Attachment 6
Summary of
Mitigation Measures

Whitehaven Solar Farm Project

Environmental Impact Statement

WHITEHAVEN COAL

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A6 SUMMARY OF MITIGATION MEASURES

In accordance with the Secretary's Environmental Assessment Requirements (SEARs), this Attachment provides a consolidated summary of Whitehaven Energy Pty Ltd (Whitehaven Energy) commitments in relation to mitigation and monitoring activities for the Whitehaven Solar Farm Project (the Project).

References to Sections 1 to 7 in this Attachment are references to Sections in the main text of the Environmental Impact Statement (EIS). References to Appendices A to K in this Attachment are references to Appendices of the EIS. Internal references within this Attachment are prefixed with "A6".

A6.1 PROJECT ENVIRONMENTAL MANAGEMENT

Although impacts associated with the Project have been assessed to be minor, a number of management and monitoring measures are proposed in respect of residual and potential impacts. Section 6 of the EIS outlines proposed environmental mitigation, adaptive management, monitoring and offset measures for the Project.

Table A6-1 presents a provisional list of management plans for the Project.

These include measures relating to biodiversity, Aboriginal cultural heritage, agriculture and land resources, landscape and visual character, traffic and transport, glint and glare, water resources, social and community infrastructure, noise, hazards and risks, waste and air quality.

It is recognised that changes to the Project environmental mitigation and management measures proposed in the EIS may be considered necessary during further consultation with government agencies in the assessment and approval process for the Project. Changes may also be required as an outcome of adaptive management, during the life of the Project.

Project environmental mitigation, adaptive management, monitoring and reporting would be conducted in accordance with the approval conditions and any associated licences and approvals required.

Monitoring details would be provided in the relevant management plans and monitoring programs and would be updated as required over the life of the Project.

Table A6-2 provides a summary of the key avoidance, minimisation, mitigation and offset measures proposed for the Project, as well as the proposed management and monitoring measures.

Table A6-1
Summary of Proposed Management Plans and Strategies for the Project

Proposed Management Plan	Key EIS Sections and Appendices
Construction Environmental Management Plan (CEMP), including:	
■ Vegetation Clearance Protocol	Section 6.3, Appendix A
■ Aboriginal Cultural Heritage Protocol.	Section 6.4, Appendix B
■ Erosion and Sediment Control Plan	Sections 6.3, 6.5 and 6.10, Appendices C and G
■ Complaints and Incident Response Protocol	Section 6.12, Appendix I
■ Waste Management Strategy	Section 6.14
Operational Environmental Management Plan (OEMP), including:	
■ Vegetation Clearance Protocol	Section 6.3, Appendix A
■ Aboriginal Cultural Heritage Protocol	Section 6.4, Appendix B
■ Erosion and Sediment Control Plan	Sections 6.3 and 6.10, Appendices C and G
■ Complaints and Incident Response Protocols	Section 6.12, Appendix I
■ Waste Management Protocol	Section 6.14
Bushfire Emergency and Operations Management Plan	Sections 6.3 and 6.11
Biodiversity Offset Strategy	Section 6.3, Appendix A

Table A6-2
Key Avoidance, Minimisation, Mitigation and Management Measures Proposed for the Project

Aspect	Potential Risk Associated with the Project	Avoidance, Minimisation, Mitigation and Offset	Proposed Management Plans/Strategies
Biodiversity	■ Clearing associated with the Project results in ecological impacts on native vegetation. ■ Clearing associated with the Project results in potential loss of habitat connectivity. ■ Installation of an electrical transmission line results in potential bird collisions. ■ Increased vehicle movement with the Project area results in potential fauna vehicle strike.	■ Locating approximately 75 percent of disturbance on land previously disturbed by agricultural activities and mapped as non-native vegetation to minimise the potential risk of ecological impacts on native vegetation. ■ Avoidance of higher biodiversity value patches of native vegetation. ■ Minimising impacts to isolated strands of trees and other native vegetation by amending the Project layout to mitigate potential risk associated with loss of habitat connectivity. ■ No serious and irreversible impact entities impacted by the Project. ■ No impact to threatened ecological communities. ■ No relevant fauna species credit species. ■ Vegetation planting along unnamed 1st order tributary in Project area to mitigate the loss of habitat by helping to balance the loss of habitat in the short-term with a gain inhabit in the medium to long-term. ■ Salvage of key habitat features (hollow logs) during vegetation clearance activities and used in habitat enhancement along the unnamed drainage line of Kurrajong Creek for ground-dwelling fauna to limit potential of habitat connectivity. ■ Implementation of pest management such as security perimeter fencing to prevent eliminate or minimise any biosecurity risk pest animals may pose to native vegetation. ■ Bird flight diverters would be installed along the electrical transmission line, where practicable to minimise the risk of bird collisions. ■ On-site speed limit would be applied to internal roads to minimise risk of fauna vehicle strike.	Vegetation Clearance Protocol (sub-plan of CEMP and OEMP) Biodiversity Offset Strategy
Heritage	■ Potential impacts to Aboriginal heritage sites associated with the Project.	■ Avoidance of direct impact to ten Aboriginal cultural heritage sites by amending the Project layout. ■ Surface collection and salvage of sites prior to disturbance to mitigate the potential impacts to Aboriginal historic heritage sites.	Salvage of directly disturbed Aboriginal cultural heritage sites and protocol for management of previously unidentified Aboriginal cultural heritage sites (within CEMP and OEMP)

Table A6-2 (Continued)
Key Avoidance, Minimisation, Mitigation and Management Measures Proposed for the Project

Aspect	Potential Risk Associated with the Project	Avoidance, Minimisation, Mitigation and Offset	Proposed Management Plans/Strategies
Agriculture	■ Potential loss of agricultural land and associated loss of agricultural productivity. ■ Potential long-term loss of agricultural land and associated loss of agricultural productivity.	■ No high value agricultural land (based on Land and Soil Capability class mapping) in the Project area to minimise the potential risk associated with loss of agricultural land and associated loss of agricultural productivity. ■ No Biophysical Strategic Agricultural Land mapped within the Project area. ■ Project area would generally be returned to agricultural use following Project decommissioning to mitigate the potential risk of long-term loss of agricultural land and associated loss of agricultural productivity. ■ Soil that is proposed to be disturbed would be stripped and reused in construction and/or stockpiled for later use in decommissioning/rehabilitation. ■ Agrisolar would be built into the Project design and trialled to reduce area of land removed from agricultural use to minimise the potential risk of loss of agricultural productivity. ■ Implementation of pest and biosecurity management such as pest and weed management to prevent new pests, disease and weeds becoming established in the Project area. ■ Agricultural infrastructure within the Project area to be retained or reinstated during Project decommissioning mitigate the potential risk of long-term loss of agricultural land and associated loss of agricultural productivity.	Agistment Agreement for agrisolar implementation.
Landscape and Visual	■ Potential visibility of the Project for motorists and private dwellings results in potential impacts on visual amenity.	■ Existing vegetation creates visual screening along portions of Kamilaroi Highway and other local roads to mitigate direct views of the Project for motorists and private dwellings to minimise the potential risk of adverse impacts on visual amenity. ■ Lighting is not expected to be required during Project construction and would be primarily associated with stationary work lights and fixed/permanent lights for security/safety purposes during the operational phase to limit any potential impacts associated with night-lightning. ■ Rehabilitation and revegetation would be undertaken following decommissions of the Project to minimise the potential risk of adverse impacts on visual amenity.	N/A
Glint and Glare	■ Glare from the Project results in potential impact local residents and motorists.	■ Existing vegetation mitigates potential glare to avoid the risk of adverse impacts on local residents and motorists.	N/A

Table A6-2 (Continued)
Key Avoidance, Minimisation, Mitigation and Management Measures Proposed for the Project

Aspect	Potential Risk Associated with the Project	Avoidance, Minimisation, Mitigation and Offset	Proposed Management Plans/Strategies
Noise	■ Noise from Project construction activities results in potential impacts on acoustic amenity to nearby landholders.	■ Construction activities would be completed during standard daytime construction hours to minimise the risk of adverse impacts on acoustic amenity. ■ The Noise Impact Assessment concluded that operational, construction and traffic noise generated by the Project would comply with all relevant noise criteria. Accordingly, specific noise mitigation measures are not required for the Project. Notwithstanding, should noise generated by the Project be non-compliant with all relevant noise criteria, noise mitigation measures would be implemented such as scheduling of noisy construction activities to avoid material noise impact.	N/A
Transport	■ Traffic generated by the Project results in increased congestion on Kamilaroi Highway.	■ Use of the Kurrajong Creek Road as the Project site access route. ■ Project construction workforce would be transported to the Project site via shuttle buses to minimise the risk of increased traffic congestion on Kamilaroi Highway. The employment contracts for construction personnel would be used to reinforce requirements for the workforce to use shuttle buses during Project construction activities. ■ Project construction hours to be managed to minimise the coincidence of Project-generated trips with Narrabri Mine-generated trips. ■ Existing road network accommodates construction, operation and decommissioning traffic demands associated with the Project. ■ To the extent possible, consideration be given to the timing of Project construction activity to reduce the likelihood of peak Project construction activity coinciding with short term construction activity at Narrabri Mine.	Bus Transport Protocol to be included in CEMP
Water Resources	■ The Project results in potential impacts on downstream water quality from potential increased sediment migration during Project activities. ■ Potential risk of flooding event resulting from trapped debris against Project infrastructure.	■ Project setbacks from nearby watercourses to minimise the potential risk on downstream water quality from potential increased sediment migration during Project activities. ■ Design and construction of watercourse crossing at one unnamed 1st order ephemeral drainage line to Kurrajong Creek. ■ The Project would not extract water from Kurrajong Creek (or tributaries) to mitigate the potential risk of a flooding event resulting from trapped debris against Project infrastructure. ■ During Project detailed design, foundations of the solar panel arrays and transmission lines to be located away from areas that exceed both flood depths of 0.3 metres and flow velocities greater than 1.5 metres per second, where practicable to limit potential risk of flooding event.	Erosion and Sediment Control Plan (sub-plan of CEMP and OEMP)

Table A6-2 (Continued)
Key Avoidance, Minimisation, Mitigation and Management Measures Proposed for the Project

Aspect	Potential Risk Associated with the Project	Avoidance, Minimisation, Mitigation and Offset	Proposed Management Plans/Strategies
Social	■ Project results in cumulative social impacts with nearby projects.	■ Ongoing stakeholder engagement and provision of community information to minimise the potential risk of cumulative impacts with nearby projects. ■ Management of complaints and incident response protocols through an CEMP and OEMP. ■ Confirmation received from Civeo Corporation that there is sufficient accommodation capacity in nearby accommodation villages to cater for the peak construction workforce to limit cumulative social impacts.	Complaints and Incident Response Protocols within CEMP and OEMP
Air Quality	■ Project results in air quality issues during construction and decommissioning stages, impacting community health.	■ Construction dust mitigation measures implemented such as watering of internal roads to minimise the risk of sources of particulate matter emissions resulting in adverse impacts resulting from the Project. ■ Local and scale of activities with generate dust emissions would be modified and limited during periods of dry and averse windy weather, where practicable to limit potential of air quality issues impacting community health. ■ Engines would be switched off when not in use for prolonged periods. ■ Management of complaints and incident response protocols through an CEMP and OEMP.	Air quality controls to be included in CEMP
Waste	■ Generation of general waste associated with packaging of Project equipment and decommissioning.	■ The Project would use the general hierarchy of waste management and minimisation principles of avoid, reduce, reuse and recycle, to minimise the quantity of waste generated by the Project. ■ All waste will be managed in accordance with the NSW *Protection of the Environment Operations Act 1997* and the NSW *Waste Avoidance and Resource Recovery Act 2001.* ■ Excavated material on-site would be used for construction, wherever possible to limit the generation of waste associated with Project construction.	Waste Management Protocol (sub-plan of CEMP)