
F. APPENDIX F - REHABILITATION MANAGEMENT PLAN

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Rehabilitation

Overview

This section summarises the activities outlined under this Extraction Plan that relate to the direct rehabilitation of subsidence effects and its environmental consequences associated with longwall extraction within LW1-8 in the Upper Liddell Seam at Ashton Coal.

Context

The following documents currently guide the way ACOL undertake rehabilitation activities across the underground mine:

- Mining Operations Plan (MOP) 2007-2012, including the;
 - Construction Mining Operations Plan – Bowmans Creek Diversion; and
 - Bowmans Creek Diversion Management Plan.
- Landscape and Revegetation Management Plan (LRMP) (ACOL RevC, 2006); and
- Bowmans Creek Diversion Rehabilitation Strategy (May, 2010); and
- Conceptual Biodiversity Offset and Rehabilitation Strategy (June, 2011). (copy provided as Attachment A)

In particular, the MOP and LRMP documents form part of the current Environmental Management System and were prepared and approved under relevant provisions of the Development Consent and Mining Lease(s). They detail the objectives and activities associated with rehabilitation, landscape management, and mine closure across the entire ACP and for the construction phase of the creek diversions. These plans also include some detail on the rehabilitation of subsidence effects.

The Bowmans Creek Diversion Rehabilitation Strategy has been developed to detail ACOL's proposed vision and strategy across the underground project, incorporating (in particular) the Bowmans Creek diversions and providing for increased habitat and habitat corridors across the surface of the underground mine.

The Extraction Plan for ULD LW1–8 is to include under the modified development consent "*appropriate revisions to the Rehabilitation Management Plan required under condition 3.51*". A Rehabilitation Management Plan is a new requirement under the modified development consent and is currently being prepared in accordance with Condition No. 3.51 to reflect the Bowmans Creek Diversion (BCD) approvals, construction and completion. However, construction of the BCD is still pending, as a result of delays obtaining subordinate approvals it is also noted that guidelines for the preparation of such plans are still in preparation by DRE and are yet to be published. An extension to the submission date under Condition 3.51 has been sought from DRE. In the interim, the rehabilitation activities across the site continue to be undertaken in accordance with the approved documents listed above. The draft Rehabilitation Management Plan will provide further detail and rehabilitation actions consistent with the overall vision shown in the Concept Biodiversity Offset and Rehabilitation Strategy (copy provided as Attachment A). This strategy provides an overview of ACOL's proposed strategy for conservation, provision of offsets and landscape management across the underground mine.

Subsidence Effects and Environmental Consequences

A primary impact of longwall mining is surface subsidence. There are several key recognised potential subsidence effects to the surface overlying longwall mining, including: surface cracking, subsurface cracking, slope instability and erosion, valley closure and uplift, and ponding. These may then trigger environmental consequences related to land use and long term ecosystem function of the site.

Identification of subsidence and the associated environmental consequences has been undertaken as part of a series of assessments and technical reports contained in Volume 2 to the Extraction Plan.

Objectives and Commitments

Whilst it is noted that the scope of the Extraction Plan does not encompass longer-term rehabilitation objectives and strategies, many of the EP sub-plans document the direct remediation, repair or rehabilitation of subsidence and its consequences. Under the Condition 3.12(f), the EP is required to: *"describe measures that would be implemented to ... remediate any impacts and/or environmental consequences"*.

The development consent contains a number of provisions relevant to rehabilitation of subsidence (refer to Table 1) and these are documented in the EP and relevant sub-plans..

Table 1 Rehabilitation Consent Conditions and Commitments

Condition number	Condition requirement (relevant to Subsidence Rehabilitation)	Comment	
Schedule 2			
3.10	The Applicant shall ensure that underground mining does not cause any exceedances of the performance measures in Table 2, to the satisfaction of the Director-General of DRE.		
	Table 2 Subsidence Impact Performance Measures		
	New England Highway, including the bridge over Bowmans Creek.	Always safe and serviceable. Damage that does not affect safety and serviceability must be fully repairable and must be fully repaired.	No impacts anticipated. Monitoring program to identify impacts to highway and bridge developed in conjunction with Roads & Maritime Services. Program and protocols for undertaking works documented in Built Features Management Plan (BFMP) .
	Brunkers Lane.	In accordance with recommendations of the report prepared under condition 7.14.	Report is yet to be commissioned and relocation of Lemington Road is currently under construction. BFMP will be revised and updated prior to seeking approval for second workings in LW5-8.
Other built features, including other public infrastructure.	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired or	Prevention and required repair of affected built features as a result of subsidence documented in the BFMP . Potential safety issues as a result of subsidence are	

Condition number	Condition requirement (relevant to Subsidence Rehabilitation)		Comment
		replaced, or else fully compensated.	documented and managed under the Public Safety Management Plan .
3.49	The Applicant shall rehabilitate the DA area to the satisfaction of the Director-General of DRE. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA and comply with the objectives in Table 3.		
	Table 3 Rehabilitation Objectives		
	Feature	Objective	
	DA Area	Safe, stable and non-polluting.	
	Surface infrastructure.	To be decommissioned and removed, unless the Director-General of DRE agrees otherwise.	Not applicable under scope of the Extraction Plan.
	Sections of Bowmans Creek within the underground mining area (except those sections of creek made redundant by the diversion).	Restore pre-mining surface flow and pool holding capacity as soon as reasonably practicable. Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than existed prior to mining.	Not applicable under scope of the approvals currently being sought (ULD LW1-4).
	Bowmans Creek – Eastern and Western diversions.	Hydraulically and geomorphologically stable with riparian vegetation that is the same or better than existing in the adjacent channel prior to mining.	Not applicable under scope of the approvals currently being sought (ULD LW1-4).
	Land to be restored or maintained for agricultural purposes.	Restored and maintained to the same or higher land capability and agricultural suitability than prior to mining.	Measures to repair subsidence effects and consequences that will support the maintenance of current agricultural suitability include repairing of cracking to prevent erosion and soil degradation and modification of the post-subsidence landform to allow it to free drain – refer to Land Management Plan .
	Other land affected by the development.	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of: Local native plant species (unless the Director-General or DRE agrees otherwise); and A landform consistent with the surrounding environment.	Not applicable under scope of the Extraction Plan (which deals with short-term subsidence impacts). Final land use and landform to be captured under scope of the Rehabilitation Management Plan.
	Built Features affected by subsidence.	Repair to pre-mining condition or equivalent unless: The owner agrees otherwise; or The damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i> .	Prevention and repair of all affected built features as a result of subsidence documented in the BFMP .

Condition number	Condition requirement (relevant to Subsidence Rehabilitation)		Comment
	Community	Ensure public safety Minimise the adverse socio-economic effects associated with mine closure.	Extraction Plan area is not currently accessible by the general public. Potential safety issues as a result of subsidence are documented and managed under the Public Safety Management Plan . Socio-economic effects associated with mine closure are outside the scope of this Extraction Plan.
3.51	The applicant shall carry out the rehabilitation of the DA area progressively, that is, as soon as reasonably practicable following disturbance.		Measures are contained within all Extraction Plan sub-plans to rehabilitate subsidence and its consequences as soon as practicable post-mining in the ULD Seam. It is noted that ACOL is a multi-seam underground mine and rehabilitation of subsidence effects will be ongoing/repeated as mining progresses in lower seams.
Sched. C	Statement of Commitments		
2.	General		
2.1	Subsidence troughs will be reshaped and fill will be used where practicable to create a free-draining landform. This approach is expected to reduce the potential for surface pooling and inflow into the mine.		Measures to maintain a free-draining landform are documented in the Land Management Plan .
9.	Rehabilitation and Land Management		
9.1	Subsidence troughs will be rehabilitated to provide a free draining surface.		Measures to maintain a free-draining landform are documented in the Land Management Plan .

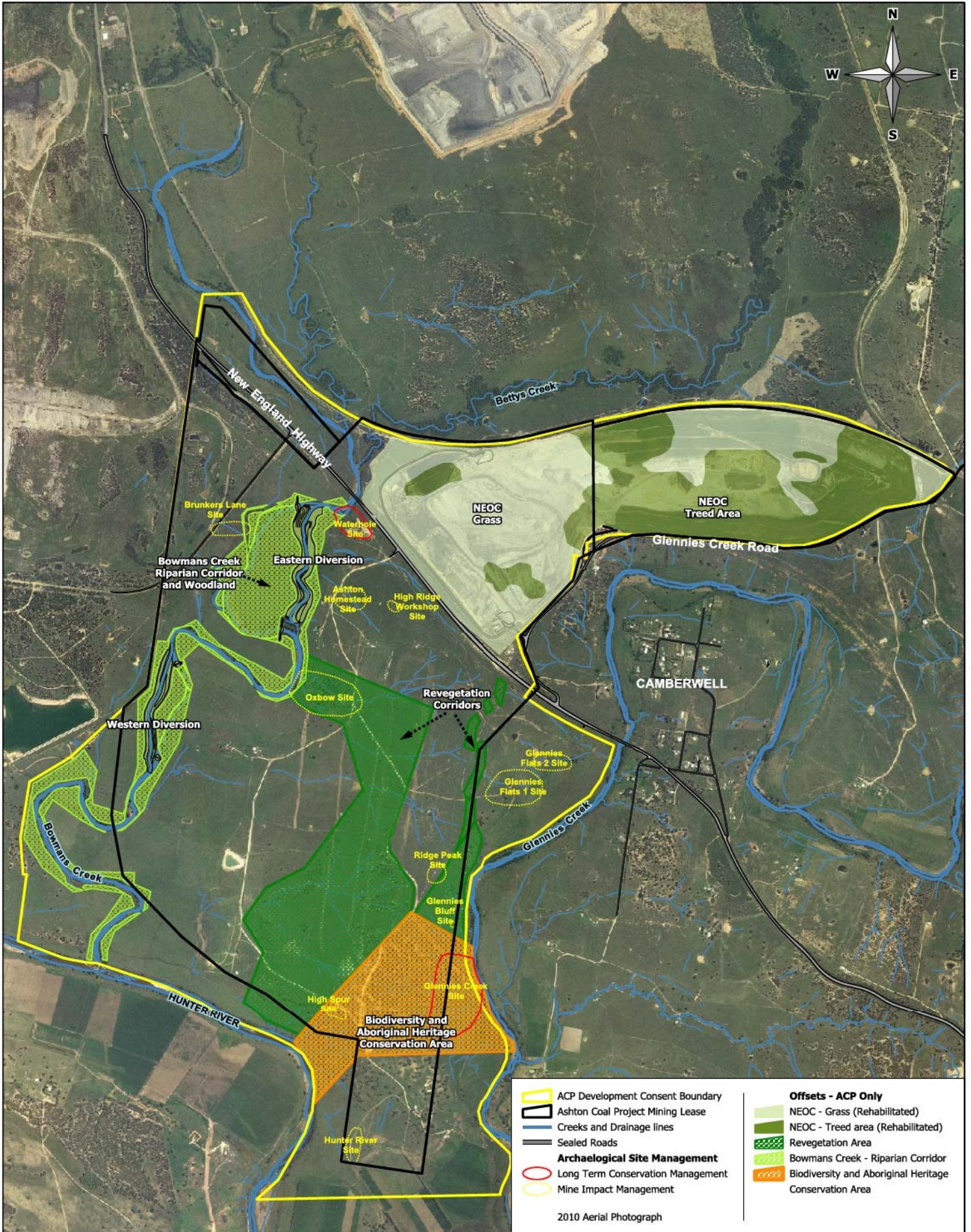
Proposed Subsidence Rehabilitation

In lieu of an approved Rehabilitation Management Plan that can be revised in response to current subsidence predictions for ULD LW1-8 (as per Condition 3.12(g)), this document has been prepared to summarise the activities detailed under the scope of this Extraction Plan that directly relate to the rehabilitation of subsidence effects and its environmental consequences at Ashton Coal.

Identification of subsidence and the associated environmental consequences has been undertaken as part of a series of assessments and technical reports contained in Volume 2 to the Extraction Plan. Rehabilitation of subsidence / environmental consequences will be undertaken progressively as longwall mining progresses. It is noted that the underground mine at the ACP is approved as a descending, multi-seam operation and it is anticipated that rehabilitation activities related to subsidence impacts / consequences will need to be repeated, as required, across the site as mining descends into lower seams. However prior to each seam commencing, an assessment of impacts and review of management and associated rehabilitation activities will be conducted as part of the Extraction Plan preparation and approval process.

In parallel with this mining progression, and following completion and approval of the Rehabilitation Management Plan, activities associated with the longer-term rehabilitation and final land use of the site will be implemented (as conceptually outlined in Attachment A).

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