APPENDIX C – MITIGATION MEASURES TABLE

EMM
creating opportunities

C.1 Management and mitigation measures table

A summary of the environmental management and mitigation measures for the project is provided in Table C.1.

Table C.1 Management and mitigation measures

Aspect	Measures
Fire	An Emergency and incident management plan will be prepared as part of the OEMP that describes procedures to manage incidents (eg spills or fire) that may occur at the site that have the potential to harm to people or the environment. The EIMP will complement the Pollution Incident Response Management Plan (PIRMP) that is expected to be a requirement under the EPL. Management measures that will be implemented to prevent fires include: • refuelling will be undertaken in a refuelling area clear of stockpiles; • the small quantities of hazardous materials that will be kept on site will be stored and mapped in accordance with Australian Standard 1940; • site personnel will be trained in fire response; • there will be fire extinguishers in vehicles, the weighbridge offices and in the kitchen, office and processing areas of the ARRC warehouse; • fire hoses and sprinkler system will be installed in accordance with the National Construction Code and the relevant Australian Standards; and • spill response kits will be available should there be a spill of flammable substances.
Airport safeguarding	• No flora that produces fruit or flowers and that are likely to attract birds and wildlife will be planted on the site. • Any new water features (such as the onsite water detention basin) will either be netted or have lines across it with moving flags on them to deter birds using it. • The existing water management dam on the subject property will be netted or have lines for flags across it to deter birds from utilising it. • The building designs, including on fences and lighting, will ensure that they minimise areas for wildlife, especially birds, to use for breeding, roosting, or perching, such as: – having no eaves or ensuring there is no access to the roof through the eaves; and – using 'bird-spikes' on roof edges, fences and lighting. • Waste management on site will include careful management of any food waste from employees, for example by providing waste bins which are inaccessible to birds and vermin. • The above measures are to be documented in a management plan as part of the site's overall environmental management plan to define roles, responsibilities, and actions to ensure the above are implemented, managed and maintained. • Should birds or other wildlife start using the site, particularly in numbers of concern, the operator of the ARRC and/or quarry should engage specialists to survey/monitor the species utilising the site to remedy the situation.
Air quality	Dust controls will be documented in an air quality management plan (AQMP), prepared following approval of the ARRC. The AQMP will include a reviewed and augmented air quality monitoring programme. Dust controls: • all waste, recycled products and non-recyclable residues will be handled, processed and stored within the enclosed warehouse; • the access road and roads around the ARRC will be sealed;

Table C.1 Management and mitigation measures

Aspect	Measures
	• a water cart will operate on the sealed access road; • misting water sprays to operate at each exit point of the warehouse.; • double handling of material will be avoided wherever possible; • vehicle speed limits (40 kph on sealed roads) will be applied; and • a street sweeper will be used on the access roads when silt levels accumulate or as required. Measures and practices designed to improve energy efficiency and to manage greenhouse gas emissions will be implemented.
Noise and vibration	A noise management plan will be developed for the ARRC. If construction of the ARRC is completed (anticipated to be late 2021) prior to rezoning of the area (anticipated to occur in 2020), the ARRC will only be operated during daytime hours until the completion of quarry operations in December 2024. With the restriction in ARRC operations to daytime only, noise exceedances are restricted to assessment locations R3 (unoccupied) and R6. In this case, additional further noise mitigation measures will also be required to reduce noise impacts at R3 and R6. These measures may include the following: • including of acoustic walls in the site design; • automatic doors on the warehouse; • acoustic treatments to residences; and • negotiated agreements with residents. Work practice methods to minimise construction noise will include: • regular reinforcement (such as toolbox talks) of the need to minimise noise and vibration; • avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby residents; • developing routines for the delivery of materials and parking of vehicles to minimise noise; • where possible, avoiding the use of equipment that generates impulsive noise; • notify residents prior to the commencement of intensive works; • where possible, choosing quieter plant and equipment based on the optimal power and size to perform the required tasks most efficiently; • operating plant and equipment in the quietest and most efficient manner; and • regularly inspecting and maintaining plant and equipment to minimise noise and vibration level increases, to ensure that all noise and vibration reduction devices are operating effectively.
Surface water and groundwater	A water management plan will be developed for the ARRC. Water quality controls to prevent any material change or degradation of the water quality of Oaky Creek due to discharges will include: • separating dirty water that has potentially come into contact with waste material from stormwater runoff from the warehouse roof, site offices, roads, carparks and landscaped areas; • incoming and processed waste will be stored, processed and handled under cover; • installing and operating a water treatment plant to treat dirty water, with treated water reused preferentially to supply site activities; • installing a gross pollutant trap within stormwater inlet pits to capture gross pollutants and coarse sediment prior to stormwater runoff entering the pipe network; and • enabling the settlement of suspended solids out of the water column within the onsite detention storage.

Table C.1 Management and mitigation measures

Aspect	Measures
	A water management system monitoring, inspection and maintenance program will be implemented. The program will include monitoring of Oaky Creek upstream and downstream of the ARRC site, regular informal and quarterly formal inspections of the water management system; and maintenance of the system, such as the removal of excessive sediment accumulation or macrophyte growth from the onsite detention storage.
Traffic and transport	A traffic management plan (TMP) will be developed to manage project-related traffic within the ARRC site and surrounding road network during construction and operations, and will include the following: • The northern section of Adams Road, between the subject property access road and Elizabeth Drive, will be upgraded by the applicant as part of the proposed development so that the pavement is suitable for use by large trucks, up to B-doubles, and so that the lane and shoulder widths meet Ausroads Guidelines. These upgrades will be completed prior to the start of ARRC operations. • The road upgrade design will be informed by a survey of the current road condition, including a topographic/drainage survey and borehole/CBR [Californian Bearing Ratio] tests. • An application will be made to the Council and the NHVR to lift the load limit based on the road/intersection designs. • Until the load limit is lifted along the whole of Adams Road, ARRC-related heavy vehicles will only access/depart the ARRC using the northern section of Adams Road. • An operational traffic management plan (TMP) will be developed to manage project-related traffic within the ARRC site and surrounding road network during ARRC operations. • A construction traffic management plan (CTMP) will be developed based on the conceptual CTMP presented in the TIA (refer to Appendix L) to manage project-related traffic within the ARRC site and surrounding road network during ARRC construction.
Biodiversity	Retention of vegetation, pre-clearing and clearing works: • Exclusion zones around all areas of retained vegetation and fauna habitat are to be implemented. These areas will be fenced using appropriate fencing materials and designated and signed as 'No-go Zones' or 'Environmentally Sensitive Areas. • Where feasible or when required, tree protection zones (TPZs) are to be set up around all trees to be retained within and immediately adjacent to the disturbance footprint. If required, TPZs are to be established in accordance with the Australian Standard AS 4970-2009 Protection of trees on development sites (Standards Australia Committee 2009). • Native vegetation cleared should be mulched and stockpiled for re-use during any rehabilitation works. Large hollow-bearing trees and limbs should be retained as hollows for placement into rehabilitated areas or retained native vegetation. Weed control: • undertaking of weed control in key areas prior to construction works, to minimize the impacts of weeds during construction; • management and disposal of weed species during clearing works, in accordance with the biodiversity management plan; and • active and intensive weed control in areas where significant weeds are known to occur to reduce the cover of weeds adjacent to the construction activities, preventing the spread of weeds into the riparian habitat associated with Oaky Creek.
Urban design and visual	The landscaping plan will inform the landscape design during the detailed design phase of the ARRC.
Aboriginal heritage	The following management measures are proposed: • AHIMS site #45-5-2280 will continue to be avoided and protected by fencing.

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Aspect	Measures
	• The corrected coordinates for AHIMS site #45-5-2280 will be entered in the AHIMS database. • The riparian corridor along the western bank of Oaky Creek will continue to be avoided. • A test excavation program will be completed during the public exhibition phase of the EIS. The results of excavation and subsequent management measures derived from the results will be formulated in consultation with RAPs and will be provided as part of an updated ACHA report (or an addendum to the ACHA), so that DPIE and Heritage NSW can consider any new information prior to project approval. Based on the outcomes of the test excavation and significance of the finds, management options may include conservation, salvage excavation or unmitigated impacts.
	• During construction: – In the event that unexpected Aboriginal objects, sites, or places are discovered in the project area, it is a requirement that Heritage NSW is notified of the existence of Aboriginal objects as soon as practicable after they are first identified. This is done through the completion of an Aboriginal Site Card which is submitted to the Registrar of AHIMS for inclusion on the Aboriginal site database. Under s85A of the NPW Act, Aboriginal objects remain the property, and under the protection of, the Crown until formal transfer to a person or persons of a class prescribed by the regulations occurs. – In the event that known or suspected human skeletal remains are encountered within the project area, the following procedure should be followed: ▪ the immediate vicinity will be secured to protect the find and the find will be immediately reported to the work supervisor who will immediately advise the site supervisor or other nominated senior staff member; ▪ the environmental manager or other nominated senior staff member will notify the police and the state coroner on the same day of the find (as required for all human remains discoveries); ▪ the environmental manager or other nominated senior staff member will contact Heritage NSW for advice on identification of the skeletal material as Aboriginal and if so, management of the material; ▪ if it is determined that the skeletal material is ancestral Aboriginal remains, the Aboriginal community will be contacted, and consultative arrangements will be made to discuss ongoing care of the remains; ▪ the site will be recorded in accordance with the NPW Act and Heritage NSW guidelines; and ▪ if the remains are historical and not of Aboriginal origin, the Heritage Division of Heritage NSW will be notified for further instruction.
Land and soil	A soil and water management plan (SWMP) will be prepared for the project. The SWMP will be underpinned by primary erosion and sediment control plans (PESCPs) that will be prepared for all discrete disturbance areas.
Contamination	A construction environmental management plan (CEMP), including an unexpected finds protocol, will be prepared and implemented to manage any contamination which may be encountered during development works at the ARRC site.