

## Appendix E - Mitigation Measures

The following section outlines the recommended mitigation measures in response to potential impacts identified in **Section 6** of the Environmental Impact Statement (**EIS**). The structure of mitigation measures is based on the Department of Planning and Environment's hierarchy of approaches for managing impacts identified in the *Draft Environmental Impact Assessment Guidance Series* released by DPE in June 2017, as:

- **Performance based measure** – identify performance criteria that must be complied with to achieve an appropriate environmental outcome but do not specify how the outcome is to be achieved.
- **Prescriptive measure** – require action to be taken or specify something that must not be done.
- **Management based measure** – identify one or more management objectives that must be achieved through the implementation of a management plan.

Following the implementation of appropriate mitigation measures as recommended, it is determined that the proposal will not result in any significant adverse impacts on the surrounding environment. The following table illustrates how the matters raised within the SEARs will be addressed.

A consolidated set of mitigation measures required for each of the environmental and social impacts identified in Section 6 of the EIS are outlined in the table below. The mitigation measures directly respond to each impact and are based upon the range of technical consultant reports appended to the EIS.

The type of mitigation measure as noted within the table below are as follows:

- 'Pe' – performance based mitigation measure. Or
- 'Pr' – prescriptive based mitigation measure, or
- 'Ma' – management based mitigation measure.

The mitigation measures have also been allocated to the construction ('C') and/or operational ('O') phase.



## Sydney Flight Training Centre –Summary of Mitigation Measures

Technical Area	Potential Impact	Stage of the Project	Approach	Type of Measure (Pe/Pr/Ma)
<b>Traffic and Transport</b>	Impacts of the construction activities on the surrounding road network	C	<p>Traffic control would be required to manage and regulate construction vehicle traffic movements to and from the site during construction. A draft Construction Traffic Management Plan has been prepared as part of the TIA and includes the following mitigation measures:</p> <ul style="list-style-type: none"> <li>▪ Ensure that construction vehicles travel to and from the site along the designated truck routes;</li> <li>▪ Traffic controllers to manage the movement of construction vehicles on and off the site.</li> <li>▪ Control the size of construction vehicles.</li> <li>▪ Ensure that trucks do not park within surrounding streets. All construction vehicles are to be accommodated on-site.</li> <li>▪ Co-ordinate and manage the arrival of trucks and the delivery of construction material to and from the site.</li> <li>▪ Ensure that all truck drivers are advised of the construction traffic management procedures.</li> </ul>	Ma
<b>Urban Design and Visual</b>	Visual impacts on surrounding properties and public domain	C&O	The proposed development should be designed in accordance with the landscape plans and landscaping mitigation should be provided in the form of canopy tree planting together with a large shrub and groundcover understory.	Ma
<b>Landscaping and Tree Removal</b>	Tree removal and impacts to retained trees	C	<ul style="list-style-type: none"> <li>▪ Tree Nos. T4 and T5 are to be retained and protected with the following measures: <ul style="list-style-type: none"> <li>- Trunk protection is to be installed.</li> <li>- Demolition is to be supervised by the project arborist.</li> <li>- Landscaping works are to not require a significant increase or decrease (+- 100mm) in grade.</li> <li>- Works are to be designed to have the least impact on tree roots.</li> </ul> </li> <li>▪ Trees T6-9 are to be retained and protected with trunk protection only.</li> <li>▪ Tree 17 is to be retained and protected with the existing boundary fence line to serve as protection fencing.</li> <li>▪ Trees marked for removal are to be physically marked with paint prior to site establishment as per the approved Tree Protection Management Plan.</li> <li>▪ Tree removal is to be carried out prior to the erection of protection fencing. Under no circumstances are trees marked for retention within protection areas to be damaged. Vehicles and heavy machinery used by contractors are also to be kept clear of these protection areas.</li> <li>▪ Stumps to be removed from within protection areas are to be removed in a manner that avoids damaging or disturbing roots of trees to be retained. This may include stump grinding or careful 'picking' of the stumps with machinery.</li> <li>▪ Tree T4 will require pruning to clear the proposed building facade and provide clearance for scaffolding. Pruning should be in accordance with AS 4373-2007: Pruning of Amenity Trees (Standards Australia, 2007). Trees are to be dismantled and/or removed in such a manner as to avoid damage to adjacent or understory vegetation and structures. All pruning works should be completed by a minimum AQF Level 3 Arborist or under direct supervision thereof.</li> </ul>	Pr
<b>Flood Risk</b>	Potential damage to development from flood waters	O	FFL of the proposed building set at RL3.7m, which is 0.6m above the 0.2% AEP.	Ma

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Soils and Water	Impacts of construction stormwater, sediment and site run off	C	<p>The following mitigation measures will be implemented during the construction stage to manage erosion and sediment control:</p> <ul style="list-style-type: none"> <li>▪ Sediment fences located around the perimeter of the site to ensure no untreated runoff leaves the site. Sediment fences should also be located around the existing drainage channels to minimise sediment migration into waterways and sediment basins.</li> <li>▪ Stabilised site access at one location at the entry to the works area. This will limit the risk of sediment being transported on Burrows Road and other public roads.</li> <li>▪ Minimise the extent of disturbed areas across the site at any one time.</li> <li>▪ Progressive stabilisation of disturbed areas or previously completed earthworks to suit the proposal once trimming works are complete.</li> <li>▪ Regular monitoring and implementation of remedial works to maintain the efficiency of all controls.</li> </ul>	Pr
	Potential impacts to water quantity and quality during operation	O	<p>The development will feature the appropriate stormwater quantity and quality management measures including:</p> <ul style="list-style-type: none"> <li>▪ Erosion and sediment control installation.</li> <li>▪ Grading of existing earthworks to suit building layout, drainage layout and pavements.</li> <li>▪ Stormwater and drainage works.</li> <li>▪ Service installation works.</li> <li>▪ Building construction works.</li> </ul>	Ma
	Impacts of disturbance of acid sulphate soil	C	<ul style="list-style-type: none"> <li>▪ Management by neutralisation – addition of chemicals that react with the produced acid to ensure that acid is not released from the treated material.</li> <li>▪ Full oxidation and leachate collection – excavation and exposure of the soils to promote full oxidation.</li> <li>▪ Separation techniques – including the removal of fine ASS particles including pyrite and monocolists from coarser grained soil particles.</li> <li>▪ Selection of preferred management strategies – including the application of neutralisation chemicals, neutralisation of exposed excavation faces during staged treatment works and neutralisation of groundwater seepage and drainage leachate produced during the excavation and treatment works.</li> <li>▪ General site management strategies.</li> </ul>	Pr
Contamination	Future management of the environmentally impacted soils and groundwater at the site	O	Implementation of the Long-Term Environmental Management Plan to ensure long term management of the site.	Ma
Noise and Vibration	Impact of construction noise on surrounding receivers	C	<p>Refer to Section 4.3.4.1 and Section 4.4.3 of the NVIA (<b>Appendix X</b>) for full list of mitigation measures, which include the following practices:</p> <ul style="list-style-type: none"> <li>▪ Provide appropriate respite periods when noise intensive works are undertaken or during periods of high noise impacts.</li> <li>▪ Use quieter and less noise/vibration emitting construction methods where feasible and reasonable.</li> <li>▪ Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be avoided.</li> <li>▪ Noise-emitting plant to be directed away from sensitive receivers.</li> <li>▪ Any equipment not in use for extended periods during construction work must be switched off.</li> <li>▪ Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.</li> </ul>	Pr

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			<ul style="list-style-type: none"> <li>▪ Where possible reduce noise from mobile plant through additional fittings including: <ul style="list-style-type: none"> <li>▪ Residential grade mufflers.</li> <li>▪ Air Parking brake engagement is silenced.</li> </ul> </li> <li>▪ Any construction hoarding shall be installed on each worksite shall be constructed as a noise barrier, where practicable to provide shielding to the nearest affected receivers.</li> <li>▪ Stationary noise sources should be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained</li> <li>▪ Where works are to be completed as OOHW outside the construction hoarding area, relocatable noise barriers e.g. acoustic blankets hung from temporary construction fencing would be used, where practicable.</li> <li>▪ Where practicable, a mobile noise screen/tent would be used to reduce noise from moving plant items e.g. concrete saw.</li> <li>▪ The Construction Environmental Management Plan (CEMP) prepared prior to the commencement of construction should include construction noise and vibration management and be regularly updated to account for changes in noise management issues and strategies.</li> <li>▪ Periodic notification (monthly letterbox drop and website notification) detailing all upcoming construction activities delivered to sensitive receivers at least 7 days prior to commencement of relevant works.</li> <li>▪ All employees, contractors and subcontractors are to receive an environmental induction.</li> <li>▪ Construction heavy vehicles and delivery vehicles should be scheduled during standard construction hours where feasible and reasonable.</li> <li>▪ Vibration testing of actual equipment on site should be carried out prior to their commencement of site operation to determine site specific acceptable minimum working distance to the nearby sensitive receiver/structures location/s.</li> <li>▪ If works are proposed within the cosmetic damage minimum working distance, prior to starting work a building/structure condition survey would be carried out on items within the minimum working distances and vibration limits determined to manage cosmetic damage.</li> <li>▪ Dilapidation surveys must be conducted at all receivers and structures within the vibration minimum working distances for the construction site for cosmetic damage prior to commencement of activities with the potential to cause property damage.</li> </ul>	
	Impact of operational noise on surrounding receivers	O	<ul style="list-style-type: none"> <li>▪ Acoustic assessment of mechanical services equipment should be undertaken during the detailed design phase of the development to ensure that the cumulative noise of all noise generating items and operations as part of typical operations (ie. building services and mechanical plant cumulatively with other noise sources such as trucks and loading activities) does not exceed the applicable noise criteria. This includes the detailed specification and location of mechanical plant on site.</li> <li>▪ Noise control treatment can affect the operation of the mechanical services system. An acoustic engineer should be consulted during the initial design phase of mechanical services system to reduce potential redesign of the mechanical system.</li> <li>▪ Mechanical plant noise emission can be controlled by appropriate mechanical system design and implementation of common engineering methods, which may include: <ul style="list-style-type: none"> <li>– procurement of 'quiet' plant</li> <li>– strategic positioning of plant away from sensitive neighbouring premises to maximise intervening acoustic shielding between the plant and sensitive neighbouring premises</li> <li>– commercially available acoustic attenuators for air discharge and air intakes of plant</li> <li>– acoustically lined and lagged ductwork</li> </ul> </li> </ul>	N/A

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			<ul style="list-style-type: none"> <li>– acoustic barriers between plant and sensitive neighbouring premises</li> <li>– partial or complete acoustic enclosures over plant</li> <li>▪ Fans shall be mounted on vibration isolators and balanced in accordance with Australian Standard 2625 'Rotating and Reciprocating Machinery – Mechanical Vibration'.</li> </ul>	
<b>Air Quality</b>	Impacts of construction activities in relation to dust and human health at sensitive receptors	C	<ul style="list-style-type: none"> <li>▪ Avoid scabbling (roughening of concrete surfaces) if possible.</li> <li>▪ Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.</li> <li>▪ Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.</li> <li>▪ Avoid dry sweeping of large areas.</li> <li>▪ Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.</li> <li>▪ Record all inspections of haul routes and any subsequent action in a site log book.</li> <li>▪ Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).</li> </ul>	Pe, Ma
<b>Waste</b>	Waste associated with the construction and operation of the flight training facility.	C&O	<p>Site specific management measures have been developed in line with legislative requirements including the avoidance and reduction of waste, reuse and recycling of materials, treatment and disposal and waste stream management options:</p> <ul style="list-style-type: none"> <li>▪ Review of waste streams and waste quantities.</li> <li>▪ Review the WMP in light of any changes to operational activities or further information which may alter waste management practices.</li> <li>▪ Undertake auditing of waste management across the site as a component of broader environmental site audits.</li> <li>▪ Undertake visual inspections to ensure waste management controls are implemented and maintained across site.</li> <li>▪ Undertake annual review of the WMP to ensure information accurately reflects site activities, and to assist future waste management.</li> </ul> <p>Prior to commencement of construction, a Construction Environmental Management Plan (CEMP) will need to be developed. This WMP will form a sub-plan of the CEMP for the redevelopment works.</p>	Pe, Ma
<b>Heritage</b>	Impacts of construction activities on unexpected archaeological finds	C	<p><u>Archaeological Finds Procedures</u></p> <p>If unanticipated suspected Aboriginal objects are uncovered at any time throughout the life of the project, the following steps should be undertaken:</p> <ul style="list-style-type: none"> <li>▪ Cease all activity within the vicinity of the find</li> <li>▪ Leave the material in place and protect it from harm</li> <li>▪ Take note of the details of the material and its location, take a photograph of the find in situ, preferably with a scale</li> <li>▪ Inform the site manager/ area supervisor, who would then inform the superintendent/ principal</li> </ul> <p>Once the find has been secured, a suitably qualified archaeologist will be contacted to assess the significance of the find and determine management requirements.</p> <p>If the find is identified as a genuine Aboriginal object:</p>	Ma

Technical Area	Potential Impact	Stage of the Project	Approach	Type of Measure (Pe/Pr/Ma)
			<ul style="list-style-type: none"> <li>▪ Heritage NSW and Registered Aboriginal Parties (RAPs) must be notified and consulted</li> <li>▪ A methodology for long-term storage of the find must be developed in consultation with RAPs</li> <li>▪ The Aboriginal object should be registered on AHIMS</li> <li>▪ Further archaeological mitigation may be required prior to works recommencing.</li> </ul> <p>Works should not recommence until written consent is received from the project archaeologist.</p> <ul style="list-style-type: none"> <li>▪ An unexpected finds policy should be implemented in the event that human skeletal remains or Aboriginal objects are identified during construction.</li> </ul>	
	Impacts of construction activities on Alexandra Canal	C	<ul style="list-style-type: none"> <li>▪ The works are to be designed to minimize and avoid impact on the original significant fabric of the canal. Any works that require impacts to the original fabric should be 'made good' once works are complete.</li> <li>▪ Where the works could impact original and highly significant heritage fabric, only tradespersons with experience in working with heritage materials should undertake works;</li> <li>▪ The methods, tools and materials used should not cause inadvertent damage to original and highly significant heritage fabric within the study areas. Should unexpected damage to significant historic fabric occur, the advice of a heritage specialist should be sought before repairs are made;</li> <li>▪ All works are to be undertaken in accordance with the principles and objectives of the Australia ICOMOS <i>Charter for the Conservation of Places of Cultural Significance</i> (the <i>Burra Charter</i>);</li> <li>▪ Where options exist for alternative installation methodologies and materials, that achieve the desired functional outcome, preference should be given to the option that has the least deleterious impact on significant heritage fabric.</li> <li>▪ A Photographic Archival Recording (PAR) report should be prepared for the site to document significant fabric and heritage significant views and vistas that would be impacted in accordance with the Alexandra Canal Conservation Management Plan (CMP) Policy 13, 82 and 86.</li> <li>▪ This report should be prepared in accordance with relevant guidelines issues by Heritage NSW.</li> <li>▪ A heritage induction for all contractors undertaking the works is required. This heritage induction must be prepared and delivered by a qualified heritage specialist and ensure that all contractors are aware of the nearby heritage listings and understand the heritage significance of said listings, as well as areas to avoid and steps to take if any unexpected damage occurs during works.</li> <li>▪ If any artefacts are found during the construction process, they should be incorporated into the interpretation strategy for the entirety of Alexandra Canal in accordance with Policy 86 of the Alexandra Canal CMP</li> </ul>	Pr, Ma