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1.1 Project Outline

In 1999, the Department of Defence (Defence) established the New Air Combat Capability (NACC) Project (also known as AIR 6000 Project). The purpose of the NACC Project was to investigate aircraft options to replace the current fleet of F/A-18A/B Hornet aircraft to meet Australia’s air combat needs to 2030 and beyond. After a review of the full range of combat aircraft available, Defence is committed to replace the existing F/A-18A/B Hornet aircraft with the fifth generation F-35A Lightning II (F-35A) aircraft.

Defence recognises the importance of sound environmental management for maintaining Defence Force capability and accordingly, is conducting a comprehensive environmental impact assessment for the proposed flying operations of the F-35A aircraft.

1.2 Department of Defence

The Australian Government Department of Defence is the proponent for the NACC Project. The NACC Project office has been established within the Defence Materiel Organisation, to deliver the F-35A aircraft capability to the Royal Australian Air Force (RAAF).

The relevant contact details are:

Project Director In Service Support
Joint Strike Fighter Division
Defence Materiel Organisation
PO Box 7922
CANBERRA BC ACT 2610

Phone: 1800 830 205

Website: http://www.f35evolution.com.au
2.1 EIS Process

The proposed flying operations of the F-35A aircraft are to be assessed under the requirements of Commonwealth legislation, specifically the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). An EPBC Act referral for this project was lodged on 25 November 2010 by Defence. On 23 December 2010, a delegate of the Minister for the Environment (Minister) determined that an Environmental Impact Statement (EIS) was required to be submitted by Defence as the proposed flying operations have the potential to have a significant impact on the environment. Draft EIS Guidelines were prepared by a delegate of the Minister and provided to Defence for review in January 2011. In accordance with the EPBC Act and EPBC Regulations, the draft EIS Guidelines were released to the public with an invitation for the public to comment. Following receipt of all comments the EIS Guidelines were finalised and provided to Defence in May 2011.

In mid 2011, Defence commenced the process of delivering an EIS in accordance with the EIS Guidelines. In early 2014 the draft EIS was delivered by Defence for review by the Department of the Environment. After review by the Department of the Environment the draft EIS is to be publicly exhibited together with an invitation for anyone to provide Defence with comments within a specified period. At the end of the specified period, Defence must give the Minister a copy, and summary, of the comments received. Defence must finalise the draft EIS, taking into account all comments received and submit the finalised EIS to the Minister. Figure 1 is a flow chart representing the environmental assessment process under the EPBC act. The key milestones and dates for document delivery, public consultation and ministerial decision are provided in Table 2.1.

<table>
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<td>Draft EIS is submitted to the Department of the Environment.</td>
<td>April 2014</td>
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<td>Pre EIS Release stakeholder engagement sessions.</td>
<td>July 2014</td>
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<td>EIS public exhibition period commences.</td>
<td>July 2014</td>
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<td>Panel sessions.</td>
<td>August 2014</td>
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<tr>
<td>Period for public submissions to Defence closes.</td>
<td>September 2014</td>
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<tr>
<td>EIS is finalised by Defence and a copy of the EIS is provided to the Department of the Environment. Copies of all submissions will be provided to Department of the Environment.</td>
<td>December 2014</td>
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<tr>
<td>Final EIS is published by Defence.</td>
<td>December 2014</td>
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<tr>
<td>Minister for the Environment provides Defence with a proposed approval decision and invites comment.</td>
<td>February 2015</td>
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<tr>
<td>Minister for the Environment finalises his approval decision, including what conditions, if any, are required.</td>
<td>March 2015</td>
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The final EIS will comprise the draft EIS and a supplementary report that summarises and responds to the issues raised in public comments.
Proponent refers the action to the Minister for the Environment to determine if assessment under the EPBC Act is required.

The Minister determines the proposed action is a controlled action under the EPBC Act and is subject to assessment by EIS.

The Minister provides guidelines for EIS.

Proponent prepares draft EIS.

Publication of draft EIS approved by the Minister.

Public comment on exhibited draft EIS.

Proponent prepares final EIS taking into account public comments. This may be in the form of a final EIS or the draft plus a supplementary EIS.

The Department of the Environment prepares recommendation report and provides it to the Minister.

The Minister makes either a decision to approve, approve with conditions or not approve the proposed action. For assessment by EIS a decision must be made within 40 business days of receiving the final EIS from the proponent.
2.2 Consultation and Communications

Stakeholder engagement is conducted as part of the EIS process. The EIS Guidelines stated that the engagement program for the EIS must meet the following requirements:

- Provide opportunities for community involvement and education.
- Include mechanisms to encourage and facilitate active public engagement.
- Ensure that the timing and location of engagement activities best meets community needs.
- Require the specific targeting of some groups to ensure their active involvement in the process.
- Aim to achieve extensive notification of the proposed flying operations of the F-35A aircraft through local, city wide and regional print media, static displays in public venues and local community newsletters.
- Cover all issues of concern to local community and interest groups.

Key stakeholders were identified by Defence based on previous stakeholder engagement activities. Stakeholders were grouped by similar interests in the proposed flying operations of the aircraft to allow for a more directed engagement effort and efficient use of time and resources. The stakeholder groups identified were:

- Tier 1. Noise sensitive groups and land users.
- Tier 2. Residential landholders and affected industries.
- Tier 3. Non-residential landholders.
- Tier 4. Local public.
- Tier 5. Australian public.

Stakeholder engagement activities were tailored to meet the needs of each stakeholder group. The following engagement methods were adopted:

- Briefings with regulators.
- Stakeholder engagement sessions.
- Free-call, post and email.
- Fact sheets.
- Public notices.
- Website.
- Reporting and feedback management.

Public engagement sessions have been and will continue to be conducted with stakeholders at selected locations in the Williamtown, Katherine, Darwin and Townsville areas, to discuss the results and submission of the EIS. The sessions will provide stakeholders with information regarding the impact assessment method used during the EIS process, as well as key findings from each of the specialist technical studies and the EIS.

No public engagement sessions will be conducted for RAAF Bases Pearce, Amberley or Edinburgh, noting the limited number of flying operations of the F-35A aircraft conducted from these bases. Public engagement in the vicinity of these bases will be conducted via advertisement through public notices; availability of the EIS via public display at selected locations; Free-call, post and email services; and the EIS website.
3. PROJECT RATIONALE

A central component of satisfying the national security priorities outlined by the Australian Government is the ability to contest and control airspace, and provide support to surface combatants, in regions of strategic interest. Modern multi-role combat aircraft perform this function and are critical to the security of Australia’s national interests. The F-35A aircraft provides the capability to conduct the range of air-to-air and air-to-surface missions necessary for Australia to control its air and sea approaches, and provide support for land and naval forces. The F-35A aircraft combines state-of-the-art technology to provide a superior air combat capability for Australia.

To ensure that Australia remains at the forefront of combat aviation technology and maintains an advanced and sophisticated aircraft fleet to protect Australia’s national interests, Defence will acquire up to 100 F-35A aircraft through two acquisition phases, known as Phase 2A/B and 2C. Defence will progressively retire its current fleet of F/A-18A/B Hornet aircraft from 2019 onwards and replace these with F-35A aircraft. Up to 72 F-35A aircraft will be acquired during Phase 2A/B to establish three operational squadrons, a training squadron and necessary support and enabling elements to replace the current F/A-18A/B Hornet aircraft capability. A subsequent Phase 2C is planned to acquire a fourth operational squadron, bringing the total number of aircraft to 100 (a decision on this phase is not expected before 2019 and is linked to the withdrawal of the F/A-16F Super Hornet aircraft). This EIS addresses only the proposed flying operations of the F-35A aircraft acquired under Phase 2A/B.
The F-35A aircraft will be based permanently at two main operating bases (MOBs), RAAF Base Williamtown (New South Wales) and RAAF Base Tindal (Northern Territory). RAAF Base Williamtown will host two operational squadrons and one training squadron and will operate F-35A aircraft for up to 240 days a year. RAAF Base Tindal will host one operational squadron and will operate F-35A aircraft for approximately 155 days per year. RAAF Base Tindal will also be used for exercises from two to four weeks per year by visiting squadrons.

Salt Ash Air Weapons Range (SAAWR) is the main air weapons range for the F-35A aircraft due to its close proximity to RAAF Base Williamtown. SAAWR is approved for use by a diverse range of military aircraft, and therefore represents the most efficient and cost effective option for the F-35A aircraft training out of RAAF Base Williamtown. Training operations for the F-35A aircraft are also likely to include air-to-air and air-to-surface weapons firing activities at a number of other air weapons ranges and exercise areas within Australia.

The forward operating bases (FOBs) that will support occasional and short-term proposed flying operations of the F-35A aircraft (such as military training exercises) include RAAF Base Darwin (Northern Territory) and RAAF Base Townsville (Queensland). Other FOBs located near populated areas, which will support short term flying operations of the F-35A aircraft but will be used less frequently; include RAAF Base Amberley (Queensland), RAAF Base Edinburgh (South Australia), and RAAF Base Pearce (Western Australia).

The MOBs, FOBs, air weapons ranges (AWRs) and exercise areas that will be used by the F-35A aircraft are represented in Figure 2.

The MOBs and the FOBs were chosen due to their geographical location and existing infrastructure which will support F-35A aircraft squadron training and conversion training. RAAF Base Williamtown will support both types of training while RAAF Base Tindal and the FOBs will predominately focus on squadron flying activities.

The proposed flying operations of the F-35A aircraft are similar to the existing flying operations of the F/A-18A/B Hornet aircraft that have been developed over time in response to Defence preparedness requirements and commitment to reduce the potential impact of aircraft operations on communities and civilians.

Figure 2: Base and weapon range locations for the flying operations of the F-35A Lightning II
5. EXISTING ENVIRONMENT

5.1 RAAF Base Williamtown and Salt Ash Air Weapons Range (SAAWR)

RAAF Base Williamtown is located in New South Wales, approximately 15 km northeast of the city of Newcastle, within the Port Stephens Local Government Area. The closest urban centres to the base are Raymond Terrace, approximately 9 km to the northwest, and Medowie, approximately 6 km northeast. The surrounding areas comprise rural land used for livestock grazing and hobby farming, and residential and commercial areas. Native vegetation within the base has been largely cleared to support Defence land use. However, areas of remnant native habitat of moderate ecological value remain within the northern and southern sections of the base. RAAF Base Williamtown lies within the Hunter catchment.

SAAWR is approximately 6 km northeast of RAAF Base Williamtown on undeveloped land with Medowie to the west, Medowie Conservation Area to the north, and the townships of Port Stephens to the east and Salt Ash to the south. SAAWR occupies an area of approximately 2,824 ha of mostly bushland with large saltmarshes separated by narrow channels and mangrove forest associated with the Twelve Mile Creek Swamp. Approximately 34 ha within the SAAWR restricted area has been cleared as a munitions target area.

5.2 RAAF Base Tindal

Approximately 14 km southeast of the town of Katherine, RAAF Base Tindal is located within the Katherine Municipality in the Northern Territory. The land in the vicinity of RAAF Base Tindal is predominantly used for pastoral, horticultural, conservation and rural residential purposes. Land to the north and west of the base is predominantly used for agriculture or rural purposes (cattle grazing stations). Rural land and mango farms are located to the east and Cutta Cutta Nature Park to the southeast of the base. Much of the vegetation on the base has been modified to support Defence land use, however the base contains a range of woodland vegetation types unusual to the Katherine area, but common in the wider region. Tindal Creek, an ephemeral watercourse, originates east of RAAF Base Tindal and passes south of the runway and discharges to the Katherine River. RAAF Base Tindal is located within the Katherine and Daly River catchments and the Tindall Limestone Aquifer catchment.

5.3 RAAF Base Townsville

Located in the suburb of Garbutt, Queensland, RAAF Base Townsville is situated approximately 5 km west of the Townsville central business district. The land surrounding the base is comprised of a mix of residential and green space precincts, tourist cores, neighbourhood centres, business and industry. Residential areas are predominantly located to the east of the base. The Town Common Conservation Park and other green space precincts are located to the north and west of the base. The base has been constructed on low-lying wetland landforms and contains a range of terrestrial and aquatic habitats. Large parts of the central, eastern and northern sections of the base have been modified to support Defence land use.

5.4 RAAF Base Darwin

RAAF Base Darwin is located approximately 7 km northeast of the city of Darwin in the Northern Territory. Surrounding the base is a mixture of residential, commercial, industrial, recreation, rural and conservation land. Low-density residential communities are located to the west of the base. Commercial and industrial land uses are found to the northeast, west and south of the base. A range of National Parks, conservation areas and reserves surround the base, some of which are located within 2 km, including Charles Darwin National Park, Holmes Jungle Nature Park and Casuarina Coastal Reserve. Large portions of the base have been modified to support Defence land use, but the remaining areas contain a range of native vegetation types. The base is surrounded by a number of major waterbodies and contains the Marrara Wetland, which is a retention basin located adjacent to the runway. The basin holds water for the majority of the dry season as well as providing important stream flows for Rapid Creek.
5.5 RAAF Base Amberley, RAAF Base Edinburgh and RAAF Base Pearce

Located approximately 40 km southwest of Brisbane, Queensland, RAAF Base Amberley is surrounded by predominantly rural, open space and undeveloped land. Industrial areas and low density residential areas are located to the northeast of the base. There are four conservation parks and nature reserves located within 8 km of the base: Denmark Hill Conservation Park, Ipswich Pteropus Conservation Park, Tir Na Crann Koala Nature Refuge and Mt Crosby Weir Nature Refuge. The land within the base has been largely modified to support Defence land use. Vegetation is a mix of remnant native and planted species, providing habitat for a range of fauna. RAAF Base Amberley is located in the Bremer River catchment, several hundred metres west of the confluence of the Bremer River and Warrill Creek.

RAAF Base Edinburgh is located approximately 25 km north of Adelaide, South Australia, and is surrounded by a mixture of land uses, including commercial and agricultural land use to the west of the base and low-density residential land use to the south within the suburb of Bolton, and to the west in Elizabeth. The land within the base has been largely modified to support Defence land use and vegetation within the base is predominately planted species. There are no natural watercourses passing through RAAF Base Edinburgh due to the construction of a network of drainage channels to manage stormwater run off and to protect the area from flooding.

Located within the town of Bullsbrook, Western Australia, RAAF Base Pearce is approximately 32 km northeast of the Perth central business district. Land use surrounding RAAF Base Pearce is predominantly industrial, commercial, residential, rural and recreational. The land within the base has been largely modified to support Defence land use and vegetation is predominately exotic and planted species. Remnant native vegetation does occur on the eastern and western sections of the base. Two prominent watercourses run through and receive stormwater runoff from RAAF Base Pearce, including Ellen Brook and Ki-it Monger Brook (a tributary to Ellen Brook).
6. ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACTS

6.1 Planning and Land Use

RAAF bases are located on Commonwealth land which is not subject to State or Territory planning controls. The land surrounding the bases is subject to State or Territory and regional and local planning schemes.

Based on an assessment of sample sensitive receptors, the introduction of the F-35A aircraft is unlikely to result in a change in the potential noise impacts to residential, industrial and commercial lands in the vicinity of RAAF Base Williamtown and RAAF Base Townsville.

The proposed flying operations of the F-35A aircraft may result in changed land use compatibility for some public buildings, places of worship and schools in the vicinity of RAAF Base Williamtown and RAAF Base Townsville, such as St Saviour’s Church and the Cleveland Education Training Centre.

At RAAF Base Williamtown, under the 2025 Australian Noise Exposure Forecast, St Saviour’s Church was forecast to change from a ‘conditionally acceptable’ zone to an ‘unacceptable’ zone (as defined in the Australian Standard AS2021-2000). At RAAF Base Townsville, the Cleveland Education Training Centre was forecast to change from the ‘acceptable’ 2018 Australian Noise Exposure Forecast zone to the ‘conditionally acceptable’ 2030 Australian Noise Exposure Concept zone. Future development of St Saviour’s Church and the Cleveland Education Training Centre may be influenced by the change in Australian Noise Exposure zoning and may be subject to future planning restrictions.

At RAAF Base Tindal, the introduction of the F-35A aircraft has the potential to result in an increase in the number of off-base dwellings in Uralla that could be subject to additional planning restrictions, and may result in minor impacts to non-residential land uses.

The potential impact of the proposed flying operations of the F-35A aircraft on changes in land use compatibility and property values in areas surrounding the RAAF Base Darwin, RAAF Base Amberley, RAAF Base Edinburgh and RAAF Base Pearce is expected to be negligible.

6.2 Noise

Noise within the areas surrounding the bases is generally characterised by frequent and periodic noise created from military aircraft, daily commercial airline flights and other transport noises from sources such as vehicle traffic across the base, highway traffic and industrial areas. At all of the bases, people in the study areas experience noise from existing military and civilian aircraft, including the existing flying operations of the F/A-18A/B Hornet aircraft.

Generally, it is predicted that noise levels from the F-35A aircraft will be within a similar range or less than that of the F/A-18A/B Hornet aircraft. In the long-term, the introduction of the F-35A aircraft is predicted to provide a reduction in the number of noise events above the N70 rating (above 70 dB LAmax) and N85 rating (above 85 dB LAeq) in key populated areas surrounding the bases. Areas of Medowie (near RAAF Base Williamtown) are the only areas predicted to experience an increase in the number of noise events above the N70 and N85 ratings.

Existing noise mitigation measures for the flying operations of the F/A-18A/B Hornet aircraft will continue to be implemented for the proposed flying operations of the F-35A aircraft. RAAF will also implement additional mitigation measures for the F-35A aircraft to lower potential exposure to high level noise events by adopting a reduced thrust setting during climb and limiting afterburner use on departure, when operationally safe to do so.

An example of the single event noise level modelling conducted for RAAF Base Williamtown is presented in Figure 3. This figure shows the maximum noise levels predicted to occur from a single aircraft movement from Runway 30 to eastern airspace.

The predicted change in noise events due the replacement of the existing operations of the F/A-18A/B Hornet aircraft with the proposed flying operations of the F-35A aircraft is presented in the EIS for each of the bases. An example of this modelling is shown in Figure 4 for RAAF Base Tindal. This figure compares the number of flying events per day that exceed a N70 rating between the F/A-18A/B Hornet aircraft and the F-35A aircraft.
Figure 3: INM F-35A aircraft flight path and maximum noise levels - Departure from RAAF Base Williamtown Runway 30 to eastern airspace

Figure 4: Predicted change in N70 rating events at RAAF Base Tindal
6.3 Air Quality

A review of air pollutant emissions at each of the bases showed ambient concentrations of pollutants within the bases’ airsheds were below the relevant guidelines. Modelling showed the replacement of the flying operations of the F/A-18A/B Hornet aircraft with the proposed flying operations of the F-35A aircraft will result in a reduction in emissions for all pollutants except NOx and SO2 at all bases. Modelling indicated that the increase in NOx and SO2 emissions would remain below relevant air quality criteria and would be sufficiently low to present negligible risk to the respiratory health of residents in the vicinity of the base. Calculated emissions of greenhouse gases (CO2) for the proposed flying operations of F-35A aircraft at all bases equates to 0.0001% of the total carbon emissions estimated Australia wide for 2030. Therefore the impact of the increased emissions has been assessed as low.

6.4 Aircraft Hazard and Risks

Compared to the flying operations of the F/A-18A/B Hornet aircraft, the introduction of the proposed flying operations of the F-35A aircraft will not result in a change of risk to people, property and the environment in relation to aircraft accident and incidents at all RAAF bases except RAAF Base Williamtown. It is expected that total flying hours of the F-35A aircraft at RAAF Base Williamtown will increase by 43% in comparison to those of the F/A-18A/B Hornet aircraft. Assuming a conservative approach, where this represents an equivalent increase in the likelihood of exposure to direct hazards, the increase in flying hours results in a likelihood of a similar order of magnitude and therefore the same likelihood rating for both the F/A-18A/B Hornet aircraft and the F-35A aircraft for all environmental values. This equates to an absolute value of the change in individual risk of death or personal injury of 0.3 x 10^{-11} per year. This will not significantly exceed the levels currently presented by the F/A-18A/B Hornet aircraft operations.

The assessment of bird strike risk from the proposed flying operations of the F-35A aircraft indicated that eagles, ibises, galahs and parrots, magpies and masked lapwings were the species groups that posed the highest risk of bird strike. This was due to a combination of the likelihood of their presence (based on past occurrences) and the consequence (based on the size and flocking tendencies of the species groups) of strike. However, the change in risk associated with bird strikes attributable to the change of aircraft type from the F/A-18A/B Hornet aircraft to the F-35A aircraft is considered to be negligible as the F-35A aircraft’s overall size and engine intake area is comparable to the F/A-18A/B Hornet aircraft.

6.5 Biodiversity

The replacement of the F/A-18A/B Hornet aircraft with the F-35A aircraft is expected to have negligible impact on biodiversity at all bases except for migratory birds at RAAF Base Williamtown and RAAF Base Darwin. At RAAF Base Williamtown and RAAF Base Darwin the proposed flying operations of the F-35A aircraft has the potential to result in a moderate impact on migratory shorebirds, such as the Australian painted snipe (Rostratula australis), and the Australian bittern (Botaurus poiciloptilus) (RAAF Base Williamtown) due to disruption to feeding, roosting and breeding patterns from aircraft noise. However, it is predicted that noise events that may potentially disturb migratory shorebirds will be of short duration and intermittent, therefore causing only temporary disturbance. In addition, there will be areas of habitat that will not experience increased noise, which may be used by affected fauna individuals. The proposed flying operations of the F-35A aircraft were predicted to have a negligible impact on Gould’s petrel and Hunter Estuary Wetlands Ramsar site.

6.6 Water Quality

The potential impacts on surface water quality (including domestic rainwater tanks) as a result of aircraft emissions and potential fuel dumping associated with the proposed change in flying operations from the F/A-18A/B Hornet aircraft to the F-35A aircraft are considered to be negligible at all of the bases assessed. This was based on the consideration that the change in air emissions from the proposed flying operations of the F-35A aircraft was negligible and that fuel dumped during proposed flying operations will vapourise before reaching the atmospheric mixing height and therefore will not reach the ground.

6.7 Social and Economic Environment

The proposed change in flying operations from the F/A-18A/B Hornet aircraft to the F-35A aircraft will have a negligible impact on the socio-economic environment at all of the bases assessed. This is based on the consideration that there will be no change in Defence workforce, population, community infrastructure, property values and economy as a result of the introduction of the flying operations of the F-35A aircraft.
7. ENVIRONMENTAL MANAGEMENT

Defence aims to be a good environmental steward and acknowledges the importance of having a solid environmental policy that underpins the ability to achieve best practice in environmental performance. The Defence environmental management system is the overarching mechanism for managing potential and existing environmental risks as a part of everyday operations and is based on three key elements: environmental policy, environmental risk identification and environmental risk management. The Defence Environmental Policy is implemented through the Environmental Strategic Plan 2010 – 2014, in which Defence has set six environmental objectives. In order to meet the commitments set out in Defence’s Environmental Policy, Defence has developed a set of management procedures that promote a systematic approach to environmental management and support continual improvement in environmental performance. Specifically, the RAAF Aircraft Operations Environmental Management Plan (EMP) provides up to date environmental procedures for the operation of all RAAF aircraft. The existing management procedures have been used to guide the development of the environmental management framework (EMF) for the proposed flying operations of the F-35A aircraft.

The EMF for the proposed flying operations of the F-35A aircraft will include existing EMPs, EMPs for selected environmental aspects of the proposed flying operations of the F-35A aircraft and an environmental monitoring and measurement program.

Defence has existing EMPs that address issues and impacts associated with operations undertaken at RAAF Bases and these will continue to be implemented after the introduction of the F-35A aircraft. EMPs will be developed for the noise and air quality aspects of the proposed flying operations of the F-35A aircraft at appropriate RAAF bases. The EMPs will detail the management measures, specific monitoring activities, designated responsibilities and timelines for when specific tasks are to be completed and reported in order for Defence to meet its environmental objectives. The following draft EMPs were developed as part of the EIS:

- Draft F-35A Aircraft Noise Management Plan RAAF Base Tindal.
- Draft F-35A Aircraft Air Quality Management Plan RAAF Base Williamtown.

8. SUBMISSIONS

All interested and affected stakeholders will have the opportunity to comment on the draft EIS. Submissions can be made to Defence in writing, via hardcopy, or electronically:

Coffey
F-35A Lightning II EIS Project
Reply Paid 89109
Kew VIC 3101

f35a_eis_project@coffey.com

The Draft Environmental Impact Statement for Flying Operations of the F-35A Lightning II consists of 12 volumes. A table of contents, including lists of figures, tables, plates and appendices, is located at the beginning of Volumes 1 to 7.

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