28. Environmental management framework

28.1. Introduction

The purpose of this environmental management framework (EMF) is to identify the preferred means of addressing environmental impacts and issues associated with construction and operation of Stage 1 of the proposed airport.

The development of this environmental management framework is tailored to reflect current considerations including site conditions, airport planning and design, governance and project delivery. In this respect it is recognised that:

- the initial development of the proposed airport would occur in accordance with the Airport Plan which is a transitional planning instrument for a greenfield airport development. The proposed airport would transition into the generally applicable planning and environmental management framework for airports set out in the Airports Act 1996 (Airports Act) including development of a master plan which includes an environment strategy and the airport lessee company's (ALC's) plans for managing aircraft noise;
- some site preparations work may be undertaken by the Commonwealth with the balance of Stage 1 construction and subsequent operation of the proposed airport expected to be undertaken by an ALC following grant of an airport lease;
- finalisation of flight paths after the Airport Plan has been determined would establish more definitively which areas would be exposed to various levels of noise. A noise management plan would be developed having regard to forecast noise exposure levels which may include both on and off site management measures; and
- the Commonwealth would be responsible for the environment management framework until an airport lease is granted. Once an airport lease is granted, the ALC would take over responsibility for implementation of the environment management framework.

Environmental management plans would be progressively developed for specific issues in accordance with the applicable governance framework for both construction and operational periods of the Stage 1 development.

This chapter sets out:

- objectives for the EMF (Section 28.2);
- a high level overview of statutory requirement and governance, including roles and responsibilities (Section 28.3);
- a consolidated list of identified environmental impacts and mitigation measures (Section 28.4); and
- an outline of proposed environmental management plans (Sections 28.5 and 28.6).

This chapter draws on the assessments presented in Volume 2 of this draft EIS and includes measures that have been proposed to avoid, reduce or otherwise mitigate identified impacts related to the construction and operation of the Stage 1 development.

28.2. Objectives for environmental management

The following objectives have been developed to guide environmental management of the Stage 1 development:

- to ensure that all construction and operational activities are consistent with sustainability and environmental management principles;
- to ensure that all identified environmental impacts and issues are appropriately managed and mitigated during construction and operation of the proposed airport;
- to provide a comprehensive framework for the development and implementation of detailed environmental management measures and environmental management plans; and
- to identify the regulatory and governance framework for environmental management of the construction and operation of the proposed airport.

It is anticipated these objectives may be modified in subsequent stages of project implementation in response to applicable government or corporate polices on issues such as sustainability and environmental management.

28.3. Statutory requirements and governance

The Stage 1 development would be constructed and operated in accordance with the Airport Plan, which forms a transitional planning instrument under the *Airports Act 1996*. While the Airport Plan defines the parameters for the proposed Stage 1 airport, future work beyond this initial development would be undertaken under the planning framework in Part 5 of the *Airports Act 1996* as applies to existing major airports. Further detail on the overall approvals framework for the proposed airport is described in Chapter 3 in Volume 1 of this draft EIS.

The specific statutory and governance requirements for environmental management are set out below. These requirements in relation to environmental management reflect the transition of the project from environmental assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to a fully operational Stage 1 development under the provisions of the Airports Act.

28.3.1. Environmental Protection and Biodiversity Conservation Act

The draft EIS has been prepared to address the requirements of the EPBC Act and the EIS guidelines issued by the Department of the Environment (refer Volume 4, Appendix C). The specific requirements in the guidelines which informed the development of this environmental management framework are outlined in Section 6(c):

The EIS must include specific and detailed descriptions of the proposed avoidance and mitigation measures based on best available practices. This must include the following elements:

i. A consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including:
   - a detailed description of proposed measures;
   - assessment of the expected or predicted effectiveness of the mitigation measures;
   - any statutory or policy basis for the mitigation measures; and
   - the likely cost of the mitigation measures.

ii. A detailed outline of a plan for the continuing management, mitigation and monitoring of relevant matters protected by a controlling provision, including a description of the outcomes that will be achieved and any provisions for independent environmental auditing.

iii. Where appropriate, each project phase (construction and operation) must be addressed separately. It must state the environmental outcomes, performance criteria, monitoring, reporting, corrective action, contingencies, responsibility and timing for each environmental issue.

iv. The name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

28.3.2. Construction

The Airports Act has recently been amended to provide for preparation of an Airport Plan which is both a transitional planning instrument for the proposed airport and a description of the Stage 1 development. The Airport Plan would be the primary instrument governing development of the proposed airport during the construction period.

In determining the Airport Plan the Minister for Infrastructure and Regional Development must include any conditions or provisions that the Minister for the Environment considers should be included for the purpose of protecting the environment. It is expected that conditions contained in the Airport Plan would require implementation of the EMF including the relevant plans and mitigation measures applicable to the construction period.

In addition to the Airport Plan, the Airports Act contains provisions for building controls and environmental management which would apply to all development activities on the proposed airport once an airport lease is granted. Prior to the granting of an airport lease, development activities would be undertaken so as to comply with the standards and objectives of those provisions.

28.3.3. Operations

The statutory framework for on-going environmental management at the airport site will be provided by:

- Airports Act Part 5 and Part 6 and associated parts of the *Airports Regulations 1997* which relate to land use, planning, building controls and environmental management;
- *Airports (Environment Protection) Regulations 1997* which establishes a system of regulation of, and accountability for, activities at airports that generate or have the potential to generate pollution or excessive ground based noise. These regulations also promote improving environmental practices for activities carried out at airports;
- *Airports (Building Control) Regulations 1996* which require approval from an airport building controller of building activities on airport sites for which there is an airport lease, and require that those activities to be consistent with applicable planning instruments such as the Airport Plan; and
- other applicable laws such as the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

28.3.3.1. Airports Act – master plan

The environmental management framework for existing airports is established in an airport's master plan. The ALC of the proposed airport would be required to submit for approval its first master plan within five years of an airport lease being granted, or in such a longer period as approved by the Minister for Infrastructure and Regional Development. Airport master plans are subject to public consultation prior to approval and are updated every five years.

Table 28–1 describes the purpose of a master plan as outlined in the Airports Act. Table 28–2 outlines the required content of a master plan and Table 28–3 outlines the required content of an environment strategy which is part of a master plan.

Table 28–1 – Purpose of a master plan

Purpose of a master plan
As outlined in section 70 of the Airports Act, the purpose of a master plan is to: • establish the strategic direction for efficient and economic development at the airport over the planning period of the plan; • provide for the development of additional uses of the airport site; • indicate to the public the intended uses of the airport site; • reduce potential conflicts between uses of the airport site, and to ensure that uses of the airport site are compatible with the areas surrounding the airport; • ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards; • establish a framework for assessing compliance at the airport with relevant environmental legislation and standards; and • promote the continual improvement of environmental management at the airport.

Table 28–2 – Content of a master plan

Content of a master plan

Section 71 of the Airports Act states that a master plan is required to include:

- the ALC's development objectives for the airport;
- the ALC's assessment of the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport;
- the ALC's intentions for land use and related development of the airport site, where the uses and developments embrace airside, landside, surface access and land planning/zoning aspects;
- an Australian Noise Exposure Forecast for the areas surrounding the airport;
- flight paths at the airport;
- the ALC's plan for managing excessive noise , developed following consultations with the airlines that use the airport and local government bodies in the vicinity of the airport, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels;
- the ALC's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the master plan;
- the ALC's plans for dealing with the environmental issues (including plans for ameliorating or preventing environmental impacts);
- a plan for a ground transport system on the landside of the airport;
- detailed information on the proposed developments in the master plan that are to be used for commercial, community, office or retail purposes or for any other purpose that is not related to airport services; and
- the likely effect of the proposed developments in the master plan on employment levels at the airport; and the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport.

Table 28–3 – Content of an environment strategy

Content of an environment strategy
In addition to the contents of a master plan outlined in Table 28–2, section 71 of the Airports Act and the Airports Regulations states the master plan must contain an environment strategy that details: • the ALC's objectives for the environmental management of the airport; • the areas (if any) within the airport site which the ALC, in consultation with State and Federal conservation bodies, identifies as environmentally significant including; • the sources of environmental impact associated with airport operations including; • the studies, reviews and monitoring to be carried out by the ALC in connection with the environmental impact associated with airport operations (including matters such as proposed systems of testing and qualifications of experts); • the time frames for completion of those studies and reviews and for reporting on that monitoring; • the specific measures to be carried out by the ALC for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations; • the time frames for completion of those specific measures; • details of the consultations undertaken in preparing the strategy (including the outcome of the consultations); • specify any areas within the airport site to which the strategy applies that the ALC for the airport has identified as being a site of indigenous significance, following consultation with any relevant indigenous communities and organisations; and any relevant Commonwealth or State body; • specify the ALC's strategy for environmental management of areas of the airport site that are, or could be, used for a purpose that is not connected with airport operations; • specify the training necessary for appropriate environment management by persons, or classes of persons, employed on the airport site by the ALC or by other major employers (and relevant training programs); • the environment strategy must address the ALC's policies and targets for: ▪ continuous improvement in the environmental consequences of activities at the airport; ▪ progressive reduction in extant pollution at the airport; ▪ development and adoption of a comprehensive environmental management system for the airport that maintains consistency with relevant Australian and international standards; ▪ identification, and conservation, by the airport lessee company and other operators of undertakings at the airport, of objects and matters at the airport that have natural, indigenous or heritage value; ▪ involvement of the local community and airport users in development of any future strategy; and ▪ dissemination of the strategy to sub lessees, licensees, other airport users and the local community.

28.3.4. Transition to operations

Operations at the proposed airport would take place in accordance with the environmental management framework described below. In the period leading up to operations commencing, the plans and measures identified in the EIS would be prepared and implemented, and in due course addressed in the process of preparing the master plan framework outlined in section 28.3.3. Once a master plan is in place (which may be before or after operations commence), it would replace the EMF described in this chapter. Future variations and updates would occur in accordance with the master plan framework. The approach to flight paths and noise in the transition to operations is discussed in Section 28.6.3.

28.3.5. Contractual arrangements

Construction activities at the airport site are expected to be undertaken under contracts with suitably qualified construction companies. Tender processes for the selection of contractors will assess their ability to implement strong environmental management practices on the airport site including compliance with the mitigation and other measures identified in the EIS.

The contract documentation will require compliance with all regulatory requirements including the Airport Plan and its conditions. As noted above, it is expected that the Airport Plan will require compliance with the mitigation measures identified in this EIS.

28.4. Identified environmental impacts and mitigation measures

This section of the environmental management framework presents a consolidated list of the environmental impacts or issues and mitigation measures identified in Volume 2 of the draft EIS for both the construction and operation of the proposed Stage 1 development.

The listed measures incorporate standard construction industry practice that have been proven effective in the reduction of environmental and community impacts as part of other major infrastructure projects. Additionally, the resourcing and cost implications are well known to the parties who may be engaged to develop the site. A number of the measures, particularly in relation to mitigation of operation issues, depend upon the completion of other processes or activities by third parties and are therefore strategic by nature and require further development.

Effectiveness of the mitigation and management measures proposed will be ensured through:

- inclusion of any additional best-practice and widely accepted measures throughout the detailed design, construction and operation of the proposed airport, where appropriate;
- requirement of approval of environmental management plans by the Minister for Infrastructure and Regional Development including clear statements of the intended outcomes and performance criteria of those plans;
- Ongoing monitoring and compliance of environmental management plans through a review, reporting and auditing framework approved by the Minister for Infrastructure and Regional Development;
- ongoing environmental management requirements which currently exist under the Airports Act, including the regulation of land use through ongoing master planning and environmental strategy requirements, as well as a system of regulation of, and accountability for, activities at the airport site that generate or have the potential to generate pollution; and
- ongoing stakeholder consultation and oversight through relevant community forums as required by the Australian Government at major airports in Australia.

Taken together, these mechanisms will ensure that mitigation measures proposed in the EIS are effective and achieve the intended outcomes.

28.4.1. Impacts of construction

Construction of the Stage 1 development would involve land clearing and bulk earthworks within the construction impact zone in the northern part of the airport site. This would result in major changes to the landform in order to develop the necessary airport infrastructure for Stage 1, including airfield facilities (runway, taxiways and aprons), terminals and other facilities such as roads and car parks.

Construction would result in a range of environmental impacts associated with removal and relocation of existing utilities, vegetation clearing, large scale earthworks movement and reshaping and installation of drainage, and ultimately construction of significant infrastructure on the site. The impacts resulting from these activities would be managed to mitigate residual impacts within the site as well as avoiding, reducing or otherwise mitigating impacts beyond the site boundary. Table 28–4 lists the mitigation and management measures applicable to Stage 1 construction. The listed measures incorporate standard industry practice and have proven effective in the reduction of environmental and community impacts as part of other major NSW Government infrastructure projects. Additionally, the resourcing and cost implications are well known to the parties who may be engaged to develop the site.

For each measure, the timing is identified as pre-construction or construction. Unless otherwise stated, pre-construction timing refers to a measure being undertaken before the relevant impact occurs. Because of the size of the airport site and the progressive nature of planning, design and construction activities across the airport site, it may not always be feasible to implement pre-construction plans, surveys or other activities across the whole airport site at once.

As such, pre-construction mitigation measures may be broken down into location-specific parts and may be phased across the airport site consistent with the progression of construction activity. This generally means that:

- a pre-construction activity such as a plan, design or survey for a particular area of the airport site must occur before the relevant construction impact occurs in that particular area;
- a plan or strategy may be prepared and implemented in two or more sections at different times as construction activity moves from one area of the airport site to another; and
- some parts of a pre-construction plan or strategy may be prepared for parts of the airport site after construction has commenced in other parts of the airport site.

Where a plan is proposed to mitigate impacts during construction, the development and approval of the plan is identified as a pre-construction requirement which would be completed before the relevant activities and impacts occur. The plan would be implemented during relevant construction activities. Given the scope and duration of the construction work, it is expected that plans would need to be updated from time to time, for example to reflect the detailed requirements of a new stage of works, a change in circumstances or a change in responsible contractors.

A number of measures associated with preparing for operations would occur during the construction phase. These are classified as ‘pre-operation’ mitigation measures and are set out in Section 28.4.2.

Opportunities have been identified to undertake early mitigation measures such as surveys, monitoring, preparation of plans and consultation. Some of these could commence prior to an Airport Plan being determined.

Table 28–4 – Mitigation measures applying to Stage 1 design and construction

Issue	Mitigation	Timing
Noise (ground operations, construction, road)		
Construction noise and vibration	A noise and vibration management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would: • assist in ensuring that the noise during construction complies where feasible with the construction noise management levels set for the project including Schedule 4 of the Airports (Environment Protection) Regulations where relevant; • determine noise and vibration monitoring, reporting and response procedures. • describe specific mitigation treatments, management methods and procedures to be implemented to control noise and vibration during construction; • describe construction timetabling to minimise noise impacts including time and duration restrictions, respite periods and frequency; • describe procedures for notifying residents of construction activities likely to affect their amenity through noise and vibration; and • define contingency procedure to be implemented in the event of noncompliance and/or noise complaints.	Pre-construction
Operational ground-based noise	The airport-lessee company would establish and operate a community aviation consultation forum and a planning coordination forum consistent with practice at other airports.	Pre-construction Construction
Air quality and greenhouse gases		
Dust management Plan	A dust management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would collate measures to mitigate and manage potential impacts on air quality. The plan should include standard measures such as watering of exposed surfaces and covering of stockpiled material. The plan may also include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.	Pre-Construction
Community engagement	Develop and implement a stakeholder communications plan that specifically addresses construction and includes community engagement before work commences on-site.	Pre-Construction
	Display the name and contact details of person(s) accountable for environmental management at the airport site boundary.	Construction
Dust management	Record all dust and air quality complaints, identify cause(s), and record the response to the complaint, including any further mitigation measures taken.	Construction
	Make the complaints log available to the relevant authority when asked.	Construction
	Record in a log book any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation.	Construction
	Carry out regular site inspections to monitor compliance with the dust management plan, record inspection results, and make an inspection log available to the relevant authority when asked.	Construction
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on-site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	Construction

Issue	Mitigation	Timing
	Determine dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations in consultation with the relevant authorities. Where possible commence baseline monitoring at least three months before work commences on site or before work on a construction phase commences.	Pre-Construction
	Avoid site runoff of water or mud. This will reduce the potential for track-out dust emissions.	Construction
Vehicle and equipment emissions	Vehicle operators would be required to switch off engines when not in use.	Construction
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	Construction
	Appropriate vehicle speeds on sealed and unsealed roads would be considered as part of the dust management plan.	Construction
	Produce a construction logistics plan to manage the sustainable delivery of goods and materials.	Pre-Construction
	Prepare a travel plan that supports and encourages sustainable travel for construction workers (public transport, cycling, walking, and car-sharing).	Construction
	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays.	Construction
	Adequate water would be made available on the site for effective dust and particulate matter suppression and mitigation, using non-potable water where possible and appropriate.	Construction
	Use enclosed chutes and conveyors and covered skips.	Construction
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment. Use fine water sprays on such equipment wherever appropriate.	Construction
	Equipment would be readily available on-site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	Construction
Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible), to provide a screen against dust.	Construction
	Effective water suppression methods are to be used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	Construction
	Avoid use of explosive blasting in demolition building works, using appropriate manual or mechanical alternatives.	Construction
	Bag and remove any biological debris or damp down such material before demolition.	Construction
Earthworks	Re-vegetate earthworks and exposed areas or soil stockpiles to stabilise surfaces as soon as practicable.	Construction
	Use hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	Construction
	Minimise exposed areas as far as is practical.	Construction
Aviation Infrastructure	Avoid scrabbling (roughening of concrete surfaces) if possible.	Construction

Issue	Mitigation	Timing
	Sand and other aggregates would be stored in bunded areas and not allowed to dry out, unless required for particular processes. If so, appropriate additional control measures would be in place.	Construction
	Bulk cement and other fine powder materials would be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	Construction
	Seal and appropriately store bags of any fine powder materials to prevent dust generation.	Construction
Track out dust	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 to be continuously in use.	Construction
	Avoid dry sweeping of large areas.	Construction
	Vehicles entering and leaving sites should be covered to prevent escape of material during transport.	Construction
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	Construction
	Record all inspections of haul routes and any subsequent action in a site log book.	Construction
	Hard surfaced haul routes would be regularly cleaned and damped down with fixed or mobile sprinkler systems or mobile water bowsers.	Construction
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud) prior to leaving the site where reasonably practicable.	Construction
	An adequate area of hard surfaced road between the wheel wash facility and the site exit would be provided, wherever site size and layout permits.	Construction
	Site access points would be located as far as practicable from sensitive receptors.	Construction
Greenhouse gases – Scope 2 emissions	Consideration will be given to designing, constructing and operating the Stage 1 development to achieve the following where appropriate: • 5 Star Green Star – Design & As Built; • 5 Star NABERS Office Energy Rating; and • 4 Star Green Star – Performance	Pre-Construction Construction
Demolition	Avoid use of explosive blasting in demolition works, using appropriate manual or mechanical alternatives.	Construction
Earthworks	Minimise exposed areas as far as practical.	Construction
Traffic, transport and access		
Construction related traffic and transport impacts	A community awareness programme would be implemented prior to construction commencing and would continue throughout the entire construction period. The programme would aim to make road users (including local residents) aware of construction traffic and safety issues, such as diversions, temporary road closures, traffic signalling and speed limits.	Pre-Construction

Issue	Mitigation	Timing
Construction related traffic and transport impacts	A traffic and access management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would collate measures to mitigate and manage potential traffic impacts. The plan would consider the following elements: • management for the temporary and permanent closures of roads within the airport site; • a community engagement strategy; • ongoing consultation with Roads and Maritime, local councils as appropriate and emergency services; • induction for drivers working on the project to cover safety measures particularly for night works; • review of speed environments along transport corridors; • restriction of construction related traffic within the AM and PM peak periods where required; • management of the transportation of construction materials to optimise vehicle loads in order to minimise vehicle movements; • traffic control measures to manage and regulate traffic movements during construction; • identification of potential disruption to road users; • identification of any road closures and/or road upgrades that may be required; • construction vehicle routes, including the use of arterial roads, haulage routes, access to the airport site and procedures for oversize and heavy vehicles; and • parking facilities for construction workers. The plan would be developed in consultation with relevant stakeholders prior to the commencement of construction. The plan would provide the overall plan and staging for managing traffic through and around each work site. This would be in accordance with the Roads and Maritime's *Road Design Guide*, the Roads and Maritime Services *Traffic Control at Work Sites* manual and AS1742.3 *Manual of Uniform Traffic Control Devices – Traffic control for works on roads*, and any other relevant standard, guide or manual. The draft plan would be reviewed by relevant stakeholders including NSW Police, Transport for NSW, Road and Maritime Services and affected local councils.	Pre-Construction
Biodiversity		
Biodiversity management plan	A biodiversity management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would collate measures to mitigate and manage potential impacts on biodiversity.	Pre-construction
Worker inductions	All workers are to be provided with an environmental induction prior to starting construction activities on site. This would include information on the ecological values of the airport site and protection measures to be implemented to protect biodiversity during construction.	Pre-construction Construction

Issue	Mitigation	Timing
Vegetation clearance and habitat loss	Reduce the potential for adverse impacts on ecologically sensitive areas by: • deferring vegetation removal until necessary; • locating site offices and stockpiles in already cleared and disturbed areas, to avoid further unnecessary removal or disturbance of native vegetation and hollow-bearing trees, where possible; • providing maps to construction staff clearly showing vegetation clearing boundaries and exclusion/no-go zones; and • engaging a suitably qualified ecologist or environmental officer prior to any clearing works to clearly demarcate vegetation protection areas.	Pre-construction Construction
Disease management	Management of plant disease (such as Phytophthora, Myrtle Rust and Chytrid fungus) would be a principal consideration in the development of the construction environmental management plans, with particular regard to protection of environmental conservation zones.	Pre-construction Construction
Threatened fauna management plans	Prepare and implement athreatened fauna species management plans to reduce the potential for impacts on relevant species. These would include maps identifying locations of threatened species, scope and requirements for targeted surveys and pre-clearing surveys, unexpected finds protocol, salvage and translocation of threatened species as per the measures recommended below, clearing protocols, and reporting and adaptive management measures.	Pre-construction Construction
Threatened flora translocation plan	Prepare and implement a threatened flora salvage and/or translocation plan in consultation with the Australian Botanic Garden Mount Annan. This would include the salvage and propagation or transplanting of the known local populations of *Pultenaea parviflora* and *Marsdenia viridiflora* subsp. *viridiflora* and any other threatened plants detected at the airport site. The translocation plan will build upon conservation activities previously undertaken for *Pultenaea parviflora* following the 1997-99 EIS. The plan would consider the suitability of sites within the environmental conservation zone and any biodiversity offset sites that are within the vicinity of the airport site in order to maintain populations of these species as close to their original location as is possible.	Pre-construction Construction
Pre-clearance surveys for threatened species	Undertake pre-clearance surveys for threatened species by a qualified ecologist. Specific management plans would be prepared to manage impacts on threatened flora and fauna species. Surveys would include: • additional targeted searches of the airport site for the Green and Golden Bell Frog (in suitable conditions) to confirm that they are not present at the site. Should this species be located during targeted surveys a management plan would be prepared to provide detail on Green and Golden Bell Frog relocation and habitat management. Frog collection and relocation would need to be conducted by appropriately experienced ecologists; • targeted searches of the airport site for the Cumberland Plain Land Snail (in suitable conditions) and salvage and relocation of any snails and/or suitable shelter sites that are detected. A management plan would be prepared to provide more detail on Cumberland Plain Land Snail relocation and habitat management. Snails and/or suitable shelter sites would be relocated to appropriate habitat near the airport site. Snail collection and relocation would need to be conducted by appropriately experienced ecologists; • surveying any bridges or culverts that need removal to search for roosting bats; • pre-clearing surveys for larger birds' nests, particularly the White-bellied Sea-Eagle and Little Eagle; and • targeted searches for threatened flora species in areas of appropriate habitat.	Pre-construction

Issue	Mitigation	Timing
Habitat clearing and fauna management protocol	Develop measures for the management of impacts on fauna species during clearing activities. Measures would include: • preparing a nest box strategy, including provisions for the: ▪ installation of nest-boxes within conservation areas prior to clearing areas of native vegetation on the airport site to provide a safe location for hollow-dwelling fauna to be transferred to during clearing operations; and ▪ salvage of native fauna from existing nest boxes on the airport site prior to their removal and translocation of fauna to newly established nest box sites; • pre-clearing surveys undertaken by a suitably qualified ecologist to mark and map hollow-bearing trees, logs and existing nest boxes that would require fauna management during removal; • establishing protocols for the staged clearing vegetation and safe tree felling and log remove to reduce the risk of fauna mortality; • establishing protocols for the capture and relocation of less mobile fauna (such as nestling birds and nocturnal fauna) by a trained fauna handler; and • establishing protocols for the appropriate management of injured or deceased individuals.	Pre-construction
Weeds	Prepare and implement a weed management plan that would include: • implementing soil erosion and sediment control measures; • mapping of weed infestations; • removing and controlling noxious weed species; • appropriate disposal of weeds and weed-infested soils; • stabilising disturbed areas following clearing to prevent weed spread; • monitoring and adaptive management of weeds; and • reporting on the extent, composition and severity of weed infestations and adaptive management measures.	Pre-construction Construction
Unexpected finds	Establish an unexpected finds protocol to detail measures to be undertaken if threatened flora and fauna not previously recorded at the airport site are detected during clearing or construction activities.	Pre-construction

Issue	Mitigation	Timing
Dam decommissioning	Establish a protocol for the decommissioning of dams in consultation with relevant agencies, to include: • dam removal following any requirements of a Green and Golden Bell Frog management plan; • eradication of Alligator Weed infestation on the dammed section of Oaky Creek near Elizabeth Drive prior to any works in the vicinity; • progressively emptying dams over a number of days to allow fauna to relocate; • avoiding nesting season of waterbirds, where possible. A pre-removal survey would be conducted to identify bird breeding locations; • salvaging and relocating aquatic vertebrate fauna, including frogs, turtles and eels, to areas of suitable habitat retained at the airport site or nearby habitats where practicable, with regard to numbers and identification of suitable release sites; • preventing the release of Eastern Gambusia (Gambusia holbrooki) and other noxious fish into local waterways as a result of draining of farm dams. Eastern Gambusia would be eradicated from dams using humane methods; and • establishing protocols for the humane euthanasia of aquatic fauna, including fish.	Pre-construction
Fire	Prepare a bushfire management plan in consultation with NSW Rural Fire Service to minimise the risk of bushfire and associated impacts on adjoining areas of native vegetation, including the proposed environmental conservation area. This would include: • identifying activities likely to generate sparks and putting in place appropriate restrictions based on the forecasted fire danger; • preparing pre-planned fire response action plans. The action plans would be issued as part of the site induction for all site personnel; • developing limitations on relevant construction procedures which would be applied during the fire season based on specific fire danger ratings. An example of such restrictions would include the halting of all construction works during extreme or catastrophic fire danger days; and • managing the airport site to maintain a low overall fuel hazard. Measures to achieve this would include: • a combination of herbicide application, slashing, low intensity prescribed burning and hand removal; and • ensuring that fuel-reduction measures are appropriate to biodiversity values in each area e.g. low intensity prescribed burns rather than slashing would be used in native woodland and forest.	Pre-construction
Lighting	Avoid unnecessary light spill into nearby areas of retained vegetation (such as in the environmental conservation areas) as much as possible.	Construction

Issue	Mitigation	Timing
Fauna management	Subject to safety and security, implement measures for the management of impacts on fauna species during clearing activities, including: • implementing a staged vegetation clearing process. This would provide opportunity for fauna that are resident in the Stage 1 development construction impact zone to seek refuge in alternative habitat in the environmental conservation zone, long term development impact zone or outside the airport site. Clearing would commence in the north-east of the site and proceed south and west. Subject to safety and security requirements, the clearing would be undertaken before the construction of the southern perimeter fence to allow fauna to relocate offsite and towards the environmental conservation zones. This approach has been identified to maximise the opportunity for resident fauna to vacate the clearing footprint via vegetated remnants and move toward alternative habitat; • identifying and assessing potential habitat trees and logs through a fauna spotter, prior to the commencement of clearing. These would be clearly identified with spray paint. A dozer would then clear the undergrowth and trees not identified as potential habitat trees. An excavator would follow several days behind the dozer to give resident fauna the opportunity to vacate habitat trees. The excavator would drop trees in a manner to increase the likelihood of survival of any fauna present; and • engaging an experienced fauna spotter-catcher, licenced wildlife carer or ecologist to supervise native vegetation clearing or removal/disturbance of other habitat features (e.g. culverts), and to capture and relocate fauna, if required. Any injured native fauna would be transferred to the care of a licenced wildlife carer.	Construction
Vegetation	Prepare and implement a vegetation management plan. The vegetation management plan would apply to open space within the airport site and the environmental conservation zone and would include: • retaining native vegetation and/or supplementary replanting with local native species; • slashing of grassland to manage fuel loads and bushfire risk; • identifying threatened flora populations and measures to avoid impacts from activities such as weed control or bushfire hazard reduction; • identifying measures for the management of weeds; • planting schedules; • monitoring of the success of revegetation, weed control and adaptive management; and • reporting.	Construction
Topography, geology and soils		
Soil and water management plan	A soil and water management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would collate measures to mitigate and manage potential impacts on soil and water.	Construction
Soil erosion and degradation	Erosion controls would be established in line with *Managing urban stormwater: soils and construction* (Landcom 2004).	Construction
	Specific erosion control measures would be developed for the management of highly erodible soils such as those anticipated in the Luddenham and South Creek soil landscapes.	Construction
	Cleared vegetation would be mulched and used to control erosion at construction sites.	Construction
	Soil stockpiles would be covered and stabilised with vegetation or mulch.	Construction

Issue	Mitigation	Timing
	Topsoil would be stockpiled at a maximum height of two metres.	Construction
	Topsoil would be distributed and seeded over landscape areas at completion of bulk earthworks.	Construction
Land contamination	Fuel and other potential contaminants would be stored and handled in accordance with relevant Australian standards such as: • *AS 1940-2004 The storage and handling of flammable and combustible liquids* • *AS/NZS 4452:1997 The storage and handling of toxic substances* • *AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods* • *AS/NZS 1547:2012 On-site domestic wastewater management*	Construction
	An unexpected finds protocol and Remediation Action Plan would be established to facilitate the quarantining, isolation and remediation of contamination.	Construction
	Any asbestos identified on site would be managed in accordance with applicable regulatory requirements.	Construction
Surface water, groundwater and water quality		
Surface water drainage system	Preparation of a plan to refine the surface water drainage system during detailed design to address the following: • detailed design of basins and channels to capture the majority of runoff, including during construction; • refinement of drainage system design performance standards to optimise capacity and release timing, mimicking natural flows as far as practicable; • provision of intermediate sediment retention basins upstream of larger basins to provide additional treatment; • provision of separate bio-retention swales and basins to provide additional treatment and separation of these features from the drainage system to protect contained water during floods; • provision of pollutant traps to prevent debris and other coarse material entering the drainage system; • stabilisation structures at outlets to include rock check dams at regular intervals along channels and energy dissipaters at basin outlets; and • capacity for containment of accidental leaks or spills in the drainage system at maintenance areas, fuel farms or other areas where fuels or chemicals are stored or handled in accordance with Australian standards.	Pre-construction
Erosion and sedimentation	The surface area disturbed at any one time would be minimised as far as possible by construction staging and stabilised with vegetation or appropriate cover.	Construction
Leaks or spills of fuel or other chemicals	Fuel and other chemicals would be stored and handled in accordance with relevant Australian standards such as: • *AS 1940-2004 The storage and handling of flammable and combustible liquids;* • *AS/NZS 4452:1997 The storage and handling of toxic substances;* • *AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods; and* • *AS/NZS 1547:2012 On-site domestic wastewater management.*	Construction

Issue	Mitigation	Timing
Surface water quality	Surface water quality criteria for releases from the drainage system would be developed with due consideration to the *Airports (Environment Protection) Regulations 1997* and the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC and ARMCANZ 2000) and the results of baseline water quality monitoring.	Pre-construction
	Surface water quality monitoring would be conducted at basin outflows and selected upstream and downstream conditions. Once an airport lease is granted, the proposed airport would be subject to water quality monitoring requirements as set out in the *Airports (Environmental Protection) Regulations 1997* and the results of baseline water quality monitoring.	Construction
Leaks or spills of fuel or other chemicals	Maintenance areas, fuel farms and other areas where fuels or chemicals are stored or handled would be bunded to contain any accidental spills or leaks.	Construction
Leaks or spills of fuel or other chemicals	Develop and implement response procedures to remedy leaks or spills.	Construction
Groundwater inflows	Groundwater elevation monitoring would be conducted to detect potential impacts to base flow in the vicinity of potentially sensitive creeks or groundwater dependent vegetation. Monitoring would be undertaken quarterly through construction up to a minimum period of three years after the completion of the Stage 1 development and until any identified impacts stabilise.	Construction
Groundwater inflows	Measures to supplement groundwater supplies would be made in the unlikely event of impacts to dependent vegetation or watercourses.	Construction
Groundwater quality	Groundwater quality monitoring of alluvial and Bringelly Shale aquifers would be conducted at major infrastructure locations, down gradient from those locations and in the vicinity of groundwater dependent vegetation or watercourses. Monitoring would initially be undertaken quarterly and adjusted as appropriate. Once an airport lease is granted the proposed airport would be subject to water quality monitoring requirements as set out in the Airports (Environmental Protection) Regulations 1997.	Construction
	Groundwater inflows would be reused or released with appropriate treatment. Where groundwater is released to surface waters, treatment would be to the appropriate level under the ANZECC guidelines.	Construction
Aboriginal heritage		
Cultural heritage management plan	A cultural heritage management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would collate measures to mitigate and manage potential impacts on Aboriginal cultural heritage values.	Pre-construction
Conservation of heritage sites	The scarred tree (B40) and the grinding groove site (B120) would be conserved in situ within an environmental conservation zone at the airport site, and outside any future airport site boundary fence. A low barrier fence, which does not obstruct pedestrian traffic, would be erected around specific heritage sites as is necessary to demarcate the area as a no-go zone for vehicles. The barrier would be situated so that it did not intrude upon the immediate visual and landscape quality of the heritage sites and their surrounds.	Pre-construction
	The environmental conservation zone would be managed with the reservation of of known and predicted Aboriginal heritage sites as one of the principal objectives of the management of environmental conservation zones.	Construction

Issue	Mitigation	Timing
	Develop a conservation management plan that defines the future care and management of Aboriginal sites situated within the environmental conservation zone(s) identified in the Airport Plan, in particular the scarred tree (B40) and the grinding groove (B120) site. The management plan would consider future public interpretation and access to sites, as appropriate.	Pre-construction
Mitigation and management of heritage sites	Develop and adopt an Aboriginal stakeholder consultation plan that specifies the nature and frequency of consultation throughout the design and construction phase of the airport. The aims of the consultation would be to: • inform on, and provide an opportunity for feedback regarding, all matters relating to the mitigation and management of Aboriginal cultural heritage values across the airport site; • provide a forum for organising future stakeholder participation in mitigation and management works; and • provide opportunities to comment on all policy and documentation drafted in regard to the mitigation and management of Aboriginal cultural values.	Pre-construction
	Provide an opportunity for Aboriginal stakeholders to participate in field actions involving the mitigation and management of Aboriginal cultural values.	Pre-construction
Recording and salvage of heritage sites	Conduct a targeted archaeological surface survey within the construction impact zone of those areas not previously subject to surface survey (and excluding highly disturbed areas) before construction of the Stage 1 development. The aim of this survey would be identify all visible surface Aboriginal sites for recording and management prior to construction.	Pre-construction Construction
	A comprehensive archaeological inspection of surface sandstone outcrops across the airport site would be conducted before, and as required during, construction related activities. This action has the aim of appropriately recording and salvaging stone surfaces with evidence of Aboriginal markings.	Pre-construction
	Conduct archival recording of the scarred tree (B40) and grinding groove site (B120) before the start of any ground disturbance works within the area of these Aboriginal heritage sites. This has the objective of providing a baseline record and information upon which to develop a conservation management plan.	Pre-construction
	Conduct a programme of oral history recording with the aim of recording memories and stories from Aboriginal people relating to the airport site and its district. It is intended that this record would serve as an archive and a resource for future interpretation of the Aboriginal heritage values of the site.	Pre-construction
	Conduct a salvage programme of surface artefacts recovered across known Aboriginal artefact occurrences in the construction impact zone, with the aim of avoiding damage from construction related activities. This action would address strongly held concerns of Aboriginal stakeholders about the protection of artefacts from construction impacts. The collection programme would be conducted using an archaeological methodology and the resulting assemblage would be integrated into the archaeological analysis of salvaged material, where appropriate.	Pre-construction Construction

Issue	Mitigation	Timing
	A selective archaeological salvage programme should be conducted prior to, and as necessary during, construction works across the initial development area subject to construction impact. The objective of the programme would be to manage impacts to archaeological or scientific values. The aim of the programme would be to recover and analyse a representative sample of surface and subsurface archaeological material from the areas subject to construction impact. The programme would aim to: • recover archaeological material from all landform types based on a systematic and representative sampling matrix; • recover additional archaeological material from areas with assessed relatively higher archaeological value, with the objective of providing a large enough artefact population for statistical analysis and from which robust results can be derived; and • apply archaeological excavation methodologies which are appropriate to the expected archaeological resource and the objectives of the salvage. As part of designing the salvage programme, consideration would be given to the feasibility of integrating relevant and existing geotechnical data into the process of determining the location and scope of the salvage programme.	Pre-construction Construction
Protocols for discovery of artefacts and human remains	Implement protocols for the unanticipated discovery of Aboriginal objects, and for the discovery of any suspected human remains for all development related works involving ground disturbance.	Construction
	Investigate the feasibility of a protocol for the management of topsoil or other soil matrix material assessed as likely to contain a relatively high density of Aboriginal stone artefacts. The aim of this protocol would be to manage excavation, storage and placement of this material in a culturally appropriate manner that minimises potential damage. If deemed feasible, the protocol should be developed in consultation with Aboriginal stakeholders and seek to address the following issues: • the appropriate identification and tracking of spoil containing artefacts; • the minimisation of physical damage to the artefacts during mechanical processing and movement; and • end use of the spoil in contexts that minimise potential future impacts on the artefacts, and where possible are culturally appropriate.	Construction
Induction training	Training in the identification of Aboriginal artefacts and management of Aboriginal heritage values would be included in compulsory induction courses for site workers. The content of this component will vary according to the stage of construction. After the completion of major cut and fill actions, training may focus on the management of spoil where there is a risk of impacting artefacts, and on no-go areas, where relevant.	Pre-construction Construction
Conservation of heritage items	Prepare a conservation management plan which defines and integrates all strategies for mitigating and managing Aboriginal heritage values across the airport site. This plan would be developed in consultation with Aboriginal stakeholders and relevant government agencies.	Pre-construction Construction

Issue	Mitigation	Timing
Commemoration of Aboriginal heritage	Commemorate the Aboriginal cultural heritage values of the airport site. Options for consideration may include: • the use of Darug words and language in the naming of places and infrastructure; • the dedication of various spaces and places for the placement of art and interpretive elements, storage and display of cultural items, and/or the conduct of cultural activities; and • the provision of public access and interpretive facilities at Aboriginal sites conserved in situ within the airport site (such as for sites B40 and B120), subject to safety and security requirements.	Pre-construction
Curation and repatriation of heritage items	An area of open ground should be reserved within the airport site and managed for the primary purpose of repatriation of salvaged Aboriginal cultural material through reburial. The area should be selected and managed in consultation with Aboriginal stakeholders. Priority should be given to areas which retain a natural land surface and are associated with native vegetation. This provision is to accommodate the repatriation of cultural material for which it is not considered necessary by Aboriginal stakeholders to store above-ground, or to retain access for cultural purposes, interpretation, education or research.	Pre-construction
	Following the completion of archaeological description and analysis, Aboriginal cultural material salvaged from the airport site should, in the first instance, be stored at an appropriate place to be determined in consultation with Aboriginal stakeholders and relevant government agencies. The longer term storage of this material, and potentially material salvaged from other developments in Western Sydney, should be managed in accordance with protocols to be developed through further consultation with Aboriginal stakeholders and relevant state, federal and local government agencies. Longer term storage options could include: a. a 'keeping place', if feasible, that would provide secure, above ground storage enabling future access for cultural purposes, interpretation, education or research; and b. re-positioning or reburial at an appropriate time, at one or more locations within the local landscape to be determined in consultation with Aboriginal stakeholders.	Pre-construction

Issue	Mitigation	Timing
European heritage		
European heritage management plan	A European and other heritage management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would collate measures to mitigate and manage potential impacts on European cultural heritage values. Measures proposed to be considered in the plan include: • further targeted archaeological investigation – to record subsurface remains and infer the layout, occupants and activities of certain European heritage places; • archival recording – including photographic records and measured drawings in their local context for future reference, having regard to the guidelines How to Prepare Archival Records of Heritage Items (NSW Heritage Office 1998) and Guidelines for Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Heritage Office 2006); • inventory of moveable items – to record information such as location, designer, creator, use and owner of items such as tools of trade or machinery; • cultural planting investigation – to identify and collect samples of local or historic plant varieties that are characteristic of the area or not otherwise broadly planted; • exploration of options for potential relocation of identified European heritage structures – to preserve intact surface structures; • relocation of cemeteries in accordance with the Cemeteries Relocation Management Plan; and • staged demolition – to deconstruct identified European heritage structures in a careful manner that reveals information about their construction, renovation, finishes and so on, which would be recorded.	Pre-construction Construction
Heritage awareness	Heritage awareness training would be provided to all workers involved in site preparation and construction of the proposed airport.	Pre-construction
Unexpected finds	A procedure would be developed to be followed in the event that European heritage items are discovered during site preparation or construction.	Pre-construction
Cultural significance of the airport site	The preparation of an oral history would be considered as a measure to preserve the heritage value of the airport site. This could include descriptions and reminiscences by people closely associated with the site.	Pre-construction
Cultural significance of the airport site	The European heritage value of the airport site would also be considered through detailed design.	Pre-construction
Management of European and other heritage items	A procedure would be developed to be followed in the event that European heritage items are discovered during site preparation or construction.	Pre-construction
	A procedure would be developed to be followed in the event that human remains are discovered, given the potential presence of unmarked graves at the airport site.	Pre-construction
Planning and land use		
Corridor protection – road	Liaise with relevant State and local government agencies regarding future access arrangements from The Northern Road and Elizabeth Drive.	Pre-construction
Land use zoning	Liaise with the relevant State and local government agencies to seek the appropriate adjustment to zoning of the airport site under applicable environmental planning instruments.	Construction

Issue	Mitigation	Timing
Landscape and visual amenity		
Visual and landscape management plan	A visual and landscape management plan would be developed prior to construction of the proposed airport as part of the construction environmental management framework. The plan would establish urban design principles and identify appropriate landscape treatments for the site, as well as collate further measures to mitigate and manage potential impacts on visual amenity and the landscape.	Pre-construction
Visual disturbance and clutter	Stockpiles, bunds and surcharge areas would be covered, where practicable.	Construction
	Impacts on the visual character of the landscape would be minimised by avoiding large grade cut and fill transitions where practical, particularly near the airport site boundary.	Pre-construction
	Existing vegetation would be retained, where practicable, particularly along the airport site boundary, to provide visual screening.	Construction
	Construction plant, machinery and vehicle parking areas would be located as far as practicable from sensitive receivers.	Construction
	Any night lighting required for construction works would be located as far as practicable from sensitive receivers with appropriate screening as required.	Construction
	Construction site areas would be progressively rehabilitated. Consideration would be given to the rehabilitation of earthworks areas if there is a considerable period of time between the completion of earthworks and construction of aviation infrastructure.	Construction
	Opportunities for vegetation screening would be investigated, particularly in relation to the identified moderate-high impact viewpoints. The revegetation strategy would take into consideration bushfire risks and potential impacts on aviation operations, and opportunities for the reestablishment of endemic native species and ecological communities.	Construction
	Subject to safety and security requirements, perimeter fencing design would have regard to the following considerations: • avoiding long, straight continuous runs; • avoiding finish and colour that is reflective or brightly coloured; • providing a two metre (minimum) setback from the property boundary to allow for perimeter plantings, where possible; and • providing a buffer from riparian corridors along the boundary of the airport site.	Pre-construction
Airport lighting impacts	Low angle, cut off LED fixtures would be considered wherever practicable in the design of airport infrastructure.	Pre-construction
Social		
Local employment generation	Develop an Australian Industry Participation Plan, including consideration of local industry participation.	Construction

Issue	Mitigation	Timing
Resources and waste		
Resources and Waste	A waste management plan would be prepared prior to construction of the airport, which would collate measures to manage waste and thus avoid, mitigate and manage impacts to human health and the environment. The plan would define processes to track waste quantities, roles and procedures for the handling of waste at the airport site, and processes for the continual improvement of airport waste management. The measures would reflect the waste management hierarchy as per the Waste Avoidance and Resource Recovery Act 2001 (NSW) as well as relevant standards such as those for hazardous substances.	Construction
Cumulative impacts		
Sustainability	Consideration will be given to designing, constructing and operating the Stage 1 development to achieve the following where appropriate: • 5 Star Green Star – Design & As Built; • 5 Star NABERS Office Energy Rating: and • 4 Star Green Star – Performance	Pre-construction
	Consideration will be given to the achievement of an ISCA 'As Built Rating', covering the design and construction of the proposed Stage 1 development.	Pre-construction

28.4.2. Impacts of Stage 1 operations

The draft EIS has considered impacts of the proposed airport accommodating approximately 10 million annual passengers and 63,000 air traffic movements per year during the operation of the Stage 1 development. The proposed airport is expected to commence operations in around 2025 and would operate on a 24 hour basis.

Table 28–5 sets out a list of general mitigation and management measures applicable to operation of the Stage 1 development. These measures are identified as pre-operation or operation. Pre-operation measures would be taken prior to commencement of operations of the Stage 1 development and in some cases would require consideration as part of the design of airport infrastructure.

The measures outlined in Table 28–5 would apply until a master plan is in place. Once in place, the master plan would provide the overarching framework for environmental management during operation of the Stage 1 development, consistent with other airports in Australia. Relevant measures that have ongoing application would be incorporated into the framework established by the master plan and environment strategy (see Section 28.3).

Operation of the Stage 1 development is expected to commence in around 2025, approximately 10 years after this draft EIS. As a result, the preliminary airspace assessment undertaken by Airservices Australia to inform preparation of the draft EIS and draft Airport Plan was limited to a conceptual level airspace management design. The principal objective of that assessment was to establish whether safe and efficient operations could be introduced at the airport site through the development of proof-of-concept air traffic management designs. A key mitigation measure would be development of a noise management plan in parallel with refinement of flight paths and procedures for the proposed airport. This is discussed in section 28.6.3.

Table 28–5 – List of mitigation and management measures applicable to Stage 1 operation

Issue	Mitigation	Timing
Aircraft noise		
Noise management plan	A noise management plan would be prepared for aircraft operations prior to the commencement of airport operations. To the extent practicable, development and implementation of the noise management plan would be integrated with and draw on the outcomes of future detailed airspace and airport operations design undertaken by Airservices Australia and the Civil Aviation Safety Authority (CASA). This formal design process would provide an opportunity to optimise flight paths on the basis of safety, efficiency, noise and environmental considerations, as well as minimising changes to existing regional airspace arrangements. Establishing airspace management arrangements for the proposed airport, including the determination of flight paths, is expected to involve additional formal environmental assessment and community and stakeholder engagement. Development and implementation of the noise management plan would involve the airport lessee company, Airservices Australia, CASA, the Department of Infrastructure and Regional Development, other Australian Government agencies, State and local government, the airline industry, and community representatives. Terms of reference would be prepared for the plan. These would specify the objectives of the plan, identify the matters and actions to be considered, establish planning horizons, guide the participation of stakeholders and outline decision-making processes for determining preferred actions. Issues to be addressed in the plan would include but not be limited to: • options for flight paths and airport operating modes for day and night operations, having regard to environmental impacts, operation efficacy and safety considerations; • the number of aircraft overflights, levels of noise exposure predicted to be experienced by communities, and the impacts on amenity in conservation and recreation areas, and at other noise sensitive locations; • opportunities for the provision of periods of respite from aircraft noise; • the control of the loudness of noise events, including noise abatement departure and arrival procedures (e.g. the use of reverse thrust); • the management of noise at night; • the possible insulation or acquisition of buildings exposed to the highest noise levels having regard to Australian Standard 2021, including mechanisms for funding potential noise amelioration works and property acquisitions; • the design and installation of a noise and flight path monitoring system; • arrangements for noise enquiries and complaints; • identification of responsibilities for implementing individual actions; and • land use planning policies and instruments for areas surrounding the airport taking account of predicted noise exposure levels.	Pre-operation

Issue	Mitigation	Timing
Noise (ground operations, construction, road)		
Operational ground-based noise	A ground-based noise amelioration management strategy would be developed that identifies reasonable and feasible noise mitigation measures. The Issues to be addressed in the strategy would include but not be limited to: • the identification of reasonable and feasible noise mitigation measures for on-ground noise generating activities, including: ▪ aircraft ground running operating procedures; ▪ opportunities to refine the location and design of airport features to reduce noise impact; ▪ aircraft taxiing operating procedures; and ▪ other measures to address excessive noise where noise mitigation by physical features (e.g. noise barriers) is deemed ineffective. • additional noise modelling and assessment conducted during the detailed airport design phase to examine with the objective of examining the effectiveness of any proposed noise amelioration mitigation measures and identifying any residual excessive noise levels in areas surrounding the airport site; • if off-site noise exposure cannot be managed appropriately by operational and other on-site mitigation measures, a detailed noise amelioration plan for affected residences and other sensitive receivers surrounding the airport site should be developed for consideration by the Australian Government and any reasonable and feasible noise mitigation measures; • stakeholder engagement with affected residences and other stakeholders regarding potential noise impacts, and potential mitigation and amelioration measures; • similar to other airports, implementation of aircraft ground running operating procedures including investigations of feasible measures to reduce the impact of noise; • other specific measures to address noise exceedances where physical noise mitigation is ineffective; and • noise monitoring and reporting arrangements.	Pre-operation Operation
	The airport-lessee company would incorporate noise monitoring and reporting into any future master plan in accordance with the *Airports Act 1996*.	Operation
Air quality and greenhouse gases		
Management of air quality and odour	Develop and implement an operational air quality and odour management plan for the proposed airport.	Operation
Air quality monitoring	Install an air quality monitoring station at the airport site to monitor NO_x, NO, NO_2, CO, O_3, PM_{10}, $PM_{2.5}$ and VOCs.	Pre-operation Operation
	Conduct ambient air quality monitoring prior to operation to record baseline air quality conditions prior to operation activities.	Pre-operation

Issue	Mitigation	Timing
Emissions	Consider best available techniques to reduce the potential for ground level ozone formation, which may include: • replacing conventionally fuelled ground support equipment with electric or hydrogen powered belt loaders, pushback tractors, bag tugs, and cargo loaders; • using remote ground power for remote aircraft parking positions; • installing co-generation or tri-generation in-lieu of traditional gas fired boilers or solar hot water systems to replace gas fired boilers; • avoiding certain activities, such as training fires, maintenance (spray painting) during the ozone seasons; • using underground fuel hydrant systems and/or vapour recovery systems for refuelling and fuel storage; and • promoting the use of public transport to the airport.	Operation
Greenhouse gases – Scope 1 emissions	Support alternatively fuelled and 'modernised' ground support equipment – including compressed natural gas, hydrogen, electric, compressed air and hybrid vehicles.	Operation
	Educate ground support equipment drivers in techniques to conserve fuel and implement a no-idling policy.	Operation
	Design runways, taxiways, gates and terminals to minimise aircraft and ground support equipment travel distances where practical.	Operation
	Aircraft management procedures would consider the reduction of fuel use as far as practical.	Operation
	Reduce the use of auxiliary power units by using fixed electrical ground power and preconditioned air supply to aircraft where possible.	Operation
	Specify high efficiency power, heating and cooling plants.	Operation
	Make use of renewable energy sources where practical for the generation, use or purchase of electricity, heating and cooling.	Operation
Greenhouse gases – Scope 3 emissions	Consider the use of high capacity public transport to and from the proposed airport as part of the ground transport plan. Support the use of the low emission vehicles to and from the proposed airport, including the provision of recharging stations.	Operation
	Develop an integrated solid waste management plan to implement waste saving initiatives such as composting and recycling.	Operation
	Install tenant energy sub-metering systems.	Operation
Hazard and risks		
Bird and bat strike	Develop a Wildlife Hazard Management Plan to include: • conduct of additional surveys to study and monitor for changes in species and movement patterns. The surveys would be conducted in accordance with relevant Commonwealth and State guidelines and standards including any recovery plans for threatened species; • review of detailed design documentation to identify potential bird and bat attractants; and • liaise with local government in relation to plans for proposed developments within 13 kilometres of the airport site that are likely to increase the bird and bat strike risk.	Pre-operation
	Actively manage bird and bat presence at the airport site six months prior to the commencement of runway operations.	Pre-operation

Issue	Mitigation	Timing
	The outcomes of bird and bat strike monitoring would be reviewed by a wildlife strike expert and the results taken into account in any audit of the airport's impacts on wildlife in and around the airport site.	Operation
Public safety zones	Consider whether any planning measures are required for areas not currently Commonwealth-owned.	Pre-operation
Traffic, transport and access		
Operational traffic and transport impacts	A ground transport plan would be prepared as part of the detailed design of Stage 1 and before the proposed airport begins operating. The plan would address: • road design speeds; • security issues; • traffic loads from airport and other developments on site; • connections with off-site/external roads, including matching capacity, speeds and road geometry; • forecast traffic flows, including public transport requirements; • car parking; • commercial and operational vehicles and storage; • terminal interface; • passenger pick-up and drop-off by private and commercial vehicles; • pedestrian linkages between terminals and all transport drop-off/pick-up areas; • pedestrian, cycle or road networks for movement around the Airport Site; • use of dedicated busways; • ability to continue to provide access to and from the Airport when key intersections are unavailable; and • the ability to expand, with minimal disruption, to meet future airport and business development requirements.	Pre-operation
Biodiversity		
Vegetation	Prepare and implement a vegetation management plan. The vegetation management plan would apply to open space within the airport site and the environmental conservation zone and would include: • retaining native vegetation and/or supplementary replanting with local native species; • slashing of grassland to manage fuel loads and bushfire risk; • identifying threatened flora populations and measures to avoid impacts from activities such as weed control or bushfire hazard reduction; • identifying measures for the management of weeds; • planting schedules; • monitoring of the success of revegetation, weed control and adaptive management; and • reporting.	Operation
Fire	Review, update and implement the bushfire management plan in response to the transition to the airport operation phase, including in response to changes to changes to locations of building envelopes, fuel loads, ignition sources etc.	Operation

Issue	Mitigation	Timing
Topography, geology and soils		
Land contamination	Fuel and other potential contaminants would be stored and handled in accordance with relevant Australian standards such as: • *AS 1940-2004 The storage and handling of flammable and combustible liquids* • *AS/NZS 4452:1997 The storage and handling of toxic substances* • *AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods* • *AS/NZS 1547:2012 On-site domestic wastewater management*	Operation
Treated water irrigation	The treated water irrigation scheme would be designed and operated in accordance with the risk framework and management principles contained in the *National Guidelines on Water Recycling* (EPHC 2006) and *Environmental guidelines: Use of effluent by irrigation* (DEC 2004).	Operation
Surface water, groundwater and water quality		
Surface water quality	Surface water quality monitoring would be conducted at basin outflows and selected upstream and downstream conditions. Once an airport lease is granted, the proposed airport would be subject to water quality monitoring requirements as set out in the *Airports (Environmental Protection) Regulations 1997* and the results of baseline water quality monitoring.	Operation
Leaks or spills of fuel or other chemicals	Maintenance areas, fuel farms and other areas where fuels or chemicals are stored or handled would be bunded to contain any accidental spills or leaks.	Operation
	Develop and implement response procedures to remedy leaks or spills.	Operation
Groundwater inflows	Groundwater elevation monitoring would be conducted to detect potential impacts to base flow in the vicinity of potentially sensitive creeks or groundwater dependent vegetation. Monitoring would be undertaken quarterly through construction up to a minimum period of three years after the completion of the Stage 1 development and until any identified impacts stabilise.	Operation
	Measures to supplement groundwater supplies would be made in the unlikely event of impacts to dependent vegetation or watercourses.	Operation
Groundwater quality	Groundwater quality monitoring of alluvial and Bringelly Shale aquifers would be conducted at major infrastructure locations, down gradient from those locations and in the vicinity of groundwater dependent vegetation or watercourses. Monitoring would initially be undertaken quarterly and adjusted as appropriate. Once and airport lease is granted, the proposed airport would be subject to water quality monitoring requirements as set out in the *Airports (Environmental Protection) Regulations 1997*.	Operation
	Groundwater inflows would be reused or released with appropriate treatment. Where groundwater is released to surface waters, treatment would be to the appropriate level under the ANZECC guidelines.	Operation
Aboriginal heritage		
Conservation of heritage sites	The environmental conservation zone would be managed with the conservation of known and predicted Aboriginal heritage sites as one of the principal objectives.	Operation
Planning and land use		
Operational airspace	Liaise with relevant State and local government agencies to identify appropriate environmental planning instruments to reflect protected airspace under the Airports (Protection of Airspace) Regulations 1997.	Pre-operation

Issue	Mitigation	Timing
Noise	Liaise with the relevant State and local government agencies to identify appropriate noise management controls in applicable environmental planning instruments with reference to *AS2021-2000 Acoustics Aircraft noise intrusion – Building siting and construction* and noise guidelines under the National Airports Safeguarding Framework.	Pre-operation
Corridor protection – rail	Liaise with the relevant State government agencies to identify opportunities for corridor protection for the provision of future rail connection to the airport site.	Pre-operation
Corridor protection – fuel pipeline	Liaise with the relevant State and local government agencies to identify opportunities for protection of a corridor for a future fuel pipeline.	Pre-operation
Landscape and visual amenity		
Visual disturbance and clutter	Existing vegetation would be retained, where practicable, particularly along the airport site boundary, to provide visual screening.	Operation
Social		
Stakeholder engagement	Liaise with relevant agencies to inform their planning allocation of funding to programs that may benefit from the proposed airport. Relevant agencies may include local and State government agencies, tourism agencies, agencies responsible for affordable housing and other organisations (e.g. Western Sydney Business Chamber, educational facilities including universities and TAFE).	Operation
Cumulative impacts		
Sustainability	Consideration will be given to the achievement of an ISCA 'Operations Rating', covering overall operations of the proposed Stage 1 development.	Operation

28.5. Construction environmental management framework

The overarching approach to environmental management for construction of the Stage 1 development is illustrated in Figure 28–1. The construction environmental management framework (CEMF) shows the relationship between relevant statutory requirements and approval documentation and plans.

As noted earlier, until an airport lease is granted, the Commonwealth would be responsible for the CEMF. It is expected that this would largely be implemented through construction contractors.

Once an airport lease is granted, the ALC would take statutory responsibility for all relevant aspects of the CEMF. Again it is expected that construction contractors would have a key role in complying with the requirements of the obligations within the CEMF. An airport environmental officer, appointed by the Commonwealth Government, would have a regulatory role on the airport site for environmental matters under Part 6 of the Airports Act and the Airports (Environment Protection) Regulations, and an airport building controller, also appointed by the Commonwealth Government, would have a regulatory role on the airport site for building control matters under Part 5 of the Airports Act and the Airports (Building Control) Regulations.

It is recognised that compliance with the requirements of relevant plans does not remove general obligations and responsibilities under relevant legislation or approvals obtained for the proposed airport including any relevant conditions.

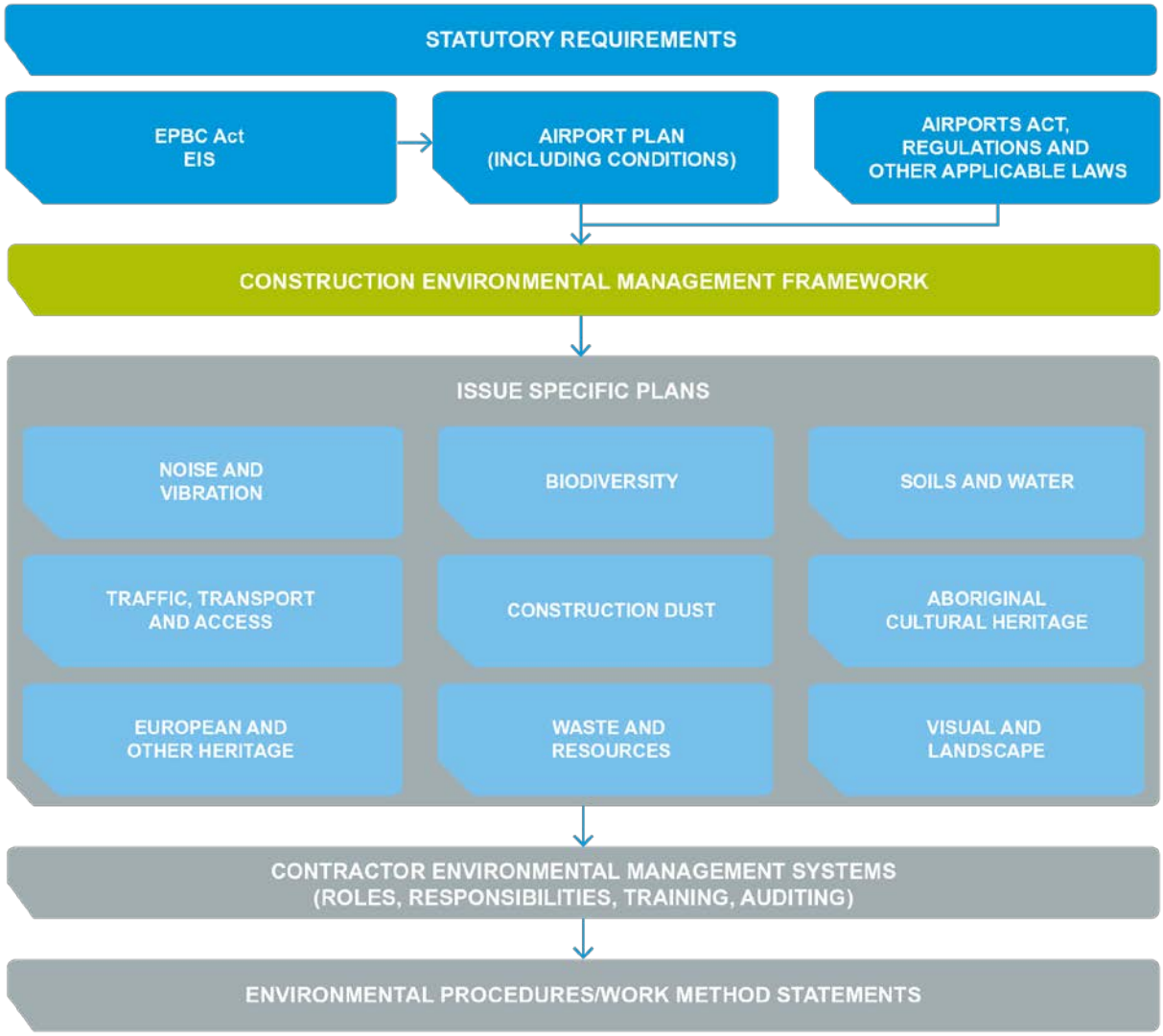

Figure 28–1 – Construction environmental management framework

28.5.1. Construction environmental management plans

The CEMF would draw together all of the relevant plans associated with the construction of the Stage 1 development. As outlined earlier, the Commonwealth would have overarching responsibility for the CEMF until an airport lease is granted.

The CEMF would reference the environmental management plans outlined below. These plans would specify objectives, procedures, performance standards and criteria, monitoring and reporting requirements, roles and responsibilities and other environmental management measures. Unless otherwise stated, it is intended that plans would be approved by the Minister for Infrastructure and Regional Development (or a person nominated by the Minister).

Environmental management plans would be prepared to guide management of the following matters during the construction phase:

- construction noise and vibration;
- biodiversity;
- soil and water;
- construction traffic and access;
- dust and odour;
- Aboriginal cultural heritage;
- European and other heritage;
- waste and resources; and
- visual and landscape.

Each plan could be structured as follows:

- key objectives;
- background – relevant legislation and standards and links to other plans;
- all required statutory and other obligations, including consents, licences, approvals and voluntary agreements;
- key management measures;
- key performance indicators;
- any specific protocols or procedures including requirements and guidelines for management in accordance with mitigation measures specified by this EIS, and related conditions in the Airport Plan;
- requirements in relation to incorporating environmental protection measures and instructions in all relevant standard operating procedures and emergency response procedures;
- roles and responsibilities of all personnel and contractors to be employed on site;
- procedures for complaints handling and ongoing communication with the community where applicable;
- a monitoring, reporting and auditing programme where applicable; and
- contingency management and incident response procedures where applicable.

An overarching plan may be prepared to deal with common elements that are applicable to more than one of the subject matter plans.

28.5.2. Stakeholder and community engagement

A Community and Stakeholder Engagement Plan would be prepared to guide activities, keep the community informed, address enquiries and complaints, and help manage potential impacts during construction of the proposed airport.

Table 28–6 outlines the range of communication tools and initiatives that may be used during the construction programme.

Table 28–6 – Potential community and stakeholder engagement during construction

Potential stakeholder category	Potential impact or area of interest	Potential communication tools and initiatives
Community		
Communities in the direct environs of the construction site (eg Luddenham, Kemps Creek, Bringelly, Rossmore, Mount Vernon, Silverdale)	• Construction traffic and condition of local roads • Local amenity and history • Noise, dust, vibration, and lighting • Employment and business opportunities • Impact on local developments • Project timing and general interest • Integration with other major infrastructure projects	• Coordination with relevant government agencies • 1800 Freecall information line and project email address • Media releases and information provided to stakeholders to distribute • Project website with links to further information • Regular written communication and at completion of project milestones • Written communication, local paper advertisements, project website updates and revised signage before new major phases of construction begin • Focused letterbox drops where an activity is likely to affect a specific group or location • Community events
Communities along key transport routes for construction	• Construction traffic and condition of local roads • Local amenity • Employment and business opportunities • Impact on local developments • Project timing and general interest • Integration with other major infrastructure projects	• Coordination with relevant government agencies • Liaison with community relations team • 1800 Freecall information line and project email address • Media releases and information provided to stakeholders to distribute • Project website with links to further information • Regular written communication and at completion of project milestones • Focused letterbox drops where an activity is likely to affect a specific group or location

Potential stakeholder category	Potential impact or area of interest	Potential communication tools and initiatives
Broader Western Sydney community	• Construction traffic • Employment and business opportunities • Impact on local developments • Project timing and general interest • Integration with other major infrastructure projects • Impacts on Greater Blue Mountains World Heritage Area	• Coordination with relevant government agencies • 1800 Freecall information line and project email address • Media releases and information provided for stakeholders to distribute • Project website with links to further information
Broader Sydney community	• Project timing and general interest • Integration with other major infrastructure projects	• 1800 Freecall information line and project email address • Media releases • Email alerts to stakeholder lists (around major milestones) • Project website with links further information
Indigenous communities	• Environment protection • Cultural heritage • Employment and business opportunities	• Refer Aboriginal Heritage Management Plan • Liaison with community relations team • 1800 Freecall information line and project email address • Project website with links to further information
Special interest community and environment groups	• Construction traffic • Environment protection • Local amenity • Employment and business opportunities • Impact on local developments • Project timing and general interest • Integration with other major infrastructure projects	• Liaison with community relations team • 1800 Freecall information line and project email address • Project website with links to further information • Regular written communication and at completion of project milestones
Government		
Federal, state and local government elected representatives	• Construction progress • Impacts to local constituents • Integration with other major infrastructure projects	• Briefings and regular newsletters • Liaison with community relations team • Project website with links to further information

Potential stakeholder category	Potential impact or area of interest	Potential communication tools and initiatives
Local government in Western Sydney	• Construction traffic • Project timing and general interest • Impacts to residents • Employment and business opportunities • Impact on local developments • Integration with other major infrastructure projects	• Liaison with community relations team • 1800 Freecall information line and project email address • Project website with links to further information • Briefings and regular newsletters
State government agencies, federal government agencies and local government in broader Sydney	• Project timing and general interest • Environment protection • Employment and business opportunities • Impact on local developments • Integration with other major infrastructure projects	• Liaison with community relations team • 1800 Freecall information line and project email address • Project website with links to further information • Briefings and regular newsletters
Aviation		
Airlines and aviation operators that may use Western Sydney Airport	• Construction progress	• Briefings and regular newsletters • Project website with links to further information
Other airports in Australia and internationally	• Construction progress • Integration with other related projects	• Briefings and regular newsletters • Liaison with community relations team • Project website with links to further information
Businesses / Industry / Education		
Construction and related businesses	• Construction progress • Employment and business opportunities • Integration with other related projects	• 1800 Freecall information line and project email address • Project website with links to further information
Trade unions and employment organisations	• Construction progress • Employment and business opportunities • Integration with other related projects	• 1800 Freecall information line and project email address • Project website with links to further information
Tourism, education and economic development groups	• Construction progress • Employment and business opportunities • Impact on local developments • Integration with other related projects	• 1800 Freecall information line and project email address • Project website with links to further information

28.5.3. Training, awareness and competence

Environmental training for relevant personnel would be carried out prior to commencement of construction works. The training would address the following issues:

- the importance of conformance with procedures outlined in the various plans;
- the environmental impacts (actual and potential) of their work activities;
- the environmental benefits of improved performance;
- their role and responsibility in environmental management; and
- the potential consequences of departure from specified procedures.

All entities directly involved in environmental management must be appropriately experienced to undertake their relevant tasks. Appropriate documentation including the following would be required:

- copies of any applications for consents, licences and approvals and the responses from authorities;
- details of complaints or incidents and corrective and preventative actions taken;
- summary of any correspondence or consultation with regulatory authorities or other stakeholders;
- a copy of any environmental studies, monitoring results and analysis; and
- a copy of the external audit reports, any environmental internal audit reports or reviews conducted of environmental management systems (EMS).

28.5.4. Performance review

Compliance with the required plans (as updated following determination of the Airport Plan) and the performance requirements for construction works would be monitored through a review, reporting and auditing framework which would be approved by the Minister for Infrastructure and Regional Development (or a person nominated by the Minister).

28.6. Operational environment management

28.6.1. Overview of operational environmental management

To address the potential environmental issues associated with the operation of Stage 1 development a number of operational environmental plans would be developed. These plans are outlined in Section 28.6.2.

As noted in Section 28.3.3, a comprehensive environmental strategy that addresses the detailed requirements of the Airports Act would be developed and approved as part of the proposed airport's first master plan. If the first master plan is in place before operations commence, the operational environmental management plans (or proposed plans, if they have not been prepared by then) identified below would be developed and approved under the framework of the airport environment strategy, which is a component of the master plan.

If airport operations commence before the first master plan is in place, the plans identified below would be developed and approved as standalone operational environmental management plans. In this case, they would be considered in the process of preparing the master plan and overarching environment strategy which forms part of the master plan.

Once a master plan is in place, future environmental management would be addressed under the master plan framework.

28.6.2. Operational environmental management plans

Environmental management plans addressing the following matters would be prepared and approved prior to the commencement of operations of the proposed airport:

- air quality;
- water quality;
- soil and land management;
- spills response and hazardous materials;
- ground transport;
- aircraft operational noise (discussed further in Section 28.6.3);
- ground-based noise;
- biodiversity and conservation;
- heritage;
- wastes and resource use;
- climate change and energy; and
- social and community issues.

Each management plan could be structured as follows:

- key objectives;
- background – relevant legislation and standards and links to other management plans;
- current environmental management practices (following on, as appropriate, from issues addressed during construction);
- key performance indicators;
- key management measures;
- any specific protocols or procedures including requirements and guidelines for management in accordance with mitigation measures specified by this EIS, and related conditions in the Airport Plan;
- requirements in relation to incorporating environmental protection measures and instructions in all relevant standard operating procedures and emergency response procedures;
- roles and responsibilities of all personnel and contractors to be employed on site;

- procedures for complaints handling and ongoing communication with the community where applicable;
- a monitoring, reporting and auditing programme where applicable; and
- contingency management and incident response procedures where applicable.

Each plan would be approved by the Minister for Infrastructure and Regional Development (or an authorised officer in the Department).

28.6.3. Aircraft operation noise management plan

28.6.3.1. Existing operational framework for noise management

A number of land use planning protections are already in place around the Western Sydney Airport site following the outcomes of previous EISs. In the lead up to the airport becoming operational, the Department would work closely with the NSW Government and local governments to identify additional long term planning protections required to be put in place around the airport to prevent incompatible development in areas predicted to experience more than 20 Australian Noise Exposure Forecast (ANEF) levels. An ANEF endorsed by Airservices Australia would be included in the first master plan for the airport.

Major developments that would significantly increase the capacity of the airport to handle additional aircraft movements beyond those accommodated by the Stage 1 development would require a major development plan to be developed by the ALC. Changes to the extent and intensity of aircraft noise exposure levels arising from such developments would be a key consideration for the major development plan. A major development plan would be released for public consultation and approved by the Infrastructure Minister based on advice from the Environment Minister following a referral and any necessary assessment under the EPBC Act.

In addition to the initial design of flight paths and procedures for the airport, Airservices Australia would also have an ongoing role in:

- ensuring that flight departures and arrivals are designed to minimise noise impacts;
- providing information about aircraft noise;
- monitoring aircraft noise around major airports; and
- providing a national Noise Complaints and Information Service.

28.6.3.2. Assessment of Stage 1 aircraft noise impacts and future airspace design

As noted in Chapter 10, the assessment of aircraft noise has been based on Airservices Australia's preliminary assessment of airspace implications and air traffic management arrangements for the Sydney region associated with the potential commencement of operations at the proposed airport. The assessment of potential impacts of aircraft overflight noise is based on indicative flight paths. A future airspace design process, including the preparation of final flight paths, is expected to be undertaken closer to the commencement of operations at the proposed airport.

The formal design process would provide an opportunity to optimise flight paths on the basis of safety, efficiency, noise and environmental considerations, as well as minimising changes to existing regional airspace arrangements. Decisions about airspace management arrangements including the determination of flight paths would be made by Airservices Australia and the Civil Aviation Safety Authority (CASA).

In accordance with the *Air Services Act 1995*, Airservices Australia is required to exercise its functions, as far as practicable so as to protect the environment. It has published a document called *Airservices commitment to noise management* which outlines the considerations which are taken into account in designing flight paths and procedures[3]. As outlined in the EIS, one of the primary environmental considerations would be noise impacts on populations and upon other places of special sensitivity. In relation to the GBMWHA, Airservices would give consideration to the requirements of the GBMWHA Strategic Plan (NPWS 2009).

CASA would also need to validate proposed flight paths and procedures. Under the *Civil Aviation Safety Act 1988*, CASA is also required to exercise its functions so as to, as far as practicable, protect the environment.

The airspace management arrangements for commencement of operations at the proposed airport are expected to be subject to a referral under section 160 of the EPBC Act and, if required by the Minister for the Environment, would be subject to further environmental assessment.

28.6.3.3. Preparation of a Stage 1 noise management plan

A noise management plan would be prepared for aircraft operations prior to the commencement of Stage 1 operations. To the extent practicable, development and implementation of the noise management plan would be integrated with and draw on the outcomes of future detailed airspace and airport operations design undertaken by Airservices Australia and CASA. As noted above, this design process is expected to involve additional formal environmental assessment and community and stakeholder engagement.

Development and implementation of the noise management plan would involve the airport lessee company, Airservices Australia, CASA, the Department of Infrastructure and Regional Development, other Australian Government agencies, State and local government, the airline industry, and community representatives. Terms of reference would be prepared for the plan. These would specify the objectives of the plan, identify the matters and actions to be considered, establish planning horizons, guide the participation of stakeholders and outline decision-making processes for determining preferred actions.

Issues to be addressed in the plan would include but not be limited to:

- options for flight paths and airport operating modes for day and night operations, having regard to environmental impacts, operation efficacy and safety considerations;
- the number of aircraft overflights, levels of noise exposure predicted to be experienced by communities, and the impacts on amenity in conservation and recreation areas, and at other noise sensitive locations;

[3] See Air Services Australia Aircraft Noise Management

- the provision of periods of respite from aircraft noise;
- the control of the loudness of noise events, including noise abatement departure and arrival procedures (e.g. the use of reverse thrust);
- the management of noise at night;
- the possible insulation or acquisition of buildings exposed to the highest noise levels having regard to Australian Standard 2021, including mechanisms for funding potential noise amelioration works and property acquisitions;
- the design and installation of a noise and flight path monitoring system;
- arrangements for noise enquiries and complaints;
- identification of responsibilities for implementing individual actions; and
- land use planning policies and instruments for areas surrounding the airport taking account of predicted noise exposure levels.

Having regard to different regulatory arrangements and responsibilities, it is currently proposed that management of ground-based noise would be addressed through a separate management plan.

28.6.4. Environmental management system procedures

The environmental management system (EMS) to be implemented before and during the Stage 1 operational period of the proposed airport would be consistent with applicable best available practice at the time.

28.6.5. Environmental studies, monitoring, performance and reporting

As required to assist the environmental management of airport operations, more detailed environmental studies would be undertaken where identified in this draft EIS or in subsequent assessments, plans and strategies. In addition, monitoring and reporting on environmental management issues would be undertaken in accordance with commitments in the action plans and the requirements of the *Airports (Environmental Protection) Regulations*.

28.6.6. Stakeholder and community engagement

Once operational, the proposed airport would operate under the compliance monitoring and reporting requirements that are applicable to other airports. The proposed airport would be expected to adopt similar community and stakeholder engagement during operations to other airports. These measures typically include the types of measures set out in Table 28–7.
The Government expects airports such as the proposed Western Sydney Airport to operate Community Aviation Consultation Groups (CACGs). There are guidelines for CACGs which require that they be independently chaired and should engage broad community representation. While they are not decision-making bodies, CACGs provide for effective and open discussion of airport operations and their impacts on nearby communities.

Major capital city airports are also required to establish Planning Coordination Forums (PCFs). The purpose of PCFs is to support a strategic dialogue between the airport operator and local, state and federal government agencies responsible for town planning and infrastructure investment.

Effective discussions in PCFs support better integration of planning for the airport and for the surrounding urban and regional community.

Table 28–7 – Potential community and stakeholder engagement during operation

Potential stakeholder category	Potential impact or area of interest	Potential communication tools and initiatives
Community		
Communities in the direct environs of the airport (eg Luddenham, Kemps Creek, Bringelly, Rossmore, Mount Vernon, Silverdale)	• Traffic from operations and condition of local roads • Impacts from ground operations including noise, lighting and air quality • Visual amenity and lighting • Aircraft noise exposure – levels and patterns • Employment and business opportunities • Changes in Property values and changes in nearby land use over time • Public safety	• Coordination with relevant government agencies • 1800 Freecall information line and complaints management process • Website • Representation on Community Aviation Consultation Group
Communities under flight paths	• Aircraft noise exposure – levels and patterns • Changes in Property values over time • Public safety	• 1800 Freecall information line and complaints management process • Website
Airport users	• Access, public transport, parking • Customer service, retail outlets, amenity, costs • Public safety	• 1800 Freecall information line and complaints management process • Website • Fact sheets • Airport display • Local signage • In-airport signage
Broader Western Sydney community	• Noise from overhead flights • Visual amenity • Employment and business opportunities • Property values and changes in nearby land use over time	• 1800 Freecall information line and complaints management process • Website
Broader Sydney community	• General interest • Access to and air services to and from Airport	• 1800 Freecall information line • Website • Media releases • Fact sheets

Potential stakeholder category	Potential impact or area of interest	Potential communication tools and initiatives
Indigenous communities	• Cultural heritage • Employment and business opportunities	• 1800 Freecall information line • Website • Interpretive signage and design of some elements consistent with Indigenous culture and local histories
Special interest community and environment groups	• Local amenity • Environment protection • Employment and business opportunities • Changes in property values and changes in nearby land use over time	• 1800 Freecall information line and project email address • Website • Representation on Community Reference Group
Government		
Federal, state and local government elected representatives	• Impacts to local constituents • Benefits of airport operation for constituents	• Briefings on request
State government agencies, federal government agencies and local government	• Regulations • Public safety • Environment protection • Employment and business opportunities • Impact on local developments • Integration with other major infrastructure projects	• Briefings on request • Website • Fact sheets
Aviation		
Airlines and aviation operators that may use Western Sydney Airport	• Flight and airport operations	• Briefings on request • Website • Fact sheets
Other airports in Australia and internationally	• Integration with other related projects • Integration with air services networks	• Briefings • Website
Ground transport operators	• Integration with other related projects	• Briefings • Website • Fact sheets

Potential stakeholder category	Potential impact or area of interest	Potential communication tools and initiatives
Businesses / Industry / Education		
Businesses which operate on the airport site	• Traffic from operations and condition of local roads • Impacts from ground operations including noise, lighting and air quality • Employment and business opportunities • Integration with other related projects • Environment protection • Access, public transport, parking • Access to infrastructure and services, amenity • Public safety	• Briefings on request • Website • Fact sheets
Construction and related businesses	• Employment and business opportunities • Integration with other related projects	• Local paper and trade magazine advertising • Industry briefings
Trade unions and employment organisations	• Employment and business opportunities • Integration with other related projects	• Industry briefings
Tourism, education and economic development groups	• Employment and business opportunities • Impact on local developments • Integration with other related projects	• Industry briefings

28.7. Sustainability strategy

Early integration of appropriate sustainability and environmental management considerations into the progressive design phases for the construction of the Stage 1 development will assist in avoiding, reducing or otherwise mitigating adverse environmental impacts.

A sustainability plan would be prepared by the ALC and relevant elements of the plan would be taken into account in the design and construction of airport infrastructure and its subsequent operation. The plan would include:

- incorporation of Airport Plan and EIS requirements and other relevant approvals into detailed design;
- key design features, such as:
  - high efficiency central plant;
  - passive design features;
  - fresh air pre-conditioning; and
  - intelligent controls.

- consideration of designing, constructing and operating buildings on the airport site to achieve the following where appropriate:
  - 5 Star Green Star – Design & As Built;
  - 5 Star NABERS Office Energy Rating;
  - 4 Star Green Star – Performance; and
  - consideration of a comprehensive sustainability rating for design, construction and operation of the proposed airport such as the Infrastructure Sustainability Council of Australia (ISCA) 'As Built Rating' and 'Operations Rating.
- goals and indicators for:
  - water catchment protection, water use and efficiency;
  - air quality and greenhouse gas emissions for site activities;
  - energy use and efficiency;
  - waste and recycling;
  - encourage the use of public transport;
  - community and stakeholder impacts; and
  - environmental conservation.

28.8. Cost of environmental management measures

In parallel with the preparation of this draft EIS, the Department is undertaking planning for the proposed airport. One of the outputs of this process is the draft Airport Plan which provides a detailed outline of the specifications and future performance requirements for the Stage 1 development.

Costings for both the proposed development and all proposed environmental management measures will be considered by Government as part of its overall consideration of the project. This will have particular regard to significant cost items including environmental management measures outlined in the draft EIS. Appropriate allowances will be made for contingency events, should they occur.