providing offsets for Matters of State Environmental Significance for Stage 1 is described in this document, which is likely to include part of one or more of the offset areas identified to meet offset requirements for Matters of National Environmental Significance. A Notice of Election would be prepared and submitted to DES prior to the commencement of each stage. The notification would identify the intended offset delivery approach, and whether the offset is to be delivered as a:

- proponent-driven offset (i.e. a traditional land-based offset);
- financial settlement offset; or
- combination of proponent-driven offset and financial settlement offset.

Whitehaven WS would enter into an agreed delivery arrangement with the DES to offset impacts on Matters of State Environmental Significance.

A5 OFFSET MANAGEMENT STRATEGY

A5.1 INTRODUCTION

This document describes the strategy proposed by Whitehaven WS Pty Ltd (Whitehaven WS) to offset the significant residual impacts from the Winchester South Project (the Project) on Matters of National Environmental Significance (MNES) and Matters of State Environmental Significance (MSES) in accordance the Project Terms of Reference for the Environmental Impact Statement (EIS), which was issued in September 2019.

A5.1.1 Background

Whitehaven WS proposes to develop the Project, within the Bowen Basin, located approximately 30 kilometres (km) south-east of Moranbah, within the Isaac Regional Council Local Government Area (Figures A5-1 and A5-2). The Project involves the development of an open cut coal mine in an existing mining precinct for export of coal products. The Project would include construction and operation of a mine infrastructure area (MIA), including a Coal Handling and Preparation Plant (CHPP), train load-out facility and rail spur, which would be used for the handling, processing and transport of coal. An infrastructure corridor would also form part of the Project, including a raw water supply pipeline connecting to the Eungella pipeline network, an electricity transmission line (ETL) and a mine access road.

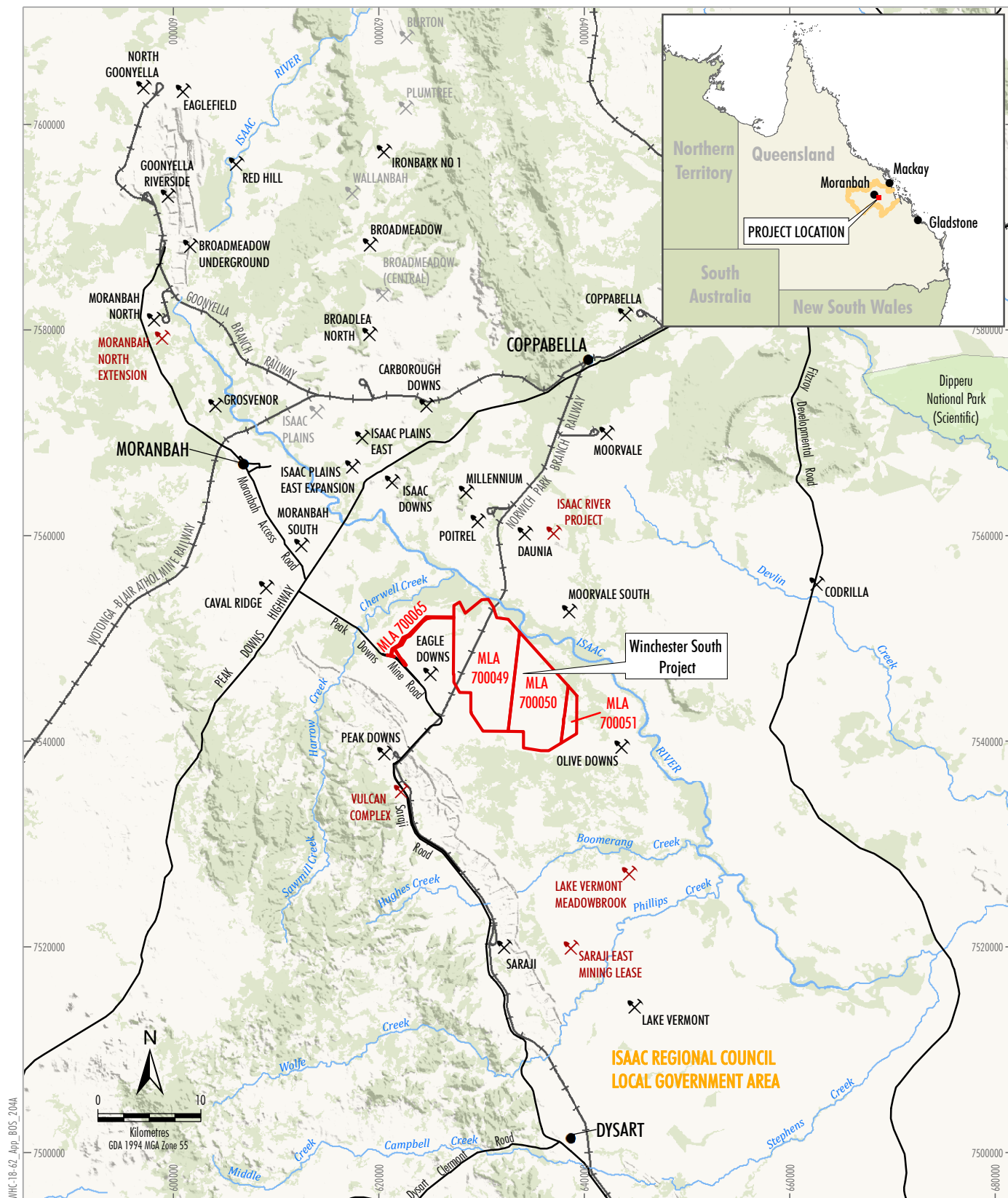
The Coordinator-General declared the Project to be a ‘coordinated project for which an EIS is required under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971*.

Three referrals have been made under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) regarding the three different components of the Project. A delegate of the Commonwealth Minister for the Environment determined the following controlling provisions apply for each action under the EPBC Act:

- Winchester South Mine Site and Access Road (EPBC 2019/8460):
 - listed threatened species and communities (sections 18 and 18A); and
 - a water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E).
- Winchester South Water Pipeline (EPBC 2019/8459):
 - listed threatened species and communities (sections 18 and 18A).
- Winchester South Project ETL (EPBC 2019/8458):
 - listed threatened species and communities (sections 18 and 18A).

This document has been developed to describe the strategy to address the potential residual significant impacts on biodiversity values associated with the Project in accordance the following Acts and policies:

- the EPBC Act;
- the *Environmental Offsets Act 2014*;
- the *Queensland Environmental Offsets Policy (Version 1.9)* (Department of Environment and Science [DES], 2020a); and
- the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (Department of Sustainability, Environment, Water, Population and Communities [DSEWPaC], 2012a) (and supporting *Offsets Assessment Guide* [DSEWPaC, 2012b]).

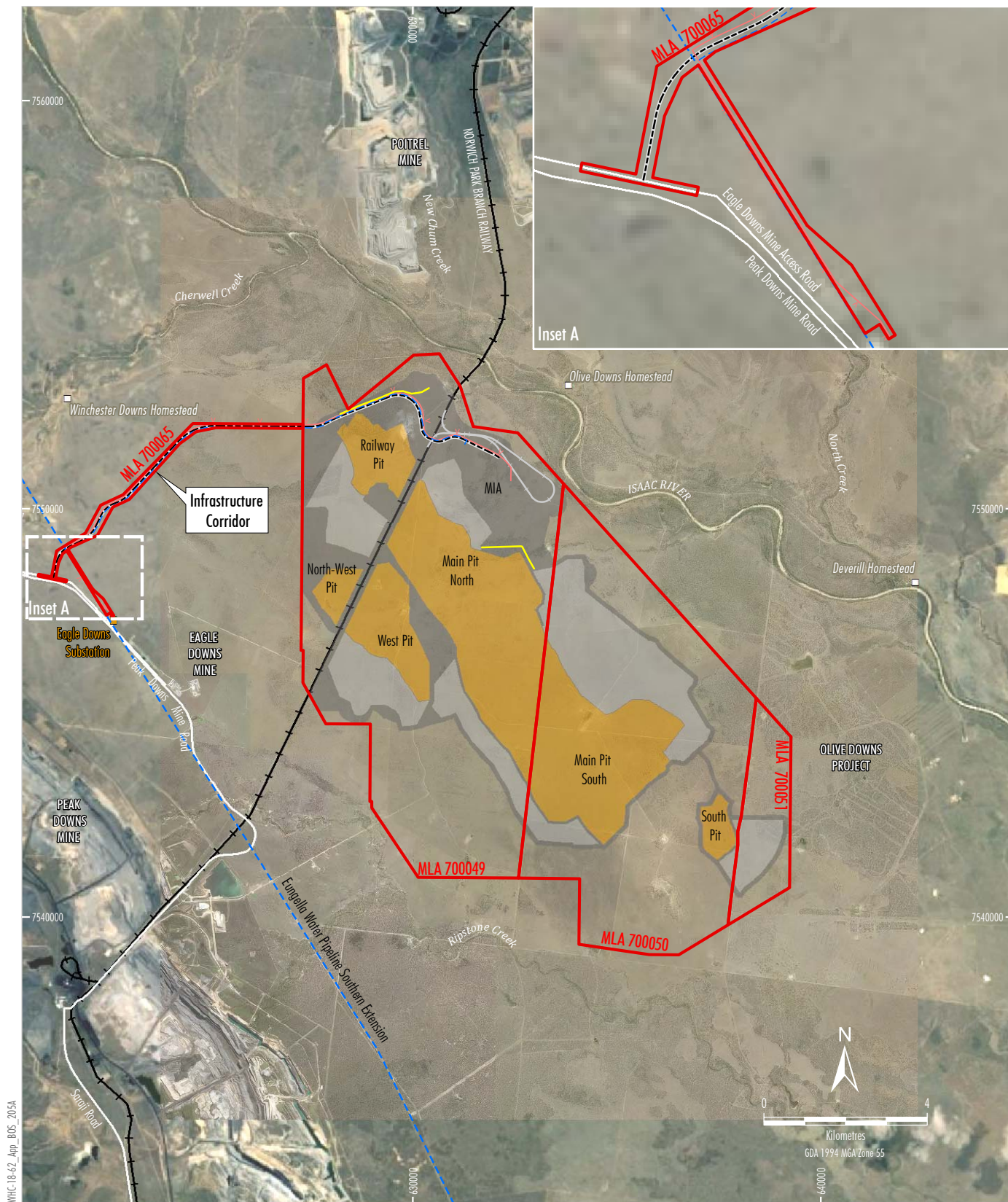


- LEGEND**
- Mining Lease Application Boundary
 - ✂ Approved/Operating
 - ✂ Proposed
 - ✂ Care and Maintenance
 - Local Government Area Boundary
 - +— Railway
 - Road

Source: The State of Queensland (2018 - 2020);
Geoscience Australia (2018).

WHITEHAVEN COAL
WINCHESTER SOUTH PROJECT
Project Location

Figure A5-1



WHC-18-62_Atp_BOS_205A

- LEGEND**
- Mining Lease Application Boundary
 - Eungella Water Pipeline Southern Extension
 - Railway
 - Substation

Project Component*

- Indicative Infrastructure Area
- Indicative Out-of-pit Waste Rock Emplacement
- Indicative Open Cut Pit Including In-pit Waste Rock Emplacement
- Indicative Mine Access Road
- Indicative Rail Spur and Loop
- Indicative Electricity Transmission Line
- Indicative Raw Water Supply Pipeline
- Indicative Flood Levee

*Note: * Excludes some project components such as water management infrastructure, access tracks, topsoil stockpiles, explosives magazines, power reticulation, temporary offices, other ancillary works and construction disturbance.*

Source: The State of Queensland (2018 - 2020); Whitehaven (2020).
Orthophoto: Google Image (2019); Whitehaven (2017).


WINCHESTER SOUTH PROJECT
General Arrangement

Figure A5-2

A5.1.2 Commonwealth Offset Requirements

Table A5-1 provides a reconciliation of sections of this document which satisfy the components of the Terms of Reference relevant to MNES. The offset management plan requirements are discussed in Section A5.3.5.

Table A5-1
Terms of Reference for the Project Relevant to Matters of National Environmental Significance

Terms of Reference	Requirement	Section Addressed
Matters of National Significance – Offsets		
11.183	<i>For each of the proposed actions the MNES chapter must include an assessment of the likelihood of residual significant impacts occurring on listed threatened species and communities after avoidance, mitigation and management measures relating to the projects have been applied. If it is determined that a residual significant impact is likely, include a draft Offset Management Strategy (as an appendix to the EIS) that provides, at a minimum:</i>	This Attachment
	<i>(a) details of the environmental offset/s (in hectares) for residual significant impacts of the proposed action on relevant MNES, and/or their habitat;</i>	Section A5.1.2
	<i>(b) details of how the environmental offset/s meets the requirements of the Department's EPBC Act Environmental Offsets Policy (2012) (EPBC Act Offset Policy), including the Offsets Assessments Guide, available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy;</i>	Section A5.3.4
	<i>(c) details of a strategy for the staging of environmental offset/s for each project stage (if proposed);</i>	Section A5.2
	<i>(d) details of appropriate offset area/s (including a map) to compensate for the residual significant impact on relevant MNES, and/or their habitat;</i>	Section A5.3
	<i>(e) information about how the proposed offset/s area provides connectivity with other relevant habitats and biodiversity corridors; and</i>	Section A5.4.4
	<i>(f) details of the mechanism to legally secure the environmental offset/s (under Queensland legislation or equivalent) to provide protection for the offset area/s against development incompatible with conservation.</i>	Section A5.3.6

E2M Pty Ltd (E2M) (2021) considered impact avoidance and mitigation measures and identified that the Project would result in significant residual impacts on the following MNES listed under the EPBC Act:

- *Poplar Box Grassy Woodland on Alluvial Plains* threatened ecological community (Poplar Box TEC);
- *Natural Grasslands of the Queensland Central Highlands and Northern Fitzroy Basin* threatened ecological community (Natural Grasslands TEC);
- Ornamental Snake (*Denisonia maculata*);
- Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*);
- Koala (combined populations of Queensland, New South Wales [NSW] and the Australian Capital Territory [ACT]) (*Phascolarctos cinereus*); and
- Greater Glider (*Petauroides volans*).

The Project's residual impacts where related to MNES are provided in Table A5-2. The extent of MNES and the relevant habitat in the Project area are provided in Section 5 of the Main Text of the EIS.

Table A5-2
Summary of Impacts to Matters of National Environmental Significance for the Project

Matter of National Environmental Significance	Infrastructure Corridor (EPBC 2019/8458) (ha) ¹	Mine Site and Access Road (EPBC 2019/8460) ² (ha)				Total (ha)			Overall Total (ha)
	Stage 1	Stage 1	Stage 2	Stage 3	Total	Stage 1 ³	Stage 2	Stage 3	
Natural Grasslands TEC	6.5	59.8	14.6	0	74.4	66.3	14.6	0	80.9
Poplar Box TEC	0	9.6	0	0	9.6	9.6	0	0	9.6
Ornamental Snake (<i>Denisonia maculata</i>)	12.3	790.5	770.4	261.0	1,821.9	802.8	770.4	261.0	1,834.2
Squatter Pigeon (southern subspecies) (<i>Geophaps scripta scripta</i>)	0	149.7	0	111.5	261.2	149.7	0	111.5	261.2
Koala (combined populations of Queensland, NSW and the ACT) (<i>Phascolarctos cinereus</i>)	35.9	167.1	0	111.5	278.6	203	0	111.5	314.5
Greater Glider (<i>Petauroides volans</i>)	0	132.8	0	34.3	167.1	132.8	0	34.3	167.1

ha = hectares.

¹ Disturbance associated with the ETL Action (EPBC 2019/8458), Water Pipeline Action (EPBC 2019/8459) and Mine Site and Access Road Action (EPBC 2019/8460) within MLA 700065 is assessed under the ETL Action (EPBC 2019/8458).

² Disturbance associated with the ETL Action (EPBC 2019/8458), Water Pipeline Action (EPBC 2019/8459) and Mine Site and Access Road Action (EPBC 2019/8460) within MLA 700049, MLA 700050 and MLA 700051 is assessed under the Mine Site and Access Road Action (EPBC 2019/8460).

³ The ETL Action (EPBC 2019/8458), Water Pipeline Action (EPBC 2019/8459) and Mine Site and Access Road Action (EPBC 2019/8460) within MLA 700065 are assessed entirely within Stage 1 of the Project.

A5.1.3 State Offset Requirements

Table A5-3 provides a reconciliation of sections of this document which satisfy the components of the Terms of Reference relevant to MSES.

Table A5-3
Terms of Reference for the Project Relevant to Matters of State Environmental Significance

Terms of Reference	Requirement	Section Addressed
11.27	<i>The EIS should identify whether the Project would result in a significant residual impact on MSES with reference to the Queensland Environmental Offsets Policy, Significant Residual Impact Guideline 2014. The EIS should reference relevant parts of the Guide to determining terrestrial habitat quality (see Appendix 1) and must demonstrate that offsetting is the preferred option after all avoidance and mitigation measures have been considered, in accordance with the Environmental Offsets Act 2014.</i>	Sections A5.1.3 and A5.4
11.28	<i>Identify and illustrate the extent of any overlap between MNES and MSES.</i>	Section A5.1.3
11.29	<i>For any significant residual impact, propose offsets that are consistent with the following requirements as set out in applicable State and Commonwealth legislation or policies:</i> <i>(a) where a significant residual impact will occur on a prescribed environmental matter as outlined in the Environmental Offsets Regulation 2014, the offset proposal(s) must be consistent with the requirements of Queensland's Environmental Offsets Act 2014 and the latest version of the Queensland Environmental Offsets Policy (Version 1.6) 2018 (see Appendix 1)</i> <i>(b) where Commonwealth offset policy requires an offset for significant residual impacts on a MNES, the offset proposal(s) must be consistent with the requirements of the EPBC Act Environmental Offsets Policy (October 2012), the Offsets assessment guide and relevant guidelines.</i>	Sections A5.1.3 and A5.4
11.30	<i>For staged offsets, the full extent of potential impacts on prescribed environmental matters from the entire proposal needs to be taken into account as part of the significant residual impact test.</i>	Sections A5.1.3 and A5.2

The Project has potential to result in significant residual impacts on a number of MSES, after consideration of the *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a), and *Significant Residual Impact Guideline* (DES, 2014). Offsetting is the preferred option of addressing significant residual impacts.

The significant residual impacts on MSES are provided in Table A5-4. The extent of MSES and/or the relevant habitat in the Project area are provided in Section 4 of the Main Text of the EIS.

Table A5-4
Summary of Impacts to Matters of State Environmental Significance for the Project

Matter of State Environmental Significance	Broad Vegetation Group (BVG)	Stage 1 (ha)	Stage 2 (ha)	Stage 3 (ha)	Total (ha)
Regulated Vegetation - Endangered Regional Ecosystem					
RE 11.3.1	25a	64.5	-	-	64.5
RE 11.4.8		2.4	-	-	2.4
RE 11.4.9		3.7	-	19.4	23.1
RE 11.9.5		17.7	-	-	17.7
Regulated Vegetation - Of Concern Regional Ecosystem					
RE 11.3.2	This MSES is equivalent to the Poplar Box TEC, and the offset requirement is provided in Table A5-2.				
RE 11.3.3c	16c	6.9	-	-	6.9
RE 11.3.4		39.8	-	-	39.8
Regulated Vegetation - Regional Ecosystems within the Defined Distance of a Vegetation Management Watercourse					
RE 11.3.1	25a	1.3	-	-	1.3
RE 11.4.4	The relevant area of this MSES is equivalent to Natural Grasslands TEC, and the offset requirement is provided in Table A5-2.				
RE 11.9.3	30b	3.1	-	-	3.1
Regulated Vegetation - Essential Habitat					
Refer to Ornamental Snake below.					
Protected Wildlife Habitat					
<i>Solanum adenophorum</i>	N/A	0.2	0	0	0.2
Ornamental Snake (<i>Denisonia maculata</i>)	This is an MNES, offset requirement is provided in Table A5-2.				
Koala (combined populations of Queensland, NSW and the ACT) (<i>Phascolarctos cinereus</i>)	This is an MNES, offset requirement is provided in Table A5-2.				
Greater Glider (<i>Petauroides volans</i>)	This is an MNES, offset requirement is provided in Table A5-2.				
Squatter Pigeon (southern subspecies) (<i>Geophaps scripta scripta</i>)	This is an MNES, offset requirement is provided in Table A5-2.				
Connectivity					
Remnant REs	N/A	556	33	130.9	719.9

RE = Regional Ecosystem.

The *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a) states that the State Government can only impose an offset condition in relation to a prescribed activity if the same matter has not been subject to assessment under the EPBC Act. The relevant MSES that are equivalent to MNES are identified in Table A5-4 as these matters will be offset under the EPBC Act.

E2M (2021) describes how the *Guide to Determining Terrestrial Habitat Quality* (DES, 2020b) was applied to the Project area. Section A5.3.4 describes how the *Guide to Determining Terrestrial Habitat Quality* (DES, 2020b) can be applied to the offset.

A5.2 PROJECT OFFSET STAGES

Biodiversity offsets would be established for the Project in stages, in accordance with the *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a), accounting for the progressive disturbance of the Project. As required, the full extent of potential impacts on MNES and MSES from the Project has been taken into account as part of the significant residual impacts identified by E2M (2021).

A5.2.1 Description of the Stages

The indicative surface disturbance extent of the Project is approximately 7,130 ha which would be offset for in three distinct stages as shown on Figure A5-3 and outlined below:

- Project Stage 1 Offset Area – Project Year 1 to Project Year 9 (approximately 4,219 ha):
 - construction of the Project water supply pipeline (EPBC 2019/8459);
 - construction of the Project ETL (EPBC 2019/8458);
 - construction of the MIA including the rail loop, dams and CHPP;
 - commencement of mining operations within the Railway Pit, and the Main Pit North and Main Pit South open cut mining areas;
 - emplacement of waste rock material in the Main Pit North out-of-pit waste emplacement, Main Pit South out-of-pit waste emplacement (northern side), and the Railway Pit out-of-pit waste emplacement;
- Project Stage 2 Offset Area – Project Year 10 to Project Year 21 (approximately 2,179 ha):
 - continuation of mining in both Main Pit North and Main Pit South;
 - emplacement of waste rock material in the Main Pit South out-of-pit waste emplacement (southern side);
- Project Stage 3 Offset Area – Project Year 22 to Project Year 29 (approximately 732 ha):
 - commencement of mining in South Pit, West Pit and North-West Pit; and
 - emplacement of waste rock material in the West Pit and South Pit out-of-pit waste rock emplacements.

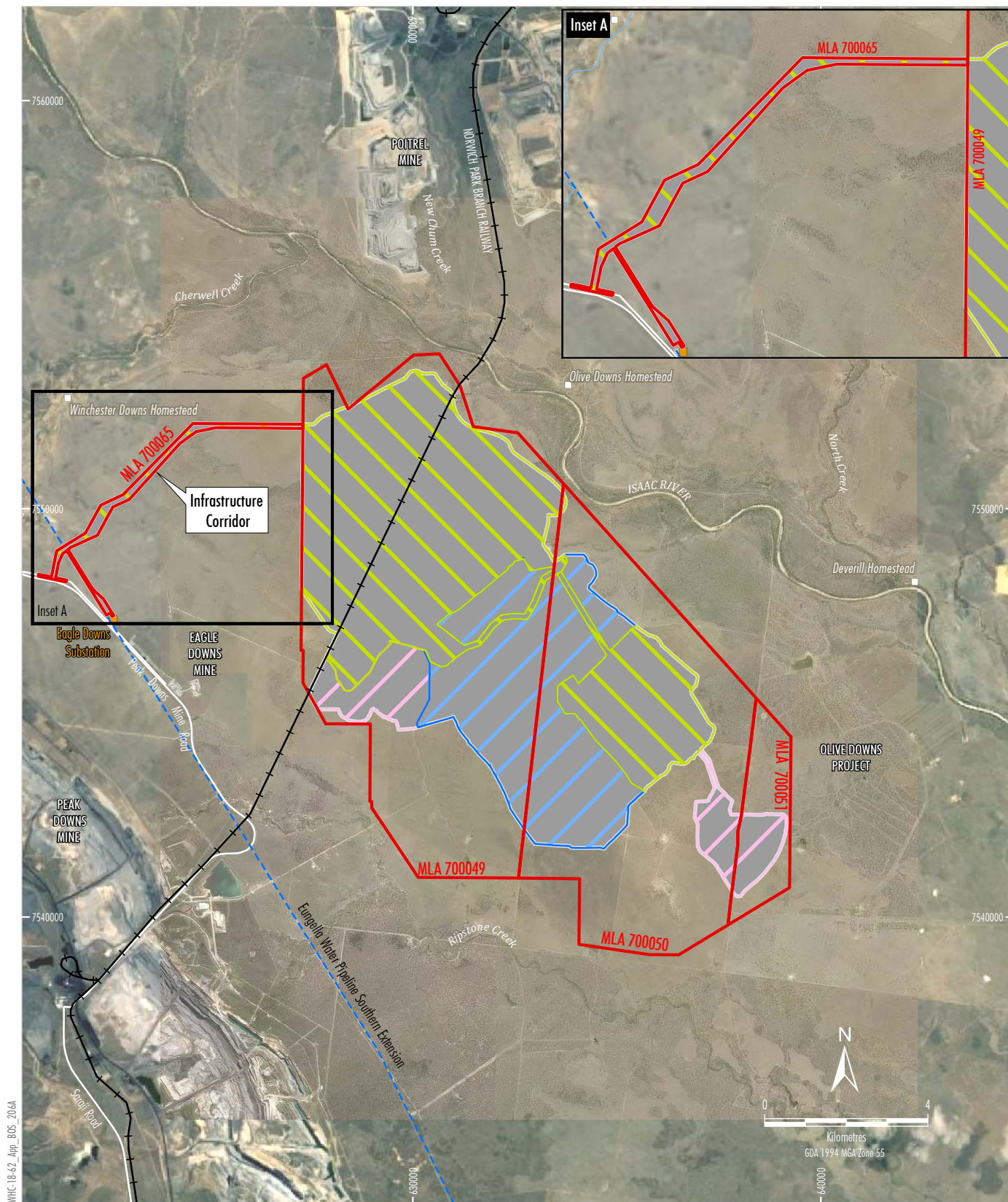
The stages are indicative and may vary slightly following further detailed mine planning, particularly the detailed design of supporting infrastructure. While some changes would be expected over the life of the Project, any such changes are expected to be minor. The *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a) states that ‘offset staging will provide proponents with flexibility to adapt offset provision to operational and development changes over time that were not evident at the time of application for the relevant activity’.

A5.2.2 Staged Offset Delivery

Whitehaven WS proposes a proponent-driven land-based offset for Stage 1 impacts to MNES. The Stage 1 offset area is described in Section A5.3.

For subsequent stages (Stages 2 and 3), Whitehaven WS would submit an Offset Management Strategy to the Department of Agriculture, Water and the Environment for approval, that provides:

- details of the environmental offset/s (in hectares) for residual significant impacts of the proposed action on relevant MNES, and/or their habitat;
- details of how the environmental offset/s meets the requirements of the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy 2012* (DSEWPac, 2012a) and *Offsets Assessments Guide* (DSEWPac, 2012b);



WHC-18-62_Ap. BOS_2024

- LEGEND**
- Mining Lease Application Boundary
 - Indicative Surface Disturbance Extent
 - Substation
 - Disturbance Associated with Offset Stages***
 - Disturbance for Offset Stage 1
 - Disturbance for Offset Stage 2
 - Disturbance for Offset Stage 3

Note:
 * Indicative layout shown based on current mine planning and is subject to change based on detailed mine planning with offsets provided prior to on-ground impacts.

- The entirety of the Electricity Transmission Line (EPBC 2019/8458), Water Pipeline (EPBC 2019/8459), and the Access Road component of the Mine Site and Access Road (EPBC 2019/8460) is contained within the Disturbance Associated with Offset Stage 1.

Source: The State of Queensland (2018 - 2020); Whitehaven (2020).
 Orthophoto: Google Image (2019); Whitehaven (2017).


WINCHESTER SOUTH PROJECT
Biodiversity Offset Staging

Figure A5-3

- details of appropriate offset area/s (including a map) to compensate for the residual significant impact on relevant MNES, and/or their habitat;
- information about how the proposed offset/s area provides connectivity with other relevant habitats and biodiversity corridors; and
- details of the mechanism to legally secure the environmental offset/s (under Queensland legislation or equivalent) to provide protection for the offset area/s against development incompatible with conservation.

A desktop review of potential properties that could provide a land-based offset for Stages 2 and 3 impacts to MNES has been undertaken. This review demonstrates that there is sufficient land and values within the region to offset the impacts to MNES associated with Stages 2 and 3 (Table A5-5).

For MSES, a Notice of Election would be prepared and submitted to the DES prior to the commencement of each stage. The *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a) describes that a Notice of Election should be provided at least three months before the proposed commencement of the subsequent stage. The notification would identify the intended offset delivery approach, and whether the offset will be delivered as a:

- proponent-driven offset (i.e. a traditional land-based offset);
- financial settlement offset; or
- combination of proponent-driven offset and financial settlement offset.

Whitehaven WS would enter into an agreed delivery arrangement with the DES. This agreement forms a contract about how the offset would be delivered and can be amended by agreement between the two parties.

Table A5-5
Potential Offset Availability within the Region for Stages 2 and 3 Impacts to MNES

Relevant MNES	Potential Habitat ¹								
	Property 1	Property 2	Property 3	Property 4	Property 5	Property 6	Property 7	Property 8	Property 9
<i>Natural Grasslands of the of the Queensland Central Highlands and Northern Fitzroy Basin</i> threatened ecological community	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	22 ha
Ornamental Snake (<i>Denisonia maculata</i>)	2,493 ha	0 ha	721 ha	523 ha	8,786 ha	1,557 ha	6,096 ha	117 ha	0 ha
Squatter Pigeon (southern subspecies) (<i>Geohaps scripta scripta</i>)	10,032 ha	17,499 ha	4,789 ha	2,202 ha	12,060 ha	31,811 ha	37,128 ha	10,517 ha	0 ha
Koala (combined populations of Queensland, NSW and the ACT) (<i>Pharscolartos cinereus</i>)	9,781 ha	14,699 ha	7,885 ha	6,662 ha	11,451 ha	16,501 ha	12,875 ha	3,322 ha	0 ha
Greater Glider (<i>Petauroides volans</i>)	714 ha	2,277 ha	4,487 ha	3,898 ha	9,808 ha	16,501 ha	12,875 ha	844 ha	0 ha

¹ Based on publicly available regional data from the Queensland Government. Areas of potential habitat presented have been based on regional mapping using similar habitat definitions applied to Project disturbance areas.

A5.3 STAGE 1 OFFSET FOR MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Whitehaven WS proposes land-based offset areas to address the Stage 1 offset requirements for the following referred Actions under the EPBC Act:

- the entire Electricity Transmission Line (EPBC 2019/8458);
- the entire Water Pipeline (EPBC 2019/8459); and
- disturbance up to approximately Year 9 of the Project – Mine Site and Access Road (EPBC 2019/8460).

A5.3.1 Description of the Stage 1 Offset Area for Matters of National Environmental Significance

The proposed Stage 1 offset areas are listed in Table A5-6, and cover approximately 3,505 ha. The boundaries of the offset areas are shown on Figures A5-4 to A5-6. The offset areas are within the Brigalow Belt North Interim Biogeographic Regionalisation for Australia Region, the same as the Project.

Table A5-6
Stage 1 Offset Area Description

Offset Area	Ownership	Area (ha)
Offset Area A	Whitehaven WS	514
Offset Area B	Private Landholder	2,627
Offset Area C	Private Landholder	364
Total		3,505

The offset areas are described below. The offset for the Stage 1 impact area would not necessarily require all of the areas presented in Table A5-6. If there are residual areas in addition to that required to offset the Stage 1 impact area, these areas would be retained for use by subsequent offset stages (e.g. for Stages 2 and 3).

Offset Area A

Offset Area A (Figure A5-4) is currently used for cattle grazing and contains large tracts of remnant vegetation with mature, hollow-bearing Blue Gums (*Eucalyptus tereticornis*). Patches of Brigalow (*Acacia harpophylla*) woodland and Poplar Box (*Eucalyptus populnea*) woodland are also present (Figure A5-4).

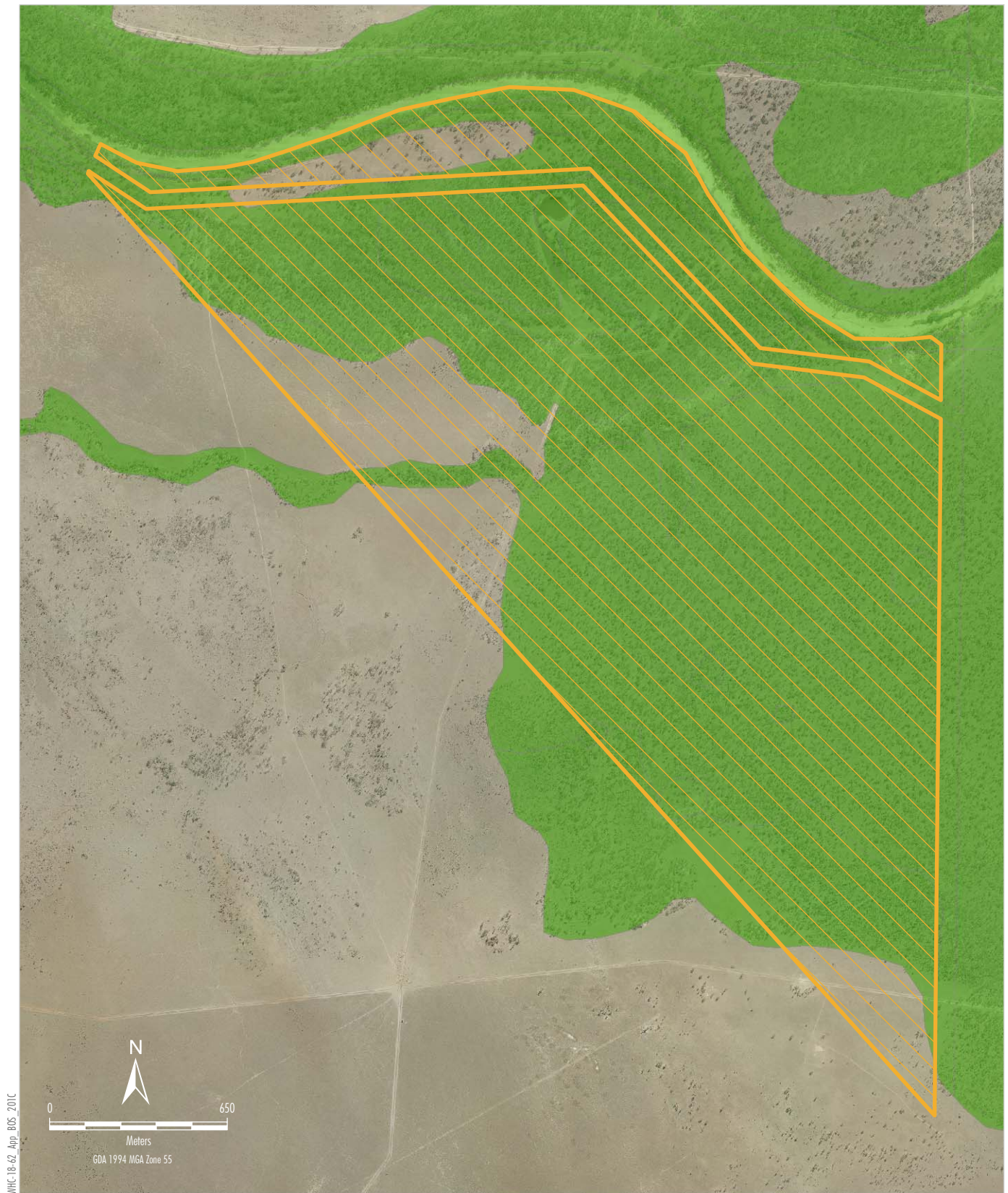
Offset Area B

Offset Area B is shown on Figure A5-5. The property is currently used for cattle grazing and is characterised by Eucalypt and Acacia forest/woodlands dominated by Poplar Box/Silver-leaved Ironbark (*Eucalyptus melanophloia*) and Brigalow. Along the eastern boundary, portions of Brigalow have been cleared to support pastureland and currently exist as a non-remnant state. One ephemeral watercourse traverses Offset Area B and is lined with riparian vegetation containing sections of mature, hollow-bearing River Red Gums (*Eucalyptus cambageana*).

Offset Area C

Offset Area C is natural grasslands and is made up of a number of smaller offset areas (Figure A5-6). In between the offset areas is woodland vegetation/habitat that is not required to be offset (Figure A5-6).

Offset Area C partly joins an existing Commonwealth offset area. The purpose of the adjoining offset is to protect Natural Grasslands TEC.



LEGEND

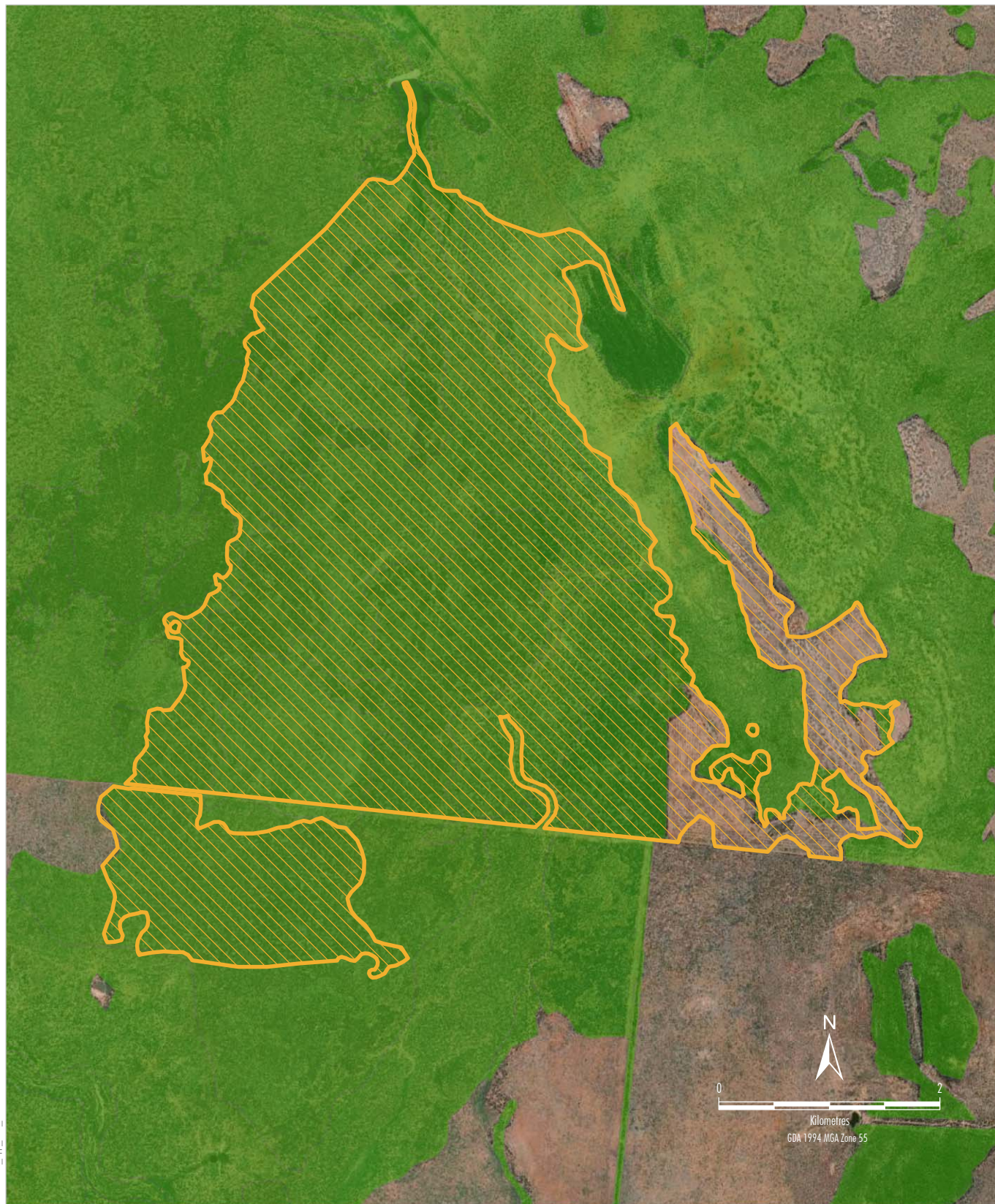
- Indicative Offset Area A Boundary*
- Remnant Vegetation (DES, 2018)

*Note: *The extent of the Offset Boundary shown may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.*

Source: The State of Queensland (2018, 2019); Whitehaven (2020).
Orthophoto: Google (2019); Whitehaven (2019).


WINCHESTER SOUTH PROJECT
Offset Area A

Figure A5-4



- LEGEND**
-  Indicative Offset Area B Boundary*
 -  Remnant Vegetation (DES, 2018)

*Note: *The extent of the Offset Boundary shown may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.*

Source: The State of Queensland (2018, 2019); Whitehaven (2020).
Orthophoto: Google (2019); Whitehaven (2019).

Figure A5-5



LEGEND
 Indicative Offset Area C Boundary*
 Remnant Vegetation (DES, 2018)

*Note: *The extent of the Offset Boundary shown may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.*

Source: *The State of Queensland* (2018, 2019); *Whitehaven* (2020).
 Orthophoto: *Google* (2019); *Whitehaven* (2019).


 WINCHESTER SOUTH PROJECT
 Offset Area C

Figure A5-6

A5.3.2 Ecological Surveys of the Stage 1 Offset Area

The terrestrial ecological values of each of the three offset areas were determined through a desktop assessment and a series of field assessments between May and July 2020.

Ground-truthing and validating vegetation community mapping were conducted in accordance with the Queensland Government's *Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner *et al.*, 2020). Threatened ecological community assessments were undertaken to verify if key diagnostic characteristics and condition thresholds for EPBC Act-listed threatened ecological communities were met. Habitat Quality assessments were conducted in accordance with the *Guide to Determining Terrestrial Habitat Quality* (DES, 2020b).

Initial targeted fauna surveys were undertaken using standard methods (e.g. diurnal searches for Koala, spotlighting, transects, etc.), however, the field surveys were conducted outside of the optimal conditions and therefore do not reflect the complete extent of the species. Habitat assessments indicate that the species are likely to be more widespread on the offset areas than identified through the surveys.

A5.3.3 Matters of National Environmental Significance in the Stage 1 Offset Area

The Terms of Reference for the EIS require this document to provide:

- (d) details of appropriate offset area/s (including a map) to compensate for the residual significant impact on relevant MNES, and/or their habitat;

The subsections below describe the size and location of the Stage 1 offsets proposed for each relevant MNES.

Ornamental Snake

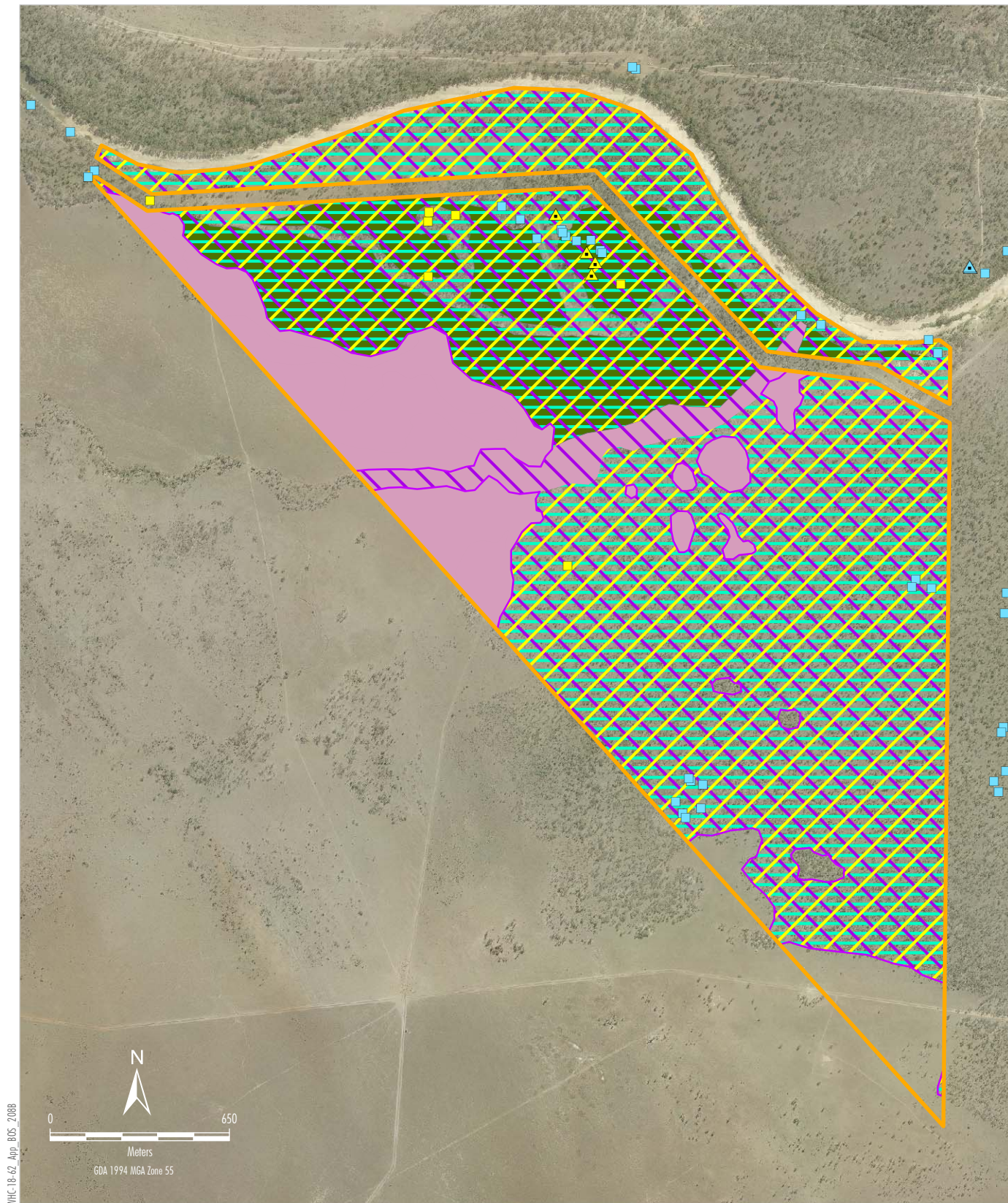
The Stage 1 residual significant impacts on the Ornamental Snake would be offset in Offset Area A and Offset Area B. The potential habitat for the Ornamental Snake is brigalow-dominant communities characterised by gilgai with cracking, clay soils (REs 11.3.1, 11.4.8 and 11.4.9), and regrowth patches of REs 11.4.8 and 11.4.9 where suitable microhabitat features were present to support the species (Figures A5-7 and A5-8).

Squatter Pigeon (southern subspecies)

The Stage 1 residual significant impacts on the Ornamental Snake would be offset in Offset Area A and Offset Area B (Figures A5-7 and A5-8). The Squatter Pigeon (southern subspecies) was recorded on several occasions immediately adjacent to Offset Area B (outside of the offset area), with potential foraging and breeding habitat mapped in both Offset Area A (Figure A5-7) and Offset Area B (Figure A5-8), inclusive of remnant and regrowth vegetation.

Koala (combined populations of Queensland, NSW and the ACT)

The Stage 1 residual significant impacts on the Ornamental Snake would be offset in Offset Area A and Offset Area B (Figures A5-7 and A5-8). Koala habitat was mapped within Offset Areas A and B (Figures A5-7 and A5-8) with additional potential habitat mapped associated with remnant and regrowth REs. A single Koala record was found in the northern extent of Offset Area A (Figure A5-7), and a further record approximately 3 kilometres south of Offset Area B (Figure A5-8). Indirect evidence of Koala presence (i.e. scats) was also found across the two properties (Figures A5-7 and A5-8).



WHC-18-62 App. BCS_2088

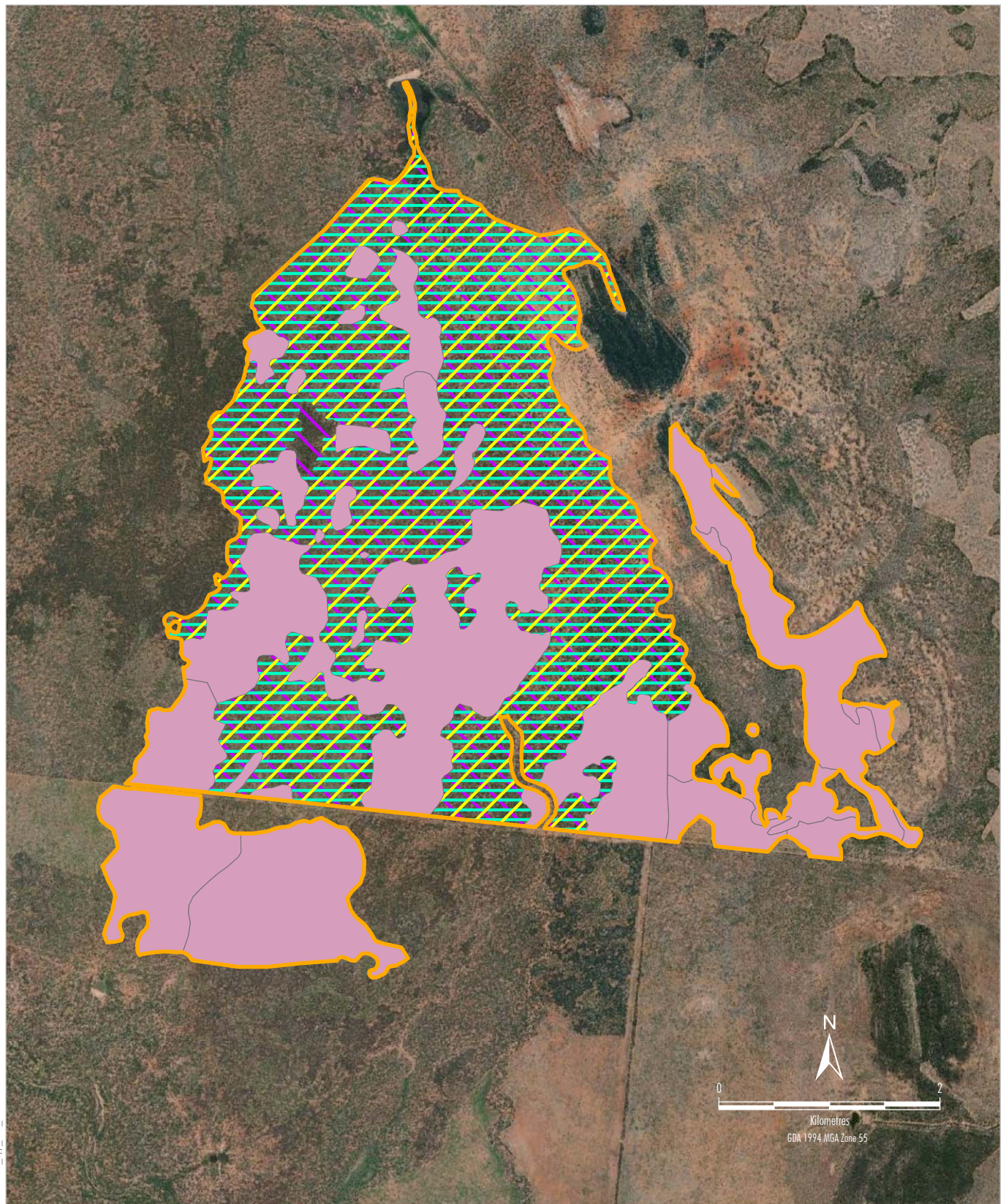
LEGEND	
 	Indicative Offset Area A Boundary*
2020 Surveys	
▲	Greater Glider
■	Koola
Previous Surveys	
▲	Greater Glider
■	Koola
Matters of National Environmental Significance	
	Koola Habitat (Approximately 407.5 ha)
	Squatter Pigeon Potential Habitat (Approximately 235 ha Breeding and 188 ha Foraging)
	Greater Glider Habitat (Approximately 407.5 ha)
	Poplar Box Woodland Potentially Conforming TEC (Approximately 93.5 ha)
	Ornamental Snake Potential Habitat (Approximately 83 ha)

*Note: *The extent of the Offset Boundary shown may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.*

Source: The State of Queensland (2018, 2019); Whitehaven (2020).
Orthophoto: Google (2019); Whitehaven (2019).

WHITEHAVEN COAL
WINCHESTER SOUTH PROJECT

**Offset Area A -
Matters of National Environmental
Significance
Figure A5-7**



LEGEND	
	Indicative Offset Area B Boundary*
Matters of National Environmental Significance	
	Koala Potential Habitat (Approximately 1322.5 ha)
	Squatter Pigeon Potential Habitat (Approximately 1119 ha Breeding and 218 ha Foraging)
	Greater Glider Potential Habitat (Approximately 1316 ha)
	Ornamental Snake Potential Habitat (Approximately 1296.5 ha)

Note: *The extent of the Offset Boundary shown may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.

Source: The State of Queensland (2018, 2019); Whitehaven (2020).
Orthophoto: Google (2019); Whitehaven (2019).

WHITEHAVEN COAL
WINCHESTER SOUTH PROJECT

Offset Area B -
Matters of National Environmental
Significance
Figure A5-8

Greater Glider

Four Greater Gliders were observed in Offset Area A (Figure A5-7) during field surveys undertaken in 2020. Potential denning and foraging habitat for the species was recorded on both Offset Areas A and B associated with remnant patches of REs 11.5.3, 11.3.2, 11.3.4, 11.3.25 and 11.5.17, and a corridor of regrowth 11.3.25 located only within Offset Area B (Figure A5-8).

Poplar Box TEC

The Stage 1 residual significant impacts on Poplar Box TEC would be offset in the Offset Area A. The *Draft Conservation Advice (including Listing Advice) for the Poplar Box Grassy Woodland on Alluvial Plains* (Threatened Species Scientific Committee, 2013) states:

“...Areas that already meet the condition thresholds are protected by this listing, so are not to be used as an offset unless there is a substantial net conservation benefit...”

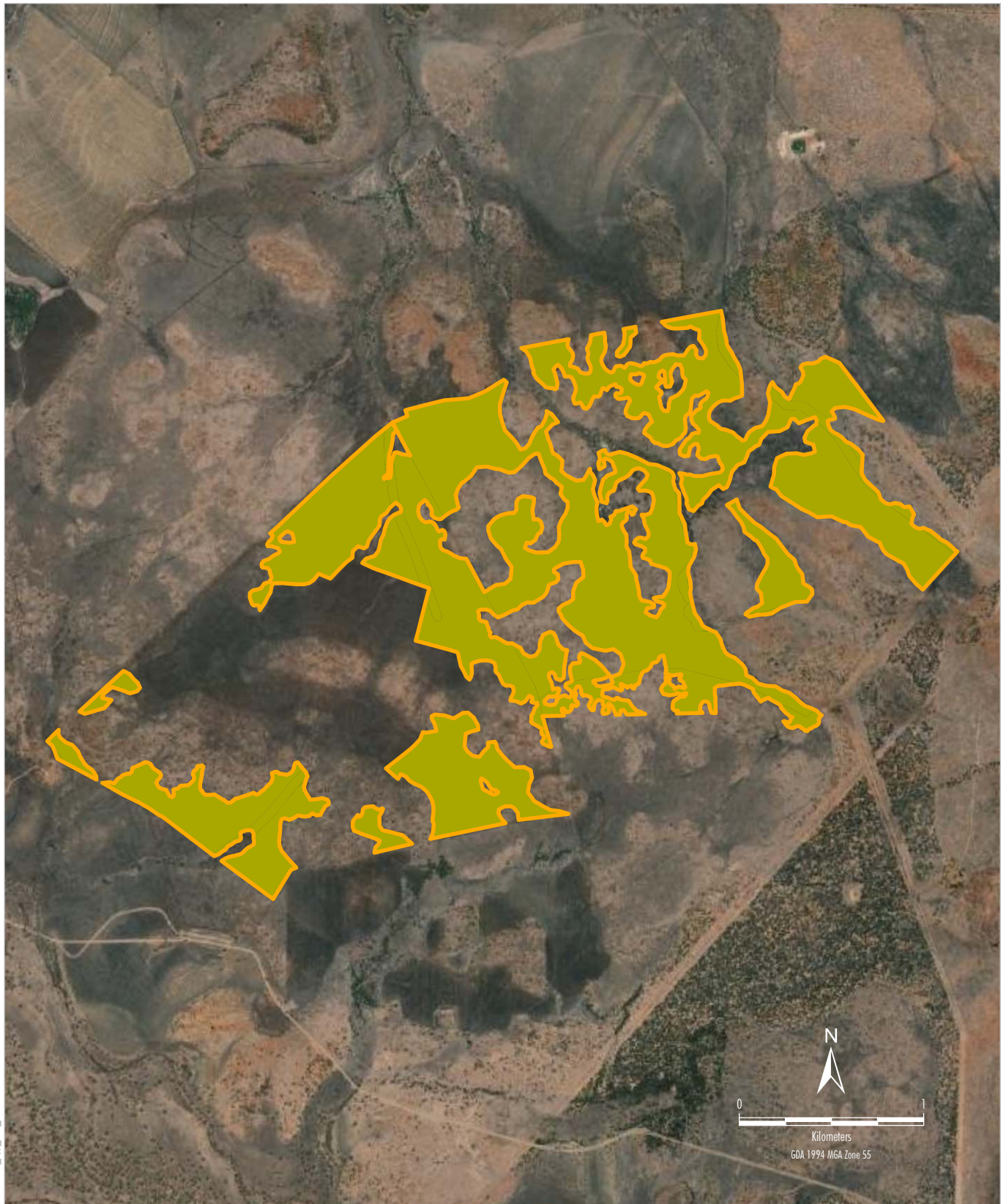
Accordingly, Offset Area A contains a suitable offset for this community as it contains remnant Poplar Box Woodland (RE 11.3.2) with large hollow-bearing trees, however, due to the presence of invasive weeds and impacts from cattle grazing, the vegetation community does not currently meet the threatened ecological community condition thresholds. The Poplar Box Woodland in Offset Area A is shown on Figure A5-7.

The vegetation community is approximately 15 to 21 metres (m) in height with 10-20% vegetation cover. It is dominated by native vegetation within the ground layer, including, but not limited to, *Chrysocephalum fallax*, *Aristida holathera*, *Themeda triandra*, and *Fimbristylis dichotoma*.

Natural Grasslands TEC

The Stage 1 residual significant impacts on Natural Grasslands TEC would be offset in Offset Area C. The Natural Grasslands TEC in Offset Area C is shown on Figure A5-9.

The Native Grasslands in the offset area are associated with REs 11.8.11 and 11.8.11a. These vegetation communities were found to be associated with gently undulating cracking clay plains and loamy-clay plains over underlying fine-grained sedimentary rock. The vegetation communities are dominated by native grasses including, but not limited to, *Dichanthium sericeum*, *Panicum decompositum*, *Sehima nervosum*, and *Aristida latifolia*.



Source: The State of Queensland (2018, 2019); Whitehaven (2020).
Orthophoto: Google (2019); Whitehaven (2019).

- LEGEND**
- Indicative Offset Area C Boundary*
 - Threatened Ecological Communities
 - Natural Grasslands Potentially Conforming Threatened Ecological Community (Approximately 364 ha)

*Note: *The extent of the Offset Boundary shown may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.*

Summary

The Terms of Reference for the EIS require this document to provide:

- (a) details of the environmental offset/s (in hectares) for residual significant impacts of the proposed action on relevant MNES, and/or their habitat;

Table A5-7 provides a summary of the quantities of habitat for MNES in the Stage 1 impact areas and offset areas.

As described in Section A5.3.1, the offset for the Stage 1 impact area would not necessarily require all of the areas presented in Table A5-6 and Table A5-7. If there are residual areas in addition to that required to offset the Stage 1 impact area, these areas would be retained for use by subsequent offset stages (e.g. for Stages 2 and 3).

Table A5-7
Stage 1 Offset Areas for Matters of National Environmental Significance

Matters of National Environmental Significance	Stage 1 Impact Area (ha)			Offset Area Boundary (Figures A5-7 to A5-9) [#] (ha)
	Infrastructure Corridor (EPBC 2019/8458)	Mine Site and Access Road (EPBC 2019/8460)	Total	
Poplar Box TEC	0	9.6	9.6	93.5
Natural Grasslands TEC	6.5	59.8	66.3	364.5
Ornamental Snake (<i>Denisonia maculata</i>)	12.3	790.5	802.8	1,379.5
Squatter Pigeon (southern subspecies) (<i>Geophaps scripta scripta</i>)	0	149.7	149.7	1,760.0
Koala (combined populations of Queensland, NSW and the ACT) (<i>Phascolarctos cinereus</i>)	35.9	167.1	203.0	1,730.0
Greater Glider (<i>Petauroides volans</i>)	0	132.8	132.8	1,723.5

[#] Note: The extent of the offset boundary shown on Figures A5-7 to A5-9 may be used in full or in part for any stage of the Project's offset requirements. Any area not required for any particular stage, or the Project in full may be retained for future use.

The Terms of Reference for the EIS require this document to provide:

...information about how the proposed offset/s area provides connectivity with other relevant habitats and biodiversity corridors; and

The remnant vegetation from the Queensland Remnant Regional Ecosystem mapping (Version 11) (DES, 2018) is shown on Figures A5-4 to A5-6.

Offset Area C partly joins an existing Commonwealth offset area. The purpose of the adjoining offset is to protect Natural Grasslands TEC.

A5.3.4 Reconciliation of the Stage 1 Offset Area Against Commonwealth Offset Principles

The Terms of Reference for the EIS require this document to provide:

- (b) details of how the environmental offset/s meets the requirements of the Department's EPBC Act Environmental Offsets Policy (2012) (EPBC Act Offset Policy), including the Offsets Assessments Guide;

A reconciliation of the Offset Management Strategy against the Commonwealth offset principles (DSEWPaC, 2012a) is presented in Table A5-8. The Stage 1 offset meets the requirements of the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (DSEWPaC, 2012a), including the *Offsets Assessments Guide* (DSEWPaC, 2012b).

Table A5-8
Reconciliation of the Stage 1 Offset Areas against the Commonwealth Offset Principles

Offset Principles ¹	Elements of the Stage 1 Offset Areas that Address these Principles
1. deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environmental law and affected by the action	The Stage 1 Offset Areas directly contribute to the ongoing viability of the specific protected matter impacted i.e. 'like for like' outcome. The conservation benefit from the Stage 1 Offset Areas would be the long-term security and management of larger areas of habitat, than would be disturbed by the Project.
2. be built around direct offsets but may include other compensatory measures	Whitehaven WS has elected to address the Commonwealth offset requirements for Stage 1 of the Project by offsetting through land based offset areas.
3. be in proportion to the level of statutory protection that applies to the protected matter	The land-based offset areas would satisfy 100% of the offset requirements for each threatened species and community potentially impacted by Stage 1.
4. be of a size and scale proportionate to the impacts on the protected matter	The size and scale of the offset was determined using the <i>Offsets Assessments Guide</i> (DSEWPaC, 2012b). This takes into consideration specific attributes of the relevant protected matters and its habitat and the quality and importance of the habitat.
5. effectively account for and manage the risks of the offset not succeeding	The implementation of the Stage 1 Offset Areas is likely to be an approval condition for the Project.
6. be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action, see section 7.6)	The implementation of the Stage 1 Offset Areas is beyond existing requirements, in that the offsets area not part of any private conservation reserve system. The enduring protection that would be applied to the biodiversity offset areas is new and additional under duty of care or any environmental planning laws.
7. be efficient, effective, timely, transparent, scientifically robust and reasonable	The size and scale of the offset was determined using the <i>Offsets Assessments Guide</i> (DSEWPaC, 2012b).
8. have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	The proposed offset areas would be secured as described in Section A5.3.6.

¹ DSEWPaC (2012a).

A5.3.5 Management Measures

The following management measures are proposed by Whitehaven WS for the offset areas, albeit are subject to review as part of securing the offset areas and developing the Offset Management Plans:

- baseline field surveys to target Ornamental Snake, Squatter Pigeon (southern subspecies), Koala and Greater Glider;
- management of livestock grazing (e.g. grazing during dry season to reduce ground cover in non-remnant areas, no grazing within Squatter Pigeon [southern subspecies] habitat during the breeding season [April to end October]);
- weed control via appropriate weed control measures (e.g. cattle grazing and spot spraying);
- pest animal control and monitoring (including Feral Cat, Rabbits, Feral Pig, Wild Dogs and European Red Fox) via appropriate pest animal control measures in accordance with Queensland legislation;
- bushfire management in accordance with all requirements under Queensland legislation;
- thinning of dense, undesirable regrowth; and
- construction and maintenance of access tracks, fencing to manage livestock grazing, signs and firebreaks.

Offset Management Plans would be prepared for the offset areas by a suitably qualified person and include:

- the results of a field validation survey and baseline description of the current condition of the offset areas, including relevant MNES and/or their habitat;
- a description, and figures, clearly defining the location and boundaries of the proposed offset areas, including the attributes of the offsets;
- a description of the management measures (including timing, frequency and duration) that would be implemented in the offset areas;
- a discussion of how proposed management measures take into account relevant approved conservation advices and are consistent with relevant recovery plans and threat abatement plans¹;
- completion criteria and performance targets for evaluating the effectiveness of the Offset Management Plan implementation, and criteria for triggering corrective actions;
- a program to monitor, report on and review the effectiveness of the Offset Management Plan; and
- a description of potential risks to the successful implementation of the offset areas, and contingency measures that would be implemented to mitigate against these risks.

The Offset Management Plans would be prepared in accordance with the *Environmental Management Plan Guidelines* (Department of the Environment [DotE], 2014) and the requirements to secure of the offset areas under Queensland legislation.

A5.3.6 Legal Security

The Terms of Reference for the EIS require this document to provide:

... details of the mechanism to legally secure the environmental offset/s (under Queensland legislation or equivalent) to provide protection for the offset area/s against development incompatible with conservation.

¹ The following threat abatement plans would be considered in the Offset Management Plans:

- *Threat Abatement Plan for Predation by Feral Cats* (DotE, 2015);
- *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (Department of the Environment and Energy [DEE], 2016);
- *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs* (DEE, 2017); and
- *Threat Abatement Plan for Predation by the European Red Fox* (Department of the Environment, Water and Heritage Protection, 2008).

There are a number of mechanisms by which Whitehaven WS can legally secure and manage offset areas for the Project. The currently preferred mechanism is to establish a legally binding agreement(s) with the current registered landholder(s). This could be achieved by establishing an Offset Agreement with the current registered landholder(s) to enter a Voluntary Declaration under the *Vegetation Management Act 1999*.

Any such Offset Agreement is expected to include a payment by Whitehaven WS to the current registered landholder for the registration of the Voluntary Declaration, as well as payment for any management required by the relevant Offset Management Plan. Whitehaven WS would be responsible for separately funding and coordinating any required monitoring.

In accordance with the *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a), the requirement for a legally secured offset will cease to have effect once the:

- administering agency is satisfied the actions and obligations of the offset delivery plan have been completed in full; and
- the offset has been secured for at least the same duration as the impact on the prescribed environmental matters arising from the prescribed activity.

A5.4 STAGE 1 OFFSET FOR MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

The significant residual impacts on MSES from Stages 1 to 3 are provided in Table A5-4. The offset for impacts on MSES for Stage 1 is likely to include part of one or more of the offset areas identified for MNES (Section A5.3.1). As described in Section A5.2.2, a Notice of Election would be prepared and submitted to the DES prior to the commencement of Stage 1 which would identify the intended offset delivery approach.

For a land-based offset, an offset area must be capable of delivering a conservation outcome for the impacted prescribed environmental matter. The suitability of the offset site would be measured using the *Guide to Determining Terrestrial Habitat Quality* (DES, 2020b). The offset requirement for a significant residual impact on a prescribed environmental matter is set at a maximum multiplier of 4 (i.e. a maximum of four times the area of the significant residual impact), with the exception of impacts to connectivity, for which the offset requirement is set at a multiplier of 1 (DES, 2020a).

A5.4.1 Regulated Vegetation

Stage 1 would require an offset for Endangered and Of Concern regional ecosystems (Table A5-4). An offset area for Endangered and Of Concern regional ecosystems would be (DES, 2020a):

- of the same broad vegetation group as the impacted regional ecosystem;
- of the same regional ecosystem status; and
- within the same bioregion.

The State Government can only impose an offset condition in relation to a prescribed activity if the same matter has not been subject to assessment under the EPBC Act. Table A5-4 identifies an Of Concern regional ecosystem that is equivalent to the Poplar Box TEC and therefore would be offset by the Commonwealth offset.

A5.4.2 Regional Ecosystems within the Defined Distance of a Vegetation Management Watercourse

Stage 1 would require an offset for regional ecosystems within the defined distance of a vegetation management watercourse (Table A5-4). An offset area of this MSES would be (DES, 2020a):

- of the same broad vegetation group as the impacted regional ecosystem;
- within the same bioregion; and
- associated with a watercourse or drainage feature.

Table A5-4 identifies two regional ecosystems that are equivalent to the Natural Grasslands TEC and therefore would be offset by the Commonwealth offset.

A5.4.3 Protected Wildlife Habitat

The *Queensland Environmental Offsets Policy (Version 1.9)* (DES, 2020a) states that the State Government can only impose an offset condition in relation to a prescribed activity if the same matter has not been subject to assessment under the EPBC Act.

Table A5-4 identifies fauna species listed under the *Nature Conservation Act 1992* (NC Act) and EPBC Act would be offset by the Commonwealth offset. Significant residual impacts on *Solanum adenophorum* (a plant listed under the NC Act but not the EPBC Act) are identified in Table A5-4. In relation to a plant that is endangered wildlife under the NC Act, an offset area must contain, or be capable of containing, a self-sustaining population of that same impacted species (DES, 2020a).

A5.4.4 Connectivity

Stage 1 would require an offset for impacts on connectivity. For connectivity the offset site must be (DES, 2020a):

- a non-remnant ecosystem; and
- in the same subregion; however, if the subregion is intact, the offset should be in the nearest fragmented subregion.

A5.5 CONCLUSION

This document provides a strategy, via three offset areas, that would sufficiently offset the significant residual impacts from Stage 1 on relevant MNES, namely the Poplar Box TEC, Natural Grasslands TEC and habitat for the Ornamental Snake, Squatter Pigeon (southern subspecies), Koala (combined populations of Queensland, NSW and the ACT) and Greater Glider. The future quality of the MNES habitat in the offset areas would be increased over time through the implementation of management measures. A desktop review has also been undertaken of available properties within the region, which demonstrates that impacts to MNES associated with Stages 2 and 3 can be offset with land currently available within the region.

Separately, an approach for providing offsets for MSES for Stage 1 is described in this document, which is likely to include part of one or more of the offset areas identified for MNES. Accordingly, a Notice of Election would be prepared and submitted to DES prior to the commencement of each stage. The notification would identify the intended offset delivery approach, and whether the offset is to be delivered as a:

- proponent-driven offset (i.e. a traditional land-based offset);
- financial settlement offset; or
- combination of proponent-driven offset and financial settlement offset.

Whitehaven WS would enter into an agreed delivery arrangement with the DES to offset impacts on MSES.

A5.6 REFERENCES

- Department of Environment and Science (2014) *Significant Residual Impact Guidelines*.
- Department of Environment and Science (2018) *Queensland Remnant Regional Ecosystem Mapping (Version 11)*.
- Department of Environment and Science (2020a) *Queensland Environmental Offsets Policy (Version 1.9)*.
- Department of Environment and Science (2020b) *Guide to Determining Habitat Quality*. Version 1.3. February 2020.
- Department of Natural Resources, Mines, and Energy (2020) *Regulated Vegetation Mapping*.
Date accessed: September 2020.
- Department of Sustainability, Environment, Water, Population and Communities (2012a) *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*.
- Department of Sustainability, Environment, Water, Population and Communities (2012b) *Offsets Assessment Guide*.
- Department of Sustainability, Environment, Water, Population and Communities (2013) *Approved Conservation Advice for Rostratula australis (Australian painted snipe)*. Department of Sustainability, Environment, Water, Population and Communities, Canberra.
Website: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/77037-conservation-advice.pdf>
Date accessed: September 2020.
- Department of the Environment (2014) *Environmental Management Plan Guidelines*.
- Department of the Environment (2015) *Threat Abatement Plan for Predation by Feral Cats*.
- Department of the Environment and Energy (2016) *Threat Abatement Plan for Competition and Land Degradations by Rabbits*.
- Department of the Environment and Energy (2017) *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs*.
- Department of the Environment, Water and Heritage Protection (2008) *Threat Abatement Plan for Predation by the European Red Fox*.
- E2M Pty Ltd (2021) *Terrestrial Ecological Assessment for the Winchester South Project*. Prepared for Whitehaven WS Pty Ltd.
- Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F., Addicott, E.P. and Appelman, C.N. (2020) *Methodology for Surveying and Mapping Regional Ecosystems and Vegetation Communities in Queensland*. Version 5.1. March 2020.