

Silverton Wind Farm

Independent Environmental Audit – Action
Response Plan



Reference	Condition	Audit Finding	AGL Action Response
OBLIGATIONS TO MINIMISE HARM TO THE ENVIRONMENT			
LIMITS OF APPROVAL			
SH2COA9	<p>Final Layout Plans: Prior to the commencement of construction (apart from upgrades to the public road network and pre-construction minor works), the Proponent must submit detailed plans of the final layout of the project to the Secretary, including:</p> <ul style="list-style-type: none"> (a) details on the micro-siting of any wind turbines and/or ancillary (b) identification of impacted vegetation communities and threatened fauna locations and habitat; (c) identification of impacted heritage items; and (d) the GPS coordinates of the final wind turbine locations. <p>Should the final layout plans identify any increase in impacts to biodiversity or heritage items than those identified in the EA, the Proponent must seek further approval from the Secretary.</p> <p>Note: If the construction of the project is to be staged, then the provision of these plans may be staged.</p>	<p>Compliant</p> <p>2018 IEA OFI 08 Submit the latest Final Layout Plan (Rev 5) to the DPE</p>	<p>Response to OFI 08 GE-CATCON to issue to DPE Rev 5 of the Final Layout Plan.</p>
STRUCTURAL ADEQUACY			

Reference	Condition	Audit Finding	AGL Action Response
SH2COA1 1	<p>The Proponent must ensure that:</p> <p>(a) the wind turbines are constructed in accordance with the relevant standards, including the structural design requirements of IEC 61400-1 Wind turbines – Part 1: Design Requirements (or equivalent); and</p> <p>(b) all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.</p> <p>Notes:</p> <ul style="list-style-type: none"> • Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works. • Part 8 of the EP&A Regulation sets out the requirements for the certification of the project. 	<p>Not Triggered (Wind Farm Works)</p> <p>Compliant (Connection Works)</p>	<p>Note on Not Triggered (Wind Farm Works).</p> <p>Once the windfarm has reached Facility Practical Completion a Design Certification Letter will be provided to DPE for turbines, buildings and ancillary structures as evidence of compliance.</p>
COMMUNITY ENHANCEMENT			
SH2COA1 8	<p>Within 6 months of the commencement of construction, the Proponent must prepare a Community Enhancement Program for the project to the satisfaction of the Secretary. This program must:</p> <p>(a) be prepared in consultation with Broken Hill City Council, the Silverton Village Committee and the Community Consultative Committee for the project;</p> <p>(b) establish clear governance arrangements for the Silverton Community Fund; and</p> <p>(c) describe the measures that would be implemented to give effect to the commitments in Appendix 3. Following the Secretary's approval, the Proponent must implement the Community Enhancement Program.</p>	<p>Not Verified</p> <p>2018 IEA OFI 09 Confirm with DPE as to whether formal approval of the Program is required.</p>	<p>Response to OFI 09</p> <p>AGL is currently consulting with DPE on this item.</p>
SOIL & WATER			
SH3COA1 6	<p>Operating Conditions: The Proponent must:</p> <p>(a) minimise any soil erosion associated with the construction and decommissioning of the project by implementing the relevant mitigation measures in</p>	<p>Not verified (a)</p> <p>Non-Compliant (b)</p> <p>Refer to SH3COA36 and Section 5.1 of the main IEA report for detailed</p>	<p>Response to REC 01</p> <p>Permanent drainage is progressively being installed across the windfarm. Temporary floodway crossings have</p>

Reference	Condition	Audit Finding	AGL Action Response
	<p>Managing Urban Stormwater: Soils and Construction Manual (Landcom 2004), or its latest version;</p> <p>(b) ensure all waterway crossings are constructed in accordance with the relevant Water Guidelines for Controlled Activities on Waterfront Land (2012), or their latest version;</p> <p>(c) store and handle all dangerous goods or hazardous materials on site, and ensure the concrete batching plants and substations on site are bunded, in accordance with AS1940-2004: The storage and handling of flammable and combustible liquids, or its latest version; and</p> <p>(d) minimise any hydrocarbon spills on site, and clean up any spills as soon as possible after they occur.</p>	<p>observations and recommendations.</p> <p>2018 IEA REC 01 Install adequate and permanent drainage structures for the access roads across the Wind farm site to manage erosion and sediment control risks. It would be expected that this would include: the input of an Erosion and Sediment control expert; a survey across the site to identify all areas of concern and risk rank them according to potential impact; and progressively construct suitable controls across the site. Priority should be given to areas within and surrounding CEECs, such as in Area 7.</p> <p>2018 IEA REC 02 Conduct an assessment (or audit) to ensure/confirm that designed controls (culverts and drainage lines) are installed as required by the design and in accordance with the relevant Water Guidelines for Controlled Activities on Waterfront Land (2012), across the site. Install appropriate crossings as required.</p> <p>2018 IEA OFI 10 Review erosion and sediment controls across the site in coordination with the recommendation to review drainage structures under Schedule 3, Condition 16, PA 08_0022.</p> <p>2018 IEA OFI 11 Review drainage along the Connection Works</p>	<p>been installed with permanent flood ways to be installed mid October 2018. The installation of floodway crossings was pushed back due to the heavy equipment (600 tonne cranes) and oversized heavy deliveries (turbine components) traversing these locations with the potential to crack the new floodway drainage (concrete stabilised bases).</p> <p>A drainage engineer will undertake a risk review of site drainage with information to be incorporated into the projects drainage design report. A series of 'As Constructed' drawings will be issued to AGL to demonstrate compliance with this aspect. AGL will provide this information to the Department on Facility Practical Completion (current timing is mid-January 2019)</p> <p>2018 IEA REC 02: GE-CATCON, as part of their design compliance process, will undertake an assessment that designed controls (culverts and drainage lines) are installed in accordance with the 'Basis of Design' report confirming they are designed in accordance with the relevant Water Guidelines for Controlled Activities on Waterfront Land (2012). As per above floodway crossings are planned for installation in mid-October 2018. AGL will provide this information to DPE on Facility Practical</p>

Reference	Condition	Audit Finding	AGL Action Response
		access track and implement controls to ensure drainage is directed off the track to minimise erosion, particularly where there exists long runs on steeper gradients.	Completion (current timing is mid-January 2019) 2018 IEA OFI 10 and 11: A review of drainage controls is planned for early September 2018 with TransGrid personnel and site works to commence following this review.
BIODIVERSITY			
SH3COA1 7	<p>Operating Conditions: The Proponent must:</p> <ul style="list-style-type: none"> • 0.81 hectares of Porcupine Grass Sparse Woodland CEEC; and • 0.54 hectares of the Mulga/Red Mallee Shrubland and Chenopod – Red Mallee Woodland/Shrubland; is cleared for the project, unless the Secretary agrees otherwise; (b) ensure wind turbines are located as far as possible, but at least 200 metres, from raptor nests unless the Secretary agrees otherwise; (c) ensure no development occurs in mapped Barrier Range Dragon habitat hotspots (see figure in Appendix 5); (d) locate wind turbines as far as practicable away from treed vegetation, rocky outcrops, caves or disused mine shafts/sites; (e) minimise: <ul style="list-style-type: none"> • impacts on the Barrier Range Dragon; • impacts on threatened bird and bat populations; • the clearing of native woodland vegetation and fauna habitat, in particular spinifex habitat, standing dead trees and woody habitat and high biodiversity value vegetation communities; and (f) enhance the Porcupine Grass Sparse Woodland CEEC on site (see figure in Appendix 5) to ensure there is a net gain in the conservation value of this community. 	<p>Not Verified (f) for Wind Farm</p> <p>2018 IEA OFI 12 AGL to confirm clearing limits through a quality review of data utilised in the development of the Porcupine Grass Sparse Woodland Clearance Register.</p> <p>2018 IEA REC 03 Finalise and Implement the Porcupine Grass Sparse Woodland Recovery Plan so as to demonstrate the protection and enhancement of the Porcupine Grass Sparse Woodland CEEC on site.</p>	<p>2018 IEA OFI 12: AGL with the assistance of Jacobs will undertake a quality review of clearing data to confirm clearing amounts are accurate as reported by GE-CATCON. AGL will provide this information to DPE on Facility Practical Completion (current timing is mid-January 2019)</p> <p>2018 IEA REC 03 Once the Porcupine Grass Sparse Woodland Recovery Plan is approved by DPE management measures will be implemented once the site is operational</p>

Reference	Condition	Audit Finding	AGL Action Response
SH3COA18	<p>Biodiversity Management Plan: Prior to the commencement of construction, the Proponent must prepare a Biodiversity Management Plan for the project in consultation with OEH, DI Lands and local leaseholders on site, and to the satisfaction of the Secretary. This plan must:</p> <ul style="list-style-type: none"> (a) include updated baseline mapping of the vegetation communities and key fauna habitat onsite; (b) clearly identify the areas on site that would be disturbed; (c) include a: <ul style="list-style-type: none"> • description of the measures that would be implemented for: <ul style="list-style-type: none"> - minimising the amount of clearing within the approved project footprint; - minimising the loss of key fauna habitat; - minimising the impacts on fauna on site, including undertaking pre-clearance surveys; - rehabilitating and revegetating temporary disturbance areas; - protecting vegetation and fauna habitat outside the approved disturbance area; - maximising the salvage of resources within the approved disturbance area - including rocks, vegetation and soil resources - for beneficial reuse (including revegetation and fauna habitat enhancement) on site; - collecting and propagating seed (where relevant); - controlling weeds and feral pests; - controlling erosion; - controlling access; and - bushfire management; • Recovery Plan for enhancing the conservation value of the Porcupine Grass Sparse Woodland CEEC on site, that includes: <ul style="list-style-type: none"> - baseline data on the vegetation and fauna habitat within the community; and - detailed performance and completion criteria for evaluating the performance of the enhancement activities; • Barrier Range Dragon 	<p>Preparation: Not Verified</p> <p>Implementation: Compliant</p> <p>2018 IEA OFI 13 Ensure that in active construction areas flagging or other suitable delineation is maintained to define where CEECs, other sensitive areas and where there is a potential for vehicles to track onto native vegetation.</p> <p>2018 IEA OFI 14 Conduct more seed collection onsite to ensure sufficient seed storage for rehabilitation. Seeds collected from site should be routinely used in rehabilitation where topsoils are not available to spread out over disturbed areas.</p> <p>2018 IEA OFI 15 Update the Connection Works Construction Biodiversity Management Plan for Operations or pull out the requirements relating to post construction rehabilitation, restoration and weed control into an operational document so that they are not overlooked now that construction activities are complete.</p> <p>2018 IEA OFI 16 Implement controls for goats as part of the approved Goat Management Plan. Refer to recommendations for other conditions relating to rehabilitation and erosion and sediment control.</p>	<p>Response to OFI 13 AGL with the assistance of Jacobs will undertake a review of active construction areas to ensure flagging or other suitable delineation is maintained to define where CEECs, other sensitive areas and where there is a potential for vehicles to track onto native vegetation.</p> <p>Response to OFI 14 GE-CATCON are continuing to collect native seed from site and are planning to use for rehabilitation works during times that coincide with forecasted rain events.</p> <p>Response to OFI 15 Jacobs undertook a Close Out Report in May 2018. This contains the requirements relating to post construction rehabilitation, restoration and weed control. TransGrid are committed to undertaking their works in accordance with the DPE approved Connection Works Construction Biodiversity Management Plan.</p> <p>2018 IEA OFI 16 Once the Goat Management Plan is approved by DPE management measures will be implemented once the site is operational</p>

Reference	Condition	Audit Finding	AGL Action Response
	<p>Management Plan for minimising any impacts on the species on site and enhancing the potential habitat for this species;</p> <ul style="list-style-type: none"> • Goat Management Plan for the site; • Vegetation Management Plan for restoring vegetation and habitat in the temporary disturbance areas and clearing vegetation for transmission line maintenance; and • include a detailed program to monitor and report on the performance of these measures. Following the Secretary's approval, the Proponent must implement the Biodiversity Management Plan. 		
HERITAGE			
SH3COA2 1	<p>Heritage Management Plan: Prior to the commencement of construction, the Proponent must prepare a Heritage Management Plan for the project to the satisfaction of the Secretary. This plan must:</p> <ul style="list-style-type: none"> (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary; (b) be prepared in consultation with OEH, Aboriginal stakeholders (in relation to Aboriginal heritage) and any local historical organisations (in relation to historical heritage); (c) include updated baseline mapping of the heritage items on site (see the figures and tables in Appendix 6); (d) include a description of the measures that would be implemented for: <ul style="list-style-type: none"> • managing the discovery of human remains or previously unidentified heritage items; • conducting further archaeological and heritage assessment in any disturbance areas where this assessment has not already been carried out; and • ensuring any workers on site receive suitable heritage inductions prior to carrying out any work on site; (e) include the following for the 	<p>Compliant</p> <p>2018 IEA OFI 17 Conduct a reconciliation of which aboriginal heritage items were impacted and update the Wind Farm Works HMP to reflect this.</p> <p>2018 IEA OFI 18 Update the Wind Farm Works HMP to include new aboriginal heritage items identified since March 2018 (both maps in Appendix B and list in Appendix C).</p>	<p>Response to OFI 17 and 18 GE-CATCON have commenced a reconciliation of aboriginal heritage items across site. The operational Windfarm Heritage Management Plan currently under DPE review includes the latest information relating to current heritage items onsite and ongoing management measures required during the operational phase.</p>

Reference	Condition	Audit Finding	AGL Action Response
	<p>management of Aboriginal heritage:</p> <ul style="list-style-type: none"> • a description of the measures that would be implemented to: <ul style="list-style-type: none"> - protect the heritage items outside the project disturbance area; - minimise and manage the impacts of the project on heritage items within the disturbance area, including: <ul style="list-style-type: none"> o any proposed archaeological investigations and/or salvage measures; and o a strategy for the long-term management of any items or material that are collected during any of these archaeological or works; - monitor and report on the effectiveness of any mitigation measures and any heritage impacts of the project; - maintain and manage reasonable access for Aboriginal stakeholders to heritage items on site; and - provide for ongoing consultation with Aboriginal stakeholders in the conservation and management of Aboriginal cultural heritage on site; (f) include the following for the management of historic heritage: <ul style="list-style-type: none"> - a description of the measures that would be implemented to: <ul style="list-style-type: none"> - protect the heritage items outside the project disturbance area; - minimise and manage the impacts of the project on heritage items within the disturbance area, including: <ul style="list-style-type: none"> - archaeological test excavations or salvage of all sites of local significance in accordance with the NSW Heritage Manual; and - photographic and archival recording of all heritage items that would be affected by the project; and monitor and report on the effectiveness of these measures and any heritage impacts of the project. <p>Following the Secretary's approval, the Proponent must implement the Heritage Management Plan.</p>		
TRAFFIC			

Reference	Condition	Audit Finding	AGL Action Response
SH3COA2 4	<p>Road Upgrade and Maintenance Strategy: Prior to carrying out any construction, or the decommissioning of the project, the Proponent must prepare a Road Upgrade and Maintenance Strategy for the project in consultation with RMS, DI Lands and Broken Hill City Council, to the satisfaction of the Secretary. The strategy must:</p> <ul style="list-style-type: none"> (a) identify the road upgrades required for the project; and (b) include a program for: <ul style="list-style-type: none"> • the implementation of the road upgrades; and • the maintenance of the relevant sections of the road network following the upgrades. <p>Following the Secretary's approval, the Proponent must implement the Road Upgrade and Maintenance Strategy.</p>	<p>Not Verified</p> <p>2018 IEA REC 04 Ensure the RUMS has been updated to document the outcomes of the actions identified by the DPE in its approval of the Plan.</p>	<p>Response to REC 04 GE-CATCON will review the RUMS to ensure the outcomes of the actions identified by the DPE in its approval of the Plan. Expected timing is September 2018.</p>
SH3COA2 5	<p>Road Upgrades and Maintenance: The Proponent must carry out all the road works identified in the Road Upgrade and Maintenance Strategy to the satisfaction of the relevant roads authority.</p>	<p>Compliant</p> <p>2018 IEA OFI 19 Continue working with RMS to complete the intersection upgrades at the Daydream Mine Road to the satisfaction of RMS.</p>	<p>Response to OFI 19 AGL and GE-CATCON will continue to liaise with RMS to complete the intersection upgrades at the Daydream Mine Road</p>
SH3COA2 7	<p>Traffic Management Plan: Prior to the commencement of construction, the Proponent must prepare a Traffic Management Plan for the project, in consultation with RMS, DI Lands and Broken Hill City Council, and to the satisfaction of the Secretary. This plan must detail the measures that would be implemented to:</p> <ul style="list-style-type: none"> (a) minimise the traffic safety impacts of the project and disruption to local road users during the construction and decommissioning of the project, including: <ul style="list-style-type: none"> • temporary traffic controls, including detours and signage; • notifying the local community about project-related traffic impacts; • responding to any emergency repair or maintenance 	<p>Not Verified</p> <p>2018 IEA REC 05 Ensure the TMP has been updated to document the outcomes of the actions identified by the DPE in its approval of the Plan.</p>	<p>Response to REC 05 GE-CATCON will review the TMP to ensure the outcomes of the actions identified by the DPE in its approval of the Plan. Expected timing is September 2018.</p>

Reference	Condition	Audit Finding	AGL Action Response
	<p>requirements;</p> <ul style="list-style-type: none"> • implementing a strategy for minimising the traffic impacts associated with the use of over-dimensional vehicles; (b) ensure the project does not disrupt the use of any travelling stock route on site; (c) comply with the traffic-related conditions in this approval; and (d) include a drivers code of conduct that addresses: <ul style="list-style-type: none"> • travelling speeds; • procedures to ensure that drivers adhere to the designated heavy and over-dimensional vehicle routes; • procedures to ensure that drivers implement safe driving practices, particularly if using roads through Broken Hill or Silverton; and • monitor and report on the effectiveness of these measures and the code of conduct. <p>Following the Secretary's approval, the Proponent must implement the Traffic Management Plan.</p>		
RADIO COMMUNICATIONS			
SH3COA30	<p>Prior to the commencement of construction, the Proponent must undertake a baseline assessment of radio communication services to assess the pre-existing signal strength at any residence within 5 kilometres of the site, in consultation with registered communications licence holders (including emergency services). If this assessment identifies the potential for interference as a result of the project, the Proponent must identify and implement reasonable and feasible mitigation measures to address any potential disruption in consultation with the landowner (where applicable). These measures must be implemented within 3 months of the completion of the baseline assessment, or as otherwise agreed by the Secretary.</p>	<p>Not Verified</p> <p>2018 IEA REC 06</p> <p>Ensure the recommendations within the baseline assessment of radio communication services are implemented.</p>	<p>Response to REC 06</p> <p>AGL will ensure recommendations within the baseline assessment of radio communication services are implemented in accordance with contract requirements in place.</p> <p>Expected timing is Q1 2019.</p>
BUSHFIRE			

Reference	Condition	Audit Finding	AGL Action Response
SH3COA3 2	The Proponent must: (a) ensure that the project: • provides for asset protection in accordance with the RFS's Planning for Bushfire Protection 2006 (or its latest version); • is suitably equipped to respond to any fires on site; (b) develop procedures to manage potential fires on site, in consultation with the RFS; and (c) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site.	Compliant 2018 IEA OFI 20 The site emergency response plan could include reference to the Silverton Wind Farm District Pre-Incident Plan prepared by NSW Rural Fire Services.	Response to OFI 20 AGL will liaise with GE-CATCON on this OFI and provide DPE an update on this item.
REHABILITATION & DECOMMISSIONING			
SH3COA3 6	Progressive Rehabilitation: The Proponent must (a) rehabilitate all areas of the site not proposed for future disturbance progressively, that is, as soon as reasonably practicable following construction or decommissioning; (b) minimise the total area exposed at any time; and (c) employ interim rehabilitation strategies to minimise dust generation, soil erosion and weed incursion on parts of the site that cannot yet be permanently rehabilitated.	Windfarm Works a) Not Verified c) Non compliant Connection Works Compliant Recommendations relate to Wind Farm Works only) 2018 IEA REC 07 Employ interim rehabilitation strategies as required of SH3COA36 to minimise soil erosion where permanent controls cannot be immediately completed. Specifically high risk areas e.g. steep cable runs and access roads in steep areas or in Area 7 should be prioritised. 2018 IEA REC 08 Develop a documented approach with input from suitable experts for the ongoing rehabilitation of the site. This should define rehabilitation criteria over time; what would be done if rehabilitation fails; methods for signing off when rehabilitation has reached agreed rehabilitation criteria; and	Response to REC 07 Following the audit GE-CATCON have developed a construction rehabilitation plan (J880-PLN-040). Refer to attached Plan for Information (Attachment A). Note this is a draft and under review. In line with this plan GE-CATCON has employed additional interim rehabilitation strategies as required of SH3COA36 to minimise soil erosion where permanent controls are yet to be completed cannot be immediately completed. Refer to attached photos from Jacobs inspection in August 2018 (Attachment B) and recent progress photos from GE-CATCON (Attachment C) for evidence of these measures being installed across site.

Reference	Condition	Audit Finding	AGL Action Response
		<p>define progressive rehabilitation approaches. It is noted that the Draft Vegetation Management Plan addresses some aspects of the recommendation.</p> <p>2018 IEA REC 09 Large cleared and disturbed areas be provided with improved ERSED controls and rehabilitated progressively. This applies to laydown areas no longer required for construction; and the crusher area. Checks using rock would provide a longer term control and would likely be more effective.</p> <p>2018 IEA OFI 21 Ensure adequate weed monitoring is conducted after rain events. Suitable controls should be in place to controls weeds identified. It is noted that the Vegetation Management Plan describes an approach to weed management and hence addresses some aspects of this OFI.</p>	<p>Response to REC 08 Following the audit GE-CATCON have developed a construction rehabilitation plan (J880-PLN-040). Refer to attached draft Plan for Information (Attachment A). Note this is a draft and under review.</p> <p>Contained within this plan are measures that “define rehabilitation criteria over time; what would be done if rehabilitation fails; methods for signing off when rehabilitation has reached agreed rehabilitation criteria; and define progressive rehabilitation approaches”.</p> <p>Response to REC 09 Large disturbed areas are being prioritised for rehabilitation and tracked through Jacobs ongoing site inspections. Progress of these sites is reported and discussed at the monthly EPC meeting and AGL and Jacobs weekly progress meetings.</p> <p>Response to OFI 21 Ongoing weed management is described in the connection works and windfarm works biodiversity management plans. Further long-term monitoring of weeds is contained in the Operational Vegetation Management Plan which is currently with the DPE for approval.</p> <p>It should be noted that there has been a</p>

Reference	Condition	Audit Finding	AGL Action Response
			considerable dry spell in the local region which has reduced the opportunity to date to review site works for incursion of weed growth which is often triggered after periods of rain.
REPORTING			
SH4COA6	Regular Reporting: The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	<p>Non-compliant</p> <p>2018 IEA REC 10 Provide regular reporting on environmental performance on the AGL Silverton Wind Farm website.</p> <p>2018 IEA REC 11 Update the Overview Environmental Management Strategy to outline the environmental performance reporting which will be provided to the public as per the reporting arrangements in the various plans prepared for the Project.</p>	<p>2018 IEA REC 10 AGL currently provides a general overview of environmental performance items during its CCC discussions with the local community and stakeholders. This information is recorded in meeting minutes and CCC presentation which are uploaded onto the AGL website. AGL will consider in consultation with DPE whether further reporting on environmental performance is required.</p> <p>2018 IEA REC 11 AGL will undertake a review of the approved OEMS to identify reporting requirements contained within the other DPE approved management plans. Expected timing is October 2018.</p>
COMMUNITY ENHANCEMENT COMMITMENTS			
AP3COA5	Solar Silverton Program: Due to the heritage qualities of Silverton, not all residences may be suitable for installation of solar equipment, and the Proponent will ensure heritage issues are taken into account.	<p>Compliant</p> <p>2018 IEA OFI 22 Update the Silverton Wind Farm Community Enhancement Program to discuss how heritage issues will be taken into account when assessing whether residences are suitable for the installation of solar equipment.</p>	<p>Response to OFI 22 AGL will incorporate these aspects into the Community Enhancement Program.</p>

SILVERTON WIND FARM



SITE REHABILITATION PLAN

Project Name:	Silverton Wind Farm
Doc No.:	J880-PLN-040

CURRENT REVISION		
Revision:	Reason for Revisions:	Date of Revision
0	Issued for Construction	
Prepared by:	G. House	7.08.18
Reviewed by:	R. Sharp	17.08.18
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1.0 INTRODUCTION

1.1 Project Outline

Located 5km from Silverton and 25km north-west of Broken Hill, the Silverton Wind Farm comprises 58 3.4MW GE turbines, a 33kV electrical reticulation system (overhead and underground), a 33kV Substation, 25km of Overhead 220kV transmission line to Broken Hill and approximately 75km on internal formed roads.

Construction is being undertaken through a GE-CATCON consortium covering engineering, procurement and construction activities.

The Silverton Wind Farm is a critical infrastructure project under section 75C of the Environmental Planning and Assessment Act 1979.

1.2 Purpose

The Site Rehabilitation Plan is intended to:

1. provide a documented approach to the rehabilitation of disturbed areas as required by Project Approval (Mod 3) of 22 December 2016 under Schedule 2, Clause 36 Progressive Rehabilitation, which outlines the following requirements:

The Proponent must:

- (a) *Rehabilitate all areas of the site not proposed for future disturbance progressively, that is, as soon as reasonably practicable following construction;*
 - (b) *Minimise the total area exposed at any time;*
 - (c) *Employ interim rehabilitation strategies to minimise dust generation, soil erosion and weed incursions on parts of the site that cannot yet be permanently rehabilitated.*
2. provide the Client details of management processes and procedures, and a trackable programme of rehabilitation works;
3. articulate measures to be undertaken to achieve required rehabilitation of disturbed areas;
4. provide a framework for inspection and approval of site rehabilitation works; and
5. nominate relevant parties and personnel involved in the application and approval of relevant rehabilitation methodologies and processes.

1.3 Conduct and Implementation

The Site Rehabilitation Plan will be implemented in stages covering all aspects of construction and ground disturbance, including:

- Underground HV Electrical reticulation routes;
- Overhead HV Electrical Transmission pole and Met Mast access tracks;
- Turbine hardstands;
- Site laydown and equipment storage/movement areas;
- Internal road network and waterway crossings;
- Construction infrastructure and buildings; and
- Operational infrastructure and buildings.

2.0 REFERENCES

- Project Approval – Modification 3, dated 22 December 2016
- J880-PLN-006 *Construction Environmental Management Plan* (Rev 0) and Sub Plans (dated 16 April 2018)
- *Erosion and Sediment Control Plans*
- *Biodiversity Management Plan* (Rev 1, dated 20 February 2018)
- Protection of the Environment Operations Act 1997
- NSW Environmental Protection Regulations (Various)

3.0 METHODOLOGIES AND PROCESSES

3.1 Underground HV Electrical Reticulation Routes

All trenches for installation of HV electrical cabling between turbines and overhead lines will be rehabilitated as soon as practicable following testing and approval of the installed infrastructure. Rehabilitation processes will involve:

- Where possible, contour ground surface to replicate original form;
 On steeper slopes with significant side-fall where trench lines have been benched, such benches will be retained and rehabilitated as described. It is considered that attempting to reinstate the natural contour in such areas may incur further disturbance to sensitive areas (Porcupine Grass Sparse Woodland), could not be successfully stabilised, and could be unsafe to attempt.
- Replacement of excavated topsoil containing local seed, etc.;
- Placement of naturally occurring materials - rock and timber - for erosion and sediment control and to replicate pre-construction conditions;
 On steeper slopes rock and timber will be arranged across the slope as rock barriers or diversion banks to reduce flow velocity and direction.
- Light scarification of soil surface to relieve compaction and facilitate seed generation; and
- Where necessary, place natural barriers at road crossings to exclude vehicular traffic from travel along trench lines.

It should be noted that landowner requirements and preferences are not relevant to HV electrical cable routes, except for fence line crossings.

If necessary, fences will be reinstated on original alignments.



Photo: Underground HV electrical trench between T34 and T35 (Area 7): Bench to be retained and rehabilitated to minimise disturbance to Porcupine Grass Sparse Woodland.



Photo: Underground HV electrical trench between T07 and T08: Rehabilitated with rock barriers or diversion banks installed to control and disperse any downhill water flow.



Photo: Underground HV electrical trench between overhead line and T52: Rehabilitation complete.

3.2 Overhead HV Electrical Transmission Pole and Met Mast Access Tracks

Access tracks to overhead transmission poles and permanent met masts will be required for maintenance purposes for the life of the Wind Farm.

- The finish will reflect a 'dry weather 4WD access' standard and will incorporate erosion control devices on slopes;
- Erosion control devices could include 'whoa boys', 'roll overs' or 'diversion banks' (essentially different names for the same structure).

Landholders will be consulted regarding relevant size and spacing of these structures, based on local knowledge of rainfall events and land characteristics.

- 'Turnout drains' off-track sides to divert water away from track; and
- Where necessary, removal of overburden from track sides to aid in water dispersal.

The photographs below are examples of HV transmission pole access tracks to be rehabilitated.



3.3 Turbine Hardstands

Access to turbines and hardstands (including the blade laydown area) will be required for monitoring and maintenance purposes for the life of the Wind Farm.

Hardstands have been constructed from compacted soil and rock and topped with a gravel road base, as per relevant design standards and requirements.

- Rehabilitation of hardstands will involve contouring of the hardstand surface to disperse water to a suitable exit point where surface flow effects will be minimised. Where necessary, rock chutes will be constructed to prevent erosion of the hardstand at the exit point, and rock formations installed at the base of chutes to disperse water; and
- Grade of hardstand surface shall be in the order of 1%.

3.4 Site Laydown and Equipment Storage/Movement Areas

Temporary construction laydown and equipment areas have been established at various locations across the site. In general terms, they have been sighted in areas requiring minimal disturbance to the natural environment.

Likewise, heavy vehicle turn-around areas have been sited to ensure minimal disturbance. Rehabilitation of these areas will involve:

- Where necessary, ripping of ground surface to relieve compaction and to assist with 'keying-in' of topsoil;
- Replacement of excavated topsoil containing local seed, etc.;
- Placement of naturally occurring materials - rock and timber - for erosion and sediment control, and to replicate pre-construction conditions;
- Light scarification of soil surface to relieve compaction and facilitate seed generation; and
- Where necessary, place natural barriers at road entry/exit points to exclude vehicular traffic from travel on rehabilitated areas.

NOTE: At the request of the relevant Landholder, the former concrete batch plant site will not be reinstated to former condition and will be utilised by the landowner for pastoral practices.



Photo: Rehabilitated storage/traffic turn-around area.



Photo: Equipment laydown area with stockpiled topsoil, awaiting rehabilitation.

3.5 Internal Road Network and Waterways Crossings

The 75km of internal access roads constructed as part of the project will be required for monitoring and maintenance purposes for the life of the Wind Farm.

Roads have been constructed from compacted soil and rock and topped with a gravel road base, as per relevant design standards and requirements.

- Rehabilitation works on the internal road network will involve the installation of erosion control structures etc. as per the approved Erosion and Sediment Control Plans;
- Creek crossings (Lakes Creek and Lakes Grave Creek) will have the road surface reinstated to level with creek bed so as not to obstruct flow and treated/topped with a stabiliser; and
- Additional works may be considered pursuant to a formal road report, if undertaken.



Photo: Lakes Creek Road crossing

3.6 Construction Infrastructure and Buildings

Other than the construction office complex and storage containers, there are no construction buildings or infrastructure.

- All demountable office buildings and facilities and electrical and plumbing infrastructure will be removed from the site, including the storage area adjacent to the office complex;
- All storage containers will be removed from the site;
- Unless otherwise required by the Client or relevant Landholder, security fences will be removed from site; and
- Unless otherwise required by the Client or relevant Landholder, benched carpark sites, container storage areas, and office compound laydown areas may be reinstated to replicate pre-construction conditions.

3.7 Operational Infrastructure and Buildings

Permanent infrastructure and buildings consist of:

- Operations and Maintenance Facility; and
- Electrical Substation.

Both facilities will be subject to reinstatement and rehabilitation measures as set out in specific design plans and Erosion and Sediment Control Plans.



Photo: Electrical Substation, with rehabilitation works commenced.



Photo: Operations and Maintenance Facility, with rehabilitation works commenced.

3.8 Other Considerations

3.8.1 Habitat Enhancement – Barrier Range Dragon

As per the *Barrier Range Dragon Management Plan* (a sub-plan of the *Biodiversity Management Plan*), excess "...rocks and boulders that cannot be used as part of the works will be placed within the disturbance area at locations where they are adjacent potential dragon habitat".

Where such conditions exist, and it is practical to do so without excess disturbance to the natural environment, this work will be undertaken at the direction of relevant environmental specialists.

3.8.2 Revegetation

As per the *Biodiversity Management Plan*, Clause 5.7 *Collecting and Propagating Seed*, "When appropriate and if practical, seed will be collected from native woodland vegetation that is cleared in the disturbance area and used for rehabilitation purposes".

An amount of wattle seed (primarily *Acacia Victoriae*) has been collected. However wide spread drought conditions have severely reduced the availability of seed.

The same conditions would also reduce successful re-establishment of vegetation from seed.

CATCON is presently investigating the possibility of engaging local Landcare, for growth of seed as tube-stock for re-introduction to the site when conditions have stabilised.

4.0 RECORDS AND APPROVALS

Rehabilitation requirements for all locations will initially be assessed and documented by CATCON's Environmental Coordinator and passed to Jacobs Environmental Management Technical Lead for agreement and/or modification.

The form of that documentation will be a simple schedule for the various aspects listed above, with locations and required action, etc.

These will be 'live' documents, subject to update as rehabilitation works progress.

In addition, environmental records from regular CATCON internal inspections and from external Environmental Consultant's inspections are used for indicative trends throughout the construction process.

Once the agreed rehabilitation works have been undertaken, Jacobs Environmental Management Technical Lead will be required to give written approval of the works as being complete.

5.0 RESPONSIBLE PERSONNEL AND LANDHOLDERS

The following personnel are responsible for the completion of rehabilitation works:

- CATCON: Geoff House, Environmental Co-ordinator (0419 686 205);
- Jacobs: Damien Wagner, Environmental Management Technical Lead (0421 557 870); and
- Environment & Heritage Partners: Richard Sharp, CATCON's Environmental Consultant (0457 303 596).

The following Landholders are relevant parties to any necessary negotiations:

- BELMONT Station: John Blore;
- NINE MILE Station: Greg Lawrence; and
- PURNAMOOTTA Station: D & C Langford.


6.0 APPENDICIES

APPENDIX A: Weekly Environmental Inspection Checklist

APPENDIX B: Fact Sheet: *Acacia Victoriae*

APPENDIX C: Rehabilitation Schedules – Underground HV Trenches and HV Pole Access Tracks/Site Rehabilitation

APPENDIX A: Weekly Environmental Inspection Checklist

 catcon civil & allied technical construction	Civil & Allied Technical Construction 598-600 South Rd, Angle Park SA 5010 Ph. 08 8347 1888 Fax. 08 8347 1877 Email. catcon@catcon.com.au Web. http://catcon.com.au			
Weekly Environmental Inspection				
Site:	Date:			
Inspection Personnel:				
PERFORMANCE INDICATOR All environmental risks are being managed in accordance with the Construction Environmental Management Plan. To be completed at least weekly at random work sites. C = COMPLIANT NC = NON-COMPLIANT N/A = NOT APPLICABLE				
ASPECT AND CRITERIA	C	NC	N/A	COMMENTS
VISUAL AMENITY				
Tracks and roads built to preserve the visual amenity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Impacts from artificial lighting (Night Shift works) acceptable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dust plumes not visible from public areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Signage acceptable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOISE AND VIBRATION				
All works carried out within permitted hours of operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EPA notification for extraordinary works under permit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Refer EPA files
Plant and equipment is fitted with appropriate noise abatement devices (Mufflers, Silencers, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Beepers or squawkers set to suitable levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Potentially affected residents and operators informed/updated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silverton Community Consultative Committee Meetings
Blasting operations carried out in accordance with requirements - Air Blast Overpressure and Ground Vibration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Blasting Contractor's records
No complaints from sensitive receptors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AIR QUALITY				
Plant & equipment fitted with appropriate emission controls.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Water truck in operation where necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vehicles driven at appropriate speeds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Minimal dust generation and movement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vehicles carrying raw materials covered.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SOIL AND WATER (Including ESC)				
Excess topsoil collected, stockpiled, protected.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No contamination of external watercourses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No undue flow restrictions in watercourses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No off-site release of sediments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Minimal scouring on road edges or batters.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ESC measures installed and effective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Form No: STWF-29 Rev: 0 Rev Date: June 18 Authorised by: Project Manager Page 1 of 4 C:\Users\GeoffH\Desktop\ENVIRONMENTAL\FORMS\STWF-29 Weekly Environmental Inspection_R0.docx				

STWF-29 Weekly Environmental Inspection

ASPECT AND CRITERIA	C	NC	N/A	COMMENTS
Evaluate and review ESC measures where necessary (i.e. Post-rainfall event).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sediment fences at topsoil stockpiles (where necessary).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No erosion from surface water discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HAZARDOUS SUBSTANCES				
All hazardous substances are correctly stored and marked.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage equipment complies with any legislative/licensing requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Any spills have been cleaned up correctly and a.s.a.p.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MSDS registers available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bunding where required (Consider quantity and location).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spill equipment available and stocked to appropriate levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No refueling within 50m of watercourse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
FLORA AND FAUNA (BIODIVERSITY)				
No evidence of harm to fauna.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No damage to flora outside work zones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Open excavations appropriately covered or have means of egress/escape.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Open trenches checked for fauna prior to backfill.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dragon 'Hotspots' delineated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No disturbance to delineated Dragon 'Hotspot'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Porcupine Grass Sparse Woodland flagged/delineated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Road and site disturbance minimized in Porcupine Grass - Red Mallee areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hollow bearing trees buffered.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOXIOUS PLANTS/WEEDS AND PEST ANIMALS				
All civil works equipment inspected on initial arrival.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No new/regrowth weeds present in works area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No pest animals observed on site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Any weeds on site identified and treated as required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WASTE MANAGEMENT				
Appropriate disposal of all waste.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No uncontrolled waste at work site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Waste segregation practices where applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Waste receptacles in good working order.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Waste Register updated and current.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

STWF-29 Weekly Environmental Inspection

ASPECT AND CRITERIA	C	NC	N/A	COMMENTS
LAND ACCESS AND SITE DISTURBANCE				
Disturbance confined to approved work area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Exclusion zones delineated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vehicle movements confined to approved roads/tracks etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Property gates open/closed as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Local product used for civil works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stockpiles of appropriate size and location (visibility).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cut-and-fill and batters stabilized.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Areas of upcoming works marked and sensitive areas delineated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ground Disturbance Permit clearances for 'new' works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Property owners and relevant parties informed of works program and progress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Daily Coordination Reports
GREEN HOUSE GAS EMISSIONS				
Minimal exhaust emissions from plant & equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All machinery inspection forms available for review.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All plant is in good operating order as per daily pre-starts/servicing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No burning of any materials on-site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fuel usage records up-to-date and available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HERITAGE: INDIGINOUS AND NON-INDIGINOUS				
No new Cultural Heritage items found on site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Existing Heritage areas flagged/barricaded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No disturbance to marked Heritage areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ground Disturbance Permit clearances obtained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
REPORTING				
All environmental incidents recorded and reported.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All relevant reports available for inspection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Inspection records available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Environmental statistics and indicators recorded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Monthly HSE Report to Client

[illegible][illegible]

APPENDIX B: Fact Sheet – *Acacia victoriae*

PlantNET - FloraOnline
Page 1 of 1

NEW SOUTH WALES FLORA ONLINE

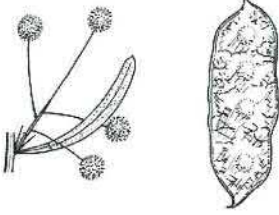
Acacia victoriae Benth.

Family Fabaceae
Subfamily Mimosoideae

Common name: elegant wattle, prickly wattle, gundabluie, Gundabluuey, Bramble wattle, Alupa

Acacia victoriae Benth. **APNI***

Synonyms: *Racosperma victoriae* (Benth.) Pedley **APNI***
Acacia coronalis J.M.Black **APNI***
Acacia decora var. *spinescens* Benth. **APNI***
Acacia harrimana Domin **APNI***
Acacia sentis Benth. **APNI***
Acacia sentis var. *victoriae* (Benth.) Domin **APNI***





Description: Erect or spreading shrub 2–7 m high; bark smooth, dark grey; branchlets ± terete, glabrous to densely hairy. Stipules ± spinescent, mostly 5–15 mm long with often only bases persisting on mature branchlets.

Phyllodes usually narrowly oblong to narrowly elliptic, ± straight to slightly curved, 2–8 cm long, 2–8 mm wide, glabrous to hairy, green to grey-green or glaucous, midvein prominent, lateral veins usually obscure, apex acute to obtuse with a mucro; 1 gland near base; pulvinus < 2 mm long.


Inflorescences 2–15 or sometimes more in an axillary raceme and sometimes 1 in axil of some phyllodes; axis 0.5–10 cm long; peduncles 6–18 mm long, slender, glabrous or sometimes hairy; heads globose, 10–30-flowered, 4–7.5 mm diam., pale yellow to ± white.

Pods straight to slightly curved or sometimes twisted, ± flat except raised over seeds, ± straight-sided and often irregularly slightly or more deeply constricted between seeds, 2–8 cm long, 9–16 mm wide, papery, glabrous; seeds transverse; funicle short and thick; aril small.






Habitat
Photo T.M. Tame



Other photo
Photo T.M. Tame

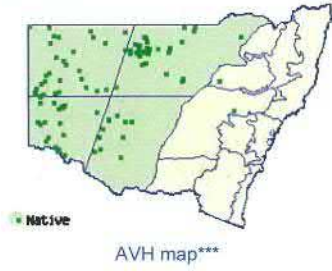


Herbarium
Sheet

Flowering: September–December.

Distribution and occurrence: widespread in inland districts, chiefly west from Angledool. Collections of uncertain status (natural or cultivated) occur from the Central Western Slopes near Narromine and Trangie.

Grows in woodland communities in sandy and heavy clay soils, often along stream banks.
 NSW subdivisions: NWP, SWP, NFWP, SFWP
 Other Australian states: Qld Vic. N.T. S.A. W.A.



Native

AVH map***

On his expedition through central Queensland, Mitchell named the Barcoo River the Victoria River, and the species name refers to Mitchell's name for the river. There are several subspecies of *Acacia victoriae* being assessed.

Text by P.G. Kodala
 Taxon concept: P.G. Kodala & G.J. Harden (2002)

Key to the subspecies

1 Branchlets glabrous; immature and mature phyllodes glabrous.	subsp. <i>victoriae</i>
Branchlets densely hairy; immature and mature phyllodes hairy.	subsp. <i>anda</i>

APNI* Provides a link to the Australian Plant Name Index (hosted by the Australian National Botanic Gardens) for comprehensive bibliographic data.

***The AVH map option provides a detailed interactive Australia wide distribution map drawn from collections held by all major Australian herbaria participating in the Australian Virtual Herbarium project.

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National Herbarium of NSW, Royal Botanic Garden, Sydney, Australia

<http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Acac...> 13/08/2018

APPENDIX C: Rehabilitation Schedules – Underground HV Trenches and HV Poles Access Tracks/Site Rehabilitation
UNDERGROUND HV TRENCH REHABILITATION. 2 August 2018.

COLLECTOR GROUP 1. (Area 4).			
Location	Requirement	Comments	CPP Status
OHL to T1	Nil		CLOSED
T1 to T2		Catcon/Blore to determine final track requirements.	CLOSED
T1 to T3	Nil	Rehab completed.	CLOSED
T3 to T4	Full rehab required.		OPEN
T4 to T5	Full rehab required.		OPEN
OHL to T6	Nil	Cable under pole access track.	CLOSED
T6 to T7	Full rehab required.		OPEN
T7 to T8	Nil	Rehab completed.	CLOSED
T8 to T9	Nil	Cable under pole access track.	CLOSED
T9 to T10	Nil	Rehab completed.	CLOSED
T10 to T11	Partial rehab required.	Towards T11 end of run.	OPEN
OHL to T12	Partial rehab required.		OPEN
T12 to T13	Partial rehab required.		OPEN
COLLECTOR GROUP 2. (Area 5).			
OHL to T14	Nil	Rehab completed.	CLOSED
T14 to T15	Nil	Rehab completed.	CLOSED
T15 to T16	Full rehab required.		OPEN
OHL to T17	Nil	Rehab completed.	CLOSED
OHL to T18	Full rehab required.		OPEN
T18 to T19	Nil	Rehab completed.	CLOSED
T19 to T20	Full rehab required.		OPEN
T20 to T21	Full rehab required.		OPEN
OHL to T22	Partial rehab required.	Section - Pole 19B to Road MC27 (50m). Note : This is not formal access track for pole.	OPEN
OHL to T23	Full rehab required.		OPEN
T23 to T24	Full rehab required.		OPEN
T23 to T25	Full rehab required.		OPEN
T25 to T26	Full rehab required.		OPEN
COLLECTOR GROUP 3. (Area 7).			
OHL to T32	Nil	Rehab completed.	CLOSED
T32 to T33	Nil	Rehab completed. (Under road ?)	CLOSED
T32 to T34	Partial rehab required.	Remove flagging and pickets etc.	OPEN

T34 to T35	Full rehab required.		OPEN
T34 to T29	Nil	Rehab completed. (Under road).	CLOSED
T29 to T30	Partial rehab required.	Hill crossing closer to T30 end of run.	OPEN
T30 to T31	Nil	Rehab completed. (Under road).	CLOSED
OHL to T28	Nil	Rehab completed.	CLOSED
COLLECTOR GROUP 4. (Area 2).			
OHL to T27	Partial rehab required.	Part trench common with access track to pole.	OPEN
OHL to T36	Nil	Rehab completed.	CLOSED
T36 to T37	Nil	Rehab completed.	CLOSED
T37 to T38	Partial rehab required.	Under investigation - TBA.	OPEN
T38 to T39	Nil	Rehab completed.	CLOSED
OHL to T40	Nil	Rehab completed.	CLOSED
T40 to T41	Nil	Rehab completed.	CLOSED
OHL to T42	Nil	Rehab completed.	CLOSED
T42 to T43	Nil	Rehab completed.	CLOSED
T43 to T44	Nil	Rehab completed.	CLOSED
T43 to T45	Nil	Rehab completed.	CLOSED
COLLECTOR GROUP 5. (Area 6).			
OHL4 to T49	Nil	Rehab completed.	CLOSED
T49 to T50	Nil	Rehab completed.	CLOSED
T50 to T51	Nil	Rehab completed.	CLOSED
OHL to T46	Partial rehab required.	Rehab completed on "new" alignment. Original alignment to be corrected.	OPEN
T46 to T47	Partial rehab required.	Gully section - as detailed in email 27/7/18.	OPEN
OHL to T52	Nil	Rehab completed.	CLOSED
T52 to T53	Nil	Rehab completed.	CLOSED
T53 to T54	Nil	Rehab completed.	CLOSED
T54 to T55	Nil	Rehab completed.	CLOSED
T55 to T56	Nil	Rehab completed.	CLOSED
T56 to T57	Nil	Rehab completed.	CLOSED
T57 to T58	Nil	Rehab completed.	CLOSED
ALL AREAS - Installation of applicable signage at fence lines and roadsides re: Buried Cable.			

HV POLE ACCESS TRACK AND SITE REHABILITATION. 4 August 2018.

OHL 1 & OHL 2 (Areas 4 & 5).			
Pole No. & Location.	Requirement	Comments	CPP Status
OHL1P1B & OHL2P1B	Nil	Roadside. Access OK. Site rehab complete.	CLOSED
OHL1/2P2B	Erosion/flow control measures required.	Access opposite O&M Building.	OPEN
OHL1/2P3B	Erosion/flow control measures required.	"Belmont" property track Lim Hill to T2.	OPEN
OHL1P4B & OHL2P4B	Nil		CLOSED
OHL1P5B & OHL2P5B	Erosion/flow control measures required.	T1.	OPEN
OHL1/2P6B	Erosion/flow control measures required.	Continuation from P5B.	OPEN
OHL1P7B & OHL2P7B	Erosion/flow control measures required.	T4.	OPEN
OHL1/2P8B	Nil		CLOSED
OHL1P9B & OHL2P9B	Nil	T8.	CLOSED
OHL1/2P10B	Nil	T7.	CLOSED
OHL1P11B & OHL2P11B	Erosion/flow control measures required. Rehab turn-around area behind poles.	Opposite T6.	OPEN
OHL1P12B & OHL2P12B	Track rough - grade/clean-up.	T12.	OPEN
OHL2P13B			
OHL2P14B	Nil	Roadside - access to T17.	CLOSED
OHL2P15B	Nil	Roadside - access to T17.	CLOSED
OHL2P16B	Nil	Continuation from 17B.	CLOSED
OHL2P17B	Nil	Roadside.	CLOSED
OHL2P18B	Nil	Roadside.	CLOSED
OHL2P19B	Nil	End of line.	CLOSED
OHL 3. (Area 7).			
OHL3P6T	TBA	Access not clear - to be checked. T32.	TBC
OHL3P5T	Nil	Roadside T29.	CLOSED
OHL3P4T	Nil	Roadside T29-T30 access road fork.	CLOSED
OHL3P3T	Erosion/flow control measures required. Rough towards pole end - grade/clean-up.	From T28 access road.	OPEN
OHL3P2T	Nil	T28.	CLOSED
OHL3P1T	Erosion/flow control measures required. Part shared with UG trench - refer also Trench Rehab list.	T27.	OPEN
OHL3P7A & OHL4P7A (*1)	Nil	Roadside T36.	CLOSED
OHL3/4P8A (*2)	Erosion/flow control measures required. Clear/compact top of track at P7A.	From OHL3P7A.	OPEN
OHL3/4P9A (*3)	Nil	Roadside MC04.	CLOSED

OHL3/4P10A (*4)	Nil	Roadside - Access to T46.	CLOSED
OHL3P11A	Nil	Substation.	CLOSED
OHL 4. (Area 2).			
OHL4P1A	Nil	T40.	CLOSED
OHL4P2A	Erosion/flow control measures required.	From road MC08 (Valley).	OPEN
OHL4P3A	Clear/stabilise creek crossings.		
OHL4P4A	Erosion/flow control measures required - towards pole	From behind T36.	OPEN
OHL4P5A	ends of tracks.		
OHL4P6A	Nil	T36.	CLOSED
OHL4P7A	Refer (*1) above.		
OHL4P8A	Refer (*2) Above.		
OHL4P9A	Refer (*3) Above.		
OHL4P10A	Refer (*4) Above.		
OHL4P11A	Nil	Substation.	CLOSED
OHL 5. (Area 6).			
OHL5P1Z	Nil	Substation.	CLOSED
OHL5P2Z	Nil	Roadside - Access to T46.	CLOSED
OHL5P3Z	Nil	Roadside MC04.	CLOSED
OHL5P4Z	Minor erosion/flow control measures required.	Off road MC04.	OPEN
OHL5P5Z	Nil	From T52 access road.	CLOSED
OHL5P6Z	Nil	From T52 access road.	CLOSED
METMASTS : All access tracks to metmasts to be treated in same manner as pole access tracks.			

Environmental Site Inspection STWF Windfarm Works – August 2018

Inspection overview

Inspection Details	Weather Overview
Inspection date / time: 16/08/2018 -11:30am to 3:30pm Inspected by: Damien Wagner (Jacobs Enviro Lead), Geoff House (GE Catcon HSE) Locations inspected / attended by: Access roads, turbine pads across site, site compound, Silverton Substation drainage, batch plant, Area 7 Close out discussion - Discussed raised items with both Kyle O'Donoghue and Geoff House	Conditions during inspection: Rain in the last 24hrs (mm): 0mm recorded at Broken Hill Airport (Station 047048) Weather forecast: Fine. No immediate rain forecasted with very dry conditions prevailing in the area.

Summary of inspection

Jacobs undertook an environmental inspection of Ge Catcon's active work areas reviewing implementation of environmental controls and effectiveness. A key focus of the inspection was reviewing progression of rehabilitation works across site including HV cable trenching works and the overhead pole access tracks.

A structured process to rehabilitation has commenced onsite with a live action register being implemented by GE Catcon and a draft construction rehabilitation plan produced by GE Catcon, currently under Jacobs review. Review of implemented techniques are inline with best practice being contoured against catchment flows, ripped to the correct depth and placement of rock contours against flow lines to assist with scour protection.

A continued focus by GE Catcon to ensure all disturbed areas from construction are rehabilitated inline with the above techniques is required to ensure erosion and sediment control risks are minimised across site.

Observations

High / Medium Risk Items

- One corrective action item remains open regarding the steep access tack to overhead pole CN2B. Requires permanent drainage to reduce erosion and scouring risk

Non Conformance (CoA)

- None observed Refer overleaf for full list of corrective actions

Positive Items

GE Catcon are implementing a formal process to undertaken rehabilitation works across site



Formal process to rehabilitation across site has commenced. Photo above is of Rehabilitated HV underground cable run.

Status of key environmental management items

Key Management Item	Comment	Status Level
Implementation of measures as per DPE approved plans	ERSED controls around substation require action.	Yellow circle
Compliance with CoA	No non conformances raised by site team	Green circle
Closure of inspection / audit findings	One item remains open in relation overhead pole CN2B.	Yellow circle
Closure of actions from environmental incidents / community complaints	No environmental incidents have been raised since last inspection.	Green circle

Summary of Corrective Actions

SILVERTON WIND FARM WINDFARM - ENVIRONMENTAL ACTIONS REGISTER (JACOBS INSPECTIONS)

Action no.	Action Raised By:	Date of Issue	Forum	Location	Issue	Corrective Action	Risk Level	Date for Completion	Closure evidence	Date Completed	STATUS (Open / Closed)
10	D.Wagner	16/08/2018	Env Inspection	Sarens Laydown	Overflow of contained waste at Sarens's laydown requiring segregation and disposal.	Segregate waste and undertake review need for more frequent pickups by waste subcontractor.	Med	14/08/2018			
11	D.Wagner	16/08/2018	Env Inspection	33kv substation	Rehabilitation of area behind 33kv substation (GE Catcon area) not undertaken.	Topsoil dressing and contour ripping of area required as a priority due to exposed area adjacent to realigned watercourse posing a erosion risk.	Med	14/08/2018			
12	D.Wagner	16/08/2018	Env Inspection	Cable laydown area	Large laydown areas (Cable drum / hv poles) pose a increased erosion risk.	Stored cable drums and excess overhead poles to be relocated to suitable laydown so rehabilitation can commence.	Med	14/08/2018			
13	D.Wagner	16/08/2018	Env Inspection	Area 4	Micro sited turbine footing pad with rock / disturbed depression with no ERSER controls.	Reuse rock and /or rehabilitate site.	Low	14/08/2018			
14	D.Wagner	16/08/2018	Env Inspection	Across Site	Borrow areas and unused laydown areas across site pose erosion risk.	Sites to be planned for rehabilitation.	Med	14/08/2018			
15	D.Wagner	16/08/2018	Env Inspection	T32 to T30	Rehabilitation attempts between T32 to T30 to be reviewed again with contractor if further reshaping can occur to a more natural profile. As disturbance is within the Porcupine Grass Sparse Woodland CEEC this is a highly sensitive location for importance of rehabilitations of native species.	OFI					
16	D.Wagner	16/08/2018	Env Inspection	Across site	Rehabilitation works across site have the risk to disturb heritage sites if operators are not aware of sites.	OFI					

Open Corrective Actions from Previous Inspections



No ERSED cut off drains along OHL access track to CN2B. *ERSED controls to be installed as per Blue Book guidelines for all OHL track's. OUTSTANDING.*



Access track as of 16/8/2018. *Action item still open.*

Corrective Actions



Item 1 - Overflow of contained waste at Saren's laydown requiring segregation and disposal. *Segregate waste and undertake review need for more frequent pickups by waste subcontractor.*



Item 2 – Rehabilitation of area behind 33kv substation (GE Catcon area) not undertaken. *Topsoil dressing and contour ripping of area required as a priority due to exposed area adjacent to realigned watercourse posing a erosion risk.*

Corrective Actions



Item 3 - large laydown areas pose a increased erosion risk. *Stored cable drums and excess overhead poles to be relocated to suitable laydown so rehabilitation can commence.*

Corrective Actions



Item 4 (Above) - Micro sited turbine footing pad (Area 4) with rock / disturbed depression with no ERSED controls. *Reuse rock and /or rehabilitate site.*

Item 5 (adjacent) - Borrow areas and unused laydown areas across site pose erosion risk. *Sites to be planned for rehabilitation.*



Photo - Material borrow located within Area 7



Photo - Material borrow located within Area 2

Discussion Items / Site Observations



Rehabilitation attempts between T32 to T30 to be reviewed again with contractor if further reshaping can occur to a more natural profile. As disturbance is within the Porcupine Grass Sparse Woodland CEEC this is a highly sensitive location for importance of rehabilitations of native species.



Discussion Items / Site Observations



T23 proofed rolled and ready for punch listing



Photo - Rehabilitation works of HV line adjacent to T23. *JACOBS recommend toolbox of all operators undertaking rehabilitation on presence of heritage sites in proximity and for operators to stay within disturbed areas only.*

SILVERTON WIND FARM
UNDERGROUND HV TRENCH REHABILITATION WORKS. AUGUST 2018.
AREA 5 - COLLECTOR GROUP 2.



OHL to T14



T14 to T15



T15 to T16



OHL to T17



OHL to T18



T18 to T19



T19 to T20



T20 to T21



OHL to T22



OHL to T23



T23 to T24



T23 to T25



T25 to T26