



**Australian Government**

**Department of Defence**

**RAAF BASE TINDAL  
REDEVELOPMENT STAGE 6  
AND  
UNITED STATES FORCE POSTURE  
INITIATIVES AIRFIELD WORKS**

**RAAF Base Tindal, Northern Territory**

**STATEMENT OF EVIDENCE  
TO THE  
PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS**

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# RAAF BASE TINDAL REDEVELOPMENT STAGE 6 AND UNITED STATES FORCE POSTURE INITIATIVE AIRFIELD WORKS

1. The purpose of this Statement of Evidence is to provide information to the Australian public to comment on, and the Parliamentary Standing Committee on Public Works to enquire into, the proposed Royal Australian Air Force (RAAF) Base Tindal Redevelopment Stage 6 (**Component 1**) and the United States Force Posture Initiatives RAAF Base Tindal Airfield Works and Associated Infrastructure (**Component 2**). These two proposals have been combined into a single program of works (the Project).

## Need for the Project

### Aim of the Project

2. **Component 1** aims to maintain the existing capability at RAAF Base Tindal (Northern Territory) by addressing functional deficiencies and capacity constraints in existing facilities and infrastructure, and to support growth in demand from the increasing operational tempo. Component 1 also aims to address the risks associated with non-compliant facilities and to reduce ongoing operating costs by replacing under-utilised or redundant facilities.

3. **Component 2** aims to increase the capacity of RAAF Base Tindal to support KC-30A Multi Role Tanker Transport operations, which are a key part of the core Air Power role of air mobility, in particular air-to-air refuelling and air logistics support missions. Component 2 also aims to support the United States Force Posture Initiatives by improving accessibility to the RAAF Base for United States Air Force aircraft. The United States Force Posture Initiatives is an element of the Force Posture Agreement between the Australian and United States Governments.

## Location of the Project

4. The Project proposes to deliver works at RAAF Base Tindal which is located approximately 15 kilometres south-east of Katherine and about 335 kilometres from Darwin. RAAF Base Tindal is home to No 17 and No 75 Squadrons, as well as detachments of a number of other RAAF units. Attachment 1 depicts the location of RAAF Base Tindal.

## Need for the Project

5. RAAF Base Tindal is an enduring Air Force base. As the Air Force's major operational base in Northern Australia, it is critical to the employment of Australia's air combat capability. It is the main operating base for No 75 Squadron, which will operate the F-35A Joint Strike Fighter, and is a key forward operating base for E-7 Wedgetail Airborne Early Warning and Control aircraft. The Tindal base will become a key forward operating base for aircraft such as the MQ-4C Triton Remotely Piloted Aircraft. The KC-30A Multi Role Tanker Transport operating from the base will carry out air-to-air refuelling operations and air logistics support missions.

6. The United States Air Force will also conduct training from RAAF Base Tindal under the Enhanced Air Cooperation component of the United States Force Posture Initiative.

## **Strategic Considerations**

7. The White Paper on Developing Northern Australia<sup>1</sup> outlined the Australian Government's commitment to a strengthened Defence presence in northern Australia. The subsequent 2016 Defence White Paper confirmed the importance of key enabling capabilities such as Defence bases in supporting the effective operation of the Australian Defence Force's combat systems and foreshadowed upgrading of RAAF Base Tindal. Defence's 2016 Integrated Investment Program foreshadowed the strengthening and lengthening of the runway at RAAF Base Tindal, and the need to upgrade the fuel infrastructure at the base.

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<sup>1</sup> Our North, Our Future: White Paper on Developing Northern Australia (2015).

8. In addition to these commitments, Australia and the United States will be investing around \$2 billion to upgrade airfield infrastructure, accommodation facilities and training facilities at existing Defence bases and training areas to support the United States Force Posture Initiative.

9. Component 2 addresses Australia's commitment to this initiative by providing the new airfield infrastructure necessary to support enhanced KC-30A and United States Air Force operations at RAAF Base Tindal. The requirements include lengthening and strengthening the runway, widening the runway shoulders, realigning and reconstructing the parallel taxiway, a larger air movements terminal and aircraft parking apron and a new aviation fuel farm with an integrated hydrant refuelling system servicing the aircraft parking apron to support KC-30A operations.

10. Against this backdrop, Component 1 addresses an urgent need to reinvest in base wide infrastructure to support the current and planned operational activities at Tindal. Requirements include:

- a. upgrading the existing electrical, potable water and sewer networks to improve service reliability by rectifying condition, capacity and compliance issues;
- b. upgrading the capacity of the emergency power system to support essential operations if the power supply to the RAAF Base is interrupted;
- c. upgrading the stormwater network to reduce the risk of flooding in flood-prone areas of the base;
- d. consolidating the Control and Reporting Unit Facilities, which are inefficient, do not comply with the building code and are no longer fit-for-purpose; and
- e. upgrading the Security Force Amenities Facilities and Visiting Squadron Facility to address deficiencies in working accommodation and amenities.

11. Component 1 will also address a significant shortfall in permanent living in accommodation facilities required by the increased operational tempo at RAAF Base Tindal.

### Related Projects

12. Whilst planning for the Project, the Department of Defence has also needed to consider two other projects that are also proposing new facilities and infrastructure works at RAAF Base Tindal:

- a. the operational and logistics facilities required to support the introduction into service of the AIR 7000 Phase 1B Remotely Piloted Aircraft System capability<sup>2</sup>; and
- b. a separate fuel farm, aircraft parking apron and associated facilities proposed to be constructed by the United States to support United States Air Force operations.

## **Proposed Facilities Solution**

### Scope of Project Works

13. In early 2018, Defence started comprehensive master planning, site investigations, stakeholder consultation, whole-of-life cost analysis, and design development to establish the capital facilities and infrastructure works required under the Project.

### **Program Approach**

14. Early in the facilities planning process, Defence recognised the potential benefits of addressing the requirements of Components 1 and 2 as a single program of works, designed to optimise value for money and capability outcomes. Key benefits achieved by using a program approach in the development phase have included:

- a. a more efficient, coordinated planning and design effort;
- b. improved effectiveness of the Commonwealth resources managing the proposed works program;

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<sup>2</sup> These proposed works will be part of a separate referral to the Parliamentary Standing Committee on Public Works in 2020.



- c. development of a single coordinated schedule for the proposed works; and
  - d. the development of a single environmental management strategy.
15. In the delivery phase, key benefits anticipated using a program approach include:
- a. achieving greater value for money for the Commonwealth through a coordinated approach to scheduling and contracting the airfield and engineering infrastructure works;
  - b. minimising disruption to base operations; and
  - c. a more efficient use of the Commonwealth resources managing the Project.

### Options Considered to Fulfil the Need

#### **Component 1**

16. Defence considered several options for Component 1 during the Project development phase:
- a. Do Nothing
  - b. Full Scope
  - c. In-Budget Scope
  - d. Highest Priority Scope
17. The Do Nothing option was not viable as it failed to address the risks to Defence capability from ineffective, non-compliant and inefficient operational and support facilities and engineering infrastructure that underpin operations at RAAF Base Tindal. The Full Scope option addressed the shortcomings in facilities identified as being at the end of their service lives. This option was significantly over-budget and was not affordable. The In-Budget Scope option was constrained by the initial project budget approved by Government at First Pass, but presented significant risks to Defence capability. The Highest Priority Scope option was the preferred option as it includes all additional scope to reduce the risks to Defence to an acceptable level and is affordable within the revised budget approved by Government in December 2019.

18. **Design Options.** A number of design options were considered during the project development process for each element of Component 1:

- a. **Permanent Living In Accommodation.** New construction was the only viable option for providing the required increase in capacity for members entitled to a permanent standard of living in accommodation. A medium density design is considered the most cost-effective option as it will provide flexibility for future development of the residential precinct.
- b. **Engineering Services Infrastructure.** Various options for addressing the shortcomings in the existing water supply and distribution infrastructure, electrical supply and distribution infrastructure, the stormwater and sewer networks and the existing irrigation system were considered. The proposed scope of works focusses on improving in-ground infrastructure and key components of the engineering services networks.
- c. **Support Facilities.** For the Visiting Squadron Facility and Security Force Amenities Facilities, some new construction, combined with the re-use of some existing infrastructure, is able to meet the users' needs, address code compliance issues and minimise construction costs. For the Control and Reporting Facilities, new construction is the most cost-effective solution for improving operational efficiency and code compliance issues.

## **Component 2**

19. Defence also considered several options for Component 2 during the Project development phase:

- a. Do Nothing
- b. In Budget Scope
- c. Minimum Capability Scope

20. The Do Nothing option was not viable as it failed to address the Australian Defence Force's capability requirements, it also did not meet Australia's commitments under the Force Posture Agreement. The other options were developed to strike a balance between capability improvements and cost. To evaluate the options, operational requirements were prioritised, and the benefits and risks of each option were measured in terms of capability

and cost. The In Budget option required unacceptable compromises in capability and were not considered viable. The Minimum Capability Scope option was preferred option, as it delivers the required minimum capability improvements and is affordable within the budget approved by Government in December 2019.

21. **Design Options.** A number of design options were considered during the Project development phase for each element of Component 2:

- a. **Airfield Works.** Options for upgrading the airfield were developed to fully understand the master planning issues, capability needs, technical requirements, compliance issues and cost drivers. The proposed airfield configuration and scope of works meets capability requirements, all relevant codes such as the Manual of Standards Part 139 – Aerodromes under the Civil Aviation Safety Regulations. It also provides optimum flexibility for locating future operational and logistics facilities.  
Attachment 2 depicts the proposed airfield configuration.

- b. **Operational Support Facilities.** Design options for the three operational support facilities were developed and assessed to select an optimal design option:

- (1) **Aircraft Parking Apron** - several locations and configurations were considered. Apron geometry and dimensions dictated the capacity and flexibility for supporting a range of operations. Only the preferred site and alignment meets capability and long-term planning requirements.

**Aviation Fuel Farm** - refurbishing the existing fuel farm will not provide the increased capacity and utility required by Air Force. While a traditional design approach was considered, the preferred option is new construction based on a proven United States Department of Defense ‘cut and cover’ design involving hardening of a minimum of two bulk storage tanks by encasing in concrete

and mounding with fill. This approach will ensure that the proposed adjacent fuel farm can operate independently and/or be linked to operate with a fuel farm planned by the United States Government. The fuel farm design also provides for a hydrant refuelling system to service the proposed aircraft parking apron.

- (2) **Air Movements Terminal** - while refurbishing the existing terminal and nearby buildings was considered, refurbishment was not a viable solution as the existing terminal needs to be demolished to enable the required airfields configuration and was ruled out as the existing terminal needs to be demolished in the proposed airfield configuration. The proposed design provides the significant improvement in passenger and cargo handling capacity required to support KC-30A aircraft operations.

- c. **Engineering Services and Infrastructure.** The proposed western access road and entrance will improve security access for large vehicles. Engineering services infrastructure will be extended to service proposed facilities and infrastructure.

## Detailed Description of the Works

### **Component 1**

#### **Project Element C1-1: Permanent Living In Accommodation**

22. The proposed living in accommodation is designed to meet Defence's contemporary standard for permanent living in accommodation. The three-storey medium density design reduces the proposed development footprint which will maximise the potential for future development in the residential precinct. Three buildings are proposed which will provide 108 single occupancy units, including a number of accessible units. Each room will be 30m<sup>2</sup> and will include an ensuite, built-in fixtures such as wardrobes, cupboards and desk, furniture, and will be air conditioned. Each room will have a balcony or patio. Laundries will be provided on a "one per four units" basis. Covered car parking will be provided for each unit. Attachment 3 includes the proposed design.

### **Project Element C1-2: Electrical Infrastructure**

23. The proposed electrical infrastructure work comprises:
- a. improving the high voltage reticulation by upgrading key elements of the system and replacing deteriorated and or aged underground high voltage cabling;
  - b. replacing the Central Emergency Power Station with a new facility which will comprise five new diesel generators, with a spare bay for the future installation of a sixth generator if required);
  - c. replacing and / or upgrading substations to provide adequate and reliable electrical supply; and
  - d. installing power control and monitoring cabling underground to eliminate the possibility of storm damage.

### **Project Element C1-3: Hydraulic Infrastructure**

24. **Potable Water Network.** The existing network will be upgraded to supply the required fire hydrant pressures and flows throughout the Base, and to provide a suitable water supply for a future high pressure-high flow fire service within the airfield. Valves assessed as in poor condition will be replaced. New water supply pipework from the existing reservoirs will mainly be installed above-ground.

25. **Sewer Network.** Existing rising mains will be replaced, the sewerage treatment plant upgraded, and six sewer pumps will be remediated or replaced to improve the performance of the sewer network. New rising mains will follow the existing service alignments where possible.

26. **Stormwater Network.** Diversion bunds and detention basins will be constructed in key areas of the airfield to divert overland stormwater flows and control the rate of flow into downstream drainage systems. Flood modelling was used to optimally locate and size the bunds and detention basins to reduce the extent of flooding in and around the airfield.

#### **Project Element C1-4: Control and Reporting Unit Facilities**

27. The proposed reconfiguration and modification of the former Northern Regional Operations Centre includes:

- a. constructing two new technical equipment and communication buildings, improving access to, and earthing of, the fixed communications facility antenna and replacing the existing antenna; and
- b. demolishing redundant buildings and associated structures such as the antennas and decommissioning the now redundant earth-covered bunkers by disconnecting services, making safe and sealing them to prevent unauthorised access.

#### **Project Element C1-5: Security Force Amenities Facilities**

28. The Security Force Amenities Facilities will be improved by reconfiguring the working accommodation areas, refreshing some building services and finishes and constructing a new amenities annex that will comprise of toilets, showers, and change rooms. External works will include providing all-weather access to the kennels and quarantine facilities, irrigating the exercise yards and constructing a sealed car park.

#### **Project Element C1-6: Visiting Squadron Facility**

29. The proposed purpose-built Visiting Squadron Facility will replace five transportable buildings to improve the working conditions for aircrew and maintenance personnel. The existing equipment shelter and the storage facility will be retained and additional car parking will be provided.

### **Component 2**

#### **Project Element C2-1: Airfield Works**

30. The primary airfield upgrades involve extending the runway by 2,000 feet to 11,000 feet (3,353 metres) and widening runway shoulders from three metres to 10.5 metres and re-aligning, extending and widening the parallel taxiway for heavy aircraft movements. Works also include constructing two new operational readiness platforms at each end of the runway, upgrading an existing secondary taxiway to accommodate larger aircraft,

constructing a new taxiway and upgrading the airfield stormwater drainage system. The existing aeronautical ground lighting system will be re-configured to complement the proposed airfield layout, and the existing navigation aids will be re-configured or replaced. Attachment 4 provides a plan of the proposed airfield works.

### **Project Element C2-2: Aircraft Parking Apron**

31. The proposed aircraft parking apron will be approximately 52,000 square metres to provide parking bays for four Code E<sup>3</sup> aircraft. It will be situated to comply with the RAAF Base Tindal Flight Line Master Plan. The apron pavements will be designed for heavy transport aircraft movements and will be graded to the airfield stormwater network. Environmental controls such as interceptor tanks will be installed to capture any fuel spills. Apron floodlighting will be installed to support night operations.

### **Project Element C2-3: Aviation Fuel Farm**

32. An aviation fuel farm is proposed, to provide a total storage capacity of six mega litres. The two storage tanks will be made of steel, encased in concrete and earth-mounded for protection. The fuel distribution system will enable fuel to be off-loaded from road tankers, checked for quality, stored and then pumped into RAAF refuelling trucks or directly to aircraft parked on the nearby aircraft parking apron using an integrated hydrant refuelling system. The control system, pipework reticulation and hydrant systems have been designed to integrate with the planned United States fuel farm to be constructed under the United State Force Posture Initiatives.

33. The proposed fuel farm includes a control centre and fuel quality laboratory, tanker loading and off-loading equipment, electrical and mechanical services buildings and measures to protect the environment from potential fuel spills. A hydrant refuelling system, designed to support air mobility operations such as air to air refuelling, will service each of the four aircraft parking bays on the proposed Aircraft Parking Apron (Project Element C2-2). Attachment 5 is a design of the proposed Aviation Fuel Farm.

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<sup>3</sup> The International Civil Aviation Organisation uses a letter code to classify aircraft into one of six types. Code E aircraft have a wingspan of between 52 and 65 metres or an outer main gear wheel span between nine and 14 metres, and include the Boeing B777 / B787 series and the Airbus A330 family.

### **Project Element C2-4: Air Movements Terminal**

34. The proposed Air Movements Terminal has been designed to enable a passenger handling capacity of 250 inbound or outbound personnel on domestic or international flights and a commensurate cargo handling capacity. The proposed facility comprises an administration area, a passenger handling area and an area for receipting and despatching cargo. Departures and arrivals areas will be separated. Areas for the quarantine and border security processing checks for international flights will also be constructed. Attachment 6 is a design of the proposed Air Movements Terminal.

### **Project Element C2-5: Engineering Services and Infrastructure**

35. The existing engineering services infrastructure will be extended to provide new electrical, communications and hydraulics services to the proposed Fuel Farm, the Air Movements Terminal, aircraft parking apron, aeronautical ground lighting system and navigation aids. The proposed location of the new aircraft parking apron in accordance with the approved Flight Line Master Plan requires the western access road and gate to be relocated. The proposed western access gate will provide improved access for, and control of, heavy vehicles such as fuel tanker road trains and large logistics vehicles. A plan of the proposed engineering services and infrastructure is included in Attachment 4.

## **Planning and Design Concepts**

36. The general philosophy for the design of the proposed building works is based on:
- a. providing cost-effective, functional, low maintenance, energy efficient design options compatible with proposed functions and existing aesthetics;
  - b. adopting where practicable, conventional construction techniques and materials commonly used by the construction industry and consistent with those already used;
  - c. maximising the use of existing infrastructure and facilities;
  - d. using readily available and durable materials applying appropriate measures to reduce ongoing maintenance and achieve the proposed design life;
  - e. recognising and applying the site constraints, security requirements, and the planning guidance in the approved master plans for RAAF Base Tindal;



- f. recognising and applying the functional relationships of the proposed facilities and infrastructure to existing facilities; and
- g. providing flexible services and infrastructure to accommodate an appropriate level of growth.

### Relevant Legislation, Codes and Standards

37. The following legislation, standards, codes and guidelines are applicable:
- a. *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*;
  - b. *Disability Discrimination Act 1992 (Cth)*;
  - c. *Fair Work Act 2009 (Cth)*;
  - d. *Work Health and Safety Act 2011 (Cth)*;
  - e. *Fair Work (Building Industry) Act 2012 (Cth)*;
  - f. *Building and Construction Industry (Improving Productivity) Act 2016 (Cth)*;
  - g. National Construction Code - Building Code of Australia;
  - h. Defence Manual for Infrastructure Engineering Electrical;
  - i. Defence Smart Infrastructure Manual;
  - j. Defence Manual of Fire Protection Engineering;
  - k. Defence Manual of Infrastructure Engineering – Bulk Fuel Installation;
  - l. Defence Estate Quality Management System;
  - m. Defence Pollution Prevention Management Manual;
  - n. Defence Explosive Regulations;
  - o. Defence, Electronic Airworthiness Design Requirement Manual;
  - p. Defence Aviation Safety Regulation – Design for Aerodromes;
  - q. Defence Airfield Pavement Maintenance Manual;
  - r. Defence Aircraft Pavement and Grooving Policy;
  - s. Civil Aviation Safety Authority Manual of Standards Part 139;
  - t. International Civil Aviation Organisation Aerodromes Annex 14, Volume 1 – Aerodrome Design and Operations;
  - u. Federal Aviation Administration Airport Pavement Design and Evaluation (FAA AC 150/5320-6F); and
  - v. United States Department of Defense Pavement Design for Airfields (UFC 3-260-02).

38. Works will be designed and documented in accordance to the relevant codes, standards and Defence publications listed above. The compliance of the design will be certified by appropriately accredited consultants in a range of disciplines, for example high voltage electricity, hydraulics, pavement design, and fuel facilities.

39. Construction compliance with the design shall be assured using approved quality management systems which will implement processes such as inspections, audits, and independent testing.

### Land and Zoning

40. The developments proposed are consistent with the approved RAAF Base Tindal and Delamere Air Weapons Range Zone Plan (2014), the RAAF Base Tindal Flight Line Master Plan (2017) and the Defence Estate 'Principles of Development'.

41. Defence undertook site selection processes for the proposed facilities and infrastructure considering the suitability of sites for each proposed function, the locations of related functions, the siting requirements for other planned Defence and United States Air Force projects, access to services and infrastructure, movement by vehicles and pedestrians, and heritage and environmental management factors such as registered indigenous sacred sites. Explosive ordnance safeguarding arcs were a further consideration in determining the location for the proposed operational support facilities to ensure personnel working in these facilities are at a safe distance from aircraft carrying explosive ordnance.

### Structure

42. The structural designs for the proposed new buildings have considered local geotechnical conditions which include karst limestone, sinkholes and rocky outcrops, and will be consistent with their intended purpose and the existing building forms where appropriate. Steel frames and precast concrete panels will be widely used in the proposed facilities and the footings will generally be raft slabs.

### Airfield Pavements

43. The pavement design for the proposed airfield works has considered the existing conditions, the underlying geotechnical conditions and all relevant design standards. The proposed airfield pavements will predominantly be flexible pavements, and the aircraft parking apron, runway thresholds, the ends of Taxiway A and the operational readiness platforms will be rigid pavements. The pavement thicknesses will vary, dictated by the strength of the subgrade, aircraft loading and the frequency of aircraft movements.

### Mechanical Services

44. Mechanical services have been designed according to the function and needs of each facility. They will meet specific user needs, relevant ventilation, thermal comfort and air quality requirements and the mandatory requirements of the Building Code of Australia.

### Hydraulic Services

45. Existing sewerage and stormwater services will be extended to service each new facility. Where new stormwater systems are required for new proposed facilities and civil works infrastructure, such as roads and car parks, aircraft pavements and vehicle hardstands, they will be constructed in reinforced concrete pipes if they may be subjected to significant external loads. All new stormwater pits and modifications to existing pits will be constructed using reinforced concrete to meet the relevant standards, including a 100-year design life. The water distribution systems in each new building will be connected to the existing water supply via a sub-meter.

### Electrical Services

46. Lighting, power and lightning protection will be provided in accordance with Australian Standards and Defence engineering requirements. Electrical infrastructure and switchboards will have spare capacity to allow for future growth. Sub-metering will be provided to each new building. These meters will be monitored through new building management systems, which will support the base's active energy management program. All new electrical infrastructure and switchboards will have spare capacity to allow for future growth.

## Fire Protection

47. The proposed fire system designs will comply with the requirements of the Manual of Fire Protection Engineering and the Building Code of Australia. Assessments of the asset classification and criticality have been completed to determine the fire detection and protection systems required in each new facility.

## Security Measures

48. Defence Security Authorities have been consulted to ensure the proposed facilities designs comply with the Defence Security Principles Framework. New security services will be compatible with existing security systems.

## Acoustics

49. The new facilities will comply with the National Construction Code and Australian Standards for noise and acoustics in working and living accommodation. Acoustic separation has been considered between rooms, and walls are being designed to meet the functional requirements of users, such as staff in the Air Movements Terminal or residents in the living in accommodation.

50. The design of the proposed habitable buildings has considered aircraft noise, particularly from F-35A operations, to ensure internal design sound levels comply with the relevant Australian Standards such as AS2021 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction and meet Defence’s requirements.

## Work Health and Safety

51. The project will comply with the *Work Health and Safety (WHS) Act 2011 (Cth)*, Work Health and Safety (Commonwealth Employment – National Standards) Regulations, and relevant Defence policies. In accordance with Section 43 (4) of the *Building and Construction Industry (Improving Productivity) Act 2016 (Cth)*, project contractors will also be required to hold full work health and safety accreditation from the Office of the Federal Safety Commissioner under the Australian Government Building and Construction Work Health and Safety Accreditation Scheme.

52. Safety aspects of the Project were assessed during the design development process and documented in a Safety in Design Report. A Work Health Safety Plan will be developed by the Managing Contractor prior to commencing any construction activities during the delivery phase of the project. This plan will include the requirement to appropriately secure all construction sites to prevent any unauthorised personnel entering during the construction period.

### Materials and Furnishings

53. Material will be selected based on suitability for purpose, durability, low maintenance and compliance with relevant codes and standards. The ability for the local market to supply materials has also been considered during the design development process to maximise local supply opportunities where value for money is evident.

54. All external materials will be selected for their resilience to the harsh local environment which includes high temperatures and humidity during the Wet season. Internal walls in the new facilities will generally be non-load bearing, lined with plasterboard to provide flexibility for accommodating changing functional requirements.

### Landscaping

55. The proposed landscape works will be minimal and complement the character of each site. Design will focus on being functional, low maintenance and water sensitive, and use indigenous plants. Precautions will be taken to avoid compromising environmental sensitivities by adopting landscaping practices in accordance with local environmental conditions.

### Childcare Provisions

56. No childcare facilities are proposed in this Project.

### Provisions for People with Disabilities

57. Access for people with disabilities will be provided in accordance with the Building Code of Australia, Australian Standard AS 1428 – 2010: Design for Access and Mobility, the *Disability Discrimination Act 1992* and the Defence Policy ‘Disabled Access and other Facilities for Disabled Persons’

58. Access for people with disabilities is not required to some areas of the proposed new facilities, which are exempt under section D3.4 of the Building Code of Australia, as access for people with disabilities would be inappropriate, because of the particular purpose of the area.

### Environmental Sustainability

59. Defence is committed to ecologically sustainable development and reducing greenhouse gas emissions. The Project has adopted cost effective measures as a key objective in the design and development of the proposed works. These measures include:

- a. **Adopting Energy Targets:** energy performance targets will comply with the Defence Building Energy Performance Manual, and the Defence Smart Infrastructure Manual where applicable.
- b. **Reducing Energy Use:** measures proposed in the Project to reduce energy use include adopting passive building design principles for new facilities; using energy efficient heating ventilation and air conditioning systems, lighting and intelligent control systems; maximising natural ventilation and installing energy management systems.
- c. **Reducing Water Use:** measures proposed to reduce water use include specifying water efficient fixtures and fittings and waterless air conditioning systems; installing non-potable water pipework in the proposed living in accommodation; where landscaping works are proposed, adopting water sensitive urban design principles; and selecting native, low-water usage plant species.
- d. **Improving Indoor Environments:** measures proposed include improving natural light in occupied spaces; providing shading for privacy and glare control; optimising building orientation; and using low volatile organic compound paints, carpets and adhesives, and as well as low emission wood products.

- e. **Installing Metering:** electrical services will be metered in accordance with the requirements of the Defence National Sub-meter Program. They will be suitable to connect to the Defence National Resource Data Management System. Hydraulic services will be metered and connected directly to the base's building management system.
- f. **Minimising Waste:** There are no recycling facilities in Katherine. A greater emphasis will be placed on 'designing out' waste. This will meet the Defence Smart Infrastructure Manual requirement of a minimum of 70% of all construction waste by weight being either reused or recycled (diverted from landfill).
- g. **Re-using Materials:** recycling the existing taxiway pavement materials and using them in the proposed airfield civil works where they meet the required material specification will significantly reduce the requirement for imported quarry materials.

## Potential Impacts

60. Defence has completed an Environmental Impact Assessment for the Project. This was undertaken in accordance with the relevant legislative and Defence policy requirements to identify potential environmental and local community impacts and propose suitable mitigation measures. Based on the findings of the impact assessment, Defence determined that the Project will not have a significant impact on existing environmental and heritage values, and is not required to be referred to the Minister of Environment and Energy under the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*.

61. To ensure that the impact of the Project on the environment is minimised, a comprehensive Construction Environmental Management Plan will be developed. This plan will include measures to address:

- a. **Managing Contamination.** Appropriate control measures to manage contamination will be implemented, in accordance with Defence's Pollution Prevention Management Manual. Where possible, soils excavated during construction are to be beneficially re-used on site. If off-site disposal of contaminated fill is required, waste classification sampling will be undertaken by a qualified environmental consultant to determine the level of contamination and an approved waste transporter to dispose at

an appropriately licensed facility. A Hazardous Materials and Contamination Assessment will be undertaken by the Managing Contractor prior to any refurbishment or demolition works to ensure any contamination encountered is appropriately treated, prior to disposal being undertaken by licensed contractors.

- b. **Managing Per- and Poly-fluoroalkyl Substances Contamination.** Per and poly-fluoroalkyl substances (PFAS) contaminated soils and groundwater may be encountered. If any is found, stormwater management measures will be applied to manage the impacts to groundwater of construction activities. PFAS contaminated soils will be stockpiled, classified and managed in accordance with the Defence PFAS Framework – Construction and Maintenance Projects. Development of a water and soil PFAS contamination strategy is proposed for the Project.
- c. **Managing Spoil and Bulk Earthworks Impacts.** A Soil Management Plan / Remediation Action Plan will be developed to determine how to handle, store and dispose of any excess spoil generated during construction. Where possible, bulk earthwork activities will be scheduled outside the wet season to minimise the levels of surface water and associated potential impacts of erosion. Where clearing is required, opportunities will be sought to utilise excess topsoil and vegetation. All imported materials will be purchased from a reputable supplier who can supply materials that are weed, pathogen and contaminant free. Plant and equipment will be washed down before entering and leaving work sites to further reduce the potential introduction or spread of pest weed species during construction.
- d. **Reducing Noise and Air Quality Impacts.** Procedures will be required to reduce the potential impact of noise, vibration and dust generated by construction activities and the transport of materials on on-base working and domestic precincts. These procedures will include measures such as limiting work hours in proximity to residential areas and the watering of civil works for dust suppression.



- e. **Protecting Heritage Values.** The proposed works will not impact any known indigenous archaeological or historic sites. An Aboriginal Areas Protection Authority certificate addresses Restricted Work Areas to protect known sacred sites within the base. Site inductions will address these ‘no-go’ areas. A ‘chance finds protocol’ will be implemented if material of suspected heritage value is encountered.
- f. **Managing Impacts on Local Fauna and Flora.** While the Project is unlikely to significantly impact on any listed threatened species, ‘no-go’ areas will be established and highlighted in site inductions to minimise any impact on local fauna and flora. Site clearance requirements will be minimised and demarcated by temporary fencing. Pre-clearance fauna surveys will identify native fauna and encourage natural dispersal before any site clearance is undertaken.
- g. **Managing Surface and Groundwater Impacts.** A further study is planned by the Managing Contractor to understand the potential impact on the environment of increased surface water run-off resulting from the proposed works. The findings of the study will include measures to avoid or minimise the potential impacts of the works on the local and regional hydrology and groundwater.
- h. **Managing Impacts on Local Facilities.** While local contractors will be sought to undertake the works, off-base accommodation for construction workers will be required for an extended period. The planned expansion of the existing privately-operated off-base construction workers camp is anticipated to minimise the impact of the construction workforce on the availability of local tourist accommodation during the dry season.
- i. **Reducing Traffic Impacts.** The Managing Contractor will be responsible for preparing traffic management plans to minimise the expected impact of increased construction-related traffic that will use the nearby highway, local and on-base roads is minimised.

## Consultation with Key Stakeholders

62. Defence has developed a community consultation and communications strategy to engage local residents and other interested stakeholders, an opportunity to provide input into, or raise concerns relating to the proposed works.

63. Defence has engaged with a variety of internal and external stakeholders during project development phase. In addition, further consultation will be conducted to support the Parliamentary Standing Committee on Public Works' inquiry into the proposed works. External stakeholders include:

- a. the Federal Member for Lingiari, Mr Warren Snowdon, MP;
- b. the Northern Territory Member for Katherine, Ms Sandra Nelson MLA;
- c. the Department of Prime Minister and Cabinet;
- d. the following Northern Territory Government authorities:
  - (1) Chief Minister's Department;
  - (2) Department of Infrastructure, Planning and Logistics; and
  - (3) Department of Trade, Business and Innovation.
- e. Katherine Town Council representatives including the Mayor, Aldermen, the Chief Executive Officer and senior officers;
- f. Aviation industry regulatory authorities including:
  - (1) Air Services Australia;
  - (2) Civil Aviation Safety Authority; and
  - (3) Civilian airfield users.
- g. Northern Land Council;
- h. Aboriginal Areas Protection Authority;
- i. Local Indigenous groups;
- j. Power and Water Corporation;
- k. local industry and business associations including:
  - (1) Master Builders Association;
  - (2) Northern Territory Chamber of Commerce;

- (3) Industry Capability Network (Northern Territory);
  - (4) Katherine Economic Development Committee;
  - (5) Northern Territory Indigenous Business Network; and
  - (6) Northern Territory Chamber of Commerce.
1. the local community groups including regional communities (Barunga, Binjari, and Rockhole).

## **Cost Effectiveness and Public Value**

### **Project Costs**

64. The estimated total capital out-turned cost of the project is \$1,174.0 million including Defence contingency. This estimate excludes Goods and Services Tax, except for the proposed living in accommodation project element. It includes project management, contract management and design fees; other professional services fees related to the design or construction activities; construction costs; active information and communications technology; furniture, fittings and equipment costs, and provisions for risk and escalation.

65. An increase in future sustainment costs of \$10.4 million is expected as a result of the proposed works. This is due to the additional maintenance, cleaning and utilities expenses that will be required in the proposed new and upgraded facilities and infrastructure.

### **Project Delivery System**

66. A Project Manager and Contract Administrator will be appointed to manage the delivery phase of this project. As Defence proposes to deliver the project works using Managing Contractor form of contract, a Managing Contractor will be appointed to complete design development, procure trade contractors, and manage the construction of the works.

67. The Managing Contractor form of delivery provides the Commonwealth with buildability input into the design while promoting opportunities for small to medium enterprises by sub-contracting design and construction trade packages. As air operations will need to be maintained during the delivery phase of the Project, the early involvement of the Managing Contractor has enabled the complexities of staging the proposed airfield works to be addressed and a staging solution agreed.

### Construction Program

68. Subject to Parliamentary approval, design activities are expected to be completed progressively from mid-2020 to mid-2021, with construction-related activities expected to commence in mid-2020 and be completed in late-2027.

### Public Value

69. Defence has comprehensively assessed public value, opportunities and benefit to the community as a result of the proposed works:

- a. **Meeting Capability Needs.** The Project will contribute significantly to a key Defence Capability. Component 1 will address the current shortcomings in the engineering infrastructure of the base, now over 30 years old and will provide improved working accommodation and living in accommodation. These works are expected to improve personnel morale and impact positively on retention, while the upgraded engineering infrastructure will improve the capacity and reliability of these systems that underpin all operational activities. Component 2 will deliver significant improvements to airfield infrastructure and operational support facilities, contributing to enhanced Defence capability by improving the capacity of the base to support the RAAF's air mobility operations and the operations proposed as part of the United States Force Posture Initiatives.
- b. **Employment Opportunities.** The Project will employ a diverse range of skilled consultants, contractors and construction workers that could also include opportunities for up-skilling and job training to improve individual skills and employability on future projects.
- c. **Economic impacts:** Defence and the Managing Contractor will actively promote opportunities for small to medium enterprises through construction sub-contractor packages. The Managing Contractor will be

required to deliver all works in accordance with, but not limited to, National Construction Code - Building Code of Australia 2019 guidelines, relevant Australian Standards, relevant Defence Policy, and Workplace Health and Safety Legislation.

- d. **Local industry and Indigenous business involvements opportunities:** Defence and the Managing Contractor will actively promote opportunities for small to medium local enterprises through the construction trade packages. There will be opportunities for indigenous business involvements in accordance with the Indigenous Procurement Policy. Works to be undertaken must comply with the Government Policy for Local Industry Participation, which requires successful tenderers to provide detailed commitments on how they will utilise and develop Australian industry. These commitments will become contract deliverables and successful tenders will be required to report on their performance against them. While the policy does not mandate or preference local suppliers, there are opportunities to engage local industry associated with the Project sites.

### Below the Line Items

70. Additional project elements have been identified and approved by Government for delivery that are unfunded within the available capital provision. Should funds become available within the budget, for example through competitive tendering or retired risk provisions, these will be allocated to the unfunded project elements. There are no unfunded project elements for Component 1. The unfunded project elements for Component 2 are listed in the following table.

#### **Below the Line Items – Component 2**

<b>Project Element No</b>	<b>Description</b>	<b>Proposed Scope of Works</b>
C2-3	Aviation Fuel Farm	Demolish the old Fuel Farm, and replace the refuelling truck parking at the new Fuel Farm.
C2-5	Engineering services and infrastructure	Re-align Civilian Terminal access road.

## Revenue

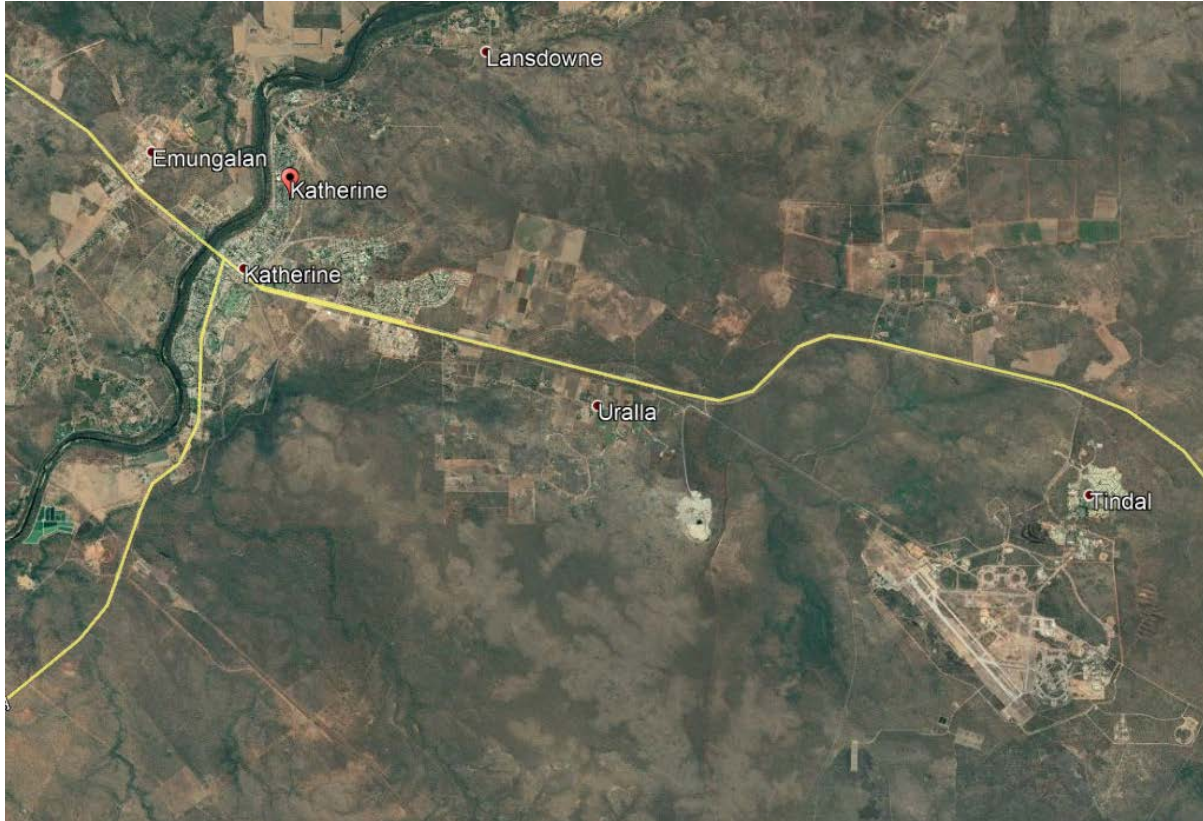
71. No revenue is expected to be derived from the Project.

## **Attachments**

1. Location Map.
2. Proposed Airfield Configuration
3. Project Element C1-1: Living In Accommodation – Perspective View
4. Project Elements C2-1 and C2-5: Airfield Works, Engineering Services and Infrastructure
5. Project Element C2-3: Aviation Fuel Farm.
6. Project Element C2-4: Air Movements Terminal

Attachment 1

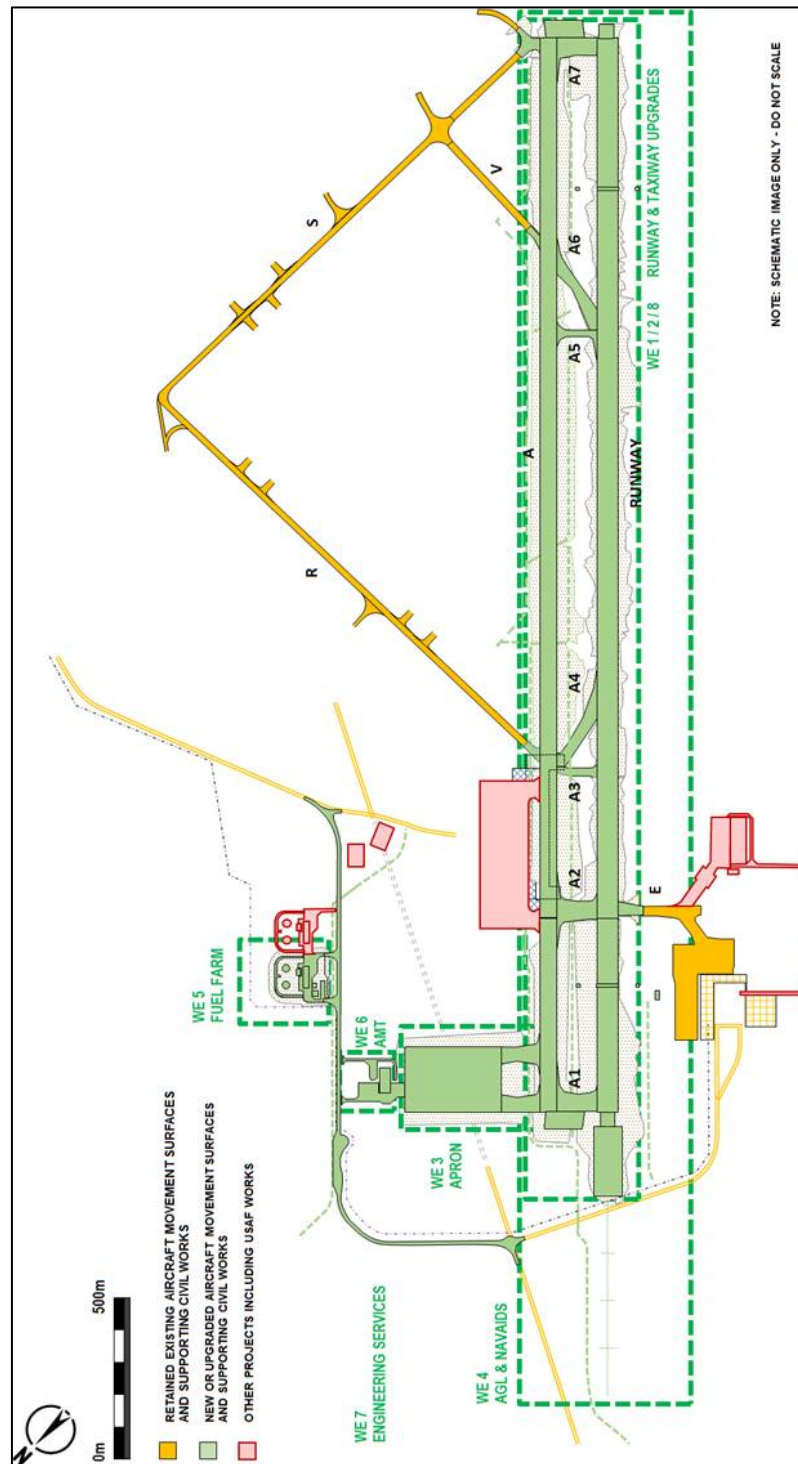
## Location Map





Attachment 2

## Proposed Airfield Configuration





Attachment 3

## **Project Element C1-1: Living In Accommodation – Perspective View**



Attachment 4

## Project Element C2-1 and C2-5: Airfield Works, Engineering Services and Infrastructure



Attachment 5

## Project Element C2-3: Aviation Fuel Farm



Attachment 6

## Project Element C2-4: Air Movements Terminal

