Consolidated Mitigation Measures

Summit at Kemps Creek (SSD-30628110)

Ref No.	Potential Impact	Stage of Project	Mitigation Measure
Traffic and Transport			
TT-1	Construction Traffic Management	Construction	• A program to monitor the effectiveness of the CTMP will be established by the Contractor and will consider scheduled reviews as well as additional reviews should construction characteristics be substantially changed (from those outlined in the Final CTMP)
TT-2	Communication	Construction	• A communications strategy will be established by the project manager for implementation throughout the construction works; this strategy will outline the most effective communication methods to ensure adequate information within the community and assist the project team to ensure the construction works have minimal disruption on the road network.
Soils and Water			
SW-1	Maintenance of Stormwater Infrastructure	Operation	• An Inspection and Maintenance Plan will be prepared and lodged with the construction certificate for the subdivision works once final design details and the extent and layout of all proposed water management measures is confirmed. It is anticipated that the Inspection and Maintenance Plan would be prepared using current best practice guidance such as Water sensitive urban design inspection and maintenance guidelines (Blacktown City Council, 2019) and would describe: - Each of the functional components of each water management measure; - Expertise required to inspect, maintain and (where necessary) repair or replace components; - Minimum required frequency of inspection, repair or replacement activities; and - Inspection and maintenance forms that list all necessary activities and contain a record of activities completed.
SW-3	Maintenance of Erosion and Sediment Control Plan	Construction	Erosion and sediment control inspection and maintenance requirements must be carried out while earthworks are being conducted, and until all areas are re-established. The construction contractor will be required to inspect the site after every rainfall event and at least weekly, and: • Inspect and assess the effectiveness of the Erosion and Sediment Control Plan (ESCP) and identify any inadequacies that may arise during normal work activities or from a revised construction methodology.

			• Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands and waterways. • Ensure that drains operate properly and to affect any repairs. • Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas. • Remove trapped sediment whenever less than design capacity remains within the structure. • Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate. • Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the Site has been rehabilitated. • Remove temporary soil conservation structures as the last activity in the rehabilitation. • Inspect the sediment basin during the following periods: - During construction to determine whether machinery, falling trees, or construction activity has damaged and components of the sediment basin. If damage has occurred, repair it. - After each runoff event, inspect the erosion damage at flow entry and exit points. If damage has occurred, make the necessary repairs. - At least weekly during the nominated wet season (if any), otherwise at least fortnightly; and - Prior to, and immediately after, periods of 'stop work' or Site shutdown. • Clean out accumulated sediment when it reaches the marker board/post and restore the original volume. Place sediment in a disposal area or, if appropriate, mix with dry soil on the Site. • Do not dispose of sediment in a manner that will create an erosion or pollution hazard. • Check all visible pipe connections for leaks, and repair as necessary. • Check all embankments for excessive settlement, slumping of the slopes or piping between the conduit and the embankment, make all necessary repairs. • Remove the trash and other debris from the basin and riser; and • Submerged inflow pipes must be inspected and de-silted (as required) after each inflow event
SW-4	Maintenance of Sediment Basins	Construction	• Comply with the detailed technical specifications in the Technical Guidance or its latest version, the 'Blue Book' - Managing Urban Stormwater: Soils and Construction (Landcom 2004).
SW-5	Performance of Erosion and Sediment Control Plan	Construction	• Ongoing review of sediment basin performance will need be carried out throughout the construction phase of the development. As noted in International Erosion Control Association (IECA) Australasia, Appendix B; Sediment basin design and operation (Revision – June 2018), 'sediment basins are not designed to achieve a specific water quality; rather, they are designed to either capture and treat a specific volume of runoff, or to treat discharges up to a specified peak flow'. Considering this, site specific water quality management practices such as those suggested in IECA Appendix B will need to be implemented by the construction contractor responsible for implementation of the ESCP. Demonstration of adaptive management practices and decision-making processes will provide greater certainty that all reasonable and practicable actions are being undertaken to minimise potential impacts associated with release of sediment laden water from the site.

Noise and Vibration			
NV-1	Construction Noise	Construction	A Construction Noise and Vibration Management Plan (CNVMP) will be prepared prior to the commencement of any construction works. It is expected that the estate works and Northern Access Works will be staged and include separate project-specific mitigation measures that are developed with the construction contractor. Standard mitigation and management measures that are to be included in the CNVMP, in addition to specific mitigation and management measures to be determined during preparation of the CNVMP, are as follows. • Project Planning: - Use quieter and less vibration emitting construction methods where feasible and reasonable. - The majority of work will be completed during standard daytime construction hours. Where OOHW is required, highly noise intensive activities will be scheduled for less sensitive periods. - Trucks will access the site from Mamre Road rather than Bakers Lane where possible. • Scheduling for High Noise or Vibration Generating Works: - High-noise or vibration generating works will be carried out in continuous blocks no longer than three hours in length, with a minimum respite period of one hour between each block. 'Continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing these works • Site Layout: - Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing. - Where practicable, work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography. Crushing of oversized rock will be positioned away from noise-sensitive receivers and be screened by stockpiles or topography, where practicable. - Documentation of how site layout has been considered to reduce noise impacts must be provided to the Contractor's Project Manager. This must occur any time there are significant changes to the site layout. - Equipment that is noisy will be started away from sensitive receivers. • Training: - Training will be provided to all personnel on noise and vibration requirements for the project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers. • Plant and Equipment Source Mitigation: - All plant and equipment must be maintained in a proper and efficient condition, operated in a proper and efficient manner, and feature standard noise amelioration measures where applicable. - Where practicable, tonal reversing alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements). - Noisy equipment will be sited behind structures that act as barriers, or at the greatest distance from the noise-sensitive area. Equipment will be oriented so that noise emissions are directed away from any sensitive areas, where possible.

- Where excavation of hard rock is required close to receivers during access road works, the following measures will be implemented:
  - Different construction methods with lower source noise levels and/or quieter equipment will be investigated and implemented, where feasible.
  - Rockbreakers will be fitted with noise mitigation such as a Hushtec rockbreaker shroud.
  - Screening of the works location (such as temporary/portable noise barriers) will be installed where practicable.
  - Consultation with the affected receivers will be undertaken to confirm details of predicted noise impacts, details of proposed mitigation measures including the above, and any appropriate respite periods. This will include consultation to confirm any particularly sensitive periods which should be considered for respite, such as sleeping times at the childcare, school exam periods, or early morning for residents.
- Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.
- Noise monitoring spot checks of equipment will be completed to ensure individual items are operating as expected.
- Dropping materials from a height will be avoided.
- Loading and unloading will be carried out away from noise sensitive areas, where practicable.
- Trucks will not queue outside residential properties. Truck drivers will avoid compression braking as far as practicable.
- Truck movements will be kept to a minimum, i.e. trucks are fully loaded on each trip.

- Screening:
  - Where possible, install purpose-built screening or enclosures will be used around long-term fixed plant that has the potential to impact nearby receivers.
  - The layout of the site will take advantage of existing screening from local topography, where possible. Site huts, maintenance sheds and/or containers will be positioned between noisy equipment and the affected receivers.
- Complaints Management:
  - Where complaints are received, work practices will be reviewed and feasible and reasonable practices implemented to minimise any further impacts.
- Monitoring:
  - Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.
  - Noise and/or vibration monitoring will be conducted (as appropriate) in response to any complaints received to verify that levels are not substantially above the predicted levels.
- Vibration:
  - If vibration generating works are required within the minimum cosmetic damage working distances and considered likely to exceed the criteria:
    - Different construction methods with lower source vibration levels will be investigated and implemented, where feasible. This may include smaller/less vibration intensive plant, and/or alternative methods such as saw cutting instead of rock breaking, or non-vibratory rolling.

			- Consultation with the affected receivers will be undertaken to confirm details of predicted vibration impacts, details of proposed mitigation measures including the above, and any appropriate respite periods. This will include consultation to confirm any particularly sensitive periods which should be considered for respite, such as sleeping times at the childcare, school exam periods, or early morning for residents - Attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels at the receiver. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria. - Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred. This will include the nearest two residences in NCA01 to the north, Little Smarties Early Learning Centre in NCA02 to the north, the nearest residence in NCA03 to the northeast, and the nearest warehouse in Oakdale West Industrial Estate to the northeast. - Where vibration intensive works (such as rock breaking, vibratory rolling or plate compacting) are required within the minimum working distances of sensitive receivers or structures, vibration will be monitored continuously for the duration of works within the minimum working distances. Attended vibration measurements will be undertaken at the start of vibration intensive works within the minimum working distances to confirm the levels of vibration are below the applicable vibration limits. Vibration monitors will be installed by an acoustic consultant at the closest points of the sensitive structure to the vibration intensive works to continuously monitor vibration for the duration of the works. Should the works location change, the monitors will be relocated to remain at the closest point of the structure to the works. The vibration monitoring equipment will have visible and audible alarms installed where operators of equipment can see/hear them. - Specific mitigation, monitoring and respite details will be confirmed during preparation of the Construction Noise and Vibration Management Plan when further details regarding specific locations, equipment and duration of vibration intensive works are determined.
NV-2	Construction Vibration	Construction	• The offset distances from specific vibration intensive plant to the nearest receivers will be confirmed before commencing vibration intensive works during construction.
NV-3	Operational Noise	Operation	The following mitigation measures in relation to Operational Noise are to be implemented: • Use broadband and/or ambient sensing alarms on trucks and forklifts: - Reduce potential for annoying noise emissions during the night-time from forklifts and trucks. • Appropriate specification and location of mechanical plant during detailed design: - If noise impacts from mechanical plant are identified during detailed design, quieter plant could be selected, or the plant could be relocated to a location screened from view of the nearest receivers, where appropriate. • Roller Doors: - Roller doors are to be kept closed when loading/unloading is not occurring to minimise noise breakout. • Production of an Operational Noise Management Plan:

			- This would detail the measures that could be used by the various tenants to minimise general noise emissions from the site. Reference can be made to the Best Management Practice (BMP) and Best Available Technology Economically Available (BATEA) measures listed in the NPfI. • Verification Monitoring: - Verify post-construction operational noise levels are in-line with predictions and the mitigation is working as intended.
Aboriginal Cultural Heritage			
ACH-1	Ongoing management of Aboriginal cultural heritage	Pre-Construction	• A Cultural Heritage Management Plan (CHMP) will be developed in order to appropriately manage Aboriginal cultural heritage identified within the study area. It is to identify how to properly manage Aboriginal heritage for the project and would include unanticipated finds protocols and a heritage inductions to be undertaken by the site personnel prior to works. The CHMP must be prepared by a suitably qualified archaeologist in consultation with the Registered Aboriginal Parties (RAPs) for the project.
ACH-2	Collection of Aboriginal Artifacts	Pre-Construction	• There are seven (7) AHIMS sites which consist of artefact scatters and isolated artefacts within the study area. Community collection with the RAPs for the project will be undertaken prior to development in accordance with the CHMP developed for the project.
ACH-3	Correction of Incorrect Information on AHIMS Site Cards	Pre-Construction	• The assessment has found that AHIMS 45-5-3036/EP-I 3 and AHIMS 45-5-3030/EPTA5 are not located within the study area and therefore will not be impacted by the proposed works. The site cards will be updated to reflect the correct location of these sites.
ACH-4	Long Term Management of Aboriginal Artifacts	Pre-Construction to Construction	• The establishment of a long term care agreement in consultation with RAPs will be developed in order to ensure the artefacts identified as part of this assessment are adequately cared for. Several management options are possible depending on the wishes of RAPs. Artefacts recovered from the excavations can be given back to the Aboriginal community through a care and control agreement where they can then be used to teach subsequent generations about Aboriginal culture or can be reburied in a culturally appropriate place.
ACH-5	Continued consultation with the RAPs	Pre-Construction to Operation	• The Applicant is to provide a draft CHMP to RAPs for comment and consider all comments received. The Applicant will continue to inform these groups about the management of Aboriginal cultural heritage sites within the study area throughout the life of the project. The RAPs are to be consulted in regard to the resting place of the artefacts.
ACH-6	Discovery of Unanticipated Aboriginal Objects	Construction	• If any Aboriginal objects be encountered during works, works must cease in the vicinity and the find will not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying the Heritage NSW and RAPs.
ACH-7	Discovery of Unanticipated Historical Relics	Construction	• Should unanticipated relics be discovered during the course of the project, work in the vicinity must cease and an archaeologist contacted to make a preliminary assessment of the find. The Heritage Council will require notification if the find is assessed as a relic.
ACH-8	Discovery of Human Remains	Construction	• If any suspected human remains are discovered during any activity you must:

			- Immediately cease all work at that location and not further move or disturb the remains; - Notify the NSW Police and the Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location; and - Not recommence work at that location unless authorised in writing by Heritage NSW and/or NSW Police.
Non-Aboriginal Cultural Heritage			
NACH-1	Unexpected Finds	Construction	• Should unanticipated relics be discovered during the course of the project, work in the vicinity must cease and an archaeologist contacted to make a preliminary assessment of the find. The Heritage Council of NSW will require notification if the find is assessed as a relic.
Biodiversity			
B-1	Delineation of Clearing Limits	Construction	• To avoid unnecessary removal or damage to the threatened ecological communities or other retained vegetation, the clearing area will be clearly demarcated with temporary fencing and signed, where appropriate, to ensure no vegetation beyond these boundaries will be inadvertently cleared during the construction process. No machinery will be parked on areas beyond the temporary fencing and no access will be allowed during construction. Ancillary facilities such as stockpile sites, site compounds and construction zones will not be located beyond the limits of clearing. Site inductions are to be given by the civil contractor to ensure all site workers and visitors are aware of any no-access areas.
B-2	Preclearance Survey	Construction	• In order to avoid impacts to fauna species during construction, pre-clearing surveys will be undertaken by a suitably qualified ecologist. Pre-clearing surveys will be undertaken ahead of clearing, to limit fauna injury and mortality and to identify habitat features to be relocated. Pre-clearance surveys will be conducted by suitably qualified ecologists and all fauna found during these surveys will be encouraged to move on or relocated by the ecologists in areas of similar habitat nearby that will not be impacted. Pre-clearing surveys will include: - Demarcation of key habitat features such as hollow-bearing trees, nests and fallen logs; - Checking trees for the presence of bird nests and arboreal mammals, such as possums, and bats including nocturnal stag watching; - Animals found to be occupying trees and habitat will be safely removed and relocated into nearby wooded habitat; and - Provision of a report following the completion of a pre-clearing survey, detailing the location and type of each habitat feature, and a record of all fauna species encountered.
B-3	Staging of Clearing	Construction	• Vegetation clearing will be conducted using a two-stage clearing process which will enable fauna a chance to self-relocate upon nightfall, when foraging typically occurs. The staging is described as follows: - **Stage 1**: Clearing will commence following the identification of potential habitat features by a qualified ecologist. Hollow-bearing trees marked during pre-clearing will not be cleared during the first stage; however, all vegetation around these trees will be cleared to enable isolation of the feature. Other habitat features, such as hollow-bearing logs, can be removed during Stage 1 only if done under supervision by a qualified ecologist. Identified hollow-bearing trees will be left at a

			minimum overnight after Stage 1 clearing to allow resident fauna to voluntarily move from the area.
			- **Stage 2**: After hollow-bearing trees have been left overnight, the trees will be cleared using the following protocols:
			  - Trees marked as containing hollows will be shaken by machinery prior to clearing to encourage any animals remaining to leave the hollows and move on;
			  - Use a bulldozer or excavator to start pushing the tree over. Move the bulldozer over the roots and continue gently pushing the tree over;
			  - Remove branches with hollows and sections of trunk and set aside for immediate transfer to a storage area for placement within retained vegetation; and
			  - All hollows will be investigated by an ecologist for the presence of fauna following felling of the tree.

B-4	Weed Eradication	Construction	• A WEMP will be implemented to outline appropriate weed control activities required within the site. Weed management is to be undertaken in accordance with the Greater Sydney Regional Strategic Weed Management Plan 2017 – 2022 (LLS: Greater Sydney 2017)
B-5	Dam Decommissioning	Construction	• Prior to dam decommissioning activities a Dam Decommissioning Plan is to be implemented that includes a strategy for decommissioning of the dams within site and a relocation site for any fauna captured.
Socio-Economic			

SE-1	Monitoring and Measurement Framework	Construction/ Operation	• During construction:
			  - Development of a Construction Management Plan that includes a complaint handling procedure for identifying and responding to community issues related to construction impacts.
			  - Ongoing consultation with relevant stakeholders, including local residents and workers in the emerging Mamre Road Precinct to identify and manage impacts promptly.
			• During operation:
			  - Continued consultation with relevant stakeholders, including future tenants of the site.
			  - Development and implementation of an operational plan of management that mandates data collection (e.g. complaints register) to enable ongoing monitoring of the performance of the 706-752 Mamre Road development over time.

Ecologically Sustainable Development			
ESD-1	Increased Energy Requirements and Generation of Greenhouse Gases	Detailed Design / Operation	• Base building office operations are to be 100% electric, energy efficient and fossil fuel free. • Solar photovoltaic panel arrays will be installed on roof spaces to reduce utility grid supplied electricity consumption required for office base building operations.

Air Quality			
AQ-1	Dust minimisation and control	Construction	The following mitigation measures are to be adopted as part of the Construction Environmental Management Plan (CEMP) to manage off-site environmental impacts: • Prior to commencement of construction and earthwork activities, develop appropriate communications to notify the potentially impacted residences of the project (duration, types of work, etc.), relevant contact details for environmental complaint reporting. • A complaints logbook should be maintained through the construction and earthworks phase which should include any complaints related to dust; where a dust complaint is received, the response actions should be detailed in the logbook. • Record any exceptional incidents that cause dust and/or air emissions, either on or off site, and the action taken to resolve the situation in the logbook. • Carry out daily site inspections, including local meteorological forecast, record inspection results in a logbook. • Modify working practices by limiting activity during periods of adverse weather (hot, dry and windy conditions) and when dust is seen leaving the site. • Erect shade cloth barriers around potentially dusty activities such as excavation and material stockpiles or at the site boundary where practicable. • Keep site barries clean using wet methods. • Ensure proper maintenance of all equipment engines. • Avoid leaving engines running at idle where possible. • Vegetation clearing to be staged where possible to minimise the area and time that surfaces are exposed. • Minimise drop heights from loading and handling equipment. • Ensure vehicle loads entering and leaving the site are covered to prevent escape of materials during transport. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Used water-assisted dust sweeper(s), to remove, as necessary, any material tracked out of the site onto public roads.
AQ-2	Air quality criteria exceedances	Construction	• Real-time particulate matter monitors will be implemented in the area surrounding the project for the duration of construction with the Construction Contractor to install and maintain the monitors. Indicative locations of these monitors are proposed to be sited along the northern site boundary, adjacent to the closest sensitive receptors, as well as to the south of the site. The exact specification of the monitoring locations will be confirmed in the CEMP ahead of the project commencing. • A Trigger Action Response Plan (TARP) generally consistent with the Air Quality Impact Assessment prepared by EMM is to be implemented as part of the CEMP, prior to commencement of construction.

Waste			
W-1	Demolition and Construction Waste	Construction	• Before demolition and construction commences, all likely waste will be identified and strategies put in place to ensure appropriate separation, storage, signage and collection of each waste stream in order to maximize what waste can be either reused or recycled. In addition to this, strategies will also be put in place to minimize what waste is generated.
W-2	Operational Maintenance	Operation	• Each warehouse tenancy will be responsible for the upkeep and cleaning of their own bins as well as maintaining the location where the collection bins are stored within their warehouse unit, including installing and maintaining vermin traps within these areas. A tap will be provided under the canopy for each warehouse facility, including a floor waste connected to sewer, to enable each warehouse facility to clean their bins. The private waste contractor will undertake maintenance and repairs on the bins as and when necessary.
W-3	Operational Waste Management	Operation	• If it is determined that additional waste streams or if more waste is generated to that estimated based on industry generation rates, additional bins or larger bins are to be provided. • Although a significant portion of products are expected to arrive on rented timber pallets which are collected and reused, there is a proportion of deliveries which may arrive on non-returnable or re-usable timber pallets. These non-reusable timber pallets are to be stored/stockpiled within each warehouse facility and then collected as and when required and taken away to be either recycled or mulched. • Where any warehouse tenancy generates expanded polystyrene (EPS) packaging sheets often utilised within containers as packing, this will be collected as a separate waste stream and stored on pallets within their warehouse and then collected as and when required and taken away to be recycled. • Private maintenance contractors will be employed to regularly attend to and maintain all garden areas at this property and they will be responsible for the removal and disposal of all garden waste as part of their contract. It will be a requirement that removed garden waste is to be disposed of as garden organics for compost or mulching.
W-4	Operational Internal Waste	Operation	• There is to be no under desk single bins provided. Instead, bin stations are to be created in convenient locations, which enable the separation and collection of each waste stream being: - Garbage; - Food organics; - Commingled recyclables; - Glass; and - Clean paper and cardboard. • Within printing and utility areas, recycling centres are to be created to maximise collection of clean paper and cardboard and in addition to this, there are to be specialist collection bins for printer ink cartridges as well as e-waste, batteries or other recycling items regularly needing to be disposed of. • The need for the monitoring of bins, and the identification and reporting of incorrect bin use, will be assigned.

			• Appropriate signage will be placed where the collection bins are stored and where internal bins are distributed with visual prompts stuck to the collection bins and posters to assist in the proper disposal waste types.
Contamination			
C-1	Remediation	Construction	• A Remediation Environmental Management Plan (REMP), to document the monitoring and management measures required to control the environmental impacts of the works and ensure the validation protocols are being addressed. • A Work Health and Safety Plan (WHSP) to document the procedures to be followed to manage the risks posed to the health of the remediation workforce.' • An unexpected finds protocol will be implemented during construction in the event that the potential for unexpected contamination is identified.
Bush Fire			
BF-1	Asset Protection Zones	Construction	• At the commencement of the development, and in perpetuity, the entire site shall be managed as an Inner Protection Area (IPA) Asset Protection Zone.
BF-2	Water Supply	Operation	• Adequate water supply is provided for firefighting purposes, located at regular intervals, accessible and reliable for firefighting operations. Fire hydrant spacing, design, sizing, flows and pressure complies with AS2419.1:2005 and hydrants are not located within any road carriageway. All above ground water service pipes are metal, including and up to any taps and any above ground water storage tanks are metal or concrete.
BF-3	Electricity and Gas Services	Detailed Design, Operation	• Where practicable, electrical transmission lines are underground. • Where applicable, reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used. All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side, connections to and from gas cylinders are metal. • Polymer-sheathed flexible gas supply lines are not used, and above-ground gas service pipes are metal, including and up to any outlets.
BF-4	Landscaping	Construction & Operation	• Any new landscaping within the APZ is to comply with the NSW RFS 'Asset protection zone standards'