Australian Government

Department of Defence

PRELIMINARY DOCUMENTATION REPORT

Demolition of Structures at RAAF Williams – Point Cook, Victoria

(EPBC 2019/8514)

Department of Defence

November 2023

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Acronyms

Acronym	Definition
AHD	Australian height datum
CEMP	Construction Environmental Management Plan
CHL	Commonwealth Heritage List
CSR	Contaminated Site Records
DAWE	Department of Agriculture, Water and the Environment
DCCEEW	Department of Climate Change, Energy, the Environment and Water
Defence	Department of Defence
ECC	Environmental Clearance Certificate
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPBC Regulations	Environment Protection and Biodiversity Conservation Regulations 2000
EVC	Ecological vegetation classes
HIA	Heritage Impact Assessment
HMP	Heritage Management Plan
ICOMOS	International Council on Monuments and Sites
MNES	Matter of National Environmental Significance
NEMP 2.0	*PFAS National Environmental Management Plan Version 2.0*
NHL	National Heritage List
PFAS	Per- and poly-fluoroalkyl substances
PMAP	PFAS Management Area Plans
RAAF	Royal Australian Air Force
TEC	Threatened Ecological Community
The Base	RAAF Base Point Cook
WoNS	Weeds of National Significance

1. Introduction

1.1 Overview

The Department of Defence (Defence) referred a proposed action, being a plan to demolish and remove built infrastructure comprised of 19 Assets at Royal Australian Air Force (RAAF) Base Point Cook in Victoria (formerly named RAAF Williams – Point Cook) (the 'proposed action') to the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in August 2019 (EPBC 2019/8514). The Assets, which include a range of buildings including Bellman hangars, RAAF standard huts, store facilities, and toilet blocks, are redundant to Australian Defence Force requirements and are planned to be removed to address safety concerns arising from their poor condition and to reduce on-going maintenance costs.

RAAF Base Point Cook (the Base) is listed on the National Heritage List (NHL) (Place ID 105671) as well as the Commonwealth Heritage List (CHL) (Place ID 105275). Of the 19 Assets to be demolished, 15 have been identified as contributing to the heritage values of the Base. An overview of the heritage value of each Asset is provided in Attachment 1.

Under the EPBC Act, National Heritage is a Matter of National Environmental Significance (MNES) as specified in section 34 of the Act, while matters with Commonwealth Heritage Listing are addressed in relation to section 28, as well as other heritage requirements for Commonwealth land included under section 341ZC and 324S.

Defence assessed the proposed action, which including commissioning two Heritage Impact Assessments (HIA) (ERM 2019, Biosis 2019) and other documentation to be prepared by suitably qualified consultants to document the condition of the assets and assess the consequences of the proposed action on the heritage values of the Base. The HIAs identified that the proposed action would be likely to have a significant impact in relation to National Heritage, and generally in relation to heritage.

Due to this potential for significant impact, Defence referred the proposed action to the Commonwealth to decide whether formal assessment under the EPBC Act would be required. It was determined by the Commonwealth Minister for the Environment and Water that the proposed action was a controlled action that would be assessed on the basis of Preliminary Documentation. Defence prepared a draft Preliminary Documentation Report in response to requests for information, to which subsequent requests have been received.

This Preliminary Documentation Report has been prepared to provide a consolidated response to information requested since the time of the referral decision. A timeline of the referral and summary of subsequent communication with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (formerly the Department of Agriculture, Water and the Environment (DAWE)) to date, including the general nature of the requests for information, is included in Table 1.1. The consolidated information requests are provided in Attachment 2 along with cross-references to the relevant sections of this report.

Table 1.1 Referral and communication timeline

Date	Description
August 2019	Referral to former DAWE to consider whether the action would need to be formally assessed under the EPBC Act.
20 July 2020	DAWE determined the proposed action to be a 'controlled action' under the Act. The relevant controlling provisions were: – Sections 15B and 15C (National Heritage), and – Section 28 (action by a Commonwealth agency). Assessment advised to be by preliminary documentation.
5 August 2020	DAWE issued a request to Defence for information to support the Preliminary Documentation report assessment process.
31 March 2021	Defence submitted the *Demolition of Structures at RAAF Williams – Point Cook, Victoria* (EBPC Ref: 2019/8514) *Preliminary Documentation Report* to DAWE.

Date	Description
21 April 2021	DAWE issued an additional request to Defence for information to support the assessment process.
29 July 2021	Defence submitted updated Preliminary Documentation.
31 August 2021	Following the submission, DAWE provided additional comments for Defence to address. These included: – Per- and poly-fluoroalkyl substances (PFAS) and soil impacts at the Base – A lack of community consultation on Defence's behalf; and – The proposed action's impact to heritage values.
5 October 2022	Preliminary Documentation resubmitted.
3 March 2023	DCCEEW requested additional information in relation to: – Base heritage value implications – Effective management of PFAS – Social impacts – Other minor clarifications on the proposed action. These requests have been carefully considered and are addressed in this PD.
28 July 2023	Consultation with DCCEEW to identify outstanding matters to address. These included: – Managing the heritage impacts resulting from the removal of the Bellman Hangars (Assets 211-214). – PFAS testing and management. Firm commitments that Defence will undertake all PFAS management required as part of the demolition works to be undertaken with the *PFAS National Environmental Management Plan Version 2.0* (NEMP 2.0).

1.2 Preliminary Documentation structure

This PD report is structured as outlined in Table 1.2.

Table 1.2 Preliminary Documentation structure

Section no.	Description
Section 1 – Introduction	Overview of the proposed action and background to this Preliminary Documentation.
Section 2 – Description of the action	Description of the proposed action, including the location, construction and operational requirements, and alternatives to the proposed action.
Section 3 – Approvals and obligations	Identification and discussion of relevant Commonwealth and State approvals/obligations, and the Defence environment and heritage framework.
Section 4 – Existing environment and MNES	Description of the existing environment including Matters of National Environmental Significance.
Section 5 – Impact assessment	Impact assessment, including impacts on MNES, residual impacts and proposed offsets.
Section 6 – Measures to avoid or reduce impacts	Committed measures to be implemented to avoid or reduce impacts to the environment as a result of the proposed action.
Section 7 – Ecologically Sustainable Development	Consideration of the proposed action with regard to Ecologically Sustainable Development principles.
Section 8 – Conclusion	Concluding statements following assessment of the proposed action.
Section 9 – Information sources	List of information sources used in the assessment of the proposed action.
Attachment 1	Summary of heritage assets.
Attachment 2	Summary of responses to requests for information.
Attachment 3	RAAF Base Point Cook Heritage Management Plan (ERM 2018).

Section no.	Description
Attachment 4	RAAF Base Point Cook Proposed Removal of Heritage Assets, Final Heritage Impact Assessment (ERM 2019).
Attachment 5	Heritage Impact Assessment: VT11445 RAAF Williams Point Cook Building Works (Biosis 2019).
Attachment 6	Heritage Buildings PFAS Pre-Construction Contamination Assessment (AECOM 2019).
Attachment 7	90% Detailed Design Report: 12399 RAAF Base Point Cook Heritage Consultancy (Aurecon 2019).
Attachment 8	Framework Construction Environmental Management Plan
Attachment 9	PMST report
Attachment 10	Defence *PFAS Construction and Maintenance Framework* (Defence 2021a)

1.3 Definitions

The definitions outlined in Table 1.3 in are used throughout this report.

Table 1.3 Definitions

Term	Description
The Base	RAAF Base Point Cook.
Action Area	The total area (0.8 ha) required for machinery manoeuvre, laydown, stockpile and storage areas.
Asset/s	Building/s proposed for demolition.
North of the tarmac	Assets located north and west of the runway.
South of the tarmac	Assets south and southwest of the runway.

2. Description of the action

2.1 Location

RAAF Base Point Cook ('the Base') is a 340.97 ha Defence site located approximately 25 km south-west of Melbourne, on the shores of Port Phillip Bay in Victoria (refer to Figure 2.1). The Base is surrounded by public reserves, existing residential areas and agricultural land, including land that is being or will be developed for residential purposes.

The Base is recognised as the oldest military aviation base in Australia, having been in service continually since 1914. It is listed on both the NHL and CHL as a place of exceptional heritage value that contributes to Australia's national identity. Further detail on the NHL and CHL values is provided in Section 4.8 of this report.

The Assets proposed for removal are located across the developed portions of the Base. The total area required for machinery manoeuvre, laydown, stockpile and storage areas is approximately 0.8 ha. This area is defined as the 'Action Area' for the purposes of this report.

The Action Area has been assessed as being of negligible ecological significance (Biosis 2003; AECOM 2012). The areas immediately adjacent to the Assets are highly disturbed and typically consist of pavements, turfed lawns or minor garden beds. No native vegetation is present within the Action Area. Areas of greater ecological significance are located at the Base, including the foreshore of RAAF Lake in the north-east and the open space in the south-west, and nearby to the Base along the shoreline of Port Philip Bay (refer to Figure 2.1). These areas will not be impacted (either directly or indirectly) by the proposed action.

Figure 2.1 RAAF Base Point Cook Locality Plan

2.2 The proposed action

The proposed action is the demolition and removal of 19 buildings at RAAF Base Point Cook. These Assets have been identified as posing significant safety risks to personnel, or as being redundant to both current and foreseeable Australian Defence Force requirements. Assets proposed for demolition have been divided into two assessment areas: north of the tarmac for buildings located north and west of the runway, and south of the tarmac for buildings south and southwest of the runway. An overview of these Assets is provided in Table 2.1 and they are shown in Figure 2.2.

Table 2.1 Assets number, types and building assessment area locations

Asset Number	Building type	Location relative to tarmac	
		North	South
Asset 102	Toilet block		✓
Asset 112	Store		✓
Asset 122	Hazardous store		✓
Asset 125	RAAF Standard Hut	✓	
Asset 132	Mask Training Facility		✓
Asset 155	RAAF Standard Hut	✓	
Asset 156	RAAF Standard Hut	✓	
Asset 158	RAAF Standard Hut	✓	
Asset 190	WWII Hut (RAAF Standard Hut)	✓	
Asset 203	WWII Hut (RAAF Standard Hut)		✓
Asset 211	Bellman Hangar		✓
Asset 212	Bellman Hangar		✓
Asset 213	Bellman Hangar		✓
Asset 214	Bellman Hangar		✓
Asset 218	Toilet block		✓
Asset 221	Store		✓
Asset 228	Trainee Sleeping Quarters College (RAAF Standard Hut)	✓	
Asset 243	RAAF College Classroom Block (RAAF Standard Hut)		✓
Asset 485	Point Cook Flying Club (RAAF Standard Hut).		✓

Figure 2.2 RAAF Base Point Cook Property Layout and Heritage Buildings (AECOM, 2022)

Defence investigated the feasibility of retaining a number of Assets that were not being used across the Base. These investigations considered the heritage values, structural integrity, condition, presence of hazardous materials (including PFAS), and compliance with relevant building codes (including disability access and fire safety). The detailed assessments are provided as attachments to this report (refer to Attachment 6 and Attachment 7). Attachment 1 provides a list of the Assets proposed for removal, along with a summary of the findings from these assessments regarding the suitability of these buildings for alternative use.

Defence is committed to removing Assets safely and in accordance with the current best practice industry standards. The proposed action will generally follow the guidance provided in *Australian Standard 2601-2001: The demolition of structures* to mitigate and reduce risks to the health and safety of Base personnel, the environment, and adjoining land uses.

2.2.1 Person proposing to take the action

The person proposing to take the action is Air Commodore Robert Lawson, Director General History and Heritage Branch, Air Force.

2.3 Construction

The demolition activities would involve a variety of manual and mechanical demolition tasks. Manual demolition techniques will involve the use of hand-held tools such as picks, sledgehammers, jackhammers and the like. Mechanical demolition techniques will involve the use of mechanical plant such as cranes, excavators, frontend loaders, and load-shifting equipment.

All above ground structures will be removed, with concrete, timber footings and asphalt slabs, timber footings and in-ground services left in-situ. Buildings on footings or stumps will be cut off at ground level. The disturbance of soils during this process will be minor, confined to the surface level, and dispersed across multiple individual demolition sites. For the purposes of contamination assessment, it has been assumed that an area of 1.25 m^2 per each of the six building with footings (a total of 7.5 m^2) will be subject to surface disturbance as a result of the demolition works. The total volume of soil disturbance anticipated during construction would be confirmed prior to commencement of works. This minor scale of soil disturbance is considered readily manageable in accordance with standard construction erosion and sediment control measures.

Demolition waste will be categorised into recyclable and non-recyclable waste streams and managed through local supply chains. Hazardous materials (including materials containing asbestos) will be appropriately managed and disposed offsite in accordance with State government requirements.

The proposed action is expected to require approximately 15 months for completion. If approved, it is anticipated the proposed action would commence in Q2 2024 and be undertaken in progressively in stages for the duration of the construction period. Specific timing for individual Asset demolition would be planned in conjunction with the contractor if the proposed action is approved.

Tender documentation will include a draft Defence Environmental Clearance Certificate (ECC) and Construction Environmental Management Plan (CEMP) to provide information for potential contractors include environmental management measures in costings.

The selected contractor(s) will be required to prepare a CEMP, which will be approved by Defence environmental personnel. A framework CEMP has been prepared for the proposed action in accordance with the Department's *Environmental Management Plan Guidelines 2014*, which is provided in Attachment 8.

The CEMP would identify the relevant controls to be implemented which would minimise environmental impacts and include requirements for soil contamination testing, site management, and disposal requirements. The ECC will require the contractor(s) to submit reports including waste docketing, incident reporting, and a post-activity report. For the duration of the proposed action the contractor(s) will be required to operate under the Environmental Management System for RAAF Base Point Cook. Detailed mitigation measures to be incorporated in the framework CEMP are outlined in Section 6 of this report.

2.4 Operational requirements

The proposed action involves the demolition and removal of Assets redundant to Defence purposes at RAAF Base Point Cook. As stated in the referral document, there are no current plans to redevelop the Action Area. As such there is no operational phase associated with the proposed action. All demolition sites will be returned to a 'stable' condition that will not require ongoing maintenance, nor pose safety concerns to personnel or cause damage to Defence infrastructure and equipment.

The proposed action is necessary for the safe and enduring operational conduct of the Base. At RAAF Base Point Cook, Air Force Cadets, 100 Squadron (which flies heritage aircraft), and the Royal Melbourne Institute of Technology Flying School are adversely impacted due to the safety risks from the deteriorated state of some structures included in the proposed action. For example, flying building debris within an operational airfield. The removal of these assets will allow RAAF Base Point Cook to effectively maintain operations to support Australia's national interests.

The proposed action would not require any ongoing maintenance works or monitoring.

2.5 Alternatives

Two HIAs were undertaken by ERM and Biosis, in accordance with Australian International Council on Monuments and Sites (ICOMOS) Charter for Places of Cultural Significance (Burra Charter) principles (ERM 2019; Biosis 2019). The assessments were applied to all Assets to be removed apart from those of nil or intrusive heritage value (Assets 102, 112, 132 and 218).

In compliance with section 341ZC of the EPBC Act, the HIAs investigated prudent and feasible alternatives to asset removal prior to a decision being made. This process was in accordance with the Base Heritage Management Plan (HMP) (ERM 2018) and took into consideration information from stakeholders. The Base HMP is included as Attachment 3. Alternatives considered included mothballing, adaptive reuse or relocation and no action/continuing use.

Full details of the assessment processes are provided in the HIAs (ERM 2019; Biosis 2019) that are included as Attachment 4 and Attachment 5. A summary of the alternatives considered is provided below.

2.5.1 Mothballing

Mothballing is only effective as a short-term option when Assets are stabilised and secured, and future adaptive reuse is possible in the medium-term. Long-term mothballing presents a risk of degraded assets falling further into disrepair, ultimately diminishing National Heritage and Commonwealth Heritage values, and increasing localised safety risks (ERM 2019). There are no identified future uses for the Assets included in this action, and some are not in a stable or secure condition. Therefore, mothballing is not considered a viable alternative to the proposed action.

2.5.2 Adaptive reuse or relocation

Defence has considered options for adaptive reuse or relocation as part of the planning for this action. Relocation of Assets proposed to be demolished were assessed as not being viable options due to the following reasons:

– Due to the current state of disrepair of Assets, the majority of extant fabric would require complete replacement, and relocation would negate any potential benefits of relocation.
– The Assets currently pose an ongoing operational risk to Base users due to structural materials coming loose from the structures frame.
– Extensive cost is associated with remediation/repair, relocation and ongoing maintenance, with no identifiable potential use for the asset post-relocation.

The HIA concluded that relocation would have the same level of impact to MNES and the environment as demolition (ERM 2019).

The structural and safety assessment (Aurecon 2019) contains concept level architectural, structural and building surveyor documentation, in addition to a hazardous materials survey and is included as Attachment 7. The information contained in this assessment confirms that even if an adaptive reuse option was available, the poor physical state of many of the assets included in the proposed action would necessitate major alterations and repair works to maintain fire safety compliance and useability for occupants. While this would retain the heritage values of the precinct, there would still be a heritage impact to the individual buildings through the loss of original fabric. Further, the retention and reuse of such buildings could inhibit future reactivation of some areas of the Base, limiting their ability to become operational and support the ongoing military function of the Base (one of the recognised National Heritage values of the Base). The cost associated with this type of remediation is prohibitive as other assets present on the Base can be utilised for similar purposes without the high refurbishment costs.

2.5.3 No action/continuing use

The remaining alternative of ‘no action’ would retain the assets in-situ and continue the current minimal maintenance regime. In its discussion on alternative actions to demolition, the Biosis (2019) HIA notes that unused assets quickly deteriorate and fall into disrepair, and it becomes difficult to justify any maintenance spending on a building that does not fit a future purpose. Safety risks over the longer term are likely to increase if structural issues are not addressed. Some of the Assets (e.g., the four Bellman Hangars, buildings 211 - 214) are currently causing safety incidents as

parts of the buildings (metal cladding) are regularly blown onto the airfield during high winds. While the ‘no action’ option maintains the buildings in their current form and context, therefore retaining their heritage value, this is not deemed to be a viable option due to the current and future safety risks posed by the condition of the Assets and lack of suitable use.

Based on the consideration of all alternatives, the proposed Assets are determined unsuitable for mothballing, relocation, adaptive reuse or ‘no action’. Further, several Assets are causing serious safety concerns to personnel which cannot be remedied while this referral is ongoing. Demolition is the preferred option for these Assets as a last resort based on the consideration of alternative mitigation options. (ERM 2019, Attachment 4).

3. Approvals and obligations

3.1 Commonwealth

3.1.1 Heritage

On 20 July 2020 notification was provided by DAWE (now DCCEEW) that the proposed action is a controlled action subject to assessment and approval under the EPBC Act. The relevant controlling provisions are:

– National heritage places (section 15B and 15C)

– Commonwealth action (section 28).

A Commonwealth agency must not take an action that has, will have or is likely to have an adverse impact on the National Heritage values of a National Heritage place, or the Commonwealth Heritage values of a Commonwealth Heritage place, unless:

– there is no feasible and prudent alternative to taking the action; and

– all measures that can reasonably be taken to mitigate the impact of the action on those values are taken.

As an owner of a National and Commonwealth Heritage places, Defence is committed to maintaining and managing heritage assets of the Base in accordance with the EPBC Act. The *Defence Estate Heritage Strategy* (2017) outlines Defence's obligations and responsibilities for the management of heritage within the Defence estate.

Defence has contributed to the Commonwealth's heritage agenda by establishing arrangements that give effect to the Government's heritage priorities. Concurrently, the Commonwealth's heritage agenda acknowledges the special needs of the Defence portfolio. The Defence focus is to balance heritage outcomes with economic, capability and operational factors.

In addition, the *Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013* (Burra Charter 2013*)*, the *Australian Natural Heritage Charter* (Australian Heritage Commission 2002a) and *Ask First: A guide to respecting Indigenous heritage places and values* (Australian Heritage Commission 2002b) sets a non-statutory standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians.

The HIAs for the proposed action (ERM 2019; Biosis 2019) were developed for Defence in order to meet the EPBC Act requirements and with consideration of the Burra Charter principles.

To this end, the HIAs assessed prudent and feasible alternatives for the Assets and provide rationale for the preferred approach, taking into consideration the contributing factors identified by Defence (safety and cost).

Summaries of the potential impacts to National Heritage values and Commonwealth Heritage values are provided in Section 5.3 and in Table 7-1 and Table 7-2 respectively of the ERM HIA (2019) included as Attachment 4.

3.2 Defence environment and heritage framework

The Defence Environmental Policy 2016 and Defence Environmental Strategy 2016 – 2036 underpin Defence's operational management requirements, whereby environmental management and maintenance of operational status are integrated as far as practicable.

The key Defence environmental and heritage policy project guidance and requirements are contained in:

– Defence PFAS Construction and Maintenance Framework (Defence 2021a, included as Attachment 10)
– Defence Contamination Management Manual (Defence 2021b)
– Defence Environment and Heritage Manual (Defence 2021c)
– Defence Heritage Toolkit (ND) soon to be replaced by the Defence Heritage Management Manual

– Defence Estate Heritage Strategy (Defence 2017a)
– Defence Pollution Prevention Management Manual (Defence 2017b)
– Defence Asbestos Management Plan, Version 5.0 2021
– Smart Infrastructure Handbook Edition 2, 2019.

These policies apply to Defence personnel as well as consultants or outsourced service providers (under the terms of relevant contracts).

3.3 State

Commonwealth land is exempt from State, Territory and local legislative requirements, and as such no State approvals are anticipated to be required. Defence aims to comply with the intent of State legislation and local government provisions, to the extent that these provisions are not inconsistent with Commonwealth requirements.

All hazardous and waste materials will be managed and disposed of in accordance with State government requirements. Disposal requirements for waste would be identified during the works.

4. Existing environment and MNES

4.1 Physical environment

RAAF Base Point Cook is located approximately 25 km south-west of Melbourne. It is south of the Princes Highway (Geelong Road) on the shores of Port Phillip Bay, Victoria (refer to Figure 2.1 in Section 2.1 of this report). The Base is surrounded by public reserves, residential areas and agricultural land which has recently been subject to significant residential development.

The Base is recognised as the oldest military aviation base in Australia, having been in service continually since 1914. The airfield remains operational for both military and civilian purposes. The airfield is located in the centre of the Base, comprising of two asphalt and one grass runway. Other infrastructure present within RAAF Base Point Cook includes a disused used seaplane jetty, parade and memorial grounds, and buildings such as hangars, offices/administration and maintenance areas which support RAAF activities. Many of the buildings are of historic heritage significance as they feature the earliest and most extensive complex of military aviation buildings in Australia (ERM 2019).

The majority of the Base has been developed and extensively modified. Ecological features and values have been identified, primarily within the east and southern boundaries. The following sections describe the existing environmental features of RAAF Base Point Cook and the potential impacts of the proposed action.

4.2 Protected Matters Search Tool summary

4.2.1 Matters of National Environmental Significance

A Protected Matters Search Tool (PMST) Report was completed with a 10 km buffer around the proposed action area ('the search area'). This report is included in Attachment 9 and summarised in Table 4.1.

A significance of impact assessment has been developed in Section 5.

Table 4.1 Matters of national environmental significance

Matter	PMST result	Relevance to the proposed action area
World Heritage properties	There are no World Heritage properties within the search area.	Not applicable.
National Heritage places	There is one National Heritage place within the search area: – Point Cook Air Base (place ID: 105671).	'Point Cook Air Base' is entered on the NHL as Place ID 105671. RAAF Base Point Cook is recognised as the oldest military aviation base in Australia, having been in service continually since 1914. Aspects of the base which illustrate its long service and origins include the planning and layout of the base prior to WWI, during the inter-war period and during WWI and WWII, as well as individual buildings and suites of buildings (Commonwealth Gazette, 31 October 2007). RAAF Base Point Cook exhibits values across the following NHL criteria: – Criterion a) importance in the course, or pattern, of Australia's natural or cultural history – Criterion b) possession of uncommon, rare or endangered aspects of Australia's natural or cultural history – Criterion d) importance in demonstrating the principal characteristics of a class of Australia's natural or cultural places; or a class of Australia's natural or cultural environments

Matter	PMST result	Relevance to the proposed action area
		– Criterion g) importance in demonstrating a high degree of creative or technical achievement at a particular period – Criterion h) special association with the life or works of a person, or group of persons, of importance in Australia's natural and cultural history. Mitigation measures have been identified that are likely to reduce the level of impact to National Heritage values by the proposed action. These are further detailed in Section 6.
Wetlands of international importance	There is one wetland of international importance located within the search area: – Port Philip Bay (western shoreline) and Bellarine peninsula	Cheetham wetland is located approximately 3 kilometres east of the proposed action and is one of six areas that form the Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar site. The Action Area is not located within the catchment of Cheetham wetland and will reduce the extent of urban development at the Base. In recent decades, urban development has grown to such an extent that residential housing now physically separates RAAF Base Point Cook from the wetlands. The Management Plan (Department of Environment, Land, Water and Planning 2018) notes concerns about the continued urban expansion towards the boundary of the Ramsar site. Demolition works will include environmental controls such as erosion and sediment management, and waste and hazardous substances management to reduce offsite impacts.
Great Barrier Reef Marine Park	The Great Barrier Reef Marine Park is not located within the search area.	Not applicable.
Commonwealth marine area	There are no Commonwealth marine areas located within the search area.	Not applicable.
Listed Threatened Ecological Communities (TECs)	There are 6 TECs located within the search area: – Grassy Eucalypt Woodland of the Victorian Volcanic Plain (Critically Endangered, known to occur) – Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered, may occur) – Natural Damp Grassland of the Victorian Coastal Plains (Critically Endangered, may occur) – Natural Temperate Grassland of the Victorian Volcanic Plain (Critically Endangered, likely to occur) – Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (Critically Endangered, likely to occur) – Subtropical and Temperate Coastal Saltmarsh (Vulnerable, likely to occur).	The Action Area comprises of a developed and highly modified area of the Base, consisting of buildings, pavements, maintained lawn and garden beds. The Biodiversity Monitoring Plan for the Base did not identify any TECs present within the north-west or southern portions of the Base where the proposed action will be undertaken (AECOM, 2012). More recent ecology surveys for the Base have also not identified any TECs present (EMM 2021).

Matter	PMST result	Relevance to the proposed action area
Listed threatened species	81 EPBC Act listed threatened species may occur within the search area, comprising of: – 42 birds – 5 fish – 1 frog – 1 insect – 5 mammals – 7 reptiles – 2 sharks – 18 plants.	The area in which the proposed action will take place has been highly modified by past activities and consists of buildings, pavements, turfed lawn and minor garden beds. The Biodiversity Monitoring Plan for the Base did not identify any biodiversity values or conservation areas present within the north-west or southern portions of the Base where the Action Area will be undertaken (AECOM 2012). Previous surveys have identified terrestrial fauna species being present within the Base, the majority of these comprising of birds. No threatened amphibians, mammals or reptiles have previously been recorded (AECOM 2012). Where fauna species have been identified during previous surveys, these have been within the southern boundary adjacent to Port Philip Bay, and to the east associated with the wetland (AECOM 2021, EMM 2021). The proposed action is located within the developed and modified area of the Base which has minimal potential habitat features present and has been subject to previous disturbance.
Migratory species	65 listed migratory species may occur within the search area, comprising of: – 56 marine/wetland birds – 4 marine mammals – 3 turtles – 2 sharks.	The nearest habitat for EPBC Act listed migratory species is the Cheetham wetland located approximately 3 kilometres east of the proposed action. The proposed works are not located within the catchment of Cheetham wetland. The Management Plan for the Ramsar site (DELWP 2018) notes concerns about the continued expansion of the suburb of Point Cook and the Sanctuary Lakes Estate towards the boundary of the Ramsar site. In recent decades, urban development has grown to such an extent that residential housing now physically separates the RAAF Base from the wetlands. Migratory species could potentially be impacted by noise during demolition activities. However due to the minor scale and short duration of the proposed action, and separation of the proposed action from key habitat areas, it is not likely the proposed action will result in a significant impact on an EPBC Act listed migratory species.
Nuclear actions	The proposed action does not include a nuclear action.	Not applicable.
A water resource (in relation to coal seam gas and large coal mining developments)	The proposed action does not include coal seam gas development or large coal mining development.	Not applicable.

4.2.2 Other EPBC Act matters

A summary of other matters listed in the EPBC Act PMST report is included in Table 4.2.

Table 4.2 Other EPBC Act matters

Matter	PMST result	Relevance to proposed action
Commonwealth Land	There are 93 Commonwealth lands within the search area.	The proposed action is located on Commonwealth land (RAAF Base Point Cook).
Commonwealth Heritage places	There are 5 Commonwealth heritage places located within the search area. Three of these places are located within the Base, comprising of: – Point Cook Air Base – Point Cook Air Base – College & Training Area – Point Cook Air Base – Museum & Heritage Precincts Two Commonwealth heritage places are located outside of the Base boundary, comprising of: – Officers Mess – RAAF Williams Laverton Base – RAAF Williams Laverton – Eastern Hangars and West Workshops Precincts.	RAAF Base Point Cook also exhibits values across CHL criteria similar to the NHL criteria listed above (i.e., Criteria a, b, d, g and h), noting that CHL thresholds refer to 'significant' heritage value while the NHL thresholds refer to 'outstanding' heritage value. Full copies of the NHL and CHL citations for RAAF Base Point Cook are contained in Appendix A of the ERM HIA. For the purposes of this assessment, CHL and NHL values are assumed to be the same for those assets cited under both listings.
Listed marine species	There are 78 listed marine species within the search area, comprising of: – 73 birds – 2 mammals – 3 reptiles.	Not applicable. The proposed action would not be undertaken within the marine environment.
Whales and other cetaceans	There are 7 whales and other cetaceans within the search area.	Not applicable. The proposed action would not be undertaken within the marine environment.
Critical Habitat	No Critical Habitat was identified within the search area.	Not applicable.
Commonwealth Reserves Terrestrial	No Commonwealth Reserves Terrestrial were identified within the search area.	Not applicable.

A description of the existing environmental values and constraints present at RAAF Base Point Cook as relevant to the proposed action are described in the following sections.

4.3 Landscapes and soils

The proposed action is located within a developed, flat-lying area. Topography is gently undulating with surface elevations ranging from 1.5 m Australian height datum (AHD) to 2.5 m AHD, which is commonly associated with natural coastal sand dunes environments (EMM 2021). The 19 Assets proposed for demolition are underlain by various Quaternary and Tertiary aged geologic units generally associated with the coastal and inland dune system found along the Port Philip Bay margin (AECOM 2022).

Previous surveys have identified soils have been heavily disturbed within the developed areas of the Base where the proposed action is located. Soil disturbance has been due to development of the Base including building works, landscaping and underground service installations (EMM 2021). Contamination such as PFAS has been identified within the Base. Site investigations have been undertaken in support of the proposed action. A summary of the contamination investigations is provided in Section 4.64.6 and these are included as Attachment 6.

4.4 Hydrology

4.4.1 Surface water

Port Phillip Bay forms the southern boundary of the Base and is the nearest receptor of surface water to assets located within the southern tarmac. Within the eastern portion of the Base is RAAF Lake, located approximately 1 km east of the proposed action.

There are no surface water sources located within the Action Area.

4.4.2 Groundwater

Groundwater is inferred to flow in a south-easterly direction towards Port Philip Bay. Site investigations undertaken at the Base indicate groundwater is present at a depth of approximately 1 to 1.5 m below ground surface (AECOM, 2022). The proposed action does not involve any excavation activities which have the potential to intersect with groundwater within the Base.

4.5 Flora and fauna

4.5.1 Plants

The Base has a total area of 338.4 ha, and of this, 256 ha has been mapped as bare ground. Previous field surveys have identified 184 flora species within the Base. Previous field surveys have not identified any EPBC Act listed threatened flora species but have identified two State conservation significant species: Salt Lawrencia (*Lawrencia Spicata*) and Slender Birdweed (*Convolvulus angustissimus*) within the western portion of the Base and RAAF Lake in the east (AECOM 2012; EMM 2021).

Three ecological vegetation classes (EVC) listed under State legislation have been mapped within the Base, associated with the southern boundary, southwestern corner and surrounding RAAF Lake. EVC 311 – Berm grassy shrubland is located directly adjacent of the Bases southern boundary, about 40 m south of the Southern Tarmac where the proposed action is located (nearest being Asset 218). The EVC is buffered by an area mapped as 'modified treeless vegetation' which also has a vegetation rating of low/low-medium. Modified treeless vegetation are areas with native vegetation cover with low species diversity as a result of significant disturbance (AECOM 2021). Assets 112 and 132 located within the south-western corner of the Base are adjacent to vegetation mapped as EVC 311 – Berm grassy shrubland. Assets proposed for demolition located within the more developed and modified Northern Tarmac area of the Base. EVC 132/63 Plains grassland is mapped to the west and south of this area (EMM 2021). No mapped vegetation types or threatened flora species are located within the proposed action footprint.

The Base is widely infested with weed species. Sixteen weed species have been identified within the Base, six of which are Weeds of National Significance (WONS). The dominant weed species present are African Boxthorn (*Lycium ferocissimum*), Chilean Needle-grass *(Nassella neesiana*) and Serrated Tussock-grass (*Nassella trichotoma*), all three are WONS (AECOM 2012).

4.5.2 Animals

Previous field surveys have identified terrestrial fauna species within the Base. The Biodiversity Monitoring Plan identified 123 terrestrial fauna species during field surveys, comprising of six mammals, 104 birds, five reptiles, two frogs and six butterflies. Of these, 57 species are listed under the EPBC Act, comprising of migratory/marine species (AECOM 2012). More recent fauna surveys undertaken did not identify any threatened species listed under the EPBC Act. One State listed species, the Hardhead duck (*Aythya australis*), was identified (EMM 2021).

Migratory bird species listed under the EPBC Act are known to occur within the Base, utilising the wetland areas and RAAF Lake areas. Other listed species previously identified within the Base have been sighted within the eastern and southern boundaries, all of which are bird species and highly mobile. No EPBC Act listed threatened fauna species have been previously sighted within the proposed action areas of the Base (AECOM 2012, EMM 2021).

4.6 Pollutants, chemicals and toxic substances

4.6.1 Contamination

Stage 1 Preliminary Site Investigations and Stage 2 Detailed Site Investigations have been undertaken at RAAF Base Point Cook to assess potential sources of contamination and the risks to human and ecological receptors (Jacobs 2020, Senversa 2020). Contamination from metals, inorganic compounds, VOCs, SVOCs, PFAS and asbestos has been identified at the Base within soils which range from low to moderate risk for exposure to human and ecological receptors. Recent contamination studies undertaken within the Action Areas recorded no contaminants of concern detected above relevant criteria (EMM 2021).

A hazardous materials assessment was undertaken for Assets proposed for demolition. Hazardous materials were identified for Assets including asbestos containing materials (non-friable and friable), synthetic mineral fibres, PCBs and lead based paint. Additionally, some Assets have non-friable asbestos within fibre cement sheets present on ground surfaces externally. The hazardous materials assessment is included in Attachment 7.

The proposed action would not involve excavation works; however, the proposed demolition works do have the potential to cause contamination, and an assessment of these impacts is provided in Section 5.4. The proposed mitigation measures are outlined in Section 6.

4.6.2 PFAS assessment

RAAF Base Point Cook has recorded PFAS contamination due to historical fire training activities. A PFAS pre-construction contamination assessment has been undertaken which is provided in Attachment 6 and summarised below.

Of significance to PFAS contamination, the proposed action scope includes the removal of above-ground structures only, leaving concrete slabs, timber footings and asphalt ground coverings in place. Previous PFAS assessments for the Base have recorded low levels of PFAS in soils, including at the proposed action locations. Normal operations involving PFAS in the Fire Fighting Vehicles at RAAF Base Point Cook ceased in 1992. The Old Fire Ground was used by the RAAF Fire Training Centre until 1993 and is still the site of five medium-very high risk Contaminated Site Records (CSRs) related to PFAS contamination (AECOM 2020). These CSR locations are located in the eastern area of the Base (Figure 4.1) and therefore will not be interacted with during the proposed action.

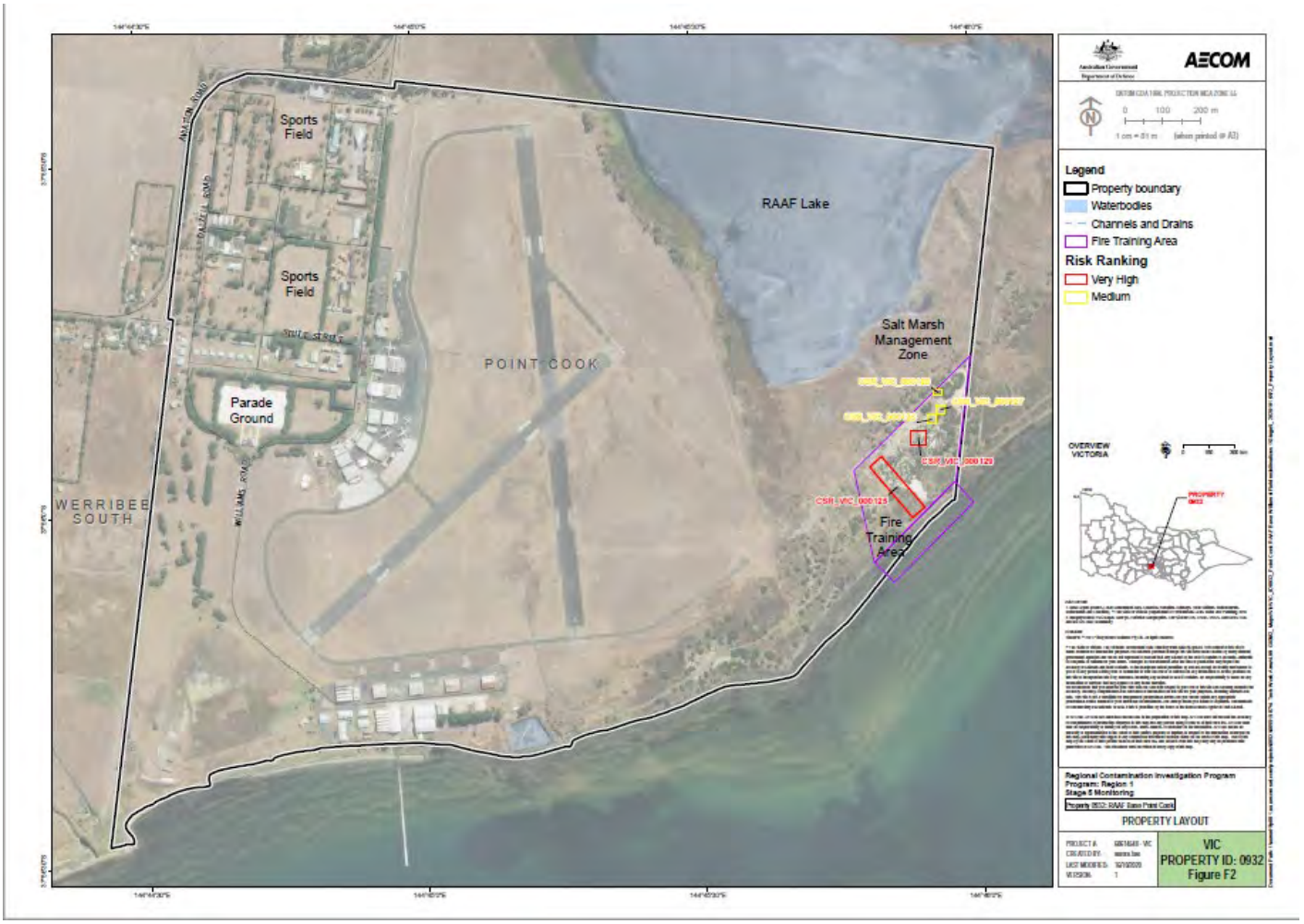

Figure 4.1 Old Fire Training Area CSR locations (source: AECOM 2020)

Soil samples were taken from unsealed ground adjacent to each building proposed for demolition. These samples were analysed for the presence of PFAS and assessed against the human health, ecological direct exposure, and ecological indirect exposure criteria in accordance with a Tier 1 soil assessment. Table 4.3 provides a summary of the assessment results regarding potential risk of increased PFAS exposure as a result of the proposed action.

Table 4.3 PFAS soil assessment results

Exposure scenario	Assets with concrete slabs/asphalt ground covering (Asset 102, 122, 190, 211, 212, 213, 214, 218, 221, 485)	Assets with timber footings (Asset 112, 132, 125, 228, 155, 156, 158, 203, 243, 485),
Human health direct exposure	**Low potential** Concentrations of PFAS reported below Tier 1 direct human health criteria. Proposed action is not likely to increase PFAS-related risk to human health from direct soil contact.	**Low potential** Concentrations of PFAS reported below Tier 1 direct human health criteria. Proposed action is not likely to increase PFAS-related risk to human health from direct soil contact.
Direct ecological exposure	**Low potential** Concentrations of PFAS reported below Tier 1 direct ecological exposure criteria. Proposed action is not likely to increase PFAS-related risk to ecology from direct soil contact.	**Low potential** Concentrations of PFAS reported below Tier 1 direct ecological exposure criteria. Proposed action is not likely to increase PFAS-related risk to ecology from direct soil contact.

Exposure scenario	Assets with concrete slabs/asphalt ground covering (Asset 102, 122, 190, 211, 212, 213, 214, 218, 221, 485)	Assets with timber footings (Asset 112, 132, 125, 228, 155, 156, 158, 203, 243, 485),
Indirect ecological exposure	**Low potential** Following demolition, concrete slabs and asphalt ground coverings are planned to remain in situ. No new complete exposure pathways would occur as a result of the proposed action (i.e. fauna will not be able to forage in a new exposed area of PFAS impacted soil). The proposed action is not likely to increase PFAS related ecological risk at these building locations as the exposure scenario remains unchanged.	**Low potential** Demolition of buildings on timber footings will likely lead to small areas of exposed soils, which may change the foraging area post-demolition. The proposed action is not likely to increase PFAS related ecological risk at these building locations as: – Limited habitat availability in the immediate vicinity and buildings are not likely to be within home ranges for potential fauna species present. – PFAS soil concentrations were only marginally above Tier 1 indirect ecological exposure criteria. – Accessible soil would increase from <0.001 to 0.4% which is a negligible increase. – Proposed demolition includes the removal of above-ground structures only, leaving concrete slabs, timber footings and asphalt ground coverings in place.

While Defence acknowledges the low risk of the proposed action increasing risk of PFAS contamination to the environment as identified by AECOM (2022), it is acknowledged that PFAS has been detected in the soils of the Action Area and wider Base area. Mitigation and management measures from the *Defence PFAS Construction and Maintenance Framework* (Defence 2021a) (included as Attachment 10), will apply to the proposed action. This policy provides guidance that is consistent with the NEMP 2.0. Proposed mitigation measures are outlined in Section 6 and incorporated into the CEMP framework (Attachment 8).

4.7 People and communities

RAAF Base Point Cook is where the Australian Flying Corps and Royal Australian Air Force was established. While flying training ceases in the early 1990s, the airfield remains operational for Defence operations and some authorised civilian aircraft. The Base features the oldest and most extensive military aviation buildings and features the RAAF Museum which is open to the general public.

Land to the west and north-west of the Base is primarily used for farming or low density residential housing. Urban development has resulted in the rezoning of land proposed for greater urban use and housing development (EMM 2021).

Economic and social drivers were a key consideration in the assessment of options for the proposed action. Assets chosen for removal were assessed as beyond structural repair or economic viability with regard to future use options. This was balanced with heritage value considerations and safety concerns, especially the risk that degraded assets pose to aviation operations (e.g., cladding coming off in high winds).

The proposed interpretation strategy and archival recording provide opportunities to further enhance the social value of RAAF Base Point Cook as an operational heritage base, allowing the sharing of a significant amount of information on the Base heritage values with a broader audience, both now and in the longer term.

The completion of the proposed action will generate an estimated $6.6 million in work within the local area and Victoria. A breakdown of this estimate is provided within Table 2-1 of the HIA (ERM 2019) included as Attachment 4.

4.8 Heritage

Historic and Indigenous heritage values have been identified within the Base. The HMP (ERM 2018) demonstrates Defence's commitment to the responsible maintenance and use of RAAF Base Point Cook. The operational

requirements of the Base will continue to be balanced with the protection and conservation of nationally significant heritage values. The HMP provides guidance at a strategic, whole of site planning level, as well as more detailed guidance for individual Precincts and assets. The guidance provided in the HMP addresses both Commonwealth Heritage and National Heritage values of RAAF Base Point Cook.

The HMP is intended to assist Base personnel, site managers, planners and contractors at both the national and site level to protect, manage and promote these heritage values, informed by physical and historical assessment. The HMP was written in accordance with the National Heritage Management Principles set out in the Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations). It was also guided by the requirements for a Management Plan for a National Heritage Place set out in the EPBC Regulations.

The following sections provide a summary of heritage values present within the Base.

4.8.1 Natural heritage

No natural heritage values are identified within the Base.

4.8.2 Indigenous heritage

One Indigenous heritage site is recorded within the Base, located near the eastern boundary within sand dunes. Additional surveys undertaken during preparation of the Base HMP identified additional 14 stone artefacts, three isolated artefacts around RAAF Lake and two artefacts along the southern boundary near the jetty.

Areas of low archaeological potential are mapped along the southern boundary of the Base, and an area of high archaeological potential is mapped in the south-eastern corner of the Base (EMM 2021). Assets within the Southern Tarmac included in the proposed action are located outside the any areas of archaeological potential.

Preparation of the RAAF Base Point Cook HMP (ERM 2018) included consultation with the Wurundjeri Tribe Land and Compensation Cultural Heritage Council; the Bunurong Land Council Aboriginal Corporation; and the Boon Wurrung Foundation which included on-country surveys and review and input into reporting.

4.8.3 Historic heritage

RAAF Base Point Cook is recognised as the oldest military aviation base in Australia with significant historical heritage values present. Most of the historic heritage of RAAF Base Point Cook can be grouped into nine precincts that represent different uses of the Base over time (ERM 2019). Precincts the Assets proposed for removal, heritage ranking, and relevant HIA reference are outlined in Table 4.4. Detailed mapping for each of these precincts, including the Assets to be removed is provided in Attachment 4 and Attachment 5.

Table 4.4 Asset precinct location and heritage ranking

Asset ID	Asset name	Heritage importance ranking	HIA reference
South Tarmac Precinct			
102	Toilet block	Intrusive	Not applicable
112	Store	None	Not applicable
122	Hazardous store	Cited in listing (NHL only)	Section 7.3.3 and 7.7.2.5 (ERM 2019) Table 7-10 (ERM 2019) Section 12 (Aurecon 2019)
132	Masks Training Facility	None	Not applicable
203	WWII Hut (RAAF Standard Hut)	Cited in listing (NHL and CHL)	Section 7.3.5 and 7.7.2.2 (ERM 2019) Table 7-7 (ERM 2019) Section 18 (Aurecon 2019)
211	Bellman Hangar	Cited in listing (NHL and CHL)	Section 7.3.1 and 7.7.2.1 (ERM 2019) Table 7-6 (ERM 2019) Section 5 (Aurecon 2019)
212			
213			
214			
218	Toilet block	None	Not applicable
221	Store	Moderate	Section 7.3.2 and 7.7.2.6 (ERM 2019) Table 7-11 (ERM 2019) Section 21 (Aurecon 2019)
243	RAAF College Classroom Block (RAAF Standard Hut)	Cited in listing (NHL and CHL)	Section 7.3.5 and 7.7.2.2 (ERM 2019) Table 7-7 (ERM 2019) Section 23 (Aurecon 2019)
485	Point Cook Flying Club (RAAF Standard Hut)	Cited in listing (NHL and CHL)	Section 7.3.5 and 7.7.2.2 (ERM 2019) Table 7-7 (ERM 2019) Section 24 (Aurecon 2019)
Merz Road WWII Huts Precinct			
190	WWII Hut (RAAF Standard Hut)	Cited in listing (NHL and CHL)	Section 6.1.15 (Biosis 2019)
228	Trainee Sleeping Quarters College (RAAF Standard Hut)	Cited in listing (NHL and CHL)	Section 7.4.1 and 7.7.3 (ERM 2019) Table 7-13 (ERM 2019) Section 22 (Aurecon 2019)
Outside of precincts			
125	RAAF Standard Hut	Moderate	Section 7.5.1 and 7.7.4 (ERM 2019) Table 7-15 (ERM 2019) Sections 13, 15, 16 and 17 (Aurecon 2019)
155	RAAF Standard Hut	Cited in listing (NHL and CHL)	
156			
158			

The Bellman Hangars (Assets 211 to 214) are of significance in the context of the development of the Base in response to WWII and its functional use as military airfield. Their contribution to heritage value of the Base is effectively limited by the presence of other pre- WWI and WWII buildings in the South Tarmac Precinct and the presence of other Bellman Hangars in the North Tarmac Precinct. While the Bellman Hangars reflect representative NH and CH values and are specifically noted as attributes under Criterion b) and d) of the NHL, they only contribute to the overall significance of the South Tarmac Precinct in a moderate way (ERM 2019, Attachment 4).

As noted in a letter from Defence to DCCEEW dated 9 August 2023, the Bellman Hangars currently pose a serious risk to Defence personnel and Defence capability. Large pieces of corroded, sharp metal cladding are routinely found on the southern tarmac of the Point Cook Aerodrome, including across the taxiway and runways. This debris has the potential to impact and damage aircraft during taxiing, take-off or landing. Defence has a duty of care under the *Work Health and Safety Act 2011* to secure the safety of workers and workplaces. Defence views appropriate management of safety concerns at the site as critical and remediation urgent.

The RAAF Standard Huts (Assets 203, 243, 485, 190, 228, 125, 155, 156, and 158) are of heritage value as the building type contributes to the appreciation and interpretation of the WWII expansion, and wartime requirements and planning principles. These huts are located throughout the Base, and only form a discrete group in the Merz Road WWII Huts Precinct.

Asset 122 is of heritage value as an example of historic hazardous/inflammable armament storage. Similar historic armament buildings across RAAF estates have been demolished for upgraded facilities which comply with modern weaponry and safety standards, such as a hazardous/inflammable store building within RAAF Base Darwin. Asset 221 is common utilitarian warehouse type with sawtooth roofing and clad in flat and corrugated asbestos cement sheeting. Both Asset 122 and 221 are both specifically noted as attributes under Criterion d) of the NHL.

Consultation regarding the historic heritage values of the Base occurred with Defence stakeholders including No. 21 (City of Melbourne) Squadron during the site inspection, as well as with staff from the RAAF Museum Point Cook.

5. Impact assessment

5.1 Overview

Investigations undertaken at the Base used to inform the referral process and identify environmental values present are as follows:

- AECOM 2012, Biodiversity Monitoring Plan – RAAF Williams Point Cook. Unpublished report for Defence.
- AECOM 2022. Heritage Buildings PFAS Pre-Construction Contamination Assessment: 0932 RAAF Base Point Cook (Final). Unpublished report for Defence, included as Attachment 6.
- Aurecon 2019, 90% Detailed Design Report: 12399 RAAF Base Point Cook Heritage Consultancy. Unpublished report for Defence, included as Attachment 7.
- Biosis 2019, Heritage Impact Assessment: VT11445 RAAF Williams Point Cook Building Works. Unpublished report for Defence, included as Attachment 5.
- EMM 2021, Environmental Report. Unpublished report for Defence.
- ERM 2018, RAAF Base Point Cook Heritage Management Plan (Final Draft). Unpublished report for Defence.
- ERM 2019, RAAF Base Point Cook Proposed Removal of Heritage Assets, Final Heritage Impact Assessment. Unpublished report for Defence, included as Attachment 4.
- Jacobs 2020, RAAF Point Cook Preliminary Stage 1 and Detailed Stage 2 Site Investigation.
- Prensa Pty Ltd 2018, Hazardous Building Materials Assessment for Aurecon Project Number: 12399 RAAF Williams Point Cook, included as Attachment 7.

The documents referenced above have been prepared by suitably qualified professionals. The documents provide an understanding of the environmental attributes likely to be impacted as a result of the proposed action.

Following desktop assessment and site investigations the following environmental matters were identified as significant to the proposed action:

- Heritage (historic)
- Contaminated soils/hazardous wastes.

The following sections provide a detailed description of the potential impacts.

5.2 MNES

Potential impacts to MNES as a result of the proposed action are outlined in Table 5.1. No short or long term impacts are anticipated for MNES except for National Heritage places and Commonwealth Heritage places.

Table 5.1 MNES impact assessment

MNES	Analysis
World Heritage properties	The PMST results indicate there are no World Heritage properties within the search area. No impacts to World Heritage properties are anticipated as a result of the proposed action.
National Heritage places	Point Cook Air Base is listed as a National Heritage place (place ID 105671) for its historic heritage values. The proposed action involves the demolition of 19 buildings, 15 of which are identified as contributing to the heritage values of the Base. Two HIAs have been prepared in support of the proposed action (ERM 2019, Biosis 2019 – refer to Attachment 4 and Attachment 5) to assess the potential impacts to historic heritage values and National Heritage values. Detailed discussion on impacts to heritage values as a result of the proposed action are outlined in Section 5.3.

MNES	Analysis
Wetlands of international importance (Ramsar)	One wetland of international importance, Port Philip Bay (western shoreline) and bellarine peninsula, is located within the Base, approximately 3 km east of the proposed action. The proposed action is not located within the wetland catchment. Due to the location, minor scale and short duration of the proposed action, it is not likely to result in a significant impact on the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. However, as the proposed action involved demolition and within an area of PFAS presence, environmental controls will be implemented for erosion and sediment, and waste and contamination management. Proposed mitigation measures are outlined in Section 6 and a CEMP framework (Attachment 8).
Great Barrier Reef Marine Park	The Great Barrier Reef Marine Park is not located within the search area. No impacts to the Great Barrier Reef Marine Park are anticipated as a result of the proposed action.
Commonwealth marine area	There are no Commonwealth marine areas located within the search area. No impacts to Commonwealth marine areas are anticipated as a result of the proposed action.
Listed Threatened Ecological Communities (TECs)	The proposed action is located in a developed area absent from native vegetation. Mapping indicates the proposed action is not located within an area where biodiversity values are present, additionally no TECs have been identified within the Base (AECOM, 2012). The proposed action is not anticipated to have any impacts to TECs.
Listed threatened species	Threatened flora and fauna species are present within the Base, as described in Section 4.2 and 4.5. The proposed action is located within an area where no biodiversity values are present. Conservation areas of significance and native vegetation are located within the eastern and southern portions of the Base (AECOM 2012). The proposed action is located within a developed and highly modified area consisting primarily of buildings, exotic grass species and planted garden beds. The proposed action involves the demolition of 19 buildings which do not comprise as suitable habitat for threatened fauna species. Inspections of the buildings indicated some have birds and/or bats utilising the roof spaces, however the species and listing status is unknown (Aurecon 2019, Attachment 7). The PMST results do not identify any threatened bat species as potentially occurring or being known to occur within the Base (Attachment 9). Threatened bird species would be unlikely to utilise the buildings as habitat, and due to their mobility removal of the 19 buildings would not be likely to result in a significant impact. As there is potential for threatened bird species to utilise the buildings, pre-clearance survey mitigation measures are proposed (refer to Section 6).
Migratory species	The proposed action involves the demolition of 19 Assets which are not important habitat for migratory species The nearest habitat for listed migratory species is the Cheetham wetland located approximately 3 kilometres east of the proposed action. The proposed works are not located within the catchment of Cheetham wetland. Migratory species could potentially be impacted by noise during demolition activities. However due to the minor scale and short duration of the proposed action, and separation of the proposed action from key habitat areas, it is not likely the proposed action will result in a significant impact on an EPBC Act listed migratory species.
Nuclear actions	The proposed action does not include a nuclear action and as such no impacts are anticipated.
A water resource (in relation to coal seam gas and large coal mining developments)	The proposed action does not include coal seam gas development or large coal mining development and as such no impacts are anticipated.

5.3 Heritage

5.3.1 Heritage Impact Assessments

The HIAs (ERM 2019, Biosis 2019) were prepared in accordance with Burra Charter principles, including:

– Place of cultural heritage significance should be conserved (Article 2.1)
– Places should be safeguarded to avoid being left in a vulnerable state (Article 2.4)
– Compatible uses for heritage places should be sought (Article 7.2)
– An understanding of the relationship between the place and its physical location and setting should be recognised in its management (Articles 8 and 9)
– The level of significance of a place should guide decisions around it (Articles 5, 6 and 15- 17).

The heritage impact summary from the ERM HIA (Section 8.1.1, ERM 2019) is as follows:

– The proposed action will not cause one or more of the historic NHL values of RAAF Base Point Cook to be lost given the contributory nature of the elements proposed for removal or relocation.
– The cumulative impact of loss on the broader NHL environment is diluted somewhat by the fact that the buildings under assessment form part of a larger collection of WWII buildings that demonstrate values at Base-wide level. However, the demolition of 15 WWII-associated built assets, including nine assets in the South Tarmac Precinct is:
    - Likely to degrade or damage one or more National Heritage values.
    - Will 'notably alter, modify and obscure and diminish' National Heritage values, as associated with WWII development history of RAAF Base Point Cook, particularly in the South Tarmac Precinct.
    - Will 'permanently destroy, remove and substantially alter' the fabric of a Commonwealth Heritage Place.
    - Is likely to have a significant impact on historic heritage values of the Place, via the impact to the South Tarmac Precinct in particular, however mitigation measures have been identified that are likely to reduce the level of impact to NHL and CHL values by the proposed action.

Three Assets have been identified as having no heritage value (112, 132 and 218); and one Asset as intrusive in the historic landscape (102). The removal of these Assets presents no impact to the NHL and CHL values of RAAF Base Point Cook as a whole.

The impact of the removal of the RAAF Standard Huts and Bellman Hangars is minimised by the fact that the Assets to be removed represent only a portion of a much larger collection of WWII-period buildings currently present within the Base, and other RAAF Bases across the Defence estate. A robust collection of RAAF Standard Huts and Bellman Hangers in largely better condition than the Assets for demolition have been conserved at the Base, specifically within the North Tarmac Precinct.

It is acknowledged that heritage places owned, managed and operated by Defence have unique operational pressures which often overlap with identified heritage values. It is also acknowledged that ongoing and/or revitalised use of a heritage place can often present better Whole of Life outcomes than simply mothballing buildings. Further, while cost should not be considered an impediment to conservation of significant heritage assets, it is important to consider the extent of heritage assets at RAAF Base Point Cook, including those assets that will require future expenditure. Given the condition of many of these Assets, it may represent better value for money to demolish in some instances in order to facilitate the retention of other Assets, if it means retaining and conserving NHL and CHL values on balance.

5.3.2 Social

The National Heritage values of the Base identified against 'criterion G - social value' are associated with the Base being the birthplace of the RAAF and having a long, continuous history as an operating air base. The Base has been identified for its cultural and social history.

The Assets under assessment form part of a larger collection of assets that demonstrate significant heritage values at a Base-wide level. As such, it is not expected that the proposed action will affect the social significance or value the Base holds. Defence has consulted with Base staff, including the head of RAAF Heritage and Estate Centres as part of the proposed action. No concerns regarding potential impacts associated with the proposed action were raised.

The proposed works are necessary to retain the operational functionality of the Base. Without these types of carefully considered actions, Defence risks the long-term operational viability of the Base as whole, with its attendant implications for Defence capability.

The RAAF Museum Point Cook maintains significant heritage value. To support this significant heritage value, Defence intends to archive the heritage features prior to demolition, which is further discussed in Section 5.3.4. Archival mitigation measures for heritage Assets are outlined in Section 6. The social benefits of an effective archival recording will allow future generations to understand the history and contribution of the Base to Australia's national defence and support of its wartime allies.

If approved, following commencement of the proposed action a targeted interpretation strategy and plan is to be completed within 2 years and will focus on the subject Assets nominated for removal and tell the story of the WWII phase of RAAF Base Point Cook which includes Assets 203, 210, 211-214 and 221 location in the South Tarmac Precinct, and Assets 125, 155, 156, 158, 190 and 228. The interpretation strategy will provide guidance and planning tools to ensure the stories of those Assets are later presented on-site in a tangible, compelling and practical manner.

Given the above and the implementation of mitigation measures detailed in Section 6, Defence considers the potential impacts to social values of RAAF Base Point Cook as a result of the proposed action have been considered and will be mitigated appropriately.

5.3.3 Buildings and layout

Heritage impacts on individual Assets and the precincts they are located within are outlined in Table 5.2 below. Section 7.7 of the HIA (ERM 2019) outlines the potential impacts on heritage significance in relation to Asset layout and precinct impacts (refer to Attachment 4).

There is potential for cumulative impacts to heritage values given the impact on the layout of the Southern Tarmac Precinct in addition to the removal of individual buildings. However, the continuing use of RAAF Museum Point Cook within the Base, and the implementation of management and mitigation measures as part of the proposed action, will ensure the loss of heritage value of the Base as a whole is significantly negated. Also, of significance to heritage preservation and the layout of the location, the RAAF Museum Point Cook is partially housed in Bellman Hangars, which will continue to represent these heritage values within the Base despite proposed removal of the Southern Tarmac Assets.

Table 5.2 Heritage impacts to Assets and Precincts

Asset ID	Asset name	Impact on heritage values (NH and/or CH)	Nature of impact
South Tarmac Precinct			
102	Toilet block	Intrusive	Not applicable
112	Store	None	Not applicable
122	Hazardous store	The loss of Asset 122 would diminish the ability to interpret the principal characteristics of the NHL-cited group of buildings in terms of their contribution to WWII development and planning sequencing in the Precinct (and Base values more broadly).	The loss of Asset 122 would be an adverse, permanent and direct impact to the building, as well as indirect impact to the Precinct.
211	Bellman Hangar	The loss of Assets 211-214 would represent the loss of an uncommon building type within a group and diminish the uniqueness of 'an unusually large number of Bellman Hangars'. It would also diminish the ability to understand the WWII development of the South Tarmac Precinct.	The proposed action would represent adverse, direct and permanent impacts to the hangars through their loss and would also represent an indirect impact to the Base overall as Assets 211- 214 are contributory to this value.
212			
213			
214			
221	Store	The loss of Asset 221 would diminish the ability to interpret the understanding of the WWII development phase, including function and use of the airstrip side of the South Tarmac Precinct.	The loss of Asset 221 would be an adverse, permanent and direct impact to the building fabric. This would also represent an indirect impact to the Precinct as the building forms part of the larger collection of WWII buildings in the South

			Tarmac Precinct that demonstrate this value (Criterion d) more broadly.
203	WWII Hut (RAAF Standard Hut)	The loss of Assets 203, 243 and 485 would diminish the contribution that this building type makes to the ability to appreciate and interpret the WWII wartime year build up and the characteristics of the base in illustrating WWII planning and development.	The loss of these assets would represent adverse, permanent and irreversible impacts to building fabric through demolition and would also represent an indirect impact to the Base overall as the remaining RAAF Standard Huts are supporting buildings which contribute to the NHL and CHL values of the Base.
243	RAAF College Classroom Block (RAAF Standard Hut)		
485	Point Cook Flying Club (RAAF Standard Hut)		
Merz Road WWII Huts Precinct			
190	WWII Hut (RAAF Standard Hut)	The loss of Asset 190 will not diminish the overall heritage value of the Base. The listed values will be unaltered as other structures representing these values will remain. Other structures in the North Tarmac Precinct will remain to represent the radial layout of buildings.	The loss of Asset 190 would be permanent, small scale and low to moderate intensity, therefore resulting in a moderate overall impact.
228	Trainee Sleeping Quarters College (RAAF Standard Hut)	The loss of Asset 228 would diminish the contribution that this building type makes to the ability to appreciate and interpret the WWII wartime build up and the characteristics of the Base in illustrating WWII planning and development.	The loss of Asset 228 would be an adverse and permanent impact to the building fabric itself but would be mitigated by the retention of two other huts comprising the Precinct. The ability to interpret and understand the WWII era hutment planning and their functional history would remain intact.
Outside of precincts			
125	RAAF Standard Hut	The loss of timber hutments would diminish the contribution that this building type makes to the ability to appreciate and interpret the WWII expansion and wartime requirements and planning principles.	The proposed action would represent adverse, direct and permanent impacts to the four buildings, and would also represent an indirect impact as contributory to broader NH and CH values of the Base.
155			
156			
158			
132	Masks Training Facility	None	Not applicable

5.3.4 Interpretative measures

The purpose of interpretation of heritage places is to reveal and explain their significance and to enable that significance to be understood by the people who manage the place and the public who access it.

RAAF Base Point Cook is home to the RAAF Museum Point Cook, which features information on the history of the site and the RAAF more broadly. Given Defence aims to operate RAAF Base Point Cook as a 'Working Heritage Base', areas not restricted by security requirements present an option for on-site interpretation specifically focused on the Base (ERM 2019). HMP Policies will guide interpretation planning, notably:

– Policy 24 – Additional material in and around the museum complex should focus on understanding some of the lesser-known aspects of the place's contribution to Australia's Defence. Museum displays specifically focused on RAAF Base Point Cook should be reviewed in light of Defence's decision to maintain the Base as a Working Heritage Base and interpretive information should be updated as required.
– Policy 25 – On-site interpretation should be built around the themes presented in the Woodhead Interpretive Strategy. The themes should ideally be structures around the overarching concept of 'continuity' emphasising the ongoing significance of RAAF Base Point Cook's ongoing use by the RAAF since its establishment as the first military aviation base in Australia.

– Policy 26 – RAAF Base Point Cook should collaborate with RAAF Museum to identify resources for the establishment of guided tours around the Base.
– Policy 27 – Develop interpretive signage panels to be placed at the Entry Precinct, Officer's mess, a precinct featuring Residences, the Parade Ground and the museum.
– Policy 28 – Either affix plaques to buildings cited in the NHL or of high significance or position plaques to strategically positioned posts to capture a grouping. Care should be taken when locating plaques and avoid impacts on historic fabric where possible.
– Policy 29 – Develop print media describing the history and significance of RAAF Base Point Cook to be distributed to visitors in the form of a brochure.
– Policy 30 – Develop a program of public events to attract visitation and commemorate significant dates in RAAF history.

Where possible and practicable, the footings of the assets within the South Tarmac Precinct which are in their original location (221, 203, 211, 212, 213 and 214), will be retained in order to demonstrate the WWII functional and spatial relationship between the assets and to the airfield. If retention of all footings or layout element features is not possible, one set will be maintained, if possible, to partially demonstrate the former relationship.

If operational requirements mandate full reactivation of the area in the future for development of capability support, and this inhibits retention of interpretable footing elements, other more subtle design interventions may also be considered. This could include, for example, differentiation of hardstand to interpret former layout of assets. Heritage design guidelines, such as those provided by the Government Architect NSW and the Heritage Council of *NSW Design Guide for Heritage* (2018) will inform appropriate interpretation approaches at RAAF Base Point Cook.

Archival recording and interpretive strategies have been proven through past use across the Defence estate to be effective methods for the successful communication of heritage values to both Defence personnel and the public. These measures have also been used to mitigate the potential loss of heritage impacts. The recording and sharing of Defence heritage values has been shown to enhance and provide context to the Defence working and living environment and to the wider community.

Archival recordings provide a permanent and publicly accessible solution in mitigating loss of physical heritage structures. Access to the Assets currently pose a health and safety risk to Base personnel and are not publicly accessible. By establishing an archival recording of Assets their heritage values can be effectively communicated to visitors.

While the proposed action focuses only on the assets to be removed, the other outcome of the HIAs is the proposed retention and conservation of the RAAF Academy Precinct Assets 4 and 7 and the Gunnery Stop Butt, Asset 121. This avoidance measure represents for these three heritage assets a positive heritage outcome for RAAF Base Point Cook. Opportunities for the adaptive reuse of these assets will focus on uses that result in low impact to all identified heritage fabric, setting and views.

5.3.5 Impacts associated with demolition

Assets proposed for demolition would be removed in accordance with the guidance provided in *Australian Standard 2601-2001: The demolition of structures* and the relevant Defence management procedures in the Contamination Management Manual Annex J – Infrastructure Demolition (Defence 2021b) to minimise risks to the health and safety of site personnel, the environment and adjoining land uses. Additionally, Defence will review and implement relevant provisions from the Heritage Victoria guidelines Demolition (2007) if applicable to the proposed action.

Mitigation measures related to demolition impacts are outlined in Section 6.

5.3.6 CHL and NHL values

In this assessment, CHL and NHL values are assumed to be the same for assets cited under both listings. In the case of the removal of Assets 122 and 221, impacts will be related to NHL values only, as neither of these assets is cited in the CHL.

The proposed action will not cause the complete loss of a National Heritage value at RAAF Base Point Cook (ERM 2019). There are 132 heritage assets on the Base (of an estimated 166 total buildings) occupying a substantial Base footprint. For example, the proposed action will remove eight RAAF standard huts, reducing the number of remaining huts on Base to nine. RAAF Base Point Cook will be second after RAAF Base Amberley in terms of retention of this building type on the Defence estate (ERM 2019).

Ultimately, the Assets included in the proposed action form part of a larger collection of WWII buildings that will continue to demonstrate National Heritage values at the Base level. As such, it is considered that the greater RAAF Base Point Cook is able to offset the severity of the impact of the proposed action. The distribution of WWII-era buildings across other areas of the Base provides good examples that contribute to listed heritage values.

The proposed action will alter and obscure the ability for the South Tarmac Precinct to contribute to the National Heritage Values associated with the WWII period, including the functional relationship between these assets and the airfield. However, the loss of buildings from the South Tarmac Precinct is considered to be an impact at the precinct level only. The North Tarmac Precinct has been assessed as encapsulating the significance of the site as the focus for WWII RAAF training activities. The North Tarmac Precinct, through its rapid construction and development, indicates the extent of aircraft support facilitates required through intact number, and planning layout, including several Bellman Hangars.

Though the removal of RAAF Standard Huts will diminish the overall numbers present across the Base, this would not 'notably alter, modify, obscure or diminish' the National Heritage values of RAAF Base Point Cook as noted above a good sample of nine assets will remain at the Base. These huts (and the Bellman Hangars in the North Tarmac Precinct) will continue to provide evidence of WWII expansion activities and planning principles of the Base

The removal of a rare Asset (122 Hazardous Store) would have an impact on the National Heritage value of rarity (Criterion b) in terms of the expression of uncommon building type examples across major Base development phases. However, the broader National Heritage environment at RAAF Base Point Cook contains many notable uncommon building types specific to each of the major periods that will be maintained following this development stage.

5.3.7 Unknown, unpredictable or irreversible impacts

Comprehensive investigations have been undertaken to establish the historical heritage values for RAAF Base Point Cook. As a result, historical heritage values for the Base are well understood. The proposed action involves the demolition of 15 Assets with identified heritage value, which represents an irreversible impact to building fabric. However, the heritage impacts of the proposed action are certain and predictable and backed by detailed assessment and information regarding the environmental and heritage context of the assets. Where feasible, the proposed action has been modified to minimise potential impacts (specifically, the retention and conservation of Assets 4 and 7 in the RAAF Academy Precinct and Asset 121 Gunnery Stop Butt). Detailed information on the impacts to heritage values can be found in the HIAs (ERM 2019, Biosis 2019) (Attachment 4 and Attachment 5).

A number of archaeological studies and consultation have been undertaken in sections of the Base and the surrounding areas to assist in understanding the Indigenous heritage values at RAAF Base Point Cook. These reports and previously recorded Aboriginal places indicate the potential for stone artefacts to be located in association with waterways and their associated dune systems. There is also a higher likelihood of locating Aboriginal cultural heritage material in less disturbed areas.

Consequently, impacts on Aboriginal heritage as a result of the proposed action are considered a low risk due to the action being localised to building fabric. Minimal groundbreaking works are required, reducing the risk of harm to tangible Aboriginal cultural heritage. The CEMP will include documented processes to address unexpected heritage finds; this is discussed further in Section 6 and within the CEMP framework (Attachment 8).

5.3.8 Residual impacts on MNES

The proposed action will not cause one or more of the NHL and CHL values of RAAF Base Point Cook to be lost given the contributory nature of the elements proposed for removal.

The significance of the loss on the broader NHL/CHL values is reduced because the assets under assessment form part of a larger collection of WWII assets that demonstrate values at Base-wide level. However, the removal of WWII-associated built assets:

– Is likely to degrade or damage one or more National Heritage values.
– Will 'notably alter, modify and obscure and diminish' National Heritage values, as associated with WWII development history of RAAF Base Point Cook, particularly in the South Tarmac Precinct.
– Will 'permanently destroy, remove and substantially alter' the fabric of a Commonwealth Heritage Place.

In considering the degree of impact to the NHL or CHL values, the impact of the removal of the RAAF Standard Huts and Bellman Hangars is minimised by the fact that the Assets to be removed represent only a portion of a much larger collection of WWII-period buildings currently present within the Base, and other RAAF Bases across the Defence estate. A robust collection of RAAF Standard Huts and Bellman Hangers in largely better condition than the Assets for demolition have been conserved at the Base, specifically within the North Tarmac Precinct. In addition, the mitigation measures proposed are likely to reduce the level of impact to NHL and CHL values by the proposed action (refer to Section 6).

On balance, given the condition of many of the assets, demolition may represent a better outcome in order to facilitate retention of other assets, thereby retaining and conserving NHL and CHL values.

5.3.9 Offsets

According to the EPBC Act *Environmental Offsets Policy* (Commonwealth of Australia 2012), the use of offsets to compensate for adverse impacts to heritage values is appropriate in some circumstances. Offsets for impacts on heritage values should improve the integrity and resilience of the heritage values of the property involved.

The proposed demolition and removal of Assets will result in the permanent loss of heritage structures which is considered to be a residual impact.

Offsets have not been recommended for the proposed action as Assets with similar heritage values will be retained across the Base, ensuring that examples of the types of heritage values lost due to the proposed action remain intact elsewhere. The proposed action allows Defence to continue to use the Base, which includes investing in the maintenance of the remaining heritage values.

5.4 Contaminated soils/hazardous wastes

Defence recognises there will be minor soil disturbance during the proposed demolition works. In the event of encountering contamination or hazardous materials, Defence will manage soil in accordance with the Defence Contamination Management Manual (2021) and the Commonwealth *National Environment Protection (Assessment of Site Contamination) Measure* (1999).

As stated in Section 4.1 of the referral document, soil at individual work sites will be sampled for contaminants. Contaminants of interest include lead-based paints, hydrocarbons, asbestos and organochlorine pesticides. Onsite treatment or disposal at a licensed waste facility will be determined on a case-by-case basis. Due to the minimal soil disturbance, it is unlikely that these management procedures will be required.

A Hazardous Building Materials Assessment was undertaken for each Asset by Prensa (2018) and was included as Appendix F to the Aurecon report (2019) (Attachment 7). The report identified a range of hazardous materials within the Assets nominated for demolition including:

– Asbestos-containing materials (both non-friable and friable)
– Synthetic mineral fibre
– Poly-chlorinated biphenyls
– Lead-containing paint
– Ozone-depleting substances
– Biological hazards.

Hazardous materials will be removed by an appropriately licensed contractor under controlled working conditions prior to demolition works where feasible. All hazardous materials will be managed and disposed of in accordance with State government requirements. Appropriate clearance inspections will be undertaken at the completion of the removal works.

The demolition activities will also result in general and temporary environmental disturbance impacts including noise, interaction with hazardous waste, and potential handling of contaminated soils. This type of demolition activity is considered routine, therefore associated impacts are well understood and can be managed effectively such that impacts are as low are reasonably practical. Proposed mitigation measures are included in Section 6 and the CEMP framework included as Attachment 8.

5.4.1 PFAS

The majority of Hangars (Assets 211-214) have four anchor points which are heavily rusted and will be easily removed without disturbance of soil. Other Assets are on wooden or concrete piers and would result in minimal soil disturbance during demolition as no excavation is proposed.

During the PFAS pre-construction contamination assessment, ground underneath Assets on timber footings was observed to be unsealed and currently accessible to some terrestrial fauna species (i.e. reptiles). Timber footings are anticipated to remain in situ and no redevelopment is proposed for any Asset footprint. The footprint of Assets are anticipated to remain unsealed and following completion of demolition works will become accessible to some additional terrestrial fauna (i.e. birds) and Base users (AECOM 2022). The additional area of exposed soil as a result of the proposed action would result in an increase of approximately 1.25 m^2 of soil per buildings with timber footings, and the removal of each Asset will result in an additional 165 m^2 of exposed area per Asset (refer to Section 2 and Attachment 6).

Defence is committed to the effective management of PFAS contamination when undertaking maintenance and construction programs of work. Defence has undertaken a PFAS site investigation and assessment consistent with the NEMP 2.0 (refer to Attachment 6).

An approved contaminated soil mound is present within the Base for retention of any additional soil-spoil. This mound has controls in place to stop movement from environmental factors. The Assets were all kit buildings 1940-46 which were constructed without concrete footings or concrete pads. The majority of the hangars will go to scrap metal. Any soil disturbance on site would be treated by Defence environmental protocols.

The Defence *PFAS Construction and Maintenance Framework* (Defence 2021a) considers that responses to PFAS contamination should be proportionate to the risk. Disturbing small volumes of soil is unlikely to have a material or measurable impact on the overall contamination on a Base. Under this framework, when the total volume of soil being managed for a project/works is less than 10 m^3 (as will occur as part of the proposed action), it will usually be appropriate and acceptable to reinstate the soil at the work site without testing. Any disturbed soil will be reinstated back to its initial position as far as practical, noting that the disturbance will be very minor in the first instance.

The Defence *PFAS Construction and Maintenance Framework* (Defence 2021a) supports decision makers in managing risks from PFAS contamination in the context of construction and maintenance works on the Defence estate. The goals of the Framework are to provide options for the management of PFAS contaminated soil, water, construction/demolition waste and other materials (such as vegetation) that will mitigate the risks associated with PFAS contamination at the works site, on the Base, or in close proximity to the Base to:

– Guide decision-making for efficient and compliant solutions when managing PFAS contaminated materials in this context.
– Minimise the impact of risk-management of PFAS contamination on Defence capability.
– Ensure an integrated approach to PFAS risk management aligned with the PFAS Management Area Plans (PMAPs), Remedial Action Plans and works requirements.
– To provide guidance that is consistent with the NEMP 2.0 and PMAPs.

Chapter 5 of the *PFAS Construction and Maintenance Framework* (Defence 2021a, Attachment 10) details the specific management principles for construction and demolition waste (i.e. all materials that are neither soil nor water), and

provides guidance on the assessment to which construction materials are likely to be contaminated, whether sampling of construction and demolition waste is required, and if so what testing should be conducted. Chapter 5 of the Framework also details how Defence manages the disposal or potential beneficial reuse of construction and demolition waste. Defence is committed to ensuring PFAS-contaminated materials for reuse, including reused waste, are appropriately managed to prevent harm to land use, human health and the environment.

Defence is committed to investigate, better understand and manage PFAS contamination and transport across the Base (including surrounding areas as required), not only the area associated with the proposed action.

Defence will be issuing a request for proposals for Lead Consultants services for implementation of the RAAF Williams (Laverton and Point Cook) PMAP and expects to have the consultant engaged by Q1 2024, pending approval. Among their first tasks will be commencement of the PFAS Ongoing Monitoring Plan for Point Cook to understand any changes in PFAS contamination and movement and undertaking a PFAS Mass Flux Study for the Base.

5.4.2 Duration of impacts

The proposed action involves the demolition and removal of Assets, which by nature represents a permanent impact to building fabric. Short-term impacts associated with the demolition process (including dust, noise, soil and waste management) will be temporary for the duration of the works (approximately 15 months).

6. Measures to avoid or reduce impact

Committed measures to be implemented to avoid or reduce impacts to environmental values are included in Table 6.1.

Table 6.1 Mitigation measures

Aspect	Measure
General	
Construction	– Prepare and implement a project specific CEMP developed in accordance with the DCCEEW *Environmental Management Plan Guidelines 2014* that incorporates project specific environmental controls. – The CEMP must be reviewed and approved by Defence prior to implementation. – The CEMP must include at a minimum: • Measures that address the conditions of any approvals associated with the proposed action. • Erosion and sediment control plan including soil stabilisation measures, that is to be regularly updated based upon work staging and site conditions. • Contamination Management Plan, including an unexpected find protocol for contamination that aligns with Appendix E *Generic Protocol for Unexpected Finds* of the Defence Contamination Management Manual (Defence 2021b) Annex B, and includes a spill management procedure. • Hazardous materials management plan that is in accordance with the Defence Security and Estate Group (S&EG) Asbestos Management Plan (2021) and PFAS Construction and Maintenance Framework (Defence 2021a) including a protocol for chance finds of hazardous materials. • Waste Management Plan, including State waste disposal requirements. • Weed Management Plan, including vehicle hygiene requirements, and measures to avoid introduction of spread of weeds as a result of construction. • Fauna management plan, including clearing protocols in consideration of threatened species and requirements for a fauna spotter-catcher, and incident response. • Noise and Dust Management Plan to minimise impact to neighbouring sensitive receivers. • Unexpected Aboriginal Heritage finds protocol in accordance with the RAAF Base Cook HMP. • Notification requirements for incidents that accord with the Defence *Environmental Incident Reporting Guideline.* – During construction, the contractor must implement appropriate construction monitoring to demonstrate management measures are meeting the objectives of the CEMP. These include regular inspections and maintenance and rectification of controls. – The CEMP will include requirements for soil contamination testing, Base management, disposal requirements, and any other factors relevant to environmentally responsible management of the proposed action. For the duration of the proposed action, the contractor(s) will be required to operate under the Environmental Management System for RAAF Base Point Cook. – The CEMP must include a mechanism for continual improvement, and updates are to be notified to site personnel and provided to Defence for approval prior to implementation. – During construction, the contractor must implement appropriate construction monitoring to demonstrate management measures are meeting the objectives of the plan. These include regular inspections and maintenance and rectification of controls.
Training	– All site personnel are to attend an environmental induction prior to commencing work on the proposed action. The induction is to be comprehensive and cover: • Relevant conditions of approval for the proposed action. • Proposed action context and details of site constraints. • Spill and soil management protocols. • Vehicle hygiene requirements. • Unexpected finds and incident response and reporting requirements. • Heritage management plan requirements. • Areas of contamination within the proposed action area.

Aspect	Measure
Incident response	– Report environmental incidents (an environmental incident is any non-routine event or occurrence that may have an effect on the environment) to the Base ESM immediately, in accordance with the Defence Environmental Incident Reporting Guideline.
Timing of works	– Conduct fieldwork in suitable weather conditions, and avoid activities during periods of heavy rainfall that could potentially increase migration of contaminants and soil erosion potential
Heritage	
Planning and design	– A targeted interpretation strategy will focus on the Assets proposed for removal and give guidance and planning tools to ensure the stories of those Assets are later presented within the Base in a tangible, compelling and practical manner. – Archival recording of Assets proposed for removal will be undertaken. To do this, Defence will undertake: • A full archival recording of the Assets impacted by the proposed action. The full archival record will be consistent with the guidelines '*How to prepare archival records of heritage items*' (NSW Heritage Office 1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office, 2006). The archival recording will include an Oral History. • Include the construction instructions for the Bellman Hangars in the RAAF Museum Point Cook collection. • Deposit the Archival record with an appropriate publicly accessible repository, such as the National Archives. A copy of the Archival Recording will also be retained on the Base for future research and appreciation. • Prepare a Heritage Interpretation Plan for RAAF Base Point Cook within two years of commencement and in consultation with DCCEEW, with a focus on the heritage buildings impacted. The Heritage Interpretation Plan will be in accordance with the RAAF Base Point Cook HMP interpretation policies. • Install interpretative signage regarding the significance of the South Tarmac Precinct and provide historical imagery and information around the Base. • Include a small publication on WWII era assets across the Base as part of the heritage interpretation for RAAF Base Point Cook. • Retain Asset footings within the South Tarmac Precinct, to demonstrate WWII functional and spatial relationship between the Assets. If retention of footings/layout elements is not feasible, for example in the advent of future development, subtle design interventions will be included as interpretation methods. Design interventions will be informed by a suitably qualified heritage expert. • Revise the Base HMP within two years of commencement to provide for the protection and management of the remaining heritage values at RAAF Base Point Cook. – Defence will commission archival recording of the heritage assets in accordance with the Burra Charter principles and guided by the NSW Heritage Office *Interpreting Heritage Places and Items: Guidelines* (2005). These guidelines are recognised in the Defence Heritage Toolkit as best practice guidelines. The archival recording will be completed before any demolition works begin. Internal archival recording cannot be undertaken in locations deemed unsafe in line with work health and safety obligations. – Archival recording will ensure high quality documentation of the heritage values, including a report detailing the appearance, construction and history of the site and the assets as they existed prior to removal. – A record of changes that occur to heritage assets at RAAF Base Point Cook will be centrally managed by Defence Service Delivery Division. – Archival documents will be retained on Base, in the Garrison Estate Management System (GEMS) and a copy lodged with DCCEEW to provide adequate, publicly accessible information for future reference. – Additional research will be undertaken to inform a small publication on WWII era assets across the Base, with possible areas of focus on use of: • The Bellman Hangars to the South Tarmac • The function of Assets 122 and 221 • The difference between P1 and RAAF Standard Huts • Oral histories on the use of the Huts by the various Base clubs (e.g., Point Cook Flying Club), in accordance with HMP Policy 29 (Attachment 3). – The corridor commencing at the entry gates or museum car park, looping around Cole Street and Dalzell Road (South), at the southern boundary of the Parade Ground and north along Williams Road has been identified as an appropriate location for interpretation of the significance of the South Tarmac Precinct.

Aspect	Measure
	This location will provide historical imagery and information about this place, given that public access to the area is likely to be restricted (HMP Policy 27, Attachment 3).
Construction	– Develop and implement a CEMP to appropriately manage known heritage values. The CEMP is to include separate Indigenous heritage, historic, natural heritage management plans where required. – Include an unexpected finds protocol for both historic and Indigenous heritage in the CEMP in accordance with the unexpected finds protocol from the RAAF Base Point Cook HMP (Attachment 3). – Implement site specific heritage protection management procedures during construction. – As part of the project's CEMP, all newly discovered Indigenous archaeological sites (i.e., loci with artefacts) will be fully recorded and a site recording will be submitted to Aboriginal Affairs Victoria (HMP Policy 23, Attachment 3). Works in the vicinity of the find can only recommence under instruction from the ADES.
Operations	– Ongoing management of the heritage values of RAAF Base Point Cook will occur via the HMP. – The HMP will be updated to reflect the changes in heritage values at the Base as a result of the proposed action.
Contamination/PFAS	
Contaminated materials	– Develop and implement a Contamination Management Plan specific to the proposed action, in accordance with the Defence Contamination Management Manual (2021b) and its Annexures, including: • Annex B - Investigations, Remediation and Management • Annex C - Planning to Minimise and Manage Stockpiling • Annex J – Infrastructure Demolition – The Contamination Management Plan is to be developed and implemented in accordance with the Defence *PFAS Construction and Maintenance Framework* (Defence 2021a) regarding soil management (Chapter 3) and construction and demolition waste (Chapter 5). – Spill response protocol to be included in the Contractor's CEMP. – Spillage of fuel, dangerous goods and hazardous materials from vehicles, storage facilities and construction areas are remediated at the time of occurrence and is reported to the appropriate authority. – Erosion and sediment control to be in accordance with the International Erosion Control Association guidelines. Erosion and sediment controls must be maintained throughout the construction period and inspected for integrity. Rectification to controls is to be implemented as identified. Temporary controls must be removed on completion of works. – Periods of rain and or flooding can increase migration of materials from the site, consequently works are to be undertaken predominately during calm weather and to cease during periods of heavy or prolonged rainfall. – Appropriately locate temporary stockpile areas for materials to reduce or prevent potential mobilisation of materials to surface water.
Waste materials	– Develop and implement a Waste Management Plan, including: • Statutory requirements for offsite waste disposal in Victoria • Systems to sort and track the actual types and quantities of waste generated • Options for reuse, reprocessing, recycling • Maintain documents and records of the transport and fates of all materials removed from the Base. – Apply the waste minimisation principles (waste hierarchy) during design and construction phases of the proposed action in accordance with Defence Environment and Heritage Manual, the Defence Smart Infrastructure Handbook 2019 and with reference to the National Waste Policy 2018 and the National Waste Policy Action Plan 2019. – Identify options for reuse of materials if suitable use is available. – All hazardous building material generated from demolition and refurbishment activities is to be managed in accordance with Defence Defence Contamination Management Manual (Defence 2021) Annex J – Infrastructure Demolition and Defence *PFAS Construction and Maintenance Framework* (Defence 2021a) Construction and Demolition Waste (Chapter 5) – Asbestos containing material in buildings and structures, and asbestos in soil and as surface contamination to be managed in accordance with the requirements and procedures set out in the Defence S&EG Asbestos Management Plan, Version 5.1, 2022.
Flora and fauna	

Aspect	Measure
Fauna	– Assets are to be checked for presence of fauna species prior to demolition by a qualified fauna spotter/catcher. – Implement practical measures and operational procedures to minimise vibration and noise that may impact noise sensitive fauna. – Inductions to include fauna management requirements. – Fauna are not to be harmed during works.
Flora	– Implement standard vehicle hygiene measures for vehicles to prevent the introduction and spread of weed species and soil pathogens. – Prevent construction personnel from entering areas outside of project-related activities to minimise vegetation damage.

7. Ecologically Sustainable Development

7.1 Integration principle

In consideration of the principles of ecologically sustainable development, decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.

Under the EPBC Act, Defence heritage management aims to identify, protect, conserve, interpret and transmit the heritage values of a place. In accordance with these requirements Defence seeks to conserve the heritage values of RAAF Base Point Cook in the context of safety legislation and standards, evolving operational requirements and revised building codes. This can involve unavoidable and difficult decisions about the future of individual assets with heritage significance at the Base.

Alternative use investigations for each Asset were undertaken in accordance with Burra Charter principles, which advocate a cautious approach to heritage conservation, and the HMP Policy 20 (refer to Section 2.5). This states that economic and safety considerations do not constitute sufficient justification for demolition of heritage assets. Through this process the most prudent and feasible alternative for each Asset was chosen on the basis of establishing the most equitable outcome for both current and future generations in terms of safety, economics, and heritage values.

7.2 Precautionary principle

The precautionary principle is defined in section 391 of the EPBC Act:

The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible damage.

In order to achieve a level of scientific certainty in relation to the potential impacts associated with the proposed action, Defence has undertaken an extensive evaluation of all of its key components, as documented in the previous sections of this report.

The assessment process has involved a detailed study of the existing environment and the use of technical/scientific inspection and testing methods to assess and determine potential impacts as a result of the proposed action. Data has been gathered from RAAF Base Point Cook to appropriately categorise the heritage assets, allowing impacts to be predicted and evaluated.

The decision-making process for the design, impact assessment and development of management measures has been transparent in the following respects:

– Key stakeholders have been consulted throughout the design process, enabling comment and discussion regarding potential environmental impacts and proposed management measures.
– Defence will update and implement the existing comprehensive HMP for RAAF Base Point Cook and thereby continue to implement best practice heritage management across the site.
– Project documentation has been prepared on the basis of best available scientific information about the heritage assets and surrounding area and has been informed by site-specific survey, monitoring, and environmental, social and economic assessment.

The proposed removal of Assets represents a significant impact to heritage values associated with RAAF Base Point Cook and the Defence estate more generally. However, in assessing options based on environmental, social and economic factors, the proposed action represents the option considered by key stakeholders to present the least risk and the highest benefit to the community as a whole. The heritage assessments undertaken for the action combined with the proposed archival recording will capture significant amounts of information regarding the heritage values of the Base.

7.3 Intergenerational equity

Intergenerational equity refers to equality between generations. It requires that the needs and requirements of today's generations do not compromise the needs and requirements of future generations in terms of health, biodiversity and productivity.

With regard to intergenerational equity, the proposed action works:

– Optimise the use of existing infrastructure and reduce the future economic and social impacts associated with the ongoing maintenance of unusable assets.
– Provide employment opportunities and significant economic benefits for the State and the local community at a time of need, which will contribute to the wellbeing of both current and future generations.
– Provide archival recording and interpretive strategies that allow the sharing of a significant amount of information on the Base heritage values with a broader audience, both now and in the longer term.
– Remove occupational health and safety hazards from the Base to protect current and future employees.

7.4 Biological diversity and ecological integrity

The area in which the proposed action will take place has been highly modified by past activities and consists of buildings, pavements, turfed lawn and minor garden beds. The Biodiversity Monitoring Plan for the Base (AECOM 2012) found 'no biodiversity values in the main building area in the north-west of the Base or around the restricted airside area'.

Therefore, impacts on biological diversity and/or ecological integrity are unlikely to occur, either directly or indirectly, as a result of the proposed action.

7.5 Valuation and pricing

The valuation and pricing aspects of ecologically sustainable development generally apply to activities which involve valuation, pricing and/or incentive mechanisms for the production, delivery, distribution or consumption of goods and services, especially those that are derived from natural or social capital or from ecological services.

A quantity surveyor provided concept level cost estimates for the demolition and/or refurbishment and retention of heritage assets at RAAF Base Point Cook based on documentation and liaison with the design team, as part of the Aurecon 90% Detailed Design Report (refer to Attachment 7). Limited data on maintenance and repair costs for the assets in question, together with cost estimations for the proposed works, were used to provide a broad contextual appreciation for ongoing maintenance costs as relevant to assessing impacts and potential use alternatives (ERM 2019).

8. Conclusion

The proposed action involves the demolition of 19 Assets at RAAF Base Point Cook in Victoria. RAAF Base Point Cook is listed on the NHL (Place ID 105671) as well as the CHL (Place ID 105275). Of the 19 Assets to be demolished, 15 have been identified as contributing to the heritage values of the Base has been assessed.

The proposed action was referred to DCCEEW who determined that the proposed action was a controlled action that would be assessed on the basis of Preliminary Documentation.

Assessment reports have been undertaken to assess the potential impacts to National Heritage values and PFAS related human health and environmental risks associated with the proposed action. These assessments have informed the significant impact assessment of the proposed action and identified appropriate mitigation measures to manage the identified impacts.

As outlined above, the proposed works have been assessed against the principles of ecologically sustainable development as required by the EPBC Act, and found to be consistent.

The various assessment reports document a range of positive benefits at a local, regional and State level that will result from the proposed action, including economic, social and occupational health and safety benefits that will not adversely affect the environment.

Defence acknowledges the direct loss of heritage values as a result of the proposed action and has outlined appropriate and achievable mitigation measures which include archival recording and an interpretive strategy. Further, the current preservation of remaining heritage assets, the RAAF Museum Point Cook (partially housed in refurbished WWII Bellman Hangars), and existing publications, will ensure the heritage values of the Base are conserved.

Defence notes the proposed action is within a PFAS impacted area, however, Defence will manage any potential PFAS pollution issues in compliance with the *PFAS Construction and Maintenance Framework* (Defence 2021a) to meet the obligations of the NEMP 2.0.

With the implementation of the mitigation strategies proposed by Defence it is considered the proposed action would result in a net benefit to the community and should be approved. Defence welcomes the opportunity to publish this PD for public comment.

9. Information sources

All information sources used in the assessment of the proposed action were reliably produced by either Commonwealth/State agencies or qualified professional services companies.

Sources and dates are listed below. Any uncertainties in the information contained in these documents are outlined within the document text.

AECOM 2012. Biodiversity Monitoring Plan – RAAF Williams Point Cook. Unpublished report for Defence.

AECOM 2020. Defence Regional Contamination Investigation Program: Stage 5 Monitoring, RAAF Base Point Cook (0932), December 2020. Unpublished report for Defence.

AECOM 2022. Heritage Buildings PFAS Pre-Construction Contamination Assessment: 0932 RAAF Base Point Cook (Final). Unpublished report for Defence.

Aurecon 2019. 90% Detailed Design Report: 12399 RAAF Base Point Cook Heritage Consultancy. Unpublished report for Defence.

Biosis 2019. Heritage Impact Assessment: VT11445 RAAF Williams Point Cook Building Works. Unpublished report for Defence.

Commonwealth of Australia 2012. Environmental Offsets Policy.

Commonwealth of Australia 2020. PFAS National Environmental Management Plan Version 2.0.

Department of Defence 2017a. Defence Estate Heritage Strategy.

Department of Defence 2017b. Pollution Prevention Management Manual.

Department of Defence 2019. Smart Infrastructure Handbook Edition 2.

Department of Defence 2021a. PFAS Construction and Maintenance Framework.

Department of Defence 2021b. Contamination Management Manual.

Department of Defence 2021c. Defence Environment and Heritage Manual.

Department of Defence 2021. RAAF Base Williams - Point Cook, Victoria Defence 3 Year Regional Contamination Investigation Program (RCIP) Factsheet: https://www.defence.gov.au/id/_Master/docs/NCRP/VIC/0932RAAFBaseWilliamsPointCoo kVic.pdf.

Department of Defence Asbestos Management Plan, Version 5.1 2022.

Department of the Environment 2014. Environmental Management Plan Guidelines.

Department of Environment, Land, Water and Planning (Victoria) 2018. Port Phillip Bay (Western Shoreline) and Bellarine Peninsula, Ramsar Site Management Plan.

Department of the Environment and Energy 2004. Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia. Retrieved from Commonwealth Heritage List: http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=state%3DVIC%3Blist_code%3DCHL%3Bleg al_status%3D35%3Bkeyword_PD%3D0%3Bkeyword_SS%3D0%3Bkeyword_PH%3D0;pla ce_id=105275

Department of the Environment and Energy 2007. National Heritage Places - Point Cook Air Base. Retrieved from National Heritage List: http://www.environment.gov.au/heritage/places/national/point-cook

Department of the Environment and Heritage 2004. *Adaptive Reuse*.

EMM 2021. Environmental Report. Unpublished report for Defence.

ERM 2019. RAAF Base Point Cook Proposed Removal of Heritage Assets, Final Heritage Impact Assessment. Unpublished report for Defence.

ERM 2018. RAAF Base Point Cook Heritage Management Plan (Final Draft). Unpublished report for Defence.

Government Architect NSW and the Heritage Council of NSW 2019. *Design Guide for Heritage*.

Jacobs 2020. RAAF Point Cook Preliminary Stage 1 and Detailed Stage 2 Site Investigation.

NSW Heritage Office 2006. Heritage Information Series: Photographic Recording of Heritage Items Using Film or Digital Capture.

NSW Heritage Office 2005. Heritage Information Series: Interpreting Heritage Places and Items Guidelines.

NSW Heritage Office 1998. Heritage Information Series: How to Prepare Archival Records of Heritage Items.

Prensa Pty Ltd 2018. Hazardous Building Materials Assessment for Aurecon Project Number: 12399 RAAF Williams Point Cook.

Standards Australia 2001. Australian Standard 2601-2001: The demolition of structures

Attachments

Attachment 1

Summary of heritage assets

1-1 Heritage

Table A2-1 Summary of Assets to be removed, structural detail and heritage value

Asset name	Structural and Heritage Summary (from Aurecon, 2019)	Example image (from Aurecon, 2019)
Asset 102: Toilet block	This is a small, timber-framed, grey brick block with a metal sheet-clad roof. The site HMP has concluded that the building is 'intrusive' to the heritage values of the Base. This building is structurally sound, however would require substantial works to bring the condition up to standard. Hazardous materials were also identified. The toilet block is considered beyond economic repair and is recommended to be demolished.	
Asset 112: Store	This is a timber-framed building with metal cladding. It is on a concrete slab, with timber decking in separate areas. The site HMP has concluded it does not contribute to the heritage values of the Base. The main structure of this building requires significant repair to both structural and condition related items. It is recommended to be demolished as it is considered beyond economic repair.	
Asset 122: Hazardous store	This is a brick walled building, with a timber-framed, metal-clad roof. It is on a bunded concrete slab, with an external timber-decked area. It is cited in the description of the NHL place, but not the CHL place. The main structure of this building is in good condition and can be either demolished or retained. Work would be required to improve the condition of the building and manage the identified hazardous materials. As there is no planned future use for this building, the repair and ongoing maintenance of this building is not considered effective use of funding.	

Asset name	Structural and Heritage Summary (from Aurecon, 2019)	Example image (from Aurecon, 2019)
Asset 132: Masks Training Facility	This is a timber-framed building with metal-sheet cladding on the walls and roof. It is on a concrete slab and is attached to Asset 112. The site HMP has concluded it does not contribute to the heritage values of the Base. The building is beyond structural repair, primarily due to the state of the concrete slab. It is recommended to be demolished.	
Asset 190: WWII Hut (RAAF Standard Hut)	This building is also a RAAF Standard Hut (P1 Hut) It is cited in the NHL and CHL place descriptions and is from the World War II era. The building is in poor condition and not fire compliant. The demolition is not avoidable, as there are no prudent or feasible alternatives (from Biosis, 2019). Building 190 is WWII P1 hut which is represented elsewhere on the base.	
Asset 203: WWII Hut	This building is also a RAAF Standard Hut (P1 Hut). It is of the same structure and form as the huts described above. It is cited in the NHL and CHL place descriptions and is from the World War II era. The main structure of this building is beyond structural repair and is recommended to be demolished.	

Asset name	Structural and Heritage Summary (from Aurecon, 2019)	Example image (from Aurecon, 2019)
Asset 218: Toilet block	Asset 218 is a timber-framed, brick-walled structure with a metal-sheet roof. The site HMP has concluded that it is of no heritage value to the Base. The main structure of this building is beyond structural repair and is recommended to be demolished.	
Asset 221: Store	Building 221 is a large, steel-framed warehouse style building with profiled fibre cement sheet external walls, and metal roof sheeting. The site HMP has concluded that the building has medium importance to the heritage values of the Base. The main structure of this building is in good condition and can be either demolished or retained. Ongoing work would be required to improve the condition of the building and manage the identified hazardous materials. As there is no planned future use for this building, the repair and ongoing maintenance of this building is not considered effective use of funding.	
Asset 228: Trainee Sleeping Quarters College	This building is also a RAAF Standard Hut (P1 Hut). It is of the same structure and form as Assets 125, 155, 156, 158, and 203. It is cited in the NHL and CHL place descriptions and is from the World War II era. The main structure of this building is in good condition and can be either demolished or retained. Ongoing work would be required to improve the condition of the building and manage the identified hazardous materials. As there is no planned future use for this building, the repair and ongoing maintenance of this building is not considered effective use of funding.	

Asset name	Structural and Heritage Summary (from Aurecon, 2019)	Example image (from Aurecon, 2019)
Asset 243: RAAF College Classroom	This building is also a RAAF Standard Hut (P1 Hut). It is of the same structure and form as those describe above. It is cited in the NHL and CHL place descriptions. This building is proposed for demolition as there is currently a tree growing through it, there are no floor nor windows; and it has been vacant for a significant period. It is beyond structural repair.	
Asset 485: Point Cook Flying Club	This building is also a RAAF Standard Hut (P1 Hut). It is of the same structure and form as those described above. It is cited in the NHL and CHL place descriptions and is from the World War II era. The main structure of this building is in good condition and can be either demolished or retained. Substantial work would be required to improve the condition of the building and manage the identified hazardous materials. As there is no planned future use for this building, the repair and ongoing maintenance of this building is not considered effective use of funding.	
Assets 125, 155, 156, & 158 RAAF Standard Hut (P1 Hut)	The RAAF Standard Huts (P1 Huts) are timber-framed structures, with metal sheet cladding on the walls and roof. They have sections of concrete slabs and others of timber decking. The site HMP has concluded that Asset 125 has medium importance to the heritage values of the Base. Assets 155, 156 and 158 are cited in the NHL and CHL place descriptions. They all date from the World War II era. The main structures of these assets are generally sound, with only Asset 156 showing signs of foundational damage. However, a substantial amount of work would be required to bring them up to a suitable condition for use, especially internally. Examples include complete replacement of ceilings, re-stumping of floors, and straightening/levelling of walls. The extent of these works make these assets beyond economic repair. It is recommended that these buildings are demolished.	

Asset name	Structural and Heritage Summary (from Aurecon, 2019)	Example image (from Aurecon, 2019)
Assets 211 – 214 Bellman Hangars	These are steel-framed hangars with flat metal roofing and cladding, with large sliding doors for aeroplane access. They are located in the southern tarmac precinct. These buildings are cited in the NHL and CHL places. The main structures of these buildings are beyond structural repair due to the degree of metal corrosion that is present. They are recommended to be demolished.	

Attachment 2

Summary of responses to requests for information

2-1 Summary response table

Table A1-1 Summary of information requests from DAWE/DCCEEW and Defence Response

Additional information request	Response / Section addressed
2020 Request for Information	
1. General content, format and style	
The preliminary documentation should be provided as one document with attachments and in a format that is objective, clear and succinct. It must contain sufficient information to avoid the need to search out previous or supplementary reports and be written so that any conclusions reached can be independently assessed. Where appropriate the documentation should be supported by	
a) The best available scientific literature	Assessment has been informed by site inspections undertaken by suitably qualified personnel. Copies of assessments are attached to this report. Other information has been sourced from relevant guidelines and standards which are considered industry best practice. A list of sources is included in Section 9.
b) Relevant maps, plans, diagrams and technical information. Maps and diagrams must be clearly annotated, in colour and of high resolution	Relevant maps are included in this report as Figure 2.1, Figure 2.2 and Figure 4.1 Additional figures are provided in assessments undertaken for the proposed action and are attached to this report.
c) Details on relevant uncertainties, including whether impacts are unknown, unpredictable or irreversible, as well as acceptability of the relevant impacts to Matters of National Environmental Significance (MNES)	Section 5.1
d) References or other descriptive detail in relation to the information provided, including how recent the various pieces of information are	Section 9
e) A covering summary of the information provided and identification within the summary of where the requirements set out below are addressed in the consolidated documentation.	Attachment 1
The documentation must avoid passive language and use active, clear commitments (for example, 'must' and 'will') where appropriate. Where relevant information was provided at the referral stage, incorporate or refer to this information as necessary in the consolidated preliminary documentation.	Noted
1. Description of the action	
a) The location, boundaries and size of the disturbance footprint and of any adjoining areas which may be indirectly impacted by the proposal.	Section 2.1
b) A description of all components of the action, including: • the anticipated timing and duration (including start and completion dates) of each component of the project • The demolition techniques to be used during the proposed works.	Section 2.2 Section 2.3
c) A description of the operational requirements of the action including any anticipated maintenance works.	Section 2.4
d) Any feasible alternatives to the proposed action to the extent reasonably practicable, including the alternatives of repair or maintenance of the building or	Section 2.5

Additional information request	Response / Section addressed
taking no action, a comparative description of the impacts of each alternative on each MNES and/or heritage values, and sufficient detail to make clear why any alternative is preferred to another. The short, medium and long-term advantages and disadvantages of the options should be discussed.	
3. Description of the environment and MNES	
a) The preliminary documentation must provide a general description of the environment affected by and surrounding the proposed action, in both the short and long term including: b) Details of the MNES within and adjacent to the proposed action area, including: • RAAF Base Point Cook, (Place ID 105671) – National Heritage list and • RAAF Base Point Cook (Place ID 105275) – Commonwealth Heritage list.	Section 4 Section 5.3
c) A site investigation and assessment of the current environment in relation to Per- and poly-fluoroalkyl substances (PFAS), consistent with the PFAS National Environment Management Plan 2.0 (available at http://www.environment.gov.au/protection/publications/pfas-nemp-2).	Section 4.6 Section 4.6.2 Attachment 6
d) Details of any site investigations, including maps (where relevant).	Section 5.1 Section 5.4 Attachment 6
e) Information about the resources used to identify and assess the environmental values of the site (for example, the outcome of consultation or advice sought from experts in regard to the potential presence of these values).	Section 5.1 Section 9
f) Heritage assessment of all structures proposed for demolition, including the interior of the structures.	Section 4.8 Section 5.3 Attachment 4 Attachment 5
2021 request for information	
1. The Preliminary Documentation should indicate total volume of soil expected to be disturbed, to assist in demonstrating how the proposed action aligns with the PFAS Management Framework.	Section 2.2 Section 5.4 Attachment 6
2. The reuse of PFAS-contaminated materials should be informed by a site-specific risk assessment to ensure the placement of PFAS-contaminated materials will not increase the risk at the destination site, or lead to an unacceptable risk to the environment and/ or human health. Multiple lines of evidence should be considered to support a decision on reuse'. If site investigations and assessments confirm the presence of PFAS, or if PFAS are otherwise likely to be encountered during demolition, please provide site-specific risk assessments for each of the proposed demolition sites to inform the reuse of PFAS contaminated soil. Site-specific risk assessments should not rely solely on the volume of soil to be excavated to inform the risk of mobilizing PFAS.	Section 5.4 Attachment 6
3. The loss of buildings from the South Tarmac Precinct is considered to impact at a precinct level only, these statements should be amended to reflect the direct impacts on the National Heritage Values of the place.	Section 5.3
i) This section asserts that the archival recording and interpretive strategies are effective mitigation, but does not provide an assessment in support of the statement. Please provide further analysis of why the proposed mitigation is expected to be effective.	Section 5.3 Section 5.3.4
2022 request for information	
1. Identify the PFAS source(s), determine PFAS concentrations and flux rates, and delineate the contamination plume(s).	Section 4.6 Section 4.6.2

Additional information request	Response / Section addressed
	Attachment 6
2. Include a general discussion of the impact on the layout of the precinct in addition to the current impact assessment of the removal of individual buildings.	Section 5.3
3. "A targeted interpretation strategy and plan will focus on..." - the department's confidence in the effectiveness of this approach is limited without details of when this will occur, whether and when the draft strategy will be finalised and implemented, etc.	Section 5.3
4. ".. as a good sample will remain at the base." Please provide the specific number that will remain	Section 5.3.6
5. Please clarify in the test that internal archival recording will not be undertaken in locations deemed unsafe.	Section 5.3.4
4. Relevant impacts	Section 5.3
2020	
The preliminary documentation must include an assessment of potential impacts (including positive and negative impacts; direct, indirect, facilitated and cumulative impacts) that may occur as a result of all elements and phases of the proposed action (for example during demolition and post-demolition) on the MNES listed at Section 3. Consideration of impacts must not be confined to the immediate area of the proposed action but must also consider the potential of the proposed action to impact on adjacent areas of the National Heritage place, including:	Section 5.1
A Heritage Impact Statement that assesses the impact to the heritage values of the MNES from the proposed action in accordance with the principles set out in "The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance" (2013).	Section 5.3
An assessment of impacts to the MNES and heritage values from the demolition and removal of existing infrastructure. This must include: i) consideration of impacts to social values ii) consideration of impacts on values relating to buildings and layout iii) details of any measures put in place to ensure interpretation of these values is still available to visitors or researchers.	Section 5.3 Section 5.3.2 Section 5.3.4
Details of measures to manage impacts associated with demolition and removal of existing infrastructure (for example see Heritage Victoria's Publication "Demolition" (2007)).	Section 6 Section 5.3.5
The ability of the site to continue to demonstrate the values cited in the Commonwealth and National heritage listings following the demolition, including its rarity as "perhaps the only remaining relatively intact early military airfield in the world."	Section 5.3.6
Additional information request	
2020 Assessment of the proposed action against all obligations (statutory or otherwise) as they relate to the protection and management of National and Commonwealth heritage values by Commonwealth agencies.	Section 3
Details of any measures to appropriately deal with contaminated soils and/or hazardous wastes.	Section 4.6 Section 5.4 Section 6
Details on whether any impacts are likely to be unknown, unpredictable or irreversible.	Section 5
An assessment of the likely duration of impacts to MNES as a result of the proposed action.	Section 5
Full justification of all discussions and conclusions of the above points, and where relevant based on the best available information and guidance documentation.	Section 5.3

Additional information request	Response / Section addressed
5. Proposed avoidance and mitigation measures	
2020 The preliminary documentation package must provide information on proposed avoidance and mitigation measures to avoid, prevent or minimise impacts, to the MNES addressed at Section 3 above, that are likely to be impacted by the proposed action. A consolidated list of proposed avoidance and mitigation measures must be provided, based on best available practices and must include:	Section 6
a) Details of any understandings, agreements or plans developed to manage impacts to the MNES and heritage values.	Section 5.1 Section 5.3 Section 6
b) Consideration of retention of the listed heritage values, including through retaining the significant fabric/buildings/layout.	Section 2.5 Section 5.3
c) A detailed description of the avoidance and mitigation measures proposed, including a statement of the objectives, the ongoing management and monitoring, the policy basis for the measures, the party responsible for each measure, and locations and timing of each measure. This should also address any identified impacts to MNES in adjoining areas (for example, other buildings with heritage values within the site).	Section 6
d) Details of comprehensive archival recording, including methods of recording, storage and public access.	Section 6 Section 5.3.4
e) An assessment of the expected or predicted effectiveness of the measures proposed to avoid, prevent or minimise impacts to MNES, including an assessment of their past effectiveness where relevant.	Section 5.3 Section 6
f) Details of ongoing management, including research and monitoring programs to support an adaptive management approach and determine the effectiveness of the measures proposed.	Section 5.3
g) If no measures are proposed, a detailed description of the assessment of why the expected or predicted effectiveness, and affordability or achievability of avoidance and mitigation options makes the measures unfeasible.	N/A
Additional information request	
2020 Specific measures can be presented in the form of a management plan, such as a Heritage Management Plan and/or a Construction Environmental Management Plan, which is specific to the proposed action. At a minimum, the plan/s must include a detailed outline that sets out the framework for management, mitigation and monitoring of relevant impacts of the proposed action, including provision for independent auditing. The plan/s must include details of the key commitments and measures to ensure that impacts to MNES and heritage values are avoided and minimised. The Department's Environmental Management Plan Guidelines 2014 are available at: www.environment.gov.au/epbc/publications/environmental-management-plan-guidelines.	Attachment 1
6. Residual impacts/proposed offsets	
2020 Describe the residual impacts on MNES that are likely to occur as a result of the proposed action in its entirety, after proposed avoidance and/or mitigation measures are taken into account. If applicable, this should include the reasons why avoidance or mitigation of impacts cannot be reasonably achieved.	Section 5.3.8
Include a summary of the net impact to MNES that is likely to result from the proposed action, taking into consideration both positive and negative impacts.	Section 5.1

Additional information request	Response / Section addressed
If residual impacts are likely to be significant please provide an offset package to compensate for residual impacts to MNES. Offsets should improve the integrity and resilience of the heritage values of the MNES involved.	Section 5.3.8 Section 5.3.9
The proposed offset must meet the requirements of the Department's EPBC Act Environmental Offsets Policy (October 2012) available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy.	N/A
The package must include justification of how the offsets meets the EPBC Act Environmental Offsets Policy and how the specific outcomes will be achieved. Offsets required by the State can contribute to offset obligations under the EPBC Act if those offsets also meet the requirements of the EPBC Act Environmental Offsets Policy.	N/A
7. Other approvals and conditions	
2020 The preliminary documentation must include information on any other requirements for approval or conditions that apply, or that you reasonably believe are likely to apply, to the proposed action. This must include:	Section 3
a) A description of any approval obtained or required to be obtained from a State or Commonwealth agency or authority (other than an approval under the EPBC Act), including any conditions that apply to the proposed action.	Section 3
b) A statement identifying any additional approval that is required.	Section 3
c) A description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.	Section 3
Additional information request	
8. Social and economic	
2020 The preliminary documentation must address the economic and social impacts (both positive and negative) of the proposed action and any alternatives considered. This may include projected costs and benefits of the proposed action, for example employment opportunities expected to be generated by the project (including during and after the action is complete). This must include the basis for their estimation through cost/benefit analysis or similar studies.	Section 4.7
Economic and social impacts should be considered at the local, regional and national level.	Section 4.7
2022 Please provide information on how the RAAF community feel about the proposed action.	Section 5.3.2
9. Environmental record of person proposing to take the action	
Please provide the following information if updated from that provided with the referral document, details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:	Section 3
a) The person proposing to take the action.	Section 2.2.1
b) For an action for which a person has applied for a permit, the person making the application.	No permit has been applied for.
If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework should be described.	Defence is a Commonwealth Agency and is not a corporation. Defence has a robust Environmental Policy with the stated vision that *Defence will be a leader in sustainable environmental management to support the*

Additional information request	Response / Section addressed
	Australian Defence Force capability to defend Australia and its national interests. The Defence Environmental Policy is underpinned by the 2016-2036 Defence Environmental Strategy and implemented under the Defence Environmental Plan. Under Commonwealth environmental legislation and the Defence Environmental Policy, every person in Defence is responsible for environmental management in the conduct of their duties.
10. Ecologically sustainable development	
The preliminary documentation package must provide a description of the proposed action in relation to the principles of ecologically sustainable development and the objects and requirements of the EPBC Act:	Section 7
a) The long-term and short-term economic, environmental, social and equitable considerations.	Section 7.1
b) The precautionary principle which states that a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation where there are threats of serious or irreversible environmental damage.	Section 7.2
c) The principle of inter-generational equity which states that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	Section 7.3
d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.	Section 7.4
e) Improved valuation, pricing and incentive mechanisms should be promoted.	Section 7.5
The National Strategy for Ecologically Sustainable Development (1992) is available on the following web site: http://www.environment.gov.au/resource/national- strategy-ecologically-sustainable-development.	
11. Conclusion	
The preliminary documentation must provide an overall conclusion as to the environmental acceptability of the proposal, including discussion on compliance with the principles of Ecologically Sustainable Development (ESD) and the objects and requirements of the EPBC Act.	Section 8
Additional information request	
To assist you, the National Strategy for Ecologically Sustainable Development (1992) is available on the following web site: https://www.environment.gov.au/about-us/esd/publications/national-esd-strategy. You may wish to include a statement as to whether or not the controlled action should be approved and may recommend conditions pertaining to an approval. This should include justification for undertaking the proposed action in the manner proposed. The measures proposed or required by way of offset for any unavoidable impacts on MNES and the relative degree of compensation, should be restated here.	Section 7
12. Information sources	
The preliminary documentation must state for the information provided, the following:	Section 5 Section 9
a) The source and currency (date) of the information.	
b) How the reliability of the information was tested.	

Additional information request		Response / Section addressed
c)	The uncertainties (if any) in the information.	
d)	The guidelines, plans and/or policies considered.	

Attachment 3

RAAF Base Point Cook Heritage Management Plan

Attachment 4

RAAF Base Point Cook Proposed Removal of Heritage Assets, Final Heritage Impact Assessment (ERM, 2019)

Attachment 5

Heritage Impact Assessment: VT11445 RAAF Williams Point Cook Building Works (Biosis, 2019)

Heritage Impact Assessment:

VT11445
RAAF Williams Point Cook Building Works

Report prepared for Aurecon on behalf of Department of Defence

5 April 2019

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Document control

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Draft version 01	Adam Black	29/06/2018
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Summary

Background

This report documents the findings of a Heritage Impact Assessment (HIA) for the proposed demolition of Building 190 and proposed maintenance works to Building 3, Building 9, Building 25, Building 164, Building 176, Building 179, Building 182, Building 183, Building 184, Building 185, Building 187, Building 190, Building 195, Building 197 and Building 202 at RAAF Williams, Point Cook. The proposed maintenance works are compliant with the Building Code of Australia (BCA). The purpose of this HIA is to provide information on the heritage values of the study area, and provide advice for the management of these values during the refurbishment works.

Building 243 has been proposed to be demolished as part of this scope, however has since been descoped from this HIA as these impacts assessed in a separate HIA (Aurecon project no. 12399).

This HIA has been prepared to inform the Point Cook Building Works – 90% Report (Aurecon, 2019) and associated documents including the Architectural Specifications. The HIA is to be used in conjunction with the Architectural Specifications and are to be implemented over the life of the project.

The HIA has been prepared in accordance with the Defence Heritage Toolkit Guide 6 (Annex C: Heritage Impact Assessments) and has been informed by the site's Heritage Management Plan, *RAAF Williams Point Cook Heritage Management Plan* (Environmental Resources Australia Pty Ltd, 2012).

RAAF Williams Point Cook is recognised for its heritage values on the National Heritage List (NHL), Commonwealth Heritage List (CHL), Register of the National Estate (RNE) and the National Trust Register.

In summary, the relevant heritage listings covered by this HIA are:

- NHL: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (NHL Historic Place ID 105671).
- CHL: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (CHL Historic Place ID 105275).
- RNE (now defunct): as place ID 105146, ID 105145, ID 9996 and ID 5464.
- National Trust Register (a non-statuary listing): also has listings for the Former Point Cook RAAF Base (File B5572) and Hangar No 95 - R.A.A.F. Base - Point Cook (File B2978). Point Cook RAAF Complex and Point Cook Cenotaph are also listed in the Victorian War Heritage Inventory (125277 and 156272 respectively).

Proposed Action

Refurbishment works have been proposed to address maintenance issues at Building 3, Building 9, Building 25, Building 164, Building 176, Building 179, Building 182, Building 183, Building 184, Building 185, Building 187, Building 195, Building 197 and Building 202 at RAAF Williams, Point Cook. These works are required for the ongoing use of the buildings. The proposed works also include the demolition of Building 190. The Estate Works Program (EWP) items for each building are outlined in Section 2 in full.

The proposed demolition of Buildings 190 will result in isolated severe, irreversible, long term impacts to the building and its heritage fabric. However the impacts of its removal will be managed, therefore the overall heritage significance and environment of RAAF Williams Point Cook will not be subject to significant impacts by this action. Similarly, new openings will be made to Buildings 184 and 185. This will cause irreversible impacts to the buildings, however these are not significant impacts.

Indigenous heritage will not be impacted by the proposed works. Natural heritage has not been assessed as part of this report.

Heritage Impact Assessment

This HIA has been prepared in accordance with the self-assessment process outlined in Significant Impact Guidelines 1.1 and 1.2 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which apply to Matters of Environmental Significance (MNES) and actions taken on Commonwealth land. A summary of the heritage impact assessment for each asset is provided in Table 1 below.

Table 1 Heritage Impact Assessment Summary

Asset	Heritage Value	Will the action have a significant impact?
Building 3	Moderate	The carpet is to be replaced in Building 3. The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.
Building 9	Moderate	The majority of works are minor maintenance actions, being upgrades to bathrooms, replacement of floor coverings, replacement of blinds and repainting. Controls to reduce impacts are to follow the methodologies and specifications for painting and timber as in Appendix 1. With the heritage controls these are low risk actions.
Building 25	Low	Gutter and downpipe replacement, roof sheet replacement and repair of cracking are minor maintenance actions. To reduce impacts, watergoods and roof sheeting are to match existing. With these heritage controls these are low risk actions.
Building 164	None	Fire detection cabling is to be installed to Building 164. The works are minor actions to ensure the building can meet modern codes. No management and mitigation measures are necessary. The actions are low risk.
Building 176	Moderate	The repainting works to Building 176 are minor maintenance actions. Controls to reduce impacts are to follow the methodologies and specifications for painting and timber finishes in Appendix 1. With the heritage controls these are low risk actions.
Building 179	High	The maintenance actions such as repairing the roof, replacing exit signs and drainage works are required to ensure the building remains useable and to ensure it meets modern codes. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and to ensure the roof is replaced like for like in colour and materials. With the heritage controls these are low risk actions.
Building 182	High	The maintenance actions such as repairing the hangar doors and roof sheeting are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and replacing roof sheeting in like for like colour and materials. With the heritage controls these are low risk actions.

Asset	Heritage Value	Will the action have a significant impact?
Building 183	High	The maintenance actions such as repairing the hangar doors, repairing drainage and repairing roof sheeting are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and replacing roof sheeting in like for like colour and materials. With the heritage controls these are low risk actions.
Building 184	High	**Yes, the works will impact on the heritage values of this building**. A new fire door will be installed to the building and door tracks are to be replaced to ensure continued use of the building. As the building is of high significance and the form of the building will be altered irreversibly, photographic archival recording will be required to document change as a management measure. Overall, however, the alterations to the building **will not impact on the heritage significance of the base as a whole and will not be severe.** These controls have been recommended to reduce direct and cumulative impacts to heritage values.
Building 185	High	**Yes, the works will impact on the heritage values of this building**. A new fire door will be installed to the building and door tracks are to be replaced to ensure continued use of the building. As the building is of high significance and the form of the building will be altered irreversibly, photographic archival recording will be required to document change as a management measure. Overall, however, the alterations to the building **will not impact on the heritage significance of the base as a whole and will not be severe.** These controls have been recommended to reduce direct and cumulative impacts to heritage values.
Building 186	High	The maintenance actions such as repairing the roof and repairing the hangar doors are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and to ensure the roof is replaced like for like in colour and materials. With the heritage controls these are low risk actions.
Building 187	High	The maintenance actions of repairing the hangar doors are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and to ensure the roof is replaced like for like in colour and materials. With the heritage controls these are low risk actions.

Asset	Heritage Value	Will the action have a significant impact?
Building 190	Moderate	**Yes, the works will impact on the heritage values of this building**. The entire structure will be demolished due to fire safety concerns, lack of operational uses and budget constraints. The building is not fire compliant and has no current use. The demolition is not avoidable, as operational requirements are not negotiable in this case and there are no prudent or feasible alternatives. Overall, however, the demolition of the building **will not impact on the National Heritage place's significance of the base as a whole and will not be severe** as Building 190 is WWII P1 hut which is represented elsewhere on the base, and mitigation can be achieved through photographic archival recording and interpretation. Photographic archival recording will be required to document change. These controls have been recommended to reduce direct and cumulative impacts to heritage values.
Building 195	Low	The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.
Building 197	Low	The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.
Building 202	Low	The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.

Recommendations

Based on this HIA, Biosis Pty Ltd advises that:

- Photographic archival recording must be undertaken prior to the removal of Buildings 190. This should be in accordance with the NSW Heritage Office Guidelines How to Prepare Archival Records of Heritage Items (NSW Government 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Government 2006).
- Photographic archival recording must be undertaken prior to the creation/installation of new doors to Building 184 and Building 185. This should be in accordance with the NSW Heritage Office Guidelines How to Prepare Archival Records of Heritage Items (NSW Government 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Government 2006).
- The location of Building 190 is not proposed to be developed. If development is required in the future, new buildings must be in the same prevailing planning layout as other structures in the North Tarmac Precinct. New structures must take into account the scale, form and restrained palette of materials, colours and finishes.
- Erection of plaque or sign designating the location of Buildings 190 should be undertaken, and include a brief interpretation of the structures' origin date and purpose. New signage should be in the same colour, size and style to ensure consistency in interpretive signage across the base (if any current signage).
- Further research and audits should be undertaken of the remaining World War Two (WWII) P1 huts on the base to ensure a representative example is retained, used and maintained as per the HMP (Environmental Resources Australia Pty Ltd, 2012, p. 38). This study may coincide with updates to the HMP.
- 'Before and after' digital photographs will be sufficient for the removal of the door tracks of Buildings 179, 182, 183, 184, 185 and 186. They should be printed and annotated and kept with a plan of the structure that records the precise location of the modification. The records should be stored by the Environment and Sustainability Manager (ESM).
- Appropriate control methodologies for the treatment of heritage fabric not detailed in the Architectural Specifications include the repair of timber, paints and finishes and the replacement of rainwater goods. These works should be undertaken in accordance with the methodologies outlined in Appendix 1.

Should all of the above management and mitigation measures be undertaken by Defence, it is considered the proposed works will not have a significant impact on the heritage values of RAAF Williams Point Cook.

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1 Introduction

This report documents the findings of a Heritage Impact Assessment (HIA) for the proposed demolition of Building 190 and proposed maintenance works to Building 3, Building 9, Building 25, Building 164, Building 176, Building 179, Building 182, Building 183, Building 184, Building 185, Building 187, Building 190, Building 195, Building 197 and Building 202 at RAAF Williams, Point Cook. Building 243 had been proposed to be demolished as part of this scope, however has since been descoped from this HIA. The impacts to Building 243 are assessed in a separate HIA (Aurecon project no. 12399). The purpose of this HIA is to provide information on the heritage values of the study area, and provide advice for the management of these values during the refurbishment works. The HIA has been prepared in accordance with the Defence Heritage Toolkit Guide 6 (Annex C: Heritage Impact Assessments) and has been informed by the site's Heritage Management Plan Heritage Management Plan, *RAAF Williams Point Cook Heritage Management Plan* (Environmental Resources Australia Pty Ltd, 2012).

1.1 Study Area

RAAF Williams Point Cook is a 340.97 hectare site located 25 kilometres from Melbourne on the shores of Port Phillip Bay within the suburb of Point Cook (Figure 1). The site comprises airstrips, buffer zones, buildings and RAAF Lake. The proposed actions are occurring within the North Tarmac Precinct and the RAAF Academy Precinct. RAAF Williams Point Cook is recognised its heritage values on the National Heritage List (NHL) as Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (NHL Historic Place ID 105671) and on the Commonwealth Heritage List (CHL) as Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (CHL Historic Place ID 105275).

1.2 Methodology

The preparation of this HIA has involved the following tasks:

- Background research of existing Heritage Management Plans (HMPs), Conservation Management Plans (CMPs), other site reports as applicable, online databases and library references.
- A site visit of the assets being refurbished.
- Consultation with the Aurecon project manager, project architect and Defence stakeholders.
- Review of the 30% Concept Design Report and 90% Detailed Design Report.
- Undertake a HIA and review proposed actions against the HMP.
- Provide advice on mitigation and management of heritage assets.

1.3 Works approvals

The *Environment Protection Biodiversity Conservation Act 1999* and associated *Environment Protection and Biodiversity Regulations 2000* provides protection for the environment (including heritage) on Commonwealth land and the protection of Matters of National Environmental Significance (MNES) which include items on the Commonwealth Heritage List.

Pursuant to s. 26 of the EPBC Act; *'The Commonwealth or a Commonwealth agency must not take inside or outside the Australian jurisdiction an action that has, will have or is likely to* ***have a significant impact on the environment*** *inside or outside the Australian jurisdiction'.*

Department of Defence as a Commonwealth agency must not undertake any actions on its land, without ensuring that appropriate measures have been taken to avoid and mitigate potential impacts to the environment.

For proposed actions likely to have a significant impact on a Matter of National Environmental Significance (MNES) *Significant Impact Guidelines 1.1* apply. As RAAF Williams Point Cook is registered on the NHL, the proposed works must be assessed against these guidelines. These guidelines require the proponent to undertake a self-assessment process to decide whether or not the action is likely to have a significant impact on an MNES, including world heritage properties, national heritage places, wetlands of international importance, nationally threatened species and ecological communities, migratory species, Commonwealth marine areas, the Great Barrier Reef Marine Park, nuclear actions and a water resource (in relation to coal seam gas development and large coal mining development). If an action is likely to have a significant impact an Environmental Clearance Certificate (ECC) and/or an EPBC Act referral must be prepared and submitted to the Minister for approval.

For proposed actions situated on Commonwealth land or which may impact on Commonwealth land, the guidelines Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies *Significant Impact Guidelines 1.2* apply. The guidelines require the proponent to undertake a self-assessment process to decide whether or not the action is likely to have a significant impact on the environment, including the heritage value of places. If an action is likely to have a significant impact an Environmental Clearance Certificate (ECC) and/or an EPBC Act referral must be prepared and submitted to the Minister for approval.

1.3.1 What is a significant impact?

A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.

In assessing impacts on heritage values of a National Heritage place, the *Significant Impact Guidelines 1.1* present a number of questions to be answered.

Is there a real chance or possibility that the action will:

- Permanently remove, destroy, damage or substantially alter the fabric of a National Heritage place in a manner which is inconsistent with relevant values
- Extend, renovate, refurbish or substantially alter a National Heritage place in a manner which is inconsistent with relevant values
- Permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a National Heritage place
- Involve activities in a National Heritage place with substantial and/or long-term impacts on its values
- involve the construction of buildings or other structures within, adjacent to, or within important sight lines of, a National Heritage place which are inconsistent with relevant values
- Make notable changes to the layout, spaces, form or species composition of a garden, landscape or setting of a National Heritage place in a manner which is inconsistent with relevant values.

The assessment of impacts on heritage on Commonwealth land under the *Significant Impact Guidelines 1.2* also includes addressing similar questions. These are listed below.

Is there a real chance or possibility that the action will:

- Permanently destroy, remove or substantially alter the fabric (physical material including structural elements and other components, fixtures, contents, and objects) of a heritage place.
- Involve extension, renovation, or substantial alteration of a heritage place in a manner which is inconsistent with the heritage values of the place.
- Involve the erection of buildings or other structures adjacent to, or within important sight lines of, a heritage place which are inconsistent with the heritage values of the place.
- Substantially diminish the heritage value of a heritage place for a community or group for which it is significant.
- Substantially alter the setting of a heritage place in a manner which is inconsistent with the heritage values of the place, or
- Substantially restrict or inhibit the existing use of a heritage place as a cultural or ceremonial site.

1.3.2 Heritage Management Plan

Defence has a comprehensive environmental impact assessment process to ensure that the impacts of its activities on heritage values are considered and managed. The EPBC Act requires that all sites listed on the NHL and the CHL must be managed according to a management plan written specifically for that place. As there is a HMP in place, works should be assessed against the HMP and Garrison Estate Management System (GEMS), and consultation undertaken with Estate & Infrastructure Group (E&IG) to discuss requirements and if they align with the HMP. If works are not consistent with the HMP, then works may require an ECC, or if significant adverse impacts to heritage values are considered likely, then a referral under the EPBC Act may be required. The Directorate of Environmental Protection and Assessments (DEPA), Estate Policy and Environment Branch (EE), will determine if an EPBC Referral is required as part of the environmental impact assessment process. DEPA may approve the works by an Environmental Approval Report (EAR) as works to NHL and/or CHL places may be a trigger for an EPBC Referral.

DEPA are the liaison point of contact for Department of Environment and Energy (DoEE). Within Defence, only DEPA can determine whether a referral is required.

The HMP provides guidance for managing significant elements of the site including the general policies to retain key buildings of Moderate and High significance

The HMP for RAAF Williams Point Cook contains the following guidelines:

> *Every effort should be made to retain buildings and elements of a Moderate level of significance* (Environmental Resources Australia Pty Ltd, 2012, p. 22).
>
> *In the course of preparing buildings and precincts at Point Cook for new uses, alterations, upgrades, and in some cases demolition (partial or whole), will be required. Should this occur to buildings of identified heritage value, an archival recording of the building or site element should be prepared prior to the commencement of works* (Environmental Resources Australia Pty Ltd, 2012, p. 24).

These statements help to provide guidance for demolition within the HMP framework.

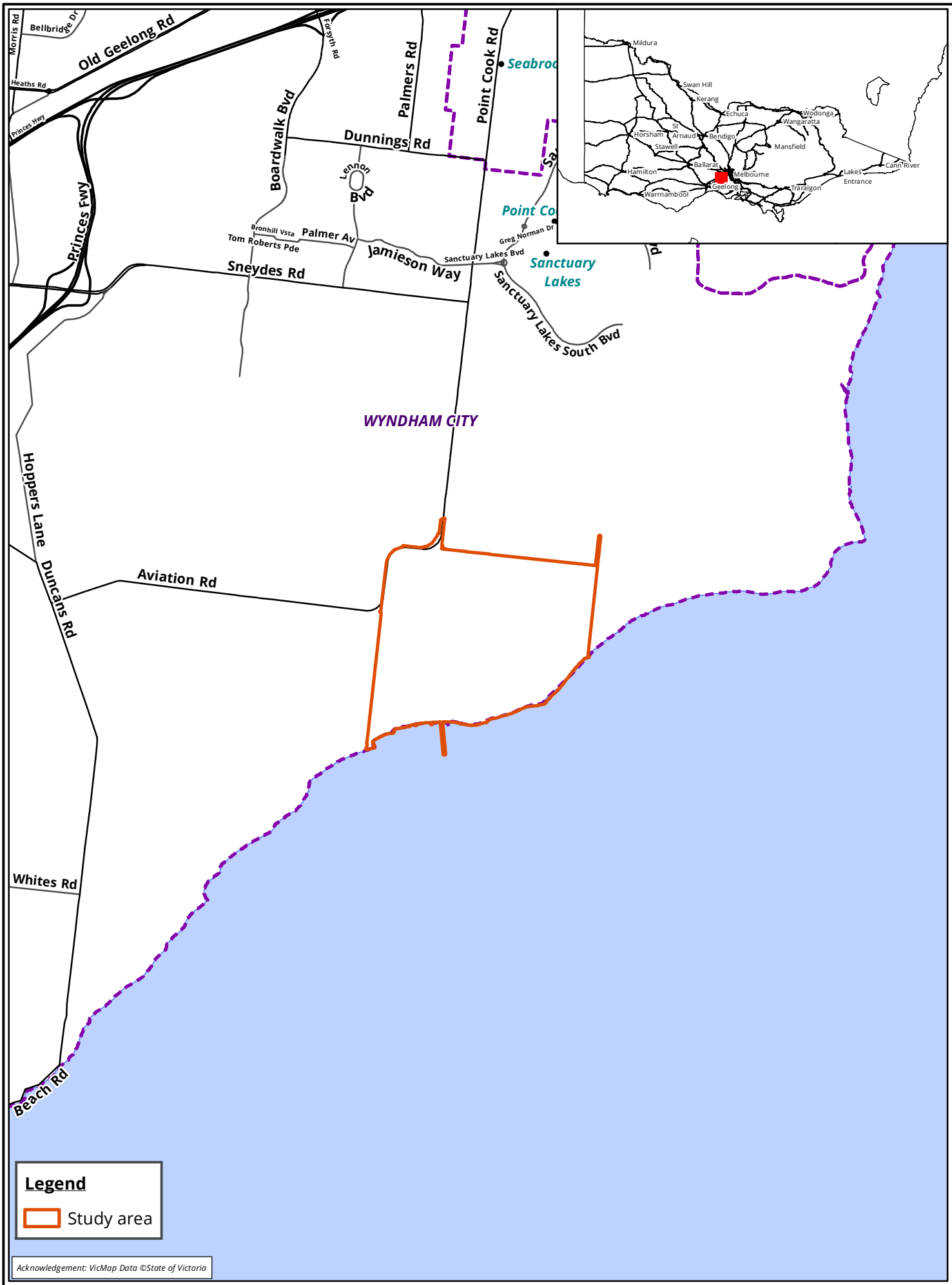


Figure 1 Location of the Activity Area

Scale 1:50,000 @ A4, GDA 1994 MGA Zone 55

Biosis Pty Ltd
Albury, Ballarat, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 26741
Date: 04 October 2018,
Checked by: LMT, Drawn by: SSK, Last edited by: dkazemi
Location: \\bio-data-01\matters$\26700s\26741\Mapping\26741_M1_Location.mxd

1.4 Heritage status

RAAF Williams Point Cook is recognised for its heritage values on the NHL and the CHL. In summary, the relevant heritage listings covered by this HIA are:

- Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (NHL Historic Place ID 105671).
- Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (CHL Historic Place ID 105275).

This listing is also registered under multiple listings on the now defunct Register of the National Estate (RNE), as place ID 105146, ID 105145, ID 9996 and ID 5464.

The National Trust Register (a non-statuary listing) also has listings for the Former Point Cook RAAF Base (File B5572) and Hangar No 95 - R.A.A.F. Base - Point Cook (File B2978). Point Cook RAAF Complex and Point Cook Cenotaph are also listed in the Victorian War Heritage Inventory (125277 and 156272 respectively). RAAF Williams Point Cook 1 has previously been listed on the Victorian Heritage Inventory (D7822-0119), but is no longer listed as it is located on Commonwealth land.

Full heritage listings for RAAF Williams Point Cook are discussed in Section 3.2.

Indigenous heritage values were not assessed in the HMP. However, it is noted that Indigenous heritage values are likely present (Environmental Resources Australia Pty Ltd, 2012, p. E27). Additionally, there are a number of Aboriginal places registered on the Victorian Aboriginal Heritage Register (VAHR) within 700 metres of RAAF Williams Point Cook which indicate RAAF Lake and the coast line of Port Phillip Bay were exploited for resources (Vines, 2004; Weaver, 1992). The previously recorded Aboriginal places are as follows:

- Point Cook RAAF 1 VAHR 7822-0610)
- Point Cook 3 (VAHR 7822-0131)
- Point Cook 4 (VAHR 7822-0136)
- Point Cook 9 (VAHR 7822-0137)
- Point Cook 10 (VAHR 7822-0138)
- Point Cook 11 (VAHR 7822-0139)
- Point Cook 12 (VAHR 7822-0140)
- Point Cook 13 (VAHR 7822-0141)
- Point Cook 14 97822-0142)
- Point Cook A (VAHR 7822-1356)
- Point Cook B (VAHR 7822-1357)

Natural heritage values were also not assessed in the HMP. However, it is also noted in the HMP that RAAF Williams Point Cook falls within a RAMSAR wetlands site, and the Point Cook Metropolitan Park adjacent to the RAAF is of State botanical significance (Environmental Resources Australia Pty Ltd, 2012, p. G3).

1.5 Report authors

This report has been prepared by Leah Tepper, Archaeologist. Technical support and Quality Assurance has been provided by Adam Black, Senior Heritage Consultant.

1.6 Limitations

The camera used by Biosis during the site visit ran out of batteries. As such, many of the datasheets in Appendix 2 do not have photographs of the buildings. No structural reports were available for Building 190.

2 Proposed actions

The proposed maintenance works are for Buildings 3, 9, 25, 164, 176, 179, 182, 183, 184, 185, 186, 187 195, 197 and 202, and include a range of internal and external works including demolition. The refurbishment works are necessary for the continuing use of the buildings, and meet BCA standards (Merrony, 2019). The Estate Works Program (EWP) items for each building are outlined below in Table 2 to Table 17. The locations of these buildings is shown in Figure 2. Further information about Buildings 3, 9, 25, 164, 176, 179, 182, 183, 184, 185, 186, 187, 190, 195, 197 and 202 is located in Appendix 2. Building 243 had been proposed to be demolished as part of this scope, however has since been descoped from this HIA and the impacts assessed in a separate HIA (Aurecon project no. 12399).

The demolition of Building 190 is proposed by the E&IG and the stakeholders of the base as being a cost effective way to continue the use of the base via the construction and use of new buildings (Merrony, 2019). Building 190 is derelict, is not fire compliant and have been unoccupied for a considerable period of time. The structure has no occupational uses, as its previous use as a storage space has been moved to other buildings on the base (Aurecon, 2018).

Table 2 Building 3 works

EWP ID	Scope	Heritage Assessment
0932-A0003-25	Replace carpet throughout as it has become rippled, damaged and worn.	Building is of moderate significance, however the works are minor and are of low risk.

Table 3 Building 9 works

EWP ID	Scope	Heritage Assessment
0932-A0009-6	All floor coverings to be removed and replaced in accordance with manufacturers' instructions and relevant standards. Engage with stakeholders for finished surface selection and colour.	Minor works that are low risk. The internal floor coverings are not of heritage significance.
0932-A0009-7	Complete refurbishment of toilets, vanities, cubicles, tiles and fittings to be replaced. Patch dints and cracks, and paint walls and ceiling. Replace exhaust fans if faulty. Remove and dispose of all items with the toilets and replace with new components. Patch dints and cracks with putty then repaint. Surface preparation and application of paint shall be compliant with ASNZS2311-2009. Engage with stakeholders/ building users for advice and selection of new items and finished surface selection.	Minor works that are low risk.
Added to scope after stakeholder request and site observations at 30% concept design	Replacing old blinds with new blinds that are external to the windows (but internal to the building)	Building 9 is of moderate heritage significance relating to its relationship to other buildings in the precinct and its external form. Modifications to the windows have the potential to impact on significance of the building however the blinds will ensure the windows retain their recessed forms.
0932-A0009-12	Remove flaking paint on walls, ceiling, doors, door jambs, window frames, skirting's and architraves. Patch dints and cracks with putty then repaint. Surface preparation and application of paint shall be compliant with ASNZS2311-2009.	Minor maintenance works that are low risk and will ensure the continued health and use of the building. Appropriate methodologies are required as

Table 4 Building 25 works

EWP ID	Scope	Heritage Assessment
BEAP-0932-3.22	Descoped after return brief as works had been carried out. Undertake repair or replacement of high voltage terminations, depending on assessed remaining life of installation. The connections of the high voltage cables to the switchgear are visually in poor condition due to electrically induced damage with evidence of weeping wax insulation from cables or existing repairs that have been carried out. Location – Central Energy Plants (CEPS), Sub1, Sub3, Sub4, Sub5.	Item descoped and will have no impacts.
BEAP-0932- 3.23	Descoped after return brief as works had been carried out. Investigate option to replace oil containment of sufficient size and of corrosion resistant construction. The containment is insufficiently sized or chemically incompatible or has rusted due to weather. Location: CEPS, Sub1, Sub2, Sub3, Sub4, Sub5	Item descoped and will have no impacts.
BEAP-0932- 3.15	Descoped after return brief as works had been carried out. Repair or replace earth stakes. Earth stakes are in poor condition due to corrosion or accidental damage. Location - CEPS, Sub1, Sub3, Sub4, Sub5.	Item descoped and will have no impacts.
0932-A0025-1	Repair masonry top SE&SW corner. Repair brick wall crack west side. Repair major concrete floor cracking.	Building is of low heritage significance and these maintenance works that are low risk.
Added to scope after stakeholder request and site observations at 30% concept design	Gutter and downpipe replacement, roof sheeting replacement	Building is of low heritage significance, however major design changes to the roof would impact on views and vistas.

Table 5 Building 164 works

EWP ID	Scope	Heritage Assessment
0932/A0164-1-FR	Run fire detection cabling at high level to be run to serve Building 176	Building 164 is of no heritage significance, and the cabling will not cause any heritage impacts.

Table 6 Building 176 works

EWP ID	Scope	Heritage Assessment
0932-A0176-2	Remove flaking paint on all walls, ceilings, doors, door jambs, window frames, skirting and architrave. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	Building 176 is a WWII 2 P1 hut of moderate heritage significance which relates to its overall form. Repainting is a minor maintenance work that is low risk and will ensure the continued health and use of the building. Appropriate methodologies are required.
0932-A0176-3	Remove rust and flaking paint to all external metal wall lining and corrugated iron. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	Minor maintenance works that are low risk and will ensure the health of the building. Appropriate methodologies are required.
0932-A0176-5	Remove flaking paint, preplace timber where required to all timber fascias, facia barges, window frames, doors and door jambs, door sills, and base boards. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	Minor maintenance works that are low risk and will ensure the health of the building. Appropriate methodologies are required.

Table 7 Building 179 works

EWP ID	Scope	Heritage Assessment
0932-A0179-1	Replace exit signs with compliant signs. Sliding hanger doors to be made workable.	Building is of high heritage significance. The HMP identifies that the overall form of the building including door tracks and cross braced doors are a key aspect of its significance and must not be compromised.
Added to scope after stakeholder request and site observations at 30% concept design	Existing roof sheeting is to be replaced with new roof sheeting, safety mesh and roof foil insulation. New metal and polycarbonate translucent corrugated sheet to match existing.	HMP states that corroded roof sheeting on the hangars can be undertaken with galvanised steel.
Added to scope after stakeholder request and site observations at 30% concept design	Geometric design of the apron to the west of Building 179 to facilitate adequate drainage away from Building 178 and 179. Asphalt pavement resurfacing of the apron to the west of Building 179 to provide shape correction to the pavement surface. Asphalt pavement resurfacing of the laneway between Building 178 and 179 to facilitate drainage. This provides shape correction only and has not been structurally designed for heavy vehicles or aircraft. Demolition of the existing concrete spoon drain to the front of Building 179.	These works will ensure the health of the building and prevent water ingress and pooling around the structure. The pavement works are highly unlikely to impact on subsurface historical or Indigenous archaeological deposits due to the history of disturbance in the Tarmac Precinct.

Table 8 Building 182 works

EWP ID	Scope	Heritage Assessment
0932-A0182-2	Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Building is of high heritage significance. The HMP identifies that the overall form of the building including door tracks and cross braced doors are a key aspect of its significance and must not be compromised. HMP recommends treating corroded areas with rust inhibitor and replacing tracks as required.
Added to scope after stakeholder request and site observations at 30% concept design	Existing roof sheeting is to be replaced with new roof sheeting, safety mesh and roof foil insulation. New metal and polycarbonate translucent corrugated sheet to match existing.	HMP states that corroded roof sheeting on the hangars can be undertaken with galvanised steel.

Table 9 Building 183 works

EWP ID	Scope	Heritage Assessment
0932-A0183-1	Assess and redirect drainage around building to stop regular flooding. Hanger subject to regular flooding in normal rain conditions.	Building is of high heritage significance, however these are minor maintenance works that are low risk.
Added to scope after stakeholder request and site observations at 30% concept design	Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.
0932-A0183-3	Assess and redirect drainage around building to stop regular flooding.	Building is of high heritage significance, however these are minor maintenance works that are low risk.
Added to scope after stakeholder request and site observations at 30% concept design	Existing roof sheeting is to be replaced with new roof sheeting, safety mesh and roof foil insulation. New metal and polycarbonate translucent corrugated sheet to match existing.	HMP states that corroded roof sheeting on the hangars can be undertaken with galvanised steel.

Table 10 Building 184 works

EWP ID	Scope	Heritage Assessment
0932-A0184-2	Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Building is of high heritage significance. The HMP identifies that the overall form of the building including door tracks and cross braced doors are a key aspect of its significance and must not be compromised.
0932-A0184-4	Make good/repair leaking facia areas under guttering.	Building is of high heritage significance, however these are minor maintenance works that are low risk.
Added to scope after stakeholder request and site observations at 30% concept design	The new doors will be provided in the south of Building 164 – allowing exit from Building 184 and the other providing exit from Building 185.	The wall which is to be demolished is a brick wall which is intrusive to Building 184. Fire rated cladding will be installed in its place, leaving the fabric of Building 185 in place and ensuring the continued use of the building. The addition of a door to Building 184 will impact on the form of the structure as well as heritage fabric and must be managed.

Table 11 Building 185 works

EWP ID	Scope	Heritage Assessment
0932-A0185-1	Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Building is of high heritage significance. The HMP identifies that the overall form of the building including door tracks and cross braced doors are a key aspect of its significance and must not be compromised.
Added to scope after stakeholder request and site observations at 30% concept design	Based on the fire services engineer's recommendation, the existing masonry wall separating Buildings 164 and 185 is to be upgraded to a fire-rated wall. This will reduce the fire compartment size to less than 2,000m2 and remove the BCA trigger for smoke exhaust. Additional exits are to be provided in lieu. The new doors will be provided in the south of Building 164 – allowing exit from building 184 and the other providing exit from building 185.	The wall which is to be demolished is a brick wall which is intrusive to Building 185. Fire rated cladding will be installed in its place, leaving the fabric of Building 185 in place and ensuring the continued use of the building. The addition of a door to Building 185 will impact on the form of the structure as well as heritage fabric and must be managed.

Table 12 Building 186 works

EWP ID	Scope	Heritage Assessment
0932-A0186-1	Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Building is of high heritage significance. The HMP identifies that the overall form of the building including door tracks and cross braced doors are a key aspect of its significance and must not be compromised.
0932-A0186-2	Make good/repair replace roof as required.	HMP states that corroded roof sheeting on the hangars can be undertaken with galvanised steel.

Table 13 Building 187 works

EWP ID	Scope	Heritage Assessment
0932-A0187-1	Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Building is of high heritage significance. The HMP identifies that the overall form of the building including door tracks and cross braced doors are a key aspect of its significance and must not be compromised.

Table 14 Building 190 works

EWP ID	Scope	Heritage Assessment
0932-A0190-4	Building is to be demolished in accordance with AS2601, relevant standards, guidelines and requirements. All connecting services to be disconnected and removed as required. All demolished material to be removed and ground area made good.	Building is of moderate significance associated with its overall form, layout and association with WWII. It has a low tolerance for change. The building is located in the North Tarmac Precinct which is noted in the HMP as being of high significance as the focus for WWII RAAF training activities through its rapid construction and development. It is part of a collection of WWII P1 huts on the Base. The loss of part of this building is unlikely to diminish the overall Commonwealth Heritage values of the place (Environmental Resources Australia Pty Ltd, 2012, p. E37).

Table 15 Building 195 works

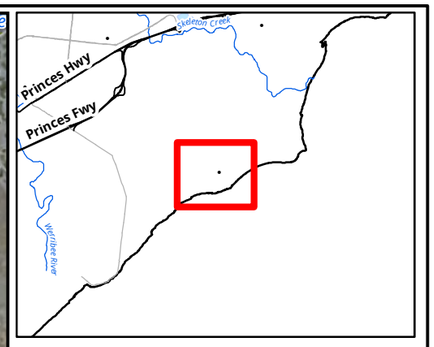
EWP ID	Scope	Heritage Assessment
0932/A0195-2-FR	Provide fire hose reel coverage IAW AS2441. Alternatively, provide certification evidence that fire hose reels have been omitted from the building.	Minor maintenance works that are low risk.

Table 16 Building 197 works

EWP ID	Scope	Heritage Assessment
0932/A0197-2-FR	Install self-illuminated exit signage above designated exit doors and doors in paths of travel to exits IAW AS2293.1-2005.	Minor maintenance works that are low risk.

Table 17 Building 202 works

EWP ID	Scope	Heritage Assessment
0932-A0202-1	Replace carpet as it has become worn and torn and poses a trip hazard.	Minor maintenance works that are low risk.
0932/A0197-2-FR	Remove flaking paint, seal joints on all compressed fibre cement fascias. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	Minor maintenance works that are low risk.
0932-A0202-16	Replace all metal decorative ceiling battens with suspended type ceiling with removable ceiling tiles.	Building is of low heritage significance and the replacement of the ceiling will not diminish significance of the precinct.
0932-A0202-21	Make good powder coated surface on all external aluminium window and door frames.	Minor maintenance works that are low risk.
0932-A0202-22	Repaint metal capping on top of all external parapet walls and downpipes by preparing and applying paint to all those surfaces as required by AS 1627 metal finishing.	Minor maintenance works that are low risk.
0932-A0202-27	Replace all metal decorative ceiling battens with suspended type ceiling with removable ceiling tiles.	Building is of low heritage significance and the replacement of the ceiling will not diminish significance of the precinct.



Legend

- Activity Area
- Buildings

Figure 2 Buildings Number

0 100 200 300 400 500

Metres
Scale: 1:10,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

N

Biosis Pty Ltd
Albury, Ballarat, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 26741,
Date: 02 April 2019,
Checked by: LMT, Drawn by: DK, Last edited by: jprasad
Location: P:\26700s\26741\Mapping\26741_F4_BuildingLabel.mxd

3 Historic background

3.1 Historical summary

3.2 Historical and ethno-historical accounts in the geographic region

For the purposes of this assessment, information about Aboriginal Victorian pre and post contact history has been sourced from nineteenth and twentieth century primary and secondary ethnographic/historical records.

3.2.1 Ethno-historical accounts of Aboriginal people

Linguistic boundaries and social organisation

Prior to European colonisation, the Victorian landscape was delineated by socio-dialectical groups who shared a common language and who as a group identified as owning particular areas of land, with individually owned tracts of country. This was a system of spatial organisation based on land tenure (Clark, 1990).

Aboriginal groups mapped natural features as boundaries for their ranges, estates and economic territories. The *Bun wurrung* clans likely occupied the study area. In particular the *Yallock Willam* held land east of the Werribee River, Williamstown, Sandridge and St Kilda (Clark, 1990).

Land ownership and access rights or responsibilities centred on the smaller named groups that formed the broader language grouping. These groups are often called 'clans' or 'local descent groups', however as (Wesson, 2000, p. 8) reasons, they are better described as 'named groups', as the membership structure of these groups, and their degree of division from other groups, could vary. In most instances, primary allegiance was owed to this named group, although this could vary according to context and location. Commonly, named groups were led by senior elders who exercised internal political and religious authority, as well as being recognised as their spokesperson when dealing with other groups (Atkinson & Berryman, 1983). Particularly influential group leaders could also assume authority over the leaders of other culturally affiliated groups (Wesson, 2000).

Social activity involving neighbouring named or socio-dialectical groups was usually held in warmer periods, held at the intersection of group boundary's and arranged by a person assigned the responsibility of travelling between groups to organise the time, place, and events of the meeting. This person could speak a number of different dialects and acted as intermediaries in negotiations between the groups. Activities would include sports and dancing, with up to 500 men, women and children attending (Atkinson & Berryman, 1983).

The succession or inheritance of lands and named-group estates could occur in a number of ways. Individuals and groups could inherit lands from their father, their mother, through their birthplace, conception place, the burial place of their ancestors, and through totemic connections (Wesson, 2000). Access rights also crossed generations and marriage partners. Howitt (1904, p. 311) wrote that:

> The right to hunt and to procure food in any particular tract of country belonged to the group of people born there, and could not be infringed by others without permission. But there were places which such a group of people claimed for some special reason, and in which the whole of the tribe had interest. Such a place was the stone quarry at Mt. William near Lancefield, from which the material for making tomahawks was procured. The family proprietorship in the quarry had wide ramifications... when neighbouring groups wished for some stone they sent a messenger to Bill-billeri saying that they would send goods in exchange for it, for instance, skin-rugs.

People would often travel or reside in the territory of another named-group so that they could fulfil religious or family obligations, or exercise the privilege, granted to them by family or moiety associations, of exploiting the resources of another estate (Barwick D. , 1984). For daily activities and the exploitation of local estates, people are thought to have travelled in small residential units or extended family groups, often termed bands (Wesson, 2000).

Moiety affiliation

A further level of social organisation was moiety affiliation. Various early reports from the area suggest two possible moity affiliations; *Waa* or *Bunjil* (Clark, 1990).

Membership to a named group is variably defined by a localised matrilineal or patrilineal descent group, with female members of the group partnering with men outside of their group (exogamous) and across moiety lines; however they maintained an identity of belonging to their father's group. Men then had to adhere to certain duties such as providing food to their father-in-law. Social engagement could be influenced by appropriate conduct between family members, for example men had avoidance behaviours they had to adhere to in the presence of their mother-in-law, and there were other speech or special duties which were expected in family relationships (Atkinson & Berryman, 1983).

Religion

Knowledge of Aboriginal religion was recorded and maintained through visual and oral tradition which ensured the maintenance of social structures through generations. Such knowledge was not always readily shared with non-Indigenous social observers and as such limited written versions from early settlers, explorers or government employees exist for Victoria. Ceremonies were occasionally performed to entertain Europeans however the meaning behind these performances was never fully explained (Robinson, 1840). Private ceremonies and locations, such as age initiations were actively kept secret (Presland, 1994).

Economy and resource utilisation

Certain individuals within Aboriginal groups had responsibilities assigned to them for the management of natural resources. Anthropogenic manipulation of the environment was observed by the first Europeans within northern Victoria, for example fire regimes which cleared tracks also aided in hunting and dissuaded settlers for entering Aboriginal territory (Atkinson & Berryman, 1983).

Canoes were cut from the bark of river red-gums and box trees with stone axe heads in spring to early summer, shaped over a fire, seasoned in the sun, then the end blocked with clay (Edwards R. , 1975). Hooped nets made from fibre were used to catch crayfish, yabbies and fish, while cross-line nets were strung low above the water for catching ducks or below the water to catch schools of fish (Gott & Conran, 1991). Line nets were also used to catch emus and kangaroos; a strategically placed group of people drove the animals towards the nets. Reed spears with hafted bone, carved barbs, stone pieces or hardened wooden points set into the head were used for catching larger marsupials. Oven mounds (cooking pits), were then constructed to bake the game or large volumes of vegetables (Atkinson & Berryman, 1983).

3.2.2 Historical accounts of Aboriginal people

The rapid spread of European colonisation altered Victorian Aboriginal society. The increased presence of settlers resulted in dispossession of Aboriginal people from their traditional land and diminished access to resources. These factors combined with population decline from introduced diseases and conflict, transformed Aboriginal society.

In 1839 an Aboriginal Protectorate Scheme was established in Victoria; the Protectorates provided religious instruction, rations, homes and medical care to Aboriginal people whilst recording population information

(Broome, 2005). Official inquiries into the welfare of Aboriginal people were held in 1849 and again in 1858. Although informants at the inquiries remarked on the rapid fall in the Aboriginal population, it was a number of years before any action was taken. The latter inquiry led to the formation of the Aboriginal Protection Board in 1860 which encouraged Aboriginal people to move onto reserves (Edwards W. , 1988). In 1869, the Aborigines Act was passed to give the Governor of Victoria power to dictate where Aboriginal people could reside, what activities they could undertake on and off reserves and the authority to take charge of Aboriginal children (Edwards W. , 1988).

A separate reserve was set up at Mordialloc in 1852 for the *Bun wurrrung* and became their main camp for 25 years. After the 1960s remaining survivors were eventually removed to Coranderrk Station in Healesville (Barwick D. , 1998).

3.2.2.1 Historical summary

The following historical summary is from the NHL listing for the Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia (Department of the Environment and Energy, 2007):

Birthplace of military aviation in Australia

The story of Point Cook, as the oldest continuously operating military airbase in the world, is an essential part of the story of the RAAF and the development of military and civil aviation in Australia.

The Australian Government acquired Point Cook in 1913 to establish the nation's first military flying school. The newly formed 'Central Flying School' started with two officer instructors, a few mechanics, two biplanes, two monoplanes and a Bristol Box-kite. The first military flight in Australia took place on 1 March 1914, and the first training course began in August with four student pilots, including Richard Williams and Thomas Walter White.

During World War I the Australian Flying Corps (AFC) was established at Point Cook as a new element of the army. Many of its pilots saw active duty overseas, in the Middle East and the Western Front.

The first Australian airman to die in action was Lieutenant George Merz—one of the first pilot graduates from Point Cook—who was killed in Mesopotamia. During the war 65 Australians became 'aces' by shooting down at least five planes, and Lieutenant Frank McNamara, who trained at Point Cook, won Australia's sole air Victoria Cross while serving with No 1 Squadron, AFC.

Throughout this period Point Cook remained the focal point of military aviation in Australia, serving as a flying training unit as well as the assembly point for most AFC units travelling overseas.

Williams and White served in the Middle East and are noted for their distinguished service and special association with RAAF Base Point Cook. Williams is known as the father of the RAAF, for his efforts in promoting air power in Australia's defence. White wrote Sky Saga, a Story of Empire Airmen in the Second World War, and in 1949 was appointed Minister for Air and Civil Aviation in the Menzies Government.

The Royal Australian Air Force

The RAAF, formed on the 31st of March 1921, was the second professional air force in the world, established three years later than the British Royal Air Force.

With the outbreak of the Second World War in September 1939, RAAF Base Point Cook became the focus of RAAF training in Australia, a role it maintained until the 1990s. RAAF Base Point Cook is recognised as the oldest military aviation base in Australia serving between 1914 and 1992.

The parade ground at Point Cook, completed in 1930, became a prominent feature of RAAF bases elsewhere in Australia. The Air Force Memorial, unveiled on the edge of the parade ground in November 1938, was the first and principal monument to Australian airmen killed in World War I.

After World War II, the base also became home to a range of significant units and facilities, including the RAAF Staff College (1949 to 1960), the RAAF College (later Academy) for training officer cadets from 1947, and the RAAF School of Languages (1950 to 2000).

The military airbase complex

The Point Cook air base occupies an area of about 250 hectares southwest of Melbourne on the shores of Port Phillip Bay.

When the base was established, the proximity of Port Phillip Bay made Point Cook a choice location for seaplanes as well as conventional land planes. Flying was in its infancy and still experimental, so the area's sea-level altitude and absence of hills made it ideal for training and development purposes.

The design of the air base influenced the planning and development of later military aviation bases in Australia. The base includes rare examples of buildings specific to the pre-World War I, World War II and inter war periods. These include the oldest hangars and workshops in Australia, built in 1914; the AFC complex, including the seaplane jetty, dating from 1916 and operating until 1937; the water-plane hangar, built in 1914; and the seaplane complex dating from the late 1920s.

Today Point Cook is home to the RAAF Museum. Initiated in 1952 by Air Marshall Sir George Jones, the Museum has provided for the restoration and display of historic aircraft.

Precinct Development

Plate 1 shows the North Tarmac as not having been developed by 1938 (Environmental Resources Australia Pty Ltd, 2012, p. 22). A 1945 aerial (Plate 2) shows the WWII P1 hut, Building 190, to be in place by this time, adjacent to Building 183, a Bellman hangar. The six WWII PI huts across the North Tarmac Precinct are representative of the massive growth and influx of infrastructure which occurred as a response to WWII. Plate 3 shows the North Tarmac Precinct layout remaining the same by 1966.

During its operational life, the main focus of RAAF Williams Point Cook was on training. In 1947 the RAAF College had been set up at Point Cook. This was to provide trained technical personnel (Kingwell, 1971). In 1992 flying training was relocated leaving only the museum and college and the base was declared surplus to requirements.

AUSTRALIAN WAR MEMORIAL 044884

Plate 1 Early aerial of RAAF Williams Point Cook (1938) showing development across the base and no North Tarmac Precinct (Australian War Memorial, 1938a)

AUSTRALIAN WAR MEMORIAL VIC0173

Plate 2 1945 aerial showing Building 190, facing south (Australian War Memorial, 1945)

Plate 3 1966 aerial of the North Tarmac Precinct, facing south-east (Magnificent Pilots Looked to the Future, 2016)

3.3 Aboriginal places

A search of the Victorian Aboriginal Heritage Register (VAHR) was undertaken to understand the known Indigenous heritage values of RAAF Williams Point Cook and its surrounds.

No Aboriginal places were identified within the proposed works areas within the study area. There are 11 Aboriginal places within 700 metres of the study area, with concentrations of Aboriginal places recorded nearby RAAF Lake. Only one of these places (**Point Cook RAAF 1 VAHR 7822-0610**) is located within the RAAF Williams Point Cook base itself.

Artefact scatters are the only Aboriginal place type in close proximity to the study area, however the site cards indicate the presence of shell and bone middens in association with the distributions. Due to past recording practices, limited data can be drawn from the site cards.

Point Cook 3 (VAHR 7822-0131) is a surface artefact scatter located 830 metres east from the drain, on the eastern banks of RAAF Lake. The scatter comprises of quartz, quartzite and silcrete in unknown quantities on a swale behind a sand dune. The scatter, measuring 250 metres by 100 metres, had been subject to previous damage such as ploughing and the construction of a road. The site card states the artefacts had been collected at the time of recording, however there is no record of where they are stored.

Point Cook 4 (VAHR 7822-0136) is a single quartz flake located 180 metres north-east from the proposed hangar location (Option 2). It is noted that the artefact was located in a ploughed paddock with no other artefacts in the general vicinity, however dumped soil and shell in close proximity to the artefact indicate the artefact is not in situ. No recommendations were noted on the site card for the Aboriginal place.

Point Cook 9 (VAHR 7822-0137) is a percussion flaked quartz artefact located 150 metres north-east from the proposed hangar location (Option 2). The artefact was located just outside of the base within a ploughed paddock near the fence line marking the boundary of the base and Point Cook Coastal Park. No recommendations were noted on the site card for the Aboriginal place.

Point Cook 10 (VAHR 7822-0138) is a basalt hammerstone which had been damaged by ploughing, located 250 metres to the north-east of the proposed hangar location (Option 2). The artefact was located within a ploughed paddock near the fence line marking the boundary of the base and Point Cook Coastal Park. No recommendations were noted on the site card for the Aboriginal place.

Point Cook 11 (VAHR 7822-0139) is a single surface artefact located 530 metres to the north-east of the proposed hangar location (Option 2). The artefact is recorded as being a steep edged quartzite scraper which had been worked intensely. The artefact was located within a ploughed paddock at the corner of the fence line marking the boundary of the base and Point Cook Coastal Park. No recommendations were noted on the site card for the Aboriginal place.

Point Cook 12 (VAHR 7822-0140) is a single surface artefact located 480 metres to the north of the proposed hangar location (Option 2). The quartzite angular fragment was located 15 metres from the fence outside the south-west corner of a works depot in a ploughed paddock. No recommendations were noted on the site card for the Aboriginal place.

Point Cook 13 (VAHR 7822-0141) is a quartz scraper located 730 metres north from the proposed hangar location (Option 2). The artefact is recorded as having very steep side retouch. The scraper was located between a road and boundary fence within a sparsely grassed paddock. No recommendations were noted on the site card for the Aboriginal place.

Point Cook 14 97822-0142) is single surface artefact located at the northern boundary of the Point Cook Coastal Park, approximately 720 metres north of the proposed hangar (Option 2). The artefact is a quartz core with several negative flake scars. The artefact was recorded as being in a sparsely grassed paddock between the road and boundary fence. No recommendations were noted on the site card for the Aboriginal place.

Point Cook RAAF 1 (VAHR 7822-0610) is an artefact scatter of 27 artefacts, comprising silcrete, chert and quartz flakes located 700 metres south-east of the drain location in the fenced off RAAF Lake area. This is the only artefact scatter within the study area that is recorded on the VAHR. The scatter dimensions are measured as being 17 metres by 14 metres in a sand dune which has been eroded by vehicle use. The erosion of the dune resulted in the exposure of the artefacts as the place was previously surveyed in 1988 and not located. It was recorded at the time that this Aboriginal place may be an extension of **Point Cook 3 (VAHR 7822-0131)**. The survey which identified this place was limited in its extent and the ground visibility available at the time of survey.

Point Cook A (VAHR 7822-1356) is an artefact scatter and shell midden located between **Point Cook RAAF 1 (VAHR 7822-0610)** and **Point Cook 3 (VAHR 7822-0131)**, approximately 760 metres south-east of the drain on the southern extent of RAAF Lake. A total of 16 silcrete and quartz flakes were recorded amongst midden material which includes pippi, oyster and mussel shells, and mammal and bird bones (which are not defined) some of which show evidence of burning. The dimensions of the artefact scatter and midden measure 10 metres by 20 metres. The Aboriginal place is documented as being located on a dune which has been subject to some erosion caused by vehicle disturbance, however revegetation occurring at the time of recording was noted to afford some protection of the place.

Point Cook B (VAHR 7822-1357) is an artefact scatter located on the southern banks of RAAF Lake, comprising 20 artefacts located 800 metres to the south-east of the drain. The scatter consists of 20 silcrete and quartz flakes, cores and a pitted hammerstone and it was noted that it as highly likely more artefacts

were present. Vegetation clearance works had exposed the artefacts which are recorded as being on a dune landform.

None of these previously recorded Aboriginal places are located in close proximity to the proposed actions. They are therefore not at risk of being harmed by the proposed actions.

3.4 Previous archaeological investigations

Surveys in the vicinity of RAAF Williams Point Cook include early recording by Mitchell (1949) of over 600 artefacts at a large site near Point Cook Homestead which was described as extending north from the Point Cook Homestead for approximately 1.5 kilometres. The scatter was reported to comprise mainly of silcrete artefacts which were located in association with hearths. Between 1938 and 1947 several thousand stone artefacts were collected from a site at Altona Bay (Mitchell, 1949), some of these were housed at the Altona Historical Society Museum.

Geering and Hughes (1984) conducted a survey of Point Cook Metropolitan Park to the north of the study area prior to the development of the park for recreational uses. Coastal swamp deposits are noted to occur around RAAF Lake, and complex sand ridges are present at the south of the lake which runs parallel to the foreshore. The lake is noted for being highly saline with a poorly draining and exposed shoreline. It was concluded that RAAF Lake has potential for isolated artefacts, and lacks features that may indicate occupation. A survey of the area located several stone artefact scatters, particularly in the dune system behind the foreshore, suggesting these areas were used for shelter, and indicating the possible exploitation of resources from the bay rather than from the lake (Geering & Hughes, 1984).

A survey of the Port Phillip Bay coast, west of RAAF Williams Point Cook, identified a scatter of stone artefacts near Duncan's Road (Brennan, 1988). Surveys in the vicinity of Skeleton Creek and Cheetham Saltworks have recorded stone artefact scatters within 50 metres of fresh water (Vines & Lane, 1991; Ellender & Weaver, 1989; du Cros, 1991).

Weaver (1992) conducted an archaeological survey of RAAF Williams Point Cook. Background research identified that grading has occurred on the foreshore dune system, rubbish dumping had occurred around the south and west of RAAF Lake, and soil filing and grading of the airfield area. The survey identified a single Aboriginal place. However, the survey was very limited due to inaccessibility of some areas such as the areas around the runways, and the poor ground visibility over much of RAAF Williams Point Cook. The survey also identified that the landscape of RAAF Williams Point Cook had been considerably altered, particularly due to the levelling of the foreshore dune system, and filling and grading of the airfield area. Weaver (1992) concluded that there was a likelihood that further Aboriginal archaeological sites would occur within the Point Cook base near water sources and along the foreshore dune system.

There have been two studies of the coastal strip between Point Cook and Werribee. A survey of a proposed pipeline near the Werribee River (Debney & Di Fazio, 2002(a)) indicated the importance of the escarpment and river flats as Aboriginal camp sites. A survey of the coastline between the Werribee River and Point Cook for a proposed linear trail (Debney & Di Fazio, 2002(b)) identified Aboriginal places in the coastal strip. This included substantial shell middens near Campbell's Cove, and shell midden and surface artefact scatter sites in Point Cook Park. This survey did not look intensively at the coastal strip within RAAF Williams Point Cook.

Vines (2004) undertook a background assessment of the entire RAAF Williams Point Cook to assist in future development of the site. Vines (2004) found that two types of Aboriginal places occur in the Point Cook region, being shell middens and stone artefact scatters which are likely to occur along the coastal strip, extending up to 300 metres from the coast line of Port Phillip Bay and the shore of the RAAF Lake, and isolated artefacts and smaller stone artefact scatters which are likely to occur in undeveloped areas of pasture and farm land on the basalt plains. It was found that archaeological surveying and sub-surface testing on the basalt plains

has demonstrated that where disturbance has been minimal and ground conditions suitable, stone artefacts can be expected in very diffuse scatters throughout the basalt plains. This is possibly due to a 'background archaeology' of individual discard instances over thousands of years, rather than evidence of former camp sites. Aboriginal places located north of the runways may demonstrate this background archaeology, although proximity to the lake may also be a factor. Some artefacts were recorded as much as 600 metres from the lake shore. Vines (2004) concluded that it was unlikely that Aboriginal places are preserved intact within the runway area as this land has been extensively altered by levelling, grading and filling. The construction of the runways themselves has further disturbed the area. However, artefacts in disturbed contexts are almost certainly still located in this area although they may be buried in the modified landscape. Areas of the highest potential were found to be in the bay foreshore and lakeshore.

Summary

Previously recorded Aboriginal places and previous assessments indicate the potential for stone artefacts to be located in association with waterways and dune systems. There is also a high likelihood of locating Aboriginal cultural heritage material in less disturbed areas. However, Vines (2004) found that artefacts in disturbed contexts may be also be located in modified landscapes at RAAF Williams Point Cook.

No subsurface testing has occurred within RAAF Williams Point Cook, however surface artefact scatters have been located in proximity to RAAF Lake in association with good ground surface visibility.

3.5 Significance assessment

RAAF Williams Point Cook is included on the NHL for its historic, uncommon, characteristic, aesthetic, social and associative heritage values (NHL Historic Place ID 105671). The NHL record for the Base describes previously located Indigenous places, however does not include Indigenous heritage values in the listing or in the Statement of Significance. Similarly, natural heritage values are not covered or discussed within the NHL Statement of Significance.

The full NHL citation (Department of the Environment and Energy, 2007) is as follows:

> *RAAF Base Point Cook was established in 1913 by the Federal Government as Australia's first military flying school- the Central Flying School. From this modest beginning Australia became the only British dominion to set up a flying corps of its own for service during World War One.*
>
> *RAAF Base Point Cook is important as the first military aviation base in Australia and as the birthplace of the RAAF in 1921. The RAAF, formed on the 31 March 1921, was the second professional air force in the world, established three years later than the British Royal Air Force. In these roles, over almost a ninety-year period from 1914, RAAF Base Point Cook had a special association with Australian military forces as the focus of training for the Australian air force, including training Australia's first military airmen in August 1914. The first circumnavigation of the Australian coastline also occurred from Point Cook in May 1924 by RAAF personnel Goble and McIntyre.*
>
> *RAAF Base Point Cook is the only remaining World War One military airfield complex in Australia and features the oldest, most extensive complex of military aviation buildings in Australia. The master plan, designed in 1917, and implemented from 1918 under J. S. Murdoch, first Commonwealth Architect, was seminal in Australia and would influence the planning and development of later military aviation bases in Australia. Together, the planning, layout and built fabric comprise the only example of a military air base associated with all the major formative periods of development: pre World War One, World War One, Inter-war and World War Two. The base includes uncommon examples of building types specific to each of these periods. In particular the fabric of the base includes examples of the oldest hangars and workshops, military or civilian, in Australia. The Australian Flying Corps complex on the Southern Tarmac area, including the uncommon*

1916 seaplane jetty, the water-plane hangar of 1914 and the later 1920s seaplane complex (which is recognised internationally as rare) form part of the air base. This makes RAAF Base Point Cook perhaps the only remaining relatively intact early military airfield in the world.

RAAF Base Point Cook demonstrates the principal characteristics and development phases of military aviation bases in Australia from their earliest beginnings. The 1917 master plan for the base established the clear separation of functions required for military aviation. In particular the social hierarchy, way of life and organisation of the RAAF, was expressed in the range of accommodation types provided at Point Cook as well as in the function and location of the Central and Southern Tarmac areas.

RAAF Base Point Cook has a special association with RAAF veterans as the core training complex for the Australian Flying Corps and RAAF from 1914 until 1992. Candidates Richard Williams and Thomas Walter White, two of the four who graduated from the first training course, which began in August 1914, saw service in the Middle East during World War One in the Australian Flying Corps and are noted for their distinguished service and special association with RAAF Base Point Cook. Williams is known as the father of the RAAF for his efforts in promoting air power in Australia's defence. White, captured by the Turks in 1915 and escaping via Russia in 1918, continued his association with the military, writing Sky Saga, a Story of Empire Airmen in the Second World War, in 1943. In 1949, White was appointed Minister for Air and Civil Aviation in the Menzies Government.

As the longest continuously operating military air base in Australia, RAAF Base Point Cook has been collectively identified by the RAAF for its cultural values. In 1952 action was taken by the RAAF to establish an aviation museum at Point Cook. The museum provides research and restoration facilities for historic aircraft and is involved in commemorative events such as VP Day. Many of these functions are fostered through the services of volunteer staff, including former RAAF engineers and flight crew.

In summary the official values of the base relates to its themes of early military aviation, its continued military use from 1913 to the present day through two World Wars, buildings constructed between 1914-1918 and 1919-1939, and its association with Sir Richard Williams and John Smith Murdoch. The HMP did not note any natural heritage values at the base, and it was out of the scope of the HMP to consider the potential Indigenous heritage values (Environmental Resources Australia Pty Ltd, 2012, p. E33).

The RAAF Williams Point Cook HMP (Environmental Resources Australia Pty Ltd, 2012) has assessed individual elements on the base for their heritage values and which has been recorded for each building in Appendix 2.

The building proposed to be demolished, Buildings 190, has been assessed as having moderate heritage significance (Environmental Resources Australia Pty Ltd, 2012) and is largely intact. The building is listed on the CHL as being a supporting building which contributes to heritage values of the base (Department of the Environment and Energy, 2004). The significance of Building 190 relates to its form and layout in a radial pattern.

The rows of prefabricated Bellman Hangars, which include Buildings 179, 182, 183, 184, 185,187, 190 and 197, are assessed in the HMP as having high heritage significance. Located in the North Tarmac Precinct, their significance relates to their planning layout and intact numbers, which in turn shows the rapid construction and development for WWII RAAF training activities (Environmental Resources Australia Pty Ltd, 2012, p. E38). The hangars are also characteristic of RAAF bases erected during 1924 and 1945 (Environmental Resources Australia Pty Ltd, 2012, p. E30).

Building 176 is also located in the North Tarmac Precinct, adjacent to the Bellman Hangar 185. Even though the building is a support building to the hangars, it is still of moderate heritage significance relating to its overall form and its layout in a radial pattern with other buildings in the North Tarmac Precinct. Building 195 was constructed in the 1980's as a museum entrance to Bellman Hangar 184. It is ranked as having low

heritage significance in the HMP, however the HMP does not state its significant heritage values. It is likely its significance relates to its layout in the precinct.

Building 164 has been constructed between Bellman Hangars 184 and 185 and links them together to provide an undercover walkway to access museum exhibits. A relatively new building, it has no heritage significance.

Building 202 is also located in the North Tarmac Precinct, to the north of Building 187. The RAAF Museum Admin/Flight Training building was also constructed in the 1980's and like Building 195 it is ranked as having low heritage significance in the HMP. Again, it is proposed that its significance relates to its layout in the precinct.

Buildings 3 and 9 are located in the RAAF Academy Precinct and have been both assessed as having moderate significance. They are both noted for their external form and relationship with other buildings. The HMP states that it is important to consider the buildings in this precinct as a collection rather than individually, as they represent the last major development at the base before a gradual decline in use and reflect the original planning layout (Environmental Resources Australia Pty Ltd, 2012, p. 56).

Building 25 is not located within a defined precinct, however is in close proximity to both the Officers' Barracks Precinct and the Staff Residences Precinct. The building itself is of low heritage significance, and should be retained as long as it can serve a purpose.

4 Matters of National Environmental Significance

The EPBC Act applies to developments and associated activities that have the potential to significantly impact on MNES protected under the EPBC Act. RAAF Williams Point Cook is registered on the NHL, therefore is required to be assessed against the *Significant Impact Guidelines 1.1*.

MNES relevant to the project are summarised in Table 18. It includes an assessment against the EPBC Act policy statements published by the Australian Government which provide guidance on the practical application of the EPBC Act.

On the basis of criteria outlined in the relevant *Significant Impact Guidelines 1.1*, it is considered unlikely that a significant impact on a MNES would result from the proposed action.

Table 18 Assessment of RAAF Williams Point Cook VT11445 in relation to the EPBC Act

MNES	Project specifics	Assessment against significant impact guidelines
Listed threatened species	There are 12 flora and 44 fauna species that are predicted to occur in the study area	Natural heritage was not assessed as part of the self-assessment as it is outside the scope.
Listed threatened ecological communities	Five listed threatened ecological communities are predicted in the study area: Grassy Eucalypt Woodland of the Victorian Volcanic Plain, Natural Damp Grassland of the Victorian Coastal Plains, Natural Temperate Grassland of the Victorian Volcanic Plain, Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains, and Subtropical and Temperate Coastal Saltmarsh.	Natural heritage was not assessed as part of the self-assessment as it is outside the scope.
Migratory species	There are 57 migratory species that have been predicted to occur in the study area.	Natural heritage was not assessed as part of the self-assessment as it is outside the scope.
National Heritage Places	The study area has been identified as being located within the Point Cook Air Base National Heritage Property.	An assessment of the proposed project against the significant impact criteria for National Heritage Places is detailed in section 4.1 below. Based on the assessment in section 4.1 it is unlikely that the proposed demolition of Building 190 and proposed maintenance works to Building 3, Building 9, Building 25, Building 164, Building 176, Building 179, Building 182, Building 183, Building 184, Building 185, Building 187, Building 195, Building 197 and Building 202 will not result in significant impacts to the Point Cook Air Base NHL Place (Place ID: 105671).

4.1 National Heritage Listing – Significant impact criteria

The proposed demolition of Building 190 and proposed maintenance works to Building 3, Building 9, Building 25, Building 164, Building 176, Building 179, Building 182, Building 183, Building 184, Building 185, Building 187, Building 190, Building 195, Building 197 and Building 202 require works to occur within the boundary of the Point Cook Air Base NHL place (Place ID: 105671).

An assessment against the *Significant Impact Guidelines 1.1* criteria was therefore undertaken to determine whether the potential impacts to these areas are likely to result in a significant impact to the RAAF Williams Point Cook as per its NHL place listing. The results of this assessment are provided in Table 19 below.

Table 19 Assessment of the proposed works under VT11445 against Significant Impact Criteria for the National Heritage (Commonwealth of Australia, 2013)

Values	Significant Impact Criteria	Likelihood of Triggering	Notes
Significant Impact Guidelines for National Heritage places with natural heritage values (Commonwealth of Australia, 2013)			
Values associated with geology or landscapes	Damage, modify, alter or obscure important geological formations in a National Heritage place	Unlikely	Natural heritage will not be assessed as part of the self-assessment as requested by Aurecon.
	Damage, modify, alter or obscure landforms or landscape features, for example, by clearing, excavating or infilling the land surface in a National Heritage place	Unlikely	
	Modify, alter or inhibit landscape processes, for example, by accelerating or increasing susceptibility to erosion, or stabilising mobile landforms, such as sand dunes in a National Heritage place	Unlikely	
	Divert, impound or channelise a river, wetland or other water body in a National heritage place	Unlikely	
	Substantially increase concentrations of suspended sediment, nutrients, heavy metals, hydrocarbons, or other pollutants or substances in a river, wetland or water body in a National Heritage place; permanently damage or obscure rock art or other cultural or ceremonial features with World Heritage values	Unlikely	Natural heritage will not be assessed as part of the self-assessment as requested by Aurecon.

Values	Significant Impact Criteria	Likelihood of Triggering	Notes
Biological and ecological values	Modify or inhibit ecological processes in a National Heritage place	Not applicable	Natural heritage will not be assessed as part of the self-assessment as requested by Aurecon.
	Reduce the diversity or modify the composition of plant and animal species in a National Heritage place		
	Fragment or damage habitat important for the conservation of biological diversity in a National Heritage place		
	Cause a long-term reduction in rare, endemic or unique plant or animal populations or species in a National Heritage place		
	Fragment, isolate or substantially damage habitat for rare, endemic or unique animal populations or species in a National Heritage place		
Wilderness, aesthetic or other rare or unique environmental values	Involve construction of buildings, roads or other structures, vegetation clearance, or other actions with substantial and/or long-term impacts on relevant values	Not applicable	Natural heritage will not be assessed as part of the self-assessment as requested by Aurecon.
	Introduce noise, odours, pollutants or other intrusive elements with substantial and/or long-term impacts on relevant values	Not applicable	Natural heritage will not be assessed as part of the self-assessment as requested by Aurecon.
Significant Impact Guidelines for National Heritage places with cultural heritage values (Commonwealth of Australia, 2013)			
Historic Heritage Values	Permanently remove, destroy, damage or substantially alter the fabric of a National Heritage place in a manner which is inconsistent with relevant values	Unlikely	The works will permanently destroy, remove or alter the fabric of a heritage buildings (Buildings 190). The action will permanently remove a moderately significant elements of RAAF Williams Point Cook. The impacts will be managed by undertaking archival recording and installing interpretive signage. The works will also alter the fabric of Buildings 179, 182 and 186 which is noted as contributing to its moderate significance rating.

Values	Significant Impact Criteria	Likelihood of Triggering	Notes
			However, the proposed works will not substantially diminish the heritage values of the National Heritage place, or impact on its significance values related to its continued military use.
	Extend, renovate, refurbish or substantially alter a National Heritage place in a manner which is inconsistent with relevant values	Unlikely	The works involve permanent alterations to a National Heritage place. However the impact of the removal can be managed and documented through archival recording and interpretive signage. The removal of the building and the refurbishment/maintenance works to the other buildings as part of the proposed actions will ensure the continued military use of the base.
	Permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a National Heritage place	Unlikely	The proposed works are unlikely to involve the removal, destruction or damage of any known archaeological deposits within the National Heritage place. No archaeological sites have been previously identified in these locations.
	Involve activities in a National Heritage place with substantial and/or long-term impacts on its values	Unlikely	It is considered that the proposed works will not alter the current activities performed within the study area. As such there will be no substantial and/or long-term impacts on the values of the National Heritage place.
	Involve the construction of buildings or other structures within, adjacent to, or within important sight lines of a National Heritage place which are inconsistent with relevant values	Unlikely	The works do not involve the erection of buildings within or adjacent to important sight lines of a National Heritage place which are inconsistent with relevant values.
	Make notable changes to the layout, spaces, form or species composition of a garden, landscape or setting of a National Heritage place in a manner which is inconsistent with relevant values	Unlikely	The proposed works will not involve any garden or landscape works, as such the setting of the National Heritage place will not be changed in a manner that is inconsistent with relevant values.
Other cultural heritage values	Restrict or inhibit the continuing use of a National Heritage place as a cultural or ceremonial site causing its values to notably diminish over time	Unlikely	The proposed works will not restrict or inhibit continuing use of the National Heritage place as a cultural or ceremonial site. No records of the point being used as a ceremonial site are known.
	Permanently diminish the cultural	Unlikely	The proposed works will not cause permanent

Values	Significant Impact Criteria	Likelihood of Triggering	Notes
	value of a National Heritage place for a community or group to which its National Heritage values relate		damage to the cultural value of the National Heritage place.
	Destroy or damage cultural or ceremonial, artefacts, features or objects in a National Heritage place	Unlikely	The proposed works are occurring within the Northern Tarmac Precinct in which previous works have caused significant disturbance and may have previously destroyed any cultural or ceremonial, artefacts, features or objects that might have existed within the study area. As such, it is considered unlikely that the proposed works will destroy or damage any cultural or ceremonial, artefacts, features or objects in the National Heritage place.
	Notably diminish the value of a National Heritage place in demonstrating creative or technical achievements	Unlikely	The proposed works will not result in a notable diminishment of value to the National Heritage place in demonstrating creative or technical achievements.
Significant Impact Guidelines for National Heritage places with Indigenous heritage values (Commonwealth of Australia, 2013)			
Indigenous heritage values	Restrict or inhibit the continuing use of a National Heritage place as a cultural or ceremonial site causing its values to notably diminish over time	Unlikely	The proposed works will not impact on any known intangible values within the study area.
	Permanently diminish the cultural value of a National Heritage place for an Indigenous group to which its National Heritage values relate	Unlikely	Any previously identified tangible Indigenous heritage values will remain *in situ* across RAAF Williams Point Cook and will not be harmed by the proposed works. As such the cultural value of the National Heritage place will not be diminished. The proposed works will not impact on any known intangible values within the study area.
	Alter the setting of a National Heritage place in a manner which is inconsistent with relevant values	Unlikely	The proposed works will not alter the setting of the National Heritage place in a manner that is inconsistent with relevant values.
	Remove, destroy, damage or substantially disturb archaeological deposits or cultural artefacts in a National Heritage place	Unlikely	Previously identified tangible Indigenous heritage values remain *in situ* across RAAF Williams Point Cook and will not be harmed by the proposed works. As such, no archaeological deposits or cultural artefacts within the National Heritage place will be removed, destroyed, damaged or substantially disturbed

Values	Significant Impact Criteria	Likelihood of Triggering	Notes
			by the proposed works.
	Destroy, damage or permanently obscure rock art or other cultural or ceremonial, artefacts, features or objects in a National Heritage place	Not applicable	There are no Indigenous rock art or other cultural or ceremonial artefacts, features or objects located within proximity to the buildings to which the actions are occurring. As such no destruction, damage or permanent obscuring will occur.
	Notably diminish the value of a National Heritage place in demonstrating creative or technical achievement	Not applicable	The proposed works will not result in a notable diminishment of value to the National Heritage place in demonstrating creative or technical achievements.
	Permanently remove, destroy, damage or substantially alter Indigenous built structures in a National Heritage place	Not applicable	There are no Indigenous built structures located within the study area, as such no Indigenous structures will be removed, destroyed, damaged or substantially altered by the proposed works.
	Involve activities in a National Heritage place with substantial and/or long-term impacts on the values of the place	Not applicable	It is considered that the proposed works will not alter the current activities performed within the study area. As such there will be no substantial and/or long-term impacts on the values of the National Heritage place.

The proposed actions are not considered to be significant as defined by the *Significant Impact Guidelines* 1.1 (DSEWPC 2013).

5 Heritage impact assessment

5.1 Methodology

This HIA has been guided by the self-assessment process outlined in *Significant Impact Guideline 1.2* of the EPBC Act, to assess the impact of the proposed action on the heritage values at RAAF Williams Point Cook. The self-assessment process examines the environmental context of the study area, the proposed impact and avoidance or mitigation strategies to determine if a significant impact will occur. These questions have been answered below in regards to cultural heritage values of the study area.

5.2 Step 1 Environmental Context

What are the components or features of the environment in the area where the action will take place?

The proposed actions are to take place at RAAF Williams Point Cook (NHL Historic Place ID 105671 and CHL Historic Place ID 105275). The base occupies a minor coastal outcrop south of Altona Bay and contains two major built up areas in the north and south of the base. Point Cook has served as a primary training and operational base for the Royal Australian Air Force from its formation as the Central Flying School in 1913.

The proposed works will be taking place to the historic heritage assets at RAAF Williams Point Cook.

The HMP did not note any natural heritage values at the base, and it was out of the scope of the HMP to consider the potential Indigenous heritage values (Environmental Resources Australia Pty Ltd, 2012, p. E33). No Indigenous tangible or intangible heritage values have been identified at present that will be impacted by the proposed works. Natural heritage values were not assessed as part of this report.

Which components of features of the environment are likely to be impacted?

The proposed works have the potential to impact on the historic fabric of Buildings 3, 9, 25, 164, 176, 179, 182, 183, 184, 185, 186, 187, 190, 195, 197 and 202. In particular, the removal of Building 190 will irreversibly damage the heritage values of the structure and result in long term, severe impacts. In accordance with the Burra Charter, changes which reduce the cultural significance of a place or element should be reversible. Demolition of significant fabric of a place is generally not acceptable, unless the event is associated to a conservation process.

Is the environment which is likely to be impacted, or are elements of it, sensitive or vulnerable to impacts?

The historic fabric of Buildings 3, 5, 25, 176, 179, 182, 183, 184, 185, 187, 190, 195, 197 and 202 would be vulnerable to inappropriate actions as they have heritage significance. However, mitigation and management recommendations will greatly reduce the risk of inappropriate impacts to Buildings 3, 5, 25, 176, 179, 182, 183, 184, 185, 187, 195, 197 and 202. The heritage fabric of Buildings 190 will be irreversibly and permanently impacted by its removal, and the actions will destroy the fabric of the non-renewable heritage building. However, these impacts will be managed by photographic archival recording.

No Indigenous heritage is likely to be impacted by the actions due to the actions being localised to building fabric. Minimal, if any, ground breaking works will be occurring which also reduces the risk of harm to tangible Aboriginal cultural heritage.

Natural heritage was not included in the scope and was not assessed as part of this report.

No views or vistas will be impacted by the proposed works.

What is the history, current use and condition of the environment which is likely to be impacted?

Currently, RAAF Williams Point Cook and the historic heritage assets of Buildings 3, 5, 25, 164, 176, 179, 182, 183, 184, 185, 186, 187, 195, 197 and 202 are in use by Defence.

The majority of buildings assessed by Biosis were in good condition, bar Building 190 which Biosis found had rotting interior floors, a stuck door, peeling paint and corroded water goods. Due to the condition of the building, it was noted to be no longer in use and appeared to be not safe to enter during the site visit. The building was previously used by the museum for storage. Structural reports within the 30% concept detailed design report (Aurecon, 2018) indicate ponding of water due to downpipes and roof failure. Fire compartmentalisation was also indicated as an issue (Aurecon, 2018). The stakeholders also requested demolition in lieu of the replacement of floor coverings.

5.3 Step 2 Proposed Impacts

What are the components of the Action?

The majority of the proposed works are minor maintenance activities, however demolition works are also proposed. Building 190 is proposed to be removed completely. The hangar doors and tracks of Buildings 179, 182 and 186 are proposed to be replaced to allow proper use of the hangars.

The proposed maintenance works to Buildings 3, 5, 25, 176, 179, 182, 183, 184, 185, 187, 195, 197 and 202 are important to the conservation of heritage fabric and ensuring buildings codes and regulations are met. They include replacing doors, patching masonry, refurbishing bathrooms, repainting exteriors and replacing water goods and fire compliance works such as the installation of exit signage, providing fire separation and installing vents.

What are the predicted adverse impacts associated with the action including indirect consequences?

There are predicted adverse impacts to historic heritage values associated with some components of the proposed actions. The removal of Building 190 will result in the fabric of this heritage item being permanently destroyed in an irreversible manner (Commonwealth of Australia, 2013, p. 13). The addition of a new opening to Building 184 and 185 will also result in the loss of heritage fabric in an irreversible manner.

The Defence Estate historical heritage information stored in the GEMS define items of moderate significance as reflecting some Commonwealth Heritage values but only contributing to the overall significance/values of the place in a moderate way. The HMP states that the loss or unsympathetic alteration to buildings of moderate significance is likely to diminish the Commonwealth Heritage values of the place (Environmental Resources Australia Pty Ltd, 2012, p. E37). However, management requirements can manage these impacts. It is also noted in the HMP that unused buildings quickly deteriorate, a process which is escalated by the marine environment, and it becomes difficult to justify any maintenance spending on a building that does not fit a purpose which often results in demolition (Environmental Resources Australia Pty Ltd, 2012, p. 5).

The HMP notes that the WWII P1 huts in the North Tarmac Precinct can be removed, however investigations must be made to determine the status of all WWII huts on the base to ensure a representative example is retained, used and maintained (Environmental Resources Australia Pty Ltd, 2012, p. 38). The HMP also notes

that retention of moderately significance buildings is preferred but not essential. As such, the removal of Building 190 will result in a loss of a remaining heritage buildings across the North Tarmac Precinct.

However, the loss of Building 190 will not diminish the overall heritage of the NHL place RAAF Williams Point Cook, as the listed values in the statement of significance and the official values will be unaltered. This is due to other structures representing these values remaining on the base. The form of these buildings can be found elsewhere on the base, such as by Buildings 155, 156, 158, 168, 176, 188 and 485. These buildings are also WWII P1 huts, and are rated as having moderate significance in the HMP. Other structures in the North Tarmac Precinct will remain to represent the radial layout of buildings. The continued use of the base for military purposes will also not be impacted, as the activities undertaken within these buildings have ceased and are to be assigned to other buildings on the base. Building 190 is of moderate significance and therefore can be removed, only after Photographic Archival Recording is undertaken. However photographic archival recording will only manage and document the high impacts. Photographic Archival Recording will also assist in managing impacts to Buildings 184 and 185 when a new opening is created. As suggested by the HMP (Environmental Resources Australia Pty Ltd, 2012, p. 38), research should be undertaken of the remaining WWII P1 huts after Building 190's removal.

The removal of tracks of Buildings 179, 182 and 186 will require before and after photography to be completed to document change and to reduce harm. The tracks are noted in the HMP as contributing to the moderate significance of these buildings.

External paint schemes should be chosen to avoid visual impacts to views of the buildings. Maintenance of heritage fabric will not have adverse impacts if appropriate techniques and materials are used. Proposed new elements (i.e. replacing floor coverings) are small and will not impact heritage values of historic heritage assets. Repairs to roofs and water goods will ensure the buildings remain in good condition and are necessary in preserving heritage fabric. Methodologies for finishes are located in Appendix 1.

No Indigenous heritage is likely to be impacted by the actions due to the actions being localized to building fabric. Minimal, if any, ground breaking works will be occurring which also reduces the risk of harm to tangible Aboriginal cultural heritage.

There are no predicted adverse impacts to Indigenous heritage values due to the actions being small scale and localized to the buildings themselves (Commonwealth of Australia, 2013, p. 12).

Natural heritage has not been assessed as part of this report.

How severe are the potential impacts?

The actions proposed to Buildings 190 have been assessed against the *Significant Impact Guideline 1.2* of the EPBC Act. The proposed actions are permanent, small scale and low to moderate intensity, therefore resulting in a moderate overall impact (Commonwealth of Australia, 2013, p. 12). The removal of Building 190 is a permanent action, and demolition is considered a moderate intensity action as the strength and concentration of the impacts are localized to the building itself. The impacts of the removal of Building 190 is of moderate scale as its demolition is in conflict with the HMP, however the larger heritage values of the base will not be impacted, and the heritage values of the building are reflected elsewhere on the base. As such, the removal of Building 190 and would be considered a moderate impact under EPBC Act guidelines (Commonwealth of Australia, 2013, p. 13).

The proposed actions to Buildings 3, 9, 25, 164, 176, 179, 182, 183, 184, 185, 186, 187, 195, 197 and 202 are localized and low intensity, thus the overall impact is considered to be minor.

There are no predicted impacts to Indigenous heritage values due to the actions being small scale and localized to the buildings themselves (Commonwealth of Australia, 2013, p. 12).

Natural heritage has not been assessed as part of this report.

What is the extent of uncertainty about potential impacts?

Comprehensive investigations, including a HMP have been undertaken for historical heritage values for RAAF Williams Point Cook. As such, historical heritage values for the study area are well understood. Indigenous heritage and natural heritage values are less understood. A number of archaeological studies such as that by Vines (2004) have been undertaken in sections of RAAF Williams Point Cook and the surrounding areas. These reports and previously recorded Aboriginal places indicate the potential for stone artefacts to be located in association with waterways and their dune systems. There is also a higher likelihood of locating Aboriginal cultural heritage material in less disturbed areas.

The potential impacts associated with the proposed works are well understood and have been modified to minimize potential impacts. Heritage controls within this document will also minimise impacts.

The HMP notes that other precincts (such as the former Mechanic's Precinct) within RAAF Williams Point Cook has had their significance irretrievably diminished through the demolition of the majority of buildings in the precinct (Environmental Resources Australia Pty Ltd, 2012, p. 52). It is important to note that the removal of Building 190 from the North Tarmac Precinct will not result in an overall loss of significance as other WWII P1 huts of its type remain and other significant buildings in these precincts are present. The HMP also states that if the removal of any WWII PI huts (including Building 190) is to occur, investigations must be made to determine the status of all remaining WWII P1 huts on the base to ensure a representative example is retained, used and maintained (Environmental Resources Australia Pty Ltd, 2012, p. 38). This will assist in understanding the roles of these huts clearer.

5.4 Step 3 Impact Avoidance and Mitigation

Will any measures to avoid or mitigate impacts ensure, with a high degree of certainty that impacts are not significant?

Table 20 to Table 35 lists the heritage controls against the proposed actions. These controls are further expanded upon in this section.

Table 20 Building 3 works

Scope	Heritage Controls
Replace carpet throughout as it has become rippled, damaged and worn.	No requirements.

Table 21 Building 9 works

Scope	Heritage Controls
All floor coverings to be removed and replaced in accordance with manufacturers' instructions and relevant standards. Engage with stakeholders for finished surface selection and colour. New space (A0009 Ground Floor & Level) - Provide Drawings identifying accurate Spatial Data. Engage Building Surveyor to draft Building Drawings with accurate measurements and identify Spatial Data as required by the Defence SDMP.	No requirements. Check for damp and termites when floor coverings have been removed.
Complete refurbishment of toilets, vanities, cubicles, tiles and fittings to be replaced. Patch dints and cracks, and paint walls and ceiling. Replace exhaust fans if faulty. Remove and dispose of all items with the toilets and replace with new components. Patch dints and cracks with putty then repaint. Surface preparation and application of paint shall be compliant with ASNZS2311-2009. Engage with stakeholders/ building users for advice and selection of new items and finished surface selection.	No requirements
Removing the encased blinds, and replacing with new blinds that are external to the windows (but internal to the building)	The recessed form of the windows will be retained and the blinds can be removed without damaging heritage fabric. No heritage requirements are necessary
Remove flaking paint on walls, ceiling, doors, door jambs, window frames, skirting's and architraves. Patch dints and cracks with putty then repaint. Surface preparation and application of paint shall be compliant with ASNZS2311-2009.	See Appendix 1 for guidelines on painting. Do not paint previously unpainted surfaces.

Table 22 Building 25 works

Scope	Heritage Controls
Undertake repair or replacement of high voltage terminations, depending on assessed remaining life of installation. The connections of the high voltage cables to the switchgear are visually in poor condition due to electrically induced damage with evidence of weeping wax insulation from cables or existing repairs that have been carried out. Location - CEPS, Sub1, Sub3, Sub4, Sub5.	No requirements.
Investigate option to replace oil containment of sufficient size and of corrosion resistant construction. The containment is insufficiently sized or chemically incompatible or has rusted due to weather. Location: CEPS, Sub1, Sub2, Sub3, Sub4, Sub5	No requirements.
Repair or replace earth stakes. Earth stakes are in poor condition due to corrosion or accidental damage. Location - CEPS, Sub1, Sub3, Sub4, Sub5.	No requirements.
Repair masonry top SE&SW corner. Repair brick wall crack west side. Repair major concrete floor cracking.	No requirements.
Gutter and downpipe replacement, roof sheeting replacement	Match existing gutters, downpipes and rainheads. Roof to be in the same colour, form and pitch as existing.

Table 23 Building 164 works

Scope	Heritage Controls
Run fire detection cabling at high level to be run to serve Building 176	No heritage controls.

Table 24 Building 176 works

Scope	Heritage Controls
Remove flaking paint on all walls, ceilings, doors, door jambs, window frames, skirting and architrave. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	See Appendix 1 for guidelines on painting. Do not paint previously unpainted surfaces.
Remove rust and flaking paint to all external metal wall lining and corrugated iron. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	See Appendix 1 for appropriate methodologies for painting. Do not paint previously unpainted surfaces.
Remove flaking paint, preplace timber where required to all timber fascias, facia barges, window frames, doors and door jambs, door sills, and base boards. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	See Appendix 1 for appropriate methodologies for painting. Do not paint previously unpainted surfaces.

Table 25 Building 179 works

Scope	Heritage Controls
Replace exit signs with compliant signs. Sliding hanger doors to be made workable.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.
Existing roof sheeting is to be replaced with new roof sheeting, safety mesh and roof foil insulation. New metal and polycarbonate translucent corrugated sheet to match existing.	Match roofing colours to wall cladding colours. Galvanised steel should be used.
Geometric design of the apron to the west of Building 179 to facilitate adequate drainage away from Building 178 and 179. Asphalt pavement resurfacing of the apron to the west of Building 179 to provide shape correction to the pavement surface. Asphalt pavement resurfacing of the laneway between Building 178 and 179 to facilitate drainage. This provides shape correction only and has not been structurally designed for heavy vehicles or aircraft. Demolition of the existing concrete spoon drain to the front of Building 179.	No heritage controls required.

Table 26 Building 182 works

Scope	Heritage Controls
Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.

Scope	Heritage Controls
Existing roof sheeting is to be replaced with new roof sheeting, safety mesh and roof foil insulation. New metal and polycarbonate translucent corrugated sheet to match existing.	Match roofing colours to wall cladding colours. Galvanised steel should be used.

Table 27 Building 183 works

Scope	Heritage Controls
Assess and redirect drainage around building to stop regular flooding. Hanger subject to regular flooding in normal rain conditions.	No requirements.
Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.
Assess and redirect drainage around building to stop regular flooding.	No requirements.
Existing roof sheeting is to be replaced with new roof sheeting, safety mesh and roof foil insulation. New metal and polycarbonate translucent corrugated sheet to match existing.	Match roofing colours to wall cladding colours. Galvanised steel should be used.

Table 28 Building 184 works

Scope	Heritage Controls
Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.
Make good/repair leaking facia areas under guttering.	No requirements.
The new doors will be provided in the south of Building 164 – allowing exit from Building 184 and the other providing exit from Building 185.	A new opening for a fire door can occur. In order to manage changes to the form of the building, photographic archival recording is required before the new door opening is created.

Table 29 Building 185 works

Scope	Heritage Controls
Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.

Scope	Heritage Controls
Based on the fire services engineer's recommendation, the existing masonry wall separating Buildings 164 and 185 is to be upgraded to a fire-rated wall. This will reduce the fire compartment size to less than 2,000m2 and remove the BCA trigger for smoke exhaust. Additional exits are to be provided in lieu. The new doors will be provided in the south of Building 164 – allowing exit from Building 184 and the other providing exit from Building 185.	A new opening for a fire door can occur. In order to manage changes to the form of the building, photographic archival recording is required before the new door opening is created.

Table 30 Building 186 works

Scope	Heritage Controls
Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.
Make good/repair replace roof as required.	No requirements.

Table 31 Building 187 works

Scope	Heritage Controls
Hanger doors to be repaired to ensure smooth operation in all weather conditions.	Tracks, steel wheel base and poly brush strips can be replaced when required. Before and after digital photos should be taken to document changes.

Table 32 Building 190 works

Scope	Heritage Controls
Building is to be demolished in accordance with AS2601, relevant standards, guidelines and requirements. All connecting services to be disconnected and removed as required. All demolished material to be removed and ground area made good.	Photographic archival recording is required prior to demolition. The HMP does not provide an interpretation strategy for the North Tarmac Precinct. Rather it suggests options for interpretation in the South Tarmac Precinct that is applicable to the North Tarmac Precinct. Interpretative signage is suggested in the HMP as showing the original state of the area "through historic photographs, plans and the like" (Environmental Resources Australia Pty Ltd, 2012, p. 35). This should be installed in the form of a plaque or sign designating the location of Building 190, including a brief interpretation of the structures' origin date, nature and purpose. The HMP states that investigations must be made to determine the status of all remaining WWII P1 huts on the Base to ensure a representative sample is retained, maintained and used (Environmental Resources Australia Pty Ltd, 2012, p. 38). Future development in the location of Building 190 must take into must take into account the layout, scale, form and restrained palette of materials, colours and finishes of the remaining buildings in the North Tarmac Precinct. The HMP states that new structures should be reflective of the prevailing architectural character of the buildings, however should be readily identifiable as such, and should not mimic or copy historical features of existing buildings (Environmental Resources Australia Pty Ltd, 2012, p. 23)

Table 33 Building 195 works

Scope	Heritage Controls
Provide fire hose reel coverage IAW AS2441. Alternatively, provide certification evidence that fire hose reels have been omitted from the building.	No requirements.

Table 34 Building 197 works

Scope	Heritage Controls
Install self-illuminated exit signage above designated exit doors and doors in paths of travel to exits IAW AS2293.1-2005.	No requirements.

Table 35 Building 202 works

Scope	Heritage Controls
Replace Carpet as it has become worn and torn and poses a trip hazard.	No requirements.
Remove flaking paint, seal joints on all Compressed Fibre Cement Fascias. Repaint all items listed above. All preparation and applications thereof shall be compliant with ASNZS2311-2009.	No requirements.
Replace all Metal Decorative Ceiling Battens with Suspended Type Ceiling with removable Ceiling Tiles.	No requirements.
Make good Powder Coated surface on all External Aluminium Window and Door Frames.	No requirements.
Repaint Metal Capping on top of all External Parapet Walls and Downpipes by preparing and applying paint to all those surfaces as required by AS 1627 Metal finishing.	No requirements.
Replace all Metal Decorative Ceiling Battens with Suspended Type Ceiling with removable Ceiling Tiles.	No requirements.

Alternative actions to demolition

Mothballing would be an appropriate measure until other uses are found for Building 190. It should be noted that unused buildings quickly deteriorate and fall into disrepair, as is the case with Building 190, and it becomes difficult to justify any maintenance spending on a building that does not fit a future purpose. In order to keep the buildings as self-sustaining as possible, ingress points for water, animals and birds require sealing, and the defects such as rotted stumps will require replacement or management measures, such as being spliced with new timbers. Safety risks over time may increase if structural issues are not addressed. It was noted by Biosis during site inspections that the buildings have fallen into a state of irreversible repair and were in a derelict condition. Various bird species were seen to live in the building, and water ingress had caused vast amounts of timber and carpet rot.

To be an effective sustainable management option, mothballing requires a future adaptive reuse. Adaptive reuse is a process that changes a disused or ineffective item into a new item that can be used for a different purpose (Department of the Environment and Heritage, 2004). Adaptive reuse is covered under the HMP, however it states that:

> *Compatible uses for the Point Cook site and its significance component precincts, are typically those that do not require extensive redevelopment or major alterations to building stock to accommodate new uses* (Environmental Resources Australia Pty Ltd, 2012, p. 21).

Due to the physical state of Building 190, major alterations and repair works will have to occur to the buildings to make it fire complient and useable for occupants. As such, Buildings 190 is an unlikely candidate for adaptive reuse. It is unlikely the buildings will undergo these repairs and in turn have further uses. It becomes difficult to justify any maintenance spending on a building that does not fit a purpose and instead the structures will decay further.

Photographic archival recording

Photographic Archival Recording must occur to document change prior to the removal of Building 190. Building 184 and 185 will also require photographic archival recording prior to the addition of a new opening. At a minimum, this must comprise a set of archival quality photographs and an accompanying report. As the building is not of Exceptional or High significance, measured drawings are not required. The records should be retained on site and kept in the Australian Archives for provide adequate information for future reference.

A decision to demolish Building 190 was made between E&IG and the stakeholders due to fire safety and economic viability concerns. The stakeholders also requested demolition in lieu of the replacement of floor coverings (Aurecon, 2018). Activities undertaken within the structure have ceased. This decision was backed up by structural reports within the 30% concept detailed design report (Aurecon, 2018) which indicate ponding of water due to downpipes failure and roof failure led to degradation of the building. Fire compartmentalisation was also indicated as an issue (Aurecon, 2018).

Photographic archival recording must occur prior to the removal of Building 190, and prior to a new opening being installed to Building 184 and 185. This will allow documentation of heritage values and help to manage the harm caused by the demolition.

- The archival recording should be in accordance with the NSW Heritage Office Guidelines How to Prepare Archival Records of Heritage Items (New South Wales Heritage Office, 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (New South Wales Heritage Office, 2006).
- Archival documents should be retained on site, in GEMS and a copy lodged with EE.
- A record of changes that occur to heritage assets at RAAF Williams Point Cook should be centrally managed by Defence Service Delivery Division. Data should be entered into GEMS as work orders and maintenance undertaken.
- When updated, the HMP must make reference to the demolished buildings.

Interpretive signage

The HMP does not provide an interpretation strategy for the North Tarmac Precinct. Rather it suggests options for interpretation in the South Tarmac Precinct that is applicable to the North Tarmac Precinct. Interpretative signage is suggested in the HMP as showing the original state of the area "through historic photographs, plans and the like" (Environmental Resources Australia Pty Ltd, 2012, p. 35). An interpretive sign or plaque designating the location of Buildings 190 which includes a brief description of the structures nature, origin date and purpose can be installed (Environmental Resources Australia Pty Ltd, 2012, p. 35). This will assist in further interpretation of site, and in the event new buildings are constructed in the same location the former buildings will not be forgotten (however, new development in the North Tarmac Precinct should be kept within the same layouts as per the HMP). It was not noted during the site visit what interpretive signage is currently present on the base, but new signage should be in the same colour, size and style to ensure consistency in interpretive signage across the base (if any).

The HMP states that investigations must be made to determine the status of all remaining WWII P1 huts on the Base to ensure a representative sample is retained, maintained and used (Environmental Resources Australia Pty Ltd, 2012, p. 38). Should removal or relocation of the WWII P1 huts be required to continue an appropriate use of the area or through excessively poor condition, investigations must be made to determine the status of all WWII huts on the base, to ensure a representative example is retained, used and maintained (Environmental Resources Australia Pty Ltd, 2012, p. 38). These investigations may coincide with updates to the HMP and can be incorporated into the document and interpretative signage.

Before and after photography

The removal of tracks of Buildings 179, 182, 186 and 187 will require before and after photography to be completed to document change and to reduce harm. The tracks are noted in the HMP as contributing to the moderate significance of these buildings.

Future development

Future development in the locations of Building 190 must take into must take into account the layout, scale, form and restrained palette of materials, colours and finishes of the remaining buildings in the North Tarmac Precinct. The HMP states that new structures should be reflective of the prevailing architectural character of the buildings, however should be readily identifiable as such, and should not mimic or copy historical features of existing buildings (Environmental Resources Australia Pty Ltd, 2012, p. 23).

In order to reduce harm if the removal of hangar doors and tracks of Buildings 179, 182 and 186 occurs, before and after photography must be completed to document change. A best practice approach is recommended where they are printed, annotated and kept with a plan of the structure that records the precise location of the modification. The records should be stored by the ESM. A HIA and ECC will also be required.

Appropriate controls methodologies for the treatment of heritage fabric are associated with timber restoration, painting and finishes and rainwater goods. These works should be undertaken in accordance with the methodologies outlined in Appendix 1.

5.5 Step 4 Are the impacts significant?

Step 4 in the EPBC self-assessment process outlined in the *Significant Impact Guidelines 1.2* (DSEWPC 2013) provides criteria for determining if an impact is considered significant. In considering impacts to heritage, the following criteria are raised:

Criteria	Assessment
Is there a real chance or possibility that the action will:	
Permanently destroy, remove or alter the fabric of a heritage place?	Yes, the works will permanently destroy, remove or alter the fabric of a heritage buildings (Buildings 190). The action will permanently remove a moderately significant elements of RAAF Williams Point Cook. The impacts will be managed by undertaking archival recording and installing interpretive signage. The works will also alter the fabric of Buildings 179, 182 and 186 which is noted as contributing to its moderate significance rating. However, the proposed works will not substantially diminish the heritage values of the study area, or impact on its significance values related to its continued military use.

Criteria	Assessment
Involve extension, renovation, or substantial alteration of a heritage place in a manner which is inconsistent with the heritage values of the place?	No, the works do not involve extensions or renovations. The works involve permanent alterations to a heritage place which are in conflict with the HMP. However the impact of the removal can be managed and documented through archival recording and interpretive signage. The removal of the building and the refurbishment/maintenance works to the other buildings as part of the proposed actions will ensure the continued military use of the base.
Involve the erection of buildings or other structures adjacent to, or within important site lines of a heritage place which are inconsistent with the heritage values of the place?	No, the works do not involve the erection of buildings which will impact on significant heritage fabric.
Substantially diminish the heritage value of a heritage place for a community or group for which it is significant?	No, the works will not substantially diminish the heritage values of places in the study area. However, over time the removal of further heritage buildings will diminish the heritage significance of RAAF Williams Point Cook.
Substantially alter the setting of a heritage place in a manner which is inconsistent with the heritage values of the place?	No, the works will not substantially alter the settings of heritage values of places in the study area.
Substantially restrict or inhibit the existing use of a heritage place as a cultural or ceremonial site?	No, the works will not restrict or inhibit access.

The proposed actions are not considered to be significant as defined by the *Significant Impact Guidelines* 1.2 (DSEWPC 2013).

5.6 Heritage Impact Assessment Summary

A summary of potential impacts to historic heritage assets is provided in Table 36 below.

Table 36 Heritage Impact Assessment Summary

Asset	Heritage Value	Will the action have a significant impact?
Building 3	Moderate	The carpet is to be replaced in Building 3. The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.
Building 9	Moderate	The majority of works are minor maintenance actions, being upgrades to bathrooms, replacement of floor coverings, replacement of blinds and repainting. Controls to reduce impacts are to follow the methodologies and specifications for painting and timber as in Appendix 1. With the heritage controls these are low risk actions.

Asset	Heritage Value	Will the action have a significant impact?
Building 25	Low	Gutter and downpipe replacement, roof sheet replacement and repair of cracking are minor maintenance actions. To reduce impacts, watergoods and roof sheeting are to match existing. With these heritage controls these are low risk actions.
Building 164	None	Fire detection cabling is to be installed to Building 164. The works are minor actions to ensure the building can meet modern codes. No management and mitigation measures are necessary. The actions are low risk.
Building 176	Moderate	The repainting works to Building 176 are minor maintenance actions. Controls to reduce impacts are to follow the methodologies and specifications for painting and timber finishes in Appendix 1. With the heritage controls these are low risk actions.
Building 179	High	The maintenance actions such as repairing the roof, replacing exit signs and drainage works are required to ensure the building remains useable and to ensure it meets modern codes. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and to ensure the roof is replaced like for like in colour and materials. With the heritage controls these are low risk actions.
Building 182	High	The maintenance actions such as repairing the hangar doors and roof sheeting are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and replacing roof sheeting in like for like colour and materials. With the heritage controls these are low risk actions.
Building 183	High	The maintenance actions such as repairing the hangar doors, repairing drainage and repairing roof sheeting are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and replacing roof sheeting in like for like colour and materials. With the heritage controls these are low risk actions.
Building 184	High	**Yes, the works will impact on the heritage values of this building**. A new fire door will be installed to the building and door tracks are to be replaced to ensure continued use of the building. As the building is of high significance and the form of the building will be altered irreversibly, photographic archival recording will be required to document change as a management measure. Overall, however, the alterations to the building **will not impact on the heritage significance of the base as a whole and will not be severe.** These controls have been recommended to reduce direct and cumulative impacts to heritage values.

Asset	Heritage Value	Will the action have a significant impact?
Building 185	High	**Yes, the works will impact on the heritage values of this building**. A new fire door will be installed to the building and door tracks are to be replaced to ensure continued use of the building. As the building is of high significance and the form of the building will be altered irreversibly, photographic archival recording will be required to document change as a management measure. Overall, however, the alterations to the building **will not impact on the heritage significance of the base as a whole and will not be severe.** These controls have been recommended to reduce direct and cumulative impacts to heritage values.
Building 186	High	The maintenance actions such as repairing the roof and repairing the hangar doors are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and to ensure the roof is replaced like for like in colour and materials. With the heritage controls these are low risk actions.
Building 187	High	The maintenance actions of repairing the hangar doors are required to ensure the building remains useable. Whilst the proposed actions will have an impact on heritage fabric these can be mitigated to a certain degree through before and after photography and to ensure the roof is replaced like for like in colour and materials. With the heritage controls these are low risk actions.
Building 190	Moderate	**Yes, the works will impact on the heritage values of this building**. The entire structure will be demolished due to fire safety concerns, lack of operational uses and budget constraints. The building is not fire compliant and has no current use. The demolition is not avoidable, as operational requirements are not negotiable in this case and there are no prudent or feasible alternatives. Overall, however, the demolition of the building **will not impact on the National Heritage place's significance of the base as a whole and will not be severe** as Building 190 is WWII P1 hut which is represented elsewhere on the base, and mitigation can be achieved through photographic archival recording and interpretation. Photographic archival recording will be required to document change. These controls have been recommended to reduce direct and cumulative impacts to heritage values.
Building 195	Low	The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.
Building 197	Low	The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.
Building 202	Low	The works are minor maintenance actions. No management and mitigation measures are necessary. The actions are low risk.

6 Conclusion

6.1 Recommendations

Based on this HIA, Biosis Pty Ltd advises that:

- Photographic archival recording must be undertaken prior to the removal of Buildings 190. This should be in accordance with the NSW Heritage Office Guidelines How to Prepare Archival Records of Heritage Items (NSW Government 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Government 2006).
- Photographic archival recording must be undertaken prior to the creation/installation of new doors to Building 184 and Building 185. This should be in accordance with the NSW Heritage Office Guidelines How to Prepare Archival Records of Heritage Items (NSW Government 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Government 2006).
- The location of Building 190 is not proposed to be developed. If development is required in the future, new buildings must be in the same prevailing planning layout as other structures in the North Tarmac Precinct. New structures must take into account the scale, form and restrained palette of materials, colours and finishes.
- Erection of plaque or sign designating the location of Buildings 190 should be undertaken, and include a brief interpretation of the structures' origin date and purpose. New signage should be in the same colour, size and style to ensure consistency in interpretive signage across the base (if any current signage).
- Further research and audits should be undertaken of the remaining World War Two (WWII) P1 huts on the base to ensure a representative example is retained, used and maintained as per the HMP (Environmental Resources Australia Pty Ltd, 2012, p. 38). This study may coincide with updates to the HMP.
- 'Before and after' digital photographs will be sufficient for the removal of the door tracks of Buildings 179, 182, 183, 184, 185 and 186. They should be printed and annotated and kept with a plan of the structure that records the precise location of the modification. The records should be stored by the Environment and Sustainability Manager (ESM).
- Appropriate control methodologies for the treatment of heritage fabric not detailed in the Architectural Specifications include the repair of timber, paints and finishes and the replacement of rainwater goods. These works should be undertaken in accordance with the methodologies outlined in Appendix 1.

Should all of the above management and mitigation measures be undertaken by Defence, it is considered the proposed works will not have a significant impact on the heritage values of RAAF Williams Point Cook.

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Appendix 1 – Methodologies for finishes

Timber Restoration

Timber restoration must refer to 0185 Timber products, finishes and treatment in the architectural specifications. In addition the following methodologies should be applied to timber refurbishment.

Materials

- Framing: to AS 1684.2, AS 1684.3 or AS 1684.4, as appropriate; hardwood to AS 2796.1.
- Framing: F17 hardwood treated with Tanalith E preservative or similar.
- Submit a supplier's certificate (which may be included on an invoice or delivery docket) verifying that the timber conforms to the documented requirements. Do not distort or damage timber or timber products. Maintain the equilibrium moisture content of seasoned timber.
- Balustrades, deck and stairs: Match existing sizes and profiles.
- Eaves/Soffits: Match existing sizes and profiles.
- Fixings: Hot-dip galvanized jolt head nails to non-corrosive timbers. Pre-drill hardwood. Punch below the surface and fill flush with putty after the surface has been primed.
- Timber consolidant/repair works: Fill-It clear two·part epoxy filler, or Earl's Rotten Wood Repair Hardener + Porion Flexible Exterior filler, or equivalent, for repairing timber, or equivalent. Do NOT use 'Builders Bog'.

  Refer to http://www.smithandcompany.org/Fillit; http://www.timbermate.com.au/
- Prepare timber substrates for painting after the completion of timber repairs/replacements. Where acrylic paints have been used over earlier lead painted surfaces, remove the acrylic layers and apply an alkyd enamel system. Steam can be an effective method of removing acrylic paints but is to be only undertaken by an experienced operator.
- Maintain historic paint layers where possible and remove loose and flaking paint by scrapers and wet sanding.
- Do not use orbital sanders. Do not burn off paint or use hot air strippers.

Installation

- Provide temporary protection for members until permanent covering is in place.
- Provide additional support in the form of noggings, trimmers and studs for fixing lining, hardware, accessories, fixtures and fittings, as required.
- Provide flashings to external openings to prevent the entry of moisture. Form trays at the ends of sill flashings.
- Scarf in new timber to match existing where required. Use a notched scarf join, not straight edged.
- • Fill nail holes and shakes etc. in timber using linseed oil putty.
- Prime external timbers using alkyd enamel (oil based) primer and paint using enamel paint system (see Finish - Painting Instructions below).

Completion

- Upon completion, tighten bolts, screws and other fixings so that joints and anchorages are secure at the date of practical completion.
- Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and installer.

Finishes

Painting to exposed timberwork should be undertaken using an alkyd enamel (oil based) primer and two acrylic top coats. Painting of metal building elevations should be undertaken only after removal of any failing and rusting metal and metal replacement (if necessary) by a reputable metal work firm.

Colour schemes can be subject to change and should be confirmed with the ESM prior to works.

It is noted that old paint is likely to retain lead and appropriate methods to protect workers, building occupants and the environment should be followed.

- Prime the timber and then apply a minimum of one undercoat and two finish coats.
- Consider the use of natural paint and primer derived from plants and minerals if possible, or high-solids alkyd or waterborne alkyd. These types of paint are least harmful to the environment and human health and are micro-porous (allowing the timber to 'breathe' rather than sealing it).
- Do not use caustic soda, or other chemical dips or baths to remove paint. This will deform the timber and weaken the joints. Hot air strippers should not be used for windows or near any glass in doors, as the heat can cause the glass to crack.
- Do not use circular sanders on historic timber elements. Circular sanders cannot be properly controlled and can result in the formation of unsightly and damaging circular indents on timber surfaces. There is also a health risk associated with the removal of lead paints from historic timber work.
- Do not simply paint windows without attending to damaged or defective window putty or mastic around the window or door frame. Defective putty or mastic will allow water penetration into the timber, causing wet rot and the eventual replacement of the rotten timber.
- Do not paint over mastic. This will cause the mastic to lose its flexing properties more quickly, accelerating its deterioration.
- Do not use inappropriate, inelastic primers and paint. These will deteriorate much more quickly than more elastic, alkyd-based paints which are less prone to cracking. Oil based alkyd paint is environmentally harmful and can impact human health.

Rainwater Goods

- Always replace existing metal rainwater goods like for like using galvanised steel. This material is still available.
- Retain or reconstruct gutter detail based on physical or documentary evidence to retain historic character.
- Retain or reconstruct rainwater heads and downpipe brackets based on physical or documentary evidence to retain historic character.

- Never use a substitute material. Colorbond and zincalume are incompatible with galvanised steel. Plastic cannot be repaired or renewed, has a comparatively short lifespan and is an inappropriate material for historic buildings.

Appendix 2 - Key heritage assets assessed

The following datasheets have been generated using data from the HMP (Environmental Resources Australia Pty Ltd, 2012) and information gathered during a site visit undertaken by Biosis in April 2018, and give detail to the assets being assessed.

6.1.1 Importance to listing

The Importance to listing is used to rank the heritage asset in this HIA. The ranking is based upon the heritage values attributed to the asset in the HMP (Environmental Resources Australia Pty Ltd, 2012). The rationale used in for attributing heritage values was established using:

> *The Defence Guidelines for Assessing Significance, as required by the draft Defence HMP template. It is used to provide a consistent approach across the Defence estate. The rankings and additional explanations provided below have been used to assess the contribution that precincts and individual elements make to the overall Commonwealth Heritage values of the place.*

The definitions of the importance to listing used in this HIA are outlined below in Table 37.

Table 37 Definition of the importance to listing

Importance to Listing/Ranking	Explanation of the Importance to Listing	Threshold
Cited in Listing	Rare or outstanding precinct or element which significantly embodies and demonstrates National and Commonwealth (or other) heritage values in its own right and makes a direct and irreplaceable contribution to a place's significance/value. Generally these elements include a high degree of original fabric or attributes with heritage values-and include non-tangible components such as views and functional relationships which directly contribute to their outstanding /exceptional values. These may include some alterations which are of a minor nature and do not detract from significance. Loss or alteration would significantly diminish the National or Commonwealth (or other) Heritage values of the place.	Likely to fulfil criteria for National Heritage List. Fulfils Commonwealth Heritage criteria.
High	Precinct or element which demonstrates Commonwealth (or state) heritage values in its own right and makes a significant contribution to the place's heritage value. Loss or unsympathetic alteration would diminish the Commonwealth Heritage values of the place.	Likely to fulfil Commonwealth and state heritage criteria.
Moderate	Precinct or element that reflects some Commonwealth (or other local) heritage values but only contributes to the overall significance/values of the place in a moderate way. Loss or unsympathetic alteration is likely to diminish the Commonwealth Heritage values of the place.	Likely to fulfil Commonwealth Heritage criteria.

Importance to Listing/Ranking	Explanation of the Importance to Listing	Threshold
Low	Precinct or element that reflects some (or a low level) Commonwealth Heritage values and only contributes to the overall significance/values of the place. Loss will not diminish the Commonwealth or local Heritage values of the place.	Likely to meet local heritage criteria.
Neutral	Precinct or element that does not reflect or demonstrate any Commonwealth or local heritage values and detracts from the overall heritage values of the place. Does not fulfil criteria for heritage listing.	Does not have Commonwealth or local heritage value on its own merit.
Intrusive	Damaging to the place's heritage values. Loss may contribute to the Commonwealth Heritage values of the place. Does not fulfil criteria for heritage listing.	Does not fulfil criteria for Commonwealth or local listing.

6.1.2 Condition and Integrity

Based on the data from the previous HMP (Environmental Resources Australia Pty Ltd, 2012) and the field inspection an assessment was then made to classify the condition and integrity of each site into the following categories:

- **High** – site has high degree of integrity, minimal levels of disturbance. Monitoring and conservation works meeting needs of site.
- **Medium** – site has moderate to good level of integrity, some disturbance is evident, no immediate remediation works required, monitoring suits needs of site.
- **Low** – site has low degree of integrity, some disturbance is present, immediate remediation works required.
- **Intrusive/none** - site has low or no degree of integrity, high levels of disturbance, immediate remediation works required.

6.1.3 Tolerance for Change

Heritage significance is related to the condition of key attributes of an item or building (element) as well as being assigned to a precinct or place.

The significance values of elements then are based on the key attributes that may hold heritage significance: form, fabric, function and/or location, and as a result each element will hold a different tolerance for change before their heritage significance is affected.

Where a proposed action may impact on the heritage significance of an element, or the significance of the site as a whole, the following general principles can be applied in regards to managing change:

- **Cited in listing/high heritage significance**—retain, conserve, adapt /interpret and/or enhance where significant layout, elements and/or fabric has been altered or is missing. Removal or impact to items of high significance is not permissible.
- **Medium significance**—retain, conserve and enhance where possible. Adaptation and/or alteration are permissible in specific circumstances. Removal is possible subject to prior assessment and approvals process. Detailed recording of heritage values such as archival recording is likely to be required.

- **Low significance**—there are limited constraints to the removal of low significance items. A wider variety of change is acceptable. Document all changes in works register.
- **None/intrusive**—removal of these items is likely to result in a nil impact or an enhancement of the heritage value of the place. Replace with new buildings sympathetic to heritage values.

The differing degrees of tolerance for change are provided in Table 38 below for reference. The individual tolerance for change for each heritage element assessed in this HIA for RAAF Williams Point Cook is provided in the datasheets located following.

Table 38 Tolerance for Change Rankings

GEMS Heritage Importance Ranking	Tolerance for Change Ranking	Definition and Application
Cited in listing/high	Low	The element's key attributes (form, fabric, function and/or location) hold its heritage significance. The element retains a high degree of intactness and original fabric. Any alterations are minor and have not affected heritage significance. Outcome: retain and conserve element.
Medium	Moderate	The element's key attributes (form, fabric, function and/or location) hold heritage significance. The element has undergone some alteration which does not detract from its significance. Outcome: generally retain and conserve element. The elements are moderately changeable, as they may be altered to some degree without causing adverse impact on heritage.
Low	High	The element's key attributes (form, fabric, function and/or location) hold low heritage significance. Past alterations that have occurred detract from the element's significance or the original attribute has degraded. Outcome: highly changeable.
None/intrusive	High	The element either has no heritage value or is intrusive and detracts from heritage significance. Outcome: highly changeable. Replace with materials more sympathetic to heritage values whenever possible.

6.1.4 Building 3

Building 3	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Unknown	**Original Use:** OTS Headquarters
Importance to Listing: Moderate, the architectural values of Building 3 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed in 1962, Building No. 3 is a large rectangular red brick structure with blue spandrel panels and aluminium doors and windows.	
Significant heritage elements: Building 3 is noted for its external form and its relationship with other buildings and open spaces within the precinct.	
Condition and Integrity: Condition-Excellent Integrity-Excellent	
Tolerance for Change: Low	

6.1.5 Building 9

Building 9	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Offices	**Original Use:** RAAF Headquarters
Importance to Listing: Moderate, the architectural values of Building 9 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed in the 1960s, Building No. 9 is a red brick two storey structure with aluminium doors and recessed, aluminium windows. The building has a flat roof and box guttering.	
Significant heritage elements: Building 9 is noted for its external form and its relationship with other buildings and open spaces within the precinct.	
Condition and Integrity: Condition-Good Integrity-Good	
Tolerance for Change: Low	

6.1.6 Building 25

Building 25	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Substation and Powerhouse	**Original Use:** Substation and Powerhouse
Importance to Listing: Low, the architectural values of Building 25 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed in 1941, Building No. 25 is a single storey, utilitarian red brick building with a steeply pitched roof. Even though it is of low heritage significance, its proximity to the Officer's Barracks Precinct and the Staff Residences Precinct means that the building is at risk of being subject to inappropriate development which will diminish the significant views from the aforementioned precincts. The HMP notes that Building 25 be retained whilst it continues to adequately serve its required purpose.	
Significant heritage elements: Proximity to Officer's Barracks Precinct and the Staff Residences Precinct	
Condition and Integrity: Condition-Good Integrity-Medium	
Tolerance for Change: Moderate	

6.1.7 Building 164

Building 164	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Unknown	**Original Use:** Unknown
Importance to Listing: None	
Description of building/item: Constructed recently, Building No.164 is located between Building 184 and 185. This single storey brick building provides a walkway between the museum and the aircraft display and is of no heritage significance.	
Significant heritage elements: None	
Condition and Integrity: Condition-Good Integrity-Good	
Tolerance for Change: High	

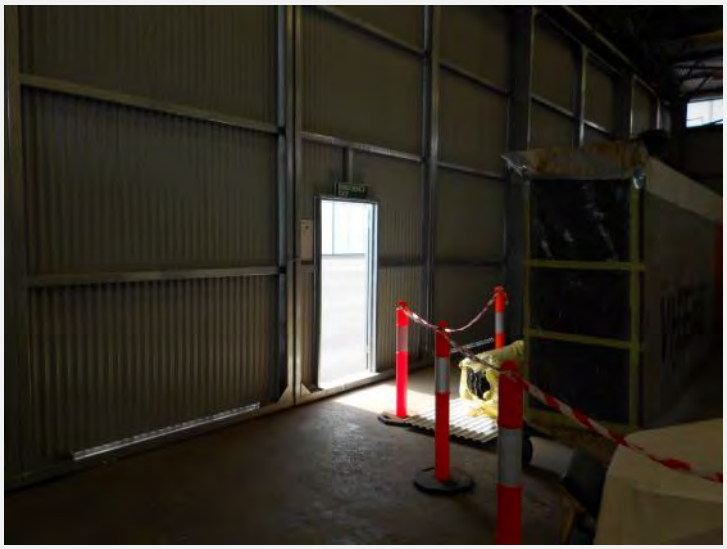
6.1.8 Building 176

Building 176	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Museum Equipment	**Original Use:** WWII P1 Hut
Importance to Listing: Moderate, the architectural values of Building 176 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed in the 1940s, Building No.176 is a rectangular, single storey building adjacent to Building 185. The building has been recently reclad and new plumbing such as downpipes and flashing has been installed. The timber framed windows have 4 panes and have original hardware. The interior of the building contains a combination of bed board cladding and cement sheet walling. P1 Huts were designed for construction by civilian contractors using freely available local materials and in a style familiar to all Australian builders.	
Significant heritage elements: Building 176 is noted in the HMP for its overall form and its layout in a radial pattern with other buildings in the precinct.	
Condition and Integrity: Condition-Good Integrity-Good	
Tolerance for Change: Low	

6.1.9 Building 179

Building 179	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Storage	**Original Use:** Bellman Hangar
Importance to Listing: High, the architectural values of Building 179 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1940s, Building No.179 has been recently refurbished and heritage fabric removed. The building has been reclad in silver colourbond and the interior insulation replaced. The hangar doors have been replaced and no longer has cross brace doors.	
Significant heritage elements: Building 179 is noted in the HMP for its overall form including door tracks, braced doors, its relationship with other hangars and their radial pattern layout. However, the original cross braced doors have been removed.	
Condition and Integrity: Condition-Good Integrity-Medium	
Tolerance for Change: Low	

6.1.10 Building 182

Building 182	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Storage/ Airplane Maintenance	**Original Use:** Bellman Hangar
Importance to Listing: High, the architectural values of Building 182 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1940s, Building No.182 has not been altered from its original form. The hangar is corrugated metal with external cross bracing on the doors. The hangar has been painted green and white. A modern door has replaced the original on the southern entrance to the building. The hangar is used as the exemplar Bellman Hangar (Merrony, 2019).	
Significant heritage elements: Building 181 is noted for its overall form including door tracks, braced doors, its relationship with other hangars and their radial pattern layout.	
Condition and Integrity: Condition-Good Integrity-Excellent	
Tolerance for Change: Low	

6.1.11 Building 183

Building 183	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Hangar	**Original Use:** Bellman Hangar
Importance to Listing: High, the architectural values of Building 183 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1940s, Building No.183 has been recently refurbished and heritage fabric removed. The building has been reclad in silver colourbond and the interior insulation replaced. The hangar doors have been replaced and no longer has cross brace doors. Building 183 has an alcove.	
Significant heritage elements: Building 183 is noted in the HMP for its overall form including door tracks, braced doors, its relationship with other hangars and their radial pattern layout. However, the original cross braced doors have been removed.	
Condition and Integrity: Condition-Good Integrity-Medium	
Tolerance for Change: Low	

6.1.12 Building 184

Building 184	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Aircraft Display	**Original Use:** Bellman Hangar
Importance to Listing: High, the architectural values of Building 184 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1940s, Building No.184 has been recently refurbished and heritage fabric removed. The building has been reclad in silver colourbond and the interior insulation replaced. The hangar doors have been replaced and no longer has cross brace doors. A ramp has been installed inside to allow pedestrians a different view of the aircraft housed in the building, and black curtains have been installed around the interior. Hanging lights have been suspended from the interior steel beams. Building 184 has been connected to Building 185 with a single storey brick building (Building 164) to provide a walkway between the museum and the aircraft display.	
Significant heritage elements: Building 184 is noted in the HMP for its overall form including door tracks, braced doors, its relationship with other hangars and their radial pattern layout. However, the original cross braced doors have been removed.	
Condition and Integrity: Condition-Good Integrity-Medium	
Tolerance for Change: Low	

6.1.13 Building 185

Building 185	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Aircraft Display	**Original Use:** Bellman Hangar
Importance to Listing: High, the architectural values of Building 185 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1940s, Building No.185 has been recently refurbished and heritage fabric removed. The building has been reclad in silver colourbond and the interior insulation replaced. The hangar doors have been replaced and no longer has cross brace doors. Solar panels have been installed on the roof. Building 185 has been connected to Building 184 with a single storey brick building (Building 164) to provide a walkway between the museum and the aircraft display.	
Significant heritage elements: Building 185 is noted in the HMP for its overall form including door tracks, braced doors, its relationship with other hangars and their radial pattern layout. However, the original cross braced doors have been removed.	
Condition and Integrity: Condition-Good Integrity-Medium	
Tolerance for Change: Low	

6.1.14 Building 187

Building 187	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Hangar	**Original Use:** Bellman Hangar
Importance to Listing: High, the architectural values of Building 187 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1940s, Building No.187 has been recently refurbished and heritage fabric removed. The building has been reclad in silver colourbond and the interior insulation replaced. The hangar doors have been replaced and no longer has cross brace doors.	
Significant heritage elements: Building 187 is noted in the HMP for its overall form including door tracks, braced doors, its relationship with other hangars and their radial pattern layout. However, the original cross braced doors have been removed.	
Condition and Integrity: Condition-Good Integrity-Medium	
Tolerance for Change: Low	

6.1.15 Building 190

Building 190	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Vacant	**Original Use:** WWII P1 Hut
Importance to Listing: Moderate, the architectural values of Building 190 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed in the 1940s, Building No.190 is a rectangular, single storey building adjacent to Building 183. The building is clad in corrugated metal, with 4 pane timber windows and timber doors. The interior floor is timber which is rotting through in some places, and the door is unable to be opened. Vents covered with chicken wire are present.	
Significant heritage elements: Building 190 is noted in the HMP for its overall form and its layout in a radial pattern with other buildings in the precinct.	
Condition and Integrity: Condition-Poor Integrity-Good	
Tolerance for Change: Low	

6.1.16 Building 195

Building 195	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Museum Entry	**Original Use:** Museum Entry
Importance to Listing: Low, the architectural values of Building 195 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1980s, Building No.195 is a single story building with the flat roof. It is joined to Building 184 and serves as the entrance to the Museum.	
Significant heritage elements: None	
Condition and Integrity: Condition-Good Integrity-Good	
Tolerance for Change: High	

6.1.17 Building 197

Building 197	
	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: Museum Storage	**Original Use:** Museum Storage
Importance to Listing: Low, the architectural values of Building 197 contributes to the heritage values of RAAF Williams Point Cook under Criterion (a).	
Description of building/item: Constructed during the 1990s, Building No.197 is a red brick, single storey L shaped building with aluminium windows and doors. The interior is temperature controlled to allow the perseveration of archival material. The building has a suspended ceiling.	
Significant heritage elements: None	
Condition and Integrity: Condition-Excellent Integrity-Excellent	
Tolerance for Change: High	

6.1.18 Building 202

Building 202	
No photograph taken.	
CHL Listing Ref: Point Cook Air Base, Aviation Rd, Point Cook, VIC, Australia	**Heritage Value:** Cited in listing (NHL ID 105671) (CHL ID 105275)
Current Use: RAAF Museum Admin/Flight Training	**Original Use:** RAAF Museum Admin/Flight Training
Importance to Listing: Low.	
Description of building/item: Opened in 1981, Building No.202 is a rectangular, two storey building. Multiple materials are present in the building with an internal mix of besa block, concrete, pine wood panelling, painted and unpainted finishes, an aluminium clad suspended slat ceiling and a glass atrium. The exterior of the building comprises exposed concrete and aluminium windows and doors.	
Significant heritage elements: None	
Condition and Integrity: Condition-Good Integrity-Excellent	
Tolerance for Change: High	

Attachment 6

Heritage Buildings PFAS Pre-Construction Contamination Assessment

Prepared for
Department of Defence
ABN: 68706814312

DRAFT

Heritage Buildings PFAS Pre-Construction Contamination Assessment

0932 RAAF Base Point Cook

29-Aug-2022
0932 RAAF Base Point Cook

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Heritage Buildings PFAS Pre-Construction Contamination Assessment

0932 RAAF Base Point Cook

Client: Department of Defence

ABN: 68706814312

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29-Aug-2022

Job No.: 60551507

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

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Quality Information

Document Heritage Buildings PFAS Pre-Construction Contamination Assessment

Ref 60551507

Date 29-Aug-2022

Prepared by Toni Henderson & Cindy Cheung

Reviewed by Richard Somerville & Belinda Goldsworthy

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	12-Aug-2022	Draft	Matt Johnson Project Manager	
B	29-Aug-2022	Draft	Matt Johnson Project Manager	

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Acronyms

Term	Description
ADF	Australian Defence Force
AECOM	AECOM Australia Pty Ltd
ALS	Australian Laboratory Services Pty Ltd
ASC NEPM	*National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended in 2013)
CBD	Central Business District
CoC	Chain of Custody
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DAWE	Department of Agriculture, Water and Environment
DCARM	Directorate of Contamination Assessment, Remediation and Management
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCMM	Defence Contamination Management Manual
DEPAC	Directorate of Environmental Planning, Assessment and Compliance
DPFASR	Directorate of Per- and poly-fluoroalkyl (PFAS) Remediation
DQI	Data Quality Indicators
DQO	Data Quality Objective
EPA	Environment Protection Authority
EPBC	Environment Protection and Biodiversity Control Act 1999
ERA	Ecological Risk Assessment
ERS	Environment Reference Standard
GPS	Global positioning system
HEPA	Heads of EPA Australia and New Zealand
LOR	Limit of Reporting
m bgl	metres below ground level
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
PCA	Pre-construction Contamination Assessment
PDR	Preliminary Documentation Report
PFAS NEPM 2.0	PFAS National Environmental Management Plan 2.0

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Term	Description
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PMST	Protected Matter Search Tool
PPE	Personal protective equipment
QA/QC	Quality Assurance / Quality Control
ROI	Receptor of Interest
RPD	Relative Percentage Difference
SAQP	Sampling Analysis and Quality Plan
SHEMP	Safety, Health and Environment Management Plan
VBA	Victorian Biodiversity Atlas

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Executive Summary

Background

The Department of Defence (Defence) engaged AECOM Australia Pty Ltd (AECOM) to undertake a site assessment associated with the demolition of 19 heritage list buildings at 0932 RAAF Base Point Cook ('the Property').

It is understood in August 2019, Defence submitted a referral (Environment Protection and Biodiversity [EPBC] 2019/8514) to the Department of Climate Change, Energy, the Environment and Water (DCCEEW), formerly known as Department of Agriculture, Water and Environment (DAWE), for the demolition and removal of 19 heritage listed buildings at the Property.

The buildings are redundant to the Australian Defence Force (ADF) requirements and are proposed to be removed to address safety concerns arising from their poor condition and to reduce on-going maintenance costs. Following DCCEEW's response, Defence submitted a Preliminary Documentation Report (PDR) (Defence, 2021a) to DCCEEW. In response, DCCEEW requested *"A site investigation and assessment of the current environment in relation to PFAS, consistent with the PFAS National Environment Management Plan 2.0."*

It is understood that the demolition works will involve:

- The removal of above ground structures only;
- Leaving concrete slabs and asphalt ground coverings in place;
- Cutting services and capping them at ground level; and
- Where buildings are founded on timber or concrete footings/ stumps, cutting the footings off at ground level.

Overall, it is anticipated that there will be minimal disturbance of soil as a result of the demolition works.

Objective

The objective of the site investigation and assessment was to assess potential PFAS-related human health and environmental risks associated with the proposed demolition and removal of 19 heritage listed buildings at the Property.

Scope and Approach

To support the site assessment, one soil sample was collected from unsealed ground adjacent to each building at a depth of 0.05 to 0.1 m below ground level (bgl). Due to safety concerns relating to the potential collapse of the buildings, soil samples could not be collected from beneath the buildings. Given the soil samples were collected from adjacent to, rather than beneath the buildings, and none of the buildings are known sources of PFAS, these soil analytical results are considered a conservative assessment of the soil beneath each of the buildings.

The receptors of interest (ROI) identified in the vicinity of the buildings included human receptors (i.e., Defence personnel) and ecological receptors (e.g., flora and fauna including migratory and non-migratory birds, mammals and reptiles).

Based on the soil analytical results and proposed demolition works a Tier 1 Assessment, undertaken by comparing the soil PFAS analytical results to the adopted screening criteria, was undertaken. A qualitative Ecological Risk Assessment (ERA) was undertaken, based on the outcomes of the Tier 1 Assessment, and the receptors that may be exposed to PFAS as a result of the demolition works.

Conclusions

Based on the outcomes of the Tier 1 Assessment and qualitative ERA, it is considered unlikely that the demolition of the 19 buildings will result in increased risks to human health or terrestrial ecological receptors from exposure to PFAS impacts in soil. **Table ES1** below provides a summary of the findings.

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Table ES1 Risk Assessment Summary

Exposure Scenario	Buildings with concrete slabs and asphalt ground coverings	Buildings with timber footings
Human Health direct exposure (e.g., incidental ingestion of soil)	**Low potential for direct PFAS toxicity** Concentrations of PFAS in soil samples were reported below the Tier 1 direct human health assessment criteria. Therefore, the demolition is unlikely to result in increased PFAS-related risk to human health via direct contact with soil.	
Direct ecological exposure (e.g., incidental ingestion of soil)	**Low potential for direct PFAS toxicity** Concentrations of PFAS in soil samples were reported below the Tier 1 direct ecological exposure assessment criteria. Therefore, the demolition is unlikSely to result in increased PFAS-related risk to ecology via direct contact with soil.	
Indirect ecological exposure (e.g., ingestion of biota with PFAS bioaccumulation))	**Low potential for increased level indirect PFAS risk** Concrete slabs and asphalt ground coverings are planned to remain in place following the demolition of the six buildings with slabs and asphalt ground cover. As such, there will not be a newly created complete exposure pathway at these locations (i.e., fauna will not be able to forage in a newly exposed area with potentially PFAS impacted soil). Therefore, the demolition will not result in increased PFAS-related ecological risk at these locations associated with indirect ecological exposure because the exposure scenario remains unchanged.	**Low potential for increased level of indirect PFAS risk** Demolition of the six buildings with timber footings will likely lead to a small area exposed soil in their footprints post-demolition. The qualitative ERA considered the indirect ecological exposure to ROI based on the potential changes to the foraging area resulting from the removal of these buildings with timber footings. An increased level of risk to ecological receptors via indirect exposure to PFAS (i.e., through bioaccumulation) is unlikely because: • The limited habitat in the immediate vicinity of the buildings which theoretically could support higher order predators with small home ranges such as reptiles (i.e., reptiles are not anticipated to be present in the vicinity of the buildings); • The geometric mean of PFAS soil concentrations was only marginally above the Tier 1 indirect ecological exposure criteria; • The negligible increase in accessible soil (<0.001 to 0.4%) resulting from the demolition of the buildings for ROI with home ranges that incorporate the buildings; and • The demolition works will likely result in minimal soil disturbance.

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1.0 Introduction

1.1 Background

The Department of Defence (Defence) engaged AECOM Australia Pty Ltd (AECOM) to undertake a site assessment associated with the demolition of 19 heritage listed buildings at 0932 RAAF Point Cook ('the Property').

It is understood in August 2019, Defence submitted a referral (Environment Protection and Biodiversity [EPBC] 2019/8514) to the Department of Climate Change, Energy, the Environment and Water (DCCEEW), formerly known as Department of Agriculture, Water and Environment (DAWE), for the demolition and removal of 19 heritage listed buildings at the Property. The location of the Property is presented on **Figure F1, Appendix A**.

The buildings are redundant to the Australian Defence Force (ADF) requirements and are proposed to be removed to address safety concerns arising from their poor condition and to reduce on-going maintenance costs. Following DCCEEW's response, Defence submitted a Preliminary Documentation Report (PDR) (Defence, 2021a) to DCCEEW. In response, DCCEEW requested *"A site investigation and assessment of the current environment in relation to PFAS, consistent with the PFAS National Environment Management Plan 2.0."*

The demolition activities are anticipated to be minor given most of the World War II 'kit hangars' do not have below ground foundations. The remaining buildings are on concrete or timber 'stumps/footings' which will cut of at the ground surface.

It is understood that the demolition works will involve:

- For all of the hangars and huts, which do not have any concrete slabs on ground:
  - No excavation will occur (i.e., cut off structures, such as timber footings, at existing ground level), with minimal disturbance of soil;
  - Any surface covering (e.g., asphalt ground covering, where currently present) will be left in place; and
  - Any underground services will be left in-situ, cut and capped at ground level and not excavated.
- For the brick-built buildings which are likely to have concrete slab on ground and strip footings/edge beams:
  - Slabs and footings will be left in place and there will be no excavation/demolition of the ground area, slabs and footings; and
  - Any underground services will be left in situ, capped at ground level and not excavated, with minimal soil disturbance during the works.

Although soil disturbance during the demolition works is likely to be minimal, the purpose of undertaking this soil characterisation investigation in the vicinity of each building is to address DCCEEW's request for a site investigation and assessment of the current environment in relation to PFAS, consistent with the PFAS National Environment Management Plan 2.0.

1.2 Objective

The objective of the site investigation and assessment was to assess potential PFAS-related human health and environmental risks associated with the proposed demolition and removal of 19 heritage listed buildings at the Property.

1.3 Scope of Work

The scope of work completed for this assessment is outlined in **Table 1** below.

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Table 1 Scope of Work Overview

Task	Description	Details
1	Preliminary Desktop Review	A desktop review of available information regarding PFAS use limited to the areas of the building to be demolished and immediate surrounds. This included engagement with Defence stakeholders, including the Base Manager, RAAF (21 Squadron Commanding Officer, Airforce Heritage Estate & Centres Director), Directorate of PFAS Remediation (DPFASR) and the Directorate of Environmental Planning, Assessment and Compliance (DEPAC).
2	Preparation of project documentation	Preparation of the Sampling Analysis and Quality Plan[1] (SAQP) and the Safety, Health and Environmental Management Plan (SHEMP).
3	Soil Sampling	Collection of 19 shallow soil samples (one per building) via hand trowel to a maximum depth of 0.1 metres below ground level (m bgl). Further information regarding the methodology and sampling is detailed in **Section 4.0**.
4	Laboratory Analysis	Each sample was analysed for PFAS. Further information regarding the laboratory analysis is detailed in **Section 4.2**.
5	Reporting	Preparation of this soil Pre-construction (demolition) Contamination Assessment (PCA) report, including Tier 1 Risk Assessment and Qualitative Ecological Risk Assessment.

Note:1. Sampling and Analysis Quality Plan, Heritage Buildings Pre-construction Contamination Assessment: RAAF Base William Point Cook (0932) [AECOM, 2022a]

1.4 Regulatory Framework

This assessment was undertaken in accordance with the requirements provided in the following documents:

- Department of Defence (Defence), 2021, Environment and Engineering Branch, Directorate of Environmental Remediation Programs, *Contamination Management Manual (DCMM), Annex L – Guidance on Data Management*, July 2018 (amended June 2021);
- Department of Defence (Defence), 2021, Environment and Engineering Branch, Directorate of Environmental Remediation Programs, *Contamination Management Manual (DCMM), Annex B - Contamination Investigation, Assessment and Remediation*, March 2019 (amended June 2021);
- *Environment Protection and Biodiversity and Conservation Act*, 1999;
- Heads of EPA Australian and New Zealand (HEPA), 2020, *PFAS National Environmental Management Plan 2.0*, February 2020;
- National Environment Protection Council *(1999) National Environment Protection (Assessment of Site Contamination) Measure* (ASC NEPM)*, Schedule B1: Guideline on Investigation levels for Soil and Groundwater, Schedule B4: Site-Specific Health Risk Assessment Methodology* and *Schedule B5a: Guideline on Ecological Risk Assessment* (as amended May 2013);
- Standards Australia, 2005, AS4482.1 - *Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*; and
- Victorian Government State Environment Protection Act, 2017, *Environment Reference Standard 2021* (ERS), May 2021.

2.0 Property Overview

2.1 Property Description

Property details and environmental setting for 0932 RAAF Base Point Cook are provided in **Table 2** below. The property location and layout plan are provided in **Figures F1** and **F2, Appendix A**.

Table 2 0932 RAAF Base Point Cook

Item	Information
Property name	RAAF Base Point Cook.
Property location	RAAF Base Point Cook is located approximately 20 km west of Melbourne CBD.
Property area	344 ha
Property land title	Title identification is to the Commonwealth of Australia.
Property use	The Property has been continually operating as an airfield since its establishment in 1912 and is mainly used for training and by the public for general aviation. Other Property uses include firing ranges, aircraft maintenance, bulk fuel storage in numerous aboveground and underground storage tanks (ASTs/USTs) and firefighting training.
Surrounding area	**North**: Point Cook Coastal Park. **East**: Point Cook Coastal Park. **South**: Port Phillip Bay foreshore. **West**: Residential area known as 'Williams Landing'.
Heritage buildings	The 19 heritage buildings are located across the Property. Six buildings are located in the area to the north of the tarmac (runway) and 13 buildings are located in the area to the south of the tarmac (runway). Further details regarding the 19 heritage buildings are provided in **Section 6.1.2**.
Area surrounding heritage buildings	The area surrounding each of the 19 buildings typically consists of either asphalt hard stand or unsealed ground.
Building uses	The buildings are all currently vacant, with some buildings fenced off to due to concerns relating to the potential for building collapse. The buildings have previously been used for a range of different purposes including hangars, stores, WWII huts, classrooms and club houses. It is understood that none of the buildings have been used for the storage or use of PFAS and are therefore unlikely to be PFAS sources.
Geology and soils	The 19 buildings are underlain by various Quaternary and Tertiary aged geologic units associated with a coastal and inland dune system found along the margin of Port Phillip Bay.

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Item	Information
Hydrogeology	There are two principal aquifer systems relevant to the areas beneath the 19 buildings (from youngest to oldest): • Surficial sedimentary aquifer: Typically, groundwater is first encountered at a depth of approximately 1 m to 1.5 m below ground surface; and • The Newer Volcanics Basalt aquifer. The inferred groundwater flow direction is to the southeast in the surficial sediments aquifer toward Port Phillip Bay, and southeast in the Newer Volcanics Basalt aquifer toward Port Phillip Bay. It is understood that groundwater is classified as Segment C, based on the TDS concentration range of 750 – 29,000 mg/L, in accordance with the ERS.
Hydrology	Port Phillip Bay forms the southern boundary of the Property and is the nearest receptor of surface water runoff from the 19 buildings and likely groundwater discharge point.
Topography	The 19 buildings are located flat-lying areas.
Flora and fauna	An EPBC Act Protected Matters Search indicates the Property, and its surrounding area includes the following ecological communities: • Ramsar Wetlands located in the south-eastern corner of the Property; • Point Cook & Laverton Saltworks located approximately 600 m to the east of the Property; and • Commonwealth Marine Area (Port Phillip Bay) located along the southern boundary of the Property).

2.2 Chemicals of Potential Concern

CoPC were identified based on the request for *"a site investigation and assessment of the current environment in relation to PFAS, consistent with the PFAS National Environment Management Plan 2.0"*. Therefore, CoPC considered for the assessment are PFAS.

3.0 Data Quality Objectives

A Data Quality Objective (DQO) process was implemented for this assessment, in accordance with the ASC NEPM. The DQOs for the assessment are presented in **Table 3**.

Table 3 Data Quality Objectives

Step	Summary	Approach
1	***State the Problem*** Summarise the problem that will require new environmental data, identify the resources available to resolve the problem and, if required, develop a CSM based on available information prior to the commencement of the site investigation.	The problem to be addressed is the extent to which the proposed demolition of the 19 buildings could result in increased risks from PFAS in soil to human and environmental receptors.
2	***Identify the Goal of the Study*** Identify the decisions that need to be made and the new environmental data required to support the identified decisions. Develop a decision statement linking the principal project objective(s) to the possible actions that will address the problem.	Review the existing data and obtain representative environmental data for surrounding each of the 19 buildings proposed for demolition. Due to safety concerns associated with the 19 buildings, entry into the buildings for soil sampling could not be undertaken. Therefore, soil samples were collected from surrounding each of the buildings. Compare concentrations of PFAS to relevant screening criteria (refer to **Section 5.0**).
3	***Identify Information Inputs*** Identify the information needed to support any decision and whether new environmental data will be needed.	Existing information regarding the historical uses of the 19 buildings (refer to **Section 2.1**) and their potential associated soil impacts relating to PFAS. Field observations and analytical data from representative samples collected during the field works. Information regarding post-demolition footprints including the extent of soil disturbance (if any) at each location.
4	***Define the Boundaries of the Study*** Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision(s).	The 19 building locations are presented in **Figure F2** (**Appendix A**). The spatial boundaries of the assessment are: • Laterally 5 m outside of the building footprint of each of the 19 buildings; and • Vertically limited to 0.1 m bgl. These spatial boundaries were developed in reference to the building demolition assumptions outlined in **Section 1.1**. As noted in Step 1, due to safety concerns associated with the 19 buildings, entry into the buildings for soil sampling could not be undertaken. Therefore, soil samples were collected from surrounding each of the buildings.

Step	Summary	Approach
5	***Develop the Analytical Approach*** Define the parameter of interest, specify the action level, and integrate information from Steps 1–4 into a single statement that gives a logical basis for choosing between alternative actions.	All samples were analysed for the PFAS, identified Chemical of Potential Concern (CoPC) for this assessment. All samples were compared to the adopted assessment criteria (refer to **Section 5.0**). Field and laboratory Quality Assurance/Quality Control (QA/QC) samples were collected at appropriate frequency and Data Quality Indicators (DQIs), discussed in **Section 3.1.1**, were used to validate the data.
6	***Specify Performance or Acceptance Criteria*** Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data.	Data was reviewed and outliers within data sets were identified and discussed in the context of soil characterisation for potential risks to human health and the environment. As per the ASC NEPM, an acceptance criterion of 95% has been adopted for laboratory DQIs. If the laboratory data fell outside of the acceptance criteria, further review of the data is required to assess if it is suitable for interpretation purposes.
7	***Develop the Plan for Obtaining Data*** Identify the most resource-effective sampling and analysis design for generating the data that is required to satisfy the DQOs.	The soil sampling plan was designed in accordance with guidance and recommendations provided in: • ASC NEPM; • PFAS NEPM 2.0; • EPA Victoria IWRG702; and • AS 4482.1-2005. The soil sampling plan was designed to meet the specific objectives of the assessment. The assessment was carried out in a manner and to a level of accuracy and confidence presented in the ASC NEPM and PFAS NEMP 2.0 documentation.

Notes:
CSM - Conceptual Site Model; DQI - Data Quality Indicators; QA/QC- Quality Assurance/Quality Control

3.1.1 Data Quality Indicators

Assessment criteria for DQIs for soil samples collected as part of the assessment are listed below in **Table 4** below.

Table 4 Acceptance Criteria for Data Quality Indicators

Data Quality Indicator	Acceptance Criteria
Rinsate blanks (1)	Less than the laboratory limit of reporting (LOR)
Intra and inter laboratory field duplicates (2)	Relative Percentage Difference (RPD) less than ± 30%
Laboratory duplicates (2)	Result < 10 x LOR: No RPD limit. Result between 10 and 20 x LOR: RPD <50%. Result >20 times x LOR: RPD <20%.

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Data Quality Indicator	Acceptance Criteria
Matrix spikes (3) (4)	Recoveries between 70-130% of the theoretical recovery, or laboratory derived control limits which are dynamic and vary for individual tests as per USEPA Method 8000B.
Method blanks	Less than the laboratory LOR
Laboratory control samples	Recoveries between 70-130%.
Surrogate spikes	*Recoveries for surrogates are test dependent and are based on USEPA Method SW846. Control limits are dynamic and vary for individual tests but are within the criteria described in USEPA Method SW846*

Notes:

1. *If results are > LOR collected samples may be corrected for potential ambient contaminations.*
2. *Potential exceptions to this criterion may occur where there is sample heterogeneity.*
3. *Assumes that samples are homogeneous and the background analyte level is less than 20% of the spike level (refer to USEPA Method 8000B). Note that there is no requirement for matrix spikes to pass as certain matrices may preclude recovery of spiked compounds. In this case data will be accepted if LCS data meets the acceptance criteria.*
4. *80% of the compounds tested must fall within the control limits. Control limits are dynamic and vary for individual tests as per USEPA Method 8000B.*

4.0 Field Summary

The field program was undertaken in general accordance with the SAQP. The following sections provide a summary of the field sampling and laboratory analysis.

4.1 Soil Sampling Program

The soil sampling program focussed on targeted sampling adjacent to the footprints of the 19 buildings proposed for demolition. Due to the age and condition of the buildings, entry into the buildings was not undertaken given the risks of structural collapse and therefore samples could not be collected from within the building footprints.

For the purposes of the assessment, the 19 buildings were divided into two assessment areas: north of the tarmac for buildings located north and west of the runway, and south of tarmac for those buildings located south and southwest of the runway.

A summary of the sampling program undertaken is presented in **Table 5**. The location of the soil samples collected are shown on **Figure 3a** (north of tarmac) and **Figure 3b** (south of tarmac).

Table 5 Field Investigation Summary

Assessment Area	Field Investigation completed	No. of Primary Samples	No. of Quality Control Samples	Analysis
North of tarmac	• Field observations and building condition photos collected; • Soil samples collected from a depth of 0.05-0.10 m bgl from unsealed ground adjacent to the targeted buildings; and • The global positioning system (GPS) coordinates of the sample locations recorded.	6 (one per building)	1 inter-laboratory and 1 intra-laboratory duplicate	PFAS (28 analyte suite)
South of tarmac	• Field observations and building condition photos collected; • Soil samples collected from a depth of 0.05-0.10 m bgl from unsealed ground adjacent to the targeted buildings; and • The global positioning system (GPS) coordinates of the sample locations recorded.	13 (one per building)	1 inter-laboratory and 1 intra-laboratory duplicate	PFAS (28 analyte suite)

4.1.1 Sample Collection

Surface sample locations were determined based on the availability of unsealed ground adjacent to the buildings and their footprints. GPS coordinates, photos of the sampling locations and buildings were collected. Soil samples were collected at depth intervals between 0.05 m and 0.1 m bgl, and either approximately 0.3 m from the building edge, or immediately adjacent to the building concrete slab.

Soil samples were collected directly from the sampling location using a hand trowel and placed into laboratory supplied PFAS sample containers. A clean pair of nitrile gloves were used for each soil sample collected.

Soil sample containers were then clearly labelled with unique sample identification numbers, referencing the DCMM Annex L (Defence, 2021b), consisting of the date, sample location and sampler's initials. Quality control samples (field inter and intra-laboratory duplicates) were each

sampled at a frequency of 1 in 10 per primary samples analysed and were labelled as to not reveal their purpose or primary sample identification.

Soil containers were then placed in zip lock bags (PFAS free) for protection against cross contamination and placed straight into a chilled cooler for preservation during transportation. All soil samples were transported with Chain of Custody (CoC) documentation.

Upon completion, all surface sampling locations were evened over and lightly compacted using the back of the hand trowel where required.

A field blank was collected following completion of the sampling in each assessment area.

4.1.2 Decontamination

The trowel used for soil sampling was decontaminated with Liquinox, rinsed with clean deionised water and dried between each of the samples collected.

Following completion of the sampling in each area, a rinsate blank was collected from the decontaminated trowel.

4.1.3 Waste Management

No soil was removed from the Property during the assessment (with the exception of the soil samples). All soil cuttings or spoil were reinstated into the surface scrape upon completion of sampling.

Liquid waste associated with the decontamination procedure (1-2 L) and personal protective equipment (PPE) were placed in containers and transported offsite for disposal in accordance with EPA regulations. Waste disposal documentation is included in **Appendix C**.

4.1.4 Field Records and Data Management

A daily field record was maintained by the AECOM field personnel for the duration of the soil sampling program.

The lithology at each soil sampling location was logged in general accordance with the Unified Soil Classification System. Observations of anthropogenic materials (e.g., projectile fragments, asbestos containing material, waste, etc.) and olfactory evidence of contamination (i.e., staining and/ or odour) were also noted. Field sheets are attached in **Appendix D**.

4.2 Laboratory Analysis

All samples collected during the assessment were submitted with CoC documentation to laboratories which hold National Association of Testing Authorities (NATA) accreditation for the analytical schedule selected. For the assessment, ALS Ltd, located in Melbourne Victoria, was selected as the primary laboratory. All secondary (inter-laboratory duplicate) samples were submitted to Eurofins Environment Testing Australia Pty Ltd (Eurofins), located in Melbourne Victoria.

A total of 19 primary soil samples were selected for analysis of PFAS to assess soil surrounding each of the 19 buildings. The analytical schedule for the assessment is presented in **Table 6**. Laboratory reports are presented in **Appendix E**.

Table 6 Laboratory Analytical Schedule

Assessment Area	No. of Samples Collected	Samples Selected for Analysis	Analytical Schedule
North of tarmac	6	0932_SS264_220713 0932_SS265_220713 0932_SS266_220713 0932_SS267_220713 0932_SS268_220713 0932_SS269_220713	PFAS (28 analyte suite)

Assessment Area	No. of Samples Collected	Samples Selected for Analysis	Analytical Schedule
South of tarmac	13	0932_SS251_220713 0932_SS252_220713 0932_SS253_220713 0932_SS254_220713 0932_SS255_220713 0932_SS256_220713 0932_SS257_220713 0932_SS258_220713 0932_SS259_220713 0932_SS260_220713 0932_SS261_220713 0932_SS262_220713 0932_SS263_220713	PFAS (28 analyte suite)
QA/QC			
Intra-laboratory Duplicate	2	0932_QC101_220713 0932_QC102_220713	PFAS (28 analyte suite)
Inter-laboratory Duplicate	2	0932_QC201_220713 0932_QC202_220713	PFAS (28 analyte suite)
Rinsate Blanks	2	0932_QC301_220713 0932_QC302_220713	PFAS (28 analyte suite)
Field Blanks	1	0932_QC401_220713	PFAS (28 analyte suite)
Trip Blank	2	0932_QC502_220713 0932_QC503_220713	PFAS (28 analyte suite)

Note: PFAS 28 analyte suite includes Perfluorobutane sulfonic acid (PFBS), Perfluoropentane sulfonic acid (PFPeS), Perfluorohexane sulfonic acid (PFHxS), Perfluoroheptane sulfonic acid (PFHpS), Perfluorooctane sulfonic acid (PFOS), Perfluorodecane sulfonic acid (PFDS), Perfluorobutanoic acid (PFBA), Perfluoropentanoic acid (PFPeA), Perfluorohexanoic acid (PFHxA), Perfluoroheptanoic acid (PFHpA), Perfluorooctanoic acid (PFOA), Perfluorononanoic acid (PFNA), Perfluorodecanoic acid (PFDA), Perfluoroundecanoic acid (PFUnDA), Perfluorododecanoic acid (PFDoDA), Perfluorotridecanoic acid (PFTrDA), Perfluorotetradecanoic acid (PFTeDA), Perfluorooctane sulfonamide (FOSA), N-Methyl perfluorooctane sulfonamide (MeFOSA), N-Ethyl perfluorooctane sulfonamide (EtFOSA), N-ethyl perfluorooctane sulfonamidoethanol (MeFOSE), N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE), N-methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA), N-ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA), 4:2 Fluorotelomer sulfonic acid (4:2 FTS), 6:2 Fluorotelomer sulfonic acid (6:2 FTS), 8:2 Fluorotelomer sulfonic acid (8:2 FTS) and 10:2 Fluorotelomer sulfonic acid (10:2 FTS).

5.0 Soil Assessment Criteria

5.1 Adopted Tier 1 Soil Assessment Criteria

A summary of the Tier 1 assessment criteria adopted for the purpose of this assessment is provided in **Table 7** below.

Table 7 Adopted Assessment Criteria - Soil

Source	Scenario	Analyte		Rationale
Human Health Tier 1 Assessment Criteria				
HEPA, 2020	**Exposure Scenario**	**PFOS and PFHxS**	**PFOA**	To assess potential risks to human health at the Property. Commercial/ industrial users are considered to be the primary human receptors at the Property, including: • Potential future commercial users including Defence workers; and • Intrusive maintenance workers.
	Commercial/ Industrial	20 mg/kg	50 mg/kg	
Ecological Tier 1 Assessment Criteria				
HEPA, 2020	**Exposure Scenario**	**PFOS**	**PFOA**	To assess potential risks to ecological receptors at the Property. Based on the setting and use of the Property, the environmental setting of the Property is considered to be a highly modified ecosystem.
	Ecological Direct exposure	1 mg/kg	10 mg/kg	
	Indirect exposure	0.01 mg/kg	-	

Notes: LOR – Limit of Reporting; HEPA, 2020. Heads of EPA Australian and New Zealand, PFAS National Environmental Management Plan 2.0, February 2020; Direct exposure – applies to organisms that live within, or in close contact with soil, such as earthworms and plants; Indirect exposure – accounts for various pathways through which organisms can be exposed whether or not they are in direct contact with PFAS contaminated soil, such as exposure through the food chain.

6.0 Summary of Results

6.1 Field Observations

6.1.1 Soil Sampling

The lithology of the upper soil profile was observed to be relatively consistent across all sample locations. The soil characteristics at each sample location generally comprised of fill material consisting of medium to coarse grained gravelly sand, brown to dark brown with subangular gravel ranging in size between 0.5 centimetres (cm) and 2 cm. Fragments of foreign material, including brick fragments, wood chips and roots, varied between sample locations.

Other than foreign material in the fill material, there were no further observations of contamination within the areas assessed during this assessment. A slight sewage odour was noted for sample 0932_SS261_220713. This sample location was in the vicinity of a septic tank connected to the toilet block building (Building 102).

Field sheets are presented in **Appendix D**.

Photo logs with soil characteristics from sample locations and building foundations are presented in **Appendix F.**

6.1.2 Building Condition

Building conditions were observed during the site visit. All buildings in the assessment were in a dilapidated condition and a majority were delineated with temporary fencing due to safety concerns.

The foundations of the buildings varied from World War II 'kit' hangers on asphalt, brick-built amenities buildings and weatherboard huts. The 19 buildings in the assessment can be characterised into three types of foundation type: concrete slab, asphalt ground covering and timber footings. The World War II 'kit' hangers are located on asphalt foundations, the brick-built amenities buildings on concrete slabs and the weatherboard huts on timber footings.

The foundation type for each building is presented in **Table T1** (**Appendix B**).

6.2 Analytical Results (Tier 1 Assessment)

6.2.1 Human Health and Ecosystems

Analytical results are shown in **Table T2** (**Appendix B**) and laboratory documentation is provided in **Appendix E**. Analytical results which exceeded the Tier 1 assessment criteria are shown on **Figure 4a** (north of tarmac) and **Figure 4b** (south of tarmac).

All soil samples had concentrations of PFAS reported below the adopted Tier 1 assessment criteria for human health (commercial/ industrial) and ecological criteria for direct exposure. Exceedances of the adopted Tier 1 ecological assessment criteria for indirect exposure were reported for 12 of the 19 soil samples collected. The soil samples with concentrations reported above the adopted Tier 1 assessment criteria are summarised in **Table 8** below. Further discussion of the potential impacts of the PFOS concentrations are provided in **Section 7.0** and **8.0**.

Table 8 Tier 1 Assessment Criteria Exceedances

Criteria	Assessment Area	Sample ID	Building No.	PFOS Concentration (mg/kg)
HEPA (2020) Ecological criteria for indirect exposure (PFOS: 0.01 mg/kg)	North of tarmac	0932_SS268_220713	125	0.0146
	South of tarmac	0932_SS251_220713	243	0.0179
		0932_SS252_220713	221	0.0298
		0932_SS253_220713	122	0.0400

Criteria	Assessment Area	Sample ID	Building No.	PFOS Concentration (mg/kg)
		0932_SS254_220713	218	0.0118
		0932_SS255_220713	211	0.0545
		0932_SS257_220713	203	0.0366
		0932_SS258_220713	213	0.0273
		0932_SS259_220713	214	0.0355
		0932_SS260_220713	485	0.1920
		0932_SS261_220713	102	0.0173
		0932_SS263_220713	132	0.0266

6.3 Quality Assurance / Quality Control

Data validation is presented in **Appendix G**. On the basis of the AECOM analytical data validation procedure employed, the following is noted:

- All samples were extracted and analysed within recommended holding times, and were received in appropriate containers for analysis;
- Intra-laboratory duplicate and inter-laboratory duplicate samples met the required frequencies. 95% of the inter-laboratory RPD values were reported within the acceptance criteria. While an acceptance criterion of 95% was not met for the intra-laboratory duplicate RPD values, it is noted in the ASC NEPM, *that a higher variation can be* expected for organic analyses compared to inorganic analyses, and for samples with *low analyte concentrations or non-homogenous samples.*

  Sample heterogeneity inherent in the matrix can result in RPDs higher than expected limits. This is not considered to have a material impact on the interpretation of results for this report.;
- All blank samples (rinsate, field blank and trip blanks) reported results below LOR; and
- Four out of a total of 158 RPD values exceeded the LOR based limits for laboratory duplicate RPDs. This equates to 97% of the laboratory duplicate RPDs being reported within the acceptable limits. Therefore, the laboratory duplicates are considered to be acceptable for the purpose of this assessment.

No other QA/QC issues were identified in the laboratory datasets that are considered to have material implication to decision-making regarding the contamination status the soil.

7.0 Conceptual Site Model

It is understood that in the demolition of the 19 buildings, foundations that are concrete slabs and asphalt ground coverings are to remain *in situ*, and timber footings will be cut down to the ground surface.

The potential exposure pathways between receptors and soil for buildings with concrete slabs and asphalt ground coverings are considered to be incomplete due to the concrete slab remaining in place following demolition. Therefore, the conceptual site model (CSM) discussed in the sections below focuses on the buildings with timber footings where there could an increase in the area of PFAS impacted soil following demolition that is available to ecological receptors.

7.1 Sources

Based on the Tier 1 assessment (refer to **Section 6.2**), the potential source of PFAS to soil within the building footprints is PFAS-impacted soil surrounding the buildings. Due to the limitations associated access to sampling within/ beneath the buildings due to safety concerns, it is unclear if the PFAS is present in soil beneath the buildings. This CSM is based on the assumption that PFAs is present beneath the buildings, however this is considered to be a conservative assumption given the buildings are not known PFAS source areas.

7.2 Receptors and Exposure Pathways

There are ten buildings identified with timber footings; five are located north of the tarmac and the remaining five are located south of the tarmac. In addition, Building 122 has been included in this assessment as the veranda attached to the building is supported on timber fittings while the building itself resides on a concrete slab on grade.

The buildings with timber footings and the analytical results for soil samples collected from surrounding the buildings are summarised in **Table 9** below and presented in **Figure F2** (**Appendix A**).

Table 9 Timber Footings Building Summary

Location Area	Building ID	Approximate footprint area (m^2)	Tier 1 assessment criteria exceedance reported
North of tarmac	125	170	0.0146 mg/kg (PFOS[1])
	155	170	Nil
	156	170	Nil
	158	220	Nil
	228	170	Nil
South of tarmac	112	55	Nil
	122*	25*	0.0400 mg/kg (PFOS[1])
	132	50	0.0266 mg/kg (PFOS[1])
	203	180	0.0366 mg/kg (PFOS[1])
	221	280	0.0298 mg/kg (PFOS[1])
	485	165	0.1920 mg/kg (PFOS[1])

Note: (*) Veranda attached to building 122 supported on timber footings, the building itself is concrete slab on grade; 1. PFOS Tier 1 indirect ecological exposure criteria

Following demolition of these buildings, the timber footings are to be removed. For the purposes of understanding ground disturbance, it is assumed the footings will be removed/ cut off at ground level by

manual techniques and any soil disturbed from the footings is backfilled to the footing void (where appropriate). As such, the estimated ground disturbance for removal of these footings is considered minimal.

Based on field observations, the ground underneath these buildings is unsealed and currently accessible to some ecological receptors (e.g., reptiles). It is understood there are no plans to redevelop the building footprints in the near future. Therefore, these footprints are likely to be left unsealed and will continue to be accessible to some ecological receptors and will become accessible to some additional ecological receptors (e.g., birds) and to human receptors (noting that PFAS soil concentrations were reported below the Tier 1 human health and direct ecological exposure assessment criteria). There will be minimal additional soil exposed as a result of the demolition of the buildings with timber footings. The additional area of exposed soil will be associated with the removal/ cutting of the timber footings. It is estimated that, on average, the removal/ cutting of timber footings will result in an increase of approximately 1.25 m^2 of soil per buildings with timber footings, and the removal of each building will result in an additional 165 m^2 of exposed area per building.

Following demolition, potential exposure pathways are via direct human contact with the exposed soil (incidental ingestion and dermal contact), direct contact by terrestrial fauna to the exposed soil and indirect exposure to higher order predators via consumption of biota that has bioaccumulated PFAS (e.g., grasses, soil-dwelling invertebrates).

It is noted that concentrations reported in soil did not exceed the direct contact Tier 1 assessment criteria for either human health or ecological receptors. The indirect exposure PFOS criterion was exceeded for soil samples collected adjacent to six buildings considered in this assessment. The potential bioaccumulation risks to terrestrial ecology from exposure to these soil exceedances is assessed further via a qualitative Ecological Risk Assessment (ERA) presented in **Section 8.0**.

7.2.1 Potential Leaching to Groundwater

Following the demolition of the buildings with timber footings, the footprint of the former building will be unsealed and therefore subject to surface water infiltration. However, leaching from the footprints of the demolished buildings with timber footings is not considered to change the risk status of groundwater based on:

- The buildings are not sources of PFAS (i.e., no PFAS storage or use has been undertaken in the buildings);
- The soil samples collected from surrounding the buildings are considered to be a conservative representation of the soil PFAS concentrations beneath the buildings. Therefore, leaching of PFAS from beneath the building is expected to be limited.
- Given the relatively low concentrations of PFAS in soil adjacent to the buildings, and the conservative nature of the assessment (i.e., samples could not be collected from beneath the buildings), it is anticipated that leaching of PFAS from the building footprints would be limited.

7.2.2 Area Surrounding Buildings

The ground surface surrounding each of the 19 buildings consists of either unsealed ground or an asphalt surface. It is understood the demolition work will aim to minimise the disturbance of soil surrounding the buildings. However, some disturbance may occur where only unsealed ground is present. While the demolition activities may disturb the soil, given no material change to the exposure pathways are expected (i.e., unsealed areas would remain unsealed and sealed areas would also remain sealed), there is unlikely to be a change to the risk profile to human and ecological receptors in the work area surrounding each of the buildings, or changes to potential leaching to groundwater.

8.0 Qualitative Ecological Risk Assessment

8.1 Rationale

Twelve of the 19 samples collected during the assessment had concentrations of PFOS reported above the Tier 1 assessment criterion for indirect ecological exposure, while all samples had concentrations of PFOS reported below the Tier 1 direct ecological exposure criteria.

During demolition works, it is understood that:

- The building slabs will remain *in situ* and therefore the soil beneath these areas will not be exposed; and
- The only area of new soil that may be exposed following demolition will be associated with the buildings with timber footings.

There will be no new soil exposed following the demolition of the buildings with concrete slabs and asphalt ground coverings (i.e. no new exposure pathway) and therefore, a low potential for increased level of risk, Therefore, a qualitative Ecological Risk Assessment (ERA), focusing on the demolition of buildings with timber footings, has been undertaken to assess the potential risks to higher order terrestrial predators indirectly exposed to PFOS concentrations above the Tier 1 indirect exposure ecological soil criterion.

Given the detection of PFOS in soil above the Tier 1 indirect exposure criterion in vicinity of the buildings, it is assumed that higher order predators already have a potential to be indirectly exposed to PFOS during foraging activities surrounding the buildings and beneath some buildings raised on footings i.e., some terrestrial receptors can currently access areas beneath buildings with timber footings. Therefore, this ERA will focus on assessing the increased level of risk due to removal of the buildings with timber footings that will result in increasing the soil surface area from which predators can forage.

8.2 Approach

This qualitative ERA has been prepared with reference to methodology outlined in the following relevant nationally adopted guidance:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013) [ASC NEPM, 2013], specifically:
  - Schedule B5a: Guideline on Ecological Risk Assessment.
- *PFAS National Environment Management Plan (NEMP) Version 2.0*. National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (HEPA) January 2020.

Where the maximum concentration exceeded the Tier 1 assessment criteria, the following considerations were undertaken to further understand the potential risk to higher order predators from the consumption of biota present beneath the building footprints following demolition:

- Calculation of the geometric mean concentration for interpretation purposes. The geometric mean is the most commonly used statistical estimate in ecological risk assessments, ecotoxicology and derivation of ecological screening values (Chapman, 2015). Data from an ecological study can vary widely across species (thus not normally distributed) and there is a need to normalise the data to get the average for a chemical. Geometric means are used in ERA because the distributions of individual organism sensitivities in toxicity tests are more likely to be log-normal than normal, and geometric means are less affected by data outliers. Unlike the arithmetic mean, the geometric mean dampens the effect of very high or low values which might bias the mean if the arithmetic mean was calculated; and is preferred when the dataset has a tendency to show a wide variety of numbers (Parkhurst, 1998);
- Assessed whether any single value exceeded 250% of the Tier 1 assessment criteria in accordance with ASC NEPM, Schedule B1; and

- The proportion of diet ecological receptors would obtain from the area beneath the footprint with consideration of the receptor's home range and other similar foraging habitats within their home range.

8.3 Receptor Identification

8.3.1 Habitat

The habitat surrounding buildings scheduled for demolition has been characterised as terrestrial coastal fringe. The habitat that would be exposed following the removal of the 19 buildings is a highly modified terrestrial environment. Most of the area has had considerable disturbance as a result of the historical development and operations in the area.

Only the removal of buildings with timber footings has the potential to result in a change to the available habitat for terrestrial biota. However, it is noted that some terrestrial biota (e.g., reptiles) can currently access the areas beneath the timber buildings and therefore, only the removal of the timber footings would increase the area of potential exposed soil for some biota.

Following demolition of buildings with timber footings, it is estimated that a total area of approximately 1,660 m^2 would be exposed (i.e., the building footprints). Soil samples with concentrations of PFOS above the Tier 1 indirect ecological exposure criteria were collected from adjacent to buildings with footprints totalling approximately 870 m^2, with an area of approximately 170 m^2 to the north of the tarmac and 700 m^2 to the south of the tarmac (refer to **Figure F2**). However, as noted in **Section 8.4.2**, given the soil beneath the buildings with timber footings is currently accessible to terrestrial receptors, the additional area of soil resulting from the removal of the timber footings is estimated to be approximately 1.25 m^2 per building.

The south of tarmac assessment area can be considered a highly modified terrestrial environment, which covers an area of approximately 324,000 m^2 (between the north-south runway to the east, the western property boundary to the west, Port Philip Bay to the south and the tarmac area to the north). The area that will be exposed as a result of the building demolition work, where there is potential for soil to exceed the PFOS Tier 1 indirect ecological exposure criteria, is approximately 0.2% of the area to the south of the tarmac.

The north of the tarmac assessment area can also be considered a highly modified terrestrial environment which covers an area of approximately 350,000 m^2 (between the Murray-Jones Street to the north, Williams Road to the east, Aviation Road to the west and Cole Street to the south). The area that will be exposed as a result of the building demolition work, where there is potential for soil to exceed the PFOS Tier 1 indirect ecological exposure criteria, is approximately 0.05% of the area to the south of the tarmac.

The area exposed from the demolition of the buildings with timber footings is considered an insignificant area of habitat in proportion to the surrounding highly modified terrestrial area.

8.3.2 Terrestrial Biota

A summary of the terrestrial biota recorded at and in the vicinity of the Property based on the results of searches of the EPBC Act 1999 Protected Matters Search Tool (PMST) (DoEE, 2022) and Victorian Biodiversity Atlas (VBA) (2022) are shown in **Appendix H.**

An ecological survey was completed in 2007 by AECOM. No EPBC or Fauna and Flora Guarantee Act 1998 (FFG) listed fauna species were recorded at the Property during this survey.

Due to soil samples having concentrations of PFOS which exceeded the Tier 1 indirect ecological exposure assessment criterion, this qualitative ERA has only considered higher order terrestrial predators that would potentially be present in the former building footprints area and would consume biota exposed to the surface soil impacted with PFOS. These terrestrial Receptors of Interest (ROI) are presented in **Table 10**. For the purposes of this assessment, the ROI are considered to have the following attributes:

- Consumes biota (e.g., soil dwelling invertebrates, grass) that has the potential to be exposed to PFOS in surface soil, and smaller fauna that consume plants & soil-dwelling invertebrates;

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- Has the potential to incidentally ingest PFOS in soil during foraging, nesting and/or feeding activities;
- Classified as threatened, near threatened, vulnerable, endangered, or critically endangered under national and state legislation; and
- Likely to be present and/or have their predicted home within the former building footprints area (refer to **Figure F2**).

The following species/ species groups identified in the PMST and VBA were not considered to be ROI:

- Grey-headed Flying-fox: their diet comprises predominantly flowers or fruits from tree species with minimal exposure to surface soil;
- Foreshore/aquatic bird species: their diet does not comprise terrestrial biota such as grass and soil-dwelling invertebrates e.g., migratory foreshore avian species; and
- Terrestrial flora and insects: these species are considered to be diet to the higher order predators including the 'Vulnerable' Golden Sun Moth identified as likely to occur in the area in the PMST.

Table 10 Terrestrial Receptors of Interest

Common Name	Scientific Name	Threatened Category	Habitat	Likely Home Range	Diet
Reptiles					
Victorian Grassland Earless Dragon	*Tympanocryptis pinguicolla*	Endangered	Native grasslands, often rocky, with sparse or reduced cover of vegetation. Often shelters in arthropod burrows.	4,800 m^2 (1)	Grassland invertebrates including grasshoppers, beetles, crickets and spiders.
Striped Legless Lizard	*Delma impar*	Vulnerable	Native grasslands or grassy woodlands (including derived grasslands)	25 m^2 (2)	Grassland invertebrates including spiders, crickets, caterpillars and cockroaches.
Birds					
Grey Falcon	*Falco hypoleucos*	Vulnerable	Timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses	1.26×10^9 m^2 (3)	Birds, small mammals, insects and reptiles
Grey Goshawk	*Accipiter novaehollandiae*	Endangered	Rainforest, forests, open forest and thickly-wooded watercourses	1.05×10^6 m^2 (4)	Birds, reptiles and small mammals
Mammal					
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (south-eastern mainland population)	*Dasyurus maculatus (SE mainland population)*	Endangered	Coastal heath and scrub, dry and wet sclerophyll forest, rainforest.	4×10^7 m^2 (5)	Gliders, possums, small wallabies, rats, birds, bandicoots, rabbits, insects and reptiles.

[1] Osborne W et al 2010. Home ranges of, and habitat use by, the grassland earless dragon (*Tympanocryptis pinguicolla*) in remnant native grasslands near Canberra. Australian Journal of Zoology 58, 76-84
[2] ACT Government, 2017. Striped Legless Lizard *Delma Impar* Action Plan
[3] Schoenjahn J, 2018. Adaptations of the rare endemic Grey Falcon Falco hypoleucos that enable its permanent residence in the arid zone of Australia. The University of Queensland Australia.
[4] Burton M A et al, 2000. Niche Partitioning by Two Sympatric Goshawks in the Australian Wet Tropics: Ranging Behaviour. EMU, CSIRO Publishing, Vol. 100, 216-226.
[5] NSW Office of Environment and Heritage, Spotted Tail Quoll – Profile. Accessed 2022: https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10207

8.4 Exposure Assessment

8.4.1 Statistical Assessment

A summary of the PFOS analytical results for samples collected from adjacent to buildings with timber footings and the level of exceedance of the Tier 1 indirect ecological exposure criterion is provided in **Table 11** below. It is noted that as per ASC NEPM consideration needs to be given to any single value which exceeds 250% of the Tier 1 assessment criteria.

Table 11 PFOS Exceedance of Indirect Ecological Exposure Criterion

Sample ID	Building ID	PFOS Concentration (mg/kg)	Indirect Ecological Exposure Criterion (mg/kg)	Exceedance of Assessment Criterion
North of Tarmac				
SS264	155	0.0074	0.01	Concentration below criterion
SS265	158	0.0033		Concentration below criterion
SS266	156	0.0014		Concentration below criterion
SS267	228	0.0038		Concentration below criterion
SS268	125	0.0146		46%
South of Tarmac				
SS252	221	0.0298		198%
SS253	122	0.0400		300%
SS257	203	0.0366		266%
SS260	485	0.1920		1820%
SS262	112	0.0058		Concentration below criterion
SS263	132	0.0266		166%

Note: A highlighted value indicates an exceedance of the Tier 1 assessment criterion by more than 250%;

Based on the concentrations of PFOS in the soil samples collected, a summary of the statistics associated with the reported concentrations are provided in **Table 12** below.

Table 12 Statistical Assessment of PFOS

Statistic	Result
Minimum	0.0014 mg/kg
Maximum	0.1920 mg/kg
Number of Samples	11
Number of Individual Exceedances	6
Geometric Mean	0.013 mg/kg

A total of three of the 11 buildings with timber footings had concentrations of PFOS greater than 250% of the Tier 1 indirect ecological exposure criterion. This includes building 122 which comprises only 20% timber footing construction (i.e., only a small portion of the building footprint will be left unsealed following demolition works and therefore, indirect ecological exposure will be minimal). The geometric mean of the soil surrounding each of the buildings is 0.015 mg/kg, and 0.013 mg/kg for buildings with timber footings which is marginally above the PFOS Tier 1 indirect ecological exposure assessment criterion (0.01 mg/kg).

8.4.2 Terrestrial Diet Assessment

To inform the potential for ecological risk to the ROI in the area exposed from the demolition of the buildings with timber footings, the proportion of diet obtained by the ROI was estimated using the following algorithm:

$$\%\ Increase\ in\ Foraging\ Area\ from\ Removal\ of\ Timber\ Footings = \left(\frac{Demolition_{area}(m^2)}{HR_{area}(m^2)}\ x\ Lifespan\ (\%)\right)$$

Where:

- Demolition $_{area}$ (m^2): the area of exposed soil following the demolition of the buildings with timber footings. This area is the newly exposed area that the ROI would not typically be exposed to if the buildings were not demolished i.e., the area of newly exposed surface soil beneath the timber footings with detectable concentrations of PFAS for the ROIs that can currently access under the buildings (e.g., reptiles), and the entire building footprint for ROIs that cannot currently access under the buildings (e.g., birds). It was assumed that each building has an average surface area of 165 m^2, an average footing surface area of 1.25 m^2 and each footing surface area is 0.01 m^2.
- HR $_{area}$ (m^2): the home range of the ROI.
- Lifespan (%): represents the proportion of the species' lifespan that is spent in the demolition area. For this assessment as the ROI are non-migratory and therefore the lifespan is assumed to be 100%.

This methodology accounts for the potential bioaccumulation of PFAS in the food chain for terrestrial food sources.

Table 13 below provides a summary of the ROI and the proportion of their diet that may be exposed to PFAS based on their typical home range area and the exposed soil resulting from the building demolition and removal of timber footings within their typical home range.

Table 13 Terrestrial Diet Assessment

ROI	Typical Home Range Area (m^2)	Diameter of Home Range (m)[1]	Number of Buildings with Timber Footing Potentially within Home Range[2]	Potential Additional Exposed Soil from the Demolition within the Home Range (m^2)[3]	Increase in Foraging Area from Removal of Timber Footings
ROI that currently have potential access to the area beneath the buildings					
Victorian Grassland Earless Dragon	4,800	78	2	2.5	0.052%
Striped Legless Lizard	25	6	1	0.09[4]	0.4%
ROI that currently do not have potential access to the area beneath the buildings					
Grey Falcon	1.26 x 10^9	40,064	6	990	<0.001%

ROI	Typical Home Range Area (m^2)	Diameter of Home Range (m)[1]	Number of Buildings with Timber Footing Potentially within Home Range[2]	Potential Additional Exposed Soil from the Demolition within the Home Range (m^2)[3]	Increase in Foraging Area from Removal of Timber Footings
Grey Goshawk	1.05×10^6	1,157	6	990	0.09%
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (south-eastern mainland population)	4×10^7	7,136	6	990	0.003%

Notes: 1. Assumes circular home range; 2. Assumes buildings with timber footings with PFOS concentrations greater than the Tier 1 indirect ecological exposure criterion; 3. Assumes an average additional soil exposure area of 1.25 m^2 per building that is demolished with timber footings; 4. It is assumed that up to nine timber footings could potentially be present within the home range of the legless lizard.

Following removal of the buildings with timber footprints, there is considered to be a minimal level of increased risk (<0.001 to 0.4%) of adverse impacts to higher order terrestrial predators from indirect exposure to PFOS in surface soil. This estimate of increased risk is likely to be conservative (i.e., an overestimate) given the highly modified environment within the demolition area and the dispersive nature of the reptiles, predatory birds and mammals which adapt their foraging range in response to a number of factors such as food and breeding habitat availability.

8.5 Summary

An increased level of risk to higher order terrestrial predators from indirect exposure to PFAS following demolition is unlikely because:

- The area surrounding the buildings with timber footings contains limited habitat for reptiles and mammals as evident by the sparce vegetation observed across the site;
- The geometric mean of PFOS concentration for samples adjacent to buildings with timber footings is 0.013 mg/kg (*n* = 11). This geometric mean concentration is only marginally above the PFOS indirect exposure assessment criterion (0.01 mg/kg); and
- The increase in area of accessible soil that will occur as a result of the demolition of the buildings with timber footprints is negligible (<0.001 to 0.4%) compared to the ROI's home ranges. Therefore, this increased contribution of PFAS as a result of the demolition of the buildings is negligible to the dietary intakes of higher order terrestrial predators, even if they were to access the former building footprint areas.

D R A F T

9.0 Conclusions

A total of 19 soil samples were collected from unsealed and uncovered ground adjacent to the heritage buildings planned for demolition to inform the assessment of the potential impacts that the demolition work may have on human and ecological receptors due to PFAS impacts in soil.

It was identified that there are three main building types, consisting of:

- Buildings with concrete slab construction. It is understood the concrete slab will remain following building demolition;
- Buildings with asphalt ground coverings. It is understood the asphalt ground coverings will remain following building demolition; and
- Buildings with timber flooring and foundations. These buildings will be left with unsealed ground following demolition.

The findings of the Tier 1 Assessment and qualitative ERA undertaken to address the project objectives are provided in **Table 14** below. Based on the outcomes of the Tier 1 Assessment and qualitative ERA, it is considered unlikely that the demolition of the 19 buildings will result in increased risks to human health or terrestrial ecological receptors from exposure to PFAS impacts in soil.

Table 14 Risk Assessment Summary

Exposure Scenario	Buildings with concrete slabs and asphalt ground coverings	Buildings with timber footings
Human Health direct exposure (e.g., incidental ingestion of soil)	**Low potential for direct PFAS toxicity** Concentrations of PFAS in soil samples were reported below the Tier 1 direct human health assessment criteria. Therefore, the demolition is unlikely to result in increased PFAS-related risk to human health via direct exposure to soil.	
Direct ecological exposure (e.g., incidental ingestion of soil)	**Low potential for direct PFAS toxicity** Concentrations of PFAS in soil samples were reported below the Tier 1 direct ecological exposure assessment criteria. Therefore, the demolition is unlikely to result in increased PFAS-related risk to ecology via direct exposure to soil.	
Indirect ecological exposure (e.g., ingestion of biota with PFAS bioaccumulation)	**Low potential for increased level of indirect PFAS risk** Concrete slabs and asphalt ground coverings are planned to remain in place following the demolition of the six buildings with slabs and asphalt ground cover. As such, there will not be a newly created complete exposure pathway at these locations (i.e., fauna will not be able to forage in a newly exposed area with potentially PFAS impacted soil). Therefore, the demolition will not result in increased PFAS-related ecological risk at these locations associated with indirect ecological exposure because the exposure scenario remains unchanged.	**Low potential for increased level of indirect PFAS risk** Demolition of the six buildings with timber footings will likely lead to a small area of exposed soil in their footprints post-demolition. The qualitative ERA considered the indirect ecological exposure to ROI based on the potential changes to the foraging area resulting from the removal of these buildings with timber footings. An increased level of risk to ecological receptors via indirect exposure to PFAS (i.e., through bioaccumulation) is unlikely because: • The limited habitat in the immediate vicinity of the buildings which theoretically could support higher order predators with small home ranges such as reptiles (i.e., reptiles are not anticipated to be present in the vicinity of the buildings); • The geometric mean of PFAS soil concentrations was only marginally above the Tier 1 indirect ecological exposure criteria; • The negligible increase in accessible soil (<0.001 to 0.4%) resulting from the demolition of the buildings for ROI with home ranges that incorporate the buildings; and • The demolition works will likely result in minimal soil disturbance.

D R A F T

10.0 References

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11.0 Limitations

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The report is prepared in accordance with the scope of work outlined Section 1.3 of this document. This report was prepared between 4 July and 12 August 2022.

The methodology adopted by AECOM are outlined in the report. The findings and interpretations set out in the report are based on data gathered by and information made available to AECOM within the time available, including publicly available information and data reports prepared for the Property.

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Appendix A

Figures

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N

DATUM GDA 1994, PROJECTION MGA ZONE 54

0 200 400 600
metres
1:12,500 (when printed at A3)

LEGEND

Property Boundary

Data sources:
Disclaimer:

PROPERTY 0932 RAAF BASE POINT COOK PROPERTY LOCATION PLAN

Department of Defence

Heritage Buildings Preconstruction Contamination Assessment

DEFENCE ESTATE SOUTHERN VICTORIA AND TASMANIA

Figure

F1

Map Document: (\\na.aecomnet.com\lfs\APAC\Melbourne-AUMEL1\Legacy\Projects\605X\60551507\4. Tech Work Area\4.9 Data_Management\1.Properties\VIC\0932_RAAFBaseWilliams-PointCook\New_Yr3_2019-2020\PBR069_Demo PFAS\3.Inputs\GIS\Maps\2022\07\F1_WilliamsPoint_Property_Loc.mxd)

A3 size

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DATUM GDA 1994, PROJECTION MGA ZONE 54

0 150 300 450
metres
1:8,000 (when printed at A3)

LEGEND

Property Boundary

PFAS Assessment Buildings

- Wooden footings
- Slab on grade
- Asphalt

Data sources:
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PROPERTY 0932 RAAF BASE POINT COOK PROPERTY LAYOUT AND HERITAGE BUILDINGS

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DEFENCE ESTATE SOUTHERN VICTORIA AND TASMANIA

Figure

F2

Map Document: (\\na.aecomnet.com\lfs\APAC\Melbourne-AUMEL1\Legacy\Projects\605X\60551507\4. Tech Work Area\4.9 Data_Management\1.Properties\VIC\0932_RAAFBaseWilliams-PointCook\New_Yr3_2019-2020\PBR069_Demo PFAS\3.Inputs\GIS\Maps\2022\07\F2_WilliamsPoint_Building_Loc.mxd)

A3 size

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N

DATUM GDA 1994, PROJECTION MGA ZONE 54

0 40 80 120
metres
1:2,500 (when printed at A3)

LEGEND

- Property Boundary
- Sample Locations

PFAS Assessment Buildings

- Wooden footings
- Slab on grade
- Asphalt

Data sources:
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PROPERTY 0932 RAAF BASE POINT COOK
NORTH OF TARMAC SAMPLE LOCATIONS

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DEFENCE ESTATE SOUTHERN VICTORIA AND TASMANIA

Figure

F3a

Map Document: (\\na.aecomnet.com\lfs\APAC\Melbourne-AUMEL1\Legacy\Projects\605X\60551507\4. Tech Work Area\4.9 Data_Management\1.Properties\VIC\0932_RAAFBaseWilliams-PointCook\New_Yr3_2019-2020\PBR069_Demo PFAS\3.Inputs\GIS\Maps\2022\07\F3a_WilliamsPoint_Sample_Loc.mxd)

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metres

1:3,500 (when printed at A3)

LEGEND

- Property Boundary
- Sample Locations

PFAS Assessment Buildings

- Wooden footings
- Slab on grade
- Asphalt

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PROPERTY 0932 RAAF BASE POINT COOK SOUTH OF TARMAC SAMPLE LOCATIONS

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DEFENCE ESTATE SOUTHERN VICTORIA AND TASMANIA

Figure

F3b

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LEGEND

- Property Boundary
- Sample Locations

PFAS Assessment Buildings

- Wooden footings
- Slab on grade
- Asphalt

PFAS NEMP 2020 Ecological direct exposure
PFAS NEMP 2020 Ecological indirect exposure
PFAS NEMP 2020 Industrial/ commercial (HIL D)

Only samples that exceeded Tier 1 Assessment Criteria are shown

Data sources:
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NORTH OF TARMAC
ANALYTICAL RESULS

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Heritage Buildings Preconstruction Contamination Assessment

DEFENCE ESTATE SOUTHERN VICTORIA AND TASMANIA

Figure

F4a

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metres
1:3,500 (when printed at A3)

LEGEND

- Property Boundary
- Sample Locations

PFAS Assessment Buildings

- Wooden footings
- Slab on grade
- Asphalt

PFAS NEMP 2020 Ecological direct exposure

PFAS NEMP 2020 Ecological indirect exposure

PFAS NEMP 2020 Industrial/ commercial (HIL D)

Only samples that exceeded Tier 1 Assessment Criteria are shown

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SOUTH OF TARMAC
ANALYTICAL RESULS

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DEFENCE ESTATE SOUTHERN VICTORIA AND TASMANIA

Figure

F4b

Map Document: (\\na.aecomnet.com\lfs\APAC\Melbourne-AUMEL1\Legacy\Projects\605X\60551507\4. Tech Work Area\4.9 Data_Management\1.Properties\VIC\0932_RAAFBaseWilliams-PointCook\New_Yr3_2019-2020\PBR069_Demo PFAS\3.Inputs\GIS\Maps\2022\07\F4b_WilliamsPoint_Anal.mxd)

A3 size

Appendix B

Tables

Table T1
Sample Summary

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Sample ID	Building ID	Easting	Northing	Building Foundation	Location of sample	Depth (m)	Matrix (Fill/Natural)	Observations
SS251	243	37.9383	144.74621	Timber footings	South of tarmac. Western corner, 0.2 m from building	0.05	Fill	Long grass, sandy topsoil, brown, moist, roots, minor gravel.
SS252	221	37.93785	144.74762	Asphalt	South of tarmac. Southern wall, 0.3 m from building	0.10	Fill	Scoria covering, gravelly sand, moist, medium grained, brown, loose.
SS253	122	37.93861	144.74840	Slab on grade, veranda with timber footings	South of tarmac. Eastern wall, 0.3 m from building	0.05	Fill	Sandy gravel, rootlets, 1 cm gravel, moist brown.
SS254	218	37.93867	144.74843	Slab on grade	South of tarmac. Eastern wall, 0.3 m from building	0.05	Fill	Sandy gravel, rootlets, 1 cm gravel, moist brown.
SS255	211	37.93750	144.74892	Asphalt	South of tarmac. Eastern wall, 0.3 m from building	0.05	Fill	Gravelly sand, topsoil, brown, moist, roolets, 1 cm gravel.
SS256	212	37.93746	144.74997	Asphalt	South of tarmac. Eastern wall, 0.3 m from building	0.05	Fill	Sandy gravel, brick fragments, scoria, grass, brown, moist.
SS257	203	37.93729	144.74997	Timber footings	South of tarmac. South eastern corner, 0.3 m from building	0.05	Fill	Sandy gravel, brick fragments, scoria, heavy grass covering, brown, moist, rootlets.
SS258	213	37.93759	144.75081	Asphalt	South of tarmac. Southern wall, 0.3 m from building	0.05	Fill	Gravelly sand, brown, moist, brick fragments, rootlets, very wet nearby (drainpipe).
SS259	214	37.93752	144.75193	Asphalt	South of tarmac. Southern wall, 0.3 m from building	0.05	Fill	Sandy topsoil, medium to coarse grained sand, wet, roots, large areas covered in moss clumps.
SS260	485	37.93811	144.75287	Timber footings	South of tarmac. Northern wall, 0.3 m from building	0.05	Fill	Sandy topsoil, dry, rootlets, brown, minor gravel 0.5 to 1 cm.
SS261	102	37.93871	144.75038	Slab on grade	South of tarmac. Eastern wall, 0.3 m from building	0.05	Fill	Adjacent to slab, long grass, sandy topsoil, dark brown, moist, slight sewage odour.
SS262	112	37.93901	144.74205	Timber footings	South of tarmac. Southern wall, 0.3 m from building	0.05	Fill	Moist sandy topsoil, brown, roots, minor gravel, medium grained sand.
SS263	132	37.93892	144.74212	Timber footings	South of tarmac. Eastern wall, 0.3 m from building	0.10	Fill	Moist sandy topsoil, dark brown, roots, minor gravel, medium grained sand.
SS264	155	37.92906	144.74468	Timber footings	North of tarmac. Northern wall, 0.2 m from building	0.05	Fill	Sandy topsoil, moist, brown, rootlets, minor gravel 1 to 2 cm.
SS265	158	37.92912	144.74495	Timber footings	North of tarmac. Northern wall, 0.2 m from building	0.05	Fill	Sandy topsoil, moist, brown, rootlets, minor gravel 1 to 2 cm.
SS266	156	37.92911	144.74479	Timber footings	North of tarmac. Northern wall, 0.2 m from building	0.05	Fill	Sandy topsoil, moist, brown, rootlets, minor gravel 0.5 to 1 cm.
SS267	228	37.92636	144.74416	Timber footings	North of tarmac. Eastern wall, 0.3 m from building	0.05	Fill	Grass, moist sandy topsoil, brown, medium grained, roots.
SS268	125	37.92673	144.74509	Timber footings	North of tarmac. North eastern corner, 0.3 m from building	0.05	Fill	Sandy topsoil, brown, moist, minor gravel 1 to 2 cm.
SS269	190	37.93085	144.74953	Asphalt	North of tarmac. Western wall, 0.2 m from building	0.05	Fill	Airside, Gravelly sand, brown, medium to coarse grained, moist.

Table T1
Analytical Results

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PFAS Full Suite

Location ID	Building ID	Field ID	Sample Type	Sum of PFHxS and PFOS	Perfluorooctanoic acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanoic acid (PFHpA)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR				0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.001	0.0002	0.0002	0.0002
Defence PFAS Construction and Maintenance Framework Category 1				>20											
Defence PFAS Construction and Maintenance Framework Category 2				>1 - 20											
Defence PFAS Construction and Maintenance Framework Category 3				>0.01 - 1											
Defence PFAS Construction and Maintenance Framework Category 4				<0.01											
PFAS NEMP 2020 Ecological direct exposure					10	1									
PFAS NEMP 2020 Ecological indirect exposure						0.01									
PFAS NEMP 2020 Industrial/ commercial (HIL D)				20	50										
SS251	243	0932_SS251_220713	Normal	0.0185	<0.0002	0.0179	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS252	221	0932_SS252_220713	Normal	0.0355	<0.0002	0.0298	0.0057	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0002	0.0003	<0.0002
SS253	122	0932_SS253_220713	Normal	0.0419	0.0003	0.04	0.0019	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS254	218	0932_SS254_220713	Normal	0.012	<0.0002	0.0118	0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0005	<0.0002	<0.0002
SS255	211	0932_SS255_220713	Normal	0.064	0.0017	0.0545	0.0095	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	0.0002
SS256	212	0932_SS256_220713	Normal	0.0074	<0.0002	0.0067	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS257	203	0932_SS257_220713	Normal	0.0447	0.0004	0.0366	0.0081	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	0.0007	<0.0002
SS258	213	0932_SS258_220713	Normal	0.0315	0.0002	0.0273	0.0042	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS259	214	0932_SS259_220713	Normal	0.0415	0.0002	0.0355	0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS260	485	0932_QC101_220713	Field_D	0.282	0.0015	0.25	0.032	<0.0005	<0.0005	<0.0005	<0.0005	0.003	<0.0002	<0.0002	0.0002
SS260	485	0932_QC201_220713	Interlab_D	0.267	<0.005	0.24	0.027	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005
SS260	485	0932_SS260_220713	Normal	0.208	0.0009	0.192	0.0158	<0.0005	<0.0005	<0.0005	<0.0005	0.003	<0.0002	<0.0002	<0.0002
SS261	102	0932_SS261_220713	Normal	0.0181	0.0002	0.0173	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0003	<0.0002	<0.0002
SS262	112	0932_SS262_220713	Normal	0.0061	<0.0002	0.0058	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS263	132	0932_SS263_220713	Normal	0.0273	<0.0002	0.0266	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0003	<0.0002	<0.0002
SS264	155	0932_SS264_220713	Normal	0.0074	<0.0002	0.0074	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS265	158	0932_SS265_220713	Normal	0.0033	<0.0002	0.0033	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS266	156	0932_SS266_220713	Normal	0.0014	<0.0002	0.0014	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS267	228	0932_QC102_220713	Field_D	0.0041	0.0002	0.0041	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0004	0.0002	<0.0002
SS267	228	0932_QC202_220713	Interlab_D	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005
SS267	228	0932_SS267_220713	Normal	0.0038	<0.0002	0.0038	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0005	0.0003	<0.0002
SS268	125	0932_SS268_220713	Normal	0.017	<0.0002	0.0146	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002
SS269	190	0932_SS269_220713	Normal	0.0095	0.0004	0.0085	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002

Field ID	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorodecane sulfonic acid (PFDS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropropanesulfonic acid (PFPrS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg
LOR	0.0002	0.0002	0.0002	0.0005	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	5	0.0005
Defence PFAS Construction and Maintenance Framework Category 1												
Defence PFAS Construction and Maintenance Framework Category 2												
Defence PFAS Construction and Maintenance Framework Category 3												
Defence PFAS Construction and Maintenance Framework Category 4												
PFAS NEMP 2020 Ecological direct exposure												
PFAS NEMP 2020 Ecological indirect exposure												
PFAS NEMP 2020 Industrial/ commercial (HIL D)												
0932_SS251_220713	0.0003	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS252_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	0.0005	<0.0002	0.0005	0.0004	-	<0.0005
0932_SS253_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	0.0004	0.0004	<0.0002	-	<0.0005
0932_SS254_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	0.0002	<0.0002	0.0005	<0.0002	<0.0002	-	<0.0005
0932_SS255_220713	0.0016	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	0.0004	0.0005	0.0005	0.0004	-	<0.0005
0932_SS256_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS257_220713	0.0004	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	0.0009	0.0005	0.0007	0.0009	-	<0.0005
0932_SS258_220713	0.0004	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	0.0004	<0.0002	0.0005	0.0005	-	<0.0005
0932_SS259_220713	0.0005	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	0.0004	0.0006	0.0005	0.0005	-	<0.0005
0932_QC101_220713	0.0095	0.0004	0.0053	<0.0005	<0.0002	<0.0002	0.0074	0.0016	0.0036	0.0023	-	<0.0005
0932_QC201_220713	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0059	<0.005	<0.005	<0.005	<5	<0.005
0932_SS260_220713	0.01	0.0004	0.0053	<0.0005	<0.0002	<0.0002	0.008	0.001	0.0019	0.002	-	<0.0005
0932_SS261_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS262_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS263_220713	<0.0002	0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	-	<0.0005
0932_SS264_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS265_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS266_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_QC102_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_QC202_220713	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<5	<0.005
0932_SS267_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0005
0932_SS268_220713	0.0009	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	0.0012	<0.0002	<0.0002	0.001	-	<0.0005
0932_SS269_220713	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	0.0002	<0.0002	0.0006	<0.0002	<0.0002	-	<0.0005

Field ID	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorooctane sulfonamide (FOSA)	Sum of PFAS	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	Sum of PFAS (PFOS + PFOA)	Sum of PFAS (WA DER List)	Sum of PFAS (WA DER List)	Perfluorononanesulfonic acid (PFNS)(trace)	Moisture Content
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
LOR	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0002	0.005	0.005	0.01	0.0002	0.005	0.1
Defence PFAS Construction and Maintenance Framework Category 1													
Defence PFAS Construction and Maintenance Framework Category 2													
Defence PFAS Construction and Maintenance Framework Category 3													
Defence PFAS Construction and Maintenance Framework Category 4													
PFAS NEMP 2020 Ecological direct exposure													
PFAS NEMP 2020 Ecological indirect exposure													
PFAS NEMP 2020 Industrial/ commercial (HIL D)													
0932_SS251_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0188	-	-	-	0.0188	-	23.2
0932_SS252_220713	0.0006	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.038	-	-	-	0.036	-	20
0932_SS253_220713	0.0023	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0453	-	-	-	0.0422	-	14.9
0932_SS254_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0135	-	-	-	0.012	-	17.8
0932_SS255_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0395	0.109	-	-	-	0.0679	-	6.2
0932_SS256_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0076	-	-	-	0.0074	-	8.1
0932_SS257_220713	0.0009	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0504	-	-	-	0.0464	-	16.8
0932_SS258_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0338	-	-	-	0.0325	-	14.6
0932_SS259_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.045	-	-	-	0.0426	-	20.5
0932_QC101_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.317	-	-	-	0.309	-	7.1
0932_QC201_220713	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.2729	0.267	0.24	0.273	-	<0.005	8.7
0932_SS260_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.24	-	-	-	0.235	-	10.4
0932_SS261_220713	0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.019	-	-	-	0.0183	-	23
0932_SS262_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0061	-	-	-	0.0061	-	18.2
0932_SS263_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0282	-	-	-	0.0273	-	35.2
0932_SS264_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0074	-	-	-	0.0074	-	9
0932_SS265_220713	0.0004	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0037	-	-	-	0.0033	-	19
0932_SS266_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0014	-	-	-	0.0014	-	8.1
0932_QC102_220713	0.0014	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0063	-	-	-	0.0043	-	13.8
0932_QC202_220713	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.05	<0.005	<0.005	<0.0010	-	<0.005	18
0932_SS267_220713	0.0004	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.005	-	-	-	0.0038	-	15.1
0932_SS268_220713	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0201	-	-	-	0.0191	-	20.1
0932_SS269_220713	0.0026	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0142	-	-	-	0.0099	-	15

Notes:
LOR - Limit of Reporting
mg/kg - Milligrams per kilogram
m bgl - Metres below ground level
Interlab_D - Interlaboratory duplicate
Field_D - Intralaboratory duplicate
PFAS NEPM 2020 - PFAS National Environmental Management Plan Version 2.0

Appendix C

Waste Documentation

CLEANAWAY

Discharge Docket

Karyn.Chuah@cleanaway.com.au

Cleanaway Co Pty Ltd
83 Dohertys Road
LAVERTON NORTH VIC 3026

Order **16487520** 2M Date 08/08/2022 Time 1000

Carrier 1774 CWY Co (LTS) Laverton REGO

Generator 2290919 AECOM- Delivered to Toxfree La Bay

PO6055150 7/43-69-2

Waste Code	Description	Consignment Number	Effective From	Effective Thru
M270	Per & Polyfluoroalkyl substanc			
From:	PFAS contaminated water	UM Litres		
	low level			

Net Quantity 2lt

Water Meter Reading (Litres)

Recycled		Fresh	
From		From	
To		To	

Driver must hand document to ...

Lab Officer

Discharge Officer

Weighbridge Officer

Driver STONER

Appendix D

Field Sheets

ANZ

FQM - Soil Sampling - Validaton sampling record

AECOM

Q4AN(EV)-108-FM1

Project Name:	Heritage PFAS Soil Assessment	Project Number:	60551507	PM Name:	Matt J	PID Model & Serial Number:	NA.
Client:	Defence.	Project Location:	0932 Point Cook	Fieldwork Staff:	Toni H		

Date	Excavation ID	Sample ID	Location (line / bowser / floor / wall)	Depth	Matrix (fill / natural)	PID (ppm)	Observations (soil characteristics, components, odour, staining, etc.)
13.07.22	243	SS252	~~South~~ West, ~~wall~~ corner	0-10	Fill	—	Scoria, gravelly sand, topsoil, moist, med. grain, brown, loose
"	221	SS251	West, corner	0.05	"	—	Grass (long), sandy topsoil, brown, moist, roots, minor gravel
"	211	SS253	East, wall	0.05	"	—	Sandy gravel, rootlets, 1cm gravel, moist, brown
"	122	SS254	East, wall	0.05	"	—	As above.
"	218	SS255	East, wall	0.05	"	—	Gravelly sand topsoil, brown, moist, rootlets, brown, 1cm gravel
"	212	SS256	East, wall	0.05	"	—	Sandy gravel, brick, scoria, grass, brown, moist, ~30cm from wall.
"	203	SS257	S. East corner	0.05	"	—	As above. More rootlets/grass.
"	213	SS258	South, wall	0.05	"	—	Gravelly sand, brown, moist, brick, rootlets. Very wet nearby.
"	214	SS259	South wall	0.05	"	—	Sandy topsoil, med-coarse grain, wet, roots, moss clumps.
"	485	SS260	North wall	0.05	"	—	QC101/201, dry, sandy topsoil, rootlets, brown, minor gravel (0.5-1cm)
"	102	SS261	East wall	0.05	"	—	Adjacent to slab, grass, sandy topsoil, moist, slight sewerage odour.
"	112	SS262	South wall	0.05	"	—	Moist sandy topsoil, brown, roots, minor gravel, med. grained.
"	132	SS263	East wall	0.10	"	—	As above. Dark brown.
"	155	SS264	North wall	0.05	"	—	Sandy topsoil, moist, brown, rootlets, minor gravel (1-2cm)
"	158	SS265	North wall	0.05	"	—	As above.
"	156	SS266	North wall	0.05	"	—	As above. Smaller gravel (0.5-1cm). Dry.
"	228	SS267	East wall	0.05	"	—	QC102/202, grass, moist, brown, sandy topsoil, med. grain, roots.
"	125	SS268	N. East corner	0.05	"	—	Sandy topsoil, brown, moist; minor gravel (1-2cm).
"	190	SS269	West wall	0.05	"	—	Airside. Gravelly sand, brown, med-coarse grain, moist, ~30cm from wall.

SOUTH OF TARMAC

NORTH OF TARMAC

Approval and Distribution

Fieldwork Staff Signature	Date	Project Manager Signature	Date
	13.07.22		

Distribution: Project Central File

AECOM

ANZ

FQM - Sample QAQC Tracking Sheet

Q4AN(EV)-011-FM1

Project Name:	itage PFAS Soil Assessm	**Project Number:**	60551507
Project Location:	0932 Point Cook	**Client:**	Defence
PM Name:	Matt J	**Fieldwork Staff:**	Toni H

QAQC Information

QAQC ID	Primary Sample ID	Sample Type	Batch Number
QC101	SS260	Dup.	
QC201	SS260	Trip.	
QC401	Field B.	–	
QC301	Rinsate	–	South Tarmac
QC102	SS267	Dup.	
QC202	SS267	Trip.	
QC402	Rinsate	–	North Tarmac
QC502	Trip B.	–	Water (ALS)
QC503	Trip B.	–	Soil (Eurofins)

QA\QC Project Requirements

QAQC	Required		Frequency		Method Used
Field Duplicates	☑ Yes	☐ No	☑ 1 in 10	☐ 1 in 20	
Field Triplicates	☑ Yes	☐ No	☑ 1 in 10	☐ 1 in 20	
Rinsate Blanks	☑ Yes	☐ No	☑ 1 per matrix/equipment/day		
Field Blanks	☑ Yes	☐ No	☑ 1 per day		
Trip Blanks	☑ Yes	☐ No	☑ 1 per ice chest		
Trip Spikes	☐ Yes	☐ No	☐ 1 per ice chest		

Approval and Distribution

Fieldwork Staff Signature — 13-07-22 Date

Project Manager Signature — Date

Distribution: Project Central File

Appendix E

Laboratory Certificates

URGENT

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Toni H	Destination Laboratory
PROJECT MANAGER (PM): Matt J	SITE: Heritage PFAS Soil Assessment	MOBILE: 0466287340 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60551507	P.O. NO.:	EMAIL REPORT TO: toni.henderson@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORS etc.

2 DAY TAT

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		PFAS (24)													HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	0932_SS251_130722	S	13.07.22			1	X													
2	0932_SS252_130722																			
3	0932_SS253_130722																			
4	0932_SS254_130722																			
5	0932_SS256_130722																			
6	0932_SS255_130722																			
7	0932_SS257_130722																			
8	0932_SS258_130722																			
9	0932_SS259_130722																			
10	0932_SS260_130722																			
11	0932_SS261_130722																			
12	0932_SS262_130722																			
13	0932_SS263_130722																			
14	0932_SS264_130722																			
15	0932_SS265_130722																			
16	0932_SS266_130722																			
17	0932_SS267_130722																			
18	0932_SS268_130722																			
19	0932_SS269_130722																			

Environmental Division
Melbourne
Work Order Reference
EM2213344

Telephone : + 61-3-8549 9600

Received: 13/7/22 Carrier: ✓
C/note: 1420
Temp: 1.6 °C Seal: Y (N)
(Ice) / Icebricks / NA

ALS

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

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URGENT

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Toni H	Destination Laboratory
PROJECT MANAGER (PM): Matt J	SITE: Heritage PFAS Soil Assessment	MOBILE: 0466 297 340 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60551507	P.O. NO.:	EMAIL REPORT TO: toni.henderson@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected"; Extra volume for QC or trace LORs etc.

2 DAY TAT

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	PFAS (28)	HOLD	
20	0932_QC101_130722	S	13-07-22			1			
21	0932_QC102_130722	S	"			1			
22	0932_QC301_130722	W	"			4			
23	0932_QC302_130722	W	"			4			
24	0932_QC401_130722	W	"			4			
	~~0932_QC501_130722~~	~~S~~	~~"~~			~~1~~			TB
25	0932_QC502_130722	W	"			2			TB
26	0932_QC601_" "	W	" "		(Extra)				

Received: 13/7/22 Carrier: ✓
Chlote: 14:20
Temp: 1.6 °C Seal: Y (N)
(Ice) / Icebricks / N/A

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

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SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2213344**
Amendment : **1**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: TONI HENDERSON	Contact	: Peter Ravlic
Address	: COLLINS SQUARE LEVEL 10, TOWER TWO 727 COLLINS STREET MELBOURNE VIC, AUSTRALIA 3004	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Toni.Henderson@aecom.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: 03 9653 1234	Telephone	: +6138549 9645
Facsimile	: 03 9654 7117	Facsimile	: +61-3-8549 9626
Project	: VIC_0932_PCA_22	Page	: 1 of 3
Order number	: 60551507	Quote number	: ES2021AECOMAU0044 (EN/004/21)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Heritage PFAS Soil Assessment		
Sampler	: TONI HENDERSON		

Dates

Date Samples Received	: 13-Jul-2022 14:20	Issue Date	: 19-Jul-2022
Client Requested Due Date	: 15-Jul-2022	Scheduled Reporting Date	: **15-Jul-2022**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 1.6°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 25 / 25

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Extra sample received:**
  0932_QC601_130722 (sample 026)
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EM2213344-001	13-Jul-2022 00:00	0932_SS251_220713	✓	✓
EM2213344-002	13-Jul-2022 00:00	0932_SS252_220713	✓	✓
EM2213344-003	13-Jul-2022 00:00	0932_SS253_220713	✓	✓
EM2213344-004	13-Jul-2022 00:00	0932_SS254_220713	✓	✓
EM2213344-005	13-Jul-2022 00:00	0932_SS255_220713	✓	✓
EM2213344-006	13-Jul-2022 00:00	0932_SS256_220713	✓	✓
EM2213344-007	13-Jul-2022 00:00	0932_SS257_220713	✓	✓
EM2213344-008	13-Jul-2022 00:00	0932_SS258_220713	✓	✓
EM2213344-009	13-Jul-2022 00:00	0932_SS259_220713	✓	✓
EM2213344-010	13-Jul-2022 00:00	0932_SS260_220713	✓	✓
EM2213344-011	13-Jul-2022 00:00	0932_SS261_220713	✓	✓
EM2213344-012	13-Jul-2022 00:00	0932_SS262_220713	✓	✓
EM2213344-013	13-Jul-2022 00:00	0932_SS263_220713	✓	✓
EM2213344-014	13-Jul-2022 00:00	0932_SS264_220713	✓	✓
EM2213344-015	13-Jul-2022 00:00	0932_SS265_220713	✓	✓
EM2213344-016	13-Jul-2022 00:00	0932_SS266_220713	✓	✓
EM2213344-017	13-Jul-2022 00:00	0932_SS267_220713	✓	✓
EM2213344-018	13-Jul-2022 00:00	0932_SS268_220713	✓	✓
EM2213344-019	13-Jul-2022 00:00	0932_SS269_220713	✓	✓
EM2213344-020	13-Jul-2022 00:00	0932_QC101_220713	✓	✓
EM2213344-021	13-Jul-2022 00:00	0932_QC102_220713	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
EM2213344-022	13-Jul-2022 00:00	0932_QC301_220713	✓
EM2213344-023	13-Jul-2022 00:00	0932_QC302_220713	✓
EM2213344-024	13-Jul-2022 00:00	0932_QC401_220713	✓
EM2213344-025	13-Jul-2022 00:00	0932_QC502_220713	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

DERP ESDAT REPORTS

- EDI Format - ESDAT (ESDAT)	Email	derp.labreports@esdat.com.au

MATTHEW JOHNSON

- *AU Certificate of Analysis - NATA (COA)	Email	matthew.johnson@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	matthew.johnson@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	matthew.johnson@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	matthew.johnson@aecom.com
- Chain of Custody (CoC) (COC)	Email	matthew.johnson@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	matthew.johnson@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	matthew.johnson@aecom.com

TONI HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	Toni.Henderson@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Toni.Henderson@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Toni.Henderson@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Toni.Henderson@aecom.com
- Chain of Custody (CoC) (COC)	Email	Toni.Henderson@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	Toni.Henderson@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Toni.Henderson@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	Toni.Henderson@aecom.com

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2213344**	Page	: 1 of 15
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: TONI HENDERSON	Contact	: Peter Ravlic
Address	: COLLINS SQUARE LEVEL 10, TOWER TWO 727 COLLINS STREET MELBOURNE VIC, AUSTRALIA 3004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: 03 9653 1234	Telephone	: +6138549 9645
Project	: VIC_0932_PCA_22	Date Samples Received	: 13-Jul-2022 14:20
Order number	: 60551507	Date Analysis Commenced	: 13-Jul-2022
C-O-C number	: ----	Issue Date	: 19-Jul-2022 12:01
Sampler	: TONI HENDERSON		
Site	: Heritage PFAS Soil Assessment		
Quote number	: EN/004/21		
No. of samples received	: 25		
No. of samples analysed	: 25		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: Poor matrix spike recovery for sample EM2213330-003 due to sample matrix interference.
- EP231X: Poor duplicate precision observed for sample EM2213344-003 ,due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- Amendment (19/07/2022): This report has been amended as a result of a request to change sample identification numbers (IDs), project reference and distribution contact received from Mat Jenkins on 19/07/2022, for samples #1-25. All analysis results are as per the previous report.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0932_SS251_220713	0932_SS252_220713	0932_SS253_220713	0932_SS254_220713	0932_SS255_220713
			Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit	EM2213344-001	EM2213344-002	EM2213344-003	EM2213344-004	EM2213344-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**23.2**	**20.0**	**14.9**	**17.8**	**6.2**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	**0.0005**	<0.0002	<0.0002	**0.0004**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	**0.0004**	<0.0002	<0.0002	**0.0004**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	**0.0006**	**0.0057**	**0.0019**	**0.0002**	**0.0095**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	**0.0005**	**0.0004**	<0.0002	**0.0005**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0179**	**0.0298**	**0.0400**	**0.0118**	**0.0545**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	**0.0004**	**0.0005**	**0.0005**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	**0.0003**	<0.0002	<0.0002	<0.0002	**0.0016**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0002**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	**0.0003**	<0.0002	**0.0017**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	**0.0002**	<0.0002	**0.0005**	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	**0.0003**	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0003**	**0.0395**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0932_SS251_220713	0932_SS252_220713	0932_SS253_220713	0932_SS254_220713	0932_SS255_220713
				Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit		EM2213344-001	EM2213344-002	EM2213344-003	EM2213344-004	EM2213344-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	**0.0006**	**0.0023**	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0188**	**0.0380**	**0.0453**	**0.0135**	**0.109**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0185**	**0.0355**	**0.0419**	**0.0120**	**0.0640**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0188**	**0.0360**	**0.0422**	**0.0120**	**0.0679**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**117**	**113**	**117**	**101**	**108**
13C8-PFOA	----	0.0002	%		**103**	**93.5**	**95.3**	**99.1**	**94.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0932_SS256_220713	0932_SS257_220713	0932_SS258_220713	0932_SS259_220713	0932_SS260_220713
			Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit	EM2213344-006	EM2213344-007	EM2213344-008	EM2213344-009	EM2213344-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**8.1**	**16.8**	**14.6**	**20.5**	**10.4**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	**0.0009**	**0.0004**	**0.0004**	**0.0080**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	**0.0009**	**0.0005**	**0.0005**	**0.0020**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	**0.0007**	**0.0081**	**0.0042**	**0.0060**	**0.0158**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	**0.0007**	**0.0005**	**0.0005**	**0.0019**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0067**	**0.0366**	**0.0273**	**0.0355**	**0.192**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	**0.0002**	**0.0005**	<0.0002	**0.0006**	**0.0010**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	**0.003**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0053**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	**0.0004**	**0.0004**	**0.0005**	**0.0100**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	**0.0004**	**0.0002**	**0.0002**	**0.0009**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0004**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	**0.0007**	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	**0.0003**	**0.0003**	**0.0008**	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0932_SS256_220713	0932_SS257_220713	0932_SS258_220713	0932_SS259_220713	0932_SS260_220713
				Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit		EM2213344-006	EM2213344-007	EM2213344-008	EM2213344-009	EM2213344-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	**0.0009**	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0076**	**0.0504**	**0.0338**	**0.0450**	**0.240**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0074**	**0.0447**	**0.0315**	**0.0415**	**0.208**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0074**	**0.0464**	**0.0325**	**0.0426**	**0.235**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**118**	**123**	**120**	**99.0**	**110**
13C8-PFOA	----	0.0002	%		**99.4**	**100**	**91.9**	**91.3**	**90.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0932_SS261_220713	0932_SS262_220713	0932_SS263_220713	0932_SS264_220713	0932_SS265_220713
			Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit	EM2213344-011	EM2213344-012	EM2213344-013	EM2213344-014	EM2213344-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**23.0**	**18.2**	**35.2**	**9.0**	**19.0**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	**0.0008**	**0.0003**	**0.0007**	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0173**	**0.0058**	**0.0266**	**0.0074**	**0.0033**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	**0.0002**	<0.0002	**0.0004**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	**0.0002**	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	**0.0003**	<0.0002	**0.0003**	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0932_SS261_220713	0932_SS262_220713	0932_SS263_220713	0932_SS264_220713	0932_SS265_220713
				Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit		EM2213344-011	EM2213344-012	EM2213344-013	EM2213344-014	EM2213344-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	**0.0004**
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0190**	**0.0061**	**0.0282**	**0.0074**	**0.0037**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0181**	**0.0061**	**0.0273**	**0.0074**	**0.0033**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0183**	**0.0061**	**0.0273**	**0.0074**	**0.0033**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**118**	**106**	**128**	**111**	**105**
13C8-PFOA	----	0.0002	%		**97.3**	**92.6**	**96.4**	**101**	**103**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0932_SS266_220713	0932_SS267_220713	0932_SS268_220713	0932_SS269_220713	0932_QC101_220713
			Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit	EM2213344-016	EM2213344-017	EM2213344-018	EM2213344-019	EM2213344-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**8.1**	**15.1**	**20.1**	**15.0**	**7.1**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	**0.0012**	<0.0002	**0.0074**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	**0.0010**	<0.0002	**0.0023**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	**0.0024**	**0.0010**	**0.0320**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0036**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0014**	**0.0038**	**0.0146**	**0.0085**	**0.250**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0006**	**0.0016**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	**0.003**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0053**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	**0.0009**	<0.0002	**0.0095**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0002**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0004**	**0.0015**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0004**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	**0.0005**	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	**0.0003**	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0009**	**0.0002**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0932_SS266_220713	0932_SS267_220713	0932_SS268_220713	0932_SS269_220713	0932_QC101_220713
				Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00
Compound	CAS Number	LOR	Unit		EM2213344-016	EM2213344-017	EM2213344-018	EM2213344-019	EM2213344-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	**0.0004**	<0.0002	**0.0026**	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0014**	**0.0050**	**0.0201**	**0.0142**	**0.317**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0014**	**0.0038**	**0.0170**	**0.0095**	**0.282**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0014**	**0.0038**	**0.0191**	**0.0099**	**0.309**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**120**	**125**	**128**	**113**	**96.6**
13C8-PFOA	----	0.0002	%		**101**	**99.5**	**101**	**102**	**89.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0932_QC102_220713	----	----	----	----
			Sampling date / time	13-Jul-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2213344-021	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**13.8**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0041**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	**0.0002**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	**0.0004**	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	**0.0002**	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0932_QC102_220713	----	----	----	----
				Sampling date / time	13-Jul-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2213344-021	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		**0.0014**	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0063**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0041**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0043**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**122**	----	----	----	----
13C8-PFOA	----	0.0002	%		**103**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0932_QC301_220713	0932_QC302_220713	0932_QC401_220713	0932_QC502_220713	----
				Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	----
Compound	CAS Number	LOR	Unit		EM2213344-022	EM2213344-023	EM2213344-024	EM2213344-025	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0932_QC301_220713	0932_QC302_220713	0932_QC401_220713	0932_QC502_220713	----
				Sampling date / time	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	13-Jul-2022 00:00	----
Compound	CAS Number	LOR	Unit		EM2213344-022	EM2213344-023	EM2213344-024	EM2213344-025	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**115**	**76.8**	**101**	**111**	----
13C8-PFOA	----	0.02	%		**98.1**	**72.2**	**76.6**	**111**	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	68	136
13C8-PFOA	----	69	133

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2213344**	Page	: 1 of 15
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: TONI HENDERSON	Contact	: Peter Ravlic
Address	: COLLINS SQUARE LEVEL 10, TOWER TWO 727 COLLINS STREET MELBOURNE VIC, AUSTRALIA 3004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: 03 9653 1234	Telephone	: +6138549 9645
Project	: VIC_0932_PCA_22	Date Samples Received	: 13-Jul-2022
Order number	: 60551507	Date Analysis Commenced	: 13-Jul-2022
C-O-C number	: ----	Issue Date	: 19-Jul-2022
Sampler	: TONI HENDERSON		
Site	: Heritage PFAS Soil Assessment		
Quote number	: EN/004/21		
No. of samples received	: 25		
No. of samples analysed	: 25		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4457266)									
EM2213344-001	0932_SS251_220713	EA055: Moisture Content	----	0.1	%	23.2	21.4	8.1	0% - 20%
EM2213344-011	0932_SS261_220713	EA055: Moisture Content	----	0.1	%	23.0	23.3	1.3	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4457267)									
EM2213344-021	0932_QC102_220713	EA055: Moisture Content	----	0.1	%	13.8	14.0	1.8	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4457816)									
EM2213330-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0017	0.0011	42.6	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EM2213344-003	0932_SS253_220713	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0019	0.0002	160	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0004	<0.0002	63.1	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0400	# 0.0082	132	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0004	<0.0002	73.3	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4457817)									
EM2213344-011	0932_SS261_220713	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0008	0.0010	18.9	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0173	0.0168	3.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4457817) - continued									
EM2213344-011	0932_SS261_220713	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
EM2213344-021	0932_QC102_220713	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0041	0.0039	4.6	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4457816)									
EM2213330-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2213344-003	0932_SS253_220713	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0003	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4457817)									
EM2213344-011	0932_SS261_220713	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4457817) - continued									
EM2213344-011	0932_SS261_220713	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM2213344-021	0932_QC102_220713	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0004	0.0005	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4457816)									
EM2213330-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2213344-003	0932_SS253_220713	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0023	0.0022	0.0	0% - 50%
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4457817)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4457817) - continued									
EM2213344-011	0932_SS261_220713	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2213344-021	0932_QC102_220713	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0014	0.0003	124	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4457816)									
EM2213330-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2213344-003	0932_SS253_220713	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4457816) - continued									
EM2213344-003	0932_SS253_220713	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4457817)									
EM2213344-011	0932_SS261_220713	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EM2213344-021	0932_QC102_220713	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4457816)									
EM2213330-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0017	0.0011	42.9	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0017	0.0011	42.9	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0017	0.0011	42.9	No Limit
EM2213344-003	0932_SS253_220713	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0453	# 0.0106	124	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0419	# 0.0084	133	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0422	# 0.0084	134	0% - 20%
EP231P: PFAS Sums (QC Lot: 4457817)									
EM2213344-011	0932_SS261_220713	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0190	0.0184	3.2	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0181	0.0178	1.7	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0183	0.0178	2.8	0% - 20%
EM2213344-021	0932_QC102_220713	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0063	0.0052	19.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0041	0.0039	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0043	0.0041	4.8	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4458074)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4458074) - continued									
EM2213344-022	0932_QC301_220713	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4458074)									
EM2213344-022	0932_QC301_220713	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4458074)									
EM2213344-022	0932_QC301_220713	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4458074)									
EM2213344-022	0932_QC301_220713	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4458074) - continued									
EM2213344-022	0932_QC301_220713	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 4458074)									
EM2213344-022	0932_QC301_220713	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4457816)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	105	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	102	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.0014 mg/kg	80.7	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	105	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	106	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00121 mg/kg	95.3	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4457817)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00111 mg/kg	98.4	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	102	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.0014 mg/kg	81.4	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	101	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	97.2	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00121 mg/kg	101	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4457816)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	96.6	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.5	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.1	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.0	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.3	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	110	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4457817)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	96.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.6	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.5	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.5	64.0	136

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4457817) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.4	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4457816)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	115	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.3	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.9	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.0	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4457817)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	113	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.5	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4457816)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	95.7	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	108	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	125	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	130	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4457817)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	98.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00119 mg/kg	100	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	108	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00121 mg/kg	128	70.0	130
EP231P: PFAS Sums (QCLot: 4457816)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 4457816) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 4457817)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4458074)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.222 µg/L	104	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.235 µg/L	91.6	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.228 µg/L	110	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	119	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	122	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4458074)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	95.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	120	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.3	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.7	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	110	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.7	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	90.9	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.5	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	125	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4458074)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	123	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	106	70.0	130
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	106	70.0	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	123	70.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4458074) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	91.9	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4458074)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.234 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.238 µg/L	110	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	109	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.242 µg/L	107	70.0	130
EP231P: PFAS Sums (QCLot: 4458074)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4457816)							
EM2213330-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	110	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00118 mg/kg	92.5	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	108	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	119	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	88.8	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00121 mg/kg	# 41.2	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4457817)							
EM2213344-012	0932_SS262_220713	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00111 mg/kg	109	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00118 mg/kg	103	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00114 mg/kg	98.9	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	108	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00121 mg/kg	91.1	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4457816)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4457816) - continued							
EM2213330-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	113	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	95.8	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	105	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	107	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	116	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	107	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	116	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	114	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	121	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	# Not Determined	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	127	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4457817)							
EM2213344-012	0932_SS262_220713	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	90.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	100.0	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	95.0	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	94.0	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	95.8	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	97.8	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	102	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	102	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	98.2	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	98.0	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4457816)							
EM2213330-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	86.5	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	87.8	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	99.5	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	81.9	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	113	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	91.6	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4457817)							
EM2213344-012	0932_SS262_220713	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	102	67.0	137

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4457817) - continued							
EM2213344-012	0932_SS262_220713	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	92.8	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	91.8	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	96.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	97.4	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	101	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4457816)							
EM2213330-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	97.8	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	85.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	86.6	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	# 28.1	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4457817)							
EM2213344-012	0932_SS262_220713	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	94.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00119 mg/kg	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	108	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00121 mg/kg	99.5	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4458074)							
EM2213344-023	0932_QC302_220713	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.222 µg/L	83.6	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.235 µg/L	92.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.228 µg/L	91.8	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	79.2	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	79.5	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	79.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4458074)							
EM2213344-023	0932_QC302_220713	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	83.0	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	88.9	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	76.8	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	85.1	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	83.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	82.5	69.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4458074) - continued							
EM2213344-023	0932_QC302_220713	EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	84.1	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	84.6	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	90.1	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	85.9	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	96.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4458074)							
EM2213344-023	0932_QC302_220713	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	85.4	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	87.6	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	101	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	89.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	91.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	97.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	88.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4458074)							
EM2213344-023	0932_QC302_220713	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	98.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.238 µg/L	103	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	98.0	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.242 µg/L	87.0	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2213344**	Page	: 1 of 7
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: TONI HENDERSON	Telephone	: +6138549 9645
Project	: VIC_0932_PCA_22	Date Samples Received	: 13-Jul-2022
Site	: Heritage PFAS Soil Assessment	Issue Date	: 19-Jul-2022
Sampler	: TONI HENDERSON	No. of samples received	: 25
Order number	: 60551507	No. of samples analysed	: 25

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP231A: Perfluoroalkyl Sulfonic Acids	EM2213344--003	0932_SS253_220713	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	132 %	0% - 20%	**RPD exceeds LOR based limits**
EP231P: PFAS Sums	EM2213344--003	0932_SS253_220713	**Sum of PFAS**	----	124 %	0% - 20%	**RPD exceeds LOR based limits**
EP231P: PFAS Sums	EM2213344--003	0932_SS253_220713	**Sum of PFHxS and PFOS**	355-46-4/1763-23-1	133 %	0% - 20%	**RPD exceeds LOR based limits**
EP231P: PFAS Sums	EM2213344--003	0932_SS253_220713	**Sum of PFAS (WA DER List)**	----	134 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EM2213344--012	0932_SS262_220713	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EM2213330--003	Anonymous	**Perfluorodecane sulfonic acid (PFDS)**	335-77-3	41.2 %	59.0-134%	**Recovery less than lower data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EM2213330--003	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	28.1 %	70.0-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
0932_SS251_220713, 0932_SS252_220713, 0932_SS253_220713, 0932_SS254_220713, 0932_SS255_220713, 0932_SS256_220713, 0932_SS257_220713, 0932_SS258_220713, 0932_SS259_220713, 0932_SS260_220713, 0932_SS261_220713, 0932_SS262_220713, 0932_SS263_220713, 0932_SS264_220713, 0932_SS265_220713, 0932_SS266_220713, 0932_SS267_220713, 0932_SS268_220713, 0932_SS269_220713, 0932_QC101_220713, 0932_QC102_220713	**13-Jul-2022**	**----**	----	----	**13-Jul-2022**	27-Jul-2022	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0932_SS251_220713, 0932_SS252_220713, 0932_SS253_220713, 0932_SS254_220713, 0932_SS255_220713, 0932_SS256_220713, 0932_SS257_220713, 0932_SS258_220713, 0932_SS259_220713, 0932_SS260_220713, 0932_SS261_220713, 0932_SS262_220713, 0932_SS263_220713, 0932_SS264_220713, 0932_SS265_220713, 0932_SS266_220713, 0932_SS267_220713, 0932_SS268_220713, 0932_SS269_220713, 0932_QC101_220713, 0932_QC102_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	23-Aug-2022	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0932_SS251_220713, 0932_SS252_220713, 0932_SS253_220713, 0932_SS254_220713, 0932_SS255_220713, 0932_SS256_220713, 0932_SS257_220713, 0932_SS258_220713, 0932_SS259_220713, 0932_SS260_220713, 0932_SS261_220713, 0932_SS262_220713, 0932_SS263_220713, 0932_SS264_220713, 0932_SS265_220713, 0932_SS266_220713, 0932_SS267_220713, 0932_SS268_220713, 0932_SS269_220713, 0932_QC101_220713, 0932_QC102_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	23-Aug-2022	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0932_SS251_220713, 0932_SS252_220713, 0932_SS253_220713, 0932_SS254_220713, 0932_SS255_220713, 0932_SS256_220713, 0932_SS257_220713, 0932_SS258_220713, 0932_SS259_220713, 0932_SS260_220713, 0932_SS261_220713, 0932_SS262_220713, 0932_SS263_220713, 0932_SS264_220713, 0932_SS265_220713, 0932_SS266_220713, 0932_SS267_220713, 0932_SS268_220713, 0932_SS269_220713, 0932_QC101_220713, 0932_QC102_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	23-Aug-2022	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0932_SS251_220713, 0932_SS252_220713, 0932_SS253_220713, 0932_SS254_220713, 0932_SS255_220713, 0932_SS256_220713, 0932_SS257_220713, 0932_SS258_220713, 0932_SS259_220713, 0932_SS260_220713, 0932_SS261_220713, 0932_SS262_220713, 0932_SS263_220713, 0932_SS264_220713, 0932_SS265_220713, 0932_SS266_220713, 0932_SS267_220713, 0932_SS268_220713, 0932_SS269_220713, 0932_QC101_220713, 0932_QC102_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	23-Aug-2022	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0932_SS251_220713, 0932_SS252_220713, 0932_SS253_220713, 0932_SS254_220713, 0932_SS255_220713, 0932_SS256_220713, 0932_SS257_220713, 0932_SS258_220713, 0932_SS259_220713, 0932_SS260_220713, 0932_SS261_220713, 0932_SS262_220713, 0932_SS263_220713, 0932_SS264_220713, 0932_SS265_220713, 0932_SS266_220713, 0932_SS267_220713, 0932_SS268_220713, 0932_SS269_220713, 0932_QC101_220713, 0932_QC102_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	23-Aug-2022	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0932_QC301_220713, 0932_QC302_220713, 0932_QC401_220713, 0932_QC502_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	09-Jan-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0932_QC301_220713, 0932_QC302_220713, 0932_QC401_220713, 0932_QC502_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	09-Jan-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0932_QC301_220713, 0932_QC302_220713, 0932_QC401_220713, 0932_QC502_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	09-Jan-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0932_QC301_220713, 0932_QC302_220713, 0932_QC401_220713, 0932_QC502_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	09-Jan-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0932_QC301_220713, 0932_QC302_220713, 0932_QC401_220713, 0932_QC502_220713	**13-Jul-2022**	**14-Jul-2022**	09-Jan-2023	✓	**14-Jul-2022**	09-Jan-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECom	ADDRESS / OFFICE:	SAMPLER: Toni H	**Destination Laboratory**
PROJECT MANAGER (PM): **Matt J**	SITE: **Heritage PFAS Soil Assessment**	MOBILE: 0466 297 340	PHONE:
PROJECT NUMBER & TASK CODE: 60551507	P.O. NO.:	EMAIL REPORT TO: toni.henderson@aecom.com	Eurofins
RESULTS REQUIRED (**Date**):	QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

2 DAY TAT

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		PFAS (28)	HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles			
	0932_QC201_130722	S	13.07.22			1	↓		
	0932_QC202_130722	S	↓			1			
	0932_QC503_130722	S	↓			1			TB

2:55pm 13/7/22
Yes/No
Temp: 0.4
-0.1
Temp: 0.3
0.0
Jess.S

#905434
Es
13/7/22

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

eurofins | Environment Testing

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Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Melbourne
Contact name:	Toni Henderson
Project name:	VIC_0932_PCA_22
Project ID:	60551507
Turnaround time:	2 Day
Date/Time received	Jul 13, 2022 2:55 PM
Eurofins reference	905434

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : .3 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Michael Morrison on phone : 03 8564 5933 or by email: MichaelMorrison@eurofins.com

Results will be delivered electronically via email to Toni Henderson - Toni.henderson@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Melbourne email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

Company Name: AECOM Aust Pty Ltd Melbourne
Address: Collins Square, Tower 2, Level 11, 727 Collins Street
Docklands
VIC 3008

Project Name: VIC_0932_PCA_22
Project ID: 60551507

Order No.: 60551507/Y3-69.2
Report #: 905434
Phone: 03 9653 1234
Fax: 03 9654 7117

Received: Jul 13, 2022 2:55 PM
Due: Jul 15, 2022
Priority: 2 Day
Contact Name: Toni Henderson

Eurofins Analytical Services Manager : Michael Morrison

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	0932_QC201_220713	Jul 13, 2022		Soil	M22-Jl0025484	X	X
2	0932_QC202_220713	Jul 13, 2022		Soil	M22-Jl0025485	X	X
3	0932_QC503_220713	Jul 13, 2022		Soil	M22-Jl0025486	X	X
Test Counts						3	3

AECOM Aust Pty Ltd Melbourne
Collins Square, Tower 2, Level 11, 727 Collins Street
Docklands
VIC 3008

Attention: **Toni Henderson**

Report **905434-S-V2**
Project name VIC_0932_PCA_22
Project ID 60551507
Received Date Jul 13, 2022

Client Sample ID			**0932_QC201_220713**	**0932_QC202_220713**	**0932_QC503_220713**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M22-JI0025484**	**M22-JI0025485**	**M22-JI0025486**
Date Sampled			**Jul 13, 2022**	**Jul 13, 2022**	**Jul 13, 2022**
Test/Reference	LOR	Unit			
% Moisture	1	%	8.7	18	< 1
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	101	111	87
13C5-PFPeA (surr.)	1	%	108	122	88
13C5-PFHxA (surr.)	1	%	107	95	83
13C4-PFHpA (surr.)	1	%	105	94	82
13C8-PFOA (surr.)	1	%	151	121	93
13C5-PFNA (surr.)	1	%	116	114	83
13C6-PFDA (surr.)	1	%	134	123	83
13C2-PFUnDA (surr.)	1	%	131	127	82
13C2-PFDoDA (surr.)	1	%	126	109	56
13C2-PFTeDA (surr.)	1	%	89	154	86
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10

Client Sample ID			0932_QC201_220713	0932_QC202_220713	0932_QC503_220713
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M22-JI0025484	M22-JI0025485	M22-JI0025486
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonamido substances					
13C8-FOSA (surr.)	1	%	107	101	67
D3-N-MeFOSA (surr.)	1	%	107	93	75
D5-N-EtFOSA (surr.)	1	%	106	97	77
D7-N-MeFOSE (surr.)	1	%	131	111	102
D9-N-EtFOSE (surr.)	1	%	122	107	103
D5-N-EtFOSAA (surr.)	1	%	90	109	76
D3-N-MeFOSAA (surr.)	1	%	109	117	75
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	5.9	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	[N09]27	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]240	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	108	72	78
18O2-PFHxS (surr.)	1	%	106	95	80
13C8-PFOS (surr.)	1	%	102	108	74
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	116	123	87
13C2-6:2 FTSA (surr.)	1	%	109	120	76
13C2-8:2 FTSA (surr.)	1	%	95	106	91
13C2-10:2 FTSA (surr.)	1	%	135	139	73
PFASs Summations					
Sum (PFHxS + PFOS)*	5	ug/kg	267	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	240	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	267	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	272.9	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	272.9	< 50	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Jul 13, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Jul 13, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Jul 13, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Jul 13, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Jul 13, 2022	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Jul 13, 2022	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Project Name: HERITAGE PFAS SOIL ASSESSMENT
Project ID: 60551507

Order No.: 60551507/Y3-69.2
Report #: 905434
Phone: 03 9653 1234
Fax: 03 9654 7117

Received: Jul 13, 2022 2:55 PM
Due: Jul 15, 2022
Priority: 2 Day
Contact Name: Toni Henderson

Eurofins Analytical Services Manager : Michael Morrison

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	0932_QC201_130722	Jul 13, 2022		Soil	M22-Jl0025484	X	X
2	0932_QC202_130722	Jul 13, 2022		Soil	M22-Jl0025485	X	X
3	0932_QC503_130722	Jul 13, 2022		Soil	M22-Jl0025486	X	X
Test Counts						3	3

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	84			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	78			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	83			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	78			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	90			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	86			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	76			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	84			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	90			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	91			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	97			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	81			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	102			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	87			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	79			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	86			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	89			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	83			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	84			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	85			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	91			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	119			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	95			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M22-JI0024590	NCP	%	87			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M22-JI0024590	NCP	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M22-JI0024590	NCP	%	91			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M22-JI0024590	NCP	%	85			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M22-JI0024590	NCP	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	M22-JI0024590	NCP	%	84			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M22-JI0024590	NCP	%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M22-JI0024590	NCP	%	96			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M22-JI0024590	NCP	%	98			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M22-JI0024590	NCP	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M22-JI0024590	NCP	%	93			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M22-JI0024590	NCP	%	92			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M22-JI0024590	NCP	%	96			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M22-JI0024590	NCP	%	95			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M22-JI0024590	NCP	%	92			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M22-JI0024590	NCP	%	106			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M22-JI0024590	NCP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M22-JI0024590	NCP	%	82			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M22-JI0024590	NCP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M22-JI0024590	NCP	%	103			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M22-JI0024590	NCP	%	106			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M22-JI0024590	NCP	%	83			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M22-JI0024590	NCP	%	89			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M22-JI0024590	NCP	%	82			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M22-JI0024590	NCP	%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M22-JI0024590	NCP	%	90			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M22-JI0024590	NCP	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M22-JI0024590	NCP	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M22-JI0024590	NCP	%	124			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M22-JI0024590	NCP	%	97			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-JI0025445	NCP	%	12	13	7.3	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M22-JI0025257	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M22-JI0025257	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M22-JI0025257	NCP	ug/kg	14	14	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M22-JI0025257	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M22-JI0025257	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

This report has been revised (V2) to correct all name suffixes from _130722 to _220713 and the project name to VIC_0932_PCA_22 as requested by MJ 19/7/22.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Michael Morrison	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS
Mary Makarios	Senior Analyst-Sample Properties

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Appendix F

Photograph Log

Photo 1

Example of soil characteristics, south of the tarmac. Building 122.

Direction:

Facing east

Photo 2

Building 122, majority of the building is on a concrete slab and an attached veranda is on wooden footings.

Direction:

Facing south-east

Photo 3
Building 122, building on concrete slab foundation.

Direction:
Facing east

Photo 4
Building 221, World War II kit hanger on asphalt foundation.

Direction:
Facing south

Photo 5

Building 203, building on wooden footings.

Direction:
Facing south-west

Photo 6

Example of soil characteristics, north of the tarmac. Building 228.

Direction:
Facing west

DRAFT

Appendix G

Data Validation

AECOM Imagine it. Delivered.

DATA VALIDATION REPORT

Project Manager:	Matt Johnson	**Validation by:**	Toni Henderson
Project number:	60551507	**Date:**	19/07/2022
Site:	0932 RAAF Williams Point Cook		
Matrix:	Soil	**Data Verified by:**	Matt Johnson
Laboratory:	ALS Eurofins	**Date:**	26/07/2022
Lab reference:	EM2213344, 905434		

Key Findings:

The soil analytical achieved the Data Quality Indicators adopted for this assessment and are considered to be suitable for use for interpretation.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times		✓			No
Frequency of laboratory QA/QC		✓			No
Limits of reporting (LOR)		✓			No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)			✓	1	No
Field inter-laboratory RPDs			✓	2	No
Laboratory duplicate RPDs			✓	3	No
Matrix spike (MS) % recoveries			✓	4	No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other observations		✓			No

1 of 2

Comments	
1. Field intra-laboratory RPDs	Exceedances of limits set for RPDs were noted for both field intra-laboratory sample pairs. Low RPDs exceedances are where the RPD value was greater than 30% and less than or equal to 50%, and high RPDs exceedances are where the RPD values is greater than 50%. The exceedances are summarised as follows: • SS260/QC101: Low RPDs reported for PFDS (46%) and Moisture content (38%), and high RPDs reported for PFOS (50%), PFOA (50%), PFHxS (68%), and PFHpS (62%); • SS267/QC102: Low RPDs reported for PFDoDA (40%) and high RPDs reported for EtFOSAA (111%). While an acceptance criterion of 95% was not met for the intra-laboratory duplicate samples analysed, it is noted in the ASC NEPM, *that a higher variation can be* expected for organic analyses compared to inorganic analyses, and for samples with *low analyte concentrations or non-homogenous samples.* Sample heterogeneity inherent in the matrix can result in RPDs higher or lower than expected limits. This is not considered to have a material impact on the interpretation of results for this report.
2. Field inter-laboratory RPDs	RPD exceedances were noted for the below field inter-laboratory sample pair. The exceedances are summarised as follows: • SS260/QC201: Low RPDs reported for PFPeS (43%), and high RPDs reported for PFOA (59%), PFHxS (52%), PFNA (85%), PFHxA (67%), PFHpS (93%) and PFDS (67%). • SS267/QC202: High RPDs reported for EtFOSSA (92%), Sum of PFAS (82%) and Sum of PFAS (WA DER List) (58%). 95% of the inter-laboratory RPD values were reported within the acceptance criteria. Therefore, the inter-laboratory duplicates are considered to be acceptable for the purpose of this assessment.
3. Laboratory duplicate RPDs	Laboratory duplicate RPDs exceeded the LOR based limits for PFOS (132%), Sum of PFAS (124%), Sum of PFHxS and PFOS (133%) and Sum of PFAS (WA DER List) (134%). Four out of a total of 158 RPD values exceeded the LOR based limits. This equates to 97% of the laboratory duplicate RPDs being reported within the acceptable limits. Therefore, the laboratory duplicates are considered to be acceptable for the purpose of this assessment.
4. Matrix spike % recoveries	Matrix spike recovery could not be determined for PFOS in sample 0932_SS262_220713 due to the background level being greater than, or equal to, four times the spike level. Matrix spikes that cannot be determined due to back-ground concentrations are not considered to constitute a pass or fail of the DQI. Two further outliers out of a total of 56 matrix spikes were identified for PFDS and 10:2 FTS for anonymous samples, where the recovery was less than the lower data quality objective. This equates to 96% of the matrix spikes being reported within the acceptable limits. Two out of 56 matrix spikes were reported. Therefore, the laboratory duplicates are considered to be acceptable for the purpose of this assessment.

Note: Per- and poly-fluoroalkyl substances (PFAS); Perfluorohexanoic acid (PFHxA); Perfluorohexane sulfonic acid (PFHxS); Perfluorohexanoic acid (PFHxA); Perfluoroheptane sulfonic acid (PFHpS); Perfluorodecane sulfonic acid (PFDS); Perfluorododecanoic acid (PFDoDA); Perfluorodecane sulfonic acid (PFOS); Perfluoropentane sulfonic acid (PFPeS); Perfluorononanoic acid (PFNA); N-ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA); 10:2 flurotelomer sulfonic acid (10:2 FTS).

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Heritage Buildings PCA
0932 RAAF Base Point Cook
Department of Defence

Rinsate, Field and Trip Blank Results

AECOM

Field ID			0932_QC301_220713	0932_QC302_220713	0932_QC401_220713	0932_QC502_220713	0932_QC503_220713
Date			13/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Sample Type			Rinsate	Rinsate	Field_B	Trip_B_WATER	Trip_B_SOIL
Sample Code			EM2213344022	EM2213344023	EM2213344024	EM2213344025	M22-JI0025486
Lab Report Number			EM2213344	EM2213344	EM2213344	EM2213344	905434
	Unit	**LOR**					
Per- and Poly-fluoroalkyl Substances							
Perfluorooctanoic Acid (PFOA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	**0.01**	-	-	-	-	<0.01
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	**0.005**	-	-	-	-	<0.005
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluoropentanoic acid (PFPeA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorononanoic acid (PFNA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorononanesulfonic acid (PFNS)(trace)	mg/kg	**0.005**	-	-	-	-	<0.005
Perfluorohexanoic acid (PFHxA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorodecanoic acid (PFDA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorobutanoic acid (PFBA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.1**	<0.1	<0.1	<0.1	<0.1	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.05**	<0.05	<0.05	<0.05	<0.05	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	**0.01**	-	-	-	-	<0.01
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	**0.01**	-	-	-	-	<0.01
	µg/L	**0.02**	<0.02	<0.02	<0.02	<0.02	-
Sum of PFHxS and PFOS	mg/kg	**0.005**	-	-	-	-	<0.005
	µg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	-
Sum of PFAS	mg/kg	**0.05**	-	-	-	-	<0.05
	µg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	-
Sum of US EPA PFAS (PFOS + PFOA)	µg/kg	**5**	-	-	-	-	<5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	**5**	-	-	-	-	<5
Sum of WA DWER PFAS (n=10)*	µg/kg	**10**	-	-	-	-	<10
Sum of PFAS (WA DER List)	µg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	-
Inorganics							
Moisture Content (dried @ 103°C)	%	**1**	-	-	-	-	<1

LOR - Limit of reporting

Relative Percentage Differences

AECOM

Field ID			0932_SS260_220713	0932_QC101_220713		0932_SS260_220713	0932_QC201_220713		0932_SS267_220713	0932_QC102_220713		0932_SS267_220713	0932_QC202_220713	
Date			13/07/2022	13/07/2022		13/07/2022	13/07/2022		13/07/2022	13/07/2022		13/07/2022	13/07/2022	
Matrix Type			SOIL	SOIL		SOIL	SOIL		SOIL	SOIL		SOIL	SOIL	
Sample Type			Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D	
Lab Report Number			EM2213344	EM2213344	RPD	EM2213344	905434	RPD	EM2213344	EM2213344	RPD	EM2213344	905434	RPD
	Unit	EQL												
Per- and Poly-fluoroalkyl Substances														
Perfluorooctanoic Acid (PFOA)	mg/kg	**0.0002**	**0.0009**	**0.0015**	**50**	**0.0009**	<0.005	**69**	<0.0002	0.0002	0	<0.0002	<0.005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	**0.0002**	**0.192**	**0.250**	26	**0.192**	**0.24**	22	**0.0038**	**0.0041**	8	**0.0038**	<0.005	14
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	**0.0002**	**0.0158**	**0.0320**	**68**	**0.0158**	**0.027**	**52**	<0.0002	<0.0002	0	<0.0002	<0.005	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	**0.0002**	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	**0.0002**	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	**0.005**	-	-	-	-	<0.005	-	-	-	-	-	<0.005	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	**0.0002**	**0.0020**	**0.0023**	14	**0.0020**	<0.005	**43**	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	**0.0002**	**0.0053**	**0.0053**	0	**0.0053**	<0.005	6	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	**0.0002**	**0.0004**	**0.0004**	0	**0.0004**	<0.005	**85**	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanesulfonic acid (PFNS)(trace)	mg/kg	**0.005**	-	-	-	-	<0.005	-	-	-	-	-	<0.005	-
Perfluorohexanoic acid (PFHxA)	mg/kg	**0.0002**	**0.0100**	**0.0095**	5	**0.0100**	<0.005	**67**	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	**0.0002**	**0.0019**	**0.0036**	**62**	**0.0019**	<0.005	**93**	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	**0.0002**	<0.0002	0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecane sulfonic acid (PFDS)	mg/kg	**0.0002**	**0.0010**	**0.0016**	**46**	**0.0010**	<0.005	**67**	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	**0.0002**	<0.0002	<0.0002	0	<0.0002	<0.005	0	**0.0003**	0.0002	**40**	**0.0003**	<0.005	25
Perfluorodecanoic acid (PFDA)	mg/kg	**0.0002**	<0.0002	<0.0002	0	<0.0002	<0.005	0	**0.0005**	**0.0004**	22	**0.0005**	<0.005	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	**0.0002**	**0.0080**	**0.0074**	8	**0.0080**	**0.0059**	30	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutanoic acid (PFBA)	mg/kg	**0.001**	**0.003**	**0.003**	0	**0.003**	<0.005	25	<0.001	<0.001	0	<0.001	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	**0.0005**	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	**0.0002**	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	**0.0002**	<0.0002	0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	**0.0002**	<0.0002	<0.0002	0	<0.0002	<0.01	0	**0.0004**	**0.0014**	**111**	**0.0004**	<0.01	**92**
Sum of PFHxS and PFOS	mg/kg	**0.0002**	**0.208**	**0.282**	30	**0.208**	**0.267**	25	**0.0038**	**0.0041**	8	**0.0038**	<0.005	14
Sum of PFAS	mg/kg	**0.0002**	**0.240**	**0.317**	28	**0.240**	**0.2729**	13	**0.0050**	**0.0063**	23	**0.0050**	<0.05	**82**
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	**5**	-	-	-	-	**0.240**	-	-	-	-	-	<5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	mg/kg	**5**	-	-	-	-	**0.267**	-	-	-	-	-	<5	-
Sum of PFAS (WA DER List)	mg/kg	**0.0002**	**0.235**	**0.309**	27	**0.235**	**0.279**	8.5	**0.0038**	**0.0043**	12	**0.0038**	<0.010	**58**
Inorganics														
Moisture Content	%	**0.1**	**10.4**	**7.1**	**33**	**10.4**	**8.7**	8.9	**15.1**	**13.8**	9	**15.1**	**18**	8.7

LOR - Limit of reporting
RPD - Relative percentage difference
Note: Shaded values indicate where RPD exceeed the limit of 30%.

DRAFT

Appendix H

EPBC Protected Matters Search

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 08-Aug-2022

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	70
Listed Migratory Species:	65

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	3
Commonwealth Heritage Places:	3
Listed Marine Species:	75
Whales and Other Cetaceans:	7
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	37
Key Ecological Features (Marine):	None
Biologically Important Areas:	6
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Historic			
Point Cook Air Base	VIC	Listed place	In feature area

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Port phillip bay (western shoreline) and bellarine peninsula	Within Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Community known to occur within area	In feature area
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community may occur within area	In feature area
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Community likely to occur within area	In feature area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Falco hypoleucos](#) Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Grantiella picta](#) Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Limosa lapponica baueri](#) Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Neophema chrysogaster](#) Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pachyptila turtur subantarctica](#) Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Pedionomus torquatus](#) Plains-wanderer [906]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
FISH			
Galaxiella pusilla			
Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Vulnerable	Species or species habitat may occur within area	In feature area
Nannoperca obscura			
Yarra Pygmy Perch [26177]	Vulnerable	Species or species habitat may occur within area	In feature area
Prototroctes maraena			
Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In feature area
Thunnus maccoyii			
Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
Litoria raniformis			
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Synemon plana			
Golden Sun Moth [25234]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
[Pteropus poliocephalus](#) Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
PLANT			
[Amphibromus fluitans](#) River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Dianella amoena](#) Matted Flax-lily [64886]	Endangered	Species or species habitat likely to occur within area	In feature area
[Diuris basaltica](#) Small Golden Moths Orchid, Early Golden Moths [64654]	Endangered	Species or species habitat may occur within area	In feature area
[Diuris fragrantissima](#) Sunshine Diuris, Fragrant Doubletail, White Diuris [21243]	Endangered	Species or species habitat may occur within area	In feature area
[Dodonaea procumbens](#) Trailing Hop-bush [12149]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Glycine latrobeana](#) Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Lachnagrostis adamsonii](#) Adamson's Blown-grass, Adamson's Blowngrass [76211]	Endangered	Species or species habitat may occur within area	In feature area
[Lepidium aschersonii](#) Spiny Pepper-cress [10976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Lepidium hyssopifolium](#) Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Leucochrysum albicans subsp. tricolor](#) Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area	In feature area
[Pimelea spinescens subsp. spinescens](#) Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea [21980]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pterostylis chlorogramma](#) Green-striped Greenhood [56510]	Vulnerable	Species or species habitat may occur within area	In feature area
[Pterostylis cucullata](#) Leafy Greenhood [15459]	Vulnerable	Species or species habitat may occur within area	In feature area
[Rutidosis leptorhynchoides](#) Button Wrinklewort [67251]	Endangered	Species or species habitat likely to occur within area	In feature area
[Senecio macrocarpus](#) Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Senecio psilocarpus](#) Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Xerochrysum palustre](#) Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat may occur within area	In buffer area only
REPTILE			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
[Delma impar](#) Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Tympanocryptis pinguicolla Victorian Grassland Earless Dragon [66727]	Endangered	Species or species habitat may occur within area	In feature area
SHARK			
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
Caperea marginata			
Pygmy Right Whale [39]		Species or species habitat may occur within area	In feature area
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis			
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
[Lamna nasus](#) Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In feature area
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat may occur within area	In buffer area only
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Arenaria interpres](#) Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In feature area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phalaropus lobatus Red-necked Phalarope [838]		Species or species habitat known to occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In feature area
[Xenus cinereus](#) Terek Sandpiper [59300]		Species or species habitat known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - RAAF WILLIAMS - POINT COOK [20013]	VIC	In feature area
Defence - WILLIAMS - LAVERTON RAAF BASE [20026]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20027]	VIC	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
[Point Cook Air Base](#)	VIC	Listed place	In feature area
[Point Cook Air Base - College & Training Area](#)	VIC	Within listed place	In feature area
[Point Cook Air Base - Museum & Heritage Precincts](#)	VIC	Within listed place	In feature area

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Anous stolidus](#) Common Noddy [825]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Ardenna carneipes as Puffinus carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
[Ardenna grisea as Puffinus griseus](#) Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
[Arenaria interpres](#) Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
[Bubulcus ibis as Ardea ibis](#) Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area	In buffer area only
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phalaropus lobatus Red-necked Phalarope [838]		Species or species habitat known to occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Sternula albifrons as Sterna albifrons			
Little Tern [82849]		Species or species habitat may occur within area	In feature area
Stiltia isabella			
Australian Pratincole [818]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Thalassarche bulleri			
Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei as Thalassarche sp. nov.			
Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma			
Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
[Tringa brevipes as Heteroscelus brevipes](#) Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
[Tringa glareola](#) Wood Sandpiper [829]		Roosting known to occur within area overfly marine area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In feature area
[Xenus cinereus](#) Terek Sandpiper [59300]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Mammal			
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In feature area
[Arctocephalus pusillus](#) Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In feature area
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In feature area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat may occur within area	In feature area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Altona Meadows N.F.R	Natural Features Reserve	VIC	In buffer area only
Point Cooke	Marine Sanctuary	VIC	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

RFA Name	State	Buffer Status
West Victoria RFA	Victoria	In feature area

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Point Cook & Laverton Saltworks	VIC	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Demoltion of structures at RAAF Williams - Point Cook	2019/8514	Controlled Action	Assessment Approach	In feature area
Development of Shipping Container Storage Facility	2005/2161	Controlled Action	Completed	In feature area
Industrial Development, Burns Road	2004/1820	Controlled Action	Post-Approval	In feature area
Laverton activity centre and residential development	2006/2504	Controlled Action	Post-Approval	In buffer area only
Mixed Residential Development, Homestead Road	2006/2819	Controlled Action	Post-Approval	In buffer area only
Palmers Road Corridor Duplication	2009/4867	Controlled Action	Completed	In buffer area only
Port Phillip Bay Channel Deepening	2002/576	Controlled Action	Post-Approval	In buffer area only
Removal of the Bellman Hangars Due to Structural Deterioration	2008/4251	Controlled Action	Completed	In feature area
Waterhaven Estate I and II residential development (stages 5, 6 and final), P...	2004/1680	Controlled Action	Post-Approval	In buffer area only
Wyndham Cove marina and residential development	2004/1331	Controlled Action	Post-Approval	In feature area
Not controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Desludging and Reinstatement of Lagoons at Altona Treatment Plant	2006/3166	Not Controlled Action	Completed	In buffer area only
develop 8.37 ha industrial subdivision	2005/2190	Not Controlled Action	Completed	In feature area
Enviro Altona Project - Upgrade of City West Water's Treatment Plant Facility	2003/968	Not Controlled Action	Completed	In buffer area only
Expansion and upgrade of Biogas Utilisation Facilities at the Western Treatment	2005/2183	Not Controlled Action	Completed	In buffer area only
Federation Trail	2001/451	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Industrial Development, Burns Road, Marshall Court	2004/1901	Not Controlled Action	Completed	In buffer area only
Modifications to Laverton Wetland inflow & outflow structures	2009/5249	Not Controlled Action	Completed	In buffer area only
Palmers Road Rail Overpass and Bridge Works	2010/5738	Not Controlled Action	Completed	In buffer area only
Point Cooke Coastal Trail	2001/324	Not Controlled Action	Completed	In feature area
Point Cooke recreational trail Stage 2	2002/593	Not Controlled Action	Completed	In buffer area only
Residential development 360-438 Point Cook Road, Point Cook, Vic	2014/7381	Not Controlled Action	Completed	In buffer area only
Sanctuary Lakes Recycled Water Main between Altona Treatment Plant to the Sanctu	2007/3645	Not Controlled Action	Completed	In buffer area only
St Andrews Field Residential Development & Infrastructure	2004/1468	Not Controlled Action	Completed	In buffer area only
subdivision of 195ha into industrial allotments	2005/2048	Not Controlled Action	Completed	In buffer area only
The Development of Werribee River Regional Park	2009/5246	Not Controlled Action	Completed	In buffer area only
Williams Landing Railway Station Development	2010/5464	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
'Waterhaven Estate' Residential Development (Stages 3 & 4)	2003/1149	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Point Cook Coastal Park Bay Trail Construction (Stage 3, nth part)	2008/4023	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Recycled water main from Altona Treatment Plant to the Qenos Olefins Manuf. Plan	2009/4923	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Westpoint Business Park	2001/191	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Windsor Park Residential Development	2001/272	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
'Waterhaven Estate' residential development (final stage)	2004/1607	Referral Decision	Completed	In feature area
Aviators Field Precinct Structure Plan	2020/8786	Referral Decision	Referral Decision	In feature area
Williams Landing Reserves A and B Infill Project, Melbourne, Vic	2018/8248	Referral Decision	Completed	In buffer area only

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris			
Short-tailed Shearwater [82652]	Foraging	Known to occur	In feature area
Morus serrator			
Australasian Gannet [1020]	Foraging	Known to occur	In feature area
Pelagodroma marina			
White-faced Storm-petrel [1016]	Foraging	Known to occur	In feature area

Scientific Name	Behaviour	Presence	Buffer Status
Pelecanoides urinatrix Common Diving-petrel [1018]	Foraging	Known to occur	In feature area
Thalassarche cauta cauta Shy Albatross [82345]	Foraging likely	Likely to occur	In feature area
Whales			
Eubalaena australis Southern Right Whale [40]	Known core range	Known to occur	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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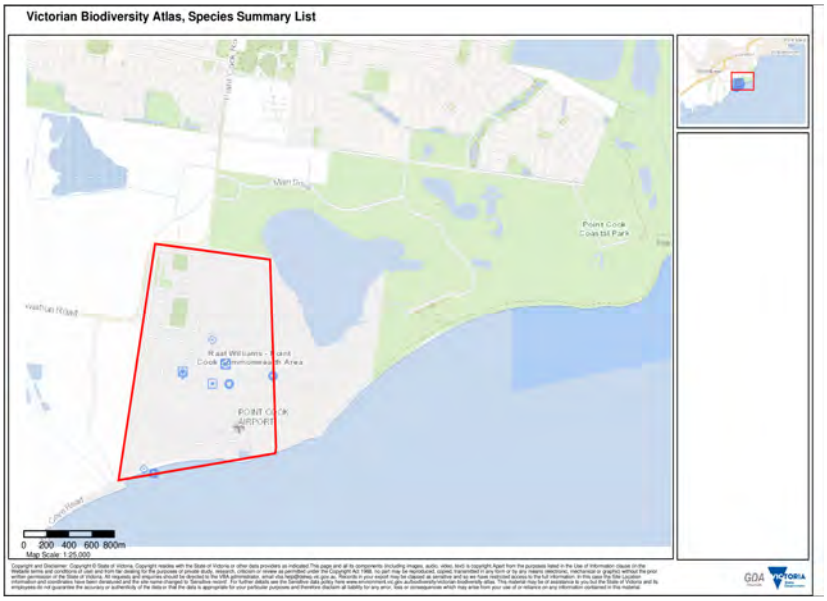
Victorian Biodiversity Atlas, Species Summary List
(Date: 09/08/2022 10:07 AM)



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Common Filter

Scientific Name :
VBA Taxon ID :
Taxon Level : Species
Other Agency Codes :
Date Since : (dd/mm/yyyy)

Common Name :
Conservation Status :
Taxon Type :
Discipline :
Date To : (dd/mm/yyyy)

Last Review Date:25 Jun 2022

Taxon ID	Scientific Name	Common Name	FFG Status	Conservation Status	Discipline	Taxon Origin	Short Name	Count of Sightings	Last Record
503100	Goodenia radicans	Shiny Swamp-mat			Flora		Good radi	1	13/03/1995
10043	Ocyphaps lophotes	Crested Pigeon			Terrestrial fauna			1	06/09/2019
10097	Phalacrocorax sulcirostris	Little Black Cormorant			Terrestrial fauna			1	22/01/1999
10099	Phalacrocorax varius	Pied Cormorant			Terrestrial fauna, Coastal			1	06/09/2019
10104	Morus serrator	Australasian Gannet			Terrestrial fauna			1	06/09/2019
10106	Pelecanus conspicillatus	Australian Pelican			Terrestrial fauna			1	22/01/1999
10125	Chroicocephalus novaehollandiae	Silver Gull			Terrestrial fauna			2	06/09/2019
10133	Vanellus miles	Masked Lapwing			Terrestrial fauna			1	22/01/1999
10203	Cygnus atratus	Black Swan			Terrestrial fauna			1	22/01/1999
10220	Accipiter novaehollandiae	Grey Goshawk	Endangered	en	Terrestrial fauna, Coastal			1	22/01/1999
10357	Hirundo neoxena	Welcome Swallow			Terrestrial fauna			1	22/01/1999
10361	Rhipidura albiscapa	Grey Fantail			Terrestrial fauna			1	22/01/1999
10364	Rhipidura leucophrys	Willie Wagtail			Terrestrial fauna			2	06/09/2019
10415	Grallina cyanoleuca	Magpie-lark			Terrestrial fauna			2	14/01/2019
10424	Coracina novaehollandiae	Black-faced Cuckoo-shrike			Terrestrial fauna			1	06/09/2019
10529	Malurus cyaneus	Superb Fairy-wren			Terrestrial fauna			1	06/09/2019
10631	Phylidonyris novaehollandiae	New Holland Honeyeater			Terrestrial fauna			1	06/09/2019
10637	Anthochaera chrysoptera	Little Wattlebird			Terrestrial fauna			1	06/09/2019
10638	Anthochaera carunculata	Red Wattlebird			Terrestrial fauna			1	06/09/2019
10705	Gymnorhina tibicen	Australian Magpie			Terrestrial fauna			2	06/09/2019
10930	Corvus coronoides	Australian Raven			Terrestrial fauna			1	22/01/1999
10993	Alauda arvensis	Eurasian Skylark		*	Terrestrial fauna	Introduced		1	22/01/1999
10999	Sturnus vulgaris	Common Starling		*	Terrestrial fauna	Introduced		2	06/09/2019
13063	Limnodynastes tasmaniensis	Spotted Marsh Frog (race unknown)			Terrestrial fauna, Aquatic fauna, Aquatic invertebrates			3	14/12/2018
13182	Litoria ewingii	Southern Brown Tree Frog			Terrestrial fauna, Aquatic fauna, Aquatic invertebrates			1	14/12/2018
50240	Corvus spp.	Ravens and Crows			Terrestrial fauna			1	06/09/2019
500088	Acacia longifolia subsp. sophorae	Coast Wattle		#	Flora	Native but some stands may be alien	Aca l.soph	1	07/08/2002
500278	Asperula conferta	Common Woodruff			Flora		Aspe conf	1	07/08/2002
500297	Symphyotrichum subulatum	Aster-weed		*	Flora	Introduced	Symp subu	1	13/03/1995
500332	Atriplex semibaccata	Berry Saltbush			Flora		Atri semi	1	07/08/2002
500583	Calocephalus lacteus	Milky Beauty-heads			Flora		Calo lact	1	07/08/2002
500657	Carpobrotus rossii	Karkalla			Flora		Carp ross	1	07/08/2002
500756	Chloris truncata	Windmill Grass			Flora		Chlo trun	1	07/08/2002
500948	Dactylis glomerata	Cocksfoot		*	Flora	Introduced	Dact glom	1	07/08/2002
500961	Rytidosperma caespitosum	Common Wallaby-grass			Flora		Rytid caes	1	07/08/2002
500964	Rytidosperma erianthum	Hill Wallaby-grass			Flora		Rytid eria	1	07/08/2002
500965	Rytidosperma geniculatum	Kneed Wallaby-grass			Flora		Rytid geni	1	07/08/2002
500974	Rytidosperma penicillatum	Weeping Wallaby-grass			Flora		Rytid peni	1	07/08/2002
500977	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass			Flora		Rytid race	1	07/08/2002
500980	Rytidosperma setaceum	Bristly Wallaby-grass			Flora		Rytid seta	1	07/08/2002
501076	Distichlis distichophylla	Australian Salt-grass			Flora		Dist dist	1	07/08/2002
501133	Einadia nutans	Nodding Saltbush			Flora		Eina nuta	1	07/08/2002

501439	Glaucium flavum	Yellow Horned-poppy		*	Flora	Introduced	Glau flav	1	16/01/1984
501782	Ficinia nodosa	Knobby Club-sedge			Flora		Fici nodo	1	07/08/2002
501808	Juncus australis	Austral Rush			Flora		Junc aust	1	13/03/1995
501826	Juncus kraussii subsp. australiensis	Sea Rush			Flora		Junc krau	1	07/08/2002
501864	Lagurus ovatus	Hare's-tail Grass		*	Flora	Introduced	Lagu ovat	1	07/08/2002
501888	Lawrencia spicata	Salt Lawrencia	Endangered	en	Flora		Lawr spic	1	07/08/2002
502078	Lycium ferocissimum	African Box-thorn		*	Flora	Introduced	Lyci fero	1	07/08/2002
502263	Nassella trichotoma	Serrated Tussock		*	Flora	Introduced	Nass tric	1	07/08/2002
502430	Paspalum dilatatum	Paspalum		*	Flora	Introduced	Pasp dila	1	07/08/2002
502451	Cenchrus clandestinus	Kikuyu		*	Flora	Introduced	Cenc clan	1	07/08/2002
502511	Helminthotheca echioides	Ox-tongue		*	Flora	Introduced	Helm echi	1	13/03/1995
502553	Plantago coronopus	Buck's-horn Plantain		*	Flora	Introduced	Plan coro	1	07/08/2002
502561	Plantago lanceolata	Ribwort		*	Flora	Introduced	Plan lanc	1	07/08/2002
502605	Poa poiformis	Coast Tussock-grass			Flora		Poa poif	1	07/08/2002
502777	Pteridium esculentum subsp. esculentum	Austral Bracken			Flora		Pterid esc	1	07/08/2002
502927	Rhagodia candolleana subsp. candolleana	Seaberry Saltbush			Flora		Rhag cand	1	07/08/2002
503012	Salicornia quinqueflora	Beaded Glasswort			Flora		Salic quin	1	13/03/1995
503039	Schoenus apogon	Common Bog-sedge			Flora		Scho apog	1	07/08/2002
503226	Sporobolus africanus	Rat-tail Grass		*	Flora	Introduced	Spor afri	1	07/08/2002
503266	Austrostipa bigeniculata	Kneed Spear-grass			Flora		A'stip big	1	07/08/2002
503282	Nassella neesiana	Chilean Needle-grass		*	Flora	Introduced	Nass nees	2	07/08/2002
503312	Suaeda australis	Austral Seablite			Flora		Suae aust	1	13/03/1995
504694	Poa labillardierei var. labillardierei	Common Tussock-grass			Flora		Poa lab.la	1	07/08/2002
504833	Poa poiformis var. poiformis	Coast Tussock-grass			Flora		Poa poif.p	1	13/03/1995
504838	Puccinellia perlaxa	Plains Saltmarsh-grass			Flora		Pucc st.p	1	20/11/1980
504947	Salicornia quinqueflora subsp. quinqueflora	Beaded Glasswort			Flora		Salic qu.q	1	07/08/2002
508004	Acaena spp.	Sheep's Burr			Flora		Acaena spp	1	07/08/2002
528559	Carduelis carduelis	European Goldfinch		*	Terrestrial fauna	Introduced		1	22/01/1999

Attachment 7

90% Detailed Design Report

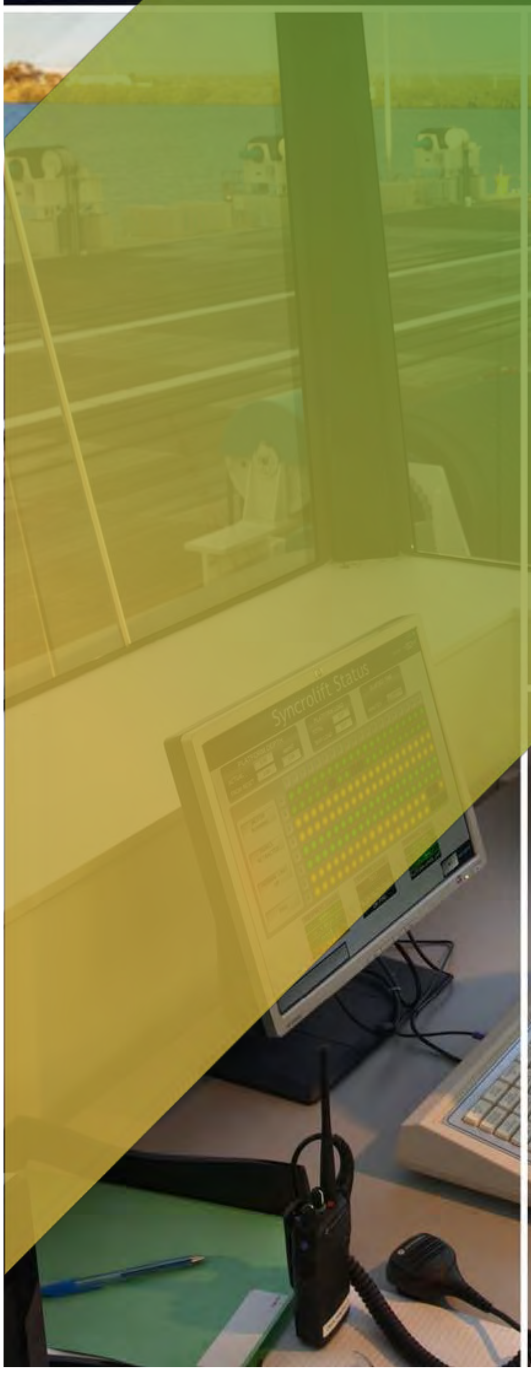
12399 – RAAF Base Point Cook Heritage Consultancy

90% Detailed Design Report

Department of Defence

Reference: PDS-12399-90R-GE-0001

Revision: C



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Document control record

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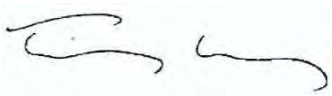
Author signature		Approver signature	
Name	Tiffany Dawson	Name	Justin Goodman
Title	Development Portfolio Lead	Title	Technical Director

Contents

Appendices

Figures

Tables

1 Introduction

1.1 Project Overview

The purpose of this report is to provide sufficient supporting information for the referral under the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) which must be lodged and approved before any demolition or alteration to buildings listed in this project. The referral under the EPBC Act will be undertaken by Defence.

The scope for this project is to provide an independent structural and safety assessment for 26 buildings at RAAF Base Point Cook. The assessment includes cost estimates for options to demolish or repair and retain the buildings to inform the referral and costs associated with the project. One building is to be relocated.

Concept level architectural, structural and building surveyor documentation have been included in order for cost estimates to be provided. A hazardous materials survey was also undertaken.

In this report, recommendations on whether a building should be retained have been provided based only on the building's physical ability to be retained. It does not take into account Defence's plans for proposed future use of these buildings or available budget constraints for future projects at the base as this information could not be provided at the time of writing this report.

1.2 Detailed Design Report

This Detailed Design Report consolidates the design requirements set out in the following documents:

- Estate Works Program Project Brief (Appendix A)
- EIR (Appendix B)
- Aurecon Return Brief (Appendix C)

The purpose of this Detailed Design Report is to seek stakeholder approval for the design in order to proceed with the final issue of this report.

2 Project Team Details

2.1 Client Details

The key stakeholders within the client organisation involved in this project are shown in Table 2-1.

Table 2-1 Key stakeholder contact details

Name	Role	Email	Phone
GPCAPT Ron Tilley	Director Estate and Infrastructure Capability - Air-Force Group Captain	ron.tilley@defence.gov.au	Mob: 0467 714 744 Ph: 02 6266 8281
GPCAPT Bob Coopes	Director Air Force Heritage Estate and Centres	robert.coopes@defence.gov.au	-
WGCDR Paul Stollznow	Deputy Director Estate Services and Facilities - Air-Force	paul.stollznow1@defence.gov.au	Ph: 02 6266 2732
DQNLDR Phil Jones	Staff Officer Facilities, Estate Services and Facilities - Air Force	phillip.jones@defence.gov.au	Ph: 02 6266 3649
SQNLDR Ray Plekker	Executive Officer, 21 SQN	ray.plekker@defence.gov.au	Mob: 0439 427 801 Ph: 03 8348 6177
David Gardner	Director, RAAF Museum, Point Cook	david.gardner@defence.gov.au	Mob: 0418 283 984 Ph: 03 8348 6279
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Phil Jackson	Building Services Operations Manager - RAAF Base Point Cook	phillip.jackson6@defence.gov.au	Mob: 0477 336 660
Kim Cova	Base Support Officer - RAAF Base Point Cook	kim.cova@defence.gov.au	Mob: 0476 858 834
Ivan Glavan	PSS, Regional Rep	ivan.glavan@broadspectrum.com pssvt@broadsprectrum.com	Mob: 0419 542 928
Fred Mallon	Regional EA Coordinator	fred.mallon@broadsprectrum.com	Mob: 0400 639 739
Gihan Jagodage	EMOS, Infrastructure Services Manager	gihan.jagodage@broadspectrum.com	-

2.2 Aurecon Personnel

The project is being delivered by the Aurecon Vic/Tas Defence team. The names and contact details of Aurecon's key personnel and their roles are shown below in Table 2-2.

Table 2-2 Aurecon's key personnel and roles/relationships

Name	Role	Email	Phone
Tiffany Dawson	Design Manager & Portfolio Leader	Tiffany.Dawson@aurecongroup.com	Mob: 0481 591 788
Jess Casey	Project Manager	Jessica.Casey@aurecongroup.com	Ph: (03) 9975 3724

3 General Requirements

3.1 Project Methodology

Assessment of the buildings shown in table 3, overleaf, were requested within the original project brief.

Based on the structural engineer's visual inspections, eleven of the buildings are identified as having structures that cannot be retained and should be demolished. Six buildings are identified as retainable with repair works required. One building is to be relocated as requested by the stakeholders. Three buildings, A0217, A0219 and A0319 which are listed in the project brief, had already been demolished. Note that the scope types for the buildings have evolved since the return brief was issued due to further site investigations during design phase.

Based on these findings, the following scope types are allocated to each building:

Demolish

The main structures of these buildings are beyond structural repair or the buildings are beyond economic repair. Scope will include concept design documentation for demolition of the building and surrounding foot paths. Concept documents will be sufficient for the quantity surveyor to provide a cost estimate which will also be delivered in the final report.

Demolish or Retain

The main structures of these buildings are in good condition where as other parts of the building require varying degrees of repair. Examples of repair works are:

- Replace architectural items such as doors, windows, eaves, downpipes and guttering
- Waterproofing treatment to slab and walls
- Replace roof or external cladding

Note that most building upgrades are likely to trigger the requirement to meet current construction codes and standards or seek dispensation from a building surveyor.

Scope will include concept design documentation for both demolition of the building and upgrade for retention of the building. Quantity surveyor cost estimates will be provided for both options.

Relocate

Building A0210 is to be relocated to the museum complex as requested by stakeholders. Scope will include concept design documentation for relocation of the building along with cost estimates for the works. New footings will be designed as part of this and upgrades to current construction codes and standards will be provided as required.

3.2 Project Recommendations

Please note that at the time of writing this report, the proposed future use for any of these buildings could not be provided. Therefore, in this report, Aurecon's recommendations on whether a building should be retained or not are based only on an engineering feasibility point of view. It does not take into account Defence's requirements for certain building types at RAAF Base Point Cook in future or the budget available for future projects.

Based on the 90% Detailed Design meeting held on 10th December 2018, stakeholders provided feedback on each asset as to whether it is preferred that they are retained or demolished. This has been captured in Revision B of this report in the recommendations section for each building.

Table 3 Summary of buildings and scope within this project

Building No.	Asset Name	Heritage Significance Ranking	Scope Type
A0211	Southern Tarmac Bellman Hangar	Moderate	Demolish
A0212	Southern Tarmac Bellman Hangar	Moderate	Demolish
A0213	Southern Tarmac Bellman Hangar	Moderate	Demolish
A0214	Southern Tarmac Bellman Hangar	Moderate	Demolish
A0004	RAAF College	Moderate	Demolish or Retain
A0007	AAFC Offices & Lecture Rooms	Moderate	Demolish or Retain
A0102	Toilet Block	Intrusive	Demolish
A0103	23m Range Stop Butts	Not ranked in draft HMP	Demolish
A0112	Store	Not ranked in draft HMP	Demolish
A0121	Gunnery Stop Butt (LPG Gas Bottle Storage – Vacant)	High	Demolish
A0122	Hazardous Store	Moderate	Demolish or Retain
A0125	P1 Hut	Moderate	Demolish
A0132	Masks Training Facility	Not raked in draft HMP	Demolish
A0155	P1 Hut	Moderate	Demolish
A0156	P1 Hut	Moderate	Demolish
A0158	P1 Hut	Moderate	Demolish
A0203	WWII Hut	Moderate	Demolish
A0210	1914 Hangar	Cited in Listing – High	Relocate
A0218	Toilet Block	Intrusive	Demolish
A0221	Store	Moderate	Demolish or Retain
A0228	Trainee Sleeping Quarters	High (group of four)	Demolish or Retain
A0243	RAAF College Classroom	Moderate	Demolish
A0485	PT Cook Flying Club	Low	Demolish or Retain

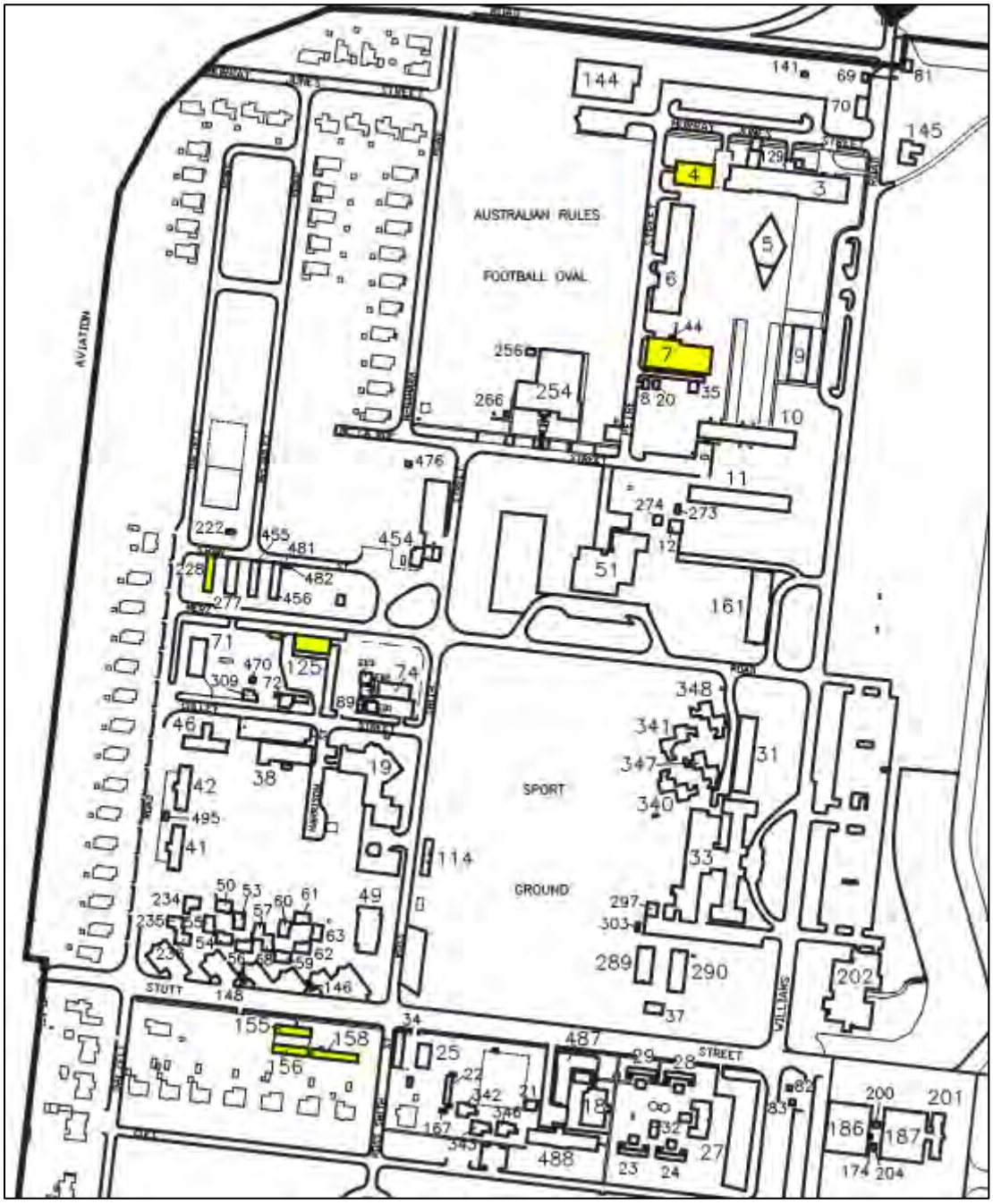

Figure 1 Buildings within main base area

Figure 2 Buildings within southern tarmac area

4 Design Services

4.1 Scope of Services

Details of scope of services are contained in the Return Brief issued to the client by Aurecon on 16th May 2018, attached to this report in Appendix C.

The disciplines provided by Aurecon include:

- structural engineer
- environmental consultant

Other works to be undertaken include:

- architect
- building surveyor
- quantity surveyor
- hazardous materials survey

Please note that a heritage consultant was commissioned by Defence separate to this project to inform the EPBC referral.

A description of services for each discipline has been provided below:

4.1.1 Structural Engineer

The guidelines below were followed in undertaking the structural assessments of building:

- Obtain drawings (where possible) and conduct a desktop review of all existing structural drawings for the building to assist in the structural assessment.
- Where structural elements were accessible they were visually inspected by qualified structural engineers.
- No destructive investigation activity was performed during the assessment.
- Where a structural item was observed it was noted on a marking plan and photographed for record.
- The roof structure was inspected from ground floor for single storey buildings or visual inspection from roof level where possible.
- Where access was not provided or deemed unsafe by the engineers, these areas were excluded.

The investigation and report are based on visual inspection of the exposed main structural element for damage or corrosion. Review of the adequacy of the original design has was not included. In addition, the concrete grade, steel grade, steel reinforcement, steel member sizes or footings were not checked as part of this design. Where access to structural members was not possible due to being located behind cladding (e.g. wall studs, suspended floor framing, roof structures etc.) these have been excluded from this report.

All structural defects have been identified, photographed and documented in Appendix D.

This report to be read in conjunction with drawings that provide repair methodologies for items identified in Appendix E. It should be noted that this report has only identified items that are considered structural in nature and does not consider items such as building services This report also excludes termite identification on or around the site.

4.1.2 Environmental Consultant

To assess potential costs associated with options to demolish or refurbish nominated buildings at RAAF Base Point Cook, the following was undertaken:

- A desktop review of the environmental setting in which RAAF Base Point Cook is located.
- A qualified hazardous building materials specialist undertook a review of existing documentation and a site assessment of accessible internal and exterior areas of the nominated buildings.
- A brief high-level review about the presence of PFAS contamination at Point Cook to consider the potential for demolished pavement materials to be contaminated with PFAS.

The hazardous materials assessment report is provided in Appendix F.

4.1.3 Architect

The guidelines below were followed in undertaking the condition assessments of each building on site:

- Use existing drawings where available or use existing emergency fire evacuation drawings to allow measurements and obtain areas and quantities for building refurbishment works.
- Where it was safe and accessible, a visual condition assessment was conducted on each building which included:
  - floor structure and surfaces
  - internal and external wall structure and surfaces
  - roof and ceiling structure and surfaces
  - insulation where visible
  - windows, doors, cupboards, joinery and toilet fixtures
  - gutters, downpipes, roofing and waterproof membranes where visible
- After the initial site inspection, plans and photos where produced to show the refurbishment works required to bring the building up to an acceptable standard, both to work in and comply with the relevant standards.

The following general observations were made:

- Most of the buildings are unoccupied, with damaged windows, roofs and ceilings, allowing further damage with birds, rats and possums.
- The amount of works involved for a lot of the buildings as well as the structural integrity of the building, determines if the refurbishment works are viable and instead of being refurbished should be demolished.
- Where new works are to bring the building up to standard, works should also include removal of asbestos linings to walls and ceilings and replacing old, damaged and broken fittings, replacing lighting, switches, power outlets, etc.
- Existing services, pipes, electrical conduits would also need to be upgraded as the existing piping and conduits are damaged and need replacing. This includes new lighting and HVAC systems etc.
- Buildings will also need to comply with new building standards and these works include, but not limited to exit signage, emergency lighting, occupational warning systems, disabled access and regulatory toilets requirements as well as conforming to section J of the building code of Australia.
- No destructive investigation activity was performed during the assessment. Where destructive investigation is required, this will be outlined in this report.
- The roof structure was inspected from ground floor for single storey buildings with visual inspection from roof level where possible.
- Building services include electrical upgrades, water and sewerage to the buildings. This will also need to be assessed with the infrastructure of service systems along access paths, etc.
- Where access to buildings were deemed unsafe, a visual inspection was provided externally only.

The condition assessment was only a visual inspection. Other areas where works could be required would include areas hidden behind wall sheeting, ceilings linings and within the roof space. Water damage in ceilings spaces were visible on both ceiling tiles and ceiling linings, however the damage could be more extensive.

Internal timber structures of walls and ceilings, where visual inspection was limited, shows that some structural integrity will need to be replaced in those areas. Further details such as photos showing typical damage for each building will be contained in both drawings and the report assessment for each building.

This report is to be read in conjunction with drawings that provide conditions for each area, area size, quantity of them and the identified required refurbishment works for each building. It should be noted that this report has only identified items that could be visible during the condition assessment, and that there could be hidden areas where more extensive works would need to be done.

4.1.4 Building Surveyor

The building surveyor conducted a site visit of each building which was deemed retainable. Compliance advice within this report is based on:

- Building Code of Australia 2016
- Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards)
- Manual of Fire Protection Engineering Edition 2

4.1.5 Quantity Surveyor

The quantity surveyor has provided concept level cost estimates based on documentation provided in the appendices of this report and liaison with the design team.

The cost report has been included in Appendix I.

4.2 Site Investigations

Site investigations for all buildings within the project were undertaken on the following dates:

- structural engineer: 7th – 8th August 2018
- architect: 13th and 15th August 2018
- hazardous materials surveyor: 4th – 18th September 2018
- building surveyor: 9th October 2018

4.3 Acts, Codes and Standards

The proposed works have been designed in accordance with the NCC, the relevant Australian Standards and the relevant Defence standards and guidelines, including DEQMS.

Specifically, the relevant Acts, Codes and Standards include but are not limited to the following:

4.3.1 Structural

- AS/NZS 1170.0 Structural Design Actions, Part 0: General Principles
- AS/NZS 1170.1 Structural Design Actions, Part 1: Permanent, Imposed and Other Actions
- AS/ NZS 1170.2 Structural Design Actions, Part 2: Wind Actions
- AS 1170.4 Structural Design Actions, Part 4: Earthquake Loads
- AS 2312 Guide to the Protection of Structural Steelwork
- AS 3600 Concrete Structures
- AS 4100 Steel Structures

AS 2870 Residential Slabs and Footings

4.3.2 Architectural

The proposed architectural systems have been designed and specified in accordance with the National Code of Construction (NCC), the relevant Australian Standards and the relevant Defence standards and guidelines, including Defence Estate Quality Management System (DEQMS).

Specifically, the relevant Acts, codes and standards include but are not limited to the following:

- Accommodation Guidelines for Open Plan Office Environments
- Commonwealth Public Service Scales and Standards
- Defence Work Health and Safety Policy
- Work Health and Safety Regulation 2011 (Commonwealth)
- National Work Health and Safety Codes of Practice
- The National Construction Code (NCC)
- Commonwealth Disability Discrimination Act 1992 (DDA) and AS1428 (Set) – 2010 Design for Access and Mobility Set
- Commonwealth Disability Strategy (CDS) 2000
- Better Physical Access Guide (Commonwealth)
- AS1428.1:2009 Design for access and mobility

4.3.3 Environmental

Environmental legislation, standards and guidelines applicable to the assessments undertaken as part of this Project include, but are not limited to:

Federal

- ANZECC Polychorinated Biphenols Management Plan (Revised Edition 2003)
- Australian and New Zealand Environment and Conservation Council, 1997 (Revised 2005) – an information booklet for electricians and electrical contractors
- Australian Standard AS4361.2 Guide to Lead Paint Management: Part 2 Residential and Commercial Buildings 1998
- OHS Act 2004
- OHS Regulations 2007
- National Occupational Health and Safety Commission [(NOHSC): 2018 (2005)] - Code of Practice for the Management and Control of Asbestos in Workplaces
- National Occupational Health and Safety Commission [(NOHSC): 2018 (2005) - Code of Practice for the Safe Removal of Asbestos 2nd Edition
- National Occupational Health and Safety Commission National Code of Practice for the Safe Use of Inorganic Lead at Work [NOHSC: 2015 (1994)
- National Occupational Health and Safety Commission National Model Regulations for the Control of Workplace Hazardous Substances [NONSC:1005(1994)]
- National Occupational Health and Safety Commission [(NOHSC): 1004(1990)], Synthetic Mineral Fibres: National Standard and National Code of Practice.
- Environment Protection and Biodiversity Conservation Act 1999
- All asbestos removal and clean-up operations must be carried out in accordance with the Safe Work Australia 2016 *Code of Practice for the Safe Removal of Asbestos* and the Victorian *Occupational Health and Safety Act and Regulations*.
- National Electrical and Communication Association Code for Practise for the Safe Handling of Equipment Containing Polychlorinated Biphenyl (PCB)

State (Victoria)

- Department of Defence Per- and Poly-Fluoroalkyl Substances (PFAS) Framework – Construction and Maintenances Projects 2018
- Occupational Health and Safety Act 2004 (Vic.) and Occupational Health and Safety Regulations 2007 (Vic.)
- Flora and Fauna Guarantee Act 1988

Defence

- Defence Environmental Policy 2016
- Defence Estate Heritage Strategy 2017
- Defence Heritage Toolkit 2006

5 Buildings A0211, A0212, A0213 & A0214 – Southern Tarmac Bellman Hangars

5.1 Recommendation

The main structures of these buildings are beyond structural repair and are recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer these buildings are **demolished**.

5.2 Structural

5.2.1 Site Inspection Summary

Buildings 211, 212, 213 and 214 are large hangar type, steel framed structures. Upon arrival, the designers deemed it unsafe to enter the buildings due to the poor condition and risk of objects falling from height. It was also noted that there was lead paint and bird guano within the building which was not safe for the designers to be exposed to.

The overall condition of all four buildings was very similar, with many typical defects present. These buildings utilise trusses for the roof and column supports which presented corrosion throughout. The buildings had corroded, damaged and missing metal sheet cladding that encloses the buildings' walls, roof and doors. Other structural members including bracing, purlins and girts also presented corrosion throughout. At each end of the hangar are large sliding doors, fixed to steel door guides, where the steel guides presented corrosion and were unable to be used/opened. Structurally there is a large amount of remediation to be completed to return the building to an acceptable state, and hence it is recommended the building to be demolished.

5.2.2 Structural Assessment & Recommendations

A summary of the major structural defects is provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Main Structural Elements

Steel trusses are used for the main structural framework of these hangars, including the roof and columns. Minor surface corrosion on the trusses was present throughout the entirety of each building. Significant corrosion was also present at several critical structural points along the trusses which may result in structural integrity being compromised during a high wind event. To remediate this, almost all areas of the trusses may need to be either replaced or treated and repainted, across all four structures.

Other Structural Elements

The purlins and girts for each building presented large amounts of corrosion throughout, ranging from minor surface corrosion to significant corrosion through the steel. The wall bracing, and roof bracing also presented signs of corrosion however it was difficult to determine the severity as internal access was limited. Using the other steel elements as a guide, it is highly likely these structural elements were corroded to an extent beyond physical repair also. To remediate this, most of the purlins, girts and bracing would likely have to be replaced.

Metal Sheet Cladding

Throughout all four buildings, the metal sheet cladding showed signs of significant deterioration of the paint. The metal sheet cladding also had minor surface corrosion to significant corrosion throughout the walls of each building. Several areas of the metal wall cladding were either missing or physically damaged from each building. To remediate this, the metal cladding is required to be replaced or treated and repainted across the all structures.

Sliding Doors

The sliding doors at each end of the hangars showed many significant defects. The metal sheet cladding from a large number of the sliding doors had both significant paint deterioration and/or corrosion. The cross bracing used to stabilise the doors also presented significant signs of corrosion across all the buildings. The framing of the doors also showed significant signs of corrosion. The guides that assist the movement of the sliding doors also present severe signs of corrosion, which disables the use of doors from operation.

5.3 Architectural

5.3.1 Site Inspection Summary

Only visual inspections of these buildings were conducted. This is from behind the secure fenced area, so internal inspection was unable to be undertaken. Externally, the building was in extensive need of works and damage can be seen in the deterioration of the building. The external structure of wall linings are both damaged, rusting, corroded and missing in numerous areas. The structure shows the large external doors and the sliding steel frames are badly damaged and missing in some parts. After visual inspection, the recommendation would be to demolish all the buildings.

Figure 3 Plan view of hangars (image from Nearmap)

5.3.2 Architectural Assessment & Recommendations

These large hangars have been sealed off with a secure safety fence around the perimeter to prevent access to the building.

The architectural assessment summary is provided in this section. Further detail including photographic evidence can be found in Drawings PDS-A0211-DRG-AR-1211, 1212, 1213 & 1214 In Appendix G.

Figure 4 Building A0211

Figure 5 Building A0212

Figure 6 Building A0213

Figure 7 Building A0214

External walls, windows and doors

External metal wall cladding shows significant signs of corrosion and damage with some panels missing and exposed. This has led to further deterioration to the building internally. Corner wall flashings, roof flashings and overhead door flashing are missing or badly corroded.

The external large sliding doors to the hangar, including tracks, anchor points, outriggers are badly damaged and missing steel sections and are unable to operate.

Building Services

The location of this building is next to overhead power lines that services the base and any services connected to the building will need to be capped and cut prior to demolition and removal of the building.

Other services that need to be cut would include stormwater, sewer, etc. Any services pipes and waste pits will have to be removed after demolition of the building. The adjoining paths, concrete landings and pads will also need to be demolished.

After debris is removed from site, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

Roofing, Gutters and Downpipes

The existing flat metal roofing is damaged and rusting. Due to failing of the steel, roof trusses have collapsed. Existing large fascia gutters, rainwater heads and downpipes are in various states of damage.

Due to the damage and failing of the building structure the structural integrity of the building should be further proof that the building should be demolished.

5.4 Hazardous Materials

A hazardous building materials assessment was completed on the buildings to identify hazardous building materials which may pose a health risk demolition/ refurbishment works which are also regulated wastes. The key findings from the assessment are as follows:

- Building A0211 - no hazardous materials were identified
- Building A0212 - no hazardous materials were identified
- Building A0213 - no hazardous materials were identified
- Building A0214 - no hazardous materials were identified

For further information, refer to Appendix F.

5.5 Cost of Proposed Works

The estimated costs for proposed works to each building are as follows:

Building	Cost to Demolish	Cost to Retain
A0211	$229,000	N/A
A0212	$257,000	N/A
A0213	$204,000	N/A
A0214	$228,000	N/A

6 Building A0004 - RAAF College

6.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's technical assessment, it is recommended to be **retained.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **retained.** It was noted that should this project go ahead, intrusive testing would need to be undertaken to rule out fears of concrete cancer throughout the building. Further discussion on the future use of this building would need to take place to understand the scale of compliance upgrades required.

6.2 Structural

6.2.1 Site Inspection Summary

Building 4 is a two-storey concrete building with red brick facade, the roof slab consists of precast panels with sealant between panels and water proofing membrane on top. The upper roof and the dorm are steelwork and are in good condition as there was no evidence of water leaking through the dorm found during the inspection. The link bridge between building 4 and building 6 was not accessible during the inspection as the door was bolted shut due to prior safety fears. This was however viewed through a glass door. Structurally the link bridge structures are in good condition although there are some water leakage issues at the north and south ends of the link bridge where connected to buildings 4 and 6.

6.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix E & F.

External Elements

The roof slab consists of precast panels with sealant between panels and water proofing membrane on top. The water proofing membrane may have been removed in most locations of the roof due to damage. This has caused leaking from roof level into the building. There are a few locations where the precast panels on the roof have failed and deflected causing content water and garbage to block the roof drain.

Repair works recommended:

- Install new metal roof cladding on the entire roof where water proofing membrane is located. Refer structural drawings for new metal roof cladding details.

Internal Elements

Brickwork cracks were evident at all floors and on external walls. The cracks did not appear to be due to flexural or shear failure of the wall and was most likely due to shrinkage.

Most of the suspended ceiling panels on level 1 have been damaged by water leaking. A number of panels at ground floor have been damaged and are falling apart. We recommend that these ceiling tiles to be replaced like for like for safety reasons.

Although not a structural issue, the numerous locations showing sign of paint peeling or bubbling. This is likely due to water leaking through the roof slab and high moisture level content.

Repair works recommended:

- Stop water leaking and entry to the area
- Reduce moisture in the area to acceptable limit prior to painting
- Remove loose material, preparing the substrate and repainting.

6.3 Architectural

6.3.1 Site Inspection Summary

Building 4 is a two-storey building which had been previously used as a RAAF College training facility. The external façade consists of a mixture of brick work and large curtain window arrangement.
The building roof structure is a concrete slab with waterproof membrane with discharge to external downpipes. The white concrete observatory dome sits on top the mechanical services plant room made of brick at roof level.

The site inspection included an internal walkthrough over the two floors and the roof. The link bridge between buildings 4 and 6 and the dome with brick structure shed on the roof was not accessed.

Upon inspection and due to the unoccupied status of the building, significant internal damage can be seen across floors, ceilings, windows, internal cabinetry and fixtures in toilets. There was also significant damage to the waterproof membrane on the roof. This has caused internal water damage to the building.
Externally, the building is structurally intact and in reasonable good condition, however internally there is a need for major refurbishments to bring the building up to an acceptable standard to be able to work out of.
The recommendation is to retain the building, provided major refurbishment works are to be completed.

Figure 8 Plan view of Building 4 (image from Nearmap)

6.3.2 Architectural Assessment & Recommendations

The building was previously used as a RAAF college, but due to neglect and being unoccupied, the following works will need to be completed to bring the building up to an acceptable standard.

A summary of architectural assessment is provided in this section. Further detail including photographic evidence can be found in Drawing PDS-A0004-DRG-AR-104.1 -104.4 In Appendix B.

Figure 9 Building A0004

External walls/ windows/ downpipes
External surfaces including brick walls, concrete columns and curtain walls are in reasonably good condition. The existing windows can be very hard to open and close and would require some servicing and maintenance. The external surfaces should be pressured cleaned.

External downpipes have been damaged and blocked and in some cases are missing. The downpipes are positioned between the window mullions at every second column and should be replaced with new.

Roof area
Existing roof area consists of concrete roof panels and a waterproof membrane with external downpipes and rainwater heads. The waterproof membrane is extensively damaged and requires replacement or another option is to install a new flat metal roof over the concrete roof and to fall to a purpose-built box gutter. The condition of the roof has caused significant water damage to ceilings, walls and floor throughout the building.

Internal walls
Finishes to the internal walls have extensive water damage, peeling, cracking and flaking paint, which will require most surfaces to be repaired and repainted.

Existing skirting ducts are damaged, have missing sections, and due to the water damage, would need to be replaced throughout the building.

The existing wall finishes in all the toilets including some tiled surfaces should be replaced due to cracks and damage.

Floors
Existing concrete slab/floor is in good condition and while there are some small surface cracks they are structurally sound. Floor finishes, including carpets, carpet mats and vinyl flooring through the building will need to be replaced.

Ceilings
The building has a mixture of ceilings throughout, including, painted plasterboard, suspended acoustic tile panels and stipple type concrete render to concrete floor slabs. There is significant water damage to most ceilings. The plaster board ceilings will need significant repairs to replace a large amount of damaged ceilings and all surfaces will need to be repainted.

The acoustic ceilings have missing sections, panels showing water damage and framing for a lot of the panels are damaged causing the ceilings to appear uneven. While most ceiling tiles seem to be in good condition, water damage could be hidden above the panels. Our recommendation would be to replace all the tiles and grids throughout the building.

Damaged stipple type concrete render should be repaired, and all sections would need to be repainted.

Windows
Existing aluminium framed windows are structurally in good condition with the glazing intact and not damaged. Most windows will need existing window hardware to be replaced with new fittings and generally the windows will need to be serviced to allow them to open freely.

Existing timber window sill to north side of the building have significant water damage and while they are structurally solid, they should be replaced, due to water damage.

Window furnishings are non-existent in most cases and all windows will require new window blinds.

Doors
External entry doors need to be replaced as they are delaminating and water damaged. Some damaged internal door frames will require replacement. Doors to all toilets are damaged and should be replaced.

Toilets/kitchenette
All fittings to the toilets and the kitchenette are significantly damaged and should be replaced. The fittings include toilets, vanity units, basins, cleaning troughs, mirrors, kitchen cabinetry, sinks, etc.

All tiled surfaces both to the floor and walls will need replacement and overall the toilets should be completely refurbished to bring them to an acceptable standard. DDA requirements could also trigger upgrades and the need for an ambulant/disabled facility to the building.

Building services
Most of the existing electrical fittings to the building seem to be in good working order however there are some lights that are not operational. The building will require an assessment and testing of all electrical fittings, which due to significant water damage could need replacement.

Existing emergency lights and exit lighting to the building seem to be in good working order. Additional exit lighting may be required to comply with the BCA.

Services to the toilets and kitchenette had been cut and could not be assessed. The minimum works to this building however should be to pressure clean all service pipes for stormwater and sewer pipes to the building. Services to any replaced fittings should be upgraded.

External stairs
The first floor can only be accesses by external concrete stairs. The existing stairs will require pressure cleaning, painting and new tactile indicators to all threads, while the balustrade will require modification as it does not comply with current building standards. The existing rail is too low and the gaps between rails to too wide.

6.4 Building Surveyor Assessment

This building has been rated as poor in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- Currently not suitable for occupation due to signs of mould and dampness
- Two emergency exits are be required for a building of this occupancy. Due to the link bridge between Buildings 4 and 6 not being accessible, only one emergency exit is available.

6.5 Hazardous Materials

The key findings from the assessment are as follows:

- Building A0004 - significant amount of bird guano (excrement) was observed within the upper rooftop dome. Hazardous materials including asbestos containing material (ACM) (non-friable), synthetic mineral fibre (SMF), lead-containing paint and ozone depleting substances were confirmed to be present

For further information, refer to Section 26 for comments regarding the presence of birds. The hazardous materials assessment is provided in Appendix F.

6.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0004	$337,000	$1,605,000

7 Building A0007 – AAFC Offices & Lecture Rooms

7.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's technical assessment, it is recommended to be **retained**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **retained.**

7.2 Structural

7.2.1 Site Inspection Summary

Building 7 is a single storey red brick and concrete building with a concrete ground floor slab with metal roof sheeting. The majority of internal walls are brickwork. There was no water proof membrane underneath the ground floor slab of the building which presented many architectural defects and potential structural defects throughout the building.

7.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Water Proof Membrane

Upon inspection of Building 7, a large a number of architectural defects were found throughout the ground floor of the building that suggested the lack of a water proof membrane. This means that moisture from the ground comes through the slab and into the lower parts of the walls, causing significant damage.

Moisture Damage to Walls

Although not a structural issue, throughout the entire ground floor of Building 7 suffered moisture damage to the walls. On painted walls, the paint is peeling off and bubbling, along the bottom half of the wall. There is also minor corrosion seen at some of the corners of the steel wall framing. The brickwork walls showed a residual build-up of a white mineral substance, which is primarily due to moisture tracking up from the ground.

Repair works include:

- The water proof membrane to be installed underneath the ground floor slab. This is achieved through drilling holes in the slab and injecting Sika Injection-306 or approved equivalent which will coat the underside of the slab a water proof membrane and prevent future moisture from rising up into the structure. The installation to be in accordance with the manufacture specification.
- After the injection of water proof membrane has been installed, brickwork is to be treated dry prior to painting to match with existing wall.

7.3 Architectural

7.3.1 Site Inspection Summary

This is a one single storey building with a lecture theatre area that produces the two storey volume on north-west of the building plan. The building is mainly red masonry with slit panels of full height steel framed

windows. The south and north elevation have the steel frame curtain wall glazed system (same as Building A0004).

The site inspection conducted included an internal walkthrough including the upper storey of the lecture theatre.

Upon inspection, due to the building been unoccupied, moderate internal damage can be seen across floors, walls, cabinetry and toilets. A lot of loose furniture, piles of discarded office supplies and rubbish have been left behind. Externally, the building is intact but will require some refurbishments and cleaning and external maintenance around the building.

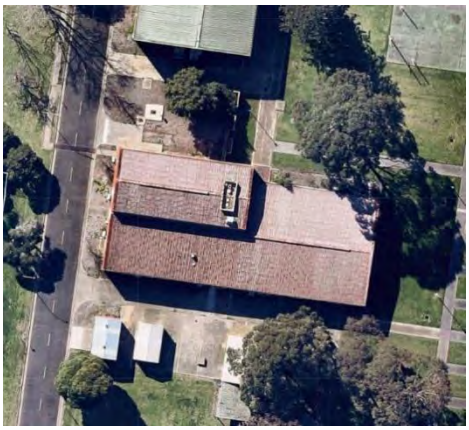

Figure 10 Plan view of Building 7 (Image from Nearmap)

7.3.1 Architectural Assessment & Recommendations

Further detail including photographic evidence can be found in Drawing PDS-A0004-DRG-AR-107.1-107.3 In Appendix G.

Figure 11 Building A0007

Despite the building being unoccupied and neglected, the condition of the building is considered fair. This building could be retained if moderate refurbishment works can be undertaken to the building to be acceptable for occupation.

All services within the building will need to be checked and certified as part of the works.

External walls

The brickwork will require some cleaning and some minor mortar repairs to stepped cracking.

The aluminium curtain window wall is generally sound, with some areas, requiring replacement of damaged and rusting flashings both to the top parapet wall and to the bottom sill. These should be replaced.

Internal walls

In some areas, especially in the lecture theatre the plasterboard is flaking, powdery and water damaged. They will need to be repaired or replaced in some sections. It is recommended that the entire building should be cleaned and repainted internally.

Some sections of masonry brick walls also have efflorescence and water damage showing as mentioned in the structural section above.

Damaged skirting boards should be removed and replaced.

Floors

Externally, there are some minor cracked floor tiles in the entrance to the building to be replaced and repaired.

Internally, all floor finishes, which include carpet, vinyl sheet flooring should be replaced. Concrete areas, should be either covered with vinyl or cleaned, sealed and repaint with new epoxy paint finish. Some floors have significant water damage.

Bathrooms/ kitchens

Existing bathroom areas, will require internal refurbishments for compliance with current BCA standards and DDA regulations. All internal fittings should be replaced, with new fittings and all surfaces should be cleaned and repainted.

Ceilings

Existing ceilings, which are a mixture of plasterboard and acoustic ceiling are in good condition. There are some small areas where they will require replacement of some tiles due to water damage and missing tiles.

Plasterboard ceilings are generally in good condition, and all areas within the building should be repainted.

Windows

Internal aluminium windows are in good condition and can be freely opened and closed. The windows would need to be cleaned and glazing to be replaced where cracks are present. All vertical blinds should be replaced with new purpose fit solar/block blinds.

Doors

Some internal doors and timber door frames need to be replaced where they are rotting and water damaged. All doors should be repainted.

Furniture

Custom built-in joinery could mostly be retained and reused. The building has been used as a storage area housing unused furniture and some rubbish. The building needs to be cleaned out.

Stairs

Internal concrete stairs should be cleaned, resealed and repainted, and new tactile indicators should to be installed. Balustrading to the stairs is below minimum height and should be replaced.

Building Services

The existing electrical fittings, including emergency and exit lighting to the building seem to be in good working order. The building will require an upgrade to bring the building up to standard with current BCA requirements in regards to additional exit signage throughout the building.

An assessment and testing of all electrical fittings should be undertaken as part of any new works to the building.

Services to the toilets and kitchenette had been cut and could not be assessed. The minimum works to this building however should be to pressure clean all service pipes for stormwater and sewer pipes to the building. Services to any replaced fittings should be upgraded.

Roof areas

Should this building be retained, an assessment of the existing roof including stormwater drainage and downpipes should be undertaken. This was not carried out as part of this project as there was no access available to the roof during our inspection.

7.4 Building Surveyor Assessment

This building has been rated as poor in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- Currently not suitable for occupation due to signs of mould and dampness
- Evidence of significant build-up of moisture damage requires rectification of damp and weatherproofing.

7.5 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0007 - hazardous materials asbestos containing material (ACM) (non-friable and friable), synthetic mineral fibre (SMF) and ozone depleting substances were confirmed to be present
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard in the level 1 storage room

The hazardous materials assessment is provided in Appendix F.

7.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0007	$329,000	$1,523,000

8 Building A0102 – Toilet Block

8.1 Building Description

The main structure of this building is an acceptable state requiring possible minor structural repairs however there is a significantly large number of architectural repairs to be undertaken such that it would be considered beyond economic repair. It is recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

8.2 Structural

8.2.1 Site Inspection Summary

Building 102 is a small toilet block, made primarily of grey brick and a timber framed, metal sheet clad roof. The exterior of the building has a number of architectural defects which contributed to a poor visual appearance. The interior of the building had a large number of architectural defects. The overall condition of this building would be considered beyond economic repairs and should be demolished.

8.2.2 Structural Assessment & Recommendations

A summary of the defects are provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Structural Defects

No significant structural defects were identified upon the inspection of Building 102.

Exterior Defects

Considerable physical and surface deterioration was apparent to the timber fascia on the roof. There was also significant corrosion and physical damage to the metal downpipe. The gutter was completely missing.

Interior Defects

Metal fittings such as pipes, door handles and hinges, power point sockets and old light switches showed signs of corrosion. There was also significant surface deterioration to all doors, door frames and internal painted walls. Flooring was damaged due to poor drainage and pooling of water throughout. Water damage to the ceiling which suggests ponding of water on the roof or in the ceiling space.

8.3 Architectural

8.3.1 Site Inspection Summary

This is a one storey unisex toilet block. The building is mainly grey masonry with high ventilation horizontal glass lourved windows on three elevations. Freestanding masonry walls are built as entry privacy screens to the toilets for the separate unisex and male dedicated spaces.

Upon inspection, the state of disuse is heavily evident with all fixtures and fittings rusting and rotting. It is unfit for occupation with dust, cracks and mould. Externally, the building is showing decay with discolouring of masonry and rusting of the roof.

Figure 12 Plan view of A0102 (image from Nearmap)

8.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in Drawing PDS-A0102-DRG-AR-A1102 In Appendix G.

Figure 13 Building A0102

Given that this building is adjacent to a number of disused buildings, the toilet block is not used often and recommended to be demolished.

External walls/ roofing/ gutters and downpipes

External brick walls are structurally in good condition although the masonry walls are discolouring due to environmental conditions next to the bay. The internal surface shows age with timber framed windows and doors deteriorating. The painted brick walls are flaking and tiled wall surfaces are broken and dirty.

Existing metal roofing is damaged with most metallic components either rusting or cracking. The existing timber roof fascia is rotting on all sides and the soffit are badly damaged with the soffit lining peeling from water damage. Rectangular downpipes are also bent and rusted which shows significant water damage to the building.

Organic matter and mould have covered external footpaths.

Internal

All internal concrete flooring is covered with debris and water-logged pools. Floors are discoloured and mouldy. Ceilings are badly damaged, glazing on windows are broken and timber door frames are rotten and paint peeled off.

All fittings are deemed to be unfit for use as all basins, taps and toilet bowls are unsanitary with heavy rust and mould.

Building Services

All services to the building would need to be capped and decommissioned to the building prior to any demolition works proceeding. This would include electrical, mechanical, and hydraulic services to the building.

Other services including stormwater, sewer, service pipes and waste pits will need to be removed after demolition of building. The adjoining paths, concrete landings and pads will also need to be demolished.

Removal of building from site

The building should be fully demolished and removed from site. The existing concrete slab to the east side of the building should be broken up and disposed of.

After debris is removed from site, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

8.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0102 - hazardous materials asbestos containing material (ACM) (non-friable and friable), synthetic mineral fibre (SMF) and polychlorinated biphenyls (PCBs) were confirmed to be present
- Friable asbestos was identified in the form of a wire sheath in a hot water heater and light fitting located in the services area

The hazardous materials assessment is provided in Appendix F.

8.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0102	$17,000	N/A

9 Building A0103 – 23m Range Stop Butts

9.1 Building Description

The asset is recommended to be **removed and remediated**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **removed and remediated.**

It is expected that high levels of lead will be found within the dirt mound due to its prior use as a stopping zone for bullets fired in the area. As the range is adjacent to the bay, remediation of the soil will achieve a positive environmental result. The high estimated cost was generally accepted due to the significant decontamination works required.

9.2 Structural

9.2.1 Site Inspection Summary

Building A0103 Range Stop Butts, is a large dirt mount in a fenced off area. The mound has a path along the ridge which could be considered unsafe to walk on due to the instability of the soil, however it was difficult to determine how secure the path was. The mound area has significant contamination issues and should therefore not be used for any activity. Due to contamination, it is recommended that this asset be demolished.

Further detail including photographic defect identification can be found in Appendix D.

9.2.2 Structural Assessment & Recommendations

No structural concerns or defects have been found for building 103.

9.3 Architectural

9.3.1 Site Inspection Summary

Upon inspection, this building does not exist based on the location from the Masterplan provided by the Department of Defence. The image below shows the large earthen mound, used as a stopping zone for bullets fired in its previous use as a firing range.

There is a small firing undercover building, which is dilapidated, and is no longer under use.

Figure 14 Plan View of A0103 (Image from Nearmap)

9.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in Drawing PDS-A0103-DRG-AR-A1103 In Appendix G.

The existing mound is a large earthen mound used to stop bullets used at the firing range. The soil is to be removed from site and the area is to be levelled to match adjoining ground levels. The contractor should allow for careful removal and disposal of any earth, as there will be contaminants, including lead bullets. Any removal should be completed in accordance with Defence Guidelines and be correctly disposed and treated by contractor.

9.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0103 – no hazardous materials were identified to be present
- Opportunistic soil samples were collected from a mound near the shooting range which reported elevated levels of lead

The hazardous materials assessment is provided in Appendix F.

9.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Remove and Remediate	Cost to Retain
A0103	$1,697,000	N/A

10 Building A0112 - Store

10.1 Building Description

The main structure of this building requires significant repair to both structural and architectural items. It is recommended to be **demolished** as it is considered beyond economic repair.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

10.2 Structural

10.2.1 Site Inspection Summary

Building 112 is a timber framed building with metal cladding on the walls and roof. The floor consists of a concrete slab and timber decking in separate areas, each presenting defects. The cladding displayed signs of corrosion at numerous locations. The timber frame for the building including the wall frames and roof frames are in good structural condition. A large number of architectural defects were present on the internal walls and ceiling. There were areas of overgrown vegetation also present inside the building.

10.2.2 Structural Assessment & Recommendations

A summary of the major structural defects are provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Metal Cladding

The metal wall cladding on both the walls and the roof had corrosion at several locations throughout the building. The metal cladding at the base of the walls where the cladding touches the ground and roof showed significant corrosion along the perimeter of the building. There are several spots on the roof sheeting where corrosion has occurred, which is likely due to ponding of water. This also creates leaks to the interior of the building. A panel of the roof sheet is also missing, resulting in a substantial amount of water entering the building.

Concrete Floor

The floor of Building 112 has numerous locations where the concrete is cracking. This cracking has also lead the concrete to spall, meaning the reinforcement inside the concrete has corroded and expanded, further cracking the concrete. These cracks in the concrete range from minor to significant and together with the concrete spalling, means that remediation would be beyond economic repair. There is also potential settlement of the concrete at a number of locations. These concrete defects may present a health and safety trip hazard.

Timber Deck

The timber deck has physically deteriorated at the entrance to the building. There is damage and rotting of the timber slats and bearers and this presents a health and safety trip hazard.

Walls and Ceiling

There are also a number of panels missing from both the walls and ceilings.

10.3 Architectural

10.3.1 Site Inspection Summary

This is a single storey industrial shed attached to another industrial shed – Building A0132. The building is cladded with corrugated metal sheets with timber frames. The site inspection conducted was an external walkthrough as fences surrounded the building blocking entry internally.

Upon inspection, the state of disuse and abandonment is evident with corroded gutters and flashing.

Figure 15 Plan view of A0132 (Image from Nearmap)

10.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0112-AR-1112, Appendix B

Figure 16 Building A0112

External walls

External metal sheeting is in poor condition as the corrugated metal sheeting are worn and torn. There is significant rust in the connection between timber frame and the metal cladding sheets. The timber frame on the roof is deteriorating, with paint peeling and rotting timber. Metal flashing has been corroded with the metal roof sheeting also rusted.

Internal walls

Internal wall linings and partitions are badly damaged with parts missing. There is also significant rust in the connection between timber frame and the metal cladding sheet. Internally, timber floorboards have aged and are covered in dust.

Glazing on windows have been removed and cladded with metal sheets. All timber door frames are broken and deteriorating. Doors are non-existent with door frames deteriorating and rotting.

Building services

All services to the building would need to be capped and decommissioned to the building prior to any demolition works proceeding. The adjoining paths, concrete landings and pads will also need to be demolished.

Removal of building from site

The building should be fully demolished and removed from site. The existing concrete slab to the east side of the building should be broken up and disposed of.

After debris is removed from site, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

10.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0112 - hazardous materials asbestos containing material (ACM) (non-friable) and lead-containing paint were identified to be present

The hazardous materials assessment is provided in Appendix F

10.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0112	$12,000	N/A

11 Building A0121 – Gunnery Stop Butt

11.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's assessment, it is recommended to be **retained.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **retained.** This building is rated 'high' in the Heritage Management Plan significance ranking.

11.2 Structural

11.2.1 Site Inspection Summary

Building 121, the Gunnery Stop Butt, is a red brick building with a concrete slab and a timber framed roof with metal sheet cladding. The red brick walls showed structural cracks at a few locations on the front and back of the building. The concrete slab had a number of minor cracks that may be required to be repaired. The timber framed roof was in a good structural condition. There was corrosion on the metal roof sheeting, as well as on the gutter and window shade panels.

11.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Brickwork Cracks

The cracks in the brickwork that can be seen both externally and internally. The cracks did not appear to be due to flexural or shear failure of the wall and were most likely due to shrinkage. The cracks range from minor cracks to more significant cracks up to 20mm and are to be repaired to return the building to a functional state. Refer to structural drawings in Appendix E for remediation requirements.

Concrete Floor

The concrete floor had numerous minor cracks throughout the building and may be required to be repaired as per structural drawings.

Roof

The metal roof sheeting had signs of minor corrosion throughout that is required to be replaced. The timber frame that supports the roof is in a good structural condition and no work is required. The gutter has significant corrosion present and is required to be replaced.

11.3 Architectural

11.3.1 Site Inspection Summary

The site inspection conducted was an external walkthrough as a grated fence prevented internal inspection of the gun standing area.

Figure 17 Plan view of A0121 (Image from Nearmap)

11.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0121-AR-A1121, Appendix G.

Figure 18 Building A0121

External structure/shed

External masonry walls are showing signs of stress and significant cracks in the walls. The structure only consists of the brick wall with an attached shed on the left side.

The timber door frames are rotten and deteriorating with a missing door. The metal shed door panel is rusting and the covered window screen is also rusted. The concrete ground slab is covered in dust, debris and weeds.

Building Services

All services to the building would need to be checked. Any service pits and pipes should be capped and demolished and adjoining paths, concrete landings and pads to be removed from site.

Removal of building from site

The structure and shed should be fully demolished and removed from site. After removal of all debris, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

11.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0121 – no hazardous materials asbestos were identified

The hazardous materials assessment is provided in Appendix F.

11.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0112	$11,000	$113,000

12 Building A0122 – Hazardous Store

12.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's assessment, it is recommended to be **retained.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.** This building is rated 'moderate' in the HMP significance ranking however a number of other assets in the sea plane jetty precinct of a similar era have been retained for heritage purposes. As there is no planned future use for this building, the repair and ongoing maintenance of this building is not considered effective use of project funding. The Heritage Impact Assessment will highlight the reasons there are no alternatives to demolition.

12.2 Structural

12.2.1 Site Inspection Summary

Building 122, the Hazardous Store is a brick walled building, with a timber framed roof and metal sheeting. The floor is primarily a concrete slab with an external timber decking area. The timber decking had physical deterioration in the timber slats. The external timber wall cladding had damage and missing slats in a number of locations. There is a large amount of surface deterioration of faded or flaking paint throughout the external of the building. The metal roof cladding showed signs of deterioration and corrosion, and there were areas of roof sheet and flashing were missing.

12.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Timber Decking

At the main entrance to the building the timber decking had physical deterioration in a majority of timber slats, with a number of sections missing and nails protruding from them throughout. This is likely due to being affect by the weather for a long period of time. To remediate this defect the decking is required to be replaced. The timber bearers appeared to be in an acceptable condition however the edge bearers had significant paint deterioration. The timber steps also have physical damage to them, and surface paint deterioration and are required to be replaced and painted where needed.

External Elements

The red brick structure appears to be in good condition with no significant defects found. The roof cladding shows significant signs of deterioration and corrosion. There is also organic accumulation present at the ridge of the roof, and some sections of the roof sheeting and flashing are also missing. This roof sheeting will be required to be replaced. There are a few areas where the timber wall cladding is missing from the structure, and this will be required to be replaced. A large majority of the external elements of the structure also present significant surface deterioration, in particular paint flaking and peeling, which can be seen on elements such as windows, window frames, doors, door frames, walls, fascia and columns.

Internal Elements

The internal timber roof framing structure appeared to be in good condition with no significant defects found. There are a few areas on the timber roof frame that present surface deterioration with regards to peeling paint, and to remediate this the timber roof frame is recommended to be painted. The internal walls also require painting due to graffiti and surface deterioration of the paint.

12.3 Architectural

12.3.1 Site Inspection Summary

This existing building is unoccupied, but was previously used as a hazard store, to chemicals and goods. The building is a single storey building, with timber deck area, and office. The remainder of the building is double brick walls, with a bunded concrete slab.

The main part of the building is in good condition and is structurally sound. The existing deck area and office should be demolished and replaced with new. The timber decking is damaged, rotting, uneven and the timber floor structure needs to be replaced.

The building can be retained with some refurbishment works.

Figure 19 Plan view of A0122 (Image from Nearmap)

12.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0122-AR-1122, Appendix G.

Figure 20 Building A0122

External

Existing deck area and office needs to be demolished and replaced with new deck, steps, balustrading and new office area to match the existing configuration.

Existing asbestos roof sheeting should be replaced with new matching gutters and downpipes. New flashings to brickwork and roof structure to match existing

Construct new office area, including new weatherboard linings, primed and painted.

Replace all timber fascia boards and barge boards with new primed and painted boards. Replace all soffit linings to match existing

Floors

Clean and reseal existing bunded concrete slab and paint with new epoxy paint finish.

Ceiling

There is no ceiling lining to hazardous stores, and the existing roof truss is exposed. Remove existing roof sheeting and replace with new, including safety wire mesh and insulation.

Doors

Existing external doors and door frames have deteriorated and will need to be replaced with new timber door frames and new solid timber doors, primed and painted to match existing. Replace existing door hardware with new DDA compliant door hardware.

Windows

Allow to sand back existing windows, including frames and prepare and paint surfaces with new primer and new paint to match existing. Replace damaged glazing to windows.

Building Services

Allow to cap and seal services to existing external emergency shower and remove from site, including redundant piping.

Replace all external light fittings with new fittings and existing roof vent with new stainless-steel rotary vents. All electrical fittings to building need to be checked and where required replaced with new fittings.

Cap and seal services to fire pump, hydrant in the rear shed, and remove all fittings from site.

Replace existing rusting damaged pit cover near front of building and pressure clean existing drains.

12.4 Building Surveyor Assessment

This building has been rated as poor in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- Existing deck presents major trip hazards.
- Parts of the roof are missing and there are holes in some walls.

12.5 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0122 - hazardous materials asbestos containing material (ACM) (non-friable and friable), synthetic mineral fibre (SMF) and lead-containing paint were confirmed to be present
- Friable asbestos was assumed to be present in the form of millboard insultation within the electrical switchboard located in the north room
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

12.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0122	$36,000	$266,000

13 Building A0125 – P1 Hut

13.1 Building Description

The main structure of this building is an acceptable state requiring possible minor structural repairs however there is a significantly large number of architectural repairs to be undertaken such that it would be considered beyond economic repair. It is recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

13.2 Structural

13.2.1 Site Inspection Summary

Building 125, the P1 Hut is a timber framed structure for the roof and walls, with metal sheet cladding on the top. Structurally it is in good condition, and the timber frames require no work to be done to them. However, the architectural items would require significant work to retain the building.

13.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Internal Elements

The internal concrete floor has significant surface deterioration and requires painting. The internal deck floor has minor surface deterioration and requires a new protective coating. Minor damage to the is present on the ceiling panels which is considered a significant safety risk. The ceiling has become dislodged from its fixings at numerous locations throughout the building, indicating damage to the fixings. It is recommended that the ceiling to be replaced like for like. Internal walls show signs of physical and surface deterioration.

13.3 Architectural

13.3.1 Site Inspection Summary

The existing hut is unoccupied and while it looks externally it looks in reasonable condition, however the internal elements are in need of major repairs to bring the building up to an acceptable standard to be occupied. All the internal wall linings and ceiling linings would need to be replaced, where the linings are missing and falling. New linings and insulation would be required to the entire building.

The flooring is uneven and would need re-stumping and the walls jacked back up to be level and straight. The building services would need a complete upgrade.

There is no heating or cooling, or amenities to the building, and there is no insulation to walls or ceilings. The existing doors, would need to be replaced with new doors and compliant door hardware.

Figure 21 Plan view of Building A0125 (image from Nearmap)

13.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0125-AR-1125 Appendix G.

Figure 22 Building A0125

External walls, windows and doors

Existing metal wall sheeting is damaged and the walls studs are no longer straight. The sheeting itself has been painted over and would need to be replaced. The external timber windows are unable to be open due to the existing wall movement, and while they are in good condition, the building would need to be re-stumped and the walls lifted up to allow operation of the windows.

Glazing to the windows are dirty with some window panels boarded from the outside. Due to this, the interior is not properly sealed with window frames that show cracks in between. Window and door frames are broken and deteriorating with missing or rotting door panels.

Internal walls and fittings

Internal wall linings are falling apart. The linings are falling off with parts of the wall that have been ripped or cut out revealing the shed structure. There are multi coloured panels with unfinished paint work and cladding of timber lining. Parts of the interior lining do not match the rest. Skirting is non-existent or damaged.

The kitchenette is deemed unfit for use due to the deterioration of the timber plywood cabinetry. The various wall surfaces have also been torn, peeled and patched in various areas.

Ceiling and Flooring

The ceiling shows the roof caving in, with the internal ceiling structure pressuring the ceiling lining to fall through. The ceiling plasterboard sheets are falling apart with missing access panels. The light fitting covers are non-existent and water dripping from the roof is pooling on the ceiling plasterboard panels.

The timber floorboards are deteriorating with discolouring occurring at various parts along the floor. The floorboards are also burnt in some areas with water damage. Stains are present and where the timber meets the concrete and the concrete has also aged. There is green mould appearing as a film across the surface.

Building Services

All services to the building would need to be capped and cut to the building prior to any demolition works proceeding. This would include electrical, mechanical, and hydraulic services to the building. Other services that need to be cut would include stormwater and sewer.

Any services pipes and waste pits will need to be removed along with adjoining paths, concrete landings and pads.

Roofing, Gutters and Downpipes

Existing metal roofing is in good condition as well as the gutters and downpipes. External timber fascias, are rotting and damaged.

Removal of building from site

The existing concrete slab to the west side of the building should be broken up and be disposed of. After removal of all debris, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

13.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0125 - hazardous materials asbestos containing material (ACM) (non-friable), SMF and lead-containing paint were confirmed to be present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

13.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0125	$72,000	$364,000

14 Building A0132 – Masks Training Facility

14.1 Building Description

The main structure of this building is beyond structural repair and is recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.** This building has no heritage ranking.

14.2 Structural

14.2.1 Site Inspection Summary

Building 132, the Marks Training Facility is a timber framed building with metal sheet cladding on the walls and roof. Significant cracking was found to the main concrete slab on ground inside the building, with evidence of spalling and settlement of the slab. The timber frame of the structure was in a good condition. The main wall and roof cladding is corroded and damaged in numerous locations throughout the building.

14.2.2 Structural Assessment & Recommendations

A summary of the major structural defects is provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Concrete Slab

The concrete slab on ground throughout the building was significantly damaged beyond structural repair. There were large cracks throughout the building at numerous locations. There was evidence that the concrete has spalled and caused further damage and cracks to the slab. There is settlement of the slab, which present a trip hazard to the building. To remediate this, the entire slab would require replacement which is considered beyond economic repair to the building.

Metal sheet cladding

The metal sheet cladding on both the walls and roof has both physical and surface deterioration. There is significant corrosion present at a number of locations on the cladding and flashings of the building, which would require replacement. Throughout the entire external surfaces of the building, the metal sheet cladding has surface deterioration through peeling and fading paint, which would require the entire building to be painted.

Other Items

The main timber door at the entrance to the building has damaged beyond structural repair and requires replacing.

14.3 Architectural

14.3.1 Site Inspection Summary

This is a one storey industrial shed attached to building A0112. The building is cladded with corrugated metal sheets with timber frames with a pitched roof. The site inspection conducted was an external walkthrough as fences surrounded the building blocking entry internally.

Upon inspection, the state of disuse and abandonment is evident with corroded gutters and flashings.

Figure 23 Plan view of Building A0132 (image from Nearmap)

14.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0132-AR-1121, Appendix G.

Figure 24 Building A0132

External walls and roof

External metal sheeting is in poor condition as the corrugated metal sheeting are worn and torn. There is significant rust in the connection between timber frame and the metal cladding sheets. The timber frame on the roof is deteriorating, with peeling paint and rotting timber. Metal flashings have corroded with the metal roof sheeting rusted.

Internal walls

Internal wall linings and partitions are non-existent with structural frames requiring secondary timber support. The timber is rotting. There is also significant rust in the connection between timber frame and the metal cladding sheet. The internal concrete flooring has cracked and is discolouring.

Building Services

All services to the building would need to be capped and cut to the building prior to any demolition works proceeding. This would include electrical, mechanical, and hydraulic services to the building. Other services that need to be cut would include stormwater and sewer.

Any services pipes and waste pits will need to be removed along with adjoining paths, concrete landings and pads.

Removal of building from site

The existing concrete slab to the west side of the building should be broken up and be disposed of. After removal of all debris, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

14.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0132 - hazardous materials lead-containing paint was identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

14.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0132	$24,000	N/A

15 Building A0155 – P1 Hut

15.1 Building Description

The main structure of this building is an acceptable state requiring possible minor structural repairs however there is a significantly large number of architectural repairs to be undertaken such that it would be considered beyond economic repair. It is recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

15.2 Structural

15.2.1 Site Inspection Summary

Building 155 P1 Hut, is a timber framed structure with metal sheet cladding on the walls and roof. The metal sheet wall cladding had both physical damage and surface deterioration. The steel roof cladding and timber frame structure was in good condition. The timber flooring showed signs of significant deterioration however was difficult to determine the extent of the damage due to a vinyl floor covering the entirety of the timber floor.

15.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Internal Elements

The internal vinyl floor has significant physical deterioration and is recommended to be replace. Underneath the vinyl floor in a small area of the building is a timber flooring that shows signs of physical deterioration. Upon inspection of the building it was difficult to determine the extent of deterioration, however it is likely that the timber slats of the decking are required to be replaced. The concrete slab area has surface deterioration and is required to be painted. The timber trusses that structurally frame the roof and ceiling have surface deterioration.

15.3 Architectural

15.3.1 Site Inspection Summary

This building is in a similar state to building A0125. Please refer to section 13.3.1 for architectural advice on this building.

Figure 25 Plan view of building A0155 (image from Nearmap)

15.3.2 Architectural Assessment & Recommendations

This building is in a similar state to building A0125. Please refer to section 13.3.2 for architectural advice on this building.

Further detail can be found in PDS-12399-BLD-A0155-AR-1155, Appendix G.

Figure 26 Building A0155

15.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0155 - hazardous materials asbestos containing materials (non-friable and friable), PCBs and lead-containing paint were identified to present
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard in the main room

The hazardous materials assessment is provided in Appendix F.

15.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0155	$51,000	$323,000

16 Building A0156 – P1 Hut

16.1 Building Description

The main structure of this building is an acceptable state requiring possible minor structural repairs however there is a significantly large number of architectural repairs to be undertaken such that it would be considered beyond economic repair. It is recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

16.2 Structural

16.2.1 Site Inspection Summary

Building 156 P1 Hut, is a timber framed structure with metal sheet cladding on the walls and roof. A timber stub column below one corner of the building, designed to hold the building up has been damaged and removed. The damage somewhat extends into the timber bearer which may also require repair. The internal timber frame for the roof is in good condition and requires no significant work

16.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Timber Stub Column and Bearer

A timber stub column situated below one corner of the building has been damaged and therefore removed. This column is designed to be a key foundation for the structure and support the timber bearers, and hence the walls and roof above. The timber bearers adjacent to the stub column also present damage to and physical deterioration, which also require being repaired or replaced like for like. Although not an immediate issue, this had the potential to see serious structural failure in the future if not remediated.

16.3 Architectural

16.3.1 Site Inspection Summary

This building is in a similar state to building A0125. Please refer to section 13.3.1 for architectural advice on this building.

Figure 27 Plan view of building A0156 (image from Nearmap)

16.3.2 Architectural Assessment & Recommendations

This building is in a similar state to building A0125. Please refer to section 13.3.2 for architectural advice on this building.

Further detail can be found in, PDS-12399-BLD-A0155-AR-1155, Appendix G.

Figure 28 Building A0156

16.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0156 - hazardous materials asbestos containing material (non-friable), SMF, PCBs and lead-containing paint were identified to present

The hazardous materials assessment is provided in Appendix F.

16.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0156	$51,000	$482,000

17 Building A0158 – P1 Hut

17.1 Building Description

The main structure of this building is an acceptable state requiring possible minor structural repairs however there is a significantly large number of architectural repairs to be undertaken such that it would be considered beyond economic repair. It is recommended to be **demolished**.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

17.2 Structural

17.2.1 Site Inspection Summary

Building 158, P1 Hut is a timber framed structure with metal sheet cladding on the walls and roof. The internal timber frame for the roof is in good condition and requires no significant work.

17.2.2 Structural Assessment & Recommendations

No major structural items would need to be repaired for this building. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

17.3 Architectural

17.3.1 Site Inspection Summary

This building is in a similar state to building A0125. Please refer to section 13.3.1 for architectural advice on this building.

Figure 29 Plan view of building A0158 (image from Nearmap)

17.3.2 Architectural Assessment & Recommendations

This building is in a similar state to building A0125. Please refer to section 13.3.2 for architectural advice on this building.

Further detail can be found in PDS-12399-BLD-A0156-AR-1156, Appendix B.

Figure 30 Building A0158

17.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0158 - hazardous materials asbestos containing material (non-friable and friable), SMF, PCBs and lead-containing paint were identified to present
- Friable asbestos was identified in the form of a wire sheath in a light fitting located on the ceiling of the east room. The sheath appeared to be in good condition at the time of the assessment

The hazardous materials assessment is provided in Appendix F.

17.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0156	$51,000	$503,000

18 Building A0203– WWII Hut

18.1 Building Description

The main structure of this building is beyond structural repair and is recommended to be **demolished.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.**

18.2 Structural

18.2.1 Site Inspection Summary

Building 203, the WWII Hut is a timber framed structure with metal sheet cladding on the walls and roof. The main floor is made from a timber decking below the building, with timber bearers and joists. This timber decking has physically deteriorated, is falling out below the building. There are a significant number of physical defects throughout the internal and external elements of the building including damage and physical deterioration to the walls, ceiling, floor, roof, doors and windows.

18.2.2 Structural Assessment & Recommendations

A summary of the major structural defects is provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Timber Floor

The timber flooring inside the building and below the carpet is made up of decking, bearers and joists. The floor is failing and falling below the building at a number of locations. This indicates that there is significant damage to the timber deck however it is difficult to determine the extent of the damage due to the carpet on top. The timber bearers also have damage and physical deterioration and repair would be not economical or feasible.

External Elements

The external metal wall cladding has significant surface deterioration, peeling paint and physical damage throughout the structure. The timber doors, windows frames, fascia and bearers all have significant surface deterioration, peeling paint and physical damage throughout the structure. There is severe corrosion of the gutter, disabling the functionality of the gutter.

Internal Elements

The internal wall and ceilings have surface deterioration, peeling paint and damaged areas. A number of ceiling panels have fallen down from the roof, which is a health and safety hazard. A number of wall panels have been dislodged from the walls, showing the internal timber frame and external cladding.

18.3 Architectural

18.3.1 Site Inspection Summary

This building is in a similar state to building A0125. Please refer to section 13.3.1 for architectural advice on this building.

Figure 31 Plan view of building A0203 (image from Nearmap)

18.3.2 Architectural Assessment & Recommendations

This building is in a similar state to building A0125. Please refer to section 13.3.2 for architectural advice on this building.

Further detail can be found in PDS-12399-BLD-A0203-AR-1203, Appendix G.

18.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0203 - hazardous materials asbestos containing material (non-friable) and lead-containing paint were identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

18.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0203	$57,000	N/A

19 Building A0210 – 1914 Hangar

19.1 Building Description

This building has been scoped to be **relocated** to the museum complex of the base. The physical relocation works will be undertaken as part of PDS project EST03612.

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **relocated.**

19.2 Structural

19.2.1 Site Inspection Summary

Building 210 is a large steel and timber framed hangar type building that has been scoped to be relocated. The steel trusses that support the roof and are in good condition however require painting due to surface deterioration and minor corrosion. The steel cladding on the roof and walls had large areas with surface deterioration, peeling paint, and small areas of moderate corrosion. The folding doors with metal wall cladding require replacing as there is damage and corrosion to the base of the panels. The horizontal steel bracing was missing in one area of the roof frame. There was significant damage to the tie down bracket at the base of one timber column to the timber floor beam. A number of timber ceiling slats were missing in the centre of the building. The concrete floor has damage in numerous areas.

19.2.2 Structural Assessment & Recommendations

A summary of the major structural defects are provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Tie Down Bracket at Column

At one of the timber columns in the corner of the building, the two number of steel tie down brackets have severely corroded to failure of the brackets. These brackets are to be replaced to restore the column to full structural capacity.

Steel Roof Frame

The steel roof frame and trusses are in good structural condition with minor areas of surface deterioration, peeling paint and minor corrosion. To maintain this condition, the steel trusses should be painted with the corroded areas treated accordingly. In one area in the roof frame, the horizontal steel bracing is missing, which compromises the structural integrity of the building. This steel bracing is to be replaced to match with other existing bracings. The missing timber ceiling slats expose the timber purlins above the steel trusses. These timber slats are to be replaced with equivalent heritage approved timber slats.

Metal Cladding

The metal folding doors have damage and corrosion to the cladding at the base of the doors. These metal panels are to be replaced with equivalent heritage appropriate panels following the relocation of the building. The metal cladding on numerous areas of the walls and roof has peeling paint and minor to significant corrosion, and these steel sheets are to be replaced or painted where necessary.

19.3 Architectural

19.3.1 Site Inspection Summary

The existing building is a large open hangar, which was previously used as a workshop. The internal ceilings are in good condition, with large vaulted sections to the building. On the West side of the building there are 6 large sliding doors, which are not operable due to rusting of the operation system, wheels and guides.

This building is to be relocated to a new site on the opposite of the base, and due care should be taken when dis-assembling prior to relocation.

All building components that can be retained should be and any new building component should be matched to existing. Where existing building components are being retained, they should be cleaned, sanded back, corrosion treated then primed and painted.

Figure 32 Plan view of Building A0210 (image from Nearmap)

19.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0210-AR-1210-1210.1, Appendix G.

Figure 33 Building A0210

External building surfaces

Existing metal wall sheeting is showing visible signs of corrosion. In areas where the sheets have been painted over, the paint is peeling and flaking. The fixings are all rusted and in some areas missing. The existing sheeting should be replaced to match existing and insulation replaced.

The external timber boards to the soffit are damaged, missing and show signs of water damage and should be replaced with new painted timber boards with colour to match existing. The existing fascia gutters and downpipes are missing, damaged and should be replaced with new.

External timber fascias, are rotting and damaged and require to be replaced with new matching prime and painted fascias.

Internally the box gutters will need to be replaced with new gutter boards, metal tray and flashings and be set to line and to fall to outlets.

Existing roof sheeting is in good condition which can be seen from the ground. Any damaged sheets should be allowed to be replaced along with new flashings to entire roof area.

Doors and Windows

The large external sliding doors has peeling paint, damage to the bottom and sides. The existing doors cannot open due to damage to the bottom tracks and wheels. The steel structure is rusting and needs to be cleaned with wire brush to remove corrosion, prior to be primed and painted. In relocating the building, new steel tracks to bottom and the top tracks will need to be serviced and cleaned to allow for easy movement of the doors.

External timber entry doors and timber frames will need to be replaced with new solid core timber doors and DDA compliant door hardware. All external timber surfaces will need to be replaced with new matching type timber. These include but are not limited to fascias, bargeboards, timber soffit linings, door frames.

Existing steel windows, will be needed to be replaced with new matching type windows.

Flooring

The existing concrete surfaces internally are damaged and cracked. In some areas where there were originally pits (to service underneath vehicles), these pits have been filled with gravel and covered with carpet. After the building has been taken down, the concrete and pits should be broken up and removed from site.

Internal Elements

Existing internal ceiling linings are in good condition. The timber panelling could be reused in the new building, but care needs to be taking removing the timber boards and during reinstallation. Prior to fixing, the boards should be sanded back, primed and painted in colours to match existing.

Building Services

All building services should be capped and sealed, prior to deconstruction of building. All existing lighting and conduits should be removed and disposed of.

The contractor should allow for new services to the relocated building and the building will need to conform to current DDA and BCA requirements.

New fittings to the building should include but are not limited to, new lighting, exit lights/signage, emergency lighting, new power outlets and these should comply with current regulations.

Any new amenities associated with the relocated building will have to conform to current DDA requirements, including access to the building. toilets and exit doors/pathways.

Relocation of building from site

The contractor will need to program the relocation works, especially items in the building that are salvageable and can be reused. these items need to be carefully removed and stored prior to reuse.

Items that are deemed to be of no value, due to the condition should be removed from site.

New site for relocated building

The new site needs to be selected prior to any relocation works occurring. all in ground services to the new relocated building should be completed before building has been dismantled.

19.4 Building Surveyor Assessment

This building has been rated as poor in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- Building currently does not comply with DDA access requirements
- Detailed design of the relocation of this building requires further work to comply with MFPE

19.5 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0210 - hazardous materials asbestos containing material (non-friable), PCBs and lead-containing paint were identified to present

The hazardous materials assessment is provided in Appendix F.

19.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Relocate
A0210	$1,274,000

20 Building A0218 – Toilet Block

20.1 Building Description

The main structure of this building is beyond structural repair and is recommended to be **demolished.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.** This building has no heritage ranking.

20.2 Structural

20.2.1 Site Inspection Summary

Building 218 is a brick wall and timber framed structure with a metal sheet roof. The metal roof cladding has severe corrosion in numerous locations which has significantly affected the internal elements of the building. The brick walls were in good condition, however the timber internal frame shows signs of deterioration and is in poor condition. The condition of the timber roof frame and trusses could not be determined as they are located in the ceiling space. The building contains asbestos throughout the walls and ceiling, and this adds to the cost of demolition. To remediate this building, it would be considered beyond economic repair due to the large number of defects present throughout the walls, floor and ceilings.

20.2.2 Structural Assessment & Recommendations

A summary of the major structural defects is provided in this section. Further detail including photographic defect identification can be found in Appendix D.

Metal Roof Cladding

The metal roof cladding has numerous areas of severe corrosion resulting in large holes in the roof sheeting. These holes occur along the entire length of the building on every roof sheet, which would require the entire roof sheeting to be replaced. Due to the large number of holes in the roof, this enabled water to leak throughout the building and damage many other areas of the building.

Internal Timber Frame

The timber wall framing on the inside of the brickwork was in poor condition due to long term water damage through the leaking roof. Many areas of this timber frame would be required to be replaced or restored, resulting in the building being considered beyond economic repair. The timber roof frame and trusses appeared to be in an acceptable condition however it was difficult to determine as the structure was in the ceiling space.

20.3 Architectural

20.3.1 Site Inspection Summary

The existing toilet block was closed off by secure fence to prevent access to building. Access was limited due to safety concerns with severe deterioration to the building. From what could be viewed, the existing toilet fittings are old and damaged along with the building envelope materials.

Figure 34 Plan view of building A0218 (image from Nearmap)

20.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0218-AR-1218, Appendix G.

Figure 35 Building A0218

External building surfaces

Existing brick walls are in good condition, but the cladding above them has deteriorated and is damaged with some missing panels.

Existing timber windows are damaged, rotting, with some broken glazing. The existing roof sheeting is rusted, with large section missing and the sheeting is loose and not securely fixed to roof structure.

The existing gutters and downpipes are missing or damaged and beyond replacement. External timber fascias, are rotting and damaged.

Internal building surfaces

Internal surfaces are damaged, with broken or missing sheets and the ceiling has fallen in many areas. The existing toilet fittings are old, damaged and would need replacement. Existing internal doors are missing or delaminating.

Building Services

All services to the building would need to be capped and cut to the building prior to any demolition works proceeding. This would include electrical, mechanical, and hydraulic services to the building. Other services that need to be cut would include stormwater and sewer.

Any services pipes and waste pits will need to be removed along with adjoining paths, concrete landings and pads.

Removal of building from site

The existing concrete slab to the west side of the building should be broken up and be disposed of. After removal of all debris, surface levels should be filled with clean soil and seeding to provide a level surface around where the building footprint once was.

20.4 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0218 - hazardous materials asbestos containing material (non-friable), SMF and lead-containing paint were identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

20.5 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0218	$40,000	N/A

21 Building A0221 - Store

21.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's assessment, it is recommended to be **retained.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.** This building is rated 'moderate' in the HMP significance ranking. There is no planned future use for this building therefore the repair and ongoing maintenance of this building is not considered effective use of project funding. In addition, the presence of asbestos increases the costs to retain the building. The Heritage Impact Assessment will highlight the reasons there are no alternatives to demolition.

21.2 Structural

21.2.1 Site Inspection Summary

Building 221 is a large steel framed warehouse style building with profiled fibre cement sheet external walls and metal roof sheeting. The external corrugated fibre cement sheet walls are showing signs of surface deterioration and an accumulation of dirt. The structural roof frame is in good condition with the steel roof trusses having only minor corrosion. The timber purlins are in good condition. The metal roof sheeting also has minor corrosion in several locations. Three out of the four valley gutters are damaged and corroded and require replacing. Asbestos is present within the building and this will add additional costs for remediation.

21.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Roof and Roof Frame

The steel framed roof trusses presented minor corrosion and pitting in numerous locations. These areas can be treated and painted. There is moderate corrosion at several locations of the metal roof sheeting which requires replacing. Most of the roof sheeting is in an acceptable condition and could last another ten or more years. One steel equal angle brace in the roof framing appears to be buckled and this member requires replacing. Roof timber purlins are in good condition.

21.3 Architectural

21.3.1 Site Inspection Summary

The existing building is a single storey building, which was previously used as a large maintenance works shop, with administration offices and various amenities building inside. The building is constructed out of large metal portal frames, in a sawtooth configuration, with polycarbonate highlight windows above and polycarbonate sheeting at intervals to give additional lighting inside the building. The building has not been occupied for a few years and has deteriorated and need refurbishments to bring the building up to a modern standard. This building should be retained after major refurbishments to bring the building up to compliance.

Figure 36 Plan view of building A0221 (image from Nearmap)

21.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0221-AR-1221 -1221.1, Appendix G.

Figure 37 Building A0221

External surfaces

External metal cladding is a mixture of asbestos fibre cement sheeting in both rib panel and flat sheets, which should be removed and replaced with new. Existing roof sheeting also needs to be replaced.

Existing box gutters, will need to be cleaned out and at each end, new rainwater heads and downpipes should be installed.

Doors and windows

Replace existing external timber doors and replace with new solid panel timber doors including DDA compliant hardware and weather seals.

Allow to install new emergency exit doors to building to comply with current BCA regulations.

Existing steel windows frames are damaged, rusting and corroded and should be replaced with new powder coated aluminium windows.

Existing polycarbonate highlight windows are deteriorating and showing signs of damage and need to be replaced with new polycarbonate sheeting.

Internal items

Existing internal offices, should be demolished and removed. Prior to demolition, any services to these offices should be cut and capped.

New kitchenette to be configured to replace existing kitchenette, including new sink, and cupboards.

Flooring

Existing concrete slab should be cleaned and rubbish removed. The slab should be sealed and painted with a new epoxy non-slip finish.

Building Services

Existing high bay lighting to entire building needs to be upgraded as well as new emergency lighting, exit lights and signage.

Existing fire services to the building, including external hydrants should be upgraded and to comply with current regulations.

The existing switchboards will need to be replaced with new switchboards and distribution boards.

Hydraulic services to the building include water to sinks in the kitchen and toilets. The existing piping shows sign of corroding and should be replaced with new.

Existing gas heaters should be removed after capping and sealing services to these units. Any new works should allow for heating and cooling to the building to suit its future use.

Existing toilets/offices

Existing toilets and offices which are scattered around the building have asbestos linings throughout and are in various state of disrepair. The rooms should be demolished and removed from site.

Any new configuration/classification of the building, will determine the type and number of amenities required for that building.

21.4 Building Surveyor Assessment

This building has been rated as poor in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- The possible future use of this building is not currently known. If there is a change of use, this may trigger additional upgrades for compliance with the BCA.
- There is no fire hose reel within the building which is required to comply with Australian standards.
- Fire extinguishers need to be tagged and maintained when the building is in use.

21.5 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0221 - hazardous materials asbestos containing material (non-friable and friable) and PCBs were identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F. The report has recorded the friable asbestos (present in the dust throughout the building) as a high priority and recommend that the area is isolated immediately.

21.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0221	$620,000	$3,541,000

22 Building A0228 – Trainee Sleeping Quarters

22.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's assessment, it is recommended to be **retained.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.** This building is rated 'moderate' in the HMP significance ranking. It was agreed that the cost required to retain this building is not efficient use of project funding as there is no planned future use. The Heritage Impact Assessment will highlight the reasons there are no alternatives to demolition.

22.2 Structural

22.2.1 Site Inspection Summary

Building 228 is a timber framed building with metal cladding on the walls and roof. The timber frame and building are structurally in good condition. The external metal wall sheeting was damaged at a few locations. A number of internal wall panels are damaged or missing as existing windows have been enclosed through external metal wall cladding.

22.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

External Elements

The metal wall cladding is damaged at a number of locations and these sheets are required to be replaced where necessary.

Structure

The existing structure is sound and no major structural elements require repair.

22.3 Architectural

22.3.1 Site Inspection Summary

The building is a single storey metal clad building, recently used as a kindergarten building. The exterior is in good condition and internally there are some works required to bring up to standard. The internal linings including wall and ceilings need to be repaired, and the existing kitchen shows significant damage. The floor structure will need some works as in areas, the floor structure sags and needs new footings.

Figure 38 Plan view of Building A0228 (image from Nearmap)

22.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0228-AR-1228, Appendix G.

Figure 39 Building A0228

External
Allow to cut back the existing sheeting and allow to reinstate window openings with new aluminium windows matched to windows on the north side of the building.

External gutters and downpipes appear to have been replaced recently and are in good condition.

Other external works should include, external lighting, new concrete steps and landings into building.

Floors
Existing floor structure will require minor re-stumping where the floor is not level, but overall the floor structure is in good condition. The existing flooring, which is a mixture of vinyl and carpet is damaged and needs to be replaced with new floor coverings.

Ceiling
The existing ceiling linings joints are damaged with gaps that need to be repaired. Works would include repairs to joints and some re-fixing of linings, and repainting of entire ceilings. The existing timber trusses are in good condition and should be repainted.

With the age of the building, ceilings and walls probably do not have insulation in them and this could be part of any new works which would be to include new insulation.

Doors
Existing hollow core doors are delaminating and should be replaced with new solid core doors. DDA compliant door hardware to both external doors, as well as new weather seals at bottom of doors should be provided.

Windows
Existing aluminium windows are in good condition to one side, while the south side windows which have been removed should be replaced with new windows to match. New architraves and fly screens should be installed. Externally the timber architraves should be cleaned down.

Internal walls
Existing wall linings to the entire building are in good condition, however they are covered with damaged wall paper. The wallpaper should be removed and the entire walls should be re-painted.

Kitchen joinery units
Existing kitchenette cupboards and sinks are damaged and should be replaced with new to match the existing configuration.

Building services

The existing air conditioning wall unit is mounted too low and presents a hazard. It is recommended that the unit is replaced due to its age and located in a more appropriate height.

Existing fluorescent tube lighting suspended from the ceilings appears to be in good condition. Upgrades to emergency lighting, exit lighting, distribution boards and switchboards should be included.

The existing water pipe to the kitchen shows sign of corrosion and should be replaced with new. Toilet facilities within this building have been configured for a kindergarten and so the fittings heights and sizes are suitable for children, not adults. Refurbishment of these facilities requires an understanding of the future use of the building.

22.4 Building Surveyor Assessment

This building has been rated as fair in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- Criticality assessment form in accordance with MFPE Chapter 2 is required to be undertaken.
- Shortfalls in maintenance to the building should be rectified.

22.5 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0228 - hazardous materials asbestos containing material (non-friable), SMF and ozone depleting substances were identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

22.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain
A0228	$46,000	$362,000

23 Building A0243 – RAAF College Classroom

23.1 Building Description

This building is being **demolished** as part of PDS project 11445. Delivery of this project is scheduled to begin in year 2019. A summary of the reasons this building is to be referred for demolition is provided below:

Building A0243 was built in 1956 has been vacant for a significant period. There is currently a tree growing through the building, window openings are covered with boards and floor boards no longer exist. The walls are heavily degraded, and all doors have been bolted shut to prevent personnel from entering due to safety concerns. This building is beyond structural repair.

23.2 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0243 - hazardous materials asbestos containing material (non-friable and friable), SMF, PCBs and lead-containing paint were identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

23.3 Cost of Proposed Works

Based on the 30% Concept Design cost plan for project 11445, the estimated cost to demolish this building is as follows:

Building	Cost to Demolish
A0243	$86,000

24 Building A0485 – Point Cook Flying Club

24.1 Building Description

The main structure of this building is in good condition and can be either demolished or retained. Based on the design team's assessment, it is recommended to be **retained.**

Stakeholder Feedback:

Stakeholders provided feedback at the 90% detailed design meeting and would prefer this building is **demolished.** This building is rated 'low' in the HMP significance ranking. Building A0485 is in close proximity to the airfield and occupation of the building would require significant acoustic upgrades. It is also noted that there is no safe path for personnel to enter and exit the building being so close to the airfield. The only safe alternative to retain this building would be to relocate it.

A cost estimate for relocation has been provided in section 24.6 however retaining this building is not considered efficient use of project funding as there is no planned future use. The Heritage Impact Assessment will highlight the reasons there are no alternatives to demolition.

24.2 Structural

24.2.1 Site Inspection Summary

Building 485 is a timber framed building with metal wall cladding on the walls and roof. The building is in good structural condition with a number of architectural defects. The metal wall and roof cladding have surface deterioration and corrosion. A large number of internal wall and ceiling panels are damaged or missing.

24.2.2 Structural Assessment & Recommendations

A summary of proposed structural repair items is provided in this section. Further detail including photographic defect identification and extent of repair works can be found in Appendix D.

Metal Cladding

The metal wall cladding has surface deterioration at one end of the building, with minor deterioration at other sides of the building and requires painting. The metal roof cladding has minor to severe corrosion and lifting at the eaves of the roof sheets, and these sheets require replacing. There is splitting in one of the roof sheets which presents potential internal water leakage issues, and this requires replacing.

Structure

The main structure is in good condition. The floor structure sags and needs new footings.

24.3 Architectural

24.3.1 Site Inspection Summary

The building is a single storey metal clad building, recently used as a meeting place for Point Cook Flying club. The building has some recent modifications externally on one side, but the building interior has deteriorated. The internal linings including wall and ceilings need to be repaired, and the existing kitchen shows significant damage.

Figure 40 Plan view of building A0485 (image from Nearmap)

24.3.2 Architectural Assessment & Recommendations

A summary of architectural assessment is provided in this section. Further detail can be found in PDS-12399-BLD-A0485-AR-1485, Appendix B.

Figure 41 Building A0485

External

Existing external metal wall sheeting is damaged and is rusting on 3 sides of the building. The north side has been recently replaced with new metal wall sheeting. The windows on the north side of the building have been sealed up and in any new refurbishment works these windows should reinstated to match windows to the south side of the building.

The existing sheeting, including flashings to corners, windows, doors should also be replaced to match existing sheeting on the north side of the building.

External gutters and downpipes are damaged or missing and should be replaced with new to match.

The roof sheeting shows visible signs of rusting and should be replaced with new matching corrugated roof sheeting.

External timber baseboards should also be replaced to all of the building.

Existing concrete paths should be demolished and replaced with 1200mm wide concrete paths to the existing door openings from the nearby road.

Floors

Existing timber floor structure is not level and has some areas where the floor drops. The entire floor structure would need to be replaced, with new concrete pad footings, concrete stumps, timber joists and structural sheet flooring, as well as a replacement of the existing floor finishes.

The existing flooring, which is a mixture of tiles, vinyl and carpet is damaged, worn and should be replaced with new carpet tiles and new vinyl flooring throughout.

Ceiling

The existing ceiling linings are loose and water damaged and in some areas, have completely fallen. These should be replaced to the entire building, with new plasterboard linings, painted to match existing.

The existing hardwood roofing battens should also be retained, however there should be an allowance to provide two extra roofing battens to the entire length of the building to prevent sag to the ceiling sheets.

Any new ceilings works should include new ceiling insulation to the entire building.

Doors

Existing timber panelled doors will require replacement with DDA complaint door hardware.

Windows

Existing timber windows to the south side of the building are in reasonable condition and apart from some servicing to window hardware. They can be retained, but they should be sanded back and repainted.

Existing window openings that have been sheeted over to the north side of the building should be reinstated to match other windows.

New architraves and fly screens should be installed. Externally the timber architraves should be replaced with new matching painted architraves.

Internal walls

Existing wall linings to the entire building should be replaced with new painted plasterboard linings. All existing wall fittings should be removed and replaced with new. These include light switches, power outlets and timber skirtings to match existing. Compliant wall insulation should also be provided.

Kitchen/bar joinery units

Existing kitchenette cupboards and sinks are significantly damaged and should be replaced with new to match. The works should include a new sink, wall oven, and recess for a refrigerator. Electrical requirements including new power and lighting should be part of this works, as well as services to sink.

Building services

Existing lighting would need to be replaced to the entire building, as well as new emergency lighting and exit lights.

The existing water supply shows sign of corrosion and should be replaced with new piping.

There are wall heating units located in the building but no cooling. Future use of this building will need to be considered to understand the air conditioning requirements. The existing wall heaters should be removed and disposed of including external vents.

24.4 Building Surveyor Assessment

This building has been rated as poor in terms of current day BCA and MFPE compliance.

An assessment has been completed in Appendix H. The major high priority items are shown below:

- The south east exit doors are currently obstructed by a shelving unit. Remove obstructions.
- Fire extinguishers have not been provided to this building.

24.5 Hazardous Materials

A hazardous building materials assessment was completed on the building to identify materials which may pose a health risk during demolition/ refurbishment works. The key findings from the assessment are as follows:

- Building A0485 - hazardous materials asbestos containing material (non-friable), SMF, PCBs and lead-containing paint were identified to present
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding the building

The hazardous materials assessment is provided in Appendix F.

24.6 Cost of Proposed Works

The estimated costs for proposed works are as follows:

Building	Cost to Demolish	Cost to Retain	Cost to Relocate
A0485	$30,000	$317,000	$485,000

25 Safety & Environmental management

25.1 Safety in Design

Although this project has no delivery phase, safety has been considered throughout the course of the design phase. A safety in design register has been provided at Appendix J.

25.2 Environment and Heritage

25.2.1 Environmental setting

The scope of this project is to provide an assessment of potential environmental risks that have the potential to impact costs associated with options to demolish or refurbish nominated buildings at RAAF Base Point Cook. Whilst it is outside the scope to undertake the actual works (demolishing or undertaking refurbishment works), it is worth noting that RAAF Base Point Cook is in a sensitive environmental setting and large construction works have the potential to cause adverse harm. The base is located on the west coast of Port Philip Bay and forms part of an ecologically sensitive landscape with Point Cook Marine Sanctuary and Point Cook Coastal Park (which includes Cheetham Wetlands and RAAF Lake) to the immediate north and north-east of the base and RAMSAR listed Bellarine Peninsula to the north and south along the coastline. Furthermore, areas of the base are considered areas of cultural sensitivity under the Aboriginal Heritage Regulations 2018 with recorded Aboriginal places comprising of artefacts and shell middens.

Large construction works have the potential to impact on environmental and cultural heritage values and should be undertaken in a sensitive manner. Potential impacts include site access through sensitive habitats, sediment runoff from earthworks into marine parks and disturbance to Aboriginal heritage e.g. buried artefacts.

As assessment of potential impact to the environment and heritage values should be completed to inform the construction phase prior to works commencing and appropriate mitigation measures shall be documented in the Contractor's CEMP. Refer to below section with regards to fauna inhabiting buildings.

25.2.2 Hazardous materials

Hazardous materials are likely to be disturbed and generated as waste streams during refurbishment and demolition works. There are risks to human health and the environment if these regulated wastes are not handled safely and in accordance with best practises and relevant health and safety and environmental legislation. A hazardous building materials survey was undertaken by a qualified specialist in September/ October 2018.

Key findings are provided in sections 5 – 24. The Hazardous Building Materials Assessment[1] is provided in Appendix F which provides several mitigation measures including the safe removal of friable asbestos.

25.2.3 Birds/ bats inhabiting buildings A0004 and A0221

During the hazardous materials survey, a large quantity of fauna excrement was recorded in buildings A0004 and A0221 from birds and/or bats that utilise the roof spaces. The species of birds and/ or bats that utilise the buildings is currently unknown. An initial review of an online biodiversity database[2], which lists known species to be present in the area, did not indicate state or Federally threatened species are likely to be present.

Once buildings are confirmed to either be demolished or refurbished, an ecologist may be required to determine the species of the birds/ bats that occupy the buildings to develop appropriate mitigation controls.

[1] Prensa (2018) Hazardous Building Materials Assessment – RAAF Base East Sale
[2] NatureKit https://www.environment.vic.gov.au/biodiversity/naturekit (online resource sighted 31 August 2018)

One mitigation measure to avoid impacts may be to avoid disturbance works during sensitive periods such as breeding season.

25.2.4 Pavement materials associated with hangars

If the hangars have a reticulated fire system and have historically used aqueous fire-fighting foam, there is potential that pavement materials may be contaminated with per-and polyfluoroalkylated substances (PFAS). If pavement materials are impacted with PFAS then they must be managed in accordance with Defence PFAS Framework[3] (which may limit how the material can be reused and prohibit the material being disposed off-Base). If pavement materials are impacted with PFAS, the most cost-efficient management option may be to leave the pavement materials in-situ.

25.2.5 Heritage

Assessing impacts to heritage values and consideration of whether an EPBC referral is required is being undertaken by Defence separate to this project.

25.3 Whole of Life Design

25.3.1 Performance

A number of buildings included in this report are past their design life and are no longer suitable for retention. For buildings that have a main structure in good condition, concept level design for upgrade has been provided.

25.3.2 Options considered

Cost estimates have been provided for demolition and retention in order to inform defence's decision on the future of these buildings. It is however noted that all buildings in the scope of this project do not currently have planned future use.

25.3.3 Whole of Life

It is important to consider the potential future use of these buildings along with their maintenance requirements. At the time of writing this report, there was no planned use for any of these buildings. It is suggested that Defence consider the recommendations of this report in line with the redevelopment plans for RAAF Base Point Cook.

[3] Defence (2018) Defence Per- and Poly-Fluoroalkyl Substances Framework – Construction and Maintenance Projects

Appendices

Appendix A
Estate Works Program Project Brief

Australian Government
Department of Defence

CUSHMAN & WAKEFIELD

VT | Williams | RAAF Base Williams | Point Cook Heritage Consultancy

VT 12399

Estate Works Program Project Brief

EWP Project - Aurecon

Objective Reference:

Project Brief Version 28/02/2018

Australian Government
Department of Defence

CUSHMAN & WAKEFIELD

Part One: Project Outline & Project Objectives

1.1 Initial Budget Estimate

Expense	2017-18	2018-19	2019-20	Initial Budget Estimate
Initial Budget Estimate	$3,553	$90,928	$55,520	$150,000

☐ PWC Notification should be considered

☐ FSC Accreditation should be considered

☐ PWC Referral should be considered

1.2 Summary of Requirements

Property	Estate Id	Estate Name	Works Type	Initial Budget Estimate
RAAF Base Williams - Point Cook	0932-various	Southern Tarmac Hangars	Specialist Technical Advice	$150,000
Initial Budget Estimate				**$150,000**

1.3 Deliverables

EWP Id	Description	Estate Id	Estate Name	Source	Budget Estimate
VIC40585	RAAF Williams Point Cook is included on the National Heritage List and is protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This request is to conduct an independent structural and safety assessment and provide appropriate reports, including quantity surveyor inspection and cost estimates. The RAAF has identified that the demolition and removal of the Southern Tarmac Bellman hangars {buildings A0211, A0212, A0213, A0214} as essential during 2018-2019 due to safety issues. The proposed demolition needs to be referred under the EPBC Act for approval from the Minister for the Environment. The referral necessitates Defence to demonstrate that there are no feasible and prudent alternatives to demolition, and that the assets are beyond economic repair - these reports are to provide the basis for this referral. The report is to provide cost estimates for options for these hangars including demolition (as planned), repair and retention or stabilisation. Similarly, independent condition and structural	0932-various	Southern Tarmac Hangars	EIR	$150,000

	assessments of Buildings A0004, A0007, 102, 103, 112, 121, 122, 125, 132, 155, 156, 158, 203, 210, 217, 218, 219, 221, 228, 243, 319 and 485 are also required. These facilities have been identified by RAAF being in significantly degraded condition that may be beyond economic repair and are identified for potential demolition. These buildings are identified either as part of the National heritage listing or in the Heritage Management Plan as contributing to the heritage values of RAAF Williams Point Cook. This assessment will support consideration of options for these buildings including plans for demolition. The report is to provide cost estimates for options for the Bellman hangars and the other buildings including demolition (as planned), repair and retention or stabilisation.				

1.4 Baseline Milestone Dates

The below table outlines the NPS Baseline IDS.ALL.80.02 for Forecast Milestone Dates. Forecast Milestone Dates are to be updated at completion of Phase 1 Scope & Feasibility to form the updated baseline for the project.

Milestone Description	Forecast Start	Forecast Finish
Milestone 1 DSRG Endorsement	28/02/2018	28/02/2018
Milestone 2 Project Programmed	28/02/2018	28/02/2018
Milestone 3 Project Brief Released	28/02/2018	28/02/2018
Milestone 4 Reverse Brief Submitted	28/02/2018	11/03/2018
Milestone 5 PDS Procurement Approved	11/03/2018	21/03/2018
Milestone 6 Submission of Scope Feasibility Report	21/03/2018	25/07/2018
Milestone 7 Design Complete	09/08/2018	26/07/2019
Milestone 8 Procurement Recommendation Submitted	26/07/2019	19/10/2019
Milestone 9 Procurement Recommendation Approved	19/10/2019	13/01/2020
Milestone 10 Project Completion	13/01/2020	13/01/2020
Milestone 11 Project Administratively completed	13/01/2020	13/01/2020
Milestone 12 Project Financially Complete	13/01/2020	27/01/2020
Milestone 13 DLP Completed Accepted	27/01/2020	26/01/2021
Milestone 14 Project Closed	26/01/2021	02/02/2021

Part Two: Scope of PDS Services

2.1 Project Phasing

The following phases are applicable for this project:

Phase 1 Scope & Feasibility	X

Phase 2 Design	X
Phase 3 Delivery	

Justification for recommended phasing requirements when removing phases from scope:

- No specific phasing information identified in supporting requirements.

2.2 Scope and Feasibility Notes

Stakeholder feedback on requirements for consideration in Scope and Feasibility:

- No specific stakeholder feedback comments identified in supporting requirements

The following conditions are applicable for this project.

Risk Profile:

- No specific project risks identified in supporting requirements.

Works to Date:

- This is a consultancy project to inform future demolitions of buildings at RAAF Base Point Cook.

Delivery:

- Not required. Consultancy only.

Scheduling:

- No specific scheduling information identified in supporting requirements.

Staging:

- No specific staging information identified in supporting requirements.

Procurement:

- No specific procurement information identified in supporting requirements.

Governance:

- No specific governance information identified in supporting requirements.
- Phase reports and other supporting documents are to be filed and published in Objective using the standard subfolders provided.

Insurance Requirements:

- No specific project insurance information identified in supporting requirements.

X Application of Smart Infrastructure Manual to be considered.

2.3 Project Performance Measures

The following are performance measures for this project.

- Mitigation of Estate Risks identified in EIR
- Mitigation of gap between Assigned target and Assessed Integrity (Condition) ratings identified in Estate Appraisal
- Mitigation of gap between Assigned target and Assessed Functionality (Fitness for Purpose) ratings identified in Estate Appraisal
- Resolution of compliance issues identified in Estate Appraisal
- Management of Project Budget
- Management of Project Schedule
- The project should whenever possible deliver estate solutions that provide effective, modular capability outcomes into the future.

Part Three: Points of Contact

3.1 Project Points of Contact

Stakeholders identified by the nature of the works and/or group level sponsors. Other engagement may be required.

National Contacts

Role	Name	Contact	Location
Air Force	GPCAPT Ron Tilley	02 6266 8281	Air Force HQ - Strategic Infrastructure
Air Force	WGCDR Paul Stollznow	02 6266 2732	Air Force HQ - Strategic Infrastructure
DEPU	Graham Campbell	02 4034 7104	Estate Information
E&IG	Kate Leane	02 6266 8634	ID - EE Branch - Environment & Heritage Policy

Regional Contacts

Role	Name	Contact	Location
BSM	Bernadette Elkins	03 9256 3585	Williams
EFS Environment	Anne-Marie Tenni	03 9282 3099	VT Wide
EFS Planning	Steve Knezevic	03 9282 3553	VT Wide
EMOS	Ivan Glaven	0419 542 928	PSS Manager
EMOS	Fred Mallon	0400 639 739	EA Manager
EMOS	George Vasiliadis	0438 543 818	EU Manager

Other Contacts

- shelley.james@defence.gov.au

3.2 Points of Contact for Individual Requirements

EA Contacts

- No EA requirements

BEAP Contacts

- No BEAP requirements

Other Contacts

EWP Id	Role	Name	Contact	Email
VIC40585	AD DEHPD	Shelley James	02 6266 8634	shelley.james@defence.gov.au

Attachment A:
EWP Projects on Related Building / Infrastructure Elements

Current/recently completed Estate Works Projects at Building / Infrastructure elements related to this project.

0932-various	No related EWP projects identified

Attachment B: EWP Projects on Related Properties

Current/recently completed Estate Works Projects at properties related to this project.

RAAF Base Williams - Point Cook	Related Project Id	Project Description	Delivery Agent	Status
	10179	Asbestos Removal	Aurecon	Completed
	10180	Asbestos Removal	Aurecon	Completed
	10187	Mechanical Ventilation Works	Augility	Phase 3 Delivery
	10543	Supply and install a hired Air Cooled Chiller, for temp. AC at B A0202 Point Cook 151015 - QA - 0998 RAAF Base Williams, Pt Cook	EMOS-VT	Phase 0
	10781	Point Cook Building Works	Aurecon	Phase 3 Delivery
	10782	DSTO FB & RAAF Williams | Building and Civil works	Augility	Phase 3 Delivery
	10785	DSTO FB, RAAF Williams Asbestos Remdiation Works	Augility	Phase 3 Delivery
	10786	Fire Fighting Water Supply Works	Aurecon	Completed
	10788	Watsonia, RAAF Williams and Hawthorn Depot Civil Works	Aurecon	Phase 2
	10789	Multiple Vic Property - Security Upgrades	Augility	Phase 3 TEBR
	10790	Point Cook | Electrical Infrastructure Works @ A0025, A0081	Aurecon	Phase 3 Delivery
	10886	Victoria EWP Works	EMOS-VT	Phase 1
	10918	VIC|Pt Cook Electrical Inf Consultancy	Aurecon	Phase 2
	11074	VIC|Point Cook Water Infrastructure	Aurecon	Phase 2 TEBR
	11122	Point Cook Electrical Infrastructure Works	Augility	Phase 3 Delivery
	11268	PCK - P3 - Consolidation of 1SECFORSQN personnel	Augility	Phase 1
	11297	RAAF Williams - PCK - RAAF Museum - P184/P185 - Enviromental Control	Augility	Phase 3 Delivery
	11300	Melbourne Metropolitan Fire Compliance Works	Aurecon	Phase 2
	11339	National|National HA Survey Consultancy	Aurecon	Phase 1
	11445	VIC|Point Cook Building Works	Aurecon	Phase 2
	11463	VIC|Williams Civil and Fencing Works	Augility	Phase 2
	11484	VIC|Pt Cook Jetty Heritage Preservation	Aurecon	Phase 2
	11935	VT | Williams | RAAF Williams Point Cook | AAFC Hangar	Aurecon	Phase 1
	EST03607	RAAF Point Cook 21Sqn Works	Aurecon	Phase 0
	VT15000600	Building Services	Augility	Phase 2
	VT15000602	Electrical Reticulation in Puckpunyal	Augility	Phase 3 Delivery
	VT15000702	Minor New works PCKR Asbestos & Roof Repairs	Augility	Phase 3 Close
	VT15000705	Minor New works PCKR Replacement Railings	Augility	Phase 3 Delivery
	VT15000706	Puckapunyal Asbestos Remediation works	Augility	Completed

Appendix B
Estate Investment Requirement

Australian Government
Department of Defence
Defence Support and Reform Group

ESTATE INVESTMENT REQUIREMENT

Project Name: 0932-RAAF Williams Point Cook Heritage

Request Type: GENERAL

PREPARED BY:

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Approver Comments:

This is the collective structural engineering and safety reports to support the environment and heritage approval.

Sponsor: DSG

Beneficiary: AIR FORCE

Requirement Description And Aim:

RAAF Williams Point Cook is included on the National Heritage List and is protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
This request is to conduct an independent structural and safety assessment and provide appropriate reports, including quantity surveyor inspection and cost estimates.
The RAAF has identified that the demolition and removal of the Southern Tarmac Bellman hangars {buildings A0211, A0212, A0213, A0214} as essential during 2018-2019 due to safety issues. The proposed demolition needs to be referred under the EPBC Act for approval from the Minister for the Environment. The referral necessitates Defence to demonstrate that there are no feasible and prudent alternatives to demolition, and that the assets are beyond economic repair - these reports are to provide the basis for this referral. The report is to provide cost estimates for options for these hangars including demolition (as planned), repair and retention or stabilisation.
Similarly, independent condition and structural assessments of Buildings A0004, A0007, 102, 103, 112, 121, 122, 125, 132, 155, 156, 158, 203, 210, 217, 218, 219, 221, 228, 243, 319 and 485 are also required. These facilities have been identified by RAAF being in significantly degraded condition that may be beyond economic repair and are identified for potential demolition. These buildings are identified either as part of the National heritage listing or in the Heritage Management Plan as contributing to the heritage values of RAAF Williams Point Cook. This assessment will support consideration of options for these buildings including plans for demolition.
The report is to provide cost estimates for options for the Bellman hangars and the other buildings including demolition (as planned), repair and retention or stabilisation.

Justification:

The four Bellman Hangars on the Southern Tarmac - A0211, A0212, A0213, A0214 - have been identified by RAAF as a safety risk and beyond economic repair. Independent structural and safety assessments along with cost analysis are required to meet EPBC Act compliance requirements.

The other buildings listed in this EIR have been identified by RAAF as having significant condition issues that may be beyond economic repair. These buildings are identified either as part of the National heritage listing or in the Heritage Management Plan as contributing to the heritage values of RAAF Williams Point Cook.

Sponsor Priority Assessment:

The RAAF has identified that the removal of the Southern Tarmac Bellman hangars as essential during 2018-2019 due to safety issues. The proposed demolition needs to be referred under the EPBC Act for approval from the Minister for the Environment. The referral necessitates Defence to demonstrate that there are no feasible and prudent alternatives to demolition, and that the assets are beyond economic repair - these reports are required as justification and evidence for the heritage referral/ approval. The heritage referral/ approval process needs to be complete before any works can commence, and the referral process may take several months.

Year Time Of Completion:

Start Date : 5 March 2018

End Date : 28 September 2018

Please progress this consultancy in 2018 as soon as possible.

Budget:

Sponsor Contribution : **$0.00**

Estimated budget for all inspections and reporting is $150,000.

Stakeholder Consultation:

E&IG has consulted with RAAF (Training Command, SADFO, DGHH) and the BSM.

Hurt Statement:

What is the impact to Defence of not proceeding with this project. This should include an analysis of the risks to Defence if the work is not undertaken at all or in the early years.
Refer to DEQMS for detailed guidance to complete the EIR

Threat Type	Hurt Statement	Consequence Rating	Likelyhood Rating	Risk Level
Capability	The assets do not currently contribute to capability.	Insignificant	Rare	Low
Environment & Heritage	Heritage values of the site are impacted by inaction on the management of these assets. The assets will continue to deteriorate.	Major	Almost Certain	Very High
Financial Efficiency	Costs to prepare the reports and undertake the works will continue to increase if delayed.	Moderate	Likely	High
Legislative Compliance	These reports are essential to the EPBC Act referral to demolish the buildings. A referral without these reports will be rejected, further delaying the process to demolish the buildings.	Severe	Almost Certain	Very High
Occupational Health	Several assets pose safety risks.	Severe	Likely	Very High
Reputation	The site is on the National Heritage List and there is strong public interest in the site. Continued neglect of heritage assets has a negative impact on reputation.	Major	Possible	High
Delivery of Services	The assets are currently unused.	Minor	Rare	Low
Security	The assets are not key to security requirements.	Insignificant	Rare	Low

Overall Risk:	Very High

Additional Issues for Consideration:

This work is a prerequisite for the other EWP works scheduled.

Appendix C
Return Brief

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Return Brief

Project number	**500270**	Date	**16/05/2018**
Project name	**12399 - RAAF Base Williams Point Cook Heritage Consultancy**	Total pages	**7**
Reference	**PDS-12399-RTB-GE-0001**	Revision	**1**
Subject	**Project 12399 – Return Brief**		

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From		**Michaela Whyte**		

1 Introduction

The purpose of this Return Brief is to provide a high-level summary of the scope of works for project **12399** and to provide opportunity for stakeholder input into the scope of works. This two phase consultancy project **12399** consists of one work request to be delivered by the same construction contractor in parallel within the FY17/18 works allocation of the PDS contract. This is revision 1 of this document with changes made in red text.

Table 1 NPS work requests

EWP ID	Description
VIC40585	RAAF Williams Point Cook is included on the National Heritage List and is protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This request is to conduct an independent structural and safety assessment and provide appropriate reports including quantity surveyor inspection and cost estimates. The RAAF has identified that the demolition and removal of the Southern Tarmac Bellman hangars {buildings A0211, A0212, A0213, A0214} as essential during 2018-2019 due to safety issues. The proposed demolition needs to be referred under the EPBC Act for approval from the Minister of the Environment. The referral necessitates Defence to demonstrate that there are no feasible and prudent alternatives to demolition, and that the assets are beyond economic repair – these reports are to provide the basis for this referral. The report is to provide cost estimates for options for these hangars including demolition (as planned), repair and retention or stabilisation. Similarly, independent condition and structural assessments of Buildings A0004, A0007, 102, 103, 112, 121, 122, 125, 132, 155, 156, 158, 203, 210, 217, 218, 219, 221, 228, 243, 319 and 485 are also required. These facilities have been identified by RAAF being in significantly degraded condition that may be beyond economic repair and are identified for potential demolition. These buildings are identified either as part of the National heritage listing or in the Heritage Management Plan as contributing to the heritage values of RAAF Williams Point Cook. This assessment will support consideration of options for these buildings including plans for demolition. The report is to provide cost estimates for options for the Bellman hangars and the other buildings including demolition (as planned), repair and retention or stabilisation.

2 Scope clarification

The scope of works for each project is detailed in the following sections, and it is proposed that this scope of works supersede the original briefed information.

This scope of works definition is based upon the following resources:

- Project descriptions and comments as contained in the NPS Briefing Document
- Information as provided in the CSIRs and EA Documents referenced on Objective
- Direct engagement with Project Stakeholders listed above
- Inspections of the elements outlined to be included in the Project Works

3 Design inclusions

In order to complete the proposed scope of works, design input may be required from the following disciplines:

- Structural engineer
- Quantity surveyor
- Environmental consultant
- Architect
- Building surveyor

Please note that a Heritage Consultant has been commissioned by Defence separately to provide advice based on the deliverables within this project. Heritage advice will not be provided as part of this project.

4 Scope of works

4.1 Summary

Table 2 Summary of work request scope

EWP ID	Description	Recommendation
VIC40585	Independent structural and safety assessment for the 26 buildings listed in the project brief. Cost estimates are to be provided for options to demolish and/or retain each building.	Based on Aurecon's initial site inspection, it was found that the following three buildings listed in the project brief do not exist: ~~A0103~~ ~~A0203~~ A0217 A0219 A0319 These will be removed from the scope of this project and therefore only 23 buildings will be included in the assessment.

4.2 VIC40585 Scope

This scope description for VIC40585 requests an independent structural and safety assessment for 26 buildings at RAAF Williams Point Cook. The assessment is to include cost estimates for options to demolish or repair and retain the buildings. During Aurecon's initial site inspection on Monday 30th April 2018, it was noted that buildings A0103, A0203, A0217 A0219 and A0319 no longer exist. These buildings will be removed from scope.

The final deliverable of this project is to include sufficient information for the Environment Protection and Biodiversity Conservation (EPBC) application which must be lodged and approved before any demolition or alteration to these buildings. Aurecon will liaise with stakeholders to further understand these requirements however this project does not include an application to the EPBC.

The structural engineer has conducted a preliminary inspection on each building listed in the project brief. Seven of these buildings are identified as having structures that cannot be retained and should be demolished. Twelve buildings are identified as retainable with repair works required. One building is to be relocated as requested by the stakeholders. Four buildings did not exist on the base.

Based on these findings, the following scope types are allocated to each building:

1. Demolish

The main structures of these buildings are beyond repair. Scope will include concept design documentation for demolition of the building and surrounding foot paths. Concept documents will be sufficient for the quantity surveyor to provide a cost estimate which will also be delivered in the final report.

2. Demolish or Retain

The main structures of these buildings are in good condition where as other parts of the building require varying degrees of repair. Examples of repair works are:

- Replace architectural items such as doors, windows, eaves, downpipes and guttering
- Waterproofing treatment to slab and walls
- Replace roof or external cladding

Note that most building upgrades are likely to trigger the requirement to meet current construction codes and standards or seek dispensation from a building surveyor.

Scope will include concept design documentation for both demolition of the building and upgrade for retention of the building. Quantity surveyor cost estimates will be provided for both options.

3. Relocate

Building A0210 is to be relocated to the museum complex as requested by stakeholders. Scope will include concept design documentation for relocation of the building along with cost estimates for the works. New footings will be designed as part of this and upgrades to current construction codes and standards will be provided as required.

Each discipline will provide the following services and deliverables:

- Structural engineer
  - Structural and safety assessment based on visual inspection of each building
  - Concept design documentation sufficient for quantity surveyor cost estimates
- Quantity surveyor
  - Cost estimates for options provided to each building as summarised in this return brief
- Environmental consultant
  - Provide environmental guidance which may affect cost estimates for each option including contamination, asbestos removal and ecology advice.
- Architect
  - Visual inspection of each building deemed to be retainable
  - Concept design documentation sufficient for quantity surveyor cost estimates.
- Building surveyor
  - Review documentation for concept design documentation for buildings deemed to be retainable
  - Provide advice on required upgrades to existing buildings which may affect quantity surveyor cost estimates.

Please note that ‘tender ready’ documents will not be provided within this project.

The preliminary scope identified for each building as shown in the table overleaf (subject to change following more detailed investigations):

Building Number	Asset Name	Scope Type
A0211	Southern Tarmac Bellman Hangar	Demolish
A0212	Southern Tarmac Bellman Hangar	Demolish
A0213	Southern Tarmac Bellman Hangar	Demolish
A0214	Southern Tarmac Bellman Hangar	Demolish
A0004	RAAF College	Demolish or Retain
A0007	AAFC Offices & Lecture Rooms	Demolish or Retain
A0102	Toilet Block	Demolish or Retain
A0103	23m Range Stop Butts	To be advised – was not viewed on site
A0112	Store	Demolish
A0121	Gunnery Stop Butt	Demolish or Retain
A0122	Hazardous Store	Demolish or Retain
A0125	P1 Hut	Demolish or Retain
A0132	Masks Training Facility	Demolish
A0155	P1 Hut	Demolish or Retain
A0156	P1 Hut	Demolish or Retain
A0158	P1 Hut	Demolish or Retain
A0203	WWII Hut	To be advised – was not viewed on site
A0210	1914 Hangar	Relocate
A0217	Trap Release Shed	N/A (building does not exist)
A0218	Toilet Block	Demolish or Retain
A0219	N/A	N/A (building does not exist)
A0221	Store	Demolish or Retain
A0228	Trainee Sleeping Quarters	Demolish or Retain
A0243	RAAF College Classroom	Demolish
A0319	N/A	N/A (building does not exist)
A0485	PT Cook Flying Club	Demolish or Retain

Due to the nature of this project scope, a 30% Concept Design Report is not required. Phase 2 stakeholder review will only be required for the 90% Detailed Design Report.

5 Assumptions

The following assumptions have been identified for this scope of works:

- As built drawings will be provided to assist Aurecon with undertaking a design assessment of the existing installations.
- Architectural/building layout drawings will be provided to assist Aurecon with design and documentation of works.
- Existing power/data infrastructure assumed to have required capacity to accommodate additional requirements.
- Accessibility will be made available for inspection of each building.
- An asbestos register will be provided for the facility by defence.
- Advice on requirements for the EPBC application will be provided by stakeholders.

6 Exclusions

Unless specifically outlined within the scope of works above, the following works are excluded:

- No allowance has been made to design the upgrade of existing site infrastructure or services to each building.
- Site inspections are limited to visual inspection only. Inspection of structure and/or services that require excavation, confined space entry, working at heights, demolition or deemed to be dangerous by engineer are excluded, Further inspections shall be recommended by engineers where deemed critical.
- Detailed design, tender documentation and pre-tender estimate. A variation can be provided if these works are required.
- Construction services or documentation. Scope has been provided to suit this as a consultancy project only.
- Application to the EPBC.
- Heritage advice will not be provided as part of this project. A Heritage Consultant has been commissioned by Defence separately to provide advice on the demolition or retention of these buildings.

7 Project Budget and Programme

The original project budget presented in the NPS Project Brief is $150,000. This amount is currently under review and the design fee will be confirmed as part of the Phase 1 Report. Any requests to increase this budget amount will be presented in a Budget Variation Request prior to the Phase 1 Report submission.

The 90% Detailed Design report is currently programmed to be submitted in October 2018 however we note the stakeholders' request to bring this deliverable into August 2018. Since a 30% Concept

Design report is not required for this project, it is likely that this request can be met and will be confirmed in the Phase 1 Report.

8 Stakeholder endorsement

We request that the PDS finalise Scoping and Feasibility Documentation based on the above revisions to the Original Scope.

E&IG Representative Name:		Date:	
Signed:			

Appendix D
Structural Defects Identification

Table 1: Buildings A0211, A0212, A0213, A0214 - Defect identification

Item Ref.	Item Photo	Item Description
1		Building A0211. Corrosion and paint deterioration present across the doors and wall metal sheet cladding. Corrosion present on the door cross bracing. Corrosion present across the door framing. Corrosion present across the sliding door guides.
2		Building A0211. Corrosion and paint deterioration present across the doors and wall metal sheet cladding. Sections of metal wall/door cladding are missing. Corrosion present along the roof and column trusses. Corrosion present at the sliding door guides.
3		Building A0212. Corrosion and paint deterioration present across the doors and wall metal sheet cladding. Significant damage and dislodgement from guides for one sliding door. Notable wall cladding missing on the right-hand side of the image. Significant corrosion present at the sliding door guides. Minor surface and significant corrosion present on roof and column trusses. Corrosion present across door framing and cross bracing. Corrosion present on roof purlins.

Item Ref.	Item Photo	Item Description
4		Building A0212. Zoomed in image to show surface corrosion on the columns trusses and sliding door frames.
5		Building A0212. Severe corrosion shown on the steel sliding door guides, leaving the doors inoperable.
6		Building A0213. Corrosion and paint deterioration present across the doors and wall metal sheet cladding. Corrosion present on the door framing and cross bracing. Corrosion present on the sliding door guides.
7		Building A0213. Damage to existing metal wall cladding. Corrosion present on sliding door guides.

Item Ref.	Item Photo	Item Description
8		Building A0214. Corrosion and paint deterioration present across the wall metal sheet cladding.
9		Building A0214. Corrosion and paint deterioration present across the door and wall metal sheet cladding. Corrosion present along the door frames, bracing and guides.

Table 2: Building A0004 - Defect identification

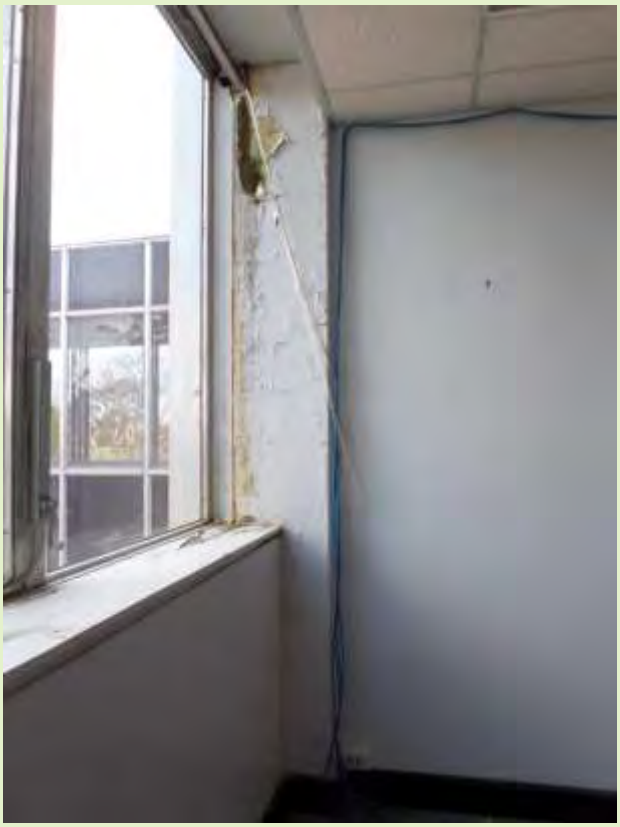
Item Ref.	Item Photo	Item Description
1		Water leaking from roof slab to ground floor along the south-east side of building. There was no evidence of water leaking through window or external walls.
2		Water leaking from roof slab to ground floor along the south-east side of building. There was no evidence of water leaking through window or external walls.

Item Ref.	Item Photo	Item Description
3		Water leaking from roof slab to ground floor along the south-east side of building. There was no evidence of water leaking through window or external walls.
4		Water leaking from roof slab to ground floor along the south-east side of building. Water leaking caused a significant corrosion on the ceiling steel frame. There was no evidence of water leaking through window or external walls.

Item Ref.	Item Photo	Item Description
5		High level of moisture in brick wall that caused the paint peeling and window frames corroded. This occurred to external walls along the south-east of building.
6		Horizontal cracks evidence on brick wall. Does not indicate typical stepped type cracking of brickwork under hence likely thermal / shrinkage movement. This occurred to most of external wall along the north-west side of building.
7		Long horizontal cracks evidence on brick wall. Does not indicate typical stepped type cracking of brickwork under hence likely thermal / shrinkage movement

Item Ref.	Item Photo	Item Description
8		Horizontal cracks evidence on brick wall, crack width varies up to 2mm wide.
9		The failure of the majority of suspended ceiling panels in the building and falling that caused significant safety issue.

Item Ref.	Item Photo	Item Description
10		Example of suspended ceiling panel failure due to water leaking from roof slab. This occurred to the majority of suspended ceiling at level 1.
11		Another example of suspended ceiling panel failure due to water leaking from roof slab.
12		High level of moisture in roof slab that damaged the paintwork.

Item Ref.	Item Photo	Item Description
13		Water leaking from roof slab causes the high level of moisture in all structures below that damaged the paintwork.
14		Another example of water leaking from roof slab damaged the paintwork and corroded steelwork. This occurred to the majority of wall and windows at level 1 along the south-east side of building.

Item Ref.	Item Photo	Item Description
15		Water leaking from roof slab damaged the paintwork and corroded the steelwork structures below.
16		Water leaking from roof slab damaged the ceiling and carpet at level 1.
17		Water leaking from roof slab damaged the ceiling and carpet at level 1 at the entrance of the link bridge.

Item Ref.	Item Photo	Item Description
18		The link bridge structures between building 4 and building 6 is in good condition.
19		However, there are some minor water leaking evidence found at the north and south ends of the link bridge.
20		However, there are some minor water leaking evidence found at the north and south ends of the link bridge.

Item Ref.	Item Photo	Item Description
21		Water leaking from roof slab damaged the paintwork and corroded the steelwork structures below also occurred at one location in the north-west wall of building.
22		The water proofing membrane on roof slab has been damaged and removed. The roof slab consists of concrete precast panels adjoining with sealant along the joint between panels. There is no other water proofing protection provided for the roof slab, this would be the main cause for the water leaking through joints between precast slab panels to floor below.
23		The upper roof and the dorm structures are in good condition, the surface of the dorm is required a further maintenance and paintwork.

Item Ref.	Item Photo	Item Description
24		The water proofing membrane on roof slab has been damaged and removed. Water leaking through joints between precast slab panels to floor below.
25		Water pooling on the roof, also adding additional loads on the roof.
26		The water proofing membrane on roof slab has been damaged and removed. Water leaking through joints between precast slab panels to floor below.
27		The water proofing membrane on roof slab has been damaged and removed. Water leaking through joints between precast slab panels to floor below.

Item Ref.	Item Photo	Item Description
28		The precast slab failed and deflected that content the garbage and blocked the roof drain.
29		The precast slab failed and deflected that content the garbage and blocked the roof drain.

Table 3: Building A0007 - Defect identification

Item Ref.	Item Photo	Item Description
1		Notable paint peeling and bubbling along the bottom half of the wall due to the absence of a water proof membrane below the ground slab.
2		Moisture damage to the plaster wall. Paint peeling and bubbling. Minor corrosion present to the wall framing.
3		Typical example of more severe paint bubbling and peeling from the wall.

Item Ref.	Item Photo	Item Description
4		Typical example of paint peeling and bubbling on the walls throughout the ground floor. Minor corrosion present on the wall framing.
5		Typical peeling and flaking paint on concrete walls.
6		More typical paint peeling and flaking on concrete walls.
7		Evidence of white coloured mineral build up at the bottom of a red brick wall on ground floor.

Item Ref.	Item Photo	Item Description
8		Close-up of white mineral substance on red brick wall. Note that in some areas the coating becomes increasingly thick.
9		Another close-up example of the white mineral substance on the red brick wall. Note the thicker build-up primarily along at the joint between the bricks.
10		Another example of a brick wall with a large amount of white mineral build up. Note the height that the substance increases is typical across the entire ground floor of the building.

Table 4: Building A0102 - Defect identification

Item Ref.	Item Photo	Item Description
1		External photograph of Building 102. It can be seen there is surface deterioration and physical deterioration of the timber fascia. The downpipe has both corrosion and physical damage. The gutter that the downpipe would have been connected to is missing. The doors, door frames and window frames shown surface deterioration.
2		Overgrown vegetation present. Window frames have damage and surface deterioration. Timber fascia has both physical and surface deterioration.
3		Surface deterioration to door, door frame and window frames.

Item Ref.	Item Photo	Item Description
4		Surface deterioration of both the door and door frame. Hinges, handles and locks have corrosion. Notable deterioration and staining to glass louvres. Surface deterioration to floor.
5		Corrosion to power point socket which is potential significant health and safety hazard.

Item Ref.	Item Photo	Item Description
6		Corrosion to pipes on left hand side of image. Potential water damage to ceiling at the top of the blue pipe.
7		Asbestos sticker present on the ceiling which indicates asbestos possible throughout entire ceiling. Significant corrosion to door hinge possibly leaving it inoperable. Surface deterioration to door.
8		Corrosion on paper towel fitting. Damaged and missing louvres at the window. Graffiti on the wall.

Item Ref.	Item Photo	Item Description
9		Pooling of water in toilet area which indicates a lack of drainage or blockage of the drainage. Surface deterioration to door.
10		Damage and poor condition of toilet.

Table 5: Building A0103 - Defect identification

Item Ref.	Item Photo	Item Description
1		Photo depicts the size of the large mound and the fence containing the area. There is also a set of steps on the left hand side of the photo that the person has used to climb to the ridge of the mound. These steps may be considered unstable.

Table 6: Building A0112 - Defect identification

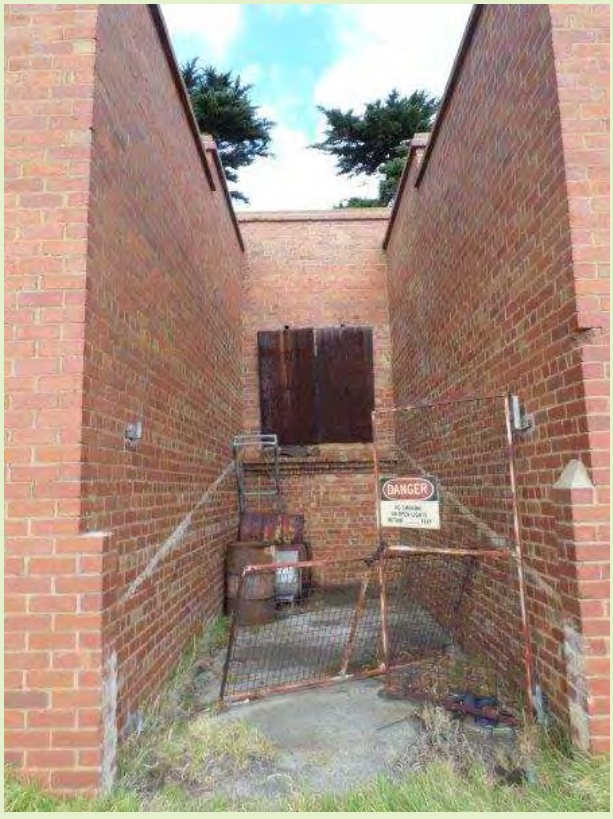
Item Ref.	Item Photo	Item Description
1		Large holes present in both the walls and ceiling. Wooden ceiling panel on the right has become dislodged from fixings and is partly falling down. Missing wall panel on right side of image.
2		Large holes present in the walls. Wall panels missing.
3		A few ceiling panels have become dislodged from their fixings and are falling down. Ceiling panels are missing and the roof is exposed. Corrosion occurring on the metal wall sheeting on the back wall. Severe corrosion occurring on the roof metal sheet panels where the roof is exposed. Overgrown vegetation present. Concrete shows signs of cracking and settlement.

Item Ref.	Item Photo	Item Description
4		Missing roof sheeting. Corrosion to existing metal roof sheeting. Existing timber frame looks in an acceptable condition.
5		Overgrown vegetation present at the base of the wall. Corrosion present on both the roof and wall metal sheet cladding.
6		Corrosion present at the base of the metal wall cladding. Surface deterioration of the paint on the metal wall cladding. Physical deterioration of the decking slats and bearers, which presents a trip hazard. Damage to the concrete underneath the decking.
7		Physical deterioration of the decking slats and bearers, which presents a trip hazard. Damage to the concrete underneath the decking.

Item Ref.	Item Photo	Item Description
8		Corrosion present on the metal wall cladding at the top of the wall and joint to roof.

Table 7: Building A0121 - Defect identification

Item Ref.	Item Photo	Item Description
1		Cracks in the brickwork can be seen at the top right corner of the door frame and on the wall above. Door and door frame have surface deterioration. Roof sheeting shows signs of corrosion. Gutter damaged and has corrosion.
2		Large crack in the brickwork above the door frame, likely due to shrinkage or expansion of the building.
3		Large crack in the brickwork on the upper half of the building, likely due to shrinkage or expansion of the building.

Item Ref.	Item Photo	Item Description
4		Large crack in the brickwork on the upper half of the building, likely due to shrinkage or expansion of the building.
5		Minor cracks in the concrete slab. Surface damage to the brickwork.
6		Corrosion of the metal window shade/panel. Damage and corrosion to existing gate.

Item Ref.	Item Photo	Item Description
7		Severe corrosion on gutter.

Table 8: Building A0122 - Defect identification

Item Ref.	Item Photo	Item Description
1		Overall photograph of decking and entrance to building. Decking and stairs shows signs of physical and surface deterioration. Painting required on columns, door, fascia and timber bearers below decking.
2		Decking timber slats are missing. Decking slats show physical deterioration. Timber bearers and timber beams below decking require painting.
3		Physical deterioration of timber slats.

Item Ref.	Item Photo	Item Description
4		Physical and surface deterioration of timber stairs.
5		Missing timber cladding to be replaced. Paint peeling and flaking on timber cladding. Physical deterioration of the decking.
6		Missing timber cladding to be replaced. Physical and surface damage to window and window frames. Paint peeling on door.
7		Splitting of metal roof cladding. Painting required on timber fascia. Structural timber eaves frames are in good condition.

Item Ref.	Item Photo	Item Description
8		Section of metal sheet roof cladding is missing and is required to be replaced. Physical deterioration and minor corrosion of metal sheet roof cladding. Missing section of metal corner roof clashing. Organic accumulation (moss) at the ridge of the roof. Painting required on timber fascia.
9		Notable graffiti on the walls and paint missing in locations.
10		Graffiti on the walls requiring painting.

Table 9: Building A0125 - Defect identification

Item Ref.	Item Photo	Item Description
1		Damage to metal wall cladding.
2		Damage to metal wall cladding.
3		Damage to metal wall cladding.

Item Ref.	Item Photo	Item Description
4		Internal view of corrosion to metal flashing at ridge of building.
5		Ceiling panels falling and damaged which indicates fixings are also damaged. Worn timber flooring. Painting required on walls. Wall panels lifting away from wall framing indicating the fixings are damaged.
6		Primary example of a ceiling panel dislodged from the ceiling frame, indicating damage to the ceiling fixings. This present a significant safety hazard of the building.
7		Cracking to wall and wall framing.

Item Ref.	Item Photo	Item Description
8		Damage to wall, and cracking of wall and wall framing.
9		Surface deterioration of paint on the concrete slab floor.

Table 10: Building A0132 - Defect identification

Item Ref.	Item Photo	Item Description
1		Main view of the building. Surface deterioration and peeling paint on the metal sheet wall and roof cladding. Corrosion of the metal sheet cladding primarily on the walls.
2		Surface deterioration of the paint on the metal sheet walls. Damage to the timber door. Severe corrosion to the top of the metal wall sheets.
3		Zoomed in perspective of the corrosion on the top of the metal wall sheeting. Surface deterioration and peeling paint on the metal wall sheeting.

Item Ref.	Item Photo	Item Description
4		Damage to the timber door. Severe corrosion of the metal roof and wall sheeting. Surface deterioration and peeling paint on the metal wall sheeting.
5		Timber frame of structure is in good condition. Damage and cracking of the concrete floor slab.
6		Large cracks present to the concrete slab on ground.
7		Large cracks present and settlement of the concrete slab on ground. Section of metal wall sheeting damage and missing.

Item Ref.	Item Photo	Item Description
		Concrete slab on ground has significant cracks, settlement and potential spalling. Double doors show surface deterioration and potential physical damage.

Table 11: Building A0155 - Defect identification

Item Ref.	Item Photo	Item Description
1		External face of building 155. Surface deterioration of the metal wall cladding and peeling paint. Windows, doors and door frames have surface deterioration and peeling paint. Fascia has surface deterioration and peeling paint.
2		External face of building 155. Surface deterioration of the metal wall cladding and peeling paint. Windows, doors and door frames have surface deterioration and peeling paint. Fascia has surface deterioration and peeling paint.
3		Metal wall cladding has surface deterioration and peeling paint. Door and door frame have surface deterioration and peeling paint. At door entrance is the beginning of the vinyl covered timber floor.

Item Ref.	Item Photo	Item Description
4		Significant deterioration of vinyl floor covering. Physical deterioration to timber flooring, however it is difficult to determine the extent to which this physical deterioration occurs.
5		Concrete floor has surface deterioration and is required to be painted. Timber truss roof framing shows signs of surface deterioration.
6		Carpet is worn and requires replacing. Ceiling panel is missing. Walls present surface deterioration.
7		Damage to wall panel. Damage to ceiling panel. Surface deterioration to walls and ceiling. Physical deterioration of carpet.

Item Ref.	Item Photo	Item Description
8		Damage to wall panels. Surface deterioration to walls and window frame. Vinyl covering on wall is missing.
9		Ceiling panel has become loose and this indicates the fixings are damaged or missing. Safety hazard.
10		Ceiling panel has become loose and this indicates the fixings are damaged or missing. Safety hazard.
11		Damage and holes in ceiling panel.

Table 12: Building A0156 - Defect identification

Item Ref.	Item Photo	Item Description
1		Surface deterioration and peeling paint on the metal wall cladding. Surface deterioration of the corner timber wall flashing.
2		Surface deterioration and faded/peeling paint on the metal wall cladding and window frames.
3		Severe surface deterioration and peeling of the paint on the metal wall cladding. Surface deterioration and peeling paint on the window frame.

Item Ref.	Item Photo	Item Description
4		Damage to metal sheet cladding. Surface deterioration and peeling paint of the metal sheet cladding, window frame, floor bearer.
5		Timber stub column has been removed which presents a significant structural issue as it no longer supports the building at this location. Timber bearer has physical deterioration and surface deterioration.
6		Ceiling panel has become loose which indicates potential damage to fixings which is a safety hazard. An area on the wall has been damaged with a section being removed.
7		Numerous areas of the wall and wall panels either damaged or missing.

Item Ref.	Item Photo	Item Description
8		Damage and two large holes in the back-wall panel. Surface deterioration of the timber truss.

Table 13: Building A0158 - Defect identification

Item Ref.	Item Photo	Item Description
1		Surface deterioration to metal wall cladding, timber fascia, timber bearer, window frame and door.
2		Physical damage and holes in the metal wall cladding. Surface deterioration to metal wall cladding, timber fascia, timber bearer and window frame.
		Large ceiling panel has become loose and is falling from the ceiling fixings. Safety hazard.

Item Ref.	Item Photo	Item Description
		Large ceiling panel has become loose and is falling from the ceiling fixings. Safety hazard.
		Damage and holes in ceiling panel.

Item Ref.	Item Photo	Item Description
		Damage to wall panels. Damage and surface deterioration to door. Surface deterioration to flooring.
		Large hole in wall panel.
		Large hole in bathroom partition wall panel. Tile flooring has physical and surface deterioration.

Item Ref.	Item Photo	Item Description
		Damage to wall and ceiling panels as seen by a number of holes throughout.

Table 14: Building A0203 - Defect identification

Item Ref.	Item Photo	Item Description
1		Surface deterioration of metal wall cladding, window frames, timber fascia and timber bearers.
2		Surface deterioration of metal wall cladding, window frames, timber fascia and timber bearers. Physical damage to the metal wall cladding and the door.
3		Surface deterioration of metal wall cladding, window frames, timber fascia and timber bearers. Physical damage to the metal wall cladding and the door.

Item Ref.	Item Photo	Item Description
4		Evidence of the timber flooring failing and falling as seen by the timber members below the building. Timber bearer appears to be have physical deterioration. Metal wall cladding has significant surface deterioration.
5		Severe corrosion of gutter.
6		Severe corrosion of gutter. Surface deterioration of timber fascia and metal wall cladding.

Item Ref.	Item Photo	Item Description
7		Ceiling panel fallen down from timber roof framing.
8		Wall panel has become dislodged from timber wall framing. Deterioration of the carpet floor. Hole in ceiling panel.
9		Deterioration of carpet throughout building.

Table 15: Building A0210 - Defect identification

Item Ref.	Item Photo	Item Description
1		Building 210. Folding doors shown on the right hand side of the image. Damage can be seen to the base of the doors. Metal wall cladding has surface deterioration and damage on the left hand side of the image.
2		Typical example of surface deterioration and peeling of the paint on the soffit and fascia. Minor corrosion present on the metal wall cladding.
3		Metal panels on the folding doors. Damage can be seen primarily at the base of the doors, however there are areas of damage at other locations on the panels. Peeling paint can also be seen at a few locations on the panels.

Item Ref.	Item Photo	Item Description
4		View from inside the building of the metal panels on the folding doors. Corrosion and damage can be seen at the base of the door, and on the panel frame. Damage and cracking is present in the concrete slab.
5		Typical example of surface deterioration and peeling paint throughout the external walls of the building.
6		Significant corrosion found at the base of the metal wall cladding.
7		Severe corrosion at fixing location of steel bracket used to fix timber column to timber floor beam. Corrosion present at the base of the metal wall cladding.

Item Ref.	Item Photo	Item Description
8		Internal view of metal folding doors. Damage can be seen to the base of the doors. Timber ceiling slats are missing on the left hand side of the image. The steel roof trusses have minor surface deterioration and corrosion present.
9		Timber ceiling slats are missing in the centre of the image. The steel roof trusses have minor surface deterioration and corrosion present.
10		Although not easily seen in this image, the metal roof bracing is missing in the steel roof framing past the columns. Damage can be seen on the concrete slab. Timber ceiling slats are missing.

Table 16: Building A0218 - Defect identification

Item Ref.	Item Photo	Item Description
1		Severe corrosion in the roof cladding resulting in large holes. These holes cause leaking of water throughout the building and large areas of internal damage. Brick walls appear in good condition.
2		Timber wall framing is in poor condition with a majority of wall panels being damaged and missing. Timber roof framing appears to be in acceptable condition however it is difficult to determine the due to the timber trusses being enclosed by the ceiling throughout the building. Large corroded areas of the roof cladding are visible through the internal of the building.

Item Ref.	Item Photo	Item Description
3		Timber frame roof and trusses appear to be in good condition however due to the ceiling it is difficult to determine. Large corroded areas of the roof cladding are visible through the internal of the building.
4		Severe corrosion present on the metal roof sheet cladding and holes visible from underneath the roof eaves. Severe corrosion to gutter. Significant corrosion to downpipe.

Item Ref.	Item Photo	Item Description
5		Wall panel has been damaged probably due to excessive water leaking through the holes in the roof. The wall panel and elements of the frame have completely been dislodged from the wall. Other floor and wall elements show significant surface deterioration.
6		Significant deterioration to the surfaces of the walls, floor and ceilings.

Item Ref.	Item Photo	Item Description
7		Significant damage to the ceiling panels, wall panels and their fixings. Potential asbestos present throughout the building.
8		Significant damage to the ceiling panels, wall panels and their fixings.
9		Wall and ceiling panels are broken and have fallen from their fixings onto the floor. Damage and surface deterioration to the walls. Deterioration to the floor and accumulation of debris.

Item Ref.	Item Photo	Item Description
10		Significant deterioration to the floor and accumulation of debris.

Table 17: Building A0221 - Defect identification

Item Ref.	Item Photo	Item Description
1		Building 221. Material accumulation and surface deterioration can be seen on external corrugated fibre cement sheet walls.
2		Zoomed in perspective of material accumulation and surface deterioration on external corrugated fibre cement sheet walls.
3		Physical damage and deterioration of door. Asbestos present within the building as per warning on the right door.

Item Ref.	Item Photo	Item Description
4		Corrosion to metal downpipe and fixings.
5		Internal perspective of the roof framing for building 221. Minor corrosion present on the steel trusses and roof framing.
6		Example of minor corrosion and pitting on steel roof truss.
7		Example of minor corrosion and pitting on steel roof truss and bracing.

Item Ref.	Item Photo	Item Description
8		Deformed equal angle roof bracing at main entrance door.
9		View underneath the metal box gutter. Significant corrosion is present along the edge of the gutter.
10		Zoomed in perspective of the corrosion on the metal box gutter.
11		Internal room within building 221 with physical damage and surface deterioration on the walls.

Item Ref.	Item Photo	Item Description
12		Internal room within building 221 with missing ceiling panels that require replacing.
13		Hole in a ceiling panel requiring replacing.
14		Physical and surface deterioration to painted concrete floor.
15		Physical and surface deterioration to the covered floor.

Table 18: Building A0228 - Defect identification

Item Ref.	Item Photo	Item Description
1		Building 228. External wall cladding minor damage.
2		External wall cladding minor damage. This face of the building has had the windows and door removed and metal wall cladding placed over the top.
3		Ceiling panel falling down from its fixings. Wall panels missing where windows once were, leaving the timber frame exposed.

Item Ref.	Item Photo	Item Description
4		Ceiling panel has become loose from fixings and is falling. This presents a significant safety hazard.
5		Other typical examples of ceiling panels becoming loose from their fixings.
6		Damage and holes in both walls and ceiling panels.
7		Internal timber ceiling fixing has become loose.

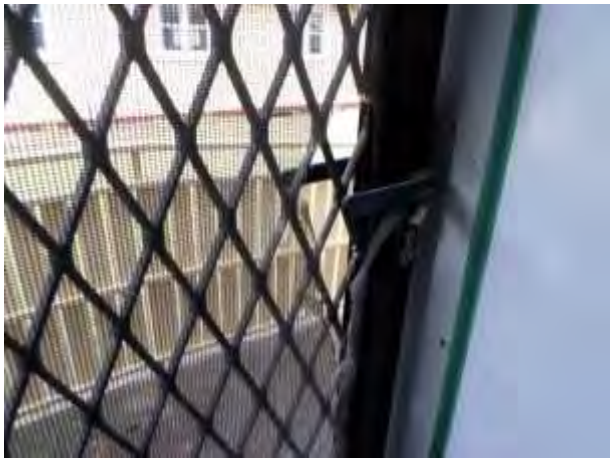
Item Ref.	Item Photo	Item Description
8		Timber door frame damaged and lifting from support.
9		Metal security/fly screen damaged and to be replaced.

Table 19: Building A0243 - Defect identification

Item Ref.	Item Photo	Item Description
1		Building 243. Metal wall cladding has physical damage and surface deterioration. Fascia has surface deterioration.
2		Metal wall cladding has physical damage and surface deterioration. Fascia has surface deterioration. Window frames and glass are damaged and broken. Timber bearer and stub columns shows signs of physical damage and deterioration.
		Metal wall cladding has surface deterioration. Window frames and glass are damaged and broken. Downpipe is damaged and missing bottom section. Gutter shows signs of damage and potential corrosion. Timber bearer has signs of physical deterioration.

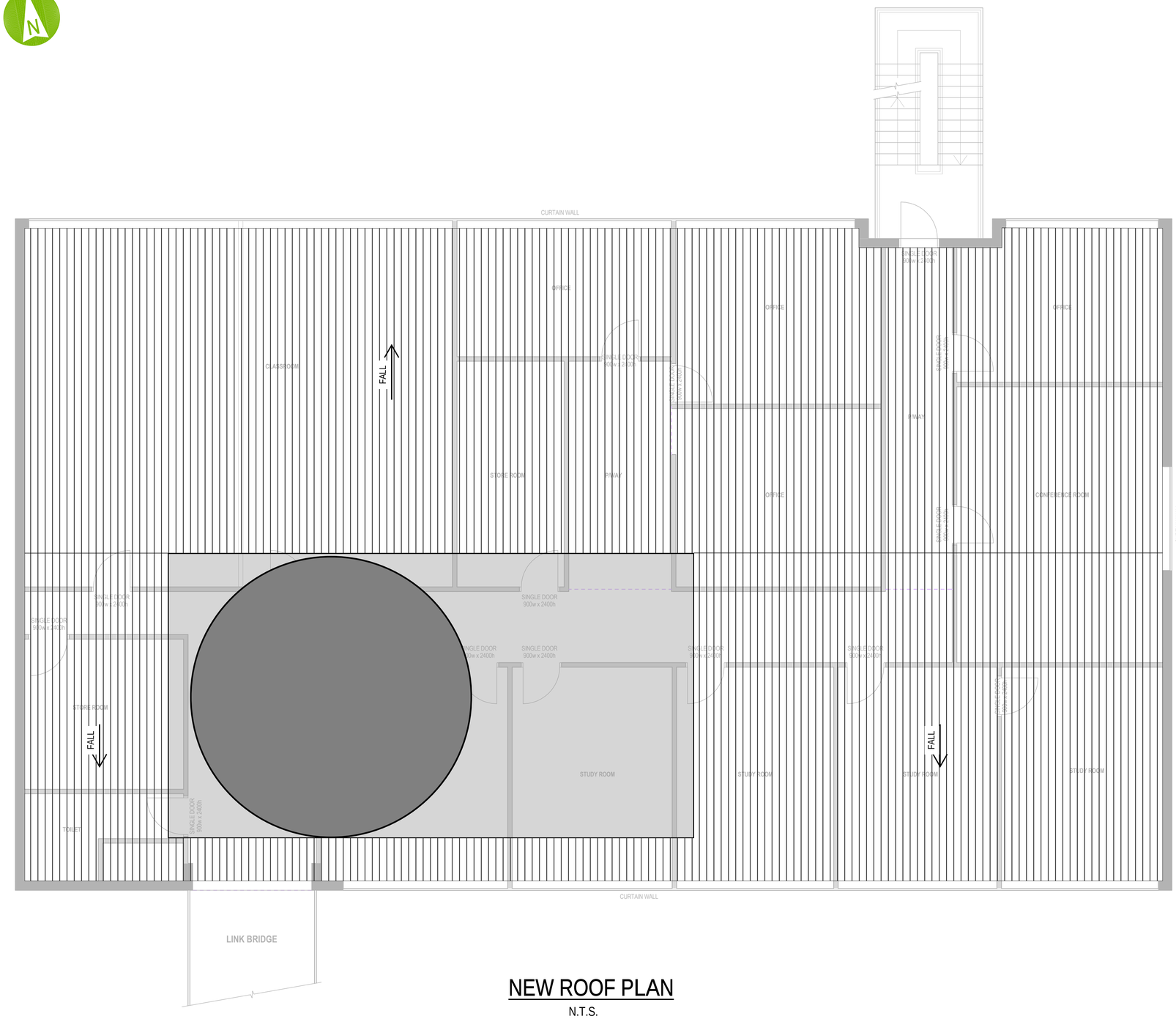
Item Ref.	Item Photo	Item Description
		External timber bearer of building showing physical surface deterioration.
		View below the timber floor. Difficult to determine the extent of the damage to the floor.
		Surface deterioration to ceiling. Physical damage and surface deterioration to wall panels.

Table 20: Building A0485 - Defect identification

Item Ref.	Item Photo	Item Description
1		Building 485. External metal wall cladding has surface deterioration and peeling paint. Fascia has surface deterioration and peeling paint.
2		Internal wall and ceiling panels are missing and have exposed the structural timber framing of the building. These panels require replacing. Significant corrosion to metal roof cladding at the eave of the building and can be seen through the missing ceiling panel.
		Internal wall fixing panel is damaged and requires replacing. Ceiling panel has become loose from fixings and is falling from the ceiling. Wall panels are missing and require replacing.

Item Ref.	Item Photo	Item Description
		Splitting in one of the metal roof sheets which presents a potential water leaking issue. Ceiling panel has fallen to the floor and requires replacing, most likely due to water damage. Corrosion to metal roof sheeting at the eave of the building. Damage to joinery and walls.
		Damage to wall panel and requires replacing. Missing wall panels require replacing.
		Damage to wall panels that require replacing.

Appendix E
Structural Drawings

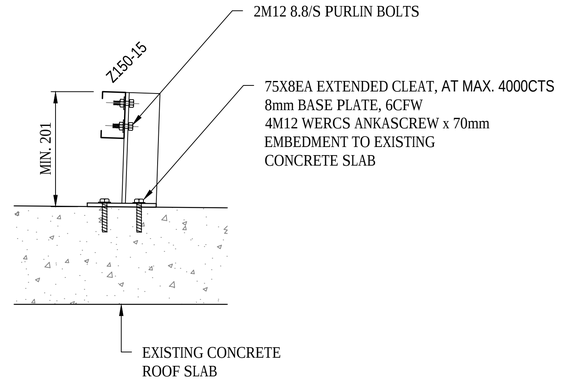


NEW ROOF PLAN

N.T.S.

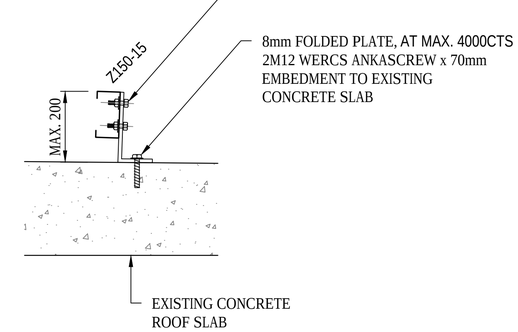
NOTES:

1. NEW ROOF CLADDING TO BE PROVIDED AS PER ROOF LAYOUT.
2. PURLIN SUPPORT AS PER DETAIL 1 AND 2 AT MAX. 4000mm CTS.



TYPICAL ROOF PURLIN FIXING - DETAIL 1

N.T.S.



TYPICAL ROOF PURLIN FIXING - DETAIL 2

N.T.S.

NOTE:
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AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	12.10.18	90% ISSUED	J.G.

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PROJECT MANAGER AND LEAD CONSULTANT:
aurecon
www.aurecongroup.com

CLIENT:
Australian Government
Department of Defence

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DEFENCE PROJECT:
PROJECT DELIVERY SERVICES FY17-18

PROJECT TITLE:
RAAF BASE WILLIAMS POINT COOK
HERITAGE CONSULTANCY

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
HN	HN	BW	JG

DETAILED DESIGN
NOT FOR CONSTRUCTION

TITLE:
STRUCTURAL SERVICES
BUILDING 004
NEW ROOF CLADDING - PLAN & DETAILS

DEFENCE EMP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
12399			AUR	500270

DRAWING NUMBER:
PDS-V12399-DRG-ST-0001
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

REVISION: A

Rendered brickwork cracks

Exposed brickwork cracks

REPAIR METHODOLOGY FOR BRICKWORK CRACK

I. RENDERED BRICKWORK CRACKED:

1. Note position of all electrical services and carry out repairs in a safe manner.
2. Remove all loose render along crack on brick wall
3. Clean all crumbling brick and mortar from the crack with a chisel and sledge-hammer. Use oil free, dry compressed air to blow out the crack to remove all contaminants (eg. dust, oil, grease, etc.), debris, laitance, old coating, corrosion products or standing water ...
4. For optimum repair, the substrates should be dry. If water is continually seeping from the crack, the flow must be stopped in order for epoxy injection to yield a suitable repair.
5. Measure the crack width along crack line for suitable crack repair method as below.

A. Where crack width less than 0.2mm

1. For crack width less than 0.2mm, crack repair for brickwork is not necessary. Paint over with acrylic paint to match existing.

B. Where crack width range of 0.2 - 10mm

1. Where crack width is in the range of 0.2mm to 10mm, inject Sikadur-52 (or approved equivalent injected crack repair epoxy) to fill cracks in accordance with manufacturer's instructions.
2. Commence injection under pressure from the lowest end of the crack (the lowest nipple on vertical cracks) until the Sikadur-52 exudes from the next nipple, seal off the first and proceed to inject from the second nipple etc.
3. Once the crack is filled and Sikadur-52 fully cured, grind the surface back to line and level.
4. Paint wall surface to match existing.

II. EXPOSED BRICKWORK CRACKED:

1. Remove all loose mortar along crack on brick wall
2. Hand clean all crumbling brick and mortar from the crack. Use oil free, dry compressed air to blow out the crack to remove all contaminants (eg. dust, oil, grease, etc.), debris, laitance, old coating, corrosion products or standing water ...
3. Inject "Selleys Mortar Works" or approved equivalent as deep as possible, ensuring that the opening is completely filled from base to surface. Where cracks are through cracks, inject from both side of wall.
4. Match the colour of the repair to the substrate by applying different colour range of the sealer.
5. Applying sealer in accordance to manufacturer's specification.

NOTE:
DRAWINGS TO BE READ IN CONJUCTION WITH STRUCTURAL ASSESSMENT REPORT

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
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PROJECT MANAGER AND LEAD CONSULTANT:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY17-18
PROJECT TITLE: RAAF BASE WILLIAMS POINT COOK HERITAGE CONSULTANCY

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
HN	HN	BW	JG

DETAILED DESIGN
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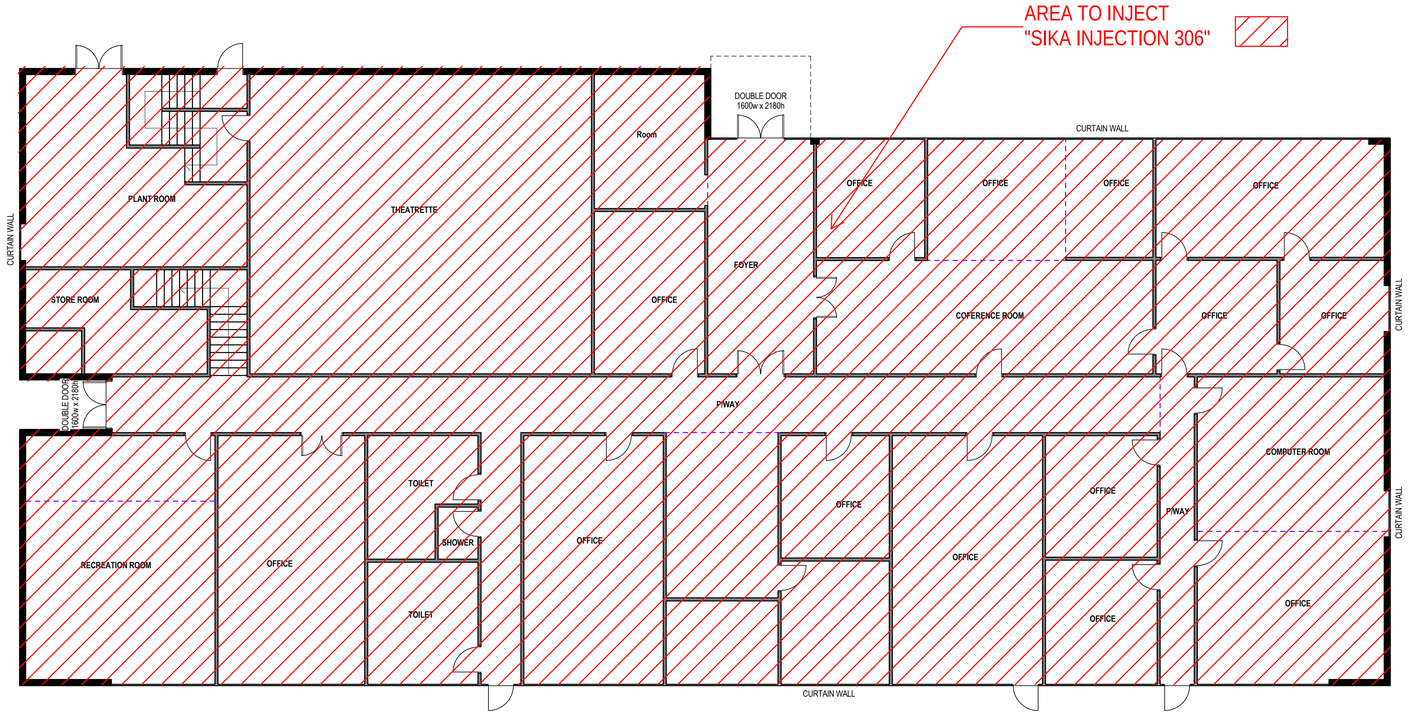
TITLE: STRUCTURAL SERVICES BUILDING 004 & 121 BRICKWORK CRACKING REPAIR

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
12399			AUR	500270

DRAWING NUMBER: PDS-V12399-DRG-ST-0002 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A



WATER PROOFING MEMBRANE INJECTION - PLAN

1:100

REPAIR METHODOLOGY

1. The conditions of the ground floor slab must be inspected and surveyed by the contractor, including any foundations and the ground conditions, before making any new water proofing membrane injection within an existing slab structures. It must also be ensured that there are no drainage systems or open pipes close to the injection areas. This survey provides the information to assess the feasibility of injection proposal and likely material consumption. This also determines the positioning of the injection drill holes.
2. Applying Sika Injection 306 in accordance to manufacturer's specification.
3. Treating brickwork walls dry prior to any finish work on brickwork.
4. Paint wall to match existing wall.
5. Remove the loose existing mortar on damaged red brickwork. Caulking the mortar joint to match existing.

NOTE:
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AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
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CONSULTANT:

PROJECT MANAGER AND LEAD CONSULTANT:
aurecon
www.aurecongroup.com

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY17-18
PROJECT TITLE: RAAF BASE WILLIAMS POINT COOK HERITAGE CONSULTANCY

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
HN	HN	BW	JG

DETAILED DESIGN
NOT FOR CONSTRUCTION

TITLE: STRUCTURAL SERVICES BUILDING 007 WATER PROOFING MEMBRANE INJECTION

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
12399			AUR	500270

DRAWING NUMBER: PDS-V12399-DRG-ST-0003 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

Appendix F
Hazardous Materials Survey

Hazardous Building Materials Assessment for Aurecon Project Number: 12399
RAAF Williams Point Cook
Point Cook Road
Point Cook, Victoria

Aurecon Pty Ltd

October 2018

5 Burwood Road
Hawthorn VIC 3122
T: (03) 9508 0100
F: (03) 9509 6125
E: admin@prensa.com.au
ABN: 12 142 106 581
Job No: 29118 : Client No: A0018

Executive Summary

Prensa Pty Ltd (Prensa) was engaged by Aurecon Pty Ltd (Aurecon) to conduct a Hazardous Building Materials Assessment (Assessment) of nominated buildings located at RAAF Williams, Point Cook Road, Point Cook, Victoria (the Site).

It is understood that upgrade works are proposed for the Site consists of Project 12399 (23 buildings).

The objective of this Assessment was to identify and evaluate the health risk posed by hazardous building materials which may be encountered prior to demolition/refurbishment works within the nominated areas and buildings within the Site.

In addition to Prensa's Assessment of Hazardous Building Materials, representative samples of soil were collected from the soil mounds at the rear of the targets of Shooting Range A0103 which were analysed for lead. The soil samples were collected to provide an indication of health risk and assist in developing soil management strategies.

The scope of the Assessment included the accessible internal and exterior areas of the nominated buildings to be affected by the proposed works (Project 12399) as outlined in **Appendix F: Project Plans**.

Buildings within Project 12399 will be subject to the following demolition works:

- Demolition of degraded structures; and
- Removal of flooring/slabs.

Prensa has limited its Assessment to the structure of the nominated buildings and the surface soil/grounds in the accessible and immediate vicinity of the building footprint.

The following hazardous materials within the nominated buildings associated with Project 12399 were identified at the time of the Assessment:

Building	Asbestos-containing Materials		Synthetic Mineral Fibre	Poly-chlorinated Biphenyls	Lead-containing Paint	Ozone Depleting Substances	Biological Hazards
	Non-friable	**Friable**					
A0004	✓	-	✓	-	✓	✓	✓
A0007	✓	✓	✓	-	-	✓	-
A0102	✓	✓	✓	✓	✓	-	-
A0103	-	-	-	-	-	-	-
A0112	✓	-	-	-	✓	-	-
A0121	-	-	-	-	-	-	-
A0122	✓	✓	✓	-	✓	-	-
A0125	✓	-	✓	-	✓	-	-
A0132	-	-	-	-	✓	-	-
A0155	✓	✓	-	✓	✓	-	-
A0156	✓	-	✓	✓	✓	-	-

A0158	✓	✓	-	-	✓	✓	-
A0203	✓	-	-	-	✓	-	-
A0210	✓	-	-	✓	✓	-	-
A0211	-	-	-	-	-	-	-
A0212	-	-	-	-	-	-	-
A0213	-	-	-	-	-	-	-
A0214	-	-	-	-	-	-	-
A0218	✓	-	✓	-	✓	-	-
A0221	✓	✓	-	✓	-	-	✓
A0228	✓	-	✓	-	-	✓	-
A0243	✓	✓	✓	✓	✓	-	-
A0485	✓	-	✓	✓	✓	-	-

The following significant key findings are noted regarding buildings associated with Project 12399:

- Friable asbestos-containing dust was identified throughout surface areas within Building A0221;
- Friable asbestos was identified in the form of woven rope material on a damaged front heater panel located on the south wall of the main room within Building A0243. The asbestos-containing woven rope was observed to be in poor condition at the time of the assessment;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard in the level 1 storage room within Building A0007;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard in the main room within Building A0155;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard located on the north wall of the east changing room within Building A0243;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard located in the north room within Building A0122;
- Friable asbestos was identified in the form of a wire sheath in a light fitting located on the ceiling of the east room within Building A0158. The sheath appeared to be in good condition at the time of the assessment;
- Friable asbestos was identified in the form of a wire sheath in a hot water heater and light fitting located in the services area within Building A0102. The sheath appeared to be in good condition at the time of the assessment;
- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding buildings A0228, A0125, A0203, A0485, A0243, A0218, A0122;
- Significant amounts of non-friable asbestos in the form of fibre cement sheet, moulded cement, corrugated cement sheet and bituminous material were identified in various locations during the Assessment;
- Levels of lead above the adopted HIL C – Public Open Space (600 mg/kg) were detected within the mound behind where the targets for the shooting range were located associated with A0103;

- Significant areas of lead-containing paint were identified in various locations during the Assessment;
- Significant amounts of bird guano was visually identified within the upper rooftop dome on Building A0004; and
- Significant amounts of bird guano was identified throughout Building A0221.

Recommendations

The following key recommendations are provided for the management of hazardous building materials:

- Priority 1 recommendations - The asbestos-containing dust throughout building A0221 was found to be in an unstable condition and accessible during occupation of the building. Access should be restricted until such time as the dust can be removed by an appropriately licensed asbestos removalist; and
- Priority 2 recommendations - The asbestos-containing friable rope material identified in building A0243 was found to be in a stable condition and accessible during occupation of the building. The rope material should be removed prior to disturbance of the heater.

A number of other recommendations were made in the body of this report which address the ongoing management of hazardous building materials at this site.This executive summary must be read in conjunction with this entire report.

Statement of Limitations

This document has been prepared in response to specific instructions from Aurecon to whom the report has been addressed. The work has been undertaken with the usual care and thoroughness of the consulting profession. The work is based on generally accepted standards and practices of the time the work was undertaken. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The report has been prepared for the use by Aurecon and the use of this report by other parties may lead to misinterpretation of the issues contained in this report. To avoid misuse of this report, Prensa advises that the report should only be relied upon by Aurecon and those parties expressly referred to in the introduction of the report. The report should not be separated or reproduced in part and Prensa should be retained to assist other professionals who may be affected by the issues addressed in this report to ensure the report is not misused in any way.

Unless otherwise stated in this report, the scope is limited to fixed and installed materials and excludes buried waste materials, contaminated dusts and soils.

Unless expressly stated it is not intended that this report be used for the purposes of tendering works. Where this is the intention of Aurecon, this intention needs to be communicated with Prensa and included in the scope of the Proposal.

Prensa is not a professional quantity surveyor (QS) organisation. Any areas, volumes, tonnages or any other quantities noted in this report are indicative estimates only. The services of a professional QS organisation should be engaged if quantities are to be relied upon.

Sampling Risks

It is noted that while the assessment has attempted to locate the asbestos-containing materials within the building(s), the investigation was limited to only a visual assessment and limited sampling program and/or the review and analysis of previous reports made available. Prensa notes that sampling is representative only and that due to the lack of homogeneity of building materials it is possible that sampling has not detected all asbestos within the nominated locations.

Given that a representative sampling program has been adopted, not all materials suspected of containing asbestos were sampled and analysed. It is noted that some asbestos materials may have been assumed to contain asbestos based on their similar appearance to previously sampled materials.

Therefore, it is possible that asbestos materials, which may be concealed within inaccessible areas/voids, may not have been located during the investigation. Such areas include, but are not limited to:

- Materials concealed behind structural members and within inaccessible building voids;
- Areas inaccessible without the aid of scaffolding or lifting devices;
- Areas below ground;
- Inaccessible ceiling or wall cavities;
- Areas which require substantial demolition to access;
- Areas beneath floor covering where asbestos-containing materials were not expected to exist;
- Materials contained within plant and not accessible without dismantling the plant; and
- Areas where access is restricted due to locked doors, safety risks, or being occupied at the time of the investigation.

Reliance on Information Provided by Others

Prensa notes that where information has been provided by other parties in order for the works to be undertaken, Prensa cannot guarantee the accuracy or completeness of this information. Aurecon therefore waives any claim against the company and agrees to indemnify Prensa for any loss, claim or liability arising from inaccuracies or omissions in information provided to Prensa by third parties. No indications were found during our investigations that information contained in this report, as provided to Prensa, is false.

Future Works

During future works at the site, care should be taken when entering or working in any previously inaccessible areas or areas mentioned above and it is imperative that works cease immediately pending further investigation and sampling (if necessary) if any unknown materials are encountered. Therefore, during any refurbishment or demolition works, further investigation, sampling and/or assessment may be required should any suspect or unknown material be observed in previously inaccessible areas or areas not fully inspected, i.e. carpeted floors.

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Appendix A: Risk Assessment Factors and Priority Ratings

Appendix B: NATA Endorsed Laboratory Sample Analysis Reports

Appendix C: Hazardous Materials Registers

Appendix D: Photographs

Appendix E: Areas Not Accessed

Appendix F: Project Plans

1 Introduction

Prensa Pty Ltd (Prensa) was engaged by Aurecon Pty Ltd (Aurecon) to conduct a Hazardous Building Materials Assessment (Assessment) of nominated buildings located at RAAF Williams, Point Cook Road, Point Cook, Victoria (the Site).

It is understood that upgrade works are proposed for the Site consists of Project 12399 (23 buildings).

The objective of this Assessment was to identify and evaluate the health risk posed by hazardous building materials which may be encountered prior to demolition works within the nominated areas and buildings within the Site.

2 Scope of Works

The scope of the Assessment included the accessible internal and exterior areas of the nominated buildings to be affected by the proposed works (Project 12399) as outlined in **Appendix F: Project Plans**.

2.1 Project 12399 – 23 Buildings

The buildings that are to be impacted by the proposed demolition works at the Site associated with Project 12399 include:

- A0004;
- A0007;
- A0102;
- A0103;
- A0112;
- A0121;
- A0122;
- A0125;
- A0132;
- A0155;
- A0156;
- A0158;
- A0203;
- A0210;
- A0211;
- A0212;
- A0213;
- A0214;
- A0218;
- A0221;
- A0228.
- A0243; and
- A0485.

Buildings within Project 12399 will be subject to the following demolition works:

- Demolition of degraded structures; and
- Removal of flooring/slabs.

Further details of the buildings nominated for the proposed restoration works are outlined in the Building Scope of Works – Project 12399, presented in **Appendix F: Project Plans**, as provided by Craig Trimbur of Aurecon.

Prensa has limited its Assessment to the structure of the nominated buildings and the surface soil/grounds in the accessible and immediate vicinity of the building footprint.

Specifically, Prensa included the following hazardous materials in the scope of this Assessment:

- Asbestos-containing materials (ACM);
- Synthetic mineral fibre (SMF) materials;
- Polychlorinated biphenyls (PCB) containing capacitors in electrical fittings;
- Lead-containing paint (LCP);
- Biological hazards; and
- Ozone depleting substances (ODS).

Lead-containing soil was also tested specifically within the mounds to the rear of the targets associated with Shooting Range A0103.

The Assessment was conducted during normal business hours and the Site was occupied at the time of our inspection.

3 Site Description

The Site consists of multiple buildings. Details of the buildings contained within this Site are provided in **Table 1** below.

Table 1: Site Information			
Site:	RAAF Williams Point Cook, Point Cook Road, Point Cook, Victoria		
Age (Circa):	1960's	**External walls:**	Brick, timber, metal, cement sheet
Approximate area:	575,000 m^2	**Internal walls:**	Plaster, timber, cement sheet, brick
Levels:	Multiple	**Ceiling:**	Plaster, timber, cement sheet
Roof type:	Metal, corrugated cement sheet,	**Floor and coverings:**	Concrete, carpet, vinyl, timber

4 Methodology

The Assessment comprised a review of relevant Site information made available to Prensa, interviews with available Site personnel and a visual inspection of accessible areas and destructive sampling techniques where necessary.

The methodology for assessing the hazardous materials at the Site is presented in the following sections.

Asbestos-containing Materials – This component of the works was conducted to satisfy *Commonwealth Work Health and Safety Regulations, 2011* (WHS Regulations 2011). When safe to do so, building materials that were suspected of containing asbestos were sampled at the discretion of the Prensa consultant.

Where asbestos was found to exist, a risk assessment was conducted on each item and a priority rating applied. This was conducted in accordance with the protocols described in **Appendix A: Risk Assessment Factors and Priority Ratings.**

Asbestos-containing Dust – Samples of suspected ACM were analysed in Prensa's laboratory, which is NATA accredited to conduct asbestos bulk sample analysis. The analysis was conducted using polarised light microscopy including dispersion staining techniques.

Synthetic Mineral Fibres – This component of the Assessment was carried out in accordance with the guidelines documented in the *Code of Practice for the Safe Use of Synthetic Mineral Fibres* [NOHSC: 2006 (1990)]. This report broadly identifies SMF materials found or suspected of being present during the assessment and is based on a visual assessment.

Polychlorinated Biphenyls – Where safely accessible, specifications of capacitors incorporated in light fittings and ceiling fans were recorded and cross-referenced with the *ANZECC Identification of PCB-containing Capacitors information booklet* – 1997. Due to the danger of accessing electrical components, or for other reasons, such as height restrictions, some electrical fittings may not have been accessed. In these instances, comment is provided in the Assessment report on the likelihood of PCB-containing materials being present. This determination is based upon the age and appearance of the electrical fittings.

Lead-containing Paint – Representative painted surfaces were sampled in various locations and submitted to a NATA accredited laboratory to conduct quantitative lead analysis, with results expressed as Percentage weight for weight (% w/w). It is noted that AS/NZS 4361.2 – *2017 Guide to hazardous paint management – Part 2: Lead paint in residential, public and commercial buildings* defines lead paint as paint with a lead content greater than 0.1% by dry weight. Alternatively, representative painted surfaces were tested in locations for the presence of lead using the qualitative *LeadCheck* paint swab method. This method can detect lead in paint at concentrations of 0.5% and above, and may indicate lead in some paint films as low as 0.2%. It is noted that AS/NZS 4361.2 – 2017 *Guide to hazardous paint management – Part 2: Lead paint in residential, public and commercial buildings* defines lead paint as paint with a lead content greater than 0.1% by dry weight. In some circumstances, laboratory analysis may be recommended to quantitatively determine the content of lead in the paint.

The sampling program attempts to be representative of the various types of paints found at the Site. However, particular attention is paid to areas where LCPs were more likely to have been used (e.g. exterior gloss paints, window and door architraves and skirting boards). The objective of LCP identification in this Assessment is to highlight the presence of LCP within the Site building(s), not to specifically identify every location of LCP.

Ozone Depleting Substances – This component of the Assessment comprised a visual inspection of air conditioning units and any chillers (if applicable) at the Site and included a review of the air conditioners' refrigerant types.

Biological Hazards – Visual inspections were made of areas suspected to be contaminated with animal wastes and carcasses in order to assess the health risk and introduce appropriate controls and recommendations.

Lead-containing Soil - Prensa undertook soil sampling within the soil mounds at A0103. The soil samples were collected to provide an indication of health risk and assist in developing soil management strategies by comparing the results to the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM) *April 2011: Schedule B7 – Guideline on health-based investigation levels* health investigation levels (HILs). It should be noted that as there was no requirement to characterise the lead contamination within the mounds or classify the material for

off-site disposal as part of this Assessment, as such the sampling was not completed in accordance with *Schedule B2 – Guideline on Site Characterisation of the NEPM* or the Environmental Protection Authority Victoria (EPA) *Industrial Waste Resource Guidelines 702 – Soil Sampling* (IWRG 702).

Three (3) soil samples were taken from representative locations of the soil mounds and submitted to a NATA accredited laboratory to conduct quantitative lead analysis, with results expressed as a concentration, weight per weight (mg/kg).

Due to the open nature of the soil mounds, and the accessibility of the soils that form the mounds, the results were compared to NEPM HIL C – Open Space for lead in soil (600mg/kg).

5 Findings

5.1 Document Review and Interviews

As part of this Assessment, Prensa requested copies of previous documentation pertaining to asbestos building materials at the Site.

No documentation was made available for this Assessment or none were known to exist by Aurecon and/or the Site contact.

5.2 Analytical Results – Project 12399

5.2.1 Asbestos Bulk Sample Analysis

A total of eighty nine (89) samples suspected to contain asbestos were collected and submitted to Prensa's NATA accredited laboratory for analysis. The asbestos bulk sample analysis report is provided in **Appendix B: NATA Endorsed Laboratory Sample Analysis Reports** of this Assessment report. In summary, forty five (45) samples were reported to contain asbestos.

5.2.2 Lead-containing Paint Analysis

A total of thirteen (13) samples suspected to contain lead in the form of paint was collected and submitted to Eurofins, which is NATA accredited to conduct lead analysis in paint. The Eurofins sample analysis report is provided in **Appendix B: NATA Endorsed Laboratory Sample Analysis Reports** of this Assessment report. In summary, seven (7) samples were reported to contain lead above the respective criteria for lead content in paint.

5.2.3 Lead-containing Soil

A total of three (3) samples of topsoil were collected from A0103 and submitted to Eurofins which is NATA accredited to conduct lead analysis in soils. The Eurofins sample analysis report is provided in **Appendix B: NATA Endorsed Laboratory Sample Analysis Reports** of this Assessment report. The results are summarised in the table below:

Lead in Soil Results – A0103 (mg/kg)				
Sample Number	**Sample Location**	**Results**	**HIL C**	**HIL C Satisfied?**
29118-004-001	Surface of soil mound – East Location	210	600	Y
29118-004-002	Surface of soil mound – Central location	4200	600	N
29118-004-003	Surface of soil mound – West location	580	600	Y

5.3 Assessment Findings – Project 12399

The findings of this Assessment are presented in tabulated format in **Appendix C: Hazardous Materials Registers** of this Assessment report. Hazardous building materials that have been photographed are depicted in **Appendix D: Photographs** of this Assessment report.

5.3.1 Asbestos-containing Materials

- Friable asbestos-containing dust was identified throughout surface areas within Building A0221;
- Friable asbestos was identified in the form of woven rope material on a damaged front heater panel located on the south wall of the main room within Building A0243. The asbestos-containing woven rope was observed to be in poor condition at the time of the assessment;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard in the level 1 storage room within Building A0007;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard in the main room within Building A0155;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard located on the north wall of the east changing room within Building A0243;
- Friable asbestos was assumed to be present in the form of millboard insulation within the electrical switchboard located in the north room within Building A0122;
- Friable asbestos was identified in the form of a wire sheath in a light fitting located on the ceiling of the east room within Building A0158. The sheath appeared to be in good condition at the time of the assessment;
- Friable asbestos was identified in the form of a wire sheath in a hot water heater and light fitting located in the services area within Building A0102. The sheath appeared to be in good condition at the time of the assessment;

- Non-friable asbestos in the form of fibre cement sheet debris in poor condition was found on the surface of external grounds immediately surrounding buildings A0228, A0125, A0203, A0485, A0243, A0218, A0122;
- Significant amounts of non-friable asbestos in the form of fibre cement sheet, moulded cement, corrugated cement sheet and bituminous material were identified in various locations during the Assessment;
- Non-friable asbestos in the form of window mastic, construction joint mastic, vinyl floor tiles and electrical backing boards were identified during the Assessment; and
- Asbestos containing bituminous material has been assumed to be present behind the urinals in the male toilet in building A0009 due to no access at the time of the assessment without destructive sampling.

5.3.2 Synthetic Mineral Fibre Materials

SMF was suspected to be present throughout the nominated buildings associated with Project 12399 in the form of insulation material, compressed ceiling tiles, insulation batts and sarking insulation.

5.3.3 Polychlorinated Biphenyls

Capacitors within fluorescent light fittings, identified in the following buildings, were suspected to contain PCB insulating oils, based on the age and style of the light fittings:

- A0155;
- A0156;
- A0221;
- A0210;
- A0485; and
- A0102.

5.3.4 Lead-containing Paint

Lead-containing paint was identified throughout the nominated buildings associated with Project 12399.

5.3.5 Lead-containing Soil

Levels of lead above the adopted HIL C – Public Open Space (600 mg/kg) were detected within the mound behind where the targets for the shooting range were located associated with A0103.

5.3.6 Ozone Depleting Substances

ODS were identified in the form of R22 refrigerant for air-conditioning plant. A total of eleven (11) air-conditioning units containing ODS were identified at the Site located within buildings A0004, A0007, A0228 and A0158 along with one air conditioning unit with suspected ODS (label was unreadable) at A0158.

5.3.7 Biological Hazards

Biological hazards in the form of excessive bird guano and feathers were identified throughout the upper level dome on Building A0004 and throughout building A0221.

Refer to **Appendix C: Hazardous Materials Registers** for the details of these findings.

5.4 Areas not Accessed

Areas that are generally not accessed as part of Prensa's assessments are listed in **Appendix E: Areas Not Accessed**. Site-specific areas that were inaccessible during Prensa's Assessment and were deemed likely to contain asbestos are also listed in this **Appendix C: Hazardous Materials Registers**.

6 Management Options

As per state legislation, all materials suspected of containing asbestos must be identified and recorded in a register. Furthermore, a risk assessment must be conducted of each hazardous building material and appropriate control measures implemented. The control measures have been determined based on reducing the risk of exposure, so far as is reasonably practicable. The control measures, which were determined by a competent person and/or hygienist, need to reflect the hierarchy of control outlined in specific state legislation and is as follows:

1. **Elimination**/removal (most preferred);
2. **Substitution**;
3. **Isolation**, such as erection of permanent enclosures encasing the material;
4. **Engineering** controls, such as negative air pressure enclosures for removal works, HEPA filtration systems;
5. **Administrative** controls – including the incorporation of registers and management plans, the use of signage, personnel training, safe work procedures, regular re-inspections and registers; and
6. The use of **Personal Protective Equipment** (PPE) (least preferred).

To manage the hazardous building materials, a combination of the above techniques may be required.

7 Site Specific Recommendations

Based on the findings of this Assessment, it is recommended that the following control measures be adopted as part of the management of the hazardous building materials at the Site. Recommendations for specific items of hazardous building materials are also presented in **Appendix C: Hazardous Materials Registers** of this Assessment report.

7.1 Asbestos-containing Materials

- Priority 1 recommendations - The asbestos-containing dust throughout building A0221 was found to be in an unstable condition and accessible during occupation of the building. Access should be restricted until such time as the dust can be removed by an appropriately licensed asbestos removalist;
- Priority 2 recommendations - The asbestos-containing friable rope material identified in building A0243 was found to be in a stable condition and accessible during occupation of the building. The rope material should be removed prior to disturbance of the heater; and
- Hazardous building materials which are to be disturbed during demolition/refurbishment works should be removed by an appropriately licensed contractor prior to the commencement of the works;

- Asbestos-containing building materials that are likely to be disturbed by the demolition/refurbishment works should be removed prior to the commencement of the demolition/refurbishment works. The asbestos removal works should be conducted by an appropriately licensed asbestos removal contractor under controlled asbestos removal working conditions;
- As the asbestos removal works are to be conducted within or adjacent to a highly sensitive area (*i.e. the museum located on the base*), Prensa recommends that airborne asbestos monitoring should be conducted during the asbestos removal process along the boundary of the work area.
- An asbestos hygienist who is independent of the asbestos removalist should be engaged by Aurecon to conduct a clearance inspection at the completion of the asbestos removal works;
- The asbestos hygienist should provide a Clearance Certificate to Aurecon that documents his/her clearance inspection and the satisfactory completion of the asbestos removal works. The Clearance Certificate should state that all visible asbestos residue resulting from the asbestos removal process has been removed from the asbestos removal area(s) and from areas adjacent to the asbestos removal area(s);
- During demolition works, if any materials that are not referenced in this report and are suspected of containing asbestos are encountered, then works must cease and an asbestos hygienist should be notified to determine whether the material contains asbestos;
- On completion of demolition/refurbishment works an Asbestos Management Plan (AMP) should be created and maintained for asbestos-containing materials that remain at the site to assist the site controller with the management of these materials. As an initial step to the development of the AMP, a register of asbestos-containing building materials present at the Site must be maintained. The AMP must ensure that suitable control measures are implemented to prevent Site personnel and others from being exposed to airborne asbestos fibre;
- Clearly indicate asbestos-containing materials that are to remain *in situ* to warn of the dangers of disturbing these materials. In accordance with Regulation 226 (6) of the Victorian OHS Regulations 2017, if reasonably practicable, the indication should be by labelling; and
- In accordance with Regulation 228 of the Victorian OHS Regulations 2017, the Asbestos register should be kept current and include any changes in the condition, removal, enclosure or sealing of asbestos. The Register must be reviewed at least every 5 years.

7.2 Synthetic Mineral Fibre Materials

SMF materials that are likely to be disturbed during any proposed demolition works should be handled in accordance with the National *Code of Practice for the Safe Use of Synthetic Mineral Fibres* [NOHSC:2006(1990)].

7.3 Polychlorinated Biphenyls

- Electrical fittings suspected of containing PCB oil capacitors should be treated as containing PCB oils until such time as evidence suggest otherwise e.g. further assessed; and
- If demolition/refurbishment works are likely to disturb PCB oil-containing capacitors, then the capacitors should be removed under controlled working conditions prior to the works accordance with the *Polychlorinated Biphenyls Management Plan, Revised Edition April* 2003.

7.4 Lead-containing Paint

Any works that are likely to disturb LCP surfaces should be conducted in accordance with the requirements of AS/NZS 4361.2 2017 *Guide to hazardous paint management – Part 2: Lead paint in residential, public and commercial buildings*

7.5 Biological Hazards

Biological hazards should be removed using appropriate hazard PPE and industrial disinfecting agents. Works should be conducted by contractors who are familiar with the use of hazard RPE and PPE.

7.6 Lead-containing Soil

The results of the surface samples taken at A0103 indicate a variance in the levels of lead in the soil with one sample exceeds the HIL C limit of 600 mg/kg as outlined in the NEPM. Due to the variation in lead detected in the soil, disturbance or contact with the soil may represent a health risk. As such, any disturbance of the soil, including excavation, should be restricted to personnel utilising personal and respiratory protective equipment (PPE and RPE) until the soil can be appropriately characterised. Prior to disposal off-site the soil mounds should be classified in accordance with IWRG 702 in order to facilitate appropriate disposal.

Appendix A: Risk Assessment Factors and Priority Ratings

Risk Assessment Factors

To assess the health risk posed by the presence of hazardous building materials, all relevant factors must be considered. These factors include:

- Product type;
- Condition;
- Disturbance potential;
- Friability of the material;
- Proximity to direct air stream; and
- Surface treatment (if any).

The purpose of the material risk assessment is to establish the relative risk posed by specific hazardous building materials identified in this assessment. The following risk factors are defined to assist in determining the relative health risk posed by each item.

Condition

The condition of the hazardous building materials identified during the assessment is reported as being **good**, **fair** or **poor**.

- **Good** refers to a material that is in sound condition with no or very minor damage or deterioration.
- **Fair** refers to a material that is generally in a sound condition, with some areas of damage or deterioration.
- **Poor** refers to a material that is extensively damaged or deteriorated.

Friability

The friability of a material describes the ease by which the material can be crumbled, which in turn, can increase the release of fibres into the air. Therefore, friability is only applicable to asbestos and SMF.

- **Friable asbestos** can be crumbled, pulverised, or reduced to powder by hand pressure, which makes it more dangerous than non-friable asbestos.
- **Non-friable asbestos**, more commonly known as bonded asbestos, is typically comprised of asbestos fibres tightly bound in a non-asbestos matrix. If accidentally damaged or broken these ACM may release fibres initially but will not continue to do so.
- **Bonded** SMF describes a synthetic fibrous material which has a specific designed shape and exists within a stable manufactured product. **Un-bonded** SMF is a loosely packed synthetic fibrous material which has no adhesive or cementitious binding properties.

Disturbance Potential

Hazardous building materials can be classified as having low, medium or high disturbance potential.

- **Low disturbance potential** describes materials that have very little or no activity in the immediate area with the potential to disturb the material. Low accessibility is considered as monthly occupancy or less, or inaccessible due to its height or its enclosure.
- **Medium disturbance potential** describes materials that have moderate activity in the immediate area with the potential to disturb the material. Medium accessibility is considered weekly access or occupancy.
- **High disturbance potential** describes materials that have regular activity in the immediate area with the potential to disturb the material.

Health Risk Status

The risk factors described above are used to grade the potential health risk ranking posed by the presence of the materials. These risk rankings are described below:

- A **low health risk** describes a material that poses a negligible or low health risk to occupants of the area due to the materials not readily releasing fibres (or other toxic/hazardous constituents) unless seriously disturbed.
- A **medium health risk** describes a material that pose a moderate health risk due to the material status and activity in the area.
- A **high health risk** describes a material that pose a high health risk to personnel or the public in the area of the material.

ACM Priority Rating System for Control Recommendations

While an assessment of health risk has been made, our recommendations have been prioritised based on the practicability of a required remedial action. In determining a suitable priority ranking, consideration has been given to the following:

- Level of health risk posed by the asbestos containing material;
- Potential commercial implications of the finding; and
- Ease of remediation.

As a guide the recommendation priorities have been given a timeframe as follows:

Priority 1 (P1):	**ACM with High Risk Potential** - Requiring immediate action

Status: Asbestos-containing materials which are either damaged or are being exposed to continual disturbance. Due to these conditions there is an increased potential for exposure and/or transfer of the material to other parts of the property if unrestricted use of the area containing the material is allowed.

Recommendation: If the asbestos-containing material is in a poor/unstable condition and accessible with risk to health from exposure, immediate access restrictions to the immediate area should be applied, air monitoring should be considered and removal is recommended as soon as practicable using an appropriately licensed asbestos removalist.

Priority 2 (P2):	**ACM with Medium Risk Potential** – May require action in the short term

Status: Asbestos-containing materials with a potential for disturbance due to the following conditions:

- Material has been disturbed or damaged and its current condition, while not posing an immediate risk, is unstable.
- The material is accessible and can, when disturbed, present a short-term exposure risk.
- The material could pose an exposure risk if workers are in close proximity.

Recommendation: If the asbestos-containing material is easily accessible but in a stable condition, removal is preferred. However, if removal is not immediately practicable, short-term control measures (i.e. restrict access, sealing, enclosure etc.) may be employed until removal can be facilitated as soon as is practical. Negligible health risk if material remains undisturbed under the control of an asbestos materials management plan.

Priority 3 (P3):	**ACM with Low Risk Potential** – May require action in the medium term

Status: Asbestos-containing materials with a low potential for disturbance due to the following conditions:

- The condition of any friable asbestos-containing material is stable and has a low potential for disturbance i.e. is encased in metal cladding.
- The asbestos-containing material is in a non-friable condition, however further disturbance or damage is unlikely other than during maintenance or service and does not present an exposure risk unless cut, drilled, sanded or otherwise abraded.

Recommendation: Minor health risks if the material is left undisturbed under the control of an asbestos-containing materials management plan. Consider removal or encapsulation within 12 months of the damaged bonded asbestos-containing materials being identified.

Priority 4 (P4):	**ACM with Negligible (very low) Risk Potential** - Requiring ongoing management or longer term remedial action

Status: The asbestos-containing material is in a non-friable form and in good condition. It is unlikely that the material can be disturbed under normal circumstances. Even if it were subjected to minor disturbance the asbestos-containing material poses a minor health risk.

Recommendation: These asbestos-containing materials should be left in a good and stable condition, with ongoing maintenance and periodic inspection. It is advisable that any remaining identified or assumed asbestos-containing materials should be appropriately labelled, where possible, and regularly inspected to ensure they are not deteriorating resulting in a potential risk to health.

Appendix B: NATA Endorsed Laboratory Sample Analysis Report

GF, 5 Burwood Rd
Hawthorn VIC 3122
P: (03) 9508 0100
F: (03) 9509 6125
E: admin@prensa.com.au
ABN: 12 142 106 581

A0018:TXU

3 October 2018

29118-001 BSA 11092018.xlsm

Jennie Hellyer
Aurecon
850 Collins Street
Docklands VIC 3008

Dear Jennie,

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Please find attached the asbestos bulk sample analysis results of the 89 samples collected by Trent Upton of Prensa Pty Ltd for RAAF Williams Point Cook Base, Point Cook VIC 3030 on 11 September 2018 and received at the Prensa Pty Ltd laboratory (GF, 5 Burwood Rd, Hawthorn VIC 3122) on 12 September 2018. The samples were analysed on 13 September 2018 and the results are presented on the following page(s).

Prensa qualitatively analyses bulk samples for asbestos using polarising light microscopy and dispersion staining techniques in accordance with Prensa's 'PRLAB2002 Asbestos Identification Test Method', in accordance with Australian Standard (AS) 4964 – 2004, *Method for the qualitative identification of asbestos in bulk samples* and AS ISO/IEC 17025 – 2005, *General requirements for the competence of testing and calibration laboratories* .

If you require further information please contact the Prensa office on (03) 9508 0100.

Regards,

Hazirah Soffiee
Approved Asbestos Fibre Identifier and Signatory

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 001	A004, lower rooftop, office, ceiling, textured coating Beige textured coating 40 x 20 x 1 mm	No asbestos fibres detected
29118 - 001 - 002	A004, lower rooftop, construction joint mastic Brown rubbery mastic material 45 x 30 x 7 mm	No asbestos fibres detected
29118 - 001 - 003	A004, lower rooftop, pipework, waterproof Black bituminous material 60 x 45 x 7 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 004	A004, lower rooftop, parapet walls, bituminous material Black bituminous material 35 x 35 x 4 mm	No asbestos fibres detected Synthetic Mineral Fibres detected
29118 - 001 - 005	A004, Level 1, throughout, sheet vinyl Blue brittle vinyl material with attached yellow adhesive material 60 x 50 x 9 mm	No asbestos fibres detected
29118 - 001 - 006	A004, Level 1, shower, ceiling, fibre cement sheet White insulation material 20 x 13 x 1 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 007	A004, ground floor, south-east corner room, sink, bituminous lining Black bituminous material 25 x 15 x 2 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 008	A004, ground floor, bathroom, dividing wall, fibre cement sheet Grey fibrous cement material 55 x 40 x 4 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 009	A004, external, west wall, fibre cement sheet Grey fibrous cement material 32 x 25 x 2 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 010	A004, north entrance, fire door core Beige fire door material 20 x 10 x 1 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 011	Building 7, exterior, east side, Telstra pit, compressed cement Grey fibrous cement material 70 x 55 x 15 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 012	Building 7, master switch room, upper infill panel, fibre cement sheet Grey fibrous cement material 30 x 24 x 4 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 013	Building 7, west entrance, eaves Grey fibrous cement material 45 x 17 x 2 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 014	Building 7, throughout, floor, sheet vinyl Blue flexible vinyl material 80 x 48 x 7 mm	No asbestos fibres detected
29118 - 001 - 015	Building 7, level 1, storage room, wall boxes, fibre cement sheet Grey fibrous cement material 65 x 35 x 5 mm	No asbestos fibres detected Organic fibres detected

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Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 016	Building 7, level 1, storage room, switchboard, bituminous backing board Black bituminous material 71 x 50 x 4 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 017	Building 7, ground floor, bathroom, dividing wall, compressed cement sheet Grey fibrous cement material 20 x 10 x 2 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 018	Building 7, ground floor, bathroom, toilet infill panel, fibre cement sheet Grey fibrous cement material 30 x 26 x 4 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 019	Building 228, external, throughout, fibre cement sheet debris Grey fibrous cement material 50 x 26 x 8 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 020	Building 228, main room, north, switchboard, bituminous backing board Black bituminous material 20 x 14 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 021	Building 228, main room, sheet vinyl Beige flexible vinyl material 62 x 55 x 2 mm	No asbestos fibres detected Synthetic Mineral Fibres detected
29118 - 001 - 022	Building 228, external east, Telstra pit, moulded cement Grey fibrous cement material 60 x 35 x 7 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 023	Building 125, main room, switchboard, bituminous backing board Black bituminous material 42 x 20 x 3 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 024	Building 125, main room, sink splashback, fibre cement sheet Grey fibrous cement material 55 x 30 x 7 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 025	Building 125, east room, walls, fibre cement sheet Grey fibrous cement material 45 x 45 x 10 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 026	Building 125, main room, floor, construction joint mastic Red hardened mastic material 55 x 20 x 7 mm	No asbestos fibres detected
29118 - 001 - 027	Building 125, external, fibre cement sheet debris Grey fibrous cement material 52 x 38 x 10 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 028	Building 155, throughout, floor, sheet vinyl Blue brittle vinyl material 70 x 60 x 4 mm	No asbestos fibres detected
29118 - 001 - 029	Building 155, west entrance, upper infill panel, fibre cement sheet Grey fibrous cement material 48 x 28 x 6 mm	No asbestos fibres detected Organic fibres detected

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 030	Building 155, main room, switchboard, bituminous backing board Black bituminous material 20 x 13 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 031	Building 155, external, window mastic Beige hardened mastic material 40 x 25 x 6 mm	No asbestos fibres detected
29118 - 001 - 032	Building 156, throughout, walls, fibre cement sheet Grey fibrous cement material 50 x 50 x 6 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 033	Building 156, main room, sink, splashback Grey fibrous cement material 70 x 60 x 13 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 034	Building 156, external, windows, mastic Beige hardened mastic material 60 x 36 x 10 mm	No asbestos fibres detected
29118 - 001 - 035	Building 158, external, west side, eaves Grey fibrous cement material 45 x 40 x 8 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 036	Building 158, external, fibre cement sheet debris Grey fibrous cement material 65 x 45 x 10 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 037	Building 158, external, south side, infill panels, fibre cement sheet Grey fibrous cement material 54 x 28 x 2 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 038	Building 158, external, north-east corner, Telstra pit, moulded cement Grey fibrous cement material 60 x 40 x 8 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 039	Building 158, east wall, fibre cement sheet Grey fibrous cement material 70 x 33 x 4 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 040	Building 158, east room, light fittings, wire sheath White insulation material 6 x 6 x 1 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 041	Building 158, corridor, north wall, infill panel, fibre cement sheet Grey fibrous cement material 27 x 17 x 3 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 042	Building 112, external, north side, switchboard, bituminous backing board Black bituminous material 18 x 18 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 043	Building 221, north side offices, walls, fibre cement sheet Grey fibrous cement material 40 x 18 x 3 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 044	Building 221, north side offices, floor covering, brown sheet vinyl Brown brittle vinyl material 66 x 45 x 11 mm	No asbestos fibres detected Organic fibres detected

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 045	Building 221, north side offices, switchboard, bituminous backing board Black bituminous material 25 x 10 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 046	Building 221, throughout, windows, mastic Grey hardened mastic material 85 x 40 x 20 mm	No asbestos fibres detected
29118 - 001 - 047	Building 221, throughout, floor, debris, dust Brown non-homogenous dust material with - Four (4) loose fibre bundles containing chrysotile (white asbestos) 4.5 x 3.0 x 0.5 mm, 5.0 x 1.0 x 0.3 mm, 3.0 x 0.2 x 0.2 mm, 5.0 x 2.0 x 0.3 mm ~ 16.7 grams	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 048	Building 221, central offices, throughout, upper infill panels, fibre cement sheet Grey fibrous cement material 80 x 20 x 7 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 049	Building 221, central offices, throughout, walls, fibre cement sheet Grey fibrous cement material 75 x 22 x 5 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 050A	Building 221, central offices, floor covering, blue sheet vinyl Blue brittle vinyl material (050A) with attached grey screed material (050B) 55 x 55 x 8 mm	No asbestos fibres detected
29118 - 001 - 050B	Building 221, central offices, floor covering, blue sheet vinyl Grey screed material (050B) attached to blue brittle vinyl material (050A) 55 x 55 x 1 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 051	Building 221, central offices, floor covering, hessian backed sheet vinyl Grey brittle vinyl material with attached hessian backing 75 x 50 x 10 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 052	Building 221, central office, flue, moulded cement Grey fibrous cement material 30 x 12 x 7 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 053	Building 221, south side offices, throughout, infill panels, fibre cement sheet Grey fibrous cement material 43 x 35 x 5 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 054	Building 221, south side offices, central ceiling, fibre cement sheet Grey fibrous cement material 50 x 27 x 7 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 055	Building 221, south offices, floor covering, green sheet vinyl Green brittle vinyl material 50 x 30 x 5 mm	No asbestos fibres detected

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 056	Building 221, south east corner, instrument room, switchboard, bituminous backing board Black bituminous material 28 x 20 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 057	Building 221, external, throughout, walls, corrugated cement sheet Grey fibrous cement material 40 x 3 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 058	Building 221, external, throughout, lower walls, fibre cement sheet Grey fibrous cement material 7 x 5 x 1 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 059	Building 221, external, south side, fire hydrant shed, walls, fibre cement sheet Grey fibrous cement material 51 x 25 x 3 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 060	Building 210, south side, adjacent entry, switchboard, bituminous backing board Black bituminous material 20 x 17 x 2 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 061	Building 203, external, throughout, windows, mastic Beige hardened mastic material 70 x 35 x 15 mm	No asbestos fibres detected
29118 - 001 - 062	Building 203, external, south side, debris, fibre cement sheet Grey fibrous cement material 75 x 40 x 10 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 063	Building 485, north area, ceiling, fibre cement sheet Grey fibrous cement material 40 x 25 x 4 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 064	Building 485, kitchen, floor covering, grey sheet Grey flexible vinyl material 40 x 35 x 4 mm	No asbestos fibres detected Synthetic Mineral Fibres detected
29118 - 001 - 065	Building 485, external, eaves, fibre cement sheet Grey fibrous cement material 40 x 40 x 5 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 066	Building 485, external, west side, flue, moulded cement Grey fibrous cement material 45 x 13 x 3 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 067	Building 485, external, east side, debris, fibre cement sheet Grey fibrous cement material 45 x 20 x 5 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 068	Building 102, services area, hot water service, wire sheath White insulation material 10 x 5 x 1 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 069	Building 102, throughout, ceiling, fibre cement sheet Pink-grey fibrous cement material 33 x 25 x 3 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 070	Building 243, main area, west, floor covering, sheet vinyl Green brittle vinyl material 55 x 40 x 10 mm	No asbestos fibres detected
29118 - 001 - 071	Building 243, north entrance area, walls, fibre cement sheet Grey fibrous cement material 100 x 30 x 2 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 072	Building 243, main room, heater, rope seal Grey fibrous cement material 25 x 15 x 1 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 073	Building 243, bar area, east side, infill panel, fibre cement sheet Grey fibrous cement material 45 x 25 x 5 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 074	Building 243, east change room, dividing wall, fibre cement sheet Grey fibrous cement material 30 x 25 x 3 mm	***Chrysotile (white asbestos) detected*** Organic fibres detected
29118 - 001 - 075	Building 243, east change room, switchboard, infill panel, fibre cement sheet Grey fibrous cement material 40 x 15 x 1 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 076	Building 243, east change room, switchboard, bituminous backing board Black bituminous material 27 x 21 x 4 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 077	Building 243, east bathroom, ceiling, fibre cement sheet Grey fibrous cement material 37 x 18 x 2 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 078	Building 243, east bathroom, floor covering, sheet vinyl Grey brittle vinyl material 45 x 15 x 2 mm	No asbestos fibres detected Synthetic Mineral Fibres detected
29118 - 001 - 079	Building 243, external, windows, mastic Beige hardened mastic material 65 x 20 x 9 mm	No asbestos fibres detected
29118 - 001 - 080	Building 243, external, south side, eaves, fibre cement sheet Grey fibrous cement material 50 x 25 x 5 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 081	Building 243, exterior, south balcony, flue, moulded cement Grey fibrous cement material 35 x 15 x 5 mm	***Chrysotile (white asbestos) detected*** ***Amosite (brown asbestos) detected***
29118 - 001 - 082	Building 218, external, female toilets ceiling, fibre cement sheet Grey fibrous cement material 75 x 40 x 15 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 083	Building 218, south wall, infill panels, fibre cement sheet Grey fibrous cement material 55 x 35 x 10 mm	No asbestos fibres detected Organic fibres detected

Asbestos Bulk Sample Analysis Report

RAAF Williams Point Cook Base, Point Cook VIC 3030

Sample No	Sample Location / Description / Size	Result
29118 - 001 - 084	Building 218, external, west side, walls, fibre cement sheet Grey fibrous cement material 45 x 30 x 3 mm	No asbestos fibres detected Organic fibres detected
29118 - 001 - 085	Building 218, external, south side, debris, fibre cement sheet Grey fibrous cement material 60 x 55 x 10 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 086	Building 122, external, roof, corrugated cement sheet Grey fibrous cement material 85 x 40 x 15 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 087	Building 122, external, windows, mastic Beige hardened mastic material 90 x 30 x 13 mm	No asbestos fibres detected
29118 - 001 - 088	Building 122, external, throughout, debris Grey fibrous cement debris material 70 x 50 x 12 mm	***Chrysotile (white asbestos) detected***
29118 - 001 - 089	Building 212, south-west corner, switchboard, bituminous backing board Black bituminous material 34 x 11 x 2 mm	***Chrysotile (white asbestos) detected***

Only the samples submitted for analysis have been considered in presenting these results.

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30 years Testing For Life 1987–2017
Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

Prensa Pty Ltd VIC
5 Burwood Rd
Hawthorn
VIC 3122

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **James Broomhead**

Report **617952-S**
Project name RAAF WILLIAMS POINT COOK VARIOUS DIV 6
Project ID 29118
Received Date Sep 17, 2018

Client Sample ID			**29118-002-001**	**29118-002-002**	**29118-002-003**	**29118-002-004**
Sample Matrix			**Paint**	**Paint**	**Paint**	**Paint**
Eurofins | mgt Sample No.			**M18-Se20796**	**M18-Se20797**	**M18-Se20798**	**M18-Se20799**
Date Sampled			**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**
Test/Reference	LOR	Unit				
Lead (% w/w)	0.01	%	< 0.01	0.07	< 0.01	< 0.01

Client Sample ID			**29118-002-005**	**29118-002-006**	**29118-002-007**	**29118-002-008**
Sample Matrix			**Paint**	**Paint**	**Paint**	**Paint**
Eurofins | mgt Sample No.			**M18-Se20800**	**M18-Se20801**	**M18-Se20802**	**M18-Se20803**
Date Sampled			**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**
Test/Reference	LOR	Unit				
Lead (% w/w)	0.01	%	0.32	0.40	0.38	0.18

Client Sample ID			**29118-002-009**	**29118-002-010**	**29118-002-011**	**29118-002-012**
Sample Matrix			**Paint**	**Paint**	**Paint**	**Paint**
Eurofins | mgt Sample No.			**M18-Se20804**	**M18-Se20805**	**M18-Se20806**	**M18-Se20807**
Date Sampled			**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**
Test/Reference	LOR	Unit				
Lead (% w/w)	0.01	%	0.26	11	0.02	2.4

Client Sample ID			**29118-002-013**
Sample Matrix			**Paint**
Eurofins | mgt Sample No.			**M18-Se20808**
Date Sampled			**Sep 12, 2018**
Test/Reference	LOR	Unit	
Lead (% w/w)	0.01	%	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Lead (% w/w)	Sydney	Sep 17, 2018	6 Month

- Method: E022.5 - ACID EXTRACTABLE METALS IN PAINT IN LIQUID AND POWDERED FORM BY ICP-MS ANALYSIS

ABN– 50 005 085 521
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NATA # 1261
Site # 1254 & 14271

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NATA # 1261 Site # 18217

Brisbane
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Prensa Pty Ltd VIC	**Order No.:**		**Received:**	Sep 17, 2018 3:51 PM
Address:	5 Burwood Rd Hawthorn VIC 3122	**Report #:** **Phone:** **Fax:**	617952 9508 0100	**Due:** **Priority:** **Contact Name:**	Sep 24, 2018 5 Day James Broomhead
Project Name:	RAAF WILLIAMS POINT COOK VARIOUS DIV 6				
Project ID:	29118				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Lead (% w/w)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	29118-002-001	Sep 12, 2018	8:00AM	Paint	M18-Se20796	X
2	29118-002-002	Sep 12, 2018	8:10AM	Paint	M18-Se20797	X
3	29118-002-003	Sep 12, 2018	8:20AM	Paint	M18-Se20798	X
4	29118-002-004	Sep 12, 2018	8:30AM	Paint	M18-Se20799	X
5	29118-002-005	Sep 12, 2018	8:40AM	Paint	M18-Se20800	X
6	29118-002-	Sep 12, 2018	8:50AM	Paint	M18-Se20801	X

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Site # 23736

Company Name:	Prensa Pty Ltd VIC	**Order No.:**		**Received:**	Sep 17, 2018 3:51 PM
Address:	5 Burwood Rd	**Report #:**	617952	**Due:**	Sep 24, 2018
	Hawthorn	**Phone:**	9508 0100	**Priority:**	5 Day
	VIC 3122	**Fax:**		**Contact Name:**	James Broomhead
Project Name:	RAAF WILLIAMS POINT COOK VARIOUS DIV 6				
Project ID:	29118				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Lead (% w/w)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
	006					
7	29118-002-007	Sep 12, 2018	9:00AM	Paint	M18-Se20802	X
8	29118-002-008	Sep 12, 2018	9:10AM	Paint	M18-Se20803	X
9	29118-002-009	Sep 12, 2018	9:20AM	Paint	M18-Se20804	X
10	29118-002-010	Sep 12, 2018	9:30AM	Paint	M18-Se20805	X
11	29118-002-011	Sep 12, 2018	9:40AM	Paint	M18-Se20806	X
12	29118-002-012	Sep 12, 2018	9:50AM	Paint	M18-Se20807	X
13	29118-002-	Sep 12, 2018	10:00AM	Paint	M18-Se20808	X

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Company Name:	Prensa Pty Ltd VIC	**Order No.:**		**Received:**	Sep 17, 2018 3:51 PM
Address:	5 Burwood Rd	**Report #:**	617952	**Due:**	Sep 24, 2018
	Hawthorn	**Phone:**	9508 0100	**Priority:**	5 Day
	VIC 3122	**Fax:**		**Contact Name:**	James Broomhead
Project Name:	RAAF WILLIAMS POINT COOK VARIOUS DIV 6				
Project ID:	29118				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail	Lead (% w/w)
Melbourne Laboratory - NATA Site # 1254 & 14271	
Sydney Laboratory - NATA Site # 18217	X
Brisbane Laboratory - NATA Site # 20794	
Perth Laboratory - NATA Site # 23736	
013	
Test Counts	13

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Mary Makarios Analytical Services Manager

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

eurofins | mgt

30 years Testing For Life 1987–2017
Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

Prensa Pty Ltd VIC
5 Burwood Rd
Hawthorn
VIC 3122

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Trent Upton**

Report **619422-S**
Project name RAAF WILLIAM POINT COOK
Project ID 29118
Received Date Sep 25, 2018

Client Sample ID			**29118-004-001**	**29118-004-002**	**29118-004-003**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M18-Se32941**	**M18-Se32942**	**M18-Se32943**
Date Sampled			**Sep 21, 2018**	**Sep 21, 2018**	**Sep 21, 2018**
Test/Reference	LOR	Unit			
Heavy Metals					
Lead	5	mg/kg	210	4200	580
% Moisture	1	%	5.6	5.6	5.7

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Heavy Metals	Melbourne	Sep 25, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Sep 25, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Prensa Pty Ltd VIC	**Order No.:**	
Address:	5 Burwood Rd Hawthorn VIC 3122	**Report #:** **Phone:** **Fax:**	619422 9508 0100
Project Name:	RAAF WILLIAM POINT COOK		
Project ID:	29118		

Received:	Sep 25, 2018 11:55 AM
Due:	Sep 26, 2018
Priority:	1 Day
Contact Name:	Trent Upton

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Lead	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	29118-004-001	Sep 21, 2018	1:00PM	Soil	M18-Se32941	X	X
2	29118-004-002	Sep 21, 2018	1:05PM	Soil	M18-Se32942	X	X
3	29118-004-003	Sep 21, 2018	1:10PM	Soil	M18-Se32943	X	X
Test Counts						3	3

Internal Quality Control Review and Glossary

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Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

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3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M18-Se32942	CP	%	5.6	4.9	13	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Mary Makarios	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Appendix C: Hazardous Materials Registers

Key to asbestos-containing materials priority risk rating:	
Priority 1 (P1):	High Priority - Requiring immediate action
Priority 2 (P2):	Medium Priority – May require action in the short term
Priority 3 (P3):	Low Priority – May require action in the medium term
Priority 4 (P4):	Very Low Priority - Requires ongoing management or longer term remedial action

Prensa Pty Ltd.
5 Burwood Road
Hawthorn VIC 3122
Ph.: (03) 9508 0100

Client: Aurecon **Site Name:** RAAF Williams **Site Address:** Point Cook Rd, Point Cook VIC 3030 **Client No:** A0018 **Job No:** 29118

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
Project 12399																
A0004	Upper Rooftop	Dome	Throughout	Bird guano	Biological Hazard	Positive	Visual	-	-	-	-	-	Bird guano should be cleaned using industrial disinfectant and cleaning methods prior to occupation or use of the area. Cleaning works should be conducted by contractors familiar with the use of industrial cleaning methods, appropriate use of RPE and PPE, and the disposal of hazardous materials.	-	-	-
A0004	Lower Rooftop	External Pavement	Floor coverings - blue	Blue (light) - upper coloured paint system	Lead Paint - Chip	29118-002-001	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0004	Lower Rooftop	Plant Room	Pipe work	Insulation material	SMF	-	Suspected Positive	Bonded	Low	Good	Low	2 m^2	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Lower Rooftop	Main Room	Walls - internal	Cream - upper coloured paint system	Lead Paint - Swab	-	Negative	-	-	-	-	-	<0.5% lead content. If painted surfaces are to be subject to machine sanding/buffing or heat stripping, quantitative analysis of paint for lead should be undertaken at a NATA accredited laboratory.	-	-	-
A0004	Lower Rooftop	Main Room	Ceiling	Vermiculite	Asbestos	29118-001-001	Negative	-	-	-	-	-	-	-	-	-
A0004	Lower Rooftop	External Pavement	Floor	Construction joint mastic	Asbestos	29118-001-002	Negative	-	-	-	-	-	-	-	-	-
A0004	Lower Rooftop	External Pavement	Pipe work	Bituminous membrane	Asbestos	29118-001-003	Positive	Non-friable	Low	Fair	Low	5 m^2	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4		
A0004	External	Lower Rooftop	Parapet walls	Bituminous material	Asbestos	29118-001-004	Negative	-	-	-	-	-	-	-	-	-
A0004	Level 1	External Stairs	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	1 unit	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0004	Level 1	Throughout	Floor	Sheet vinyl	Asbestos	29118-001-005	Negative	-	-	-	-	-	-	-	-	-
A0004	Level 1	Throughout all rooms	Ceiling tiles	Compressed ceiling tiles	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Level 1	Throughout all rooms	Ceiling	Vermiculite	Asbestos	Refer 29118-001-001	Negative	-	-	-	-	-	-	-	-	-
A0004	Level 1	Throughout	Walls	Insulation batts	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Level 1	Throughout	Walls	White - upper coloured paint system	Lead Paint - Chip	29118-002-002	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0004	Level 1	Shower	Ceiling	Fibre cement sheet	Asbestos	29118-001-006	Positive	Non-friable	Low	Good	Low	4m^2	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0004	Ground Floor	External Stairs	Air conditioning unit	R410A Hydrofluoracarbon (HFC)	Ozone Depleting Substances	-	Negative	-	-	-	-	3 units	Hydrofluoracarbon (HFC) non ozone depleting substances	-	-	-

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Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0004	Ground Floor	Throughout	Floor	Sheet vinyl	Asbestos	Refer 29118-001-005	Negative	-	-	-	-	400 m²	-	-	-	-
A0004	Ground Floor	South-east corner room	Sink pad	Bituminous membrane	Asbestos	29118-001-007	Positive	Non-friable	Low	Poor	Low	1m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0004	Internal	Bathrooms	Wall - dividing	Fibre cement sheet	Asbestos	29118-001-008	Negative	-	-	-	-	-	-	-	-	-
A0004	External	West Wall	Walls - external	Fibre cement sheet	Asbestos	29118-001-009	Negative	-	-	-	-	-	-	-	-	-
A0004	Internal	North Entrance	Fire door - large	Fire door core	Asbestos	29118-001-010	Negative	-	-	-	-	-	-	-	-	-
A0004	External	Lower Rooftop	Throughout	Green (dark) - lower coloured paint system	Lead Paint - Chip	29118-002-001	Negative	-	-	-	-	400 m²	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0004	Internal	Rooftop Plant Room	Pipe work	Insulation material	SMF	-	Suspected Positive	Bonded	Low	Good	Low	5 m²	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Internal	Rooftop Plant Room	Walls - internal	White - upper coloured paint system	Lead Paint - Swab	-	Negative	-	-	-	-	-	<0.5% lead content. If painted surfaces are to be subject to machine sanding/buffing or heat stripping, quantitative analysis of paint for lead should be undertaken at a NATA accredited laboratory.	-	-	-
A0004	Level 1	Staircase	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	1 unit	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0004	Level 1	Rooms - Throughout	Ceiling tiles	Compressed ceiling tiles	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Level 1	Ceiling Space	Duct	Insulation material - external	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Level 1	Ceiling Space	Pipe work	Insulation material - external	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Internal	Throughout	Wall Cavities	Insulation batts	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Internal	Throughout	Walls	Brown - upper coloured paint system	Lead Paint - Chip	29118-002-002	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0004	Ground Floor	External Staircase	Air conditioning unit	R410A Hydrofluoracarbon (HFC)	Ozone Depleting Substances	-	Negative	-	-	-	-	3 units	Hydrofluoracarbon (HFC) non ozone depleting substances	-	-	-
A0004	Ground Floor	Throughout	Floor	Sheet vinyl	Asbestos	Refer 29118-001-005	Negative	-	-	-	-	-	-	-	-	-
A0004	Ground Floor	Throughout	Ceiling	Vermiculite	Asbestos	Refer 29118-001-001	Negative	-	-	-	-	-	-	-	-	-

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A0004	Ground Floor	Throughout	Window Ledges	Cream - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	50 m²	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0004	Ground Floor	Throughout	Ceiling tiles	Compressed ceiling tiles	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Ground Floor	Kitchen	Hot water heater	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	1 unit	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0004	Internal	Throughout All Levels	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Negative	-	-	-	-	-	PCB-containing capacitors are unlikely to be present due to age and appearance of light fittings. Confirm PCB status prior to refurbishment or demolition works.	-	-	-
A0004	External	West Wall	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	1 unit	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0007	External	East Side	Telstra Pit	Compressed cement sheet	Asbestos	29118-001-011	Negative	-	-	-	-	-	-	-	-	-
A0007	Internal	West Entrance, Master Switch room	Infill panels - high level	Fibre cement sheet	Asbestos	29118-001-012	Negative	-	-	-	-	-	-	-	-	-
A0007	Internal	West Entrance	Eaves	Fibre cement sheet	Asbestos	29118-001-013	Negative	-	-	-	-	-	-	-	-	-
A0007	Internal	Throughout	Walls	White - lower coloured paint system	Lead Paint - Chip	29118-002-003	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0007	Internal	East Side of Theatre	Walls	White - lower coloured paint system	Lead Paint - Chip	29118-002-004	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management			
A0007	Internal	Throughout	Floor	Vinyl floor tiles	Asbestos	29118-001-014	Negative	-	-	-	-	-	-	-	-	-
A0007	Level 1	Storage Room	Wall Bases	Fibre cement sheet	Asbestos	29118-001-015	Negative	-	-	-	-	-	-	-	-	-
A0007	Level 1	Storage Room	Switchboard	Bituminous backing board	Asbestos	29118-001-016	Negative	-	-	-	-	-	-	-	-	-
A0007	Level 1	Storage Room	Switchboard	Millboard insulation	Asbestos	-	Assumed Positive	Friable	Low	Good	Low	1 unit	Confirm Status, remove under controlled friable asbestos removal conditions as soon as practicable by a Class A (friable) licensed asbestos removal contractor.	P4	-	-
A0007	Ground Floor	Bathroom	Wall - dividing	Compressed cement sheet	Asbestos	29118-001-017	Negative	-	-	-	-	-	-	-	-	-
A0007	Ground Floor	Bathroom	Infill panels	Fibre cement sheet	Asbestos	29118-001-018	Negative	-	-	-	-	-	-	-	-	-

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A0007	External	South End	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	3 units	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0007	External	South End	Air conditioning unit	R410A Hydrofluoracarbon (HFC)	Ozone Depleting Substances	-	Negative	-	-	-	-	2 units	Hydrofluoracarbon (HFC) non ozone depleting substances	-	-	-
A0007	External	East End	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	1 unit	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0007	External	North End	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	2 units	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0007	External	West End	Air conditioning unit	R410A Hydrofluoracarbon (HFC)	Ozone Depleting Substances	-	Negative	-	-	-	-	3 units	Hydrofluoracarbon (HFC) non ozone depleting substances	-	-	-
A0007	Ground Floor	Ceiling Space	Pipe work	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	-	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0007	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Negative	-	-	-	-	-	PCB-containing capacitors are unlikely to be present due to age and appearance of light fittings. Confirm PCB status prior to refurbishment or demolition works.	-	-	-
A0007	Ground Floor	Male Toilet	Urinal	Bituminous membrane	Asbestos	-	Assumed Positive	Non-friable	Low	Good	Low	I unit	Confirm Status, label as containing asbestos and maintain in current condition if to remain in-situ, remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0228	External	Throughout	Debris	Fibre cement sheet	Asbestos	29118-001-019	Positive	Non-friable	Medium	Poor	Medium	1 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0228	External	Throughout	Window frames	Beige - upper coloured paint system	Lead Paint - Swab	-	Negative	-	-	-	-	-	<0.5% lead content. If painted surfaces are to be subject to machine sanding/buffing or heat stripping, quantitative analysis of paint for lead should be undertaken at a NATA accredited laboratory.	-	-	-
A0228	Internal	Main Room, North end	Switchboard	Bituminous backing board	Asbestos	29118-001-020	Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0228	Internal	Main Room	Floor	Vinyl floor tiles	Asbestos	29118-001-021	Negative	-	-	-	-	-	-	-	-	-
A0228	External	Telstra Pit, East side	Pit	Moulded fibre cement	Asbestos	29118-001-022	Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0228	External	East Wall	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	-	Positive	-	-	-	-	1 unit	Hydrochlorofluorocarbon (HCFC), ozone depleting substances identified in the assessment that require removal during refurbishment or demolition works should be appropriately decanted and disposed of by a licensed contractor in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012.	-	-	-
A0228	Internal	Main Room	Hot water heater	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	1 unit	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0228	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Negative	-	-	-	-	-	PCB-containing capacitors are unlikely to be present due to age and appearance of light fittings. Confirm PCB status prior to refurbishment or demolition works.	-	-	-
A0125	Internal	Main Room	Switchboard	Bituminous backing board	Asbestos	29118-001-023	Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0125	Internal	Main Room	Sink splashback	Fibre cement sheet	Asbestos	29118-001-024	Positive	Non-friable	Medium	Poor	Medium	5 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0125	Internal	East Room	Walls	Fibre cement sheet	Asbestos	29118-001-025	Negative	-	-	-	-	-	-	-	-	-
A0125	Internal	Main Room	Floor	Green (dark) - upper coloured paint system	Lead Paint - Chip	29118-002-005	Positive	-	-	-	-	-	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0125	Internal	Main Room	Expansion joint	Construction joint mastic	Asbestos	29118-001-026	Negative	-	-	-	-	-	-	-	-	-
A0125	External	Throughout	Debris	Fibre cement sheet	Asbestos	29118-001-027	Positive	Non-friable	Medium	Poor	Medium	.5 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0125	Internal	Main Room	Walls	Insulation batts	SMF	-	Positive	Bonded	Low	Good	Low	80 m²	Maintain in current condition if to remain in-situ. Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0125	Internal	West Room	Hot water heater	Insulation material - internal	SMF	-	Positive	Bonded	Low	Good	Low	80 m²	Maintain in current condition if to remain in-situ. Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0155	Internal	Throughout	Floor	Vinyl floor tiles	Asbestos	29118-001-028	Negative	-	-	-	-	-	-	-	-	-
A0155	Internal	West Entrance	Infill panels - high level	Fibre cement sheet	Asbestos	29118-001-029	Negative	-	-	-	-	-	-	-	-	-
A0155	Internal	Main Room	Switchboard	Bituminous backing board	Asbestos	29118-001-030	Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0155	Internal	Main Room	Switchboard	Millboard insulation	Asbestos	-	Assumed Positive	Friable	Low	Good	Low	1 unit	Confirm Status, remove under controlled friable asbestos removal conditions as soon as practicable by a Class A (friable) licensed asbestos removal contractor.	P3	-	-
A0155	Internal	Main Room	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Positive	-	-	-	-	-	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.	-	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0155	Internal	Main Room	Windows & doors	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	20 m^2	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0155	External	Exterior	Walls	Beige - upper coloured paint system	Lead Paint - Chip	29118-002-006	Positive	-	-	-	-	100 m^2	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0156	External	Exterior	Walls	White - upper coloured paint system	Lead Paint - Chip	29118-002-007	Positive	-	-	-	-	100 m^2	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0156	Internal	Ceiling Space	Insulation	Sarking insulation	SMF	-	Suspected Positive	Bonded	Low	Good	Low	Throughout	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0156	External	Exterior	Windows	Mastic sealant	Asbestos	29118-001-031	Negative	-	-	-	-	-	-	-	-	-
A0156	Internal	Throughout	Walls	Fibre cement sheet	Asbestos	29118-001-032	Negative	-	-	-	-	-	-	-	-	-
A0156	Internal	Main Room	Sink splashback	Fibre cement sheet	Asbestos	29118-001-033	Positive	Non-friable	Low	Good	Low	2 m^2	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0156	Internal	East Room	Ceiling	Fibre cement sheet	Asbestos	Refer - 29118-001-033	Positive	Non-friable	Low	Good	Low	10 m^2	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0156	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Positive	-	-	-	-	-	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.	-	-	-
A0156	External	Exterior	Window frames	Mastic sealant	Asbestos	29118-001-034	Negative	-	-	-	-	-	-	-	-	-
A0158	External	Exterior ,West Side	Eaves	Fibre cement sheet	Asbestos	29118-001-035	Negative	-	-	-	-	-	-	-	-	-
A0158	External	Exterior	Debris	Fibre cement sheet	Asbestos	29118-001-036	Negative	-	-	-	-	-	-	-	-	-
A0158	External	Exterior ,West Side	Infill panels	Fibre cement sheet	Asbestos	29118-001-037	Negative	-	-	-	-	-	-	-	-	-
A0158	External	Exterior ,West Side	Walls	White - upper coloured paint system	Lead Paint - Chip	29118-002-008	Positive	-	-	-	-	100 m^2	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0158	External	East Wall	Air conditioning unit	R22 Hydrochlorofluorocarbon (HCFC)	Ozone Depleting Substances	Label Faded	Suspected Positive	-	-	-	-	1 unit	No data was visible at the time of the assessment, confirm status of suspected ozone depleting substances identified in the assessment.	-	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0158	External	North-east Corner	Telstra Pit	Moulded fibre cement	Asbestos	29118-001-038	Positive	Non-friable	Low	Fair	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0158	External	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Negative	-	-	-	-	-	PCB-containing capacitors are unlikely to be present due to age and appearance of light fittings. Confirm PCB status prior to refurbishment or demolition works.	-	-	-
A0158	External	East Wall	Walls	Fibre cement sheet	Asbestos	29118-001-039	Negative	-	-	-	-	-	-	-	-	-
A0158	Internal	East Room	Fluorescent light fitting - double tube	Wire Sheath	Asbestos	29118-001-040	Positive	Friable	Low	Good	Low	.2 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0158	Internal	East Room	Switchboard	Bituminous backing board	Asbestos	-	Assumed Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0158	Internal	Corridor, Doorway	Infill panels - high level	Fibre cement sheet	Asbestos	Refer 29118-001-039	Negative	-	-	-	-	-	-	-	-	-
A0158	Internal	Corridor, North Wall	Infill panels - high level	Fibre cement sheet	Asbestos	29118-001-041	Positive	Non-friable	Low	Good	Low	1 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0158	Internal	North Room	Walls	Fibre cement sheet	Asbestos	Refer 29118-001-041	Positive	Non-friable	Low	Good	Low	50 m^2	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0112	External	North Side	Switchboard	Bituminous backing board	Asbestos	29118-001-042	Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0112	External	Throughout	Walls	Green - upper coloured paint system	Lead Paint - Chip	29118-002-009	Positive	-	-	-	-	-	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0112	External	Throughout	Door & Door frames	Green - upper coloured paint system	Lead Paint - Chip	29118-002-010	Positive	-	-	-	-	-	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0132	External	Throughout	Walls	Green - upper coloured paint system	Lead Paint - Chip	Refer 29118-002-010	Positive	-	-	-	-	-	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0221	External	North Side Office	Walls	Fibre cement sheet	Asbestos	29118-001-043	Positive	Non-friable	Low	Fair	Low	400 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	North Side Office	Floor coverings - brown	Sheet vinyl	Asbestos	29118-001-044	Negative	-	-	-	-	-	-	-	-	-
A0221	Internal	North Side Office	Switchboard	Bituminous backing board	Asbestos	29118-001-045	Positive	Non-friable	Low	Good	Low	1 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	Throughout	Windows	Mastic sealant	Asbestos	29118-001-046	Negative	-	-	-	-	-	-	-	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0221	Internal	Throughout, Floor	Debris	Dust	Asbestos	29118-001-047	Positive	Friable	High	Poor	High	1000 m²	Restrict access and isolate area, remove under controlled friable asbestos removal conditions prior to refurbishment or demolition works by a Class A (friable) licensed asbestos removal contractor.	P1	-	-
A0221	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	No access (>2.7m)	Assumed Positive	-	-	-	-	40 units	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.	-	-	-
A0221	Internal	Throughout	All surfaces	Bird guano	Biological Hazard	Visual	Positive	-	-	-	-	-	Bird guano should be cleaned using industrial disinfectant and cleaning methods prior to occupation or use of the area. Cleaning works should be conducted by contractors familiar with the use of industrial cleaning methods, appropriate use of RPE and PPE, and the disposal of hazardous materials.	-	-	-
A0221	Internal	Central Offices, Throughout	Infill panels - high level	Fibre cement sheet	Asbestos	29118-001-048	Positive	Non-friable	Low	Fair	Low	150 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	Central Offices, Throughout	Walls	Fibre cement sheet	Asbestos	29118-001-049	Positive	Non-friable	Low	Fair	Low	50 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	Central Offices	Ceiling	Fibre cement sheet	Asbestos	Same as 29118-001-049	Positive	Non-friable	Low	Fair	Low	50 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	Central Offices	Floor coverings - blue	Sheet vinyl	Asbestos	29118-001-050	Negative	-	-	-	-	-	-	-	-	-
A0221	Internal	Central Offices	Floor coverings - blue	Hessian backed sheet vinyl	Asbestos	29118-001-051	Negative	-	-	-	-	-	-	-	-	-
A0221	Internal	Central Offices	Flue	Moulded fibre cement	Asbestos	29118-001-052	Positive	Non-friable	Low	Fair	Low	2 m	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	South Side Entry	Flue	Moulded fibre cement	Asbestos	Same as 29118-001-052	Positive	Non-friable	Low	Good	Low	3 m	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	South Side Entry	Pipe work	Moulded fibre cement	Asbestos	Same as 29118-001-052	Positive	Non-friable	Low	Poor	Low	2 m	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0221	Internal	South Side Offices, Throughout	Infill panels	Fibre cement sheet	Asbestos	29118-001-053	Positive	Non-friable	Low	Poor	Low	4 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	South Offices, Central	Ceiling	Fibre cement sheet	Asbestos	29118-001-054	Positive	Non-friable	Low	Fair	Low	50 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	Internal	South Offices, Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	No access (>2.7m)	Suspected Positive	-	-	-	-	20 units	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.		-	-
A0221	Internal	South Offices	Floor coverings - green	Sheet vinyl	Asbestos	29118-001-055	Negative	-	-	-	-	-	-	-	-	-
A0221	Internal	South-east Corner, Instrument Room	Switchboard	Bituminous material	Asbestos	29118-001-056	Positive	Non-friable	Low	Good	Low	1 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-

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Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0221	External	Throughout	Walls	Corrugated cement sheet	Asbestos	29118-001-057	Positive	Non-friable	Low	Fair	Low	4000 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	External	Throughout	Roof	Corrugated cement sheet	Asbestos	Same as 29118-001-057	Positive	Non-friable	Low	Fair	Low	4000 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	External	Throughout	Lower Walls	Fibre cement sheet	Asbestos	29118-001-058	Positive	Non-friable	Low	Fair	Low	1000 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0221	External	South Side, Fire Hydrant side	Walls	Fibre cement sheet	Asbestos	29118-001-059	Negative	-	-	-	-	-	-	-	-	-
A0221	External	Throughout	Eaves & Capping	Corrugated cement sheet	Asbestos	Same as 29118-001-057	Positive	Non-friable	Low	Fair	Low	1000 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0210	Internal	South Side, Adjacent entry	Switchboard	Bituminous material	Asbestos	29118-001-060	Positive	Non-friable	Low	Good	Low	1 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0210	Internal	Throughout	Infill panels - high level	Fibre cement sheet	Asbestos	-	Assumed Positive	Non-friable	Low	Good	Low	40 m²	Confirm Status, label as containing asbestos and maintain in current condition if to remain in-situ, remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0210	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	No access (>2.7m)	Suspected Positive	-	-	-	-	12 units	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.	-	-	-
A0210	Internal	Throughout	Beams	Grey - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0210	Internal	Throughout	Beams	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0210	External	Throughout	Walls	Pink - upper coloured paint system	Lead Paint - Chip	29118-002-011	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0210	External	Throughout	Door	Brown - upper coloured paint system	Lead Paint - Chip	29118-002-012	Positive	-	-	-	-	-	>0.1% lead content, remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance withAS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.		-	-
A0211	-	Throughout	-	-	-	-	-	-	-	-	-	-	No suspect hazardous materials identified at the time of the assessment	-	-	-
A0212	-	Throughout	-	-	-	-	-	-	-	-	-	-	No access at the time of the assessment	-	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0213	-	Throughout	-	-	-	-	-	-	-	-	-	-	No access at the time of the assessment	-	-	-
A0214	-	Throughout	-	-	-	-	-	-	-	-	-	-	No access at the time of the assessment	-	-	-
A0230	Internal	South End	Switchboard	Bituminous material	Asbestos	Not sampled	Assumed Positive	Non-friable	Low	Good	Low	1 m²	Confirm Status, label as containing asbestos and maintain in current condition if to remain in-situ, remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0203	External	Throughout	Windows	Mastic sealant	Asbestos	29118-001-061	Negative	-	-	-	-	-	-	-	-	-
A0203	External	South Side	Debris	Fibre cement sheet	Asbestos	29118-001-062	Positive	Non-friable	Medium	Poor	Medium	5 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0203	External	Throughout	Walls	Green - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	throughout	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0485	Internal	North Area	Ceiling	Fibre cement sheet	Asbestos	29118-001-063	Positive	Non-friable	Low	Good	Low	30 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0485	Internal	North Area	Door frame	Green - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	throughout	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0485	Internal	Throughout	Walls	Green - lower coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	throughout	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0485	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	No access (>2.7m)	Suspected Positive	-	-	-	-	6 units	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.	-	-	-
A0485	Internal	Kitchen	Hot water heater	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	1 unit	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0485	Internal	Kitchen	Floor coverings - grey	Sheet vinyl	Asbestos	29118-001-064	Negative	-	-	-	-	-	-	-	-	-
A0485	Internal	Bar Area	Floor coverings - grey	Sheet vinyl	Asbestos	Same as 29118-001-064	Negative	-	-	-	-	-	-	-	-	-
A0485	External	Throughout	Eaves	Fibre cement sheet	Asbestos	29118-001-065	Negative	-	-	-	-	-	-	-	-	-

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A0485	External	West Side	Flue	Moulded fibre cement	Asbestos	29118-001-066	Positive	Non-friable	Low	Fair	Low	3 m	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0485	External	East Side	Debris	Fibre cement sheet	Asbestos	29118-001-067	Positive	Non-friable	Medium	Poor	Medium	5 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0121	Internal	Throughout	-	-	-	-	-	-	-	-	-	-	No suspect hazardous materials identified at the time of the assessment	-	-	-
A0121	External	Throughout	-	-	-	-	-	-	-	-	-	-	No suspect hazardous materials identified at the time of the assessment	-	-	-
A0102	Internal	Services Area	Hot water heater	Wire Sheath	Asbestos	29118-001-068	Positive	Friable	Low	Good	Low	.5 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0102	Internal	Services Area	Hot water heater	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	7 units	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0102	Internal	Throughout	Ceiling	Fibre cement sheet	Asbestos	29118-001-069	Positive	Non-friable	Low	Good	Low	40 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0102	External	Throughout	Eaves	Fibre cement sheet	Asbestos	Same as 29118-001-069	Positive	Non-friable	Low	Good	Low	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0102	Internal	Services Area	Fluorescent light fitting - double tube	Wire Sheath	Asbestos	-	Assumed Positive	Friable	Low	Good	Low	.5 m²	Confirm Status, label as containing asbestos and maintain in current condition if to remain in-situ, remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0102	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	No access (>2.7m)	Suspected Positive	-	-	-	-	-	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.	-	-	-
A0102	Internal	Throughout	Door frame	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0102	Internal	Throughout	Door	Green - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0243	Internal	Main Area, South	Floor coverings - grey	Sheet vinyl	Asbestos	29118-001-070	Negative	-	-	-	-	-	-	-	-	-
A0243	Internal	Throughout	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Positive	-	-	-	-	-	PCB-containing capacitors are suspected due to age & appearance of electrical fittings. Remove and dispose of in accordance with the Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.		-	-
A0243	Internal	Entrance Area	Walls	Fibre cement sheet	Asbestos	29118-001-071	Negative	-	-	-	-	-	-	-	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0243	Internal	Main Room	Heater	Woven material	Asbestos	29118-001-072	Positive	Friable	Medium	Fair	Medium	1 m	Remove under controlled friable asbestos removal conditions prior to refurbishment or demolition works by a Class A (friable) licensed asbestos removal contractor.	P3	-	-
A0243	Internal	Main Room	Walls & Ceiling	White - upper coloured paint system	Lead Paint - Chip	29118-002-013	Negative	-	-	-	-	-	<0.1% lead content, not lead containing paint as described in AS 4361.2:2017 Guide to lead paint management	-	-	-
A0243	Internal	Bar Area, North Side	Infill panels	Fibre cement sheet	Asbestos	29118-001-073	Positive	Non-friable	Low	Good	Low	1 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	Main Room	Walls	Pink - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0243	Internal	Main Room	Ceiling	Pink - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0243	Internal	Main Room	Ceiling	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0243	Internal	Main Room	Walls	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0243	Internal	East Change Room	Wall - dividing	Fibre cement sheet	Asbestos	29118-001-074	Positive	Non-friable	Medium	Fair	Low	6 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	East Change Room	Infill panels	Fibre cement sheet	Asbestos	29118-001-075	Negative	-	-	-	-	-	-	-	-	-
A0243	Internal	East Change Room	Switchboard	Bituminous backing board	Asbestos	29118-001-076	Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	East Change Room	Switchboard	Millboard insulation	Asbestos	-	Assumed Positive	Friable	Low	Good	Low	1 unit	Confirm Status, remove under controlled friable asbestos removal conditions as soon as practicable by a Class A (friable) licensed asbestos removal contractor.	P3	-	-
A0243	Internal	East Change Room	Hot water heater	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	1 unit	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0243	Internal	East Bathroom	Toilet cubicle	Fibre cement sheet	Asbestos	Refer to 29118-001-073	Positive	Non-friable	Low	Fair	Low	24 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	East Bathroom	Ceiling	Fibre cement sheet	Asbestos	29118-001-077	Positive	Non-friable	Medium	Fair	Medium	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	East Bathroom	Walls	Fibre cement sheet	Asbestos	Refer to 29118-001-073	Positive	Non-friable	Low	Fair	Low	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	East Bathroom	Floor	Sheet vinyl	Asbestos	29118-001-078	Negative	-	-	-	-	-	-	-	-	-
A0243	External	Throughout	Window frames	Mastic sealant	Asbestos	29118-001-079	Negative	-	-	-	-	-	-	-	-	-

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0243	External	South Side	Eaves	Fibre cement sheet	Asbestos	29118-001-080	Positive	Non-friable	Medium	Poor	Medium	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0243	External	South Side	Debris	Fibre cement sheet	Asbestos	Refer to 29118-001-080	Positive	Non-friable	Medium	Poor	Medium	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0243	Internal	West Bathroom	Toilet cubicle	Fibre cement sheet	Asbestos	Refer to 29118-001-073	Positive	Non-friable	Low	Fair	Low	24 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	Internal	West Bathroom	Ceiling	Fibre cement sheet	Asbestos	Refer to 29118-001-077	Positive	Non-friable	Medium	Fair	Medium	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4		
A0243	Internal	West Bathroom	Walls	Fibre cement sheet	Asbestos	Refer to 29118-001-073	Positive	Non-friable	Low	Fair	Low	20 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4		
A0243	Internal	West Bathroom	Floor	Sheet vinyl	Asbestos	Refer to 29118-001-078	Negative	-	-	-	-	-	-	-	-	-
A0243	External	South Balcony	Flue	Moulded fibre cement	Asbestos	29118-001-081	Positive	Non-friable	Low	Good	Low	8 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0243	External	South Balcony	Walls	Pink - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0243	External	South Balcony	Walls	Green - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0218	External	Female Toilets	Ceiling	Fibre cement sheet	Asbestos	29118-001-082	Negative	-	-	-	-	-	-	-	-	-
A0218	External	Female Toilets	Walls	Compressed cement sheet	Asbestos	Refer 29118-001-082	Negative	-	-	-	-	-	-	-	-	-
A0218	Internal	Female Toilets	Fluorescent light fitting - single tube	Capacitor	PCBs	-	Suspected Negative	-	-	-	-	-	PCB-containing capacitors are unlikely to be present due to age and appearance of light fittings. Confirm PCB status prior to refurbishment or demolition works.	-	-	-
A0218	External	South Wall	Infill panels	Fibre cement sheet	Asbestos	29118-001-083	Negative	-	-	-	-	-	-	-	-	-
A0218	Internal	Male Bathroom	Ceiling	Fibre cement sheet	Asbestos	Refer 29118-001-082	Negative	-	-	-	-	-	-	-	-	-
A0218	Internal	Male Showers	Hot water heater	Insulation material - internal	SMF	-	Suspected Positive	Bonded	Low	Good	Low	1 unit	Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-

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Hawthorn VIC 3122
Ph.: (03) 9508 0100

Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0218	Internal	Male Showers	Walls	Fibre cement sheet	Asbestos	Refer 29118-001-082	Negative	-	-	-	-	-	-	-	-	-
A0218	Internal	Male Toilets	Urinal	Bituminous membrane	Asbestos	-	Assumed Positive	Non-friable	Low	Good	Low	4 m²	Confirm Status, label as containing asbestos and maintain in current condition if to remain in-situ, remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0218	Internal	Throughout	Walls	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0218	External	West Side	Walls	Fibre cement sheet	Asbestos	29118-001-084	Negative	-	-	-	-	-	-	-	-	-
A0218	External	South Side	Debris	Compressed cement sheet	Asbestos	29118-001-085	Positive	Non-friable	Medium	Poor	Medium	.3 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0122	External	Throughout	Roof	Corrugated cement sheeting	Asbestos	29118-001-086	Positive	Non-friable	Low	Poor	Low	80 m²	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0122	External	Throughout	Window frames	Mastic sealant	Asbestos	29118-001-087	Negative	-	-	-	-	-	-	-	-	-
A0122	External	Throughout	Debris	Fibre cement sheet	Asbestos	29118-001-088	Positive	Non-friable	Medium	Poor	Medium	-	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P3	-	-
A0122	Internal	North Room	Switchboard	Bituminous backing board	Asbestos	-	Assumed Positive	Non-friable	Low	Good	Low	1 unit	Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0122	Internal	North Room	Switchboard	Millboard insulation	Asbestos	-	Assumed Positive	Friable	Low	Good	Low	1 unit	Confirm Status, remove under controlled friable asbestos removal conditions as soon as practicable by a Class A (friable) licensed asbestos removal contractor.	P3	-	-
A0122	Internal	North Room	Fluorescent light fitting - double tube	Capacitor	PCBs	-	Suspected Negative	-	-	-	-	-	PCB-containing capacitors are unlikely to be present due to age and appearance of light fittings. Confirm PCB status prior to refurbishment or demolition works.	-	-	-
A0122	External	Throughout	Roof Capping	Moulded fibre cement	Asbestos	-	Assumed Positive	Non-friable	Low	Good	Low	15 m²	Confirm Status, label as containing asbestos and maintain in current condition if to remain in-situ, remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0122	External	Throughout	Walls	White - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0122	External	Throughout	Walls	Brown - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-

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Building	Area / Level	Room & Location	Feature	Item Description	Hazard Type	Sample No.	Sample Status	Friability	Disturb. Potential	Condition	Risk Status	Quantity	Recommendations & Comments	Control Priority	Reinspect date	Photo No.
A0122	Internal	South-west corner	Switchboard	Bituminous backing board	Asbestos	29118-001-089	Positive	Non-friable	Low	Good	Low	1 unit	Maintain in current condition if to remain in-situ. Remove under controlled non-friable asbestos removal conditions prior to refurbishment or demolition works by a Class B (non-friable) licensed asbestos removal contractor.	P4	-	-
A0122	Internal	Office Area	Ceiling space	Insulation batts	SMF	-	Positive	Bonded	Low	Good	Low	100 m²	Maintain in current condition if to remain in-situ. Remove under controlled SMF conditions as per Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].	-	-	-
A0122	Internal	Throughout	Walls	Green - upper coloured paint system	Lead Paint - Swab	-	Positive	-	-	-	-	-	Remove flaking sections and over paint with a lead-free paint. Remove under controlled conditions in accordance with AS/NZS 4361.2:2017 Guide to hazardous paint management prior to renovation or demolition works.	-	-	-
A0103	Shooting range	Surface of soil mound – East location		Soil	Lead	29118-004-001	210 mg/kg						Due to the variation in lead detected in the soil, disturbance or contact with the soil may represent a health risk. As such, any disturbance of the soil, including excavation, should be restricted to personnel utilising personal and respiratory protective equipment (PPE and RPE) until the soil can be appropriately characterised. Prior to disposal off-site the soil mounds should be classified in accordance with IWRG 702 in order to facilitate appropriate disposal.			
A0103	Shooting range	Surface of soil mound – Central location		Soil	Lead	29118-004-002	4200 mg/kg	-	-	-	-	-	Due to the variation in lead detected in the soil, disturbance or contact with the soil may represent a health risk. As such, any disturbance of the soil, including excavation, should be restricted to personnel utilising personal and respiratory protective equipment (PPE and RPE) until the soil can be appropriately characterised. Prior to disposal off-site the soil mounds should be classified in accordance with IWRG 702 in order to facilitate appropriate disposal.			
A0103	Shooting range	Surface of soil mound – West location		Soil	Lead	29118-004-003	580 mg/kg	-	-	-	-	-	Due to the variation in lead detected in the soil, disturbance or contact with the soil may represent a health risk. As such, any disturbance of the soil, including excavation, should be restricted to personnel utilising personal and respiratory protective equipment (PPE and RPE) until the soil can be appropriately characterised. Prior to disposal off-site the soil mounds should be classified in accordance with IWRG 702 in order to facilitate appropriate disposal.	-	-	-

Appendix D: Photographs

Photo 1. Asbestos-containing corrugated cement to walls.

Photo 2. Asbestos-containing bituminous electrical board.

Photo 3. Asbestos-containing corrugated cement roof sheeting.

Photo 4. Asbestos-containing fibre cement sheet eaves.

Photo 5. Lead-containing paints throughout the Site.

Photo 6. Asbestos containing fibre cement sheet debris to the external surface areas.

Appendix E: Areas Not Accessed

Given the constraints of practicable access encountered during this Assessment, the following areas were not inspected. Assessments are restricted to those areas that are reasonably accessible at the time of our Assessment with respect to the following:

- Without contravention of relevant statutory requirements or codes of practice.
- Without placing the Prensa consultant and/or others at undue risk.
- Without demolition or damage to finishes and structure.
- Excluding plant and equipment that was 'in service' and operational.

Documented below are the areas where the Prensa consultant encountered access restrictions during the Assessment:

Areas Not Accessed
No access was available to the upper level dome on building A0004 due to a sealed door.
No access to Bellman hangar A0211, A0213 & A0214 due to the poor building structure of the hangars.
Prensa has limited its Assessment to the structure of the nominated building/s and the surface soil/grounds in the accessible and immediate vicinity of building footprint.
Underneath the concrete slab of all building structures at the Site.
Exposed soils surrounding the building structures of the Site.
Energised services, gas, electrical, pressurised vessel and chemical lines.
Height restricted areas above 2.7m or any area deemed inaccessible without the use of specialised access equipment.
Within cavities that cannot be accessed by the means of a manhole or inspection hatch.
Within voids or internal areas of plant, equipment, air-conditioning ducts etc.
Within service shafts, ducts etc., concealed within the building structure.
Within those areas accessible only by dismantling equipment.
Within totally inaccessible areas such as voids and cavities present but intimately concealed within the building structure.
All areas outside the Scope of Work.

Note: If proposed works entail possible disturbance of any suspect materials in the above locations, or any other location not mentioned in **Appendix C: Hazardous Materials Registers,** further investigation may be required as part of a hazardous building materials management and abatement program prior to the commencement of such works.

The presence of residual asbestos insulation on steel members, concrete surfaces, pipe work, equipment and adjacent areas remaining from prior removal works cannot normally be determined without extensive removal and damage to existing insulation, fixtures and fittings at the Site.

Appendix F: Project Plans

BUILDINGS WITHIN RAAF WILLIAMS, POINT COOK.

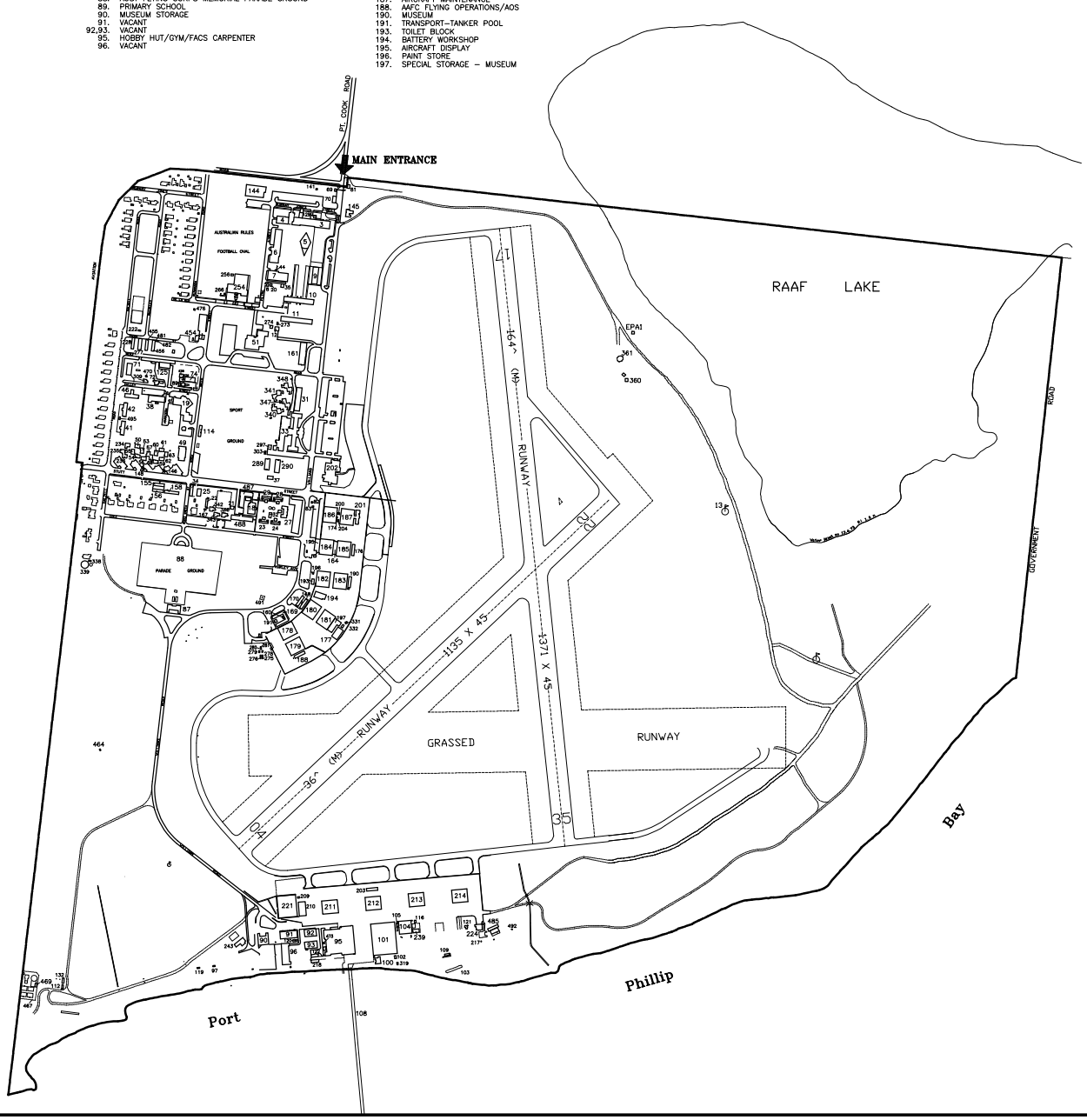
3. OTS HEADQUARTERS
4. VACANT
5. RAAF CHAPEL OF THE HOLY TRINITY
6. SCH OF POSTGRADUATE STUDIES/OTS
7. VACANT
8. FLAMMABLE LIQUID STORE
9. RAAFCOL HEADQUARTERS
10. DEFENCE LIBRARY SERVICE
11. CADETS SLEEPING QUARTERS
12. CADETS LAUNDRY
18. ANTE-ROOM
19. FRONTLINE STORE
20. STORAGE SHED
21. SNCO'S LAUNDRY
22. SNCO'S ACCOMMODATION
23,24. ACCOMMODATION
25. ELECT. POWER HOUSE & SUB-STATION No.2
27. ACCOMMODATION
28,29. SGT'S ACCOMMODATION
31. OFFICERS ACCOMMODATION
32. LAUNDRY
33. OFFICERS MESS
34. LOCK UP GARAGE
35. EQUIPMENT STORAGE SHED
36. PARADE GROUND
37. BEDDING STORE
38. ASSEMBLY HALL/CINEMA
41,42. O/R QUARTERS
44. GARDEN SHED
46,49,50. O/R QUARTERS
51. OFFICERS MESS ANNEXE
53-63. O/R QUARTERS
69. BUS SHELTER
70. DEFCREDIT/CHUBB SECERITY
71. LOCK UP GARAGE
72. CAMP STORE
74. STATE SCHOOL No. 4159
81. ELECTRICAL SUB-STATION No. 1
82. MAIN SWITCH ROOM
83. SEWERAGE PUMPING STATION
87. HQ 4WING AUST AIR FORCE CADETS (AAFC)
88. AUST FLYING CORPS MEMORIAL PARADE GROUND
89. PRIMARY SCHOOL
90. MUSEUM STORAGE
91. VACANT
92,93. VACANT
95. HOBBY HUT/GYM/FACS CARPENTER
96. VACANT

100. VACANT
101. RAAF MUSEUM/MTMS
102. TOILET BLOCK
103. 23M RANGE STOP BUTTS
104. BIVOUAC STORE
105. MT REFUELLING OFFICE
108. JETTY & BOAT DOCK
109. 23M RANGE STORE & SHELTER
112. STORE
114. SPORTS CHANGE ROOM
116. STORAGE SHED
120. ELECTRICAL SUB-STATION No. 3
121. LP GAS BOTTLE STORAGE - VACANT
122. HAZARDOUS STORE
125. STORE
129. DRIVEWAY CARPORT
132. MASK TRAINING FACILITY (MTF)
144. HQ TRAINING COMMAND
145. SECURITY CONTROL BUILDING
146,148. MOTOR BIKE SHELTER
155. SCOUT HUT
156. VACANT
158. VACANT
161. STRATEGIC LAND USE PLAN PROJECT OFFICE (SKM)
164. RAAF MUSEUM DISPLAY AREA
167. GARDENER SHED
168. WHEEL BAY
169. DEFENCE SECTION
170. VACANT
171. WATER TANK
174. COMPRESSOR SHED
176. MUSEUM EQUIP. STORAGE
177. MUSEUM LIBRARY
178. MUSEUM HANGAR
179. MUSEUM STORAGE AREA
180. BELLMAN HANGAR MUSEUM
181. AIRCRAFT STORAGE
182. MUSEUM PAINT SHOP
183. FLYING AIRCRAFT STORAGE
184,185. AIRCRAFT DISPLAY
186. ENGINE WORKSHOP
187. AIRCRAFT MAINTENANCE
188. AAFC FLYING OPERATIONS/AOS
190. MUSEUM
191. TRANSPORT-TANKER POOL
193. TOILET BLOCK
194. BATTERY WORKSHOP
195. AIRCRAFT DISPLAY
196. PAINT STORE
197. SPECIAL STORAGE - MUSEUM

200. OIL STORAGE SHED
201. SAFETY EQUIPMENT/TEA ROOM/OFFICE
202. RMIT FLIGHT TRAINING/HQ RAAF MUSEUM
203. RAAF PCK FLYING CLUB
204. OIL STORAGE SHED
209. TOILET BLOCK
210,211,212,213. MUSEUM STORAGE
214. AERO CLUB
217. TRAP SHED No.2
218. TOILET BLOCK
219. EQUIPMENT COMPOUND
221. MUSEUM STORAGE
222. TOILET BLOCK
224. CYLINDER STORE - VACANT
228. CHILD CARE CENTRE
234. AIRMEN'S ACCOMMODATION
235,236. O/R'S ACCOMMODATION
243. GOLF CLUB HOUSE
254. PHYSICAL FITNESS/MEDICAL CENTRE
256. 6 HOSP STORAGE SHED
266. STORAGE SHED
273. LAUNDRY
274. STORAGE SHED
275,276. A/G FUEL TANK (AVGAS)
277. RAAFWA THRIFT SHOP
278. AVGAS PUMP & FILTER SHELTER
280. FIRE SYSTEM FOAM TANK & SHELTER
281. FIRE SYSTEM WATER TANK
289,290. OFFICERS ACCOMMODATION
297. OFFICERS LAUNDRY

303. LP GAS TANK
309. AAFC
319. OIL STORE
331. CONTROL TOWER
332. AIRFIELD LIGHTING SWITCHROOM
338. WATER STORAGE PUMP HOUSE
339. WATER STORAGE TANK
340,341. OFFICERS ACCOMMODATION
342,343,346. SNCO'S ACCOMMODATION
347. OFFICERS ACCOMMODATION
348. OFFICERS ACCOMMODATION
360. GENERATOR SHED
361. NBD COMPOUND

455. P-C SOCIAL CLUB PLAYGROUP
456. KINDERGARTEN
464. STORAGE SHED
467. SEWERAGE TREATMENT PLANT
468. SEWERAGE TREATMENT WORKS TANK
469. SEWERAGE TREATMENT WORKS BUILDING
473. BOILER HOUSE
476. FIRE ALARM BELL TOWER
480. GUN CLUB TOWER
481. PRE-SCHOOL STORAGE SHED
482. PLAY SHED
485. PT COOK FLYING CLUB
487. SGT'S MESS & KITCHEN
488. SNCO'S ACCOMMODATION
492. CLAY PIGEON TRAP SHED
495. LAUNDRY



Notes:

Amendments:
Buildings Removed/Deleted -
Bldgs 453 (Merz Rd), 458 & 459 (Swan St) - 30/03/07

Figure 1.2

Site Plan

Client:	Department of Defence	
Project:	RAAF Williams Point Cook Heritage Management Plan	
Drawing No:	0065948s_02	
Date:	28/08/2007	Drawing size: A3
Drawn by:	GC	Reviewed by: -
Source:	Department of Defence	
Scale:	Refer to Scale Bar	

N

0 100 200 300m

Environmental Resources Management Australia Pty Ltd
Building C, 33 Saunders St, Pyrmont, NSW 2009
Telephone +61 2 8584 8888

ERM

Appendix G
Architectural Documentation

EXTERNAL WALLS, WINDOWS AND DOORS

- EXTERNAL METAL WALL CLADDING SHOWS SIGNIFICANT SIGNS OF CORROSION AND DAMAGE WITH SOME PANELS MISSING AND OPEN TO THE ELEMENTS. THIS HAD LED TO FURTHER DETERIORATION TO THE BUILDING INTERNALLY. CORNER WALL FLASHINGS, OVERHEAD DOOR FLASHING ARE MISSING OR BADLY CORRODED
- THE EXTERNAL LARGE SLIDING DOORS TO THE HANGAR, INCLUDING TRACKS, ANCHOR POINTS, OUTRIGGERS ARE BADLY DAMAGED AND MISSING STEEL SECTIONS AND ARE UNABLE TO OPERATE.

BUILDING SERVICES

- THE LOCATION OF THIS BUILDING IS NEXT TO OVERHEAD POWER LINES THAT SERVICES THE BASE AND ANY SERVICES CONNECTED TO THE BUILDING WILL NEED TO BE CAPPED AND CUT PRIOR TO DEMOLITION AND REMOVAL OF THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

ROOFING, GUTTERS AND DOWNPIPES

- EXISTING FLAT METAL ROOFING IS DAMAGED, RUSTING AND DUE TO THE FAILING OF THE STEEL ROOF TRUSSES HAS COLLAPSED. EXISTING LARGE FASCIA GUTTERS, RAINWATER HEADS, DOWNPIPES ARE IN VARIOUS STATE OF DAMAGE. DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

THE CONTRACTORS SHOULD CONFER WITH ASBESTOS REGISTER FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.

1 **BUILDING A0211 - FLOOR PLAN**
1 : 100

IMAGES OF TYPICAL DETERIORATION

LEGEND - TO BE DEMOLISHED

- EXISTING WALL
- DEMOLITION LINE
- MOVEABLE LINE
- INTERNAL ZONE

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:
THESE DRAWINGS PRESENT THE DESIGN INTENT. THE CONTRACTOR IS RESPONSIBLE FOR DETAILED SITE COORDINATION, SUBMISSION OF TECHNICAL DATA AND PRODUCING FABRICATION/INSTALLATION SHOP DRAWINGS FOR SUBMISSION TO THE PDS CONTRACTOR FOR REVIEW. WHEN SHOP DRAWINGS ACHIEVE NON-REJECTION THE CONTRACTOR MAY COMMENCE FABRICATION AND INSTALLATION

TO BE PRINTED IN COLOUR

CONSULTANT:
HDR
Level 9, 360 Elizabeth Street, Melbourne VIC 3000, Australia
+61 3 9916 1927 | hdrinc.com.au
HDR Pty. Limited ABN 76 158 075 220 trading as HDR

PROJECT MANAGER AND LEAD CONSULTANT:
aurecon
www.aurecongroup.com

CLIENT:
Australian Government
Department of Defence

0 1 2 3 4 5m
SCALE 1:100 AT A1
SCALE 1:200 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0211
EXISTING CONDITIONS/DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0211	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1211
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.
REVISION: A

PLOT DATE & TIME: 24/10/2018 7:39:48 PM

EXTERNAL WALLS, WINDOWS AND DOORS

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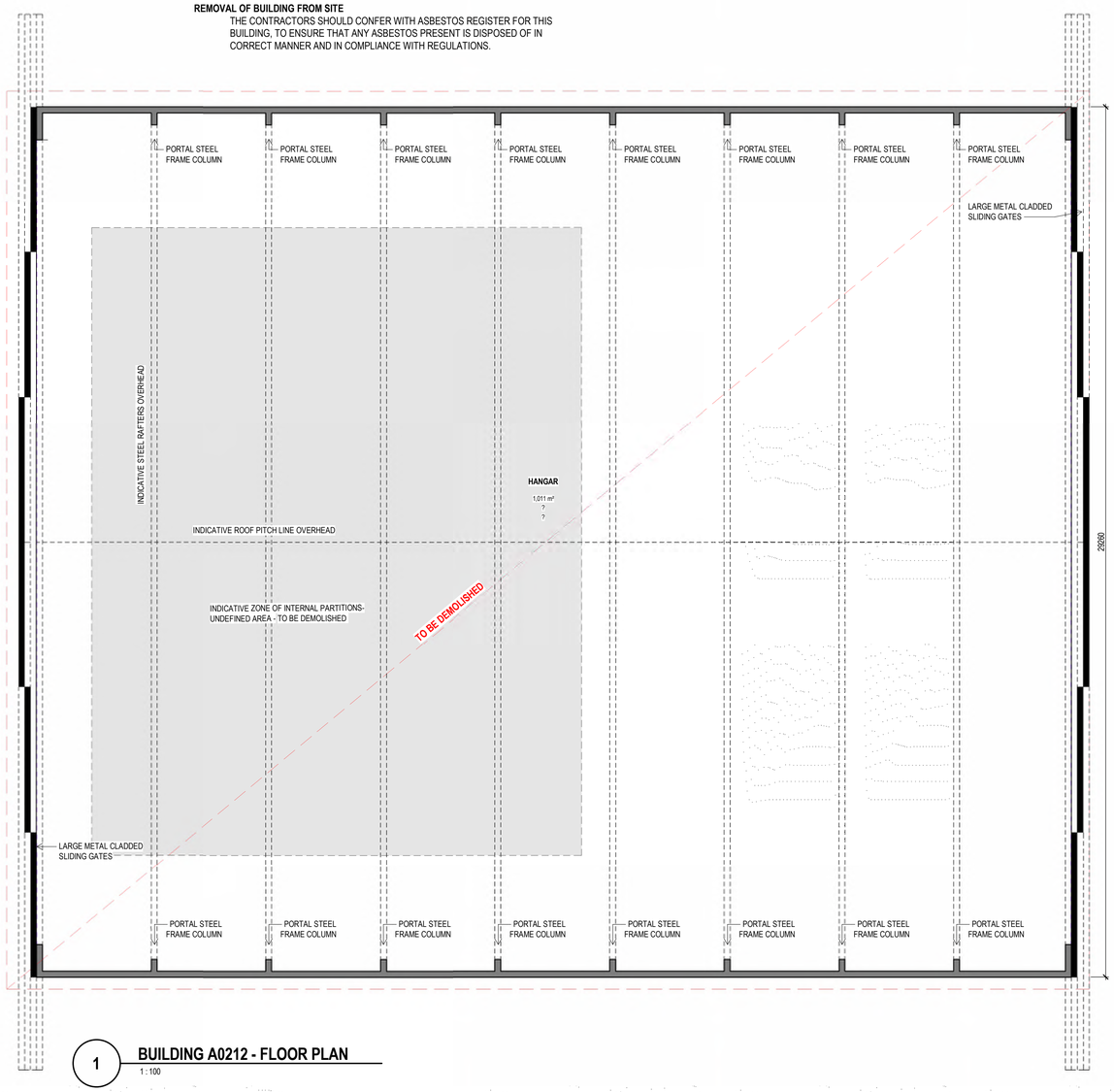
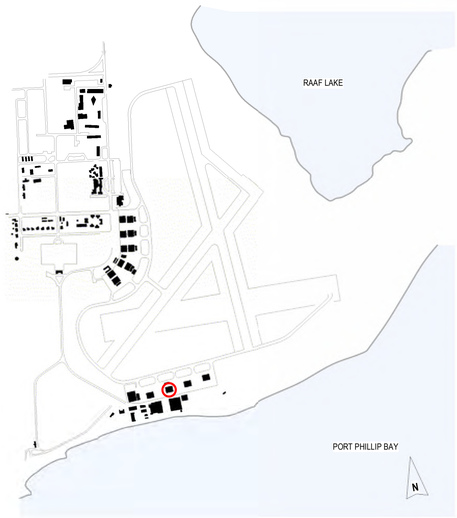


1 **BUILDING A0212 - FLOOR PLAN**
1 : 100

IMAGES OF TYPICAL DETERIORATION



PLOT DATE & TIME: 24/10/2018 7:39:50 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:

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TO BE PRINTED IN COLOUR

CONSULTANT:

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PROJECT MANAGER AND LEAD CONSULTANT:

aurecon
www.aurecongroup.com

CLIENT:

Australian Government
Department of Defence

0 1 2 3 4 5m
SCALE 1:100 AT A1
SCALE 1:200 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0212
EXISTING CONDITIONS/ DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0212	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1212 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)

REVISION: A

EXTERNAL WALLS, WINDOWS AND DOORS

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REMOVAL OF BUILDING FROM SITE

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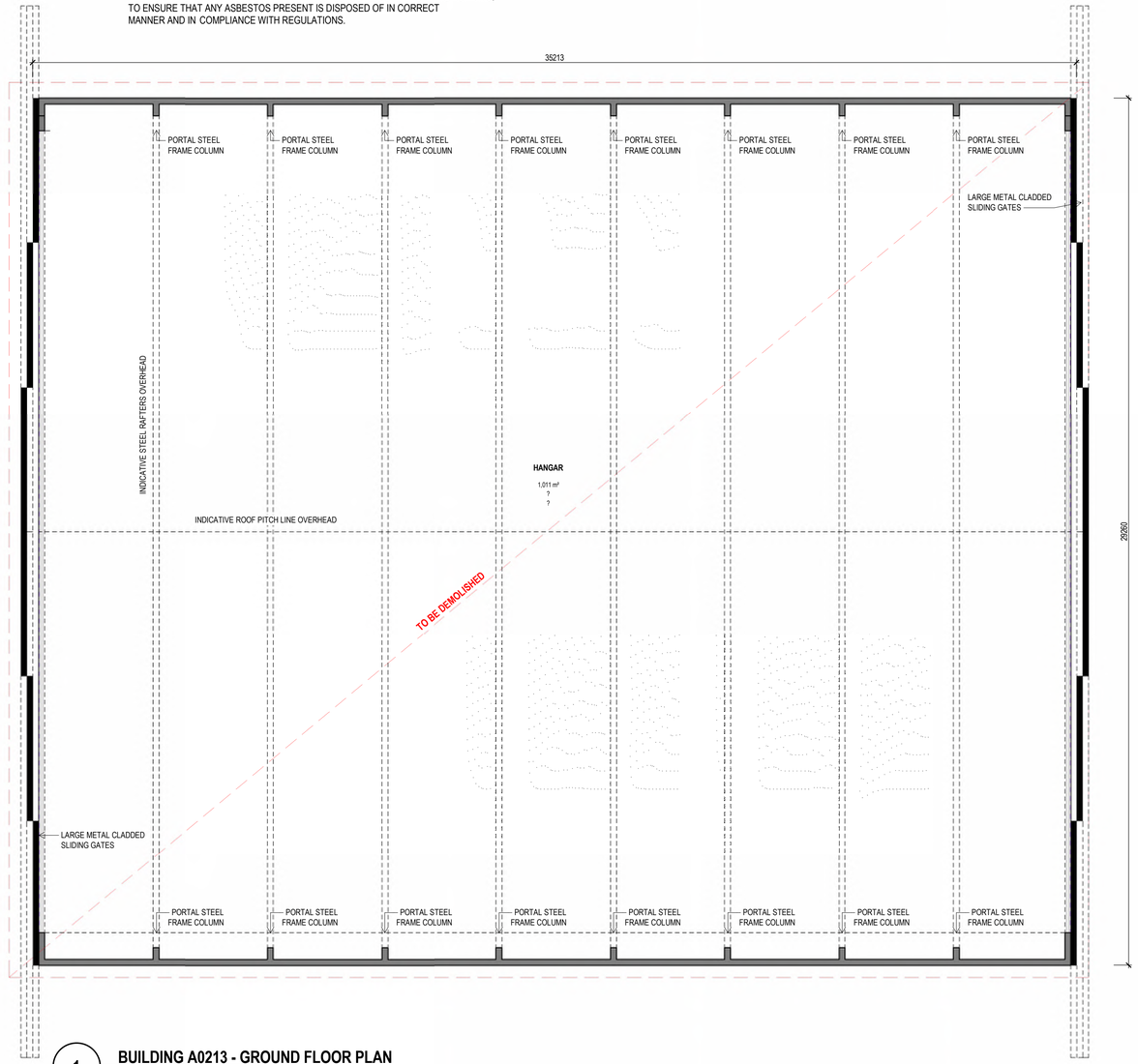
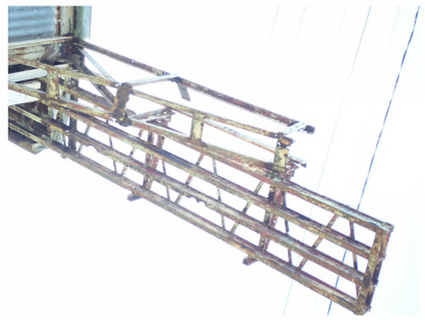
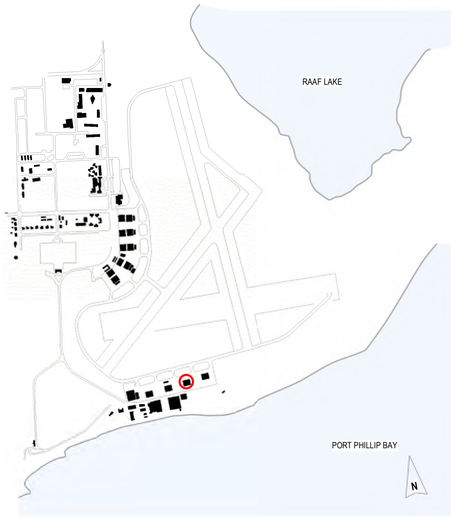


1 **BUILDING A0213 - GROUND FLOOR PLAN**
1 : 100

IMAGES OF TYPICAL DETERIORATION





AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

PLOT DATE & TIME: 26/10/2018 12:41:31 PM

NOTES:
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TO BE PRINTED IN COLOUR

CONSULTANT:
HDR
Level 9, 360 Elizabeth Street, Melbourne VIC 3000, Australia
+61 3 9916 1927 | hdrinc.com.au
HDR Pty. Limited ABN 76 158 075 220 trading as HDR

PROJECT MANAGER AND LEAD CONSULTANT:
aurecon
www.aurecongroup.com

CLIENT:
Australian Government
Department of Defence

0 1 2 3 4 5m
SCALE 1:100 AT A1
SCALE 1:200 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0213
EXISTING CONDITIONS/DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0213	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1213 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

EXTERNAL WALLS, WINDOWS AND DOORS

- EXTERNAL METAL WALL CLADDING SHOWS SIGNIFICANT SIGNS OF CORROSION AND DAMAGE WITH SOME PANELS MISSING AND OPEN TO THE ELEMENTS. THIS HAD LED TO FURTHER DETERIORATION TO THE BUILDING INTERNALLY. CORNER WALL FLASHINGS, OVERHEAD DOOR FLASHING ARE MISSING OR BADLY CORRODED
- THE EXTERNAL LARGE SLIDING DOORS TO THE HANGAR, INCLUDING TRACKS, ANCHOR POINTS, OUTRIGGERS ARE BADLY DAMAGED AND MISSING STEEL SECTIONS AND ARE UNABLE TO OPERATE.

BUILDING SERVICES

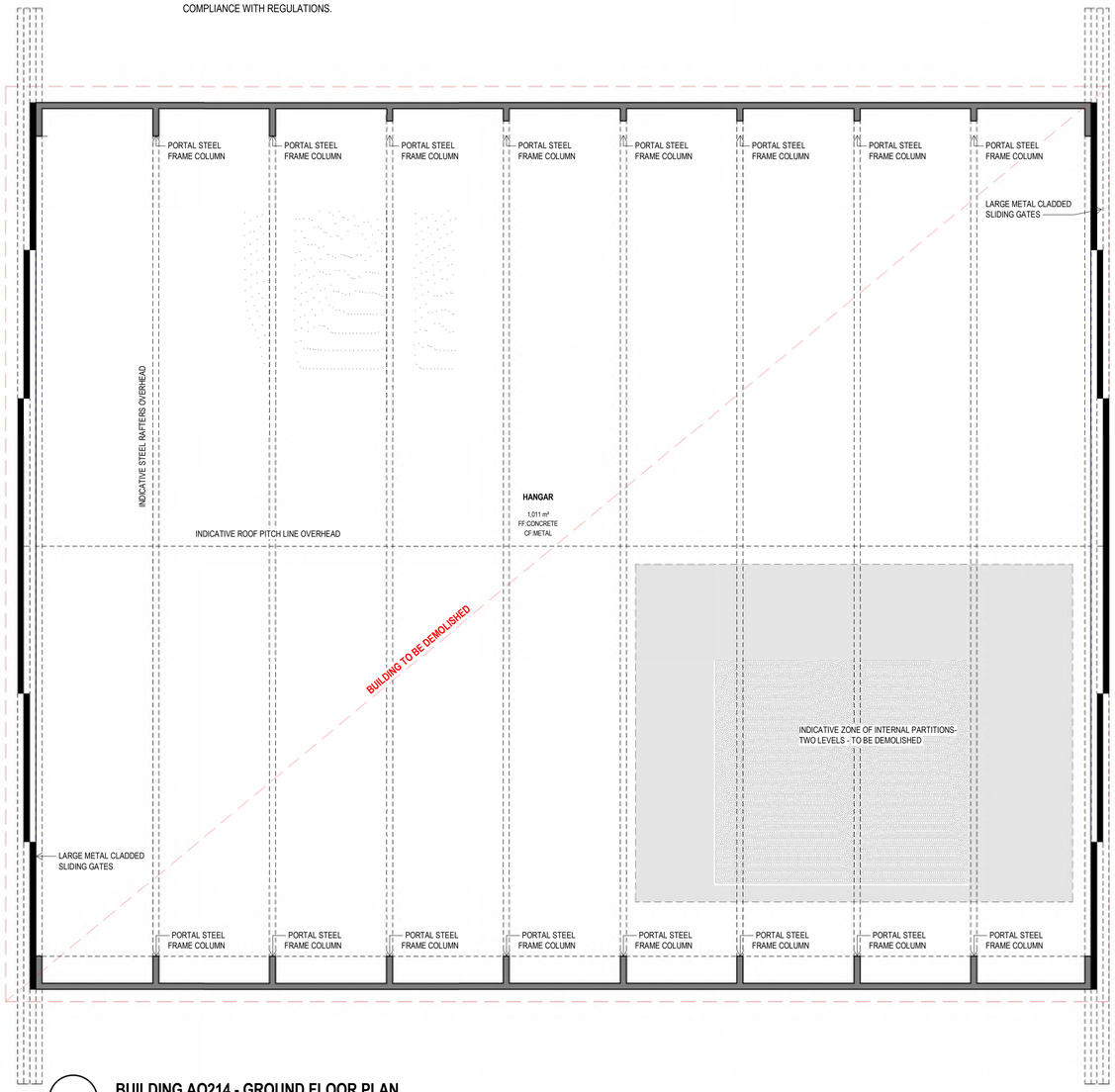
- THE LOCATION OF THIS BUILDING IS NEXT TO OVERHEAD POWER LINES THAT SERVICES THE BASE AND ANY SERVICES CONNECTED TO THE BUILDING WILL NEED TO BE CAPPED AND CUT PRIOR TO DEMOLITION AND REMOVAL OF THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

ROOFING, GUTTERS AND DOWNPIPES

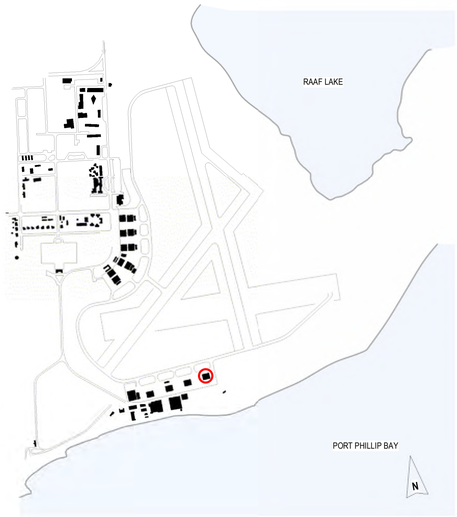
- EXISTING FLAT METAL ROOFING IS DAMAGED, RUSTING AND DUE TO THE FAILING OF THE STEEL ROOF TRUSSES HAS COLLAPSED. EXISTING LARGE FASCIA GUTTERS, RAINWATER HEADS, DOWNPIPES ARE IN VARIOUS STATE OF DAMAGE. DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

THE CONTRACTORS SHOULD CONFER WITH ASBESTOS REGISTER FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.



1 **BUILDING A0214 - GROUND FLOOR PLAN**
1 : 100



IMAGES OF TYPICAL DETERIORATION

PLOT DATE & TIME: - 24/10/2018 7:39:54 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:

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0 1 2 3 4 5m
SCALE 1:100 AT A1
SCALE 1:200 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0214
EXISTING CONDITIONS/DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0214	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1214 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)

REVISION: A

ARCHITECTURAL ASSESSMENT & RECOMMENDATIONS

EXTERNAL WALLS/ WINDOWS/ DOWNPIPES

- EXTERNAL SURFACES INCLUDING BRICK WALLS, CONCRETE COLUMNS AND CURTAIN WALLS ARE IN REASONABLY GOOD CONDITION. THE EXISTING WINDOWS ARE PART OF A LARGE CURTAIN WALL ARRANGEMENT, WHICH ARE ALSO IN GOOD CONDITION.HOWEVER INTERNALLY THEY CAN BE VERY HARD TO OPEN AND CLOSE AND WOULD REQUIRE SOME SERVICING AND MAINTENANCE.THE EXTERNAL SURFACES SHOULD BE PRESSURED CLEANED.
- EXTERNAL DOWNPIPES HAVE BEEN DAMAGED AND BLOCKED AND IN SOME CASES ARE MISSING. THE DOWNPIPES ARE POSITIONED BETWEEN THE WINDOW MULLIONS AT EVERY SECOND COLUMN, AND SHOULD BE REPLACED WITH NEW DOWNPIPES TO BE CONNECTED TO THE EXISTING STORM WATER DRAINAGE SYSTEM.

ROOF AREA

- EXISTING ROOF AREA CONSISTS OF CONCRETE ROOF PANELS AND A WATERPROOF MEMBRANE WITH EXTERNAL DOWNPIPES AND RAINWATERHEADS. WHILE THE CONCRETE PANELS ARE IN GOOD CONDITION, THE WATERPROOF MEMBRANE IS EXTENSIVELY DAMAGED AND REQUIRES REPLACEMENT OR ANOTHER OPTION IS TO INSTALL A NEW FLAT METAL ROOF OVER THE CONCRETE ROOF AND TO FALL TO A PURPOSE BUILD BOX GUTTER AND REPLACEMENT OF ALL DOWNPIPES. THE CONDITION OF THE ROOF HAS CAUSED SIGNIFICANT WATER DAMAGE TO CEILINGS, WALLS AND FLOOR THROUGHOUT THE BUILDING

INTERNAL WALLS

- INTERNAL WALLS WHICH INCLUDES BOXING AROUND CONCRETE COLUMNS ARE STRUCTURALLY IN GOOD CONDITION, BUT FINISHES TO THE WALLS HAVE EXTENSIVE WATER DAMAGE, PEELING, CRACKING AND FLAKING PAINT, WHICH WILL REQUIRE GENERALLY MOST SURFACES, PARTICULARLY ON THE NORTH/SOUTH SIDE OF THE BUILDING REPAIRED AND REPAINTED.
- EXISTING SKIRTING DUCTS ARE DAMAGED, HAVE MISSING SECTIONS, AND DUE TO THE DAMAGE CAUSED BY WATER, WOULD NEED TO BE REPLACED THROUGHOUT THE BUILDING.
- THE EXISTING WALL FINISHES IN ALL THE TOILETS WHICH INCLUDE SOME TILED SURFACES SHOULD BE REPLACED DUE TO CRACKS AND DAMAGE.

FLOORS

- EXISTING CONCRETE SLAB/FLOOR IS IN GOOD CONDITION AND WHILE THERE ARE SOME SMALL SURFACE CRACKS THEY ARE STRUCTURALLY SOUND.FLOOR FINISHES, INCLUDING CARPETS, CARPET MATS AND VINYL FLOORING THROUGH THE BUILDING WILL NEED TO BE REPLACED.

CEILINGS

- THE BUILDING HAS A MIXTURE OF CEILINGS THROUGHOUT, INCLUDING, PAINTED PLASTERBOARD, SUSPENDED ACOUSTIC TILE PANELS AND STIPPLE TYPE CONCRETE RENDER TO CONCRETE FLOOR SLABS.THERE IS SIGNIFICANT WATER DAMAGE TO MOST CEILINGS, ESPECIALLY IN THE NORTHERN END OF THE BUILDING. THE PLASTER BOARD CEILINGS WILL NEED SIGNIFICANT REPAIRS TO REPLACE A LARGE AMOUNT OF DAMAGED CEILINGS AND ALL SURFACES WILL NEED TO BE REPAINTED.

- THE ACOUSTIC CEILINGS HAVE MISSING SECTIONS, PANELS SHOWING WATER DAMAGE AND FRAMING FOR A LOT OF THE PANELS ARE DAMAGED CAUSING THE CEILINGS TO BE UNEVEN.WHILE A LOT OF THE CEILING TILES LOOK IN GOOD CONDITION, WATER DAMAGE CAN BE HIDDEN ON THE TOP OF THE PANELS.OUR RECOMMENDATION WOULD BE TO REPLACE ALL THE TILES AND GRIDS THROUGHOUT THE BUILDING.

- DAMAGED STIPPLE TYPE CONCRETE RENDER SHOULD BE REPAIRED AND ALL SECTIONS WOULD NEED TO BE REPAINTED

WINDOWS

- EXISTING ALUMINIUM FRAMED WINDOWS ARE STRUCTURALLY IN GOOD CONDITION WITH THE GLAZING INTACT AND NOT DAMAGED. MOST WINDOWS WILL NEED EXISTING WINDOW HARDWARE TO BE REPLACED WITH NEW FITTINGS AND GENERALLY THE WINDOWS WILL NEED TO BE SERVICED TO ALLOW THEM TO OPEN FREELY.
- EXISTING TIMBER WINDOW SILL TO NORTH SIDE OF THE BUILDING HAVE SIGNIFICANT WATER DAMAGE AND WHILE THEY ARE STRUCTURALLY SOLID.THEY SHOULD BE REPLACED, DUE TO WATER DAMAGE.SILLS ARE NOMINALLY 400MM WIDE.
- WINDOW FURNISHINGS ARE NON-EXISTENT IN MOST CASES AND ALL WINDOWS WILL REQUIRE NEW WINDOW BLINDS.

DOORS

- EXTERNAL ENTRY DOORS ARE DELAMINATING AND WATER DAMAGED AND NEED REPLACING. INTERNAL DOORS TO THE BUILDING ARE GENERALLY IN VERY GOOD CONDITION AND IN SOME CASES THEY WILL REQUIRE REPLACEMENT OF DAMAGED DOOR FRAMES. DOORS TO ALL TOILETS ARE DAMAGED AND WILL NEED ALL OF THEM TO BE REPLACED.

TOILETS/KITCHENETTE

- ALL FITTING TO THE TOILETS AND THE KITCHENETTE ARE SIGNIFICANTLY DAMAGED AND SHOULD BE REPLACED. THE FITTINGS INCLUDE TOILETS, VANITY UNITS, BASINS, CLEANING TROUGHS, MIRRORS, KITCHEN CABINETRY, SINKS, ETC.
- ALL TILED SURFACES BOTH TO THE FLOOR AND WALLS WILL NEED REPLACEMENT AND OVERALL THE TOILETS SHOULD BE TOTALLY REFURBISHED TO BRING THEM UP TO AN ACCEPTABLE STANDARD.DDA REQUIREMENTS COULD ALSO TRIGGER UPGRADES AND THE NEED FOR AN AMBULANT/DISABLED FACILITIES TO THE BUILDING.

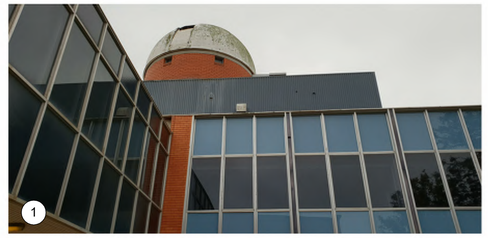
BUILDING SERVICES

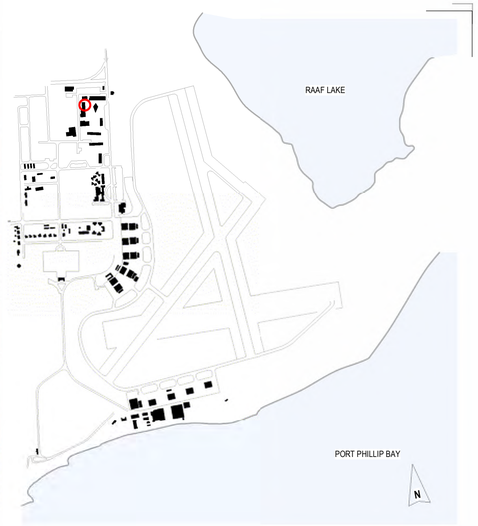
- THE EXISTING ELECTRICAL FITTINGS TO THE BUILDING SEEM TO BE IN GOOD WORKING ORDER AND WHILE THE LIGHTS WORK IN SOME AREAS, THEY DO NOT IN OTHER AREAS. THE BUILDING WILL REQUIRE AN ASSESSMENT AND TESTING OF ALL ELECTRICAL FITTINGS, WHICH DUE TO SIGNIFICANT WATER DAMAGE COULD NEED REPLACEMENT.
- THE EXISTING ELECTRICAL FITTINGS, INCLUDING EMERGENCY LIGHTS, EXIT LIGHTING TO THE BUILDING SEEM TO BE IN GOOD WORKING ORDER. THE BUILDING WILL REQUIRE AN UPGRADE TO BRING THE BUILDING UP TO STANDARD WITH BCA REQUIREMENTS IN REGARDS TO ADDITIONAL EXIT SIGNAGE THROUGHOUT THE BUILDING.
- AN ASSESSMENT AND TESTING OF ALL ELECTRICAL FITTINGS SHOULD BE UNDERTAKEN AS PART OF ANY NEW WORKS TO THE BUILDING.
- SERVICES TO THE TOILETS AND KITCHENETTE COULD NOT BE ASSESSED DUE TO THE SERVICES TO THESE AREA BEING CUT. THE MINIMUM WORKS TO THIS BUILDING HOWEVER SHOULD BE TO PRESSURE CLEAN ALL SERVICE PIPES FOR STORMWATER AND SEWER PIPES TO THE BUILDING. WITH THE REPLACEMENT OF FITTINGS TO THE TOILETS AND KITCHENETTE, THE SERVICES TO THESE FITTINGS SHOULD BE UPGRADED.

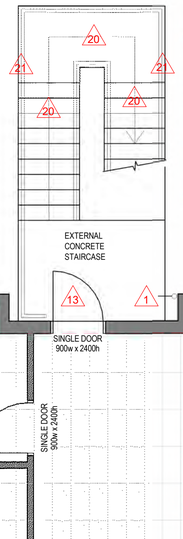
PRIOR TO ANY WORKS COMMENCING , THE CONTRACTOR IS TO CHECK WITH EXISTING ASBESTOS REGISTER FOR BUILDING AND CONFIRM IF ANY ASBESTOS IS PRESENT IN BUILDING. WHERE REQUIRED THE CONTRACTOR IS TO ALLOW TO REMOVE ASBESTOS FROM BUILDING AND DISPOSE OF DEBRIS IN CORRECT MANNER, IN ACCORDANCE WITH REGULATIONS.

EXTERNAL STAIRS

- ACCESS TO THE FIRST FLOOR CAN ONLY BE ACCESSES BY EXTERNAL CONCRETE STAIRS. THE EXISTING STAIRS WILL REQUIRE PRESSURE CLEANING, PAINTING AND NEW TACTILE INDICATORS TO ALL THREADS, WHILE THE BALUSTRADE WILL REQUIRE MODIFICATION AS ITS DO NOT CONFORM TO CURRENT BUILDING STANDARDS. THE EXISTING RAIL IS TOO LOW AND THE GAPS BETWEEN RAILS TO TOO BIG.
- BUILDING SURVEYOR WILL HAVE TO ASSESS IF A NEW INTERNAL STAIRS OR LIFT WILL NEED TO BE PROVIDED TO THE BUILDING TO SATISFY CURRENT BUILDING REGULATIONS/DDA COMPLIANCE.







1 BUILDING 04 - GROUND FLOOR PLAN
1 : 50

LEGEND - SCOPE OF WORK

1. DOWNPIPES TO BE REPLACED WITH NEW 90 X 90MM METAL DOWNPIPES
2. ALL INTERNAL WALLS ARE TO BE RE-PAINTED
3. INTERNAL WALL LININGS ARE TO BE REPLACED TO ALL WALLS IN ROOM(REPLACE SKIRTINGS BOARDS)
4. BATHROOM/CLEANERS INTERNAL WALL LININGS TO BE REPLACED WITH NEW 10MM VILLABOARD LINING OR WET AREA BOARD AND ALLOW TO REPLACE WALL TILES WITH NEW CERAMIC WALL TILES.
5. EXISTING CARPET AND UNDERLAY IS TO BE REPLACED WITH NEW CARPET TILES
6. EXISTING VINYL IS TO BE REPLACED WITH NEW SELECTED VINYL.
7. ACOUSTIC CEILING TILES (1200MM X 600MM) TO BE REPLACED TO CEILINGS (RETAIN EXISTING CEILING GRIDS)
8. PLASTERBOARD/STRAMIT BOARD TO CEILINGS/ TO BE REPAIRED AND RE-PAINTED.
9. CEILINGS ARE TO BE RE-PAINTED TO FULL EXTENT OF ROOM.
10. CONCRETE RENDER TO BE REPAIRED AND REPAINTED AROUND BOXED COLUMNS (NOMINALLY 20 COLUMNS 400MM SQ X 2.7MH) AND REPAIR AND REPAINT UNDER SILLS ON SOUTH / NORTH WALLS.
11. ALL DAMAGED WINDOW HARDWARE IS TO BE REPLACED WITH NEW FITTINGS (NEW WINDERS TO WINDOWS NOMINALLY 32 WINDERS) AND REMAINING HARDWARE IS TO BE SERVICED.
12. TIMBER WINDOW SILL TO BE REPLACED WITH NEW 400MM PAINTED HARDWOOD TIMBER SILL.
13. EXISTING EXTERNAL ENTRY DOORS ARE TO BE REPLACED WITH NEW ALUMINIUM GLAZED DOORS AND NEW COMPLIANT DOOR HARDWARE
14. EXISTING EXTERNAL TIMBER DOOR FRAMES ARE TO BE REPLACED WITH NEW ALUMINIUM DOOR FRAMES
15. EXISTING TIMBER DOORS AND TIMBER FRAMES ARE TO BE REPLACED WITH NEW HOLLOW CORE DOORS AND ALUMINIUM FRAMES, AND NEW COMPLIANT DOOR HARDWARE
16. ALL BATHROOMS ARE TO BE UPGRADED WITH NEW FITTINGS TO COMPLY WITH DDA REQUIREMENTS
17. KITCHENETTES ARE TO BE REMOVED AND REPLACED WITH NEW CARCASS, DRAWERS, DOORS AND ARE TO MATCH EXISTING CONFIGURATION.
18. TILED SURFACES IN BATHROOMS ARE TO BE REPLACED WITH NEW CERAMIC WALL TILES
19. EXISTING ELECTRICAL SKIRTING DUCT TO BE REPLACED WITH NEW ELECTRICAL SKIRTING TRUNKING
20. EXTERNAL STAIRS ARE TO BE PRESSURE CLEANED, REPAINTED AND NEW TACTILE INDICATORS ARE TO BE FIXED TO ALL TREADS.
21. EXISTING STAIRS BALUSTRADE IS TO BE UPGRADED TO COMPLY WITH CURRENT BCA STANDARDS
22. EXISTING WATERPROOF MEMBRANE TO ROOF IS TO TO BE REPLACED WITH NEW WATERPROOF MEMBRANE OR NEW FLAT METAL ROOF, INCLUDING ROOF PURLINS/BATTENS AND TO FALL TO A NEW PURPOSE BUILD BOX GUTTER
23. EXISTING TIMBER PANELLED WALLS ARE TO BE CLEANED DOWN AND STAINS REMOVED.
24. ALL EXTERNAL WALL SURFACES, INCLUDING BRICKWORK, CURTAIN WALLS ARE TO BE PRESSURED CLEANED.
25. ALL WINDOW HARDWARE IS TO BE REPLACED OR SERVICED.
26. ALL WINDOW FURNISHINGS ARE TO BE REMOVED AND ALL WINDOWS ARE TO BE PROVIDED WITH NEW SOLAR BLOCK OUT BLINDS.
27. PRIOR TO ANY WORKS COMMENCING , THE CONTRACTOR IS TO CHECK WITH EXISTING ASBESTOS REGISTER FOR BUILDING AND CONFIRM IF ANY ASBESTOS IS PRESENT IN BUILDING. WHERE REQUIRED THE CONTRACTOR IS TO ALLOW TO REMOVE ASBESTOS FROM BUILDING AND DISPOSE OF DEBRIS IN CORRECT MANNER, IN ACCORDANCE WITH REGULATIONS.

EXISTING WALL. NEW WALL | ACOUSTIC TILE CEILING | PLASTERBOARD CEILING | CONCRETE STUCCO CEILING

PLOT DATE & TIME: 26/10/2018 10:26:10 AM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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0 0.5 1 1.5 2 2.5m
SCALE 1:50 AT A1
SCALE 1:100 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	-	JM	JM

TITLE: BUILDING 04 GROUND FLOOR PLAN MAINTENANCE PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0004	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1004.1 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A

ARCHITECTURAL ASSESSMENT & RECOMMENDATIONS

EXTERNAL WALLS/ WINDOWS/ DOWNPIPES

- EXTERNAL SURFACES INCLUDING BRICK WALLS, CONCRETE COLUMNS AND CURTAIN WALLS ARE IN REASONABLY GOOD CONDITION. THE EXISTING WINDOWS ARE PART OF A LARGE CURTAIN WALL ARRANGEMENT, WHICH ARE ALSO IN GOOD CONDITION.HOWEVER INTERNALLY THEY CAN BE VERY HARD TO OPEN AND CLOSE AND WOULD REQUIRE SOME SERVICING AND MAINTENANCE.THE EXTERNAL SURFACES SHOULD BE PRESSURED CLEANED.
- EXTERNAL DOWNPIPES HAVE BEEN DAMAGED AND BLOCKED AND IN SOME CASES ARE MISSING. THE DOWNPIPES ARE POSITIONED BETWEEN THE WINDOW MULLIONS AT EVERY SECOND COLUMN, AND SHOULD BE REPLACED WITH NEW DOWNPIPES TO BE CONNECTED TO THE EXISTING STORM WATER DRAINAGE SYSTEM.

ROOF AREA

- EXISTING ROOF AREA CONSISTS OF CONCRETE ROOF PANELS AND A WATERPROOF MEMBRANE WITH EXTERNAL DOWNPIPES AND RAINWATERHEADS. WHILE THE CONCRETE PANELS ARE IN GOOD CONDITION, THE WATERPROOF MEMBRANE IS EXTENSIVELY DAMAGED AND REQUIRES REPLACEMENT OR ANOTHER OPTION IS TO INSTALL A NEW FLAT METAL ROOF OVER THE CONCRETE ROOF AND TO FALL TO A PURPOSE BUILD BOX GUTTER AND REPLACEMENT OF ALL DOWNPIPES. THE CONDITION OF THE ROOF HAS CAUSED SIGNIFICANT WATER DAMAGE TO CEILINGS, WALLS AND FLOOR THROUGHOUT THE BUILDING

INTERNAL WALLS

- INTERNAL WALLS WHICH INCLUDES BOXING AROUND CONCRETE COLUMNS ARE STRUCTURALLY IN GOOD CONDITION, BUT FINISHES TO THE WALLS HAVE EXTENSIVE WATER DAMAGE, PEELING, CRACKING AND FLAKING PAINT, WHICH WILL REQUIRE GENERALLY MOST SURFACES, PARTICULARLY ON THE NORTH/SOUTH SIDE OF THE BUILDING REPAIRED AND REPAINTED.
- EXISTING SKIRTING DUCTS ARE DAMAGED, HAVE MISSING SECTIONS, AND DUE TO THE DAMAGE CAUSED BY WATER, WOULD NEED TO BE REPLACED THROUGHOUT THE BUILDING.
- THE EXISTING WALL FINISHES IN ALL THE TOILETS WHICH INCLUDE SOME TILED SURFACES SHOULD BE REPLACED DUE TO CRACKS AND DAMAGE.

FLOORS

- EXISTING CONCRETE SLAB/FLOOR IS IN GOOD CONDITION AND WHILE THERE ARE SOME SMALL SURFACE CRACKS THEY ARE STRUCTURALLY SOUND.FLOOR FINISHES, INCLUDING CARPETS, CARPET MATS AND VINYL FLOORING THROUGH THE BUILDING WILL NEED TO BE REPLACED.

CEILINGS

- THE BUILDING HAS A MIXTURE OF CEILINGS THROUGHOUT, INCLUDING, PAINTED PLASTERBOARD, SUSPENDED ACOUSTIC TILE PANELS AND STIPPLE TYPE CONCRETE RENDER TO CONCRETE FLOOR SLABS.THERE IS SIGNIFICANT WATER DAMAGE TO MOST CEILINGS, ESPECIALLY IN THE NORTHERN END OF THE BUILDING. THE PLASTER BOARD CEILINGS WILL NEED SIGNIFICANT REPAIRS TO REPLACE A LARGE AMOUNT OF DAMAGED CEILINGS AND ALL SURFACES WILL NEED TO BE REPAINTED.

- THE ACOUSTIC CEILINGS HAVE MISSING SECTIONS, PANELS SHOWING WATER DAMAGE AND FRAMING FOR A LOT OF THE PANELS ARE DAMAGED CAUSING THE CEILINGS TO BE UNEVEN.WHILE A LOT OF THE CEILING TILES LOOK IN GOOD CONDITION, WATER DAMAGE CAN BE HIDDEN ON THE TOP OF THE PANELS.OUR RECOMMENDATION WOULD BE TO REPLACE ALL THE TILES AND GRIDS THROUGHOUT THE BUILDING.

- DAMAGED STIPPLE TYPE CONCRETE RENDER SHOULD BE REPAIRED AND ALL SECTIONS WOULD NEED TO BE REPAINTED

WINDOWS

- EXISTING ALUMINIUM FRAMED WINDOWS ARE STRUCTURALLY IN GOOD CONDITION WITH THE GLAZING INTACT AND NOT DAMAGED. MOST WINDOWS WILL NEED EXISTING WINDOW HARDWARE TO BE REPLACED WITH NEW FITTINGS AND GENERALLY THE WINDOWS WILL NEED TO BE SERVICED TO ALLOW THEM TO OPEN FREELY.
- EXISTING TIMBER WINDOW SILL TO NORTH SIDE OF THE BUILDING HAVE SIGNIFICANT WATER DAMAGE AND WHILE THEY ARE STRUCTURALLY SOLID.THEY SHOULD BE REPLACED, DUE TO WATER DAMAGE.SILLS ARE NOMINALLY 400MM WIDE.
- WINDOW FURNISHINGS ARE NON-EXISTENT IN MOST CASES AND ALL WINDOWS WILL REQUIRE NEW WINDOW BLINDS.

DOORS

- EXTERNAL ENTRY DOORS ARE DELAMINATING AND WATER DAMAGED AND NEED REPLACING. INTERNAL DOORS TO THE BUILDING ARE GENERALLY IN VERY GOOD CONDITION AND IN SOME CASES THEY WILL REQUIRE REPLACEMENT OF DAMAGED DOOR FRAMES. DOORS TO ALL TOILETS ARE DAMAGED AND WILL NEED ALL OF THEM TO BE REPLACED.

TOILETS/KITCHENETTE

- ALL FITTING TO THE TOILETS AND THE KITCHENETTE ARE SIGNIFICANTLY DAMAGED AND SHOULD BE REPLACED. THE FITTINGS INCLUDE TOILETS, VANITY UNITS, BASINS, CLEANING TROUGHS, MIRRORS, KITCHEN CABINETRY, SINKS, ETC.
- ALL TILED SURFACES BOTH TO THE FLOOR AND WALLS WILL NEED REPLACEMENT AND OVERALL THE TOILETS SHOULD BE TOTALLY REFURBISHED TO BRING THEM UP TO AN ACCEPTABLE STANDARD.DDA REQUIREMENTS COULD ALSO TRIGGER UPGRADES AND THE NEED FOR AN AMBULANT/DISABLED FACILITIES TO THE BUILDING.

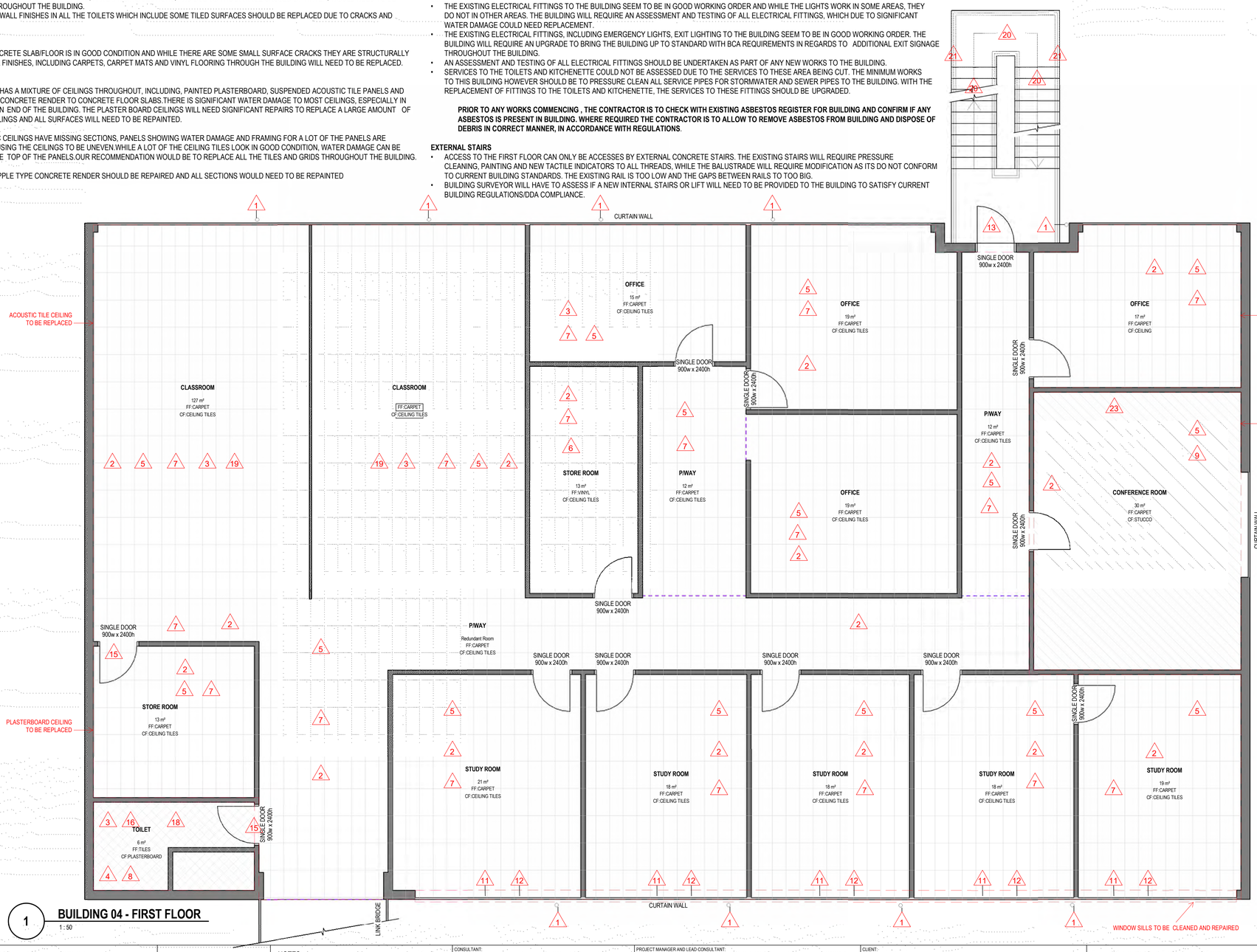
BUILDING SERVICES

- THE EXISTING ELECTRICAL FITTINGS TO THE BUILDING SEEM TO BE IN GOOD WORKING ORDER AND WHILE THE LIGHTS WORK IN SOME AREAS, THEY DO NOT IN OTHER AREAS. THE BUILDING WILL REQUIRE AN ASSESSMENT AND TESTING OF ALL ELECTRICAL FITTINGS, WHICH DUE TO SIGNIFICANT WATER DAMAGE COULD NEED REPLACEMENT.
- THE EXISTING ELECTRICAL FITTINGS, INCLUDING EMERGENCY LIGHTS, EXIT LIGHTING TO THE BUILDING SEEM TO BE IN GOOD WORKING ORDER. THE BUILDING WILL REQUIRE AN UPGRADE TO BRING THE BUILDING UP TO STANDARD WITH BCA REQUIREMENTS IN REGARDS TO ADDITIONAL EXIT SIGNAGE THROUGHOUT THE BUILDING.
- AN ASSESSMENT AND TESTING OF ALL ELECTRICAL FITTINGS SHOULD BE UNDERTAKEN AS PART OF ANY NEW WORKS TO THE BUILDING.
- SERVICES TO THE TOILETS AND KITCHENETTE COULD NOT BE ASSESSED DUE TO THE SERVICES TO THESE AREA BEING CUT. THE MINIMUM WORKS TO THIS BUILDING HOWEVER SHOULD BE TO PRESSURE CLEAN ALL SERVICE PIPES FOR STORMWATER AND SEWER PIPES TO THE BUILDING. WITH THE REPLACEMENT OF FITTINGS TO THE TOILETS AND KITCHENETTE, THE SERVICES TO THESE FITTINGS SHOULD BE UPGRADED.

PRIOR TO ANY WORKS COMMENCING , THE CONTRACTOR IS TO CHECK WITH EXISTING ASBESTOS REGISTER FOR BUILDING AND CONFIRM IF ANY ASBESTOS IS PRESENT IN BUILDING. WHERE REQUIRED THE CONTRACTOR IS TO ALLOW TO REMOVE ASBESTOS FROM BUILDING AND DISPOSE OF DEBRIS IN CORRECT MANNER, IN ACCORDANCE WITH REGULATIONS.

EXTERNAL STAIRS

- ACCESS TO THE FIRST FLOOR CAN ONLY BE ACCESSES BY EXTERNAL CONCRETE STAIRS. THE EXISTING STAIRS WILL REQUIRE PRESSURE CLEANING, PAINTING AND NEW TACTILE INDICATORS TO ALL THREADS, WHILE THE BALUSTRADE WILL REQUIRE MODIFICATION AS ITS DO NOT CONFORM TO CURRENT BUILDING STANDARDS. THE EXISTING RAIL IS TOO LOW AND THE GAPS BETWEEN RAILS TO TOO BIG.
- BUILDING SURVEYOR WILL HAVE TO ASSESS IF A NEW INTERNAL STAIRS OR LIFT WILL NEED TO BE PROVIDED TO THE BUILDING TO SATISFY CURRENT BUILDING REGULATIONS/DDA COMPLIANCE.



1 **BUILDING 04 - FIRST FLOOR**
1 : 50

LEGEND - SCOPE OF WORK

1. DOWNPIPES TO BE REPLACED WITH NEW 90 X 90MM METAL DOWNPIPES
2. ALL INTERNAL WALLS ARE TO BE RE-PAINTED
3. INTERNAL WALL LININGS ARE TO BE REPLACED TO ALL WALLS IN ROOM(REPLACE SKIRTINGS BOARDS)
4. BATHROOM/CLEANERS INTERNAL WALL LININGS TO BE REPLACED WITH NEW 10MM VILLABOARD LINING OR WET AREA BOARD AND ALLOW TO REPLACE WALL TILES WITH NEW CERAMIC WALL TILES.
5. EXISTING CARPET AND UNDERLAY IS TO BE REPLACED WITH NEW CARPET TILES
6. EXISTING VINYL IS TO BE REPLACED WITH NEW SELECTED VINYL.
7. ACOUSTIC CEILING TILES (1200MM X 600MM) TO BE REPLACED TO CEILINGS (RETAIN EXISTING CEILING GRIDS)
8. PLASTERBOARD/STRAMIT BOARD TO CEILINGS/ TO BE REPAIRED AND RE-PAINTED.
9. CEILINGS ARE TO BE RE-PAINTED TO FULL EXTENT OF ROOM.
10. CONCRETE RENDER TO BE REPAIRED AND REPAINTED AROUND BOXED COLUMNS (NOMINALLY 20 COLUMNS 400MM SQ X 2.7MH) AND REPAIR AND REPAINT UNDER SILLS ON SOUTH / NORTH WALLS.
11. ALL DAMAGED WINDOW HARDWARE IS TO BE REPLACED WITH NEW FITTINGS (NEW WINDERS TO WINDOWS NOMINALLY 32 WINDERS) AND REMAINING HARDWARE IS TO BE SERVICED.
12. TIMBER WINDOW SILL TO BE REPLACED WITH NEW 400MM PAINTED HARDWOOD TIMBER SILL.
13. EXISTING EXTERNAL ENTRY DOORS ARE TO BE REPLACED WITH NEW ALUMINIUM GLAZED DOORS AND NEW COMPLIANT DOOR HARDWARE
14. EXISTING EXTERNAL TIMBER DOOR FRAMES ARE TO BE REPLACED WITH NEW ALUMINIUM DOOR FRAMES
15. EXISTING TIMBER DOORS AND TIMBER FRAMES ARE TO BE REPLACED WITH NEW HOLLOW CORE DOORS AND ALUMINIUM FRAMES, AND NEW COMPLIANT DOOR HARDWARE
16. ALL BATHROOMS ARE TO BE UPGRADED WITH NEW FITTINGS TO COMPLY WITH DDA REQUIREMENTS
17. KITCHENETTES ARE TO BE REMOVED AND REPLACED WITH NEW CARCASS, DRAWERS, DOORS AND ARE TO MATCH EXISTING CONFIGURATION.
18. TILED SURFACES IN BATHROOMS ARE TO BE REPLACED WITH NEW CERAMIC WALL TILES
19. EXISTING ELECTRICAL SKIRTING DUCT TO BE REPLACED WITH NEW ELECTRICAL SKIRTING TRUNKING
20. EXTERNAL STAIRS ARE TO BE PRESSURE CLEANED, REPAINTED AND NEW TACTILE INDICATORS ARE TO BE FIXED TO ALL TREADS.
21. EXISTING STAIRS BALUSTRADE IS TO BE UPGRADED TO COMPLY WITH CURRENT BCA STANDARDS
22. EXISTING WATERPROOF MEMBRANE TO ROOF IS TO TO BE REPLACED WITH NEW WATERPROOF MEMBRANE OR NEW FLAT METAL ROOF, INCLUDING ROOF PURLINS/BATTENS AND TO FALL TO A NEW PURPOSE BUILD BOX GUTTER
23. EXISTING TIMBER PANELLED WALLS ARE TO BE CLEANED DOWN AND STAINS REMOVED.
24. ALL EXTERNAL WALL SURFACES, INCLUDING BRICKWORK, CURTAIN WALLS ARE TO BE PRESSURED CLEANED.
25. ALL WINDOW HARDWARE IS TO BE REPLACED OR SERVICED.
26. ALL WINDOW FURNISHINGS ARE TO BE REMOVED AND ALL WINDOWS ARE TO BE PROVIDED WITH NEW SOLAR BLOCK OUT BLINDS.
27. PRIOR TO ANY WORKS COMMENCING , THE CONTRACTOR IS TO CHECK WITH EXISTING ASBESTOS REGISTER FOR BUILDING AND CONFIRM IF ANY ASBESTOS IS PRESENT IN BUILDING. WHERE REQUIRED THE CONTRACTOR IS TO ALLOW TO REMOVE ASBESTOS FROM BUILDING AND DISPOSE OF DEBRIS IN CORRECT MANNER, IN ACCORDANCE WITH REGULATIONS.

EXISTING WALL
NEW WALL
ACOUSTIC TILE CEILING
PLASTERBOARD CEILING
CONCRETE STUCCO CEILING

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:

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PROJECT MANAGER AND LEAD CONSULTANT: aurecon
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CLIENT: Australian Government Department of Defence

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

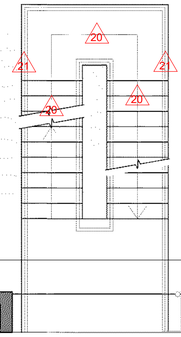
TITLE: BUILDING 04 FIRST FLOOR PLAN MAINTENANCE - SCOPE OF WORKS

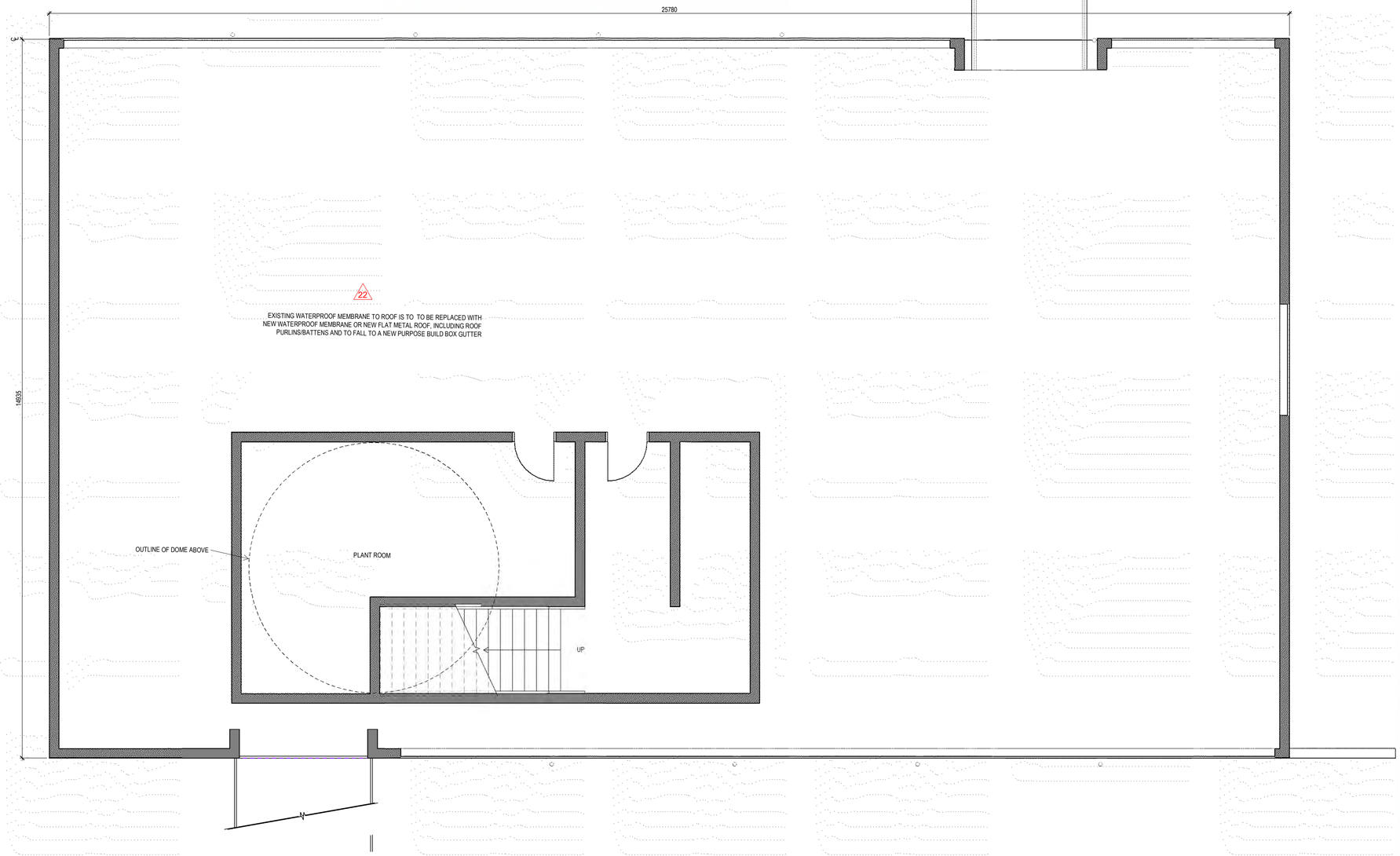
DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0004	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1004.2 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A

PLOT DATE & TIME: 26/10/2018 10:31:57 AM

IMAGES OF DAMAGE TO WATERPROOF ROOF MEMBRANE





1 **BUILDING 04 - ROOF PLAN**
1 : 50

LEGEND - SCOPE OF WORK

1. DOWNPIPES TO BE REPLACED WITH NEW 90 X 90MM METAL DOWNPIPES
2. ALL INTERNAL WALLS ARE TO BE RE-PAINTED
3. INTERNAL WALL LININGS ARE TO BE REPLACED TO ALL WALLS IN ROOM(REPLACE SKIRTINGS BOARDS)
4. BATHROOM/CLEANERS INTERNAL WALL LININGS TO BE REPLACED WITH NEW 10MM VILLABOARD LINING OR WET AREA BOARD AND ALLOW TO REPLACE WALL TILES WITH NEW CERAMIC WALL TILES.
5. EXISTING CARPET AND UNDERLAY IS TO BE REPLACED WITH NEW CARPET TILES
6. EXISTING VINYL IS TO BE REPLACED WITH NEW SELECTED VINYL.
7. ACOUSTIC CEILING TILES (1200MM X 600MM) TO BE REPLACED TO CEILINGS (RETAIN EXISTING CEILING GRIDS)
8. PLASTERBOARD/STRAMIT BOARD TO CEILINGS/ TO BE REPAIRED AND RE-PAINTED.
9. CEILINGS ARE TO BE RE-PAINTED TO FULL EXTENT OF ROOM.
10. CONCRETE RENDER TO BE REPAIRED AND REPAINTED AROUND BOXED COLUMNS (NOMINALLY 20 COLUMNS 400MM SQ X 2.7MH) AND REPAIR AND REPAINT UNDER SILLS ON SOUTH / NORTH WALLS.
11. ALL DAMAGED WINDOW HARDWARE IS TO BE REPLACED WITH NEW FITTINGS (NEW WINDERS TO WINDOWS NOMINALLY 32 WINDERS) AND REMAINING HARDWARE IS TO BE SERVICED.
12. TIMBER WINDOW SILL TO BE REPLACED WITH NEW 400MM PAINTED HARDWOOD TIMBER SILL.
13. EXISTING EXTERNAL ENTRY DOORS ARE TO BE REPLACED WITH NEW ALUMINIUM GLAZED DOORS AND NEW COMPLIANT DOOR HARDWARE
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25. ALL WINDOW HARDWARE IS TO BE REPLACED OR SERVICED.
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27. PRIOR TO ANY WORKS COMMENCING , THE CONTRACTOR IS TO CHECK WITH EXISTING ASBESTOS REGISTER FOR BUILDING AND CONFIRM IF ANY ASBESTOS IS PRESENT IN BUILDING. WHERE REQUIRED THE CONTRACTOR IS TO ALLOW TO REMOVE ASBESTOS FROM BUILDING AND DISPOSE OF DEBRIS IN CORRECT MANNER, IN ACCORDANCE WITH REGULATIONS.

IMAGES OF DAMAGE TO WATERPROOF ROOF MEMBRANE

PLOT DATE & TIME: 24/10/2018 2:30:12 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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CLIENT:
Australian Government
Department of Defence

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE:
BUILDING A0004
SECOND FLOOR PLAN - EXISTING CONDITIONS MAINTENANCE - SCOPE OF WORKS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0004	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1004.3 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)

REVISION: A

DAMAGED CERAMIC FLOOR AND WALL TILES

DAMAGED VINYL FLOOR SHEETING

MISSING AND DAMAGED CEILING TILES

CLEANERS TROUGH DAMAGE

DAMAGED TO WINDOW SILLS / WINDOW AND WALLS

DAMAGE TO CARPETS AND SKIRTING DUCT

DAMAGE TO SKIRTING DUCT AND VINYL SHEETING

TYPICAL WATER DAMAGE TO CEILINGS

KITCHENETTE CARCASS SHOWING SIGNS OF WATER DAMAGE

VINYL FLOOR SHEETING TO BE REPLACED

WATER DAMAGE OVER WINDOWS

LEGEND - SCOPE OF WORK

1. DOWNPIPES TO BE REPLACED WITH NEW 90 X 90MM METAL DOWNPIPES
2. ALL INTERNAL WALLS ARE TO BE RE-PAINTED
3. INTERNAL WALL LININGS ARE TO BE REPLACED TO ALL WALLS IN ROOM(REPLACE SKIRTINGS BOARDS)
4. BATHROOM/CLEANERS INTERNAL WALL LININGS TO BE REPLACED WITH NEW 10MM VILLABOARD LINING OR WET AREA BOARD AND ALLOW TO REPLACE WALL TILES WITH NEW CERAMIC WALL TILES.
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EXISTING WALL. NEW WALL — ACOUSTIC TILE CEILING — PLASTERBOARD CEILING — CONCRETE STUCCO CEILING

PLOT DATE & TIME: 24/10/2018 2:28:08 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING 04
INTERNAL PHOTOS
SHOWING EXTENT OF DETERIORATION

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0004	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1004.4
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

REVISION: A

ARCHITECTURAL ASSESSMENT & RECOMMENDATIONS

EXTERNAL WALLS

- EXTERNAL BRICK WALLS ARE GENERALLY IN GOOD CONDITION. THE BUILDING IS A MIXTURE OF BRICK VENEER WITH CURTAIN WALL WINDOWS. THEY BRICKWORK WILL REQUIRE SOME CLEANING AND SOME MINOR MORTAR REPAIRS TO STEPPED CRACKING.
  THE ALUMINIUM CURTAIN WINDOW WALL IS GENERALLY SOUND, WITH SOME AREAS REQUIRING REPLACEMENT OF DAMAGED AND RUSTING FLASHINGS BOTH TO THE TOP PARAPET WALL AND TO THE BOTTOM SILL. THESE SHOULD BE REPLACED.

INTERNAL WALLS

- INTERNAL PLASTERBOARD WALLS ARE GENERALLY IN STRUCTURALLY GOOD CONDITION IN MOST OF THE OFFICE AREAS AND IN MOST CASES DO NOT REQUIRE MUCH WORK. IN SOME AREAS, ESPECIALLY IN THE LECTURE THEATRE THE PLASTERBOARDS IS FLAKING, POWDERY AND WATER DAMAGED AND WILL REQUIRE TO BE EITHER PATCHED AND PAINTED OR REPLACED IN SOME SECTIONS. GENERALLY THE WHOLE OF THE BUILDING SHOULD BE AT THE LEAST CLEANED DOWN, BUT OUR RECOMMENDATION WOULD BE TO REPAINT THE ENTIRE BUILDING INTERNALLY.
- AS WELL AS SOME WATER DAMAGE TO PLASTERBOARD IN THE THEATRE ,SOME MASONRY BRICK WALLS HAVE ALSO EFFLORESCENCE AND WATER DAMAGE SHOWING AND THESE AREAS SHOULD HAVE FURTHER INVESTIGATION UNDERTAKEN TO DETERMINE THE EXTENT AND WHERE THE WATER DAMAGE IS COMING FROM.
- THERE IS SOME DAMAGED SKIRTING BOARDS WHICH NEED TO BE REMOVED AND REPLACED.

FLOORS

- EXTERNALLY, THERE ARE SOME MINOR CRACKED FLOOR TILES IN THE ENTRANCE TO THE BUILDING TO BE REPLACED AND REPAIRED
- INTERNALLY, ALL AREAS OF FLOOR FINISHES, WHICH INCLUDE CARPET, VINYL SHEET FLOORING SHOULD BE REPLACED. CONCRETE AREAS, SHOULD BE EITHER COVERED WITH VINYL OR CLEANED, SEALED AND REPAINT WITH NEW EPOXY PAINT FINISH. SOME FLOORS HAVE SIGNIFICANT WATER DAMAGE AND THESE WILL REQUIRE FURTHER INVESTIGATION TO CONFIRM WHERE THE WATER IS COMING FROM.

BATHROOMS/ KITCHENS

- EXISTING BATHROOM AREAS, WILL REQUIRE INTERNAL REFURBISHMENTS TO BRING THEM UP TO A CURRENT BCA STANDARD AND COMPLY WITH CURRENT DDA REGULATIONS. ALL INTERNAL FITTINGS SHOULD BE REPLACED, WITH NEW FITTINGS AND ALL AREAS, SHOULD BE CLEANED, REPAINTED, INCLUDING WALLS, CEILINGS, ETC.
- FURTHER INVESTIGATION IS REQUIRED TO CONFIRM EXTENT AND POSSIBLE CAUSE OF WATER DAMAGE ON SURROUNDING FLOOR AND WALLS.

CEILINGS

- EXISTING CEILINGS, WHICH ARE A MIXTURE OF PLASTERBOARD AND ACOUSTIC CEILING ARE IN REASONABLE GOOD CONDITION. THERE ARE SOME AREAS WHERE THEY WILL REQUIRE REPLACEMENT OF SOME TILES DUE TO WATER DAMAGE AND SOME MISSING TILES, BUT THOSE AREAS ARE VERY SMALL.
- PLASTERBOARD CEILINGS ARE GENERALLY IN GOOD CONDITION, AND ALL AREAS WITHIN THE BUILDING SHOULD BE REPAINTED.

WINDOWS

- GENERALLY ALL INTERNAL ALUMINIUM WINDOWS ARE IN GOOD CONDITION AND CAN BE FREELY OPENED AND CLOSED. THE WINDOWS WILL NEED TO BE CLEANED AND IN SOME AREAS, WHERE THERE IS CRACKED GLAZING THIS SHOULD BE REPLACED. ALL VERTICAL BLINDS SHOULD BE REPLACED WITH NEW PURPOSE FIT SOLAR/BLOCK BLINDS.

DOORS

- INTERNALLY IN MOST CASES ALL DOORS ARE IN GOOD CONDITION AND SOME DOORS HOWEVER SOME WILL NEED TO BE REPLACED INCLUDING TIMBER DOOR FRAMES, WHERE THEY ARE ROTTING AND WATER DAMAGED. ALL DOORS SHOULD BE REPAINTED.

FURNITURE

- INTERNALLY THERE ARE A LOT OF CUSTOM BUILT-IN JOINERY, WHICH IN MOST CASES COULD BE RETAINED AND REUSED RATHER THAN BE REMOVED AND REPLACED. THE BUILDING HAS BEEN USED AS A STORAGE AREA, WHERE LOTS OF RUBBISH AND UNUSED FURNITURE SHOULD BE CLEANED OUT AND REMOVED.

STAIRS

- INTERNAL CONCRETE STAIRS SHOULD BE CLEANED, RESEALED AND REPAINTED, AND NEW TACTILE INDICATORS SHOULD TO BE INSTALLED. BALUSTRADING TO THE STAIRS IS BELOW MIN HEIGHT AND SHOULD BE REPLACED.

BUILDING SERVICES

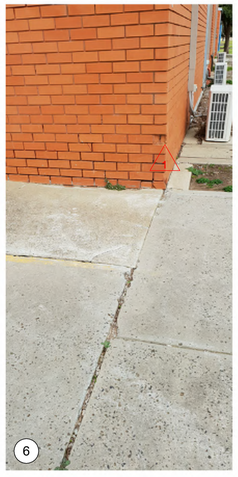
- THE EXISTING ELECTRICAL FITTINGS, INCLUDING EMERGENCY AND EXIT LIGHTING TO THE BUILDING SEEM TO BE IN GOOD WORKING ORDER. THE BUILDING WILL REQUIRE AN UPGRADE TO BRING THE BUILDING UP TO STANDARD WITH CURRENT BCA REQUIREMENTS IN REGARDS TO ADDITIONAL EXIT SIGNAGE THROUGHOUT THE BUILDING.
- AN ASSESSMENT AND TESTING OF ALL ELECTRICAL FITTINGS SHOULD BE UNDERTAKEN AS PART OF ANY NEW WORKS TO THE BUILDING.
- SERVICES TO THE TOILETS AND KITCHENETTE COULD NOT BE ASSESSED DUE TO THE SERVICES TO THESE AREA BEING CUT. THE MINIMUM WORKS TO THIS BUILDING HOWEVER SHOULD BE TO PRESSURE CLEAN ALL SERVICE PIPES FOR STORMWATER AND SEWER PIPES TO THE BUILDING. WITH THE REPLACEMENT OF FITTINGS TO THE TOILETS AND KITCHENETTE, THE SERVICES TO THESE FITTINGS SHOULD BE UPGRADED.

ROOF AREAS

- AN ASSESSMENT OF THE EXISTING ROOF INCLUDING STORMWATER DRAINAGE AND DOWNPIPES SHOULD BE UNDERTAKEN AS ACCESS TO THE ROOF WAS ONLY CONDUCTED FROM THE GROUND AND THERE WAS NO ACCESS TO THE ROOF AREAS.

EXTERNAL VIEW OF BUILDING

EXTERNAL VIEW OF BUILDING



SCOPE 1. CRACKED MASONRY IN EXTERNAL WALL

EXTERNAL VIEW OF BUILDING

SCOPE 2 - IMAGE OF DAMAGED FLASHING

EXTERNAL SOUTH VIEW OF BUILDING

EXTERNAL SOUTH VIEW OF BUILDING

SCOPE OF WORKS

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2. DAMAGED FLASHING TO PARAPET WALL/ROOF IS TO BE REPLACED
3. INTERNAL WALLS ARE TO BE PATCHED AND PAINTED
4. INTERNAL MASONRY WALLS TO BE REPAIRED AND EFFLOURSCENCE CLEANED AND FURTHER INVESTIGATION OF THE CAUSE TO BE DETERMINED
5. INTERNAL WALLS ARE TO BE CLEANED AND PAINTED
6. INTERNAL SKIRTING BOARDS/SKIRTING DUCT WHERE DAMAGED TO BE REMOVED AND REPLACED
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18. TIMBER DOORS ARE TO BE REPLACED WITH NEW ALUMINIUM DOOR FRAMES
19. TIMBER DOOR FRAMES ARE TO BE REPAIRED
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24. KITCHENETTES ARE TO BE REMOVED AND REPLACED WITH NEW CARCASS, DRAWERS, DOORS AND ARE TO MATCH EXISTING CONFIGURATION.
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26. EXISTING TIMBER PANELLED WALLS ARE TO BE CLEANED DOWN AND STAINS REMOVED.
27. FURTHER INVESTIGATION IS REQUIRED TO CONFIRM BOTH THE EXTENT OF EFFLORSECENCE / WATER DAMAGE AND POSSIBLE CAUSES OF THE DAMAGE
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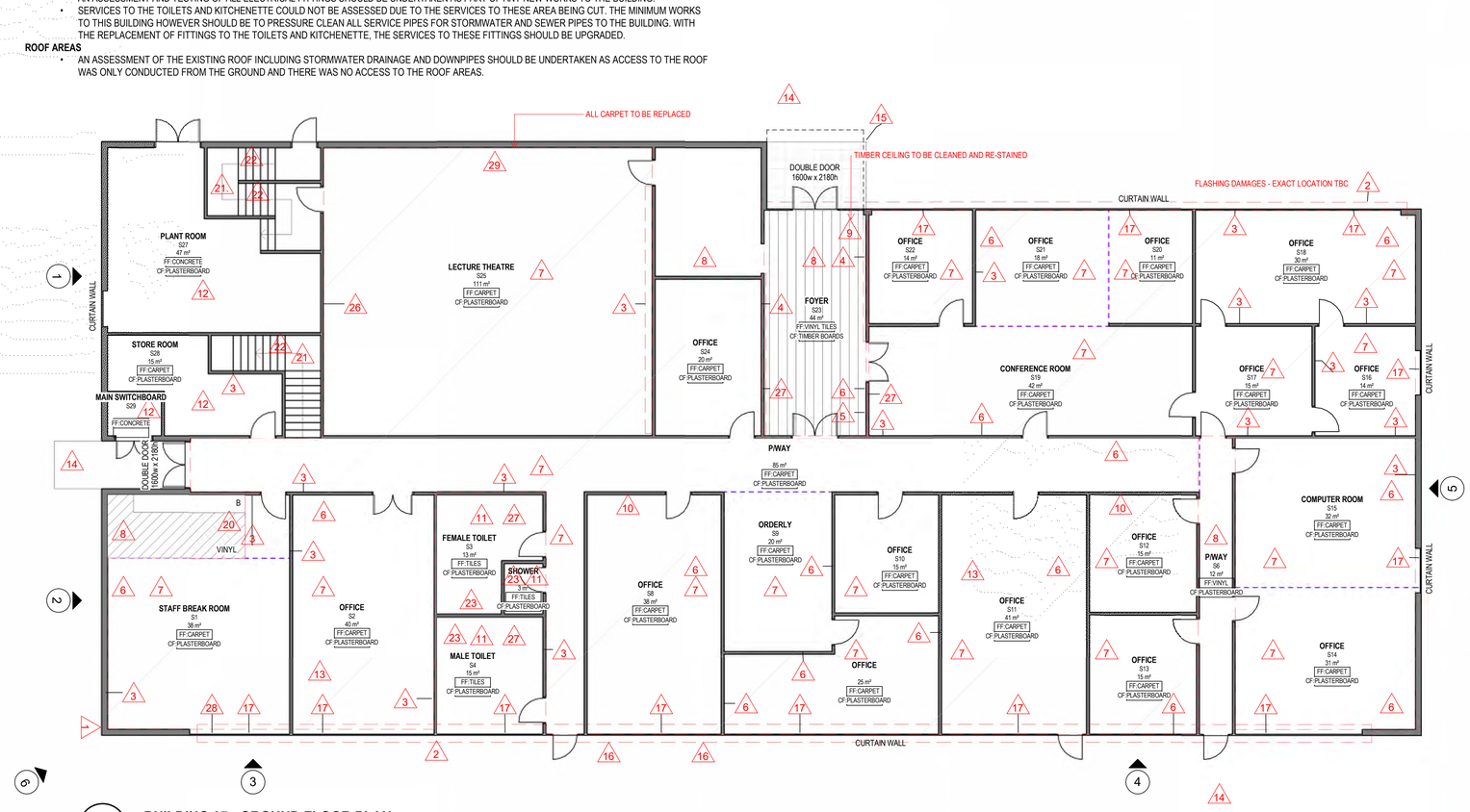

1 **BUILDING 07 - GROUND FLOOR PLAN**
1 : 100

PLOT DATE & TIME: 24/10/2018 2:43:49 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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HDR Pty. Limited ABN 76 158 075 220 trading as HDR

PROJECT MANAGER AND LEAD CONSULTANT:
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www.aurecongroup.com

CLIENT:
Australian Government
Department of Defence

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SCALE 1:100 AT A3
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING 7 GROUND FLOOR PLAN EXISTING CONDITIONS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0007	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1007.1
REVISION: A
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

ARCHITECTURAL ASSESSMENT & RECOMMENDATIONS

EXTERNAL WALLS

- EXTERNAL BRICK WALLS ARE GENERALLY IN GOOD CONDITION. THE BUILDING IS A MIXTURE OF BRICK VENEER WITH CURTAIN WALL WINDOWS. THEY BRICKWORK WILL REQUIRE SOME CLEANING AND SOME MINOR MORTAR REPAIRS TO STEPPED CRACKING.
  THE ALUMINIUM CURTAIN WINDOW WALL IS GENERALLY SOUND, WITH SOME AREAS, REQUIRING REPLACEMENT OF DAMAGED AND RUSTING FLASHINGS BOTH TO THE TOP PARAPET WALL AND TO THE BOTTOM SILL. THESE SHOULD BE REPLACED.

INTERNAL WALLS

- INTERNAL PLASTERBOARD WALLS ARE GENERALLY IN STRUCTURALLY GOOD CONDITION IN MOST OF THE OFFICE AREAS AND IN MOST CASES DO NOT REQUIRE MUCH WORK. IN SOME AREAS, ESPECIALLY IN THE LECTURE THEATRE THE PLASTERBOARDS IS FLAKING, POWDERY AND WATER DAMAGED AND WILL REQUIRE TO BE EITHER PATCHED AND PAINTED OR REPLACED IN SOME SECTIONS. GENERALLY THE WHOLE OF THE BUILDING SHOULD BE AT THE LEAST CLEANED DOWN, BUT MY RECOMMENDATION WOULD BE TO REPAINT THE ENTIRE BUILDING INTERNALLY.
- AS WELL AS SOME WATER DAMAGE TO PLASTERBOARD IN THE THEATRE ,SOME MASONRY BRICK WALLS HAVE ALSO EFFLORESCENCE AND WATER DAMAGE SHOWING AND THESE AREAS SHOULD HAVE FURTHER INVESTIGATION UNDERTAKEN TO DETERMINE THE EXTENT AND WHERE THE WATER DAMAGE IS COMING FROM.
- THERE IS SOME DAMAGED SKIRTING BOARDS WHICH NEED TO BE REMOVED AND REPLACED.

FLOORS

- EXTERNALLY, THERE ARE SOME MINOR CRACKED FLOOR TILES IN THE ENTRANCE TO THE BUILDING TO BE REPLACED AND REPAIRED
- INTERNALLY, ALL AREAS OF FLOOR FINISHES, WHICH INCLUDE CARPET, VINYL SHEET FLOORING SHOULD BE REPLACED. CONCRETE AREAS, SHOULD BE EITHER COVERED WITH VINYL OR CLEANED, SEALED AND REPAINT WITH NEW EPOXY PAINT FINISH. SOME FLOORS HAVE SIGNIFICANT WATER DAMAGE AND THESE WILL REQUIRE FURTHER INVESTIGATION TO CONFIRM WHERE THE WATER IS COMING FROM.

BATHROOMS/ KITCHENS

- EXISTING BATHROOM AREAS, WILL REQUIRE INTERNAL REFURBISHMENTS TO BRING THEM UP TO A CURRENT DDA STANDARDS.EXISTING FITTINGS SHOULD BE REPLACED WITH NEW. ALL AREAS INCLUDING CEILINGS, WALLS, SHOULD BE CLEANED ,PATCHED AND REPAINTED.
- FURTHER INVESTIGATION IS REQUIRED TO CONFIRM EXTENT AND POSSIBLE CAUSE OF WATER DAMAGE ON SURROUNDING FLOOR AND WALLS.

CEILINGS

- EXISTING CEILINGS, WHICH ARE A MIXTURE OF PLASTERBOARD AND ACOUSTIC CEILING ARE IN REASONABLE GOOD CONDITION. THERE ARE SOME AREAS WHERE THEY WILL REQUIRE REPLACEMENT OF SOME TILES DUE TO WATER DAMAGE AND SOME MISSING TILES, BUT THOSE AREAS ARE VERY SMALL.
- PLASTERBOARD CEILINGS ARE GENERALLY IN GOOD CONDITION, AND ALL AREAS WITHIN THE BUILDING SHOULD BE REPAINTED.

WINDOWS

- GENERALLY ALL INTERNAL ALUMINIUM WINDOWS ARE IN GOOD CONDITION AND CAN BE FREELY OPENED AND CLOSED. THE WINDOWS WOULD NEED TO BE CLEANED AND IN SOME AREAS WHERE THERE IS CRACKED GLAZING THIS SHOULD BE REPLACED. ALL VERTICAL BLINDS SHOULD BE REPLACED WITH NEW PURPOSE FIT SOLAR/BLOCK BLINDS.

DOORS

- INTERNALLY IN MOST CASES ALL DOORS ARE IN GOOD CONDITION AND SOME DOORS HOWEVER SOME WILL NEED TO BE REPLACED INCLUDING TIMBER DOOR FRAMES, WHERE THEY ARE ROTTING AND WATER DAMAGED. ALL DOORS SHOULD BE REPAINTED.

FURNITURE

- INTERNALLY THERE ARE A LOT OF CUSTOM BUILT-IN JOINERY, WHICH IN MOST CASES COULD BE RETAINED AND REUSED RATHER THAN BE REMOVED AND REPLACED. THE BUILDING HAS BEEN USED AS A STORAGE AREA, WHERE LOTS OF RUBBISH AND UNUSED FURNITURE SHOULD BE CLEANED OUT AND REMOVED.

STAIRS

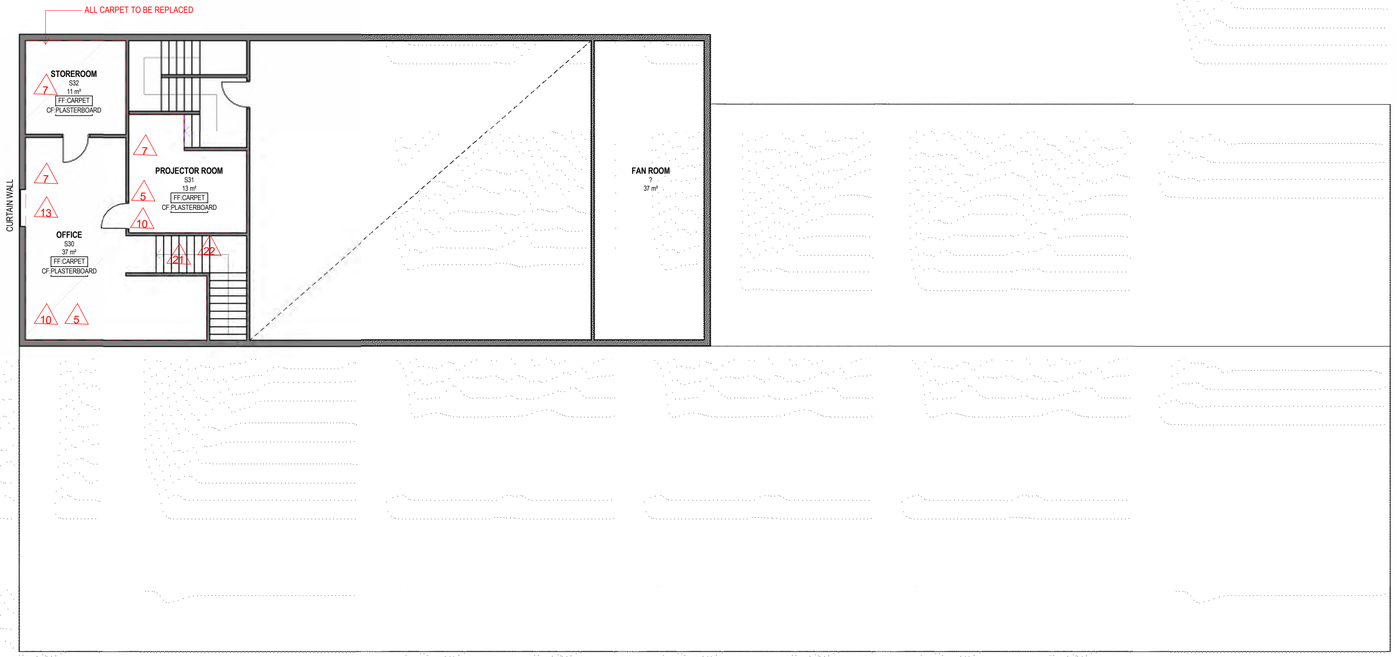
- INTERNAL CONCRETE STAIRS SHOULD BE CLEANED, RESEALED AND REPAINTED, AND NEW TACTILE INDICATORS SHOULD TO BE INSTALLED. BALUSTRADING TO THE STAIRS IS BELOW MIN HEIGHT AND SHOULD BE REPLACED.

BUILDING SERVICES

- THE EXISTING ELECTRICAL FITTINGS, INCLUDING EMERGENCY LIGHTS, EXIT LIGHTS TO THE BUILDING SEEM TO BE IN GOOD WORKING ORDER. THE BUILDING WILL REQUIRE AN UPGRADE TO BRING THE BUILDING UP TO STANDARD WITH BCA REQUIREMENTS IN REGARDS TO ADDITIONAL EXIT SIGNAGE THROUGHOUT THE BUILDING.
- AN ASSESSMENT AND TESTING OF ALL ELECTRICAL FITTINGS SHOULD BE UNDERTAKEN AS PART OF ANY NEW WORKS TO THE BUILDING.
- SERVICES TO THE TOILETS AND KITCHENETTE COULD NOT BE ASSESSED DUE TO THE SERVICES TO THESE AREA BEING CUT. THE MINIMUM WORKS TO THIS BUILDING HOWEVER SHOULD BE TO PRESSURE CLEAN ALL SERVICE PIPES FOR STORMWATER AND SEWER PIPES TO THE BUILDING. WITH THE REPLACEMENT OF FITTINGS TO THE TOILETS AND KITCHENETTE, THE SERVICES TO THESE FITTINGS SHOULD BE UPGRADED.

ROOF AREAS

- AN ASSESSMENT OF THE EXISTING ROOF INCLUDING STORMWATER DRAINAGE AND DOWNPIPES SHould be undertaken as access to the roof was only CONDUCTED FROM THE GROUND AND THERE WAS NO ACCESS TO THE ROOF AREAS.



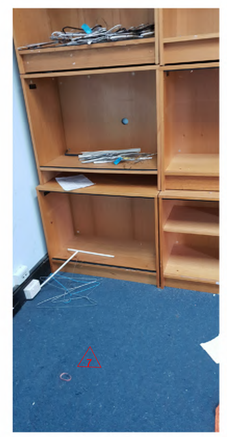
1 **BUILDING 07 - FIRST FLOOR**
1 : 100


VIEW INSIDE THE LECTURE THEATRE


VIEW INTERNAL CONCRETE STAIRS


TYPICAL VIEW OF UPPER LEVEL


TYPICAL VIEW OF UPPER LEVEL


TYPICAL VIEW OF UPPER LEVEL

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NEW WALL
ACOUSTIC TILE CEILING
PLASTERBOARD CEILING
CONCRETE CEILING

PLOT DATE & TIME: 24/10/2018 2:43:52 PM

AMENDMENTS:

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING 7 FIRST FLOOR PLAN SCOPE OF WORKS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0007	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1007.2
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.
REVISION: A

SCOPE.4 - IMAGE OF TYPICAL WATER DAMAGE TO MASONRY WALLS

SCOPE.3 - IMAGE OF TYPICAL INTERNAL WALLS DAMAGE TO BE PATCHED AND PAINTED

SCOPE.3 - IMAGE OF TYPICAL INTERNAL WALLS DAMAGE TO BE PATCHED AND PAINTED

SCOPE.3 - IMAGE OF DAMAGED INTERNAL WALL TO THEATRETTE

SCOPE.4 - IMAGE OF TYPICAL WATER DAMAGE TO MASONRY WALLS

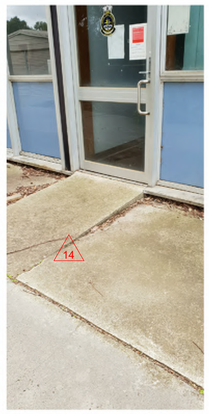
TYPICAL IMAGE OF DAMAGED INTERNAL SKIRTING FOR ELECTRICAL CONDUITS

TYPICAL IMAGE OF DAMAGED WALLS

SCOPE.8 - IMAGE OF BATHROOM TILES NEED REPLACEMENT

SCOPE.14 - TYPICAL CRACKED TILES

SCOPE.15 - TYPICAL CRACKED FLOOR TILES



SCOPE.15 - TYPICAL CRACKED FLOOR TILES & PRESSURE CLEANED

SCOPE.16 - CRACKED GLAZING TO BE REPLACED.

SCOPE.21 - CONCRETE STAIRS TO BE CLEANED, SEALED AND TACTILE INDICATORS APPLIED

TYPICAL INTERNAL WALL DAMAGE

TYPICAL INTERNAL WALL DAMAGE AND LOOSE FURNITURE DEBRIS WITHIN THE OFFICES

TYPICAL CUSTOM BUILT FURNITURE TO BE CLEANED

TYPICAL INTERNAL WALL TO BE REPAIRED, PATCHED AND PAINTED

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P:LOT DATE & TIME: 24/10/2018 2:43:56 PM

AMENDMENTS:

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PROJECT TITLE: VT12399 POINT COOK

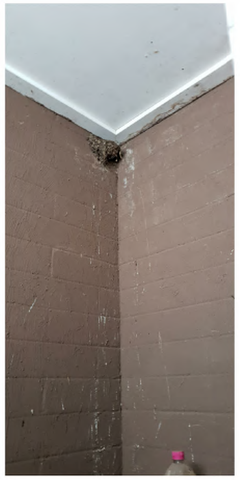
DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

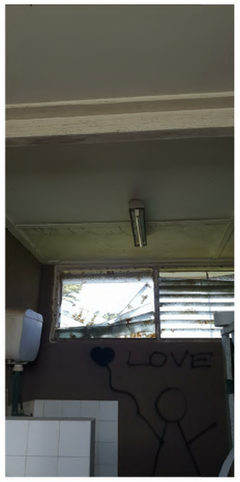
90% CONCEPT DESIGN
PRELIMINARY

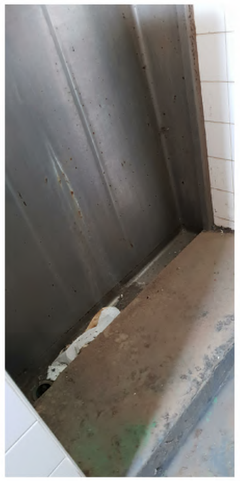
TITLE: BUILDING 7 INTERNAL PHOTOS SCOPE OF WORKS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0007	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1007.3 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A







IMAGES OF TYPICAL DETERIORATION

EXTERNAL WALLS/ ROOFING/ GUTTERS AND DOWNPIPES

- EXTERNAL BRICK WALLS ARE STRUCTURALLY IN GOOD CONDITION ALTHOUGH THE MASONRY WALLS ARE DISCOLOURING DUE TO ENVIRONMENTAL CONDITIONS NEXT TO THE BAY. THE INTERNAL SURFACE SHOWS AGINGW WITH TIMBER FRAMED WINDOWS AND DOORS DETERIORATING. THE PAINTED BRICK WALLS ARE FLAKING AND TILED WALL SURFACES ARE BROKEN AND DIRTY.
- EXISTING METAL ROOFING IS DAMAGED AND RUSTING WITH FLASHING, CAPPINGS THAT ARE ALSO CORRODED, CRACKED, BROKEN AND RUSTING. THE EXISTING TIMBER ROOF FASCIA IS ROTTING ON ALL SIDES AND THE SOFFIT ARE BADLY DAMAGED WITH THE SOFFIT LINING PEELING FROM WATER DAMAGE. RECTANGULAR DOWNPIPES ARE ALSO BENT AND RUSTED WHICH SHOWS SIGNIFICANT WATER DAMAGE TO THE BUILDING.

INTERNAL

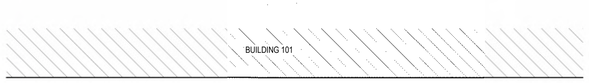
- EXTERNALLY, ORGANIC MATTER AND MOULD HAVE COVERED FOOTPATHS. INTERNALLY, ALL CONCRETE FLOORING ARE COVERED WITH DEBRIS AND WATER LOGGED POOLS. FLOORS ARE DISCOLOURED AND MOULDY. CEILINGS ARE BADLY DAMAGED, GLAZING ON WINDOWS ARE BROKEN AND TIMBER DOOR FRAMES ARE ROTTEN AND PAINT PEELED OFF.
- ALL FITTINGS ARE DEEMED TO BE UNFIT FOR USE AS ALL BASINS, TAPS, TOILET BOWLS ETC ARE UN-SANITARY WITH HEAVY RUST AND MOULD.

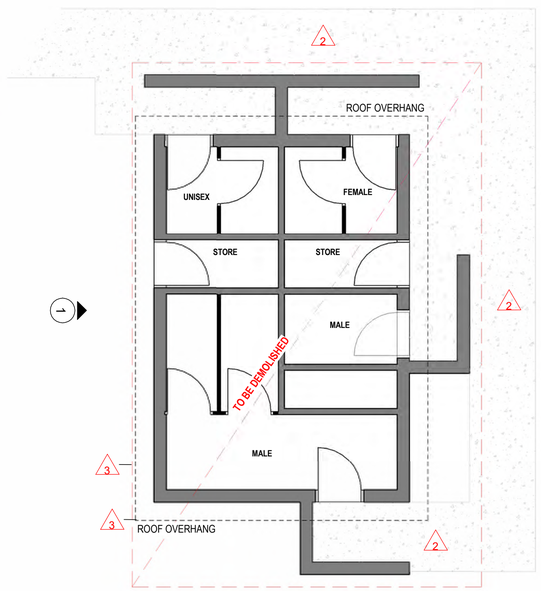
BUILDING SERVICES

- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE. AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

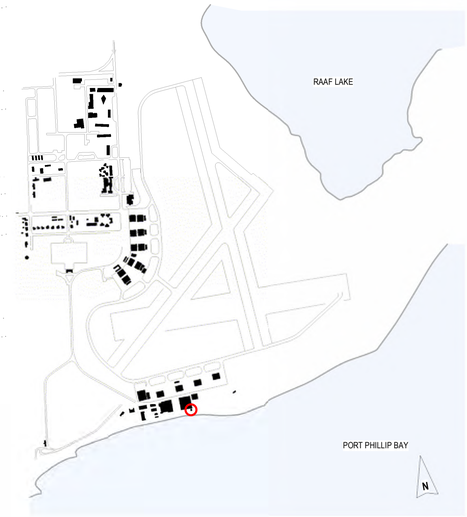
REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE FULLY DEMOLISHED AND REMOVED FROM SITE. CONTRACTORS SHOULD BE PROVIDED WITH ACCESS TO EXISTING ASBESTOS REGISTER FOR THE BUILDING, TO ENSURE ANY ASBESTOS PRESENT IS TO DISPOSED OF PROPERLY WITH COMPLIANCE TO REGULATIONS.
- THE EXISTING CONCRETE SLAB TO THE EAST SIDE OF THE BUILDING SHOULD BE BROKEN UP AND DISPOSED OF.
- CONTRACTOR IS TO ALLOW TO LEVEL THE AREA AFTER REMOVAL OF THE BUILDING AND PROVIDE NEW SOIL AND SEEDING TO THE SITE AREA





1 **BUILDING 102 - FLOOR PLAN**
1 : 50



VIEW OF NORTH ELEVATION

VIEW OF EAST ELEVATION

VIEW OF SOUTH ELEVATION

LEGEND - SCOPE OF WORK

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING
2. DEMOLISH, BREAK UP AND REMOVE EXISTING CONCRETE SLAB, CONCRETE PAVING,ETC.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING BUT NOT LIMITED TO ALL TOILET FITTINGS, ELECTRICAL FITTINGS, WALLS,WINDOWS, DOORS AND ROOF AND FLOOR STRUCTURE.
4. ENSURE THAT ANY SERVICE PITS, PIPING, INCLUDING WATER AND SEWER ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.

PLOT DATE & TIME: 25/10/2018 5:17:29 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:

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SCALE 1:100 AT A3

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

TITLE: BUILDING A0102 FLOOR PLAN SCOPE OF WORKS

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0102	AUR	248842

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DRAWING NUMBER: PDS-12399-DRG-AR-1102
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

REVISION: A

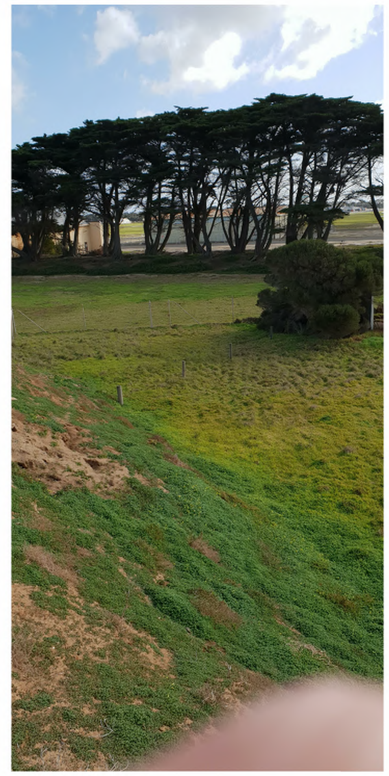
EXISTING LARGE MOUND AT END OF RANGE

EXISTING LARGE MOUND AT END OF RANGE

EARTH BANK SET BEHIND FIRING RANGE

- THE EXISTING MOUND IS A LARGE EARTHEN MOUND USED TO STOP BULLETS USED AT THE FIRING RANGE.
- THE SOIL IS TO BE REMOVED FROM SITE AND THE AREA IS TO BE LEVELLED TO MATCH ADJOINING LEVELS OF GROUND. THE CONTRACTOR SHOULD ALLOW FOR CAREFULL REMOVAL AND DISPOSAL OF ANY EARTH, AS THERE WILL BE CONTAMINENTS, INCLUDING LEAD BULLETS.
- ANY REMOVAL SHOULD BE COMPLETED IN ACCORDANCE WITH DEFENCE GUIDELINES AND BE CORRECTLY DISPOSED AND TREATED BY CONTRACTOR.

EXISTING LARGE MOUND AT END OF RANGE



EXISTING LARGE MOUND AT END OF RANGE

PLOT DATE & TIME: 24/10/2018 8:45:05 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
Author	Designer	Checker	Approver

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0103
23 M RANGE STOP BUTTS
EXISTING PHOTOS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0103	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1103
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

REVISION: A

BUILDING 112

EXTERNAL WALLS

- EXTERNAL METAL WALL AND ROOF SHEETING IS IN POOR CONDITION WHERE THE CORRUGATED METAL SHEETING IS WORN, CORRODED, WITH FLAKING PAINT AND MISSING SHEETS. THERE IS SIGNIFICANT RUST ON THE CONNECTION BETWEEN TIMBER FRAME AND THE METAL CLADDING SHEETS. THE TIMBER FRAME ON THE ROOF IS DETERIORATING, WITH PAINT PEELED AND ROTTING TIMBER. METAL FLASHING TO CORNERS AT WALL JUNCTIONS AS WELL AS ON THE ROOF HAS CORRODED WITH THE METAL ROOF SHEETING ALSO RUSTED.

INTERNAL WALLS

- INTERNAL WALL LININGS AND PARTITIONS ARE BADLY DAMAGED WITH STUDS MISSING. THERE IS ALSO SIGNIFICANT RUST ON THE CONNECTION BETWEEN TIMBER FRAME AND THE METAL CLADDING SHEET.
- INTERNALLY, TIMBER FLOOR STRUCTURE IS DAMAGED, WITH FLOOR BOARDS ROTTING, MISSING, DAMAGED SHEET FLOORING AND WITH JOISTS SITTING ON THE GROUND, THIS WILL LEAD TO FURTHER DAMAGE TO THE FLOOR STRUCTURE.
- GLAZING ON WINDOWS HAVE BEEN REMOVED AND CLADDED WITH METAL SHEETS. ALL TIMBER DOOR FRAMES ARE BROKEN AND DETERIORATING. DOORS ARE NON EXISTENT WITH DOOR FRAMES DETERIORATING AND ROTTING.

BUILDING 132

EXTERNAL WALLS

- EXTERNAL METAL SHEETING IS IN POOR CONDITION AS THE CORRUGATED METAL SHEETING IS WORN , CORRODED AND MISSING SHEETS. THERE IS SIGNIFICANT RUST EVERYWHERE IN THE BUILDING . METAL FLASHING TO CORNERS AT WALL JUNCTIONS AS WELL AS ON THE ROOF HAS CORRODED WITH THE METAL ROOF SHEETING ALSO RUSTED.
- TIMBER FASCIAS ARE DAMAGED AND ROTTING AND THERE IS NO GUTTERS OR DOWNPIPES TO THE BUILDINGS..

INTERNAL WALLS

- INTERNAL WALL LININGS AND PARTITIONS ARE NON EXISTENT WITH STRUCTURAL FRAMES REQUIRING SECONDARY TIMBER SUPPORT.
- THE EXISTING STUD WORK IS MISSING STUDS, AND THE WINDOW AND DOOR FRAMES ARE BADLY DAMAGED, WITH NO DOORS OR WINDOWS PRESENT.
- THE EXISTING OPENINGS HAVE BEEN SEALED OVER WITH PLYWOOD SHEETING. INTERNALLY THE CONCRETE SLAB HAS CRACKED AND IS DISCOLOURED.

BUILDING 112 / BUILDING 132

BUILDING SERVICES

- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER AND SEWER PIPES. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, STRUCTURAL CONCRETE PADS, ETC, WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

REMOVAL OF BUILDING FROM SITE

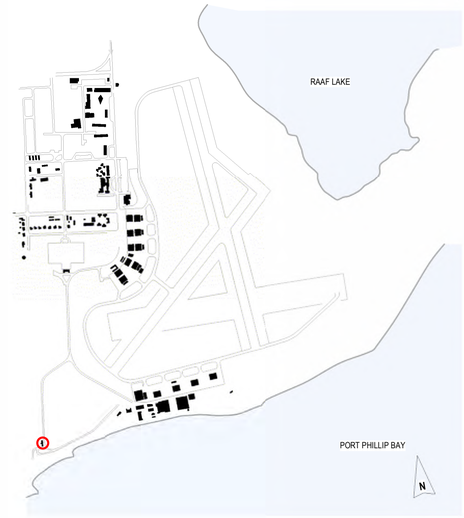
- THE BUILDING SHOULD BE FULLY DEMOLISHED AND REMOVED FROM SITE. CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REGISTERS FOR THE BUILDING.CONTRACTOR IS TO ENSURE ANY ASBESTOS PRESENT IS TO DISPOSED OF PROPERLY AND IN ACCORDANCE WITH REGULATIONS, AND COUNCIL GUIDELINES.
- THE EXISTING CONCRETE SLAB TO THE EAST SIDE OF THE BUILDING SHOULD BE BROKEN UP AND DISPOSED OF.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED. CONTRACTOR IS TO ALLOW TO LEVEL THE AREA AFTER REMOVAL OF THE BUILDING AND PROVIDE NEW SOIL AND SEEDING TO THE SITE AREA.

1 VIEW OF SOUTH ELEVATION - BUILDING 112

2 VIEW OF EAST ELEVATION - BUILDING 132

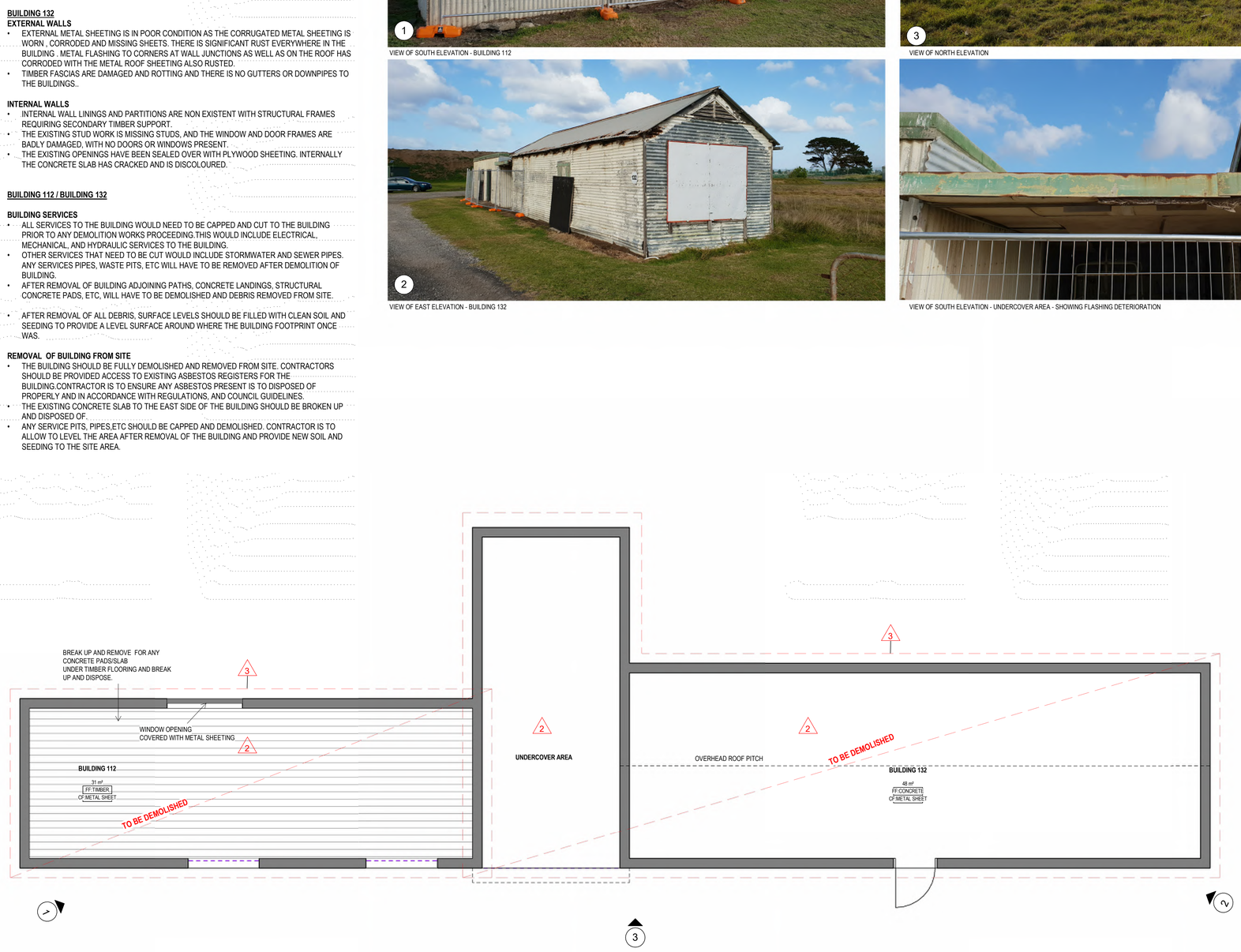
3 VIEW OF NORTH ELEVATION

VIEW OF SOUTH ELEVATION - UNDERCOVER AREA - SHOWING FLASHING DETERIORATION



LEGEND - SCOPE OF WORK

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING
2. DEMOLISH AND BREAK UP AND REMOVE EXISTING CONCRETE SLAB, PAVING,ETC.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING WALLS, ROOF, AND FLOOR STRUCTURE.
4. ENSURE THAT ANY SERVICE PITS ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.



1 **BUILDING A0112 & A0132 - EXISTING CONDITIONS/DEMOLITION PLAN**
1 : 50

INTERNAL VIEW OF BUILDING 112

INTERNAL VIEW OF BUILDING 132

INTERNAL VIEW OF BUILDING 112

INTERNAL VIEW OF BUILDING 132

INTERNAL VIEW OF UNDERCOVER AREA BETWEEN BUILDING 112/ 132

PLOT DATE & TIME - 24/10/2018 3:33:25 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0112 & A0132 EXISTING CONDITIONS/DEMOLITION PLAN SCOPE OF WORKS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0132	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1112 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

SCOPE OF WORKS

EXTERNAL STRUCTURE/ SHED

- EXTERNAL MASONRY WALLS ARE SHOWING LARGE SIGNIFICANT CRACKS IN THE WALLS, DUE TO MOVEMENT IN THE FOOTINGS AND A STRUCTURAL ASSESMENT SHOULD BE COMPLETED, PRIOR TO ANY WORKS STARTING. THE EXISTING FOOTINGS WILL NEED TO BE UNDERPINNED AND CRACKING REPAIRED. REFER TO PHOTO NO 3 AND 5 FOR DAMAGE.
- REPLACE EXISTING TIMBER DOORS AND DOOR FRAME (TO STORE AREA) WITH NEW MATCHING TIMBER DOOR AND FRAME, DOORS 1400W X 2040 HIGH
- DEMOLISH AND REMOVE EXISTING ROOF STRUCTURE (TO STORE AREA) AND REPLACE WITH NEW TIMBER RAFTERS, ROOFING BATTENS, COLORBOND CORRUGATED ROOF SHEETING AND TIMBER FASCIA, FASCIA GUTTER AND 90 X 90MM METAL DOWNPIPE.
- REMOVE ALL RUBBISH AND DEBRIS AROUND THE BUILDING AND ALLOW TO SAND BLAST AND CLEAN EXISTING CONCRETE SLAB IN THE GUN ZONE AREA.

BUILDING SERVICES

- DURING INSPECTION NO SERVICES WERE DETECTED ON SITE TO BUILDING OR SURROUNDS. NEW WORKS SHOULD INCLUDE POSSIBLE LIGHTING TO THE EXTERNAL STRUCTURE, AND NEW LIGHT FITTING AND SWITCH TO STORE.
- DOWNPIPE DISCHARGE COULD BE DIRECTED AWAY FROM THE BUILDING, AS THERE IS NO IMMEDIATE STORMWATER EASEMENT NEAR THIS LOCATION.

REMOVAL OF VEGETATION AROUND BUILDING

- THE AREA AROUND THE BUILDING WHICH CONSISTS OF WEEDS, BUFFALO GRASS AND SMALL SHRUBS, SHOULD BE CLEARED AWAY FROM BUILDING (MIN 4.0M AROUND BUILDING) AND REMOVED FROM SITE.
- CONTRACTOR SHOULD ALSO REMOVE VEGETATION TO PROVIDE A CLEAR PATH TO THE BUILDING, ESPECIALLY THE STORE AREA SO ACCESS CAN BE PROVIDED, WITHOUT HAVING TO WALK THROUGH LONG GRASS, WEEDS, AS THIS AREA CAN BE A BREEDING GROUND FOR SNAKES.

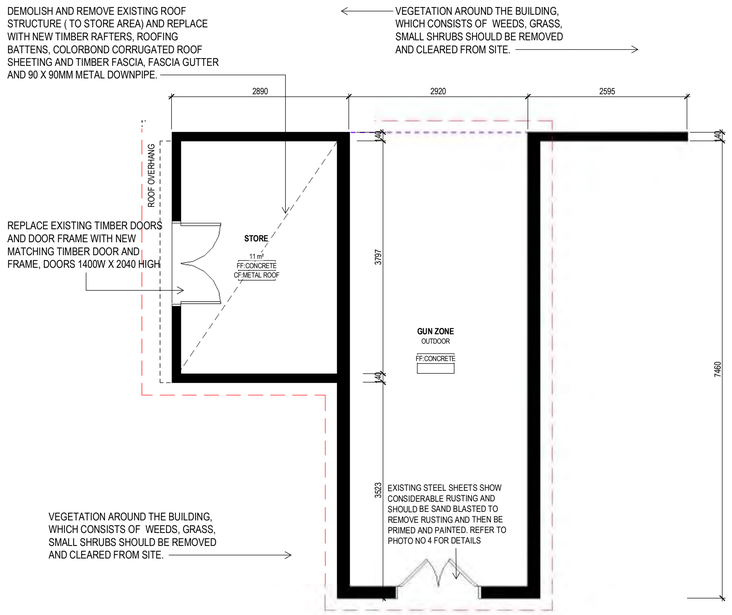

PHOTO NO 1 - VIEW OF EAST ELEVATION

PHOTO NO 2 -VIEW OF WEST ELEVATION

PHOTO NO 3 - VIEW OF SHED ROOF AND CRACKING IN WALL

PHOTO NO 4 -VIEW INTO THE STRUCTURE, SHOWING RUSTING SHEET PANELS

PHOTO NO 5 - VIEW OF CRACK IN WALL TO BE REPAIRED

PHOTO NO 6 -VIEW OUTSIDE THE STRUCTURE, WITH VEGETATION TO BE REMOVED

1 BUILDING A0121 - EXISTING CONDITIONS - SCOPE OF WORKS

1 : 50

PLOT DATE & TIME - 9/01/2019 1:22:47 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	03/01/2019	90% CONCEPT DESIGN	HDR

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	RW	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0121 EXISTING CONDITIONS/REFURBISHMENT SCOPE OF WORKS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0121	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-A0121 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)

REVISION: A

EXTERNAL STRUCTURE/ SHED

- EXTERNAL MASONRY WALLS ARE SHOWING SIGNS OF STRESS AND SIGNIFICANT CRACKS IN THE WALLS. THE STRUCTURE ONLY CONSISTS OF THE DOUBLE LEAF BRICK WALL WITH AN ATTACHED SHED ON THE LEFT SIDE.
- THE TIMBER DOOR FRAMES TO THE SHED ARE ROTTEN AND DETERIORATING WITH THE EXISTING DOOR MISSING. THE TIMBER STUD WALLS AND EXTERNAL METAL ROOF SHEETING IS SIGNIFICANTLY DAMAGED. THE CONCRETE SLAB AROUND THE BUILDING IS COVERED IN DIRT AND DEBRIS.

BUILDING SERVICES

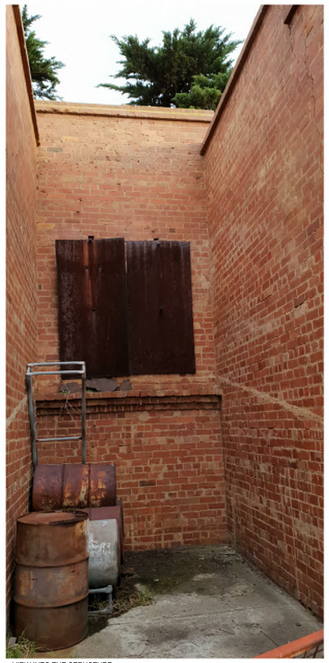
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CHECKED. AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

REMOVAL OF BUILDING FROM SITE

- THE STRUCTURE AND SHED SHOULD BE FULLY DEMOLISHED AND REMOVED FROM SITE.
- CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REGISTERS FOR THE BUILDING.CONTRACTOR IS TO ENSURE ANY ASBESTOS PRESENT IS TO DISPOSED OF PROPERLY AND IN ACCORDANCE WITH REGULATIONS, AND COUNCIL GUIDELINES.
- ANY SERVICE PITS, PIPING, ETC SHOULD BE CAPPED AND DEMOLISHED.
- CONTRACTOR IS TO ALLOW TO LEVEL THE AREA AFTER REMOVAL OF THE BUILDING AND PROVIDE NEW SOIL AND SEEDING TO THE SITE AREA, LEVEL WITH ADJACENT GROUND.

VIEW OF EAST ELEVATION

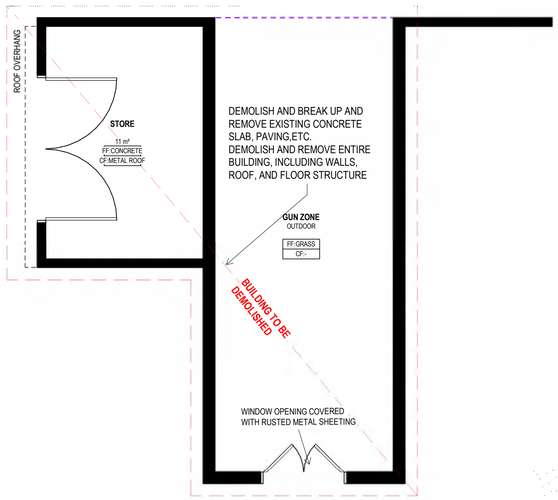
VIEW OF WEST ELEVATION



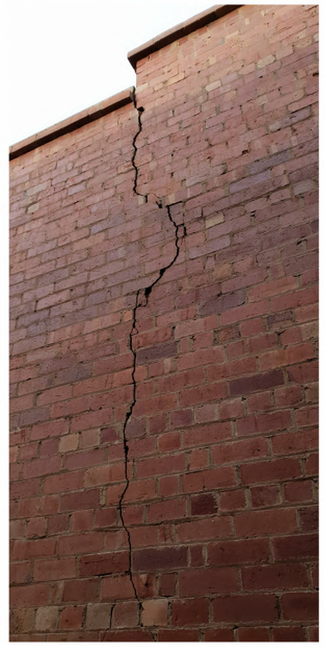
VIEW INTO THE STRUCTURE

LEGEND - SCOPE OF WORK

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING.
2. DEMOLISH, BREAK UP AND REMOVE EXISTING CONCRETE SLAB, FOOTINGS, CONCRETE PAVING,ETC FROM SITE.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING WALLS, ROOF, AND FLOOR STRUCTURE.
4. ENSURE THAT ANY SERVICE PITS ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REGISTERS FOR THE BUILDING.CONTRACTOR IS TO ENSURE ANY ASBESTOS PRESENT IS TO DISPOSED OF PROPERLY AND IN ACCORDANCE WITH REGULATIONS, AND COUNCIL GUIDELINES.



VIEW OF SHED ROOF



VIEW OF CRACK IN WALL

VIEW OUTSIDE THE STRUCTURE

1 BUILDING A0121 - EXISTING CONDITIONS / DEMOLITION PLAN

1 : 50

PLOT DATE & TIME: 24/10/2018 3:59:12 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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HDR Pty. Limited ABN 76 158 075 220 trading as HDR

PROJECT MANAGER AND LEAD CONSULTANT:
aurecon
www.aurecongroup.com

CLIENT:
Australian Government
Department of Defence

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SCALE 1:50 AT A1
SCALE 1:100 AT A3

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
LN	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0121
EXISTING CONDITIONS/DEMOLITION PLAN
SCOPE OF WORKS

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0121	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1121 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)

REVISION: A

EXTERNAL

1 EXISTING DECK AREA AND OFFICE NEEDS TO BE DEMOLISHED AND REPLACED WITH NEW DECK, STEPS, BALUSTRADING AND NEW OFFICE AREA.TO MATCH EXISTING CONFIGURATION. PROP UP EXISTING ROOF STRUCTURE AND REPLACE EXISTING TIMBER POSTS WITH NEW 90 X 90 HWD POSTS.CONSTRUCT NEW DECK STRUCTURE AND STEPS , WITH NEW JARRAH TIMBER DECKING, PRIMED AND PAINTED TO MATCH EXISTING.

2 EXISTING ASBESTOS ROOF SHEETING SHOULD BE REPLACED WITH NEW COLORBOND CORRUGATED ROOF SHEETING, INCLUDING NEW MATCHING GUTTERS AND DOWNPIPES. NEW FLASHINGS TO BRICKWORK AND ROOF STRUCTURE TO MATCH EXISTING

3 CONSTRUCT NEW OFFICE AREA, INCLUDING NEW WEATHERBOARD LININGS, PRIMED AND PAINTED AND NEW WESTERN RED CEDAR TIMBER WINDOWS.INSTALL NEW 820 X 2040 SOLID TIMBER DOOR, WITH DDA COMPLIANT DOOR HARDWARE.

4 CONSTRUCT NEW TIMBER STEPS AND TACTILE INDICATORS UP TO DECK AND ALLOW FOR NEW 40MM DIA MS GALVANISED HANDRAIL FIXED TO NEW DECK STRUCTURE.

5 REPLACE ALL TIMBER FASCIA BOARDS AND BARGE BOARDS WITH NEW PRIMED AND PAINTED BOARDS. REPLACE ALL SOFFIT LININGS, WITH NEW 10M VILLABOARD LINING, PAINTED TO MATCH EXISTING

FLOORS

6 TIMBER DECKING IS TO BE REPLACED WITH NEW JARRAH DECKING, PRIMED AND PAINTED TO MATCH EXISTING. CLEAN AND RESEAL. EXISTING BUNDED CONCRETE SLAB AND PAINT WITH NEW EPOXY PAINT FINISH.

CEILING

7 THERE IS NO CEILING LININGS TO HAZARDOUS STORES, AND THE EXISTING ROOF TRUSS IS EXPOSED.REMOVE EXISTING ROOF SHEETING AND REPLACE WITH NEW, INCLUDING SAFETY WIRE MESH AND INSULATION.

DOORS

8 EXISTING EXTERNAL DOORS AND DOOR FRAMES HAVE DETERIORATED AND WILL NEED TO BE REPLACED WITH NEW TIMBER DOOR FRAMES AND NEW SOLID TIMBER DOORS, PRIMED AND PAINTED TO MATCH EXISTING.REPLACE EXISTING DOOR HARDWARE WITH NEW DDA COMPLIANT DOOR HARDWARE.

WINDOWS.

9 ALLOW TO SAND BACK EXISTING WINDOWS, INCLUDING FRAMES AND PREPARE AND PAINT SURFACES WITH NEW PRIMER AND NEW PAINT TO MATCH EXISTING. REPLACED DAMAGED GLAZING TO WINDOWS.

EXTERNAL WORKS

10 ALLOW TO CAP AND SEAL SERVICES TO EXISTING EXTERNAL EMERGENCY SHOWER AND REMOVE SHOWER FOR SITE, INCLUDING REDUNDANT PIPING.

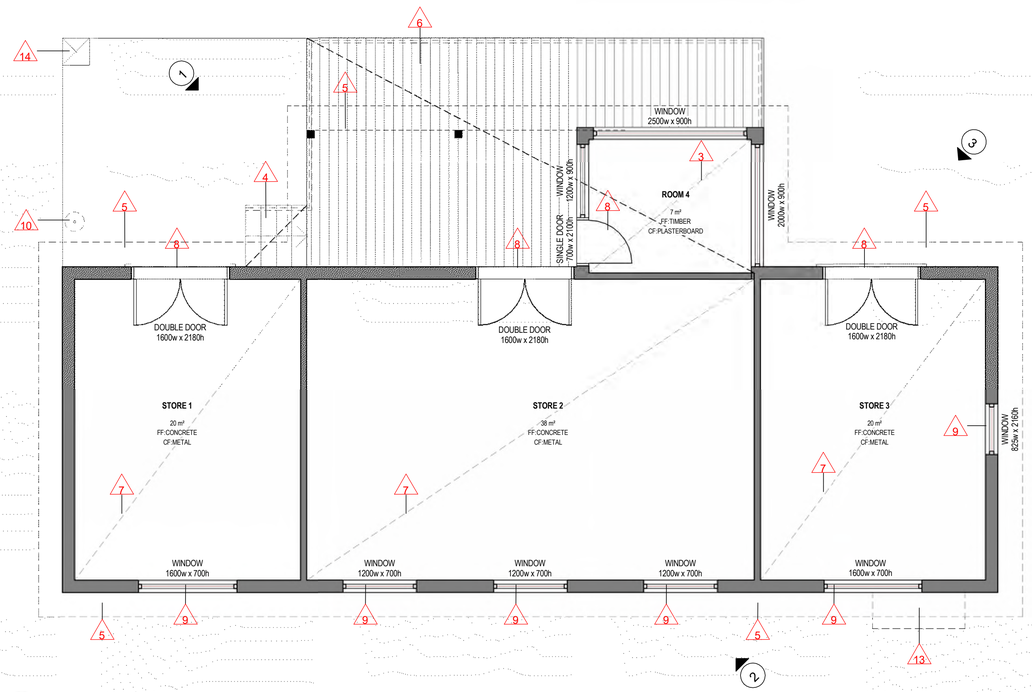
11 REPLACE ALL EXTERNAL LIGHT FITTINGS WITH NEW FITTINGS.

12 REPLACE EXISTING VENT IN ROOF WITH NEW STAINLESS STEEL ROTARY VENTS.

13 CAP AND SEAL SERVICES TO FIRE PUMP, HYDRANT IN REAR COVERED SHED, AND REMOVE ALL FITTINGS FROM SITE.

14 REPLACE EXISTING RUSTING DAMAGED PIT COVER NEAR FRONT OF BUILDING AND PRESSURE CLEAN EXISTING DRAINS.

15 ALL ELECTRICAL FITTINGS TO BUILDING NEED TO BE CHECKED AND WHERE REQUIRED REPLACED WITH NEW FITTINGS.



1 **BUILDING A0122 - EXISTING CONDITIONS PLAN**
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IMAGES OF TYPICAL DETERIORATION

3

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0122 EXISTING CONDITIONS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0122	AUR	248842

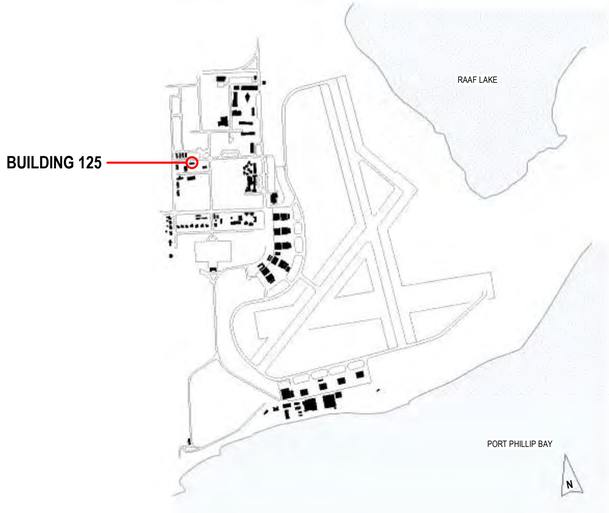
DRAWING NUMBER: PDS-12399-DRG-AR-1122 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

PLOT DATE & TIME - 26/10/2018 11:00:23 AM









IMAGES OF TYPICAL DETERIORATION

SCOPE OF WORKS - BUILDING A0125

DEMOLITION WORKS TO EXISTING BUILDING.
- CAP AND SEAL ALL SERVICES TO THE BUILDING PRIOR TO ANY WORKS STARTING.
- DEMOLITION WORKS TO THE BUILDING SHOULD BE COMPLETED, PRIOR TO ANY NEW REFURBISHMENT WORKS BEEN STARTED, AND THESE INCLUDE THE FOLLOWING WORKS.
- DEMOLISH AND REMOVE EXISTING INTERNAL WALL AND CEILING LININGS, INCLUDING ANY SKIRTING BOARDS, CORNICES, INTERIOR TIMBER CASING TO WINDOW SURROUND, AND ARCHITRAVES TO DOORS AND WINDOWS.
- DEMOLISH AND REMOVE ALL ELECTRICAL CONDUITS, FITTINGS, SWITCHES, LIGHT FITTINGS, GPO OUTLETS, EXIT SIGNAGE, SWITCHBOARDS, ETC FROM BUILDING AND ALLOW TO UPGRADE WITH NEW.
- DEMOLISH AND REMOVE ALL HYDRAULIC FIXTURES INCLUDING STAINLESS STEEL STEEL SINK, TAPS AND PIPING AND REPLACE WITH NEW FITTINGS TAPS AND SERVICES TO SINK.
- DEMOLISH AND REMOVE EXISTING METAL GUTTERS AND DOWNPIPES, SOFFIT LININGS, ARCHITRAVES TO EXTERNAL WINDOWS.

STRUCTURAL FOOTINGS AND FLOOR FINISHES.
- EXISTING BUILDING SHOULD BE RESTUMPED , INCLUDING NEW CONCRETE PADS, NEW 90 X 90 CONCRETE STUMPS, NEW TIMBER BEARERS AND FLOOR JOISTS, AND 18MM STRUCTURAL SHEETING TO THE WHOLE OF THE BUILDING.
- EXISTING BUILDING FLOORING IS A MIXTURE OF TIMBER FLOOBOARDS, AND LARGE CONCRETE PAD, WHICH SIT IN THE CENTRE OF THE BUILDING.
- EXISTING CONCRETE PAD SHOULD BE DEMOLISHED AND REMOVED FROM SITE PRIOR TO REPLACEMENT OF THE EXISTING FLOOR STRUCTURE.
- CONTRACTOR SHOULD ALLOW TO PROVIDE NEW SELECTED CARPET TILES TO THE BUILDING AS WELL AS VINYL SHEETING TO THE AREA NEAR THE KITCHEN.

EXTERNAL AND INTERNAL WALLS.
- THE EXISTING EXTERNAL AND INTERNAL WALLS, WHICH WHERE NOT PLUMB AND STRAIGHT, SHOULD BE SET LEVEL AFTER THE BUILDING IS RESTUMPED. EXTERNAL WALL LININGS, WHICH CONSIST OF PAINTED CORRUGATED SHEETING SHOULD BE REPLACED WITH NEW MATCHING CORRUGATED SHEETING.
- THE EXTERNAL TIMBER WINDOWS WHICH ARE UNABLE TO BE OPENED, SHOULD BE ABLE TO BE OPENED AFTER BUILDING HAS BEEN RESTUMPED. REPLACE INTERIOR AND EXTERIOR CASINGS TO WINDOWS, AND CONTRACTOR TO ENSURE THAT ALL WINDOWS ARE OPERABLE.
- ALL NEW ELECTRICAL WIRING TO THE BUILDING SHOULD BE COMPLETED PRIOR TO ANY NEW WALL OR CEILING LININGS BEEN INSTALLED. CONTRACTOR SHOULD ALLOW FOR NEW LIGHT FITTINGS AND SWITCHES, POWER OUTLETS, EXIT SIGNAGE, SMOKE DETECTORS, EMERGENCY LIGHTING AND UPGRADE SWITCHBOARD TO THE WHOLE OF THE BUILDING TO BRING THEM UP TO CURRENT BCA REQUIREMENTS.
- INTERNAL WALL LININGS AND CEILING LININGS SHOULD BE REMOVED AND REPLACED WITH NEW PAINTED 10MM PLASTERBOARD LININGS TO THE WHOLE OF THE BUILDING AND ALLOW FOR NEW PAINTED TIMBER SKIRTINGS, ARCHITRAVES TO THE WHOLE OF THE BUILDING.
- PROVIDE R2.5 RATED INSULATION TO WALLS AND R3.0 RATED BULK INSULATION TO THE CEILINGS.

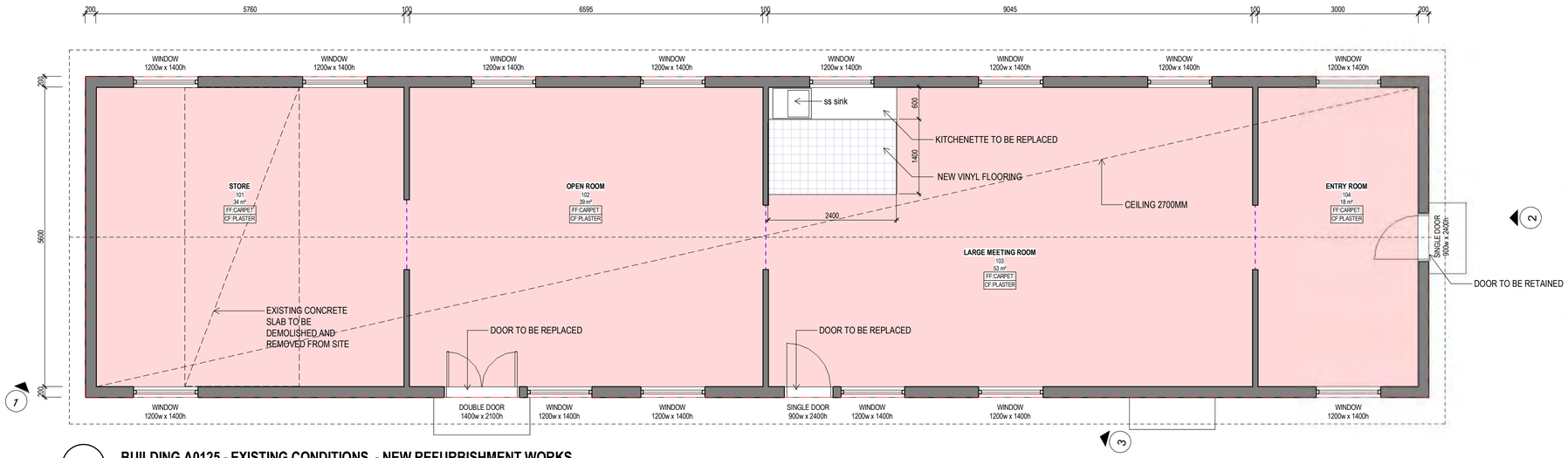
EXTERNAL AND INTERNAL DOORS.
- RETAIN EXISTING SINGLE DOOR TO EAST ELEVATION
- REMOVE EXISTING SINGLE AND DOUBLE DOORS TO SOUTH ELEVATION AND REPLACE WITH NEW TIMBER DOORS, MATCHED TO EXISTING, INCLUDING NEW DOOR HARDWARE.

EXISTING ROOF STRUCTURE.
- EXISTING ROOF STRUCTURE WHICH CONSISTS OF TIMBER FRAMED ROOF TRUSSES, AND TIMBER ROOF BATTENS LOOK IN GOOD CONDITION.
- EXISTING ZINCALUME CORRUGATED ROOF SHEETING IS IN VERY GOOD CONDITION AND DOES NOT NEED TO BE REPLACED
- EXISTING METAL GUTTERS AND DOWNPIPES NEED TO BE REPLACED. GUTTERS SHOULD BE SET TO LINE AND TO FALL TO OUTLETS. NEW 90MM DIA DOWNPIPES SHOULD BE INSTALLED AND THEY SHOULD BE CONNECT INTO EXISTING STORMWATER DRAINAGE SYSTEM.
- REPLACE EXISTING SOFFIT LINING WITH NEW 9MM VILLABOARD LINING, PAINTED FINISH.

PAINTING
- ALL PREVIOUS PAINTED SURFACES ARE TO BE REPAINTED, INCLUDING BUT NOT LIMITED TO ALL WALLS AND CEILINGS, SOFFIT LININGS, DOORS AND WINDOWS, ARCHITRAVES, SKIRTINGS,ETC
- REPAINT ALL EXTERNAL SURFACES, INCLUDING WINDOWS, DOORS, TIMBER FASCIAS, BARGES, RAFTERS,ETC

INTERNAL KITCHENETTE.
- EXISTING INTERNAL KITCHENETTE SHOULD BE DEMOLISH AND REMOVED FROM SITE AND REPLACED WITH NEW KITCHENETTE IN SAME CONFIGURATION, WITH NEW SINGLE STAINLESS STEEL SINK AND TAPS, AND NEW CABINETERY.
- ALLOW TO PROVIDE HOT AND COLD WATER TO SINK WITH NEW UNDERBENCH HOT WATER UNIT.

BUILDING SERVICES
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- FITTINGS WOULD ALSO NEED TO BE REMOVED AND THESE INCLUDE EXISTING SINK.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER DOWNPIPES, WATER PIPING AND ANY ELECTRICAL CONDUITS THAT SERVICE THE BUILDING AND THESE SHOULD BE REPLACED WITH NEW SERVICES.



1 **BUILDING A0125 - EXISTING CONDITIONS - NEW REFURBISHMENT WORKS**
1 : 50

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AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	03/01/2019	90% CONCEPT DESIGN	HDR

NOTES:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

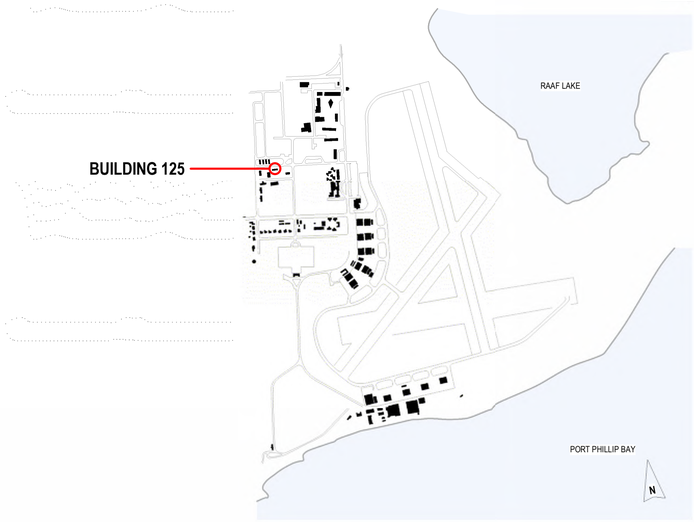
DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0125 EXISTING CONDITIONS - REFURBISHMENT WORKS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0125	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-A0125 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A



IMAGES OF TYPICAL DETERIORATION

EXTERNAL WALLS, WINDOWS AND DOORS

- EXISTING EXTERNAL METAL WALL SHEETING IS DAMAGED AND THE INTERNAL TIMBER WALLS STUDS WHICH ARE NOT STRAIGHT AND PLUMB MAKES THE METAL SHEETING LOOK DISTORTED AND NOT STRAIGHT.
- THE METAL SHEETING HAS BEEN PAINTED NUMEROUS TIMES AND IS PEELING AND FLAKING, WHICH WOULD NEED TO BE REPLACED.
- THE EXTERNAL TIMBER WINDOWS ARE UNABLE TO BE OPEN DUE TO THE EXISTING WALLS MOVEMENT, AND WHILE THEY ARE IN GOOD CONDITION, THE BUILDING WOULD NEED TO BE RESTUMPED AND WALLS JACKED UP TO PROVIDE A LEVEL SURFACE WHICH WOULD ALLOW OPERATION OF THE WINDOWS.

BUILDING SERVICES

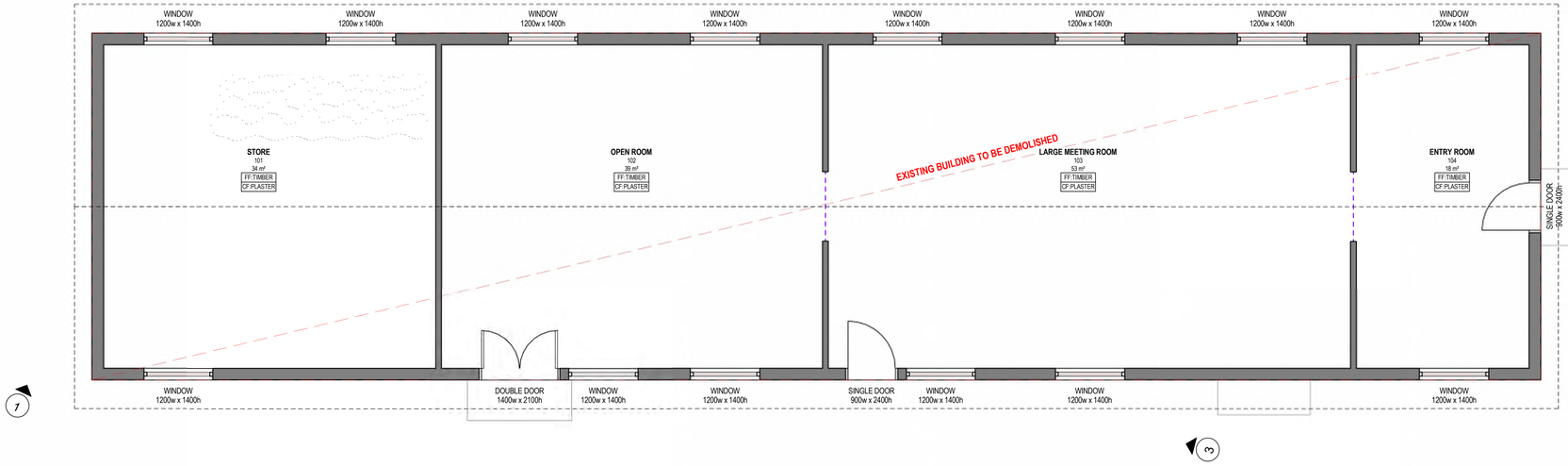
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.FITTINGS WOULD ALSO NEED TO BE REMOVED AND THESE INCLUDE ANY HEATING UNITS, SHOWER, TOILETS,ETC.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER DOWNPIPES, SEWER PIPES, WATER PIPING AND ANY ELECTRICAL CONDUITS THAT SERVICE THE BUILDING.
- ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF THE BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, STRUCTURAL CONCRETE PADS, WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

ROOFING, GUTTERS AND DOWNPIPES

- EXISTING METAL ROOFING, GUTTERS AND DOWNPIPES ARE IN GOOD CONDITION, AND COULD BE SALVAGED FOR REUSE.
- TIMBER FASCIAS, SOFFIT LININGS ARE ROTTING AND DAMAGED. DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE TOTALLY DEMOLISHED AND REMOVED FROM SITE.
- CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REGISTERS FOR THE BUILDING.CONTRACTOR IS TO ENSURE ANY ASBESTOS PRESENT IS TO DISPOSED OF PROPERLY AND IN ACCORDANCE WITH REGULATIONS, AND COUNCIL GUIDELINES..
- THE EXISTING CONCRETE SLAB TO THE WEST SIDE OF THE BUILDING SHOULD BE BROKEN UP AND BE DISPOSED OF.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED.
- CONTRACTOR IS TO ALLOW TO LEVEL THE AREA AFTER REMOVAL OF THE BUILDING AND PROVIDE NEW SOIL AND SEEDING TO AREA.



1 BUILDING A0125 - EXISTING CONDITIONS / DEMOLITION PLAN

1 : 50

PLOT DATE & TIME - 24/10/2018 3:57:25 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

TITLE: BUILDING A0125 EXISTING CONDITIONS/DEMOLITION PLAN

DRAWN:	DESIGNED:	CHECKED:	APPROVED:	DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
TL	JM	JM	JM		12399	A0125	AUR	248842

90% CONCEPT DESIGN
PRELIMINARY

DRAWING NUMBER: PDS-12399-DRG-AR-1125 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)

REVISION: A

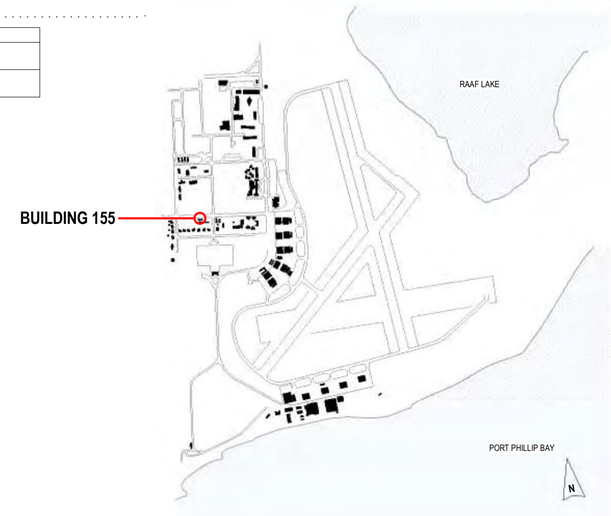
BUILDING AREA	144 m²
ROOF AREA	182 m²

DOOR TYPE	COUNT
DOUBLE DOOR 1600w x 2180h	1
SINGLE DOOR 900w x 2400h	2

WINDOW TYPE	COUNT
WINDOW 1200w x 1400h	16

WALL TYPE	WALL LENGTH
EXTERNAL WALL	61 m
INTERNAL WALL	6 m

ROOM NAME	ROOM AREA	WALL FINISH	CEILING FINISH	FLOOR FINISH	COMMENTS
MEETING OPEN ROOM 2	85 m²		PLASTERBOARD	CARPET TILES	
MEETING ROOM 1	52 m²		PLASTERBOARD	CARPET TILES	



IMAGES OF TYPICAL DETERIORATION

SCOPE OF WORKS - BUILDING A0125
UNABLE TO GAIN ACCESS INTERNALLY DURING SITE VISIT

DEMOLITION WORKS TO EXISTING BUILDING.
- CAP AND SEAL ALL SERVICES TO THE BUILDING PRIOR TO ANY WORKS STARTING.
- DEMOLITION WORKS TO THE BUILDING SHOULD BE COMPLETED, PRIOR TO ANY NEW REFURBISHMENT WORKS BEEN STARTED, AND THESE INCLUDE THE FOLLOWING WORKS.
- DEMOLISH AND REMOVE EXISTING INTERNAL WALL AND CEILING LININGS, INCLUDING ANY SKIRTING BOARDS, CORNICES, INTERIOR TIMBER CASING TO WINDOW SURROUND, AND ARCHITRAVES TO DOORS AND WINDOWS.
- DEMOLISH AND REMOVE ALL ELECTRICAL CONDUITS, FITTINGS, SWITCHES, LIGHT FITTINGS, GPO OUTLETS, EXIT SIGNAGE, SWITCHBOARDS, ETC FROM BUILDING AND ALLOW TO UPGRADE WITH NEW.
- DEMOLISH AND REMOVE ALL HYDRAULIC FIXTURES.
- DEMOLISH AND REMOVE EXISTING METAL GUTTERS AND DOWNPIPES, SOFFIT LININGS, ARCHITRAVES TO EXTERNAL WINDOWS.

STRUCTURAL FOOTINGS AND FLOOR FINISHES.
- EXISTING BUILDING SHOULD BE RESTUMPED, INCLUDING NEW CONCRETE PADS, NEW 90 X 90 CONCRETE STUMPS, NEW TIMBER BEARERS AND FLOOR JOISTS, AND 18MM STRUCTURAL SHEETING TO THE WHOLE OF THE BUILDING.
- EXISTING BUILDING FLOORING IS A MIXTURE OF TIMBER FLOOBOARDS, AND LARGE CONCRETE PAD, WHICH SIT IN THE CENTRE OF THE BUILDING.
- CONTRACTOR SHOULD ALLOW TO PROVIDE NEW SELECTED CARPET TILES TO THE WHOLE OF THE BUILDING.

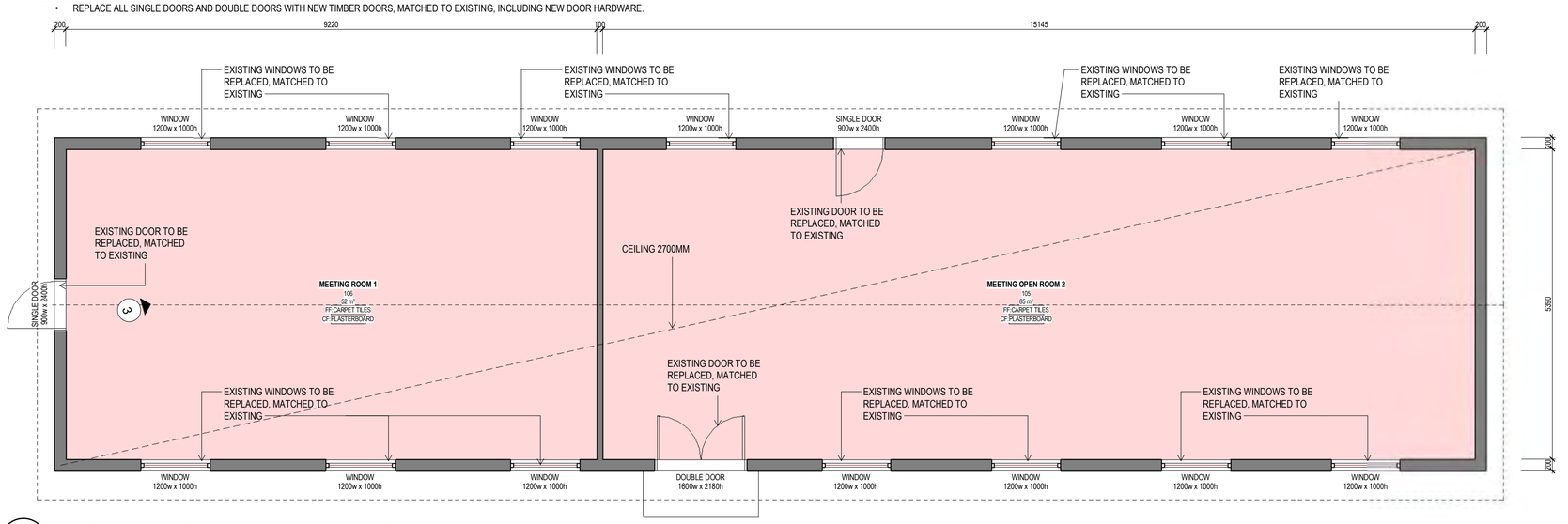
EXTERNAL AND INTERNAL WALLS.
- THE EXISTING EXTERNAL AND INTERNAL WALLS, WHICH WHERE NOT PLUMB AND STRAIGHT, SHOULD BE SET LEVEL AFTER BUILDING IS RESTUMPED. EXTERNAL WALL LININGS, WHICH CONSIST OF PAINTED CORRUGATED SHEETING, SHOULD BE REPLACED.
- THE EXTERNAL TIMBER WINDOWS WHICH ARE UNABLE TO BE OPENED DUE, SHOULD BE REPLACED WITH NEW MATCHING DOUBLE HUNG WINDOWS, AND NEW WINDOW HARDWARE.
- ELECTRICAL WIRING TO THE BUILDING SHOULD BE COMPLETED PRIOR TO ANY NEW WALL OR CEILING LININGS BEEN INSTALLED. CONTRACTOR SHOULD ALLOW FOR NEW LIGHT FITTINGS AND SWITCHES, POWER OUTLETS, EXIT SIGNAGE, SMOKE DETECTORS, EMERGENCY LIGHTING AND UPGRADE SWITCHBOARD TO THE WHOLE OF THE BUILDING TO BRING THEM UP TO CURRENT BCA REQUIREMENTS.
- INTERNAL WALL LININGS AND CEILING LININGS SHOULD BE REMOVED AND REPLACED WITH NEW PAINTED 10MM PLASTERBOARD LININGS TO THE WHOLE OF THE BUILDING AND ALLOW FOR NEW PAINTED TIMBER SKIRTINGS, ARCHITRAVES TO THE WHOLE OF THE BUILDING.
- PROVIDE R2.5 RATED INSULATION TO WALLS AND R3.0 RATED BULK INSULATION TO THE CEILINGS.

EXTERNAL AND INTERNAL DOORS.
- REPLACE ALL SINGLE DOORS AND DOUBLE DOORS WITH NEW TIMBER DOORS, MATCHED TO EXISTING, INCLUDING NEW DOOR HARDWARE.

EXISTING ROOF STRUCTURE.
- EXISTING ROOF STRUCTURE WHICH CONSISTS OF TIMBER FRAMED ROOF TRUSSES, AND TIMBER ROOF BATTENS LOOK IN GOOD CONDITION.
- EXISTING TIMBER BARGE BOARDS, FASCIA BOARDS WHOULD BE REPLACE WITH NEW PRIMED AND PAINTED BOARD, SIZED TO MATCH EXISTING.
- EXISTING ZINCALUME CORRUGATED ROOF SHEETING IS IN VERY GOOD CONDITION AND DOES NOT NEED TO BE REPLACED
- EXISTING METAL GUTTERS AND DOWNPIPES NEED TO BE REPLACED. GUTTERS SHOULD BE SET TO LINE AND TO FALL TO OUTLETS. NEW 90MM DIA DOWNPIPES SHOULD BE INSTALLED AND THEY SHOULD BE CONNECT INTO EXISTING STORMWATER DRAINAGE SYSTEM.
- REPLACE EXISTING SOFFIT LINING WITH NEW 9MM VILLABOARD LINING, PAINTED FINISH.

PAINTING
- ALL PREVIOUS PAINTED SURFACES ARE TO BE REPAINTED, INCLUDING BUT NOT LIMITED TO ALL WALLS AND CEILINGS, SOFFIT LININGS, DOORS AND WINDOWS, ARCHITRAVES, SKIRTINGS,ETC
- REPAINT ALL EXTERNAL SURFACES, INCLUDING CORRUGATED WALL SHEETING, WINDOWS, DOORS, TIMBER FASCIAS, BARGES, RAFTERS,ETC

BUILDING SERVICES
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- FITTINGS WOULD ALSO NEED TO BE REMOVED AND THESE INCLUDE EXISTING SINK.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER DOWNPIPES, WATER PIPING AND ANY ELECTRICAL CONDUITS THAT SERVICE THE BUILDING AND THESE SHOULD BE REPLACED WITH NEW SERVICES.



1 **EXISTING CONDITIONS - REFURBISHMENT WORKS PLAN**
1 : 50

PLOT DATE & TIME - 9/01/2019 1:17:52 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	03/01/2019	90% CONCEPT DESIGN	HDR

NOTES:
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TO BE PRINTED IN COLOUR

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HDR Pty. Limited ABN 76 158 075 220 trading as HDR

PROJECT MANAGER AND LEAD CONSULTANT:
aurecon
www.aurecongroup.com

CLIENT:
Australian Government
Department of Defence

0 0.5 1 1.5 2 2.5m
SCALE 1:50 AT A1
SCALE 1:100 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0155
EXISTING CONDITIONS - REFURBISHMENT WORKS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0155	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-A0155 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A

IMAGES OF TYPICAL DETERIORATION

SCOPE OF WORKS

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING. THESE WILL INCLUDE SEWER LINES, STORMWATER, ELECTRICAL POWER CONDUITS/LINES,
2. DEMOLISH AND BREAK UP AND REMOVE EXISTING PAVING, PATHS IN THE VICINITY OF EXISTING BUILDING AND REMOVE ALL DEBRIS FROM SITE.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING STRUCTURAL ROOF AND SHEETING, INTERNAL AND EXTERNAL WALLS, STRUCTURAL FOOTINGS, FLOOR STRUCTURE AS WELL AS ANY FITTINGS WITHIN THE BUILDING AND ALLOW TO DISPOSE OF ALL DEBRIS FROM SITE.
4. ENSURE THAT ANY SERVICE PITS, REDUNDANT EQUIPMENT ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS

EXTERNAL WALLS, WINDOWS AND DOORS

- EXISTING EXTERNAL METAL WALL SHEETING IS DAMAGED WITH MISSING SHEETS AND OTHER SHEETS ARE CORRODED , RUSTING AND AND PAINT IS FLAKING AND PEELING.
- THE SHEETING ITSELF HAS BEEN PAINTED OVER AND WOULD NEED TO BE REPLACED.
- THE EXTERNAL TIMBER SURFACES INCLUDING WINDOWS AND DOORS ARE UNABLE TO BE OPEN DUE TO THE EXISTING WALLS MOVEMENT, AND ARE IN NEED OF REPLACEMENT.
- THE BUILDING WOULD NEED TO BE RESTUMPED AND THE WALLS LIFTED UP TO ALLOW OPERATION OF THE WINDOWS AND DOORS.

BUILDING SERVICES

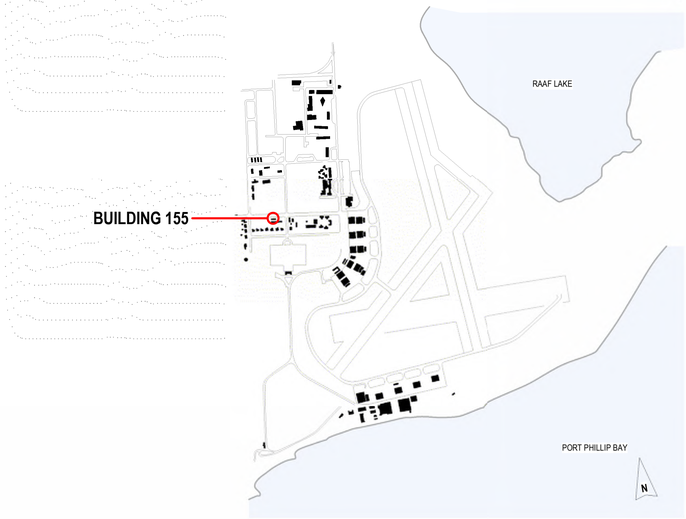
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.

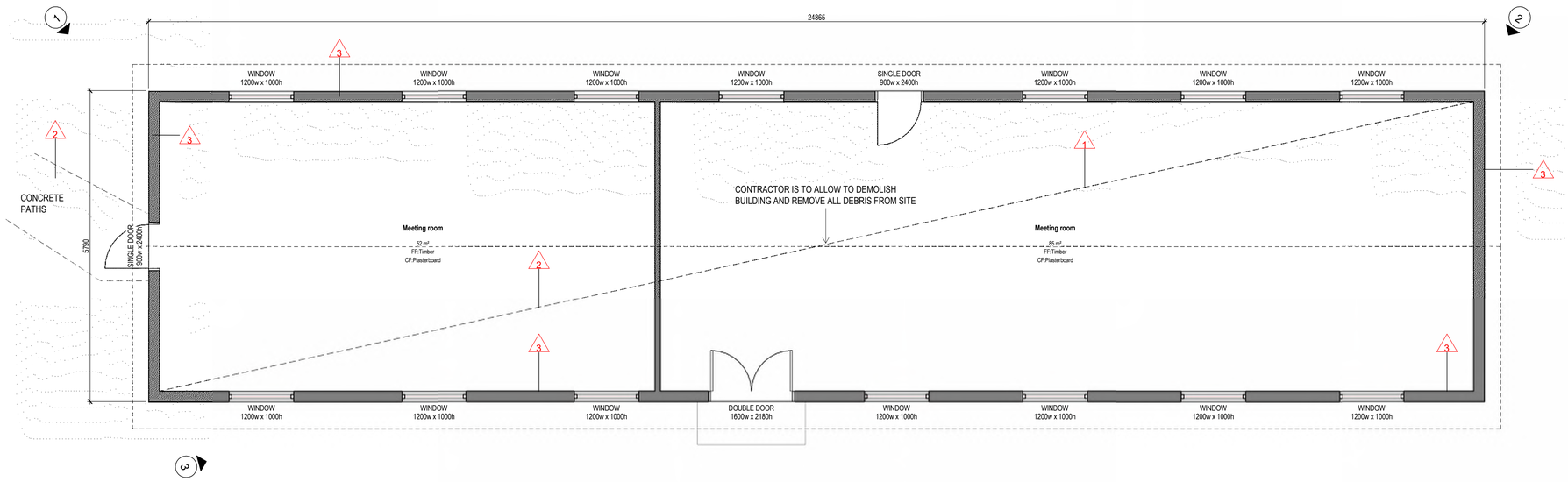
ROOFING, GUTTERS AND DOWNPIPES

- EXISTING METAL ROOFING IS IN GOOD CONDITION BUT THE BUILDING DOES NOT HAVE ANY GUTTERS OR DOWNPIPES.
- EXTERNAL TIMBER FASCIAS, ARE ROTTING AND DAMAGED.DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE TOTALLY DEMOLISHED AND REMOVED FROM SITE.
- THE CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REPORTS FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE DEMOLISHED BUILDING FOOTPRINT WAS.





1 **BUILDING 155 - EXISTING CONDITIONS/DEMOLITION PLAN**
1 : 50

1


2


3

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

PLOT DATE & TIME: 25/10/2018 4:52:28 PM

NOTES:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

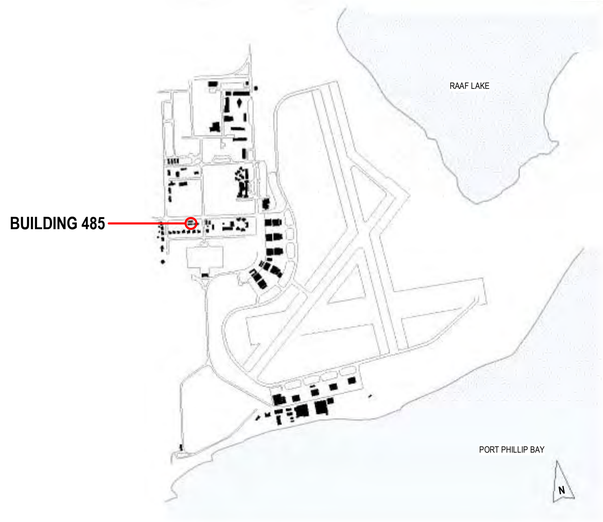
DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0155 EXISTING CONDITIONS/DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0155	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1155 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A



IMAGES OF TYPICAL DETERIORATION

DOOR TYPE	COUNT
DOUBLE DOOR 1600w x 2180h	1
SINGLE DOOR 900w x 2400h	2

WINDOW TYPE	COUNT
WINDOW 1200w x 1400h	16

SCOPE OF WORKS - BUILDING A0156

DEMOLITION WORKS TO EXISTING BUILDING.
- CAP AND SEAL ALL SERVICES TO THE BUILDING PRIOR TO ANY WORKS STARTING.
- DEMOLITION WORKS TO THE BUILDING SHOULD BE COMPLETED, PRIOR TO ANY NEW REFURBISHMENT WORKS BEEN STARTED, AND THESE INCLUDE THE FOLLOWING WORKS.
- DEMOLISH AND REMOVE EXISTING INTERNAL WALL AND CEILING LININGS, INCLUDING ANY SKIRTING BOARDS, CORNICES, INTERIOR TIMBER CASING TO WINDOW SURROUND, AND ACHITRAVES TO DOORS AND WINDOWS.
- DEMOLISH AND REMOVE ALL ELECTRICAL CONDUITS, FITTINGS, SWITCHES, LIGHT FITTINGS, GPO OUTLETS, EXIT SIGNAGE, SWITCHBOARDS, ETC FROM BUILDING AND ALLOW TO UPGRADE WITH NEW.
- DEMOLISH AND REMOVE ALL HYDRAULIC FIXTURES INCLUDING STAINLESS STEEL STEEL SINK, TAPS AND PIPING AND REPLACE WITH NEW FITTINGS TAPS AND SERVICES TO SINK.
- DEMOLISH AND REMOVE EXISTING METAL GUTTERS AND DOWNPIPES, SOFFIT LININGS, ARCHITRAVES TO EXTERNAL WINDOWS.

STRUCTURAL FOOTINGS AND FLOOR FINISHES.
- EXISTING BUILDING SHOULD BE RESTUMPED , INCLUDING NEW CONCRETE PADS, NEW 90 X 90 CONCRETE STUMPS, NEW TIMBER BEARERS AND FLOOR JOISTS, AND 18MM STRUCTURAL SHEETING TO ALL AREAS WHERE NEW CARPET TILES ARE TO BE LAID.
- EXISTING BUILDING FLOORING IS A MIXTURE OF TIMBER FLOOBOARDS, AND POLISHED CONCRETE, WHICH IS MAINLY TO WET AREAS AND CHANGE AREA.
- CONTRACTOR SHOULD ALLOW TO PROVIDE NEW SELECTED CARPET TILES TO THE BUILDING AS WELL AS VINYL SHEETING TO THE WET AREAS.

EXTERNAL AND INTERNAL WALLS.
- THE EXISTING EXTERNAL AND INTERNAL WALLS, WHICH WHERE NOT PLUMB AND STRAIGHT, SHOULD BE SET LEVEL AFTER THE BUILDING IS RESTUMPED. EXTERNAL WALL LININGS, WHICH CONSIST OF PAINTED CORRUGATED SHEETING SHOULD BE REPLACED WITH NEW MATCHING CORRUGATED SHEETING.
- THE EXTERNAL DOUBLE HUNG TIMBER WINDOWS SHOULD BE REPLACED WITH NEW MATCHING TYPE WINDOWS.
- REPLACE INTERIOR AND EXTERIOR CASINGS TO WINDOWS AS WELL AS TIMBER SILLS.
- ALL NEW ELECTRICAL WIRING TO THE BUILDING SHOULD BE COMPLETED PRIOR TO ANY NEW WALL OR CEILING LININGS BEEN INSTALLED. CONTRACTOR SHOULD ALLOW FOR NEW LIGHT FITTINGS AND SWITCHES, POWER OUTLETS, EXIT SIGNAGE, SMOKE DETECTORS, EMERGENCY LIGHTING AND UPGRADE SWITCHBOARD TO THE WHOLE OF THE BUILDING TO BRING THEM UP TO CURRENT BCA REQUIREMENTS.
- INTERNAL WALL LININGS AND CEILING LININGS SHOULD BE REMOVED AND REPLACED WITH NEW PAINTED 10MM PLASTERBOARD LININGS TO THE WHOLE OF THE BUILDING AND ALLOW FOR NEW PAINTED TIMBER SKIRTINGS, ARCHITRAVES TO THE WHOLE OF THE BUILDING.
- PROVIDE R2.5 RATED INSULATION TO WALLS AND R3.0 RATED BULK INSULATION TO THE CEILINGS.

EXTERNAL AND INTERNAL DOORS.
- REMOVE EXISTING DOUBLE DOORS AND REPLACE WITH NEW TIMBER GLAZED DOORS, MATCHED TO EXISTING, INCLUDING NEW DOOR HARDWARE.

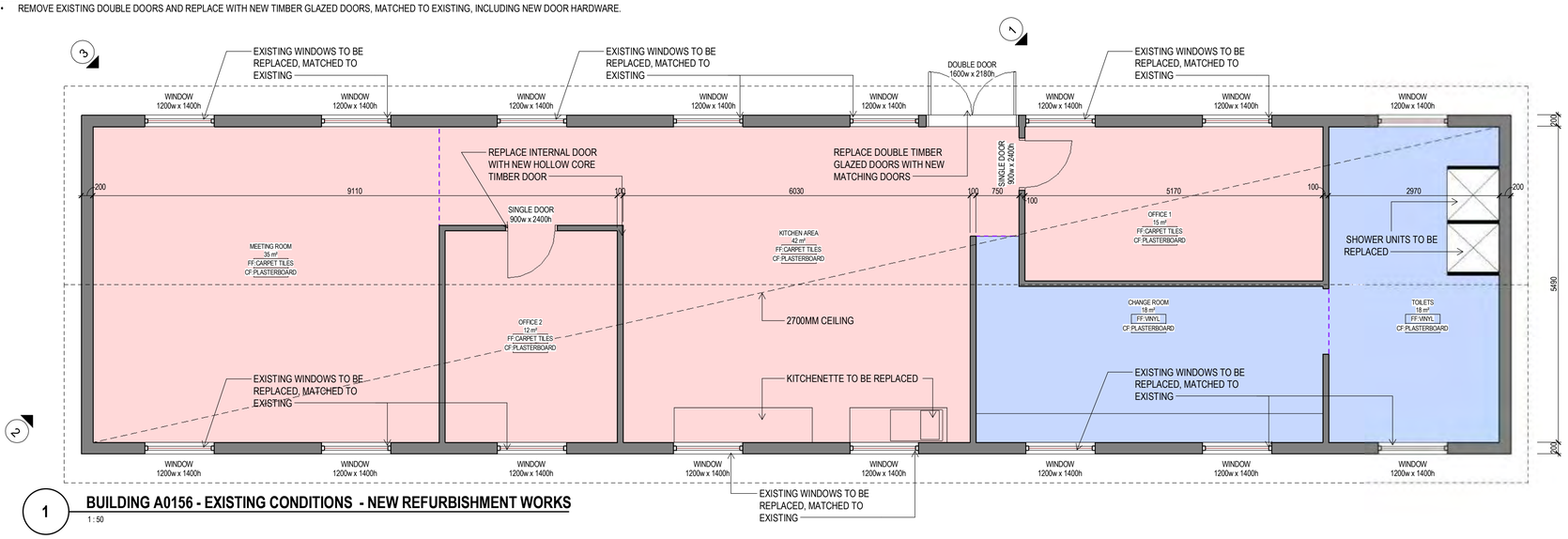
EXISTING ROOF STRUCTURE.
- EXISTING ROOF STRUCTURE WHICH CONSISTS OF TIMBER FRAMED ROOF TRUSSES, AND TIMBER ROOF BATTENS ARE IN GOOD CONDITION.
- EXISTING ZINCALUME CORRUGATED ROOF SHEETING IS IN VERY GOOD CONDITION AND DOES NOT NEED TO BE REPLACED
- EXISTING METAL GUTTERS AND DOWNPIPES ARE IN GOOD CONDITION AND SHOULD BE RETAINED.
- REPLACE EXISTING SOFFIT LINING WITH NEW 9MM VILLABOARD LINING, PAINTED FINISH.
- EXISTING TIMBER BARGE BOARDS, AND FASCIAS, NEED TO BE PRIMED AND PAINTED

PAINTING
- ALL PREVIOUS PAINTED SURFACES ARE TO BE REPAINTED, INCLUDING BUT NOT LIMITED TO ALL WALLS AND CEILINGS, SOFFIT LININGS, DOORS AND WINDOWS, ARCHITRAVES, SKIRTINGS,ETC
- REPAINT ALL EXTERNAL SURFACES, INCLUDING WINDOWS, DOORS, TIMBER FASCIAS, BARGES, RAFTERS,ETC

INTERNAL KITCHENETTE.
- EXISTING INTERNAL KITCHENETTE SHOULD BE DEMOLISHED AND REMOVED FROM SITE AND REPLACED WITH NEW KITCHENETTE IN SAME CONFIGURATION, WITH NEW SINGLE STAINLESS STEEL SINK AND TAPS, AND NEW CABINETERY.
- ALLOW TO PROVIDE HOT AND COLD WATER TO SINK WITH NEW UNDERBENCH HOT WATER UNIT.

EXISTING CHANGEROOMS/SHOWER.
- DEMOLISH AND REMOVE EXISTING SHOWER UNITS AND REPLACE WITH NEW SHOWER UNITS, COMPLETE WITH NEW SHOWER ROSE, FLOOR WASTE,ETC
- PROVIDE NEW HOT WATER SERVICE UNIT TO PROVIDE WATER TO SHOWERS.
- INSTAL NEW VINYL SHEETING TO FLOOR IN CHANGE ROOM AND TOILETS.

BUILDING SERVICES
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- FITTINGS WOULD ALSO NEED TO BE REMOVED AND THESE INCLUDE EXISTING SINK.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER DOWNPIPES, WATER PIPING AND ANY ELECTRICAL CONDUITS THAT SERVICE THE BUILDING AND THESE SHOULD BE REPLACED WITH NEW SERVICES.



1 **BUILDING A0156 - EXISTING CONDITIONS - NEW REFURBISHMENT WORKS**
1 : 50

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0156 EXISTING CONDITIONS - REFURBISHMENT WORKS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0156	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-A0156 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A

PLOT DATE & TIME: 9/01/2019 1:17:54 PM

IMAGES OF TYPICAL DETERIORATION

SCOPE OF WORKS

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING. THESE WILL INCLUDE SEWER LINES, STORMWATER, ELECTRICAL POWER CONDUITS/LINES,
2. DEMOLISH AND BREAK UP AND REMOVE EXISTING PAVING, PATHS IN THE VICINITY OF EXISTING BUILDING AND REMOVE ALL DEBRIS FROM SITE.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING STRUCTURAL ROOF AND SHEETING, INTERNAL AND EXTERNAL WALLS, STRUCTURAL FOOTINGS, FLOOR STRUCTURE AS WELL AS ANY FITTINGS WITHIN THE BUILDING AND ALLOW TO DISPOSE OF ALL DEBRIS FROM SITE.
4. ENSURE THAT ANY SERVICE PITS, REDUNDANT EQUIPMENT ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS

EXTERNAL WALLS, WINDOWS AND DOORS

- EXISTING EXTERNAL METAL WALL SHEETING IS DAMAGED WITH MISSING SHEETS AND OTHER SHEETS ARE CORRODED , RUSTING AND AND PAINT IS FLAKING AND PEELING.
- THE SHEETING ITSELF HAS BEEN PAINTED OVER AND WOULD NEED TO BE REPLACED.
- THE EXTERNAL TIMBER SURFACES INCLUDING WINDOWS AND DOORS ARE UNABLE TO BE OPEN DUE TO THE EXISTING WALLS MOVEMENT, AND ARE IN NEED OF REPLACEMENT.
- EXISTING FLYWIRE SCREENS ARE DAMAGED AND LAYING AGAINST BUILDING
- THE BUILDING WOULD NEED TO BE RESTUMPED AND THE WALLS LIFTED UP TO ALLOW OPERATION OF THE WINDOWS AND DOORS.

BUILDING SERVICES

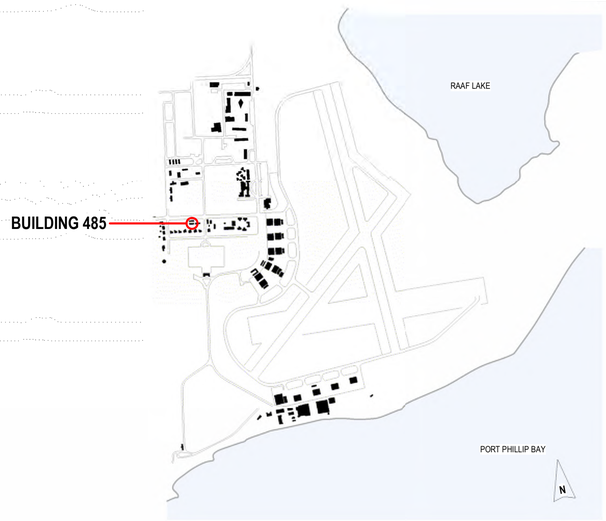
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.

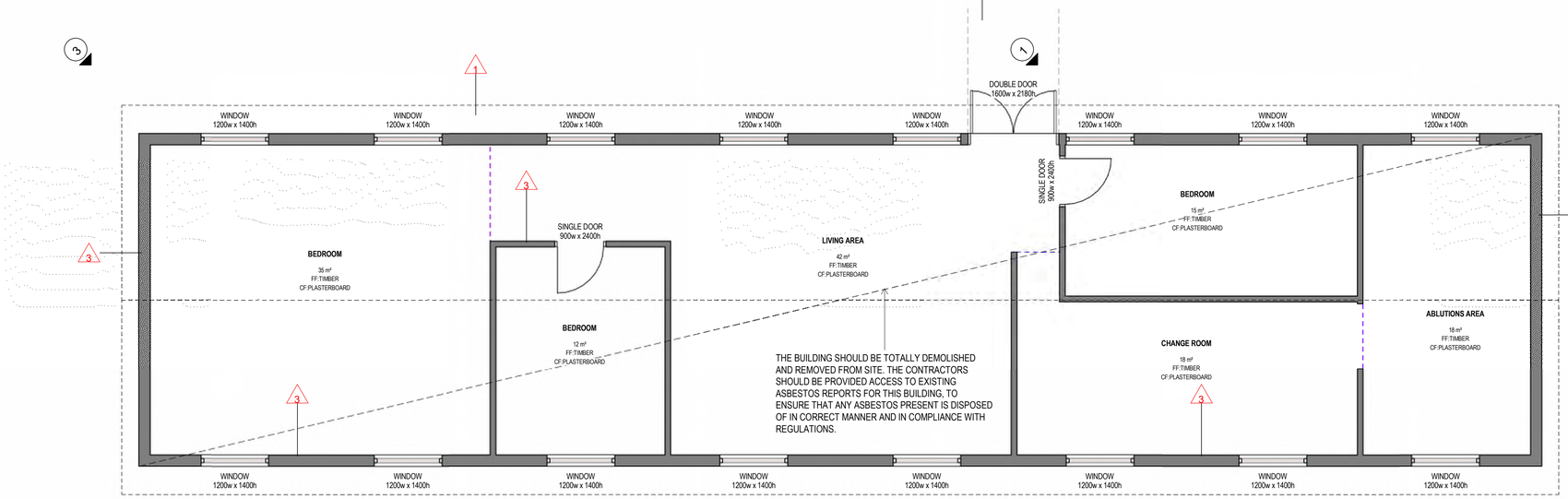
ROOFING, GUTTERS AND DOWNPIPES

- EXISTING METAL ROOFING IS IN GOOD CONDITION BUT THE BUILDING DOES NOT HAVE ANY GUTTERS OR DOWNPIPES.
- EXTERNAL TIMBER FASCIAS, ARE ROTTING AND DAMAGED.DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE TOTALLY DEMOLISHED AND REMOVED FROM SITE.
- THE CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REPORTS FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED.
  AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND MATCH ADJOINING GROUND LEVELS.





1 **BUILDING A0156 - EXISTING CONDITIONS/DEMOLITION PLAN**
1 : 50

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0156 EXISTING CONDITIONS/DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399		AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1156 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

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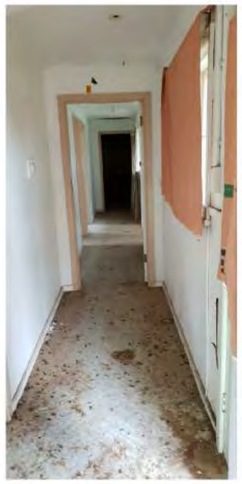
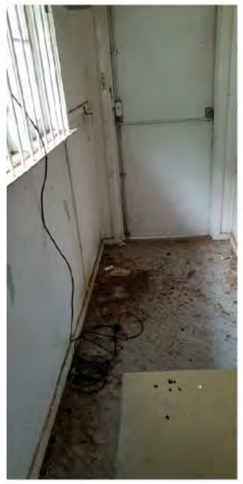
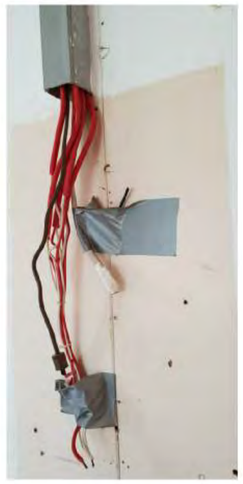
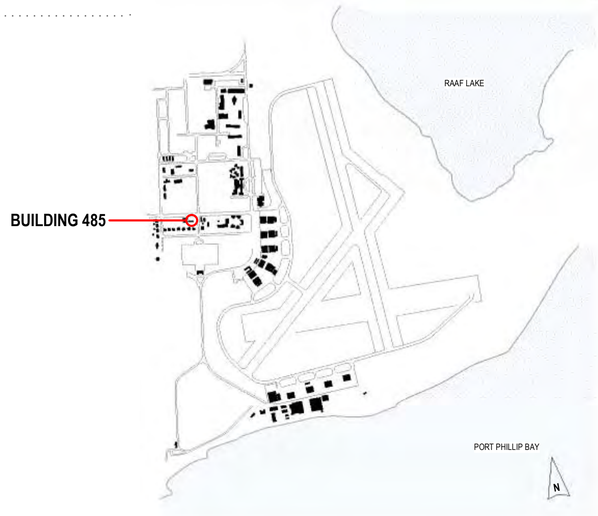









IMAGES OF TYPICAL DETERIORATION

DOOR TYPE	COUNT
SINGLE DOOR 900w x 2400h	11

WINDOW TYPE	COUNT
WINDOW 900w x 1000h	10
WINDOW 1200w x 1400h	5
WINDOW 3000w x 500h	2

SCOPE OF WORKS - BUILDING A0156

DEMOLITION WORKS TO EXISTING BUILDING.
- CAP AND SEAL ALL SERVICES TO THE BUILDING PRIOR TO ANY WORKS STARTING.
- DEMOLITION WORKS TO THE BUILDING SHOULD BE COMPLETED, PRIOR TO ANY NEW REFURBISHMENT WORKS BEING STARTED, AND THESE INCLUDE THE FOLLOWING WORKS.
- DEMOLISH AND REMOVE EXISTING INTERNAL WALL AND CEILING LININGS, INCLUDING ANY SKIRTING BOARDS, CORNICES, INTERIOR TIMBER CASING TO WINDOW SURROUND, AND ACHITRAVES TO DOORS AND WINDOWS.
- DEMOLISH AND REMOVE ALL ELECTRICAL CONDUITS, FITTINGS, SWITCHES, LIGHT FITTINGS, GPO OUTLETS, EXIT SIGNAGE, SWITCHBOARDS, ETC FROM BUILDING AND ALLOW TO UPGRADE WITH NEW.
- DEMOLISH AND REMOVE ALL HYDRAULIC FIXTURES INCLUDING STAINLESS STEEL STEEL SINK, TAPS AND PIPING AND REPLACE WITH NEW FITTINGS TAPS AND SERVICES TO SINK.
- DEMOLISH AND REMOVE EXISTING METAL GUTTERS AND DOWNPIPES, SOFFIT LININGS, ARCHITRAVES TO EXTERNAL WINDOWS.

STRUCTURAL FOOTINGS AND FLOOR FINISHES.
- EXISTING BUILDING SHOULD BE RESTUMPED, INCLUDING NEW CONCRETE PADS, NEW 90 X 90 CONCRETE STUMPS, NEW TIMBER BEARERS AND FLOOR JOISTS, AND 18MM STRUCTURAL SHEETING TO ALL AREAS WHERE SHOWN (AREA TO TOILETS LOOKS EXTERNALLY TO HAVE CONCRETE SLAB).
- EXISTING BUILDING FLOORING IS A MIXTURE OF TIMBER FLOOBOARDS, AND CONCRETE TO TOILET AREA.
- CONTRACTOR SHOULD ALLOW TO PROVIDE NEW SELECTED CARPET TILES TO THE BUILDING AS WELL AS VINYL SHEETING TO THE WET AREAS.

EXTERNAL AND INTERNAL WALLS.
- THE EXISTING EXTERNAL AND INTERNAL WALLS, WHICH WHERE NOT PLUMB AND STRAIGHT, SHOULD BE SET LEVEL AFTER THE BUILDING IS RESTUMPED. EXTERNAL WALL LININGS, WHICH CONSIST OF PAINTED CORRUGATED SHEETING SHOULD BE REPLACED WITH NEW MATCHING CORRUGATED SHEETING.
- THE EXTERNAL DOUBLE HUNG TIMBER WINDOWS SHOULD BE REPLACED WITH NEW MATCHING TYPE WINDOWS.
- REPLACE INTERIOR AND EXTERIOR CASINGS TO WINDOWS AS WELL AS TIMBER SILLS.
- ALL NEW ELECTRICAL WIRING TO THE BUILDING SHOULD BE COMPLETED PRIOR TO ANY NEW WALL OR CEILING LININGS BEEN INSTALLED. CONTRACTOR SHOULD ALLOW FOR NEW LIGHT FITTINGS AND SWITCHES, POWER OUTLETS, EXIT SIGNAGE, SMOKE DETECTORS, EMERGENCY LIGHTING AND UPGRADE SWITCHBOARD TO THE WHOLE OF THE BUILDING TO BRING THEM UP TO CURRENT BCA REQUIREMENTS.
- INTERNAL WALL LININGS AND CEILING LININGS SHOULD BE REMOVED AND REPLACED WITH NEW PAINTED 10MM PLASTERBOARD LININGS TO THE WHOLE OF THE BUILDING AND ALLOW FOR NEW PAINTED TIMBER SKIRTINGS, ARCHITRAVES TO THE WHOLE OF THE BUILDING.
- PROVIDE R2.5 RATED INSULATION TO WALLS AND R3.0 RATED BULK INSULATION TO THE CEILINGS.

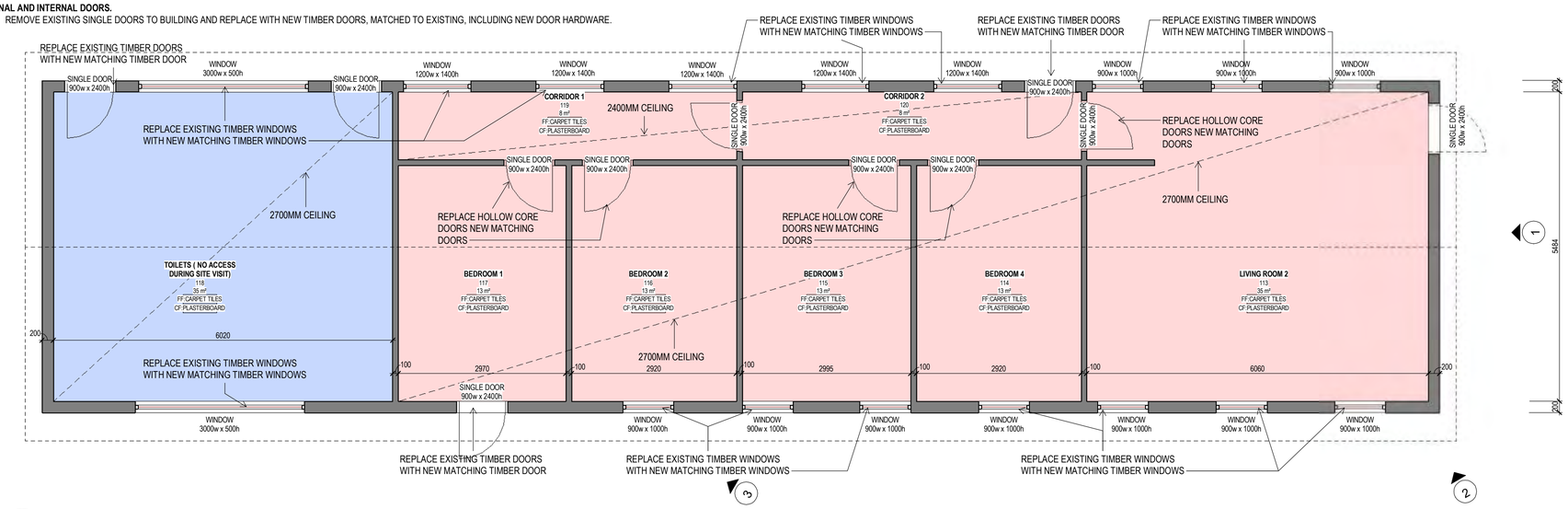
EXTERNAL AND INTERNAL DOORS.
- REMOVE EXISTING SINGLE DOORS TO BUILDING AND REPLACE WITH NEW TIMBER DOORS, MATCHED TO EXISTING, INCLUDING NEW DOOR HARDWARE.

EXISTING ROOF STRUCTURE.
- EXISTING ROOF STRUCTURE WHICH CONSISTS OF TIMBER FRAMED ROOF TRUSSES, AND TIMBER ROOF BATTENS ARE IN GOOD CONDITION.
- EXISTING ZINCALUME CORRUGATED ROOF SHEETING IS IN VERY GOOD CONDITION AND DOES NOT NEED TO BE REPLACED
- INSTALL NEW METAL GUTTERS AND DOWNPIPES AND ALLOW TO CONNECT INTO EXISTING STORMWATER DRAINAGE SYSTEM.
- REPLACE EXISTING SOFFIT LINING WITH NEW 9MM VILLABOARD LINING, PAINTED FINISH.
- REPLACE EXISTING TIMBER BARGE BOARDS, AND FASCIAS.

PAINTING
- ALL PREVIOUS PAINTED SURFACES ARE TO BE REPAINTED, INCLUDING BUT NOT LIMITED TO ALL WALLS AND CEILINGS, SOFFIT LININGS, DOORS AND WINDOWS, ARCHITRAVES, SKIRTINGS,ETC
- REPAINT ALL EXTERNAL SURFACES, INCLUDING WINDOWS, DOORS, TIMBER FASCIAS, BARGES, RAFTERS,ETC

EXISTING TOILETS (UNABLE TO INSPECT DURING INSPECTION)
- ALLOW TO PROVIDE AND INSTALL 2 NEW PANS, 2 BASINS AND 2 SHOWER UNITS TO EXISTING TOILETS AREA.
- PRESUME THAT DEMOLITION OF EXISTING FITINGS ARE SIMILAR TO NEW IN QUANTITY.
- INSTAL NEW VINYL SHEETING TO FLOOR IN TOILET AREA.

BUILDING SERVICES
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- FITTINGS WOULD ALSO NEED TO BE REMOVED AND THESE INCLUDE EXISTING SINK.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER DOWNPIPES, WATER PIPING AND ANY ELECTRICAL CONDUITS THAT SERVICE THE BUILDING AND THESE SHOULD BE REPLACED WITH NEW SERVICES.



1 BUILDING A0158 - EXISTING CONDITIONS - NEW REFURBISHMENT WORKS

1 : 50

PLOT DATE & TIME: 9/01/2019 1:17:55 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	03/01/2019	90% CONCEPT DESIGN	HDR

NOTES:

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PROJECT MANAGER AND LEAD CONSULTANT:
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CLIENT:
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Department of Defence

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0158
EXISTING CONDITIONS - REFURBISHMENT WORKS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399		AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-A0158 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

IMAGES OF TYPICAL DETERIORATION

SCOPE OF WORKS

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING. THESE WILL INCLUDE SEWER LINES, STORMWATER, ELECTRICAL POWER CONDUITS/LINES,
2. DEMOLISH AND BREAK UP AND REMOVE EXISTING PAVING, PATHS IN THE VICINITY OF EXISTING BUILDING AND REMOVE ALL DEBRIS FROM SITE.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING STRUCTURAL ROOF AND SHEETING, INTERNAL AND EXTERNAL WALLS, STRUCTURAL FOOTINGS, FLOOR STRUCTURE AS WELL AS ANY FITTINGS WITHIN THE BUILDING AND ALLOW TO DISPOSE OF ALL DEBRIS FROM SITE.
4. ENSURE THAT ANY SERVICE PITS, REDUNDANT EQUIPMENT ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.
6. EXISTING AC UNIT SHOULD BE SALVAGED AND STORED AND POSSIBLE REUSE IN OTHER REFURBISHMENT WORKS

EXTERNAL WALLS, WINDOWS AND DOORS

- EXISTING EXTERNAL METAL WALL SHEETING IS DAMAGED WITH MISSING SHEETS AND OTHER SHEETS ARE CORRODED , RUSTING AND AND PAINT IS FLAKING AND PEELING.
- THE SHEETING ITSELF HAS BEEN PAINTED OVER AND WOULD NEED TO BE REPLACED.
- THE EXTERNAL TIMBER SURFACES INCLUDING WINDOWS AND DOORS ARE UNABLE TO BE OPEN DUE TO THE EXISTING WALLS MOVEMENT, AND ARE IN NEED OF REPLACEMENT.
- THE BUILDING WOULD NEED TO BE RESTUMPED AND THE WALLS LIFTED UP TO ALLOW OPERATION OF THE WINDOWS AND DOORS.

BUILDING SERVICES

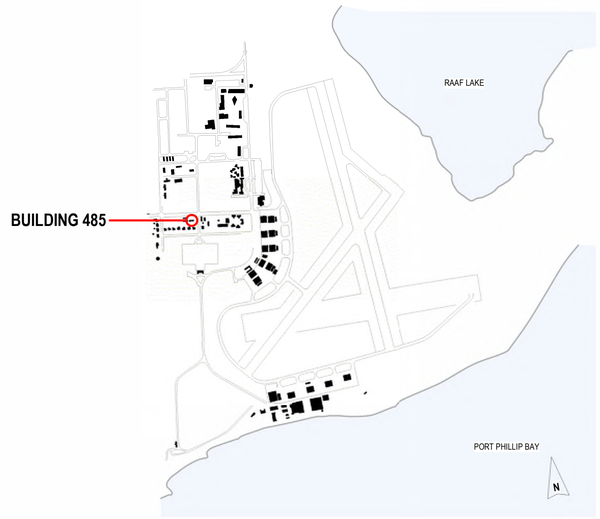
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.

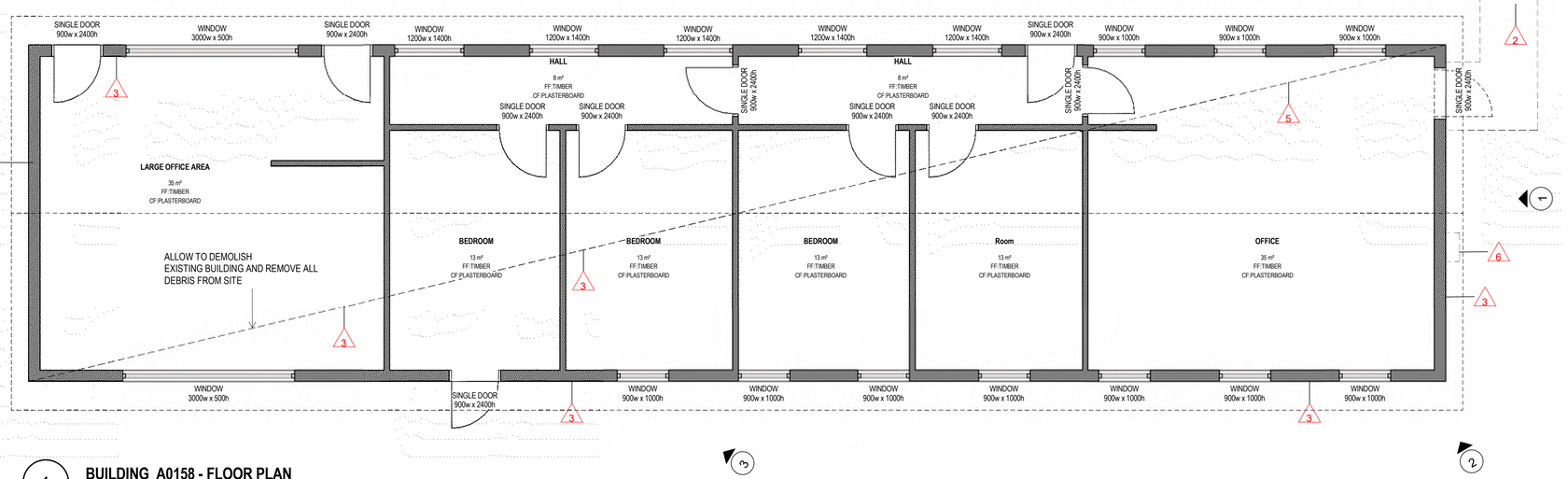
ROOFING, GUTTERS AND DOWNPIPES

- EXISTING METAL ROOFING IS IN GOOD CONDITION BUT THE BUILDING DOES NOT HAVE ANY GUTTERS OR DOWNPIPES.
- EXTERNAL TIMBER FASCIAS, ARE ROTTING AND DAMAGED.DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE TOTALLY DEMOLISHED AND REMOVED FROM SITE.
- THE CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REPORTS FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED.
  AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND MATCH ADJOINING GROUND LEVELS.





1 **BUILDING A0158 - FLOOR PLAN**
1 : 50

PLOT DATE & TIME: - 25/10/2018 4:41:35 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

TITLE: BUILDING A0158
EXISTING CONDITIONS/DEMOLITION PLAN

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

DEFENCE EWP No:	SITE No:	ASSET No.	CONT. KEY:	CONT. REF:
	12399	A0158	AUR	248842

90% CONCEPT DESIGN
PRELIMINARY

DRAWING NUMBER: PDS-12399-DRG-AR-1158
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

REVISION: A

IMAGES OF TYPICAL DETERIORATION

SCOPE OF WORKS

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING. THESE WILL INCLUDE SEWER LINES, STORMWATER, ELECTRICAL POWER CONDUITS/LINES.
2. DEMOLISH AND BREAK UP AND REMOVE EXISTING CONCRETE SLAB, PAVING, IN VICINITY OF EXISTING BUILDING AND REMOVE ALL DEBRIS FROM SITE.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING STRUCTURAL ROOF AND SHEETING, INTERNAL AND EXTERNAL WALLS, STRUCTURAL FOOTINGS, FLOOR STRUCTURE AS WELL AS ANY FITTINGS WITHIN THE BUILDING AND ALLOW TO DISPOSE OF ALL DEBRIS FROM SITE.
4. ENSURE THAT ANY SERVICE PITS, REDUNDANT EQUIPMENT ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS

EXTERNAL WALLS, WINDOWS AND DOORS

- EXISTING EXTERNAL METAL WALL SHEETING IS DAMAGED WITH MISSING SHEETS AND OTHER SHEETS ARE CORRODED , RUSTING AND AND PAINT IS FLAKING AND PEELING.
- THE SHEETING ITSELF HAS BEEN PAINTED OVER AND WOULD NEED TO BE REPLACED.
- THE EXTERNAL TIMBER SURFACES INCLUDING WINDOWS AND DOORS ARE UNABLE TO BE OPEN DUE TO THE EXISTING WALLS MOVEMENT, AND ARE IN NEED OF REPLACEMENT.
- THE BUILDING WOULD NEED TO BE RESTUMPED AND THE WALLS LIFTED UP TO ALLOW OPERATION OF THE WINDOWS AND DOORS.

BUILDING SERVICES

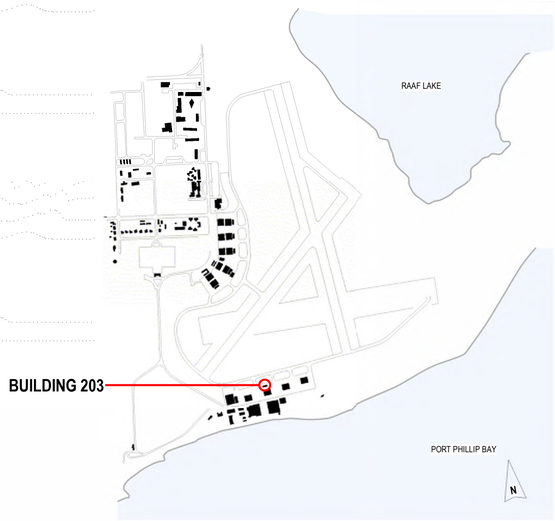
- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.
- THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC. ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.

ROOFING, GUTTERS AND DOWNPIPES

- EXISTING METAL ROOFING IS IN GOOD CONDITION BUT THE BUILDING DOES NOT HAVE ANY GUTTERS OR DOWNPIPES.
- EXTERNAL TIMBER FASCIAS, ARE ROTTING AND DAMAGED.DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE TOTALLY DEMOLISHED AND REMOVED FROM SITE.
- THE CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REPORTS FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE DEMOLISHED BUILDING FOOTPRINT WAS.



1 BUILDING A0203 - EXISTING CONDITIONS/DEMOLITION PLAN

1 : 50

PLOT DATE & TIME: 25/10/2018 4:59:20 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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CLIENT:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	JM	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0203 EXISTING CONDITIONS/DEMOLITION PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0203	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1203 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)

REVISION: A

TYPICAL IMAGES - EXTERNAL

TYPICAL IMAGES - EXTERNAL

TYPICAL IMAGES - EXTERNAL/ ADJOINING BUILDING

TYPICAL IMAGES - EXTERNAL

TYPICAL IMAGES - DAMAGE TO WALL LININGS

TYPICAL IMAGES - INTERNAL STEEL STRUCTURE / DUTCH GABLE

TYPICAL IMAGES - INTERNAL

TYPICAL IMAGES - EXTERNAL

TYPICAL IMAGES - CEILING LININGS

PLOT DATE & TIME: 24/10/2018 8:36:44 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
Author	Designer	Checker	Approver

90% DETAILED DESIGN
PRELIMINARY

TITLE: BUILDING A0210 EXISTING PHOTOS

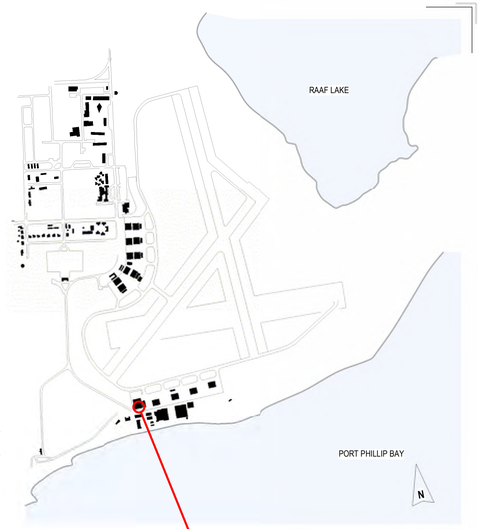
DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	0210	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1210.1 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

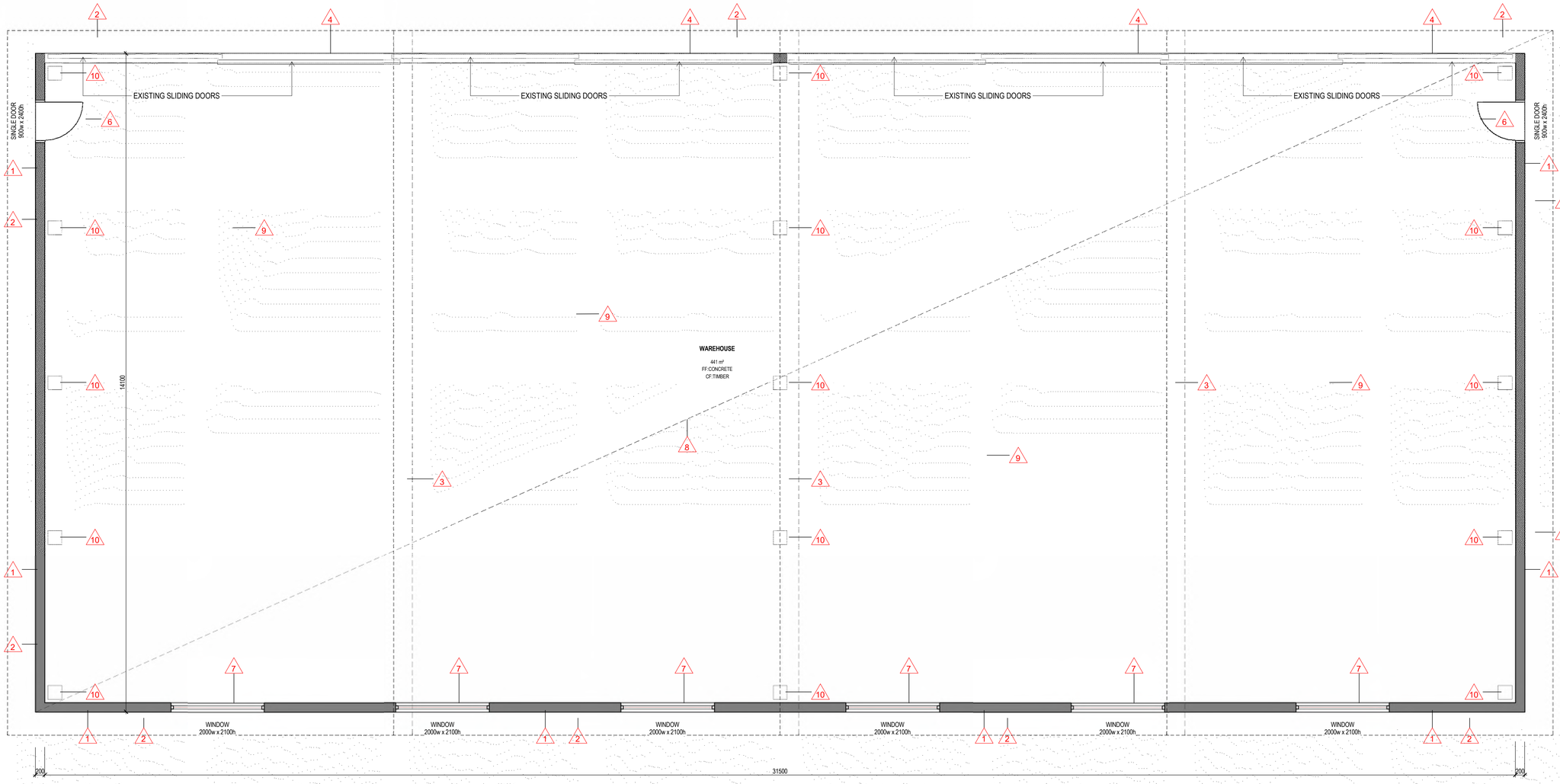
TYPICAL IMAGES - CONCRETE SLAB

TYPICAL IMAGES - CONCRETE SLAB/ BUILDING STRUCTURE

TYPICAL IMAGES - CEILING LININGS



BUILDING 210



BUILDING 210 - GROUND FLOOR PLAN

1 : 50

EXTERNAL BUILDING SURFACES

1. EXISTING METAL WALL SHEETING IS SHOWING VISIBLE SIGNS OF CORROSION.IN AREAS WHERE THE SHEETS HAVE BEEN PAINTED OVER, THE PAINT IS PEELING AND FLAKING. THE FIXINGS ARE ALL RUSTED AND IN SOME AREAS MISSING.THE EXISTING SHEETING SHOULD BE REPLACED WITH NEW COLORBOND CORRUGATED WALL LININGS IN COLOURS TO MATCH EXISTING AND THE CONTRACTOR SHOULD ALLOW FOR MIN R2.5 RATED INSULATION TO ALL WALLS.
2. THE EXTERNAL TIMBER BOARDS TO THE SOFFIT ARE DAMAGED, MISSING AND SHOW SIGNS OF WATER DAMAGE AND SHOULD BE REPLACED WITH NEW PAINTED TIMBER BOARDS WITH COLOUR TO MATCH EXISTING.THE EXISTING FASCIA GUTTERS AND PVC DOWNPIPES ARE MISSING, DAMAGED AND BEYOND REPLACEMENT AND SHOULD BE REPLACED WITH NEW MATCHING DOWNPIPES AND GUTTERS. EXTERNAL TIMBER FASCIAS, ARE ROTTING AND DAMAGED AND REQUIRE TO BE REPLACE WITH NEW MATCHING PRIME AND PAINTED FASCIAS.
3. INTERNALLY THE BOX GUTTERS WILL NEED TO BE REPLACED WITH NEW GUTTER BOARDS,METAL TRAY AND FLASHINGS AND BE SET TO LINE AND TO FALL TO OUTLETS.
4. THE LARGE EXTERNAL SLIDING DOORS HAS PEELING PAINT, DAMAGE TO THE BOTTOM AND SIDES. THE EXISTING DOORS CANNOT OPEN DUE TO DAMAGE TO THE BOTTOM TRACKS AND WHEELS.THE STEEL STRUCTURE IS RUSTING AND NEEDS TO BE CLEANED WITH WIRE BRUSH TO REMOVE CORROSION, PRIOR TO BE PRIMED AND PAINTED.IN RELOCATING THE BUILDING, NEW STEEL TRACKS TO BOTTOM AND THE TOP TRACKS WILL NEED TO BE SERVICED AND CLEANED TO ALLOW FOR EASY MOVEMENT OF THE DOORS.
5. EXISTING ROOF SHEETING LOOKS IN GOOD CONDITION WHICH CAN BE SEEN FROM THE GROUND.ANY DAMAGED SHEETS SHOULD BE ALLOWED TO BE REPLACED, AND NEW FLASHING TO ENTIRE ROOF AREAS SHOULD BE ALLOWED FOR.
6. EXTERNAL TIMBER ENTRY DOORS AND TIMBER FRAMES WIILL NEED TO BE REPLACED WITH NEW SOLID CORE TIMBER DOORS AND DDA COMPLIANT DOOR HARDWARE. ALL EXTERNAL TIMBER SURFACES WILL NEED TO BE REPLACED WITH NEW MATCHING TYPE TIMBER.THESE INCLUDE BUT ARE NOT LIMITED TO , FASCIAS, BARGEBOARDS, TIMBER SOFFIT LININGS, DOOR FRAMES.
7. EXISTING STEEL WINDOWS, WILL BE NEEDED TO BE REPLACED WITH NEW MATCHING TYPE WINDOWS.
8. THE EXISTING CONCRETE SURFACES INTERNALLY ARE DAMAGED AND CRACKED.IN SOME AREAS WHERE THERE WERE ORIGINALLY PITS (TO SERVICE UNDERNEATH VEHICLES), THESE PITS HAVE BEEN FILLED WITH GRAVEL AND COVERED WITH CARPET.AFTER THE BUILDING HAS BEEN TAKEN DOWN THE CONCRETE INCLUDING PITSSHOULD BE BROKEN UP AND REMOVED FROM SITE. CONTAMINATION TO SOIL WILL NEED TO BE LOOKED AT AS OVER THE YEARS THE AREA WOULD HAVE BEEN EXPOSED TO CONTAMINATION FROM DIESEL, OIL, AND OTHER LIQUIDS. THE SOIL WILL NEED TO BE REMOVED AND ADDITIONAL SOIL BROUGHT IN WITH SEEDING TO LEAVE THE SITE IN THOSE AREAS.
9. EXISTING INTERNAL CEILINGS LININGS ARE VAULTED PAINTED TIMBER PANELLING, WHICH IS IN GOOD CONDITION. THEY TIMBER PANELLING COULD BE REUSED IN THE NEW BUILDING, BUT CARE NEEDS TO BE TAKING REMOVING THE TIMBER BOARDS AND DURING REINSTALLATION. PRIOR TO FIXING THE BOARDS SHOULD BE SANDED BACK, PRIMED AND PAINTED IN COLOURS TO MATCH EXISTING.
10. EXISTING TIMBER COLUMNS AND STEEL TRUSSES,ETC ARE IN GOOD CONDITION AND CAN BE REUSED. TIMBER SURFACES SHOULD BE SANDED BACK AND PRIMED AND PAINTED.STEEL TRUSSES, SHOULD BE CLEANED AND ANY RUST REMOVED, PRIOR TO BEEN PRIMED AND PAINTED.
11. ALL BUILDING SERVICES, INCLUDING ELECTRICAL, HYDRAULIC, STORMWATER,ETC SHOULD BE CAPPED AND SEALED, PRIOR TO DECONSTRUCTION OF BUILDING. ALL LIGHTING, CONDUITS, ETC SHOULD BE REMOVED AND DISPOSED OF.

CONTRACTOR SHOULD ALLOW FOR NEW SERVICES TO THE RELOCATED BUILDING AND THE BUILDING WILL NEED TO CONFORM TO CURRENT DDA AND BCA REQUIREMENTS.

NEW FITTINGS TO THE BUILDING SHOULD INCLUDE BUT NOT LIMITED TO, NEW LIGHTING, EXIT LIGHTS/SIGNAGE, EMERGENCY LIGHTING, NEW POWER OUTLETS AND THESE SHOULD COMPLY WITH CURRENT REGULATIONS.

ANY NEW AMENETIES ASSOCIATED WITH THE RELOCATED BUILDING WILL HAVE TO CONFORM TO CURRENT DDA REQUIREMENTS, INCLUDING ACCESS TO THE BUILDING.TOILETS AND EXIT DOORS/PATHWAYS WILL NEED TO COMPLY WITH CURRENT REGULATIONS.

BUILDING SERVICES

- ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING. AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS.

RELOCATION OF BUILDING FROM SITE

- THE CONTRACTOR WILL NEED TO PROGRAM THE RELOCATION WORKS, ESPECIALLY ITEMS IN THE BUILDING THAT ARE SALVAGEABLE AND CAN BE REUSED. THESE ITEMS NEED TO BE CAREFULLY REMOVED AND STORED PRIOR TO REUSE.
- ITEMS THAT ARE DEEMED TO BE OF NO VALUE, DUE TO THE CONDITION SHOULD BE REMOVED FROM SITE.
- PRIOR TO COMMENCMENT OF ANY WORKS CONTRACTOR SHOULD ALLOW TO CONFER WITH ASBESTOS REGISTER IN REGARDS TO ANY ASBESTOS WITHIN THIS BUILDING AND THEY SHOULD ALLOW FOR CORRECT REMOVAL AND DISPOSAL OF ASBESTOS DEBRIS.

NEW SITE FOR RELOCATED BUILDING

- THE NEW SITE NEEDS TO BE SELECTED PRIOR TO ANY RELOCATION WORKS OCCURRING.ALL IN GROUND SERVICES TO THE NEW RELOCATED BUILDING SHOULD BE COMPLETED BEFORE BUILDING HAS BEEN DISMANTLED.
- NEW SERVICES, SHOULD INCLUDE BUT NOT LIMITED TO ELECTRICAL, STORMWATER, SEWER,ETC.

BUILDING 221

PLOT DATE & TIME - 24/10/2018 8:36:42 PM

AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

NOTES:

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

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TITLE: BUILDING A0210 EXISTING CONDITIONS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399		AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1210 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
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TOILET BLOCK SHOWING SIGNS OF DETERIORATION.

TOILET BLOCK SHOWING SIGNS OF DETERIORATION

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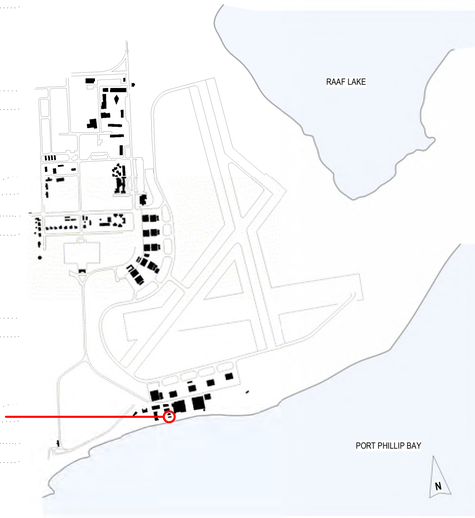

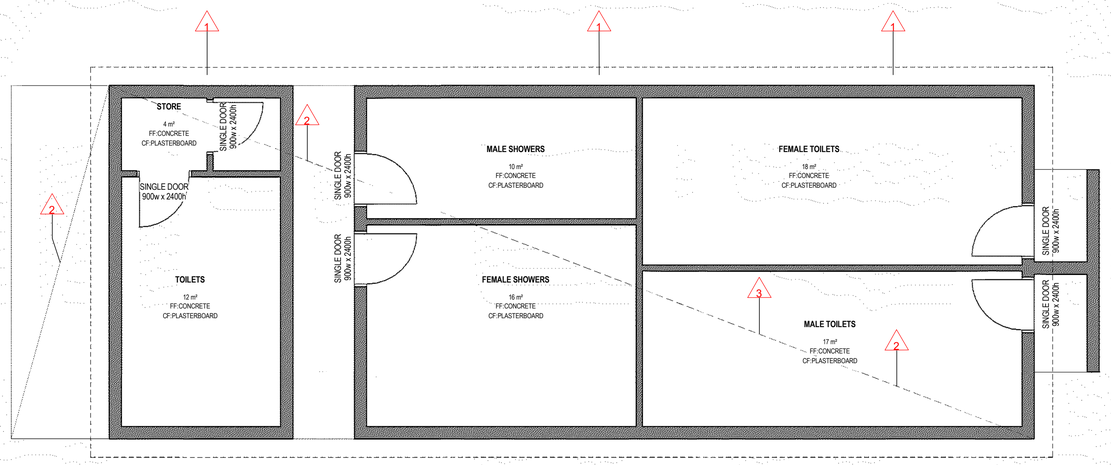

1 **BUILDING A0218 - EXISTING CONDITIONS / DEMOLITION PLAN**
1 : 50

1. CONTRACTOR IS TO ALLOW TO CAP AND SEAL UP ALL SERVICES TO BUILDING, PRIOR TO ANY DEMOLITION WORKS PROCEEDING. THESE WILL INCLUDE SEWER LINES, STORMWATER, ELECTRICAL POWER CONDUITS/LINES,
2. DEMOLISH AND BREAK UP AND REMOVE EXISTING CONCRETE SLAB, PAVING, IN VICINITY OF EXISTING BUILDING AND REMOVE ALL DEBRIS FROM SITE.
3. DEMOLISH AND REMOVE ENTIRE BUILDING, INCLUDING STRUCTURAL ROOF AND SHEETING, INTERNAL AND EXTERNAL WALLS, STRUCTURAL FOOTINGS, FLOOR STRUCTURE AS WELL AS ANY FITTINGS WITHIN THE BUILDING AND ALLOW TO DISPOSE OF ALL DEBRIS FROM SITE.
4. ENSURE THAT ANY SERVICE PITS, REDUNDANT EQUIPMENT ARE CAPPED AND SEALED, PRIOR TO REMOVAL.
5. CONTRACTOR IS TO REFER TO ASBESTOS REGISTER FOR THIS BUILDING TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS

EXTERNAL BUILDING SURFACES

- EXISTING BRICK WALLS ARE IN GOOD CONDITION, BUT THE CLADDING ABOVE THEM HAS DETERIORATED AND IS DAMAGED WITH SOME MISSING PANELS.
- EXISTING TIMBER WINDOWS ARE DAMAGED, ROTTING, WITH SOME BROKEN GLAZING.
- THE EXISTING ROOF SHEETING IS RUSTED, WITH LARGE SECTION MISSING AND THE SHEETING IS LOOSE AND NOT SECURELY FIXED TO ROOF STRUCTURE.
- THE EXISTING TIMBER ROOF FRAMING IS ALSO DAMAGED AND WITH THE MISSING SHEETING IS SHOWING SIGNS OF WEATHERING.
- THE EXISTING GUTTERS AND DOWNPIPES ARE MISSING, DAMAGED AND BEYOND REPLACEMENT.
- EXTERNAL TIMBER FASCIAS, ARE ROTTING AND DAMAGED.DUE TO THE DAMAGE AND FAILING OF THE BUILDING STRUCTURE THE STRUCTURAL INTEGRITY OF THE BUILDING SHOULD BE FURTHER PROOF THAT THE BUILDING SHOULD BE DEMOLISHED.

INTERNAL BUILDING SURFACES

- INTERNAL SURFACES ARE DAMAGED, WITH BROKEN SHEETS, MISSING SHEETS AND THE CEILING HAS FALLEN DOWN IN A LOT OF AREAS.
- THE EXISTING TOILET FITTINGS ARE OLD, DAMAGED AND WOULD NEED REPLACEMENT. EXISTING INTERNAL DOORS ARE MISSING, DELAMINATING AND BADLY DAMAGED.

BUILDING SERVICES

- ALL SERVICES TO THE BUILDING WOULD NEED TO BE CAPPED AND CUT TO THE BUILDING PRIOR TO ANY DEMOLITION WORKS PROCEEDING.THIS WOULD INCLUDE ELECTRICAL, MECHANICAL, AND HYDRAULIC SERVICES TO THE BUILDING.
- OTHER SERVICES THAT NEED TO BE CUT WOULD INCLUDE STORMWATER, SEWER, ETC.
- ANY SERVICES PIPES, WASTE PITS, ETC WILL HAVE TO BE REMOVED AFTER DEMOLITION OF BUILDING.
- AFTER REMOVAL OF BUILDING ADJOINING PATHS, CONCRETE LANDINGS, PADS, ETC WILL HAVE TO BE DEMOLISHED AND DEBRIS REMOVED FROM SITE.
- AFTER REMOVAL OF ALL DEBRIS, SURFACE LEVELS SHOULD BE FILLED WITH CLEAN SOIL AND SEEDING TO PROVIDE A LEVEL SURFACE AROUND WHERE THE BUILDING FOOTPRINT ONCE WAS. WAS.

REMOVAL OF BUILDING FROM SITE

- THE BUILDING SHOULD BE TOTALLY DEMOLISHED AND REMOVED FROM SITE.
- THE CONTRACTORS SHOULD CONFER WITH ASBESTOS REGISTER FOR THIS BUILDING, TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS..
- THE EXISTING CONCRETE SLAB TO THE WEST SIDE OF THE BUILDING SHOULD BE BROKEN UP AND BE DISPOSED OF.
- ANY SERVICE PITS, PIPES,ETC SHOULD BE CAPPED AND DEMOLISHED.
- CONTRACTOR IS TO ALLOW TO LEVEL THE AREA AFTER REMOVAL OF THE BUILDING AND PROVIDE NEW SOIL AND SEEDING TO AREA.

PLOT DATE & TIME - 24/10/2018 7:30:07 PM

AMENDMENTS:

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HDR Pty. Limited ABN 76 158 075 220 trading as HDR

PROJECT MANAGER AND LEAD CONSULTANT:
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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	-	JM	JM

90% CONCEPT DESIGN
PRELIMINARY

TITLE: BUILDING A0218 EXISTING CONDITIONS / DEMOLITION PLAN

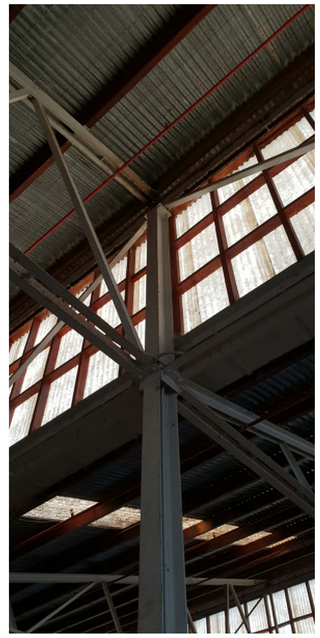
DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0218	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1218 (PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.)
REVISION: A

TYPICAL INTERNAL OFFICE TO BE DEMOLISHED

NTERNAL CAGED STORE AREA TO BE DEMOLISHED

EXISITNG LARGE TIMBER DOORS TO BE REPLACED



EXISTING STEEL STRUCTURE - PRIME AND REPAINT

TYPICAL RUBBISH, LEAVES TO BE REMOVED FROM BUILDING

EXTERNAL LININGS TO BE REMOVED AND REPLACED WITH NEW

iNTERNAL OFFICES TO BE DEMOLISHED

EXISTING DOORS TO BE REPLACED

DETERIORATION OF EXTERNAL CLADDING - TYPICAL

TYPICAL DETERIORATION OF EXTERNAL CLADDING

TYPICAL DETERIORATION OF EXTERNAL CLADDING AND TIMBER DOOR TO BE REPLACED

TYPICAL CONCRETE SLAB - SHOWING EXTENT OF DIRT BUILD ,UP TO BE REMOVED

EXISTING STEEL FRAMED WINDOWS TO BE REPLACED

TYPICAL EXTERNAL ELEVATION - SHOWING EXTENT OF CLADDING TO BE REPLACED

P.OT DATE & TIME: 24/10/2018 7:19:04 PM

AMENDMENTS:

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

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TL	JM	JM	JM

90% CONCEPT DESIGN
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TITLE: BUILDING A0221
PHOTOS OF EXISTING BUILDING

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
	12399	A0221	AUR	248842

DRAWING NUMBER: PDS-12399-DRG-AR-1221.1 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)

REVISION: A

SCOPE OF WORKS

1. EXTERNAL METAL CLADDING IS A MIXTURE OF ASBESTOS FIBRE CEMENT SHEETING IN BOTH RIB PANEL AND FLAT SHEETS, WHICH SHOULD BE REMOVED AND REPLACED WITH NEW COLORBOND METAL CLADDING, INCLUDING ALL FLASHINGS, CAPPINGS, R2.5 RATED INSULATION, ETC.
2. EXISTING STEEL WINDOWS FRAMES ARE DAMAGED , RUSTING AND CORODED AND SHOULD BE REPLACED WITH NEW POWDERCOATED ALUMINIUM WINDOWS, INCLUDING ALL FLASHINGS, CAPPINGS.
3. EXISTING INTERNAL OFFICES, SHOULD BE DEMOLISHED AND REMOVED. PRIOR TO DEMOLITION, ANY SERVICES TO THESE OFFICES SHOULD BE CUT AND CAPPED.
4. EXISTING CONCRETE SLAB SHOULD BE CLEANED AND RUBBISH REMOVED THEN SLAB SHOULD BE SEALED AND PAINTED WITH NEW EPOXY NON SLIP FINISH.
5. REPLACE EXISTING EXTERNAL TIMBER DOORS AND REPLACE WITH NEW SOLID PANEL TIMBER DOORS INCLUDING NEW DDA COMPLIANT DOOR HARDWARE AND WEATHER SEALS TO BOTTOM OF DOORS.
6. EXISTING STEEL STRUCTURE, SHOWNS SIGNS OF RUSTING AND CORROSION AND NEEDS TO BE CLEANED AND RUSTING REMOVED AND PRIMED AND PAINTED
7. EXISTING OFFICES, TOILETS, ADMINISTRATION AREAS TO NEW BUILDING REFURBISHMENTS SHOULD BE ASSESSED AFTER BUILDING CLASSIFICATION HAS BEEN DETERMINED. ANY NEW AMENETIES WILL BE REQUIRED TO COMPLY WITH CURRENT DDA STANDARDS.
9. EXISTING POLYCARBONATE HIGHLIGHT WINDOWS (ABOVE SAWTOOTH ROOF AREAS) ARE DETERIORATING AND SHOWING SIGNS OF DAMAGE AND NEED TO BE REPLACED WITH NEW POLYCARBONATE SHEETING.
10. EXISTING ROOF SHEETING NEEDS TO BE REPLACED WITH ZINCALUME CORRUGATED ROOF SHETING AND THESE WORKS SHOULD INCLUDE SS SAFETY MESH AND R.2,5 RATED BATT INSULATION TO CEILINGS.
11. EXISTING HIGH BAY LIGHTING TO ENTIRE BUILDING NEEDS TO BE UPGRADED AS WELL AS NEW EMERGENCY LIGHTING, EXIT LIGHTS/SIGNAGE, EXTERNAL LIGHTING.
12. EXISTING BOX GUTTERS, WILL NEED TO BE CLEANED OUT AND AT EACH END, NEW RAINWATER HEADS AND DOWNPIPES SHOULD BE INSTALLED.
13. EXISTING FIRE SERVICES TO BUILDING, INCLUDING EXTERNAL HYDRANTS TO BE UPGRADED AND TO COMPLY WITH CURRENT REGULATIONS.
14. ALLOW TO INSTALL NEW EMERGENCY EXIT DOORS TO BUILDING TO COMPLY WITH CURRENT BCA REGULATIONS, NOM 3 - 950W X 2040 DOORS
15. NEW KITCHENETTE TO BE CONFIGURED TO REPLACE EXISTING KITCHENETTE, INCLUDING NEW SINK, AND CUPBOARDS.
16. CAP AND SEAL ALL SERVICES TO HEATERS AND ALLOW TO REMOVE FROM SITE

A SUMMARY OF ARCHITECTURAL ASSESSMENT IS PROVIDED IN THIS SECTION.

- EXISTING SERVICES TO THE BUILDING WILL NEED TO BE CHECKED AND WHERE REQUIRED UPGRADED TO COMPLY WITH CURRENT REGULATIONS. THESE WORKS WILL INCLUDE HYDRAULIC, MECHANICAL, ELECTRICAL SERVICES.
- THE EXISTING SWITCHBOARDS WILL NEED TO BE REPLACED WITH NEW SWITCHBOARDS AND DISTRIBUTION BOARDS.

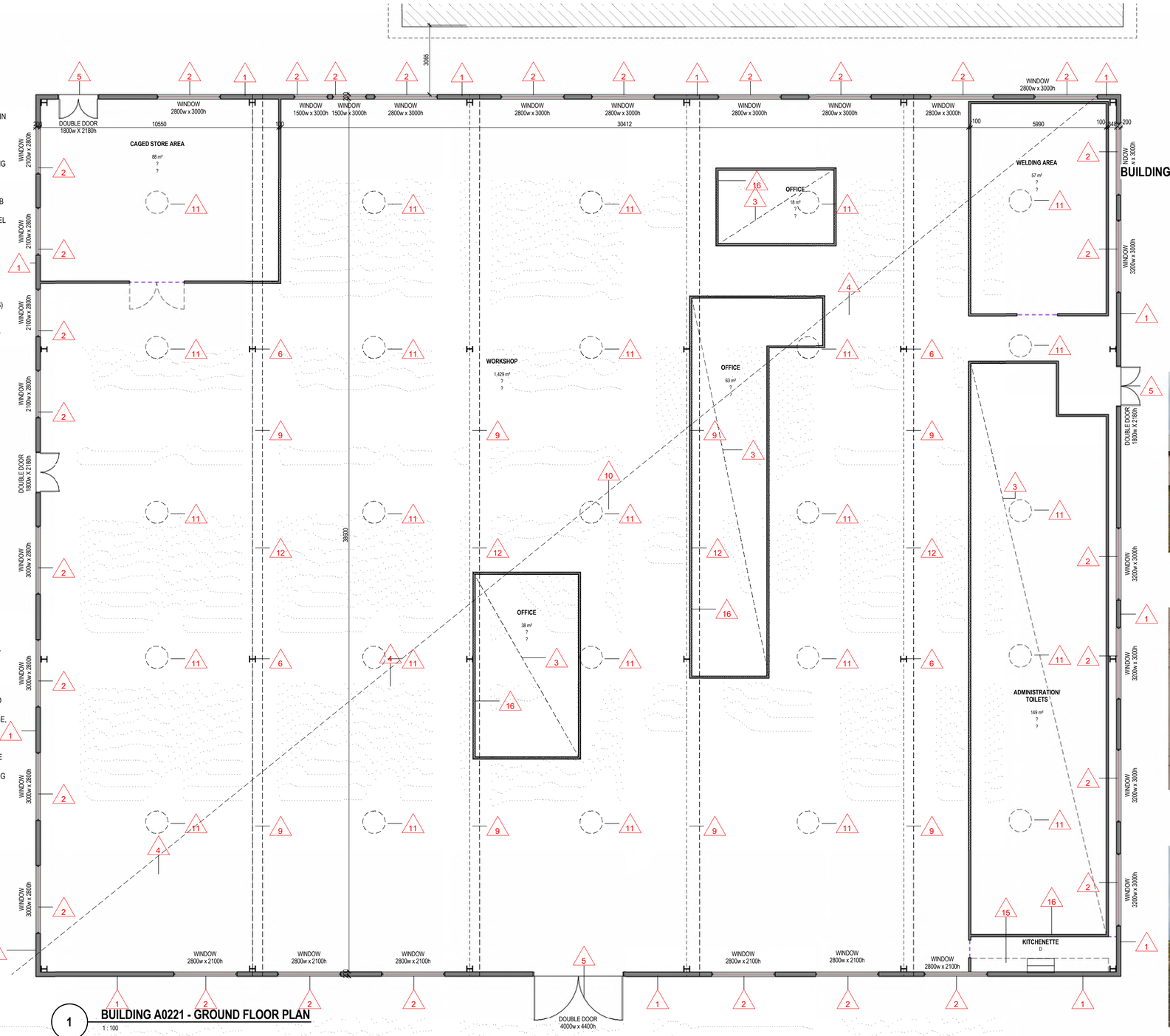
EXISTING TOILETS/OFFICES

- EXISTING TOILETS AND OFFICES WHICH ARE SCATTERED AROUND THE BUILDING HAVE ASBESTOS LININGS THROUGHOUT, AND ARE IN VARIOUS STATE OF DISREPAIR.
- THE ROOMS SHOULD BE DEMOLISHED AND REMOVED FROM SITE. ANY NEW CONFIGURATION/CLASSIFICATION OF THE BUILDING, WILL DETERMINE THE TYPE AND AMOUNT OF AMENETIES REQUIRED FOR THAT BUILDING.
- CONFER WITH BUILDING SURVEYOR/STAKEHOLDERS IN REGARDS TO POSSIBLE CLASSIFICATION OF BUILDING.
- PRIOR TO ANY DEMOLITION, ALL SERVICES TO THESE ROOMS SHOULD BE CAPPED AND SEALED. CONTRACTORS SHOULD BE PROVIDED ACCESS TO EXISTING ASBESTOS REGISTER TO ENSURE THAT ANY ASBESTOS PRESENT IS DISPOSED OF IN CORRECT MANNER AND IN COMPLIANCE WITH REGULATIONS.

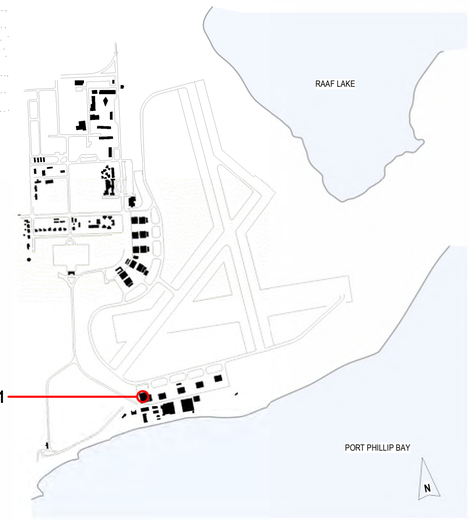
BUILDING SERVICES

- EXISTING ELECTRICAL WIRING, CONDUITS, SWITCHES, ETC SHOULD BE CHECKED TO CONFROM TO CURRENT REGULATIONS AND WHERE REQUIRED BE REPLACED WITH NEW FITTINGS.
- NEW WORKS SHOULD INCLUDE EMERGENCY LIGHTING, EXIT LIGHTS/SIGNAGE, AND UPGRADES TO DISTRIBUTION BOARDS, SWITCH BOARDS.
- HYDRAULIC SERVICES TO THE BUILDING INCLUDE WATER TO SINKS IN KITCHEN, TOILETS,ETC. THE EXISTING PIPING SHOWS SIGN OF CORRODING AND SHOULD BE REPLACED WITH NEW. THE EXISTING WATER PIPING TO THE BUILDING IS CUT AND ANY NEW WORKS SHOULD INCLUDE REINSTATEMENT AND FLUSHING OF THE EXISTING LINES AND CONNECTION INTO THE EXISTING WATER MAIN.
- THERE ARE EXISTING GAS HEATER IN SOME OF THE OFFICES AND THESE SHOULD BE REMOVED AFTER CAPPING AND SEALING SERVICES TO THESE UNITS.ANY NEW WORKS SHOULD INCLUDE AND ALLOW FOR HEATING AND COOLING TO THE BUILDING.

BUILDING 210



1 **BUILDING A0221 - GROUND FLOOR PLAN**
1 : 100

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

TITLE: BUILDING A0221 EXISTING CONDITIONS PLAN

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TL	-	JM	JM

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DRAWING NUMBER: PDS-12399-DRG-AR-1221 (PROJECT CODE / PROJECT ID / DOC. TYPE / DISC. / SHEET No.)
REVISION: A

IMAGES OF TYPICAL DETERIORATION

1. REINSTATE AND INSTALL NEW ALUMINIUM WINDOWS TO MATCH NORTH ELEVATION OF THE BUILDING.
2. CLEAN DOWN ALL EXTERNAL SURFACES OF THE BUILDING.
3. EXISTING FLOOR COVERINGS ARE TO BE REPLACED TO THE ENTIRE BUILDING, INCLUDING CARPET AND VINYL WITH NEW CARPET TILES AND NEW VINYL SHEETING.
4. REPAIR JOINTS TO CEILING SHEETING AND REFIX LOOSE CEILING PLASTEROARD SHEETS WHERE REQUIRED. ALLOW TO PREPARE ALL SURFACES PRIOR TO REPAINTING, INCLUDING CEILINGS AND WALLS.REMOVE EXISTING WALL PAPER AND REPAINT ALL WALLS AND CEILINGS LININGS.
5. REPLACE EXISTING EXTERNAL HOLLOW CORE DOORS WITH NEW SOLID CORE TIMBER DOORS INCLUDING NEW DDA COMPLIANT DOOR HARDWARE AND WEATHER SEALS TO BOTTOM OF DOORS.
6. REPLACE EXISTING KITCHENETTE WITH NEW KITCHENETTE CONFIGURED TO MATCH EXISTING, INCLUDING NEW SS SINK, TAPS, CUPBOARDS,ETC.
7. DEMOLISH AND REMOVE ALL TOILETS FITTINGS INCLUDING TOILETS, BASINS, SHOWER BASES, TAPS, SHOWER ROSES,ETC. NEW TOILET FACILITIES ARE TO BE REFURBISHED AND TO COMPLY WITH CURRENT DDA REGULATIONS.
8. DEMOLISH AND REMOVE EXISTING CONCRETE LANDINGS, RAMP AND CONSTRUCT NEW DDA COMPLIANT CONCRETE LANDINGS, RAMP AND STEPS TO EXTERNAL DOORS.

A SUMMARY OF ARCHITECTURAL ASSESSMENT IS PROVIDED IN THIS SECTION.

EXTERNAL

- EXISTING EXTERNAL METAL SHEETING IS IN REASONABLE GOOD CONDITION AND CAN BE RETAINED. ALLOW TO CUT BACK EXISTING SHEETING AND ALLOW TO REINSTATE WINDOW OPENINGS WITH NEW ALUMINIUM WINDOWS MATCHED TO WINDOWS ON THE NORTH SIDE OF THE BUILDING.THE EXISTING SHEETING, INCLUDING FLASHINGS ARE IN GOOD CONDITION AND ONLY NEED TO BE CLEANED DOWN.
- EXTERNAL GUTTERS AND DOWNPIPES LOOK LIKE THEY HAVE BEEN REPLACED RECENTLY AND ARE IN GOOD CONDITION.THE ROOF SHEETING,SOFFIT LININGS,FASCIA BOARDS, BASE BOARDS ARE ALSO IN GOOD CONDITION.
- OTHER EXTERNAL WORKS SHOULD INCLUDE, EXTERNAL LIGHTING, NEW CONCRETE STEPS, LANDINGS INTO BUILDING AND RELOCATION OF EXISTING AC WALL HUNG UNIT WHICH IS TOO LOW, AND A HAZARD TO ANYONE WALKING INTO BUILDING.

FLOORS

- EXISTING FLOOR STRUCTURE WILL REQUIRE SOME MINOR RE-STUMPING WHERE THE FLOOR IS NOT LEVEL, BUT OVERALL THE FLOOR STRUCTURE IS IN GOOD CONDITION.THE EXISTING FLOORING, WHICH IS A MIXTURE OF VINYL AND CARPET IS DAMAGED, AND NEEDS TO BE REPLACED WITH NEW FLOOR COVERINGS.

CEILING

- THE EXISTING CEILING LININGS JOINTS ARE DAMAGED WITH GAPS THAT NEED TO BE REPAIRED.NEW WORKS WOULD INCLUDE REPAIRS TO JOINTS AND SOME REFIXING OF LININGS, AND REPAINTING OF ENTIRE CEILINGS.THE EXISTING TIMBER TRUSSES ARE IN GOOD CONDITION AND SHOULD BE REPAINTED.
- WITH THE AGE OF THE BUILDING, CEILINGS AND WALLS PROBABLY DO NOT HAVE INSULATION IN THEM AND THIS COULD BE PART OF ANY NEW WORKS WHICH WOULD BE TO INCLUDE NEW INSULATION
- EXISTING FLUORESCENT TUBE LIGHTING WHICH IS SUSPENDED FROM THE CEILINGS LOOKS IN GOOD CONDITION.

DOORS

- EXISTING HOLLOW CORE DOORS SHOULD BE REPLACED,WITH NEW SOLID CORE DOORS AS THEY ARE DELAMINATING AND THESE WORKS SHOULD INCLUDE NEW DDA COMPLIANT DOOR HARDWARE TO BOTH EXTERNAL DOORS, AS WELL AS NEW WEATHER SEALS AT BOTTOM OF DOORS.

WINDOWS

- EXISTING ALUMINIUM WINDOWS ARE IN GOOD CONDITION TO ONE SIDE, WHILE THE SOUTH SIDE WINDOWS WHICH HAVE BEEN REMOVED SHOULD BE REPLACED WITH NEW WINDOWS TO MATCH WINDOWS ON THE NORTH SIDE OF THE BUILDING.NEW ARCHITRAVES AND NEW FLYWIRE SCREENS SHOULD BE INSTALLED. EXTERNALLY THE TIMBER ARCHITRAVES SHOULD BE CLEANED DOWN.

INTERNAL WALLS

- EXISTING WALL LININGS TO THE ENTIRE BUILDING ARE IN GOOD CONDITION, HOWEVER THEY ARE COVERD WITH WALL PAPER WHICH IS DAMAGED, AND THE WALLPAPER SHOULD BE REMOVED AND THE ENTIRE WALLS SHOULD BE RE-PAINTED.THERE SHOULD BE NEW INSULATION TO EXTERNAL WALLS.

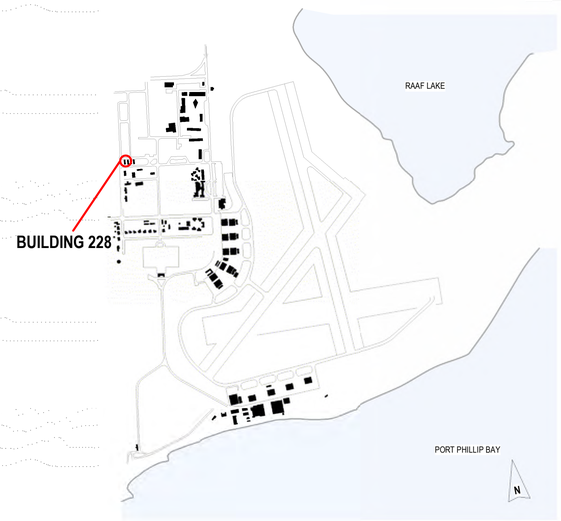
KITCHEN JOINERY UNITS

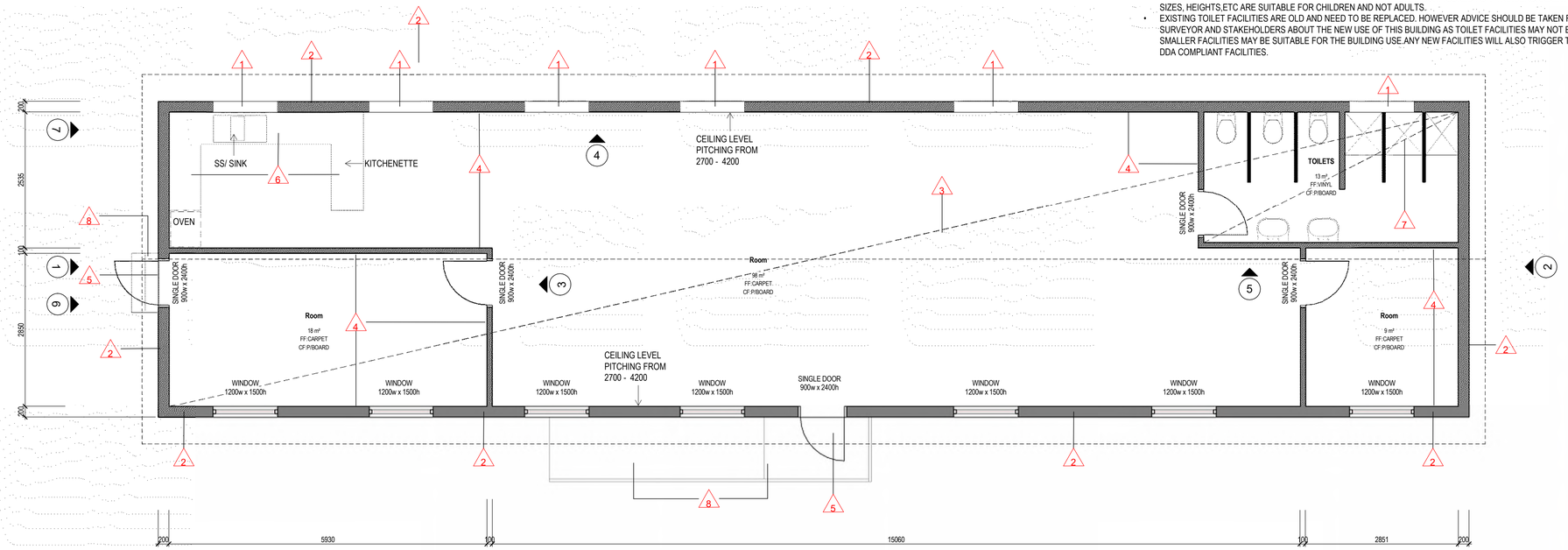
- EXISTING KITCHENETTE CUPBOARDS SINK, ETC ARE DAMAGED SHOULD BE REPLACED WITH NEW JOINERY UNITS AND SINK TO MATCH EXISTING CONFIGURATION.
- EXISTING SHOULD BE REMOVED AND SERVICES TO OVEN CAPPED AND SEALED.

BUILDING SERVICES

- EXISTING ELECTRICAL WIRING, CONDUITS, SWITCHES, ETC SHOULD BE CHECKED AND WHERE REQUIRED BE REPLACED WITH NEW FITTINGS.
- NEW WORKS SHOULD INCLUDE EMERGENCY LIGHTING, EXIT LIGHTING, AND UPGRADES TO DISTRIBUTION BOARDS, SWITCH BOARDS.
- HYDRAULIC SERVICES TO THE BUILDING INCLUDE WATER TO SINK IN KITCHEN. THE EXISTING PIPING SHOWS SIGN OF CORRODING AND SHOULD BE REPLACED WITH NEW. THE EXISTING WATER PIPING TO THE BUILDING IS CUT AND ANY NEW WORKS SHOULD INCLUDE REINSTATEMENT AND FLUSHING OF THE EXISTING LINES AND CONNECTION INTO THE EXISTING WATER MAIN. THERE ONLY ONE OLD WALL HUNG AIR CONDITIONING UNIT WHICH SHOULD BE REPLACED. THERE IS NO OTHER HEATING OR COOLING TO THE BUILDING AND THIS WILL NEED TO BE INCLUDED IN ANY NEW REFURBISHMENT WORKS.
- PRIOR TO COMMENCMENT OF ANY WORKS CONTRACTOR SHOULD ALLOW TO CONFER WITH ASBESTOS REGISTER IN REGARDS TO ANY ASBESTOS WITHIN THIS BUILDING AND THEY SHOULD ALLOW FOR CORRECT REMOVAL AND DISPOSAL OF ASBESTOS DEBRIS.

- THE EXISTING TOILET FACILITIES WITHIN THIS BUILDING HAVE BEEN CONFIGURED FOR A KINDERGARDEN AND THE FITTINGS SIZES, HEIGHTS,ETC ARE SUITABLE FOR CHILDREN AND NOT ADULTS.
- EXISTING TOILET FACILITIES ARE OLD AND NEED TO BE REPLACED. HOWEVER ADVICE SHOULD BE TAKEN FROM BOTH BUILDING SURVEYOR AND STAKEHOLDERS ABOUT THE NEW USE OF THIS BUILDING AS TOILET FACILITIES MAY NOT BE REQUIRED, OR SMALLER FACILITIES MAY BE SUITABLE FOR THE BUILDING USE.ANY NEW FACILITIES WILL ALSO TRIGGER THE REQUIREMENT FOR DDA COMPLIANT FACILITIES.





1 BUILDING A0228 - EXISTING FLOOR PLAN

1 : 50

PLOT DATE & TIME: - 24/10/2018 6:33:12 PM

AMENDMENTS:

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SCALE 1:100 AT A3

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DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18

PROJECT TITLE: VT12399 POINT COOK

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	TL	JM	JM

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PRELIMINARY

TITLE: BUILDING A0228 EXISITNG CONDITIONS PLAN

DEFENCE EWP No:	SITE No:	ASSET No:	CONT. KEY:	CONT. REF:
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REVISION: A


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IMAGES OF TYPICAL DETERIORATION

1. INSTALL NEW METAL DOWNPIPES, GUTTERS, BRACKETS, STOP ENDS, SET TO LINE AND TO FALL TO OUTLETS.NEW WORKS TO ALSO INCLUDE NEW PRIMED AND PAINTED FASCIAS AND VILLABOARD SOFFIT LININGS TO ALL EXTERNAL SURFACES.
2. NEW INTERNAL PAINTED PLASTERBOARD WALL LININGS, INSULATION, LIGHT SWITCHES, GPO'S, SKIRTINGS, ARCHITRAVES TO ENTIRE BUILDING.
3. NEW PAINTED PLASTERBOARD CEILING LININGS, INCLUDING FITTING NEW EMERGENCY LIGHTS, NEW FLUSH FITTED LIGHTS, NEW EXIT LIGHTS AND CORNICES TO MATCH EXISTING TO ENTIRE BUILDING
4. NEW CARPET TILES AND NEW FLOOR VINYL ARE TO REPLACE EXISTING FLOOR FINISHES.
5. EXISTING FLOOR STRUCTURE TO BE TOTALLY RESTUMPED, INCLUDING NEW CONCRETE PAD FOOTINGS, CONCRETE STUMPS, TIMBER FLOOR JOISTS AND STRUCTURAL SHEET FLOORING.
6. REPLACE EXISTING KITCHENETTE AND BAR WITH NEW TO MATCH EXISTING CONFIGURATION. THESE WORKS SHOULD ALSO INCLUDE NEW SS SINK, OVERHEAD CUPBOARDS, TAPS, AND RECESS FOR FRIDGE AND WALL OVEN.
7. NEW ZINCALUME CORRUGATE ROOF SHEETING TO ENTIRE BUILDING, INCLUDING NEW R2.5 RATED BATT CEILING INSULATION, AND 2 ADDITIONAL ROWS OF ROOFING BATTENS ON BOTH SIDE OF THE CEILINGS.
8. EXISTING WINDOWS ARE TO BE SERVICED AND REPAINTED
9. EXTERNAL ENTRY DOORS TO BE REPLACED WITH NEW MATCHING TIMBER DOORS AND DDA COMPLIANT DOOR HARDWARE.
10. RESHEET EXISTING METAL WALLS SHEETING TO 3 SIDES OF THE BUILDING TO MATCH RETAINED WALL SHEETING ON NORTH SIDE OF THE BUILDING. ALLOW FOR ALL FLASHINGS TO CORNERS, DOOR, WINDOWS AND NEW PRIMED AND PAINTED TIMBER BASEBOARDS.
11. ALLOW TO PROVIDE NEW 1200MM WIDE CONCRETE PATH TO ALL DOORS AS WELL AS CONCRETE LANDING TO EACH ENTRY AREA.
12. ALLOW TO REINSTALL NEW TIMBER WINDOWS IN EXISTING WINDOW OPENINGS, TO MATCH WINDOWS ON SOUTH SIDE OF THE BUILDING

EXTERNAL

- EXISTING EXTERNAL METAL WALL SHEETING IS DAMAGED AND IS RUSTING ON 3 SIDES OF THE BUILDING.THE NORTH SIDE HAS BEEN RECENTLY REPLACED WITH NEW METAL WALL SHEETING. THE WINDOWS ON THE NORTH SIDE OF THE BUILDING HAVE BEEN SEALED UP AND IN ANY NEW REFURBISHMENT WORKS THESE WINDOWS SHOULD REINSTATED TO MATCH WINDOWS TO THE SOUTH SIDE OF THE BUILDING.
- THE EXISTING SHEETING, INCLUDING FLASHINGS TO CORNERS, WINDOWS,DOORS SHOULD ALSO BE REPLACED TO MATCH EXISTING SHEETING ON THE NORTH SIDE OF THE BUILDING.
- EXTERNAL GUTTERS AND DOWNPIPES ARE DAMAGED OR MISSING AND SHOULD BE REPLACED WITH NEW MATCHING GUTTERS AND DOWNPIPES, BRACKETS,ETC.
- THE ROOF SHEETING SHOWS VISIBLE SIGNS OF RUSTING AND SHOULD BE REPLACED WITH NEW MATCHING CORRUGATED ROOF SHEETING.
- EXTERNAL TIMBER BASEBOARDS SHOULD ALSO BE REPLACED TO ALL OF THE BUILDING.
- OTHER EXTERNAL WORKS SHOULD INCLUDE, EXTERNAL LIGHTING, REPLACEMENT OF FASCIAS AND SOFFIT LININGS AND TOTAL REPAINTING OF ANY PREVIOUS PAINTED EXTERNAL SURFACES AND REMOVAL OF VENTS FROM HEATERS LOCATED IN THE BUILDING.
- EXISTING CONCRETE PATHS SHOULD BE DEMOLISHED AND REPLACED WITH A MIN OF 1200MM WIDE CONCRETE PATHS TO THE EXISTING DOOR OPENINGS FROM THE NEARBY ROAD.

FLOORS

- EXISTING TIMBER FLOOR STRUCTURE IS NOT LEVEL AND HAS SOME AREAS WHERE THE FLOOR DROPS. THE ENTIRE FLOOR STRUCTURE WOULD NEED TO BE REPLACED, WITH NEW CONCRETE PAD FOOTINGS, CONCRETE STUMPS, TIMBER JOISTS AND STRUCTURAL SHEET FLOORING, AS WELL AS A REPLACEMENT OF THE EXISTING FLOOR FINISHES.
- THE EXISTING FLOORING, WHICH IS A MIXTURE OF TILES, VINYL AND CARPET IS DAMAGED, WORN AND SHOULD BE REPLACED WITH NEW CARPET TILES AND NEW VINYL FLOORING THROUGHOUT.

CEILING

- THE EXISTING CEILING LININGS WHICH ARE LOOSE AND WATER DAMAGED AND IN SOME AREAS, HAVE COMPLETELY FALLEN DOWN SHOULD BE REPLACED TO THE ENTIRE BUILDING, WITH NEW PLASTERBOARD LININGS, PAINTED TO MATCH EXISTING.
- THE EXISTING TIMBER TRUSSES ARE IN GOOD CONDITION AND WOULD NEED TO BE REPAINTED. THE EXISTING HARDWOOD ROOFING BATTENS SHOULD ALSO BE RETAINED, HOWEVER THERE SHOULD BE AN ALLOWANCE TO PROVIDE A MIN OF 2 EXTRA ROOFING BATTENS TO THE ENTIRE LENGTH OF THE BUILDING BOTH SIDES, AS THE SPACING OF THE EXISTING ROOFING BATTENS IS APPROX 1500MM. THIS CAN CAUSE THE SHEETING TO SAG AND ADDITIONAL BATTENS WILL PREVENT THIS.
- ANY NEW CEILINGS WORKS SHOULD INCLUDE NEW BATT CEILING INSULATION TO A MIN OF R2.5 INSULATION TO THE ENTIRE BUILDING
- EXISTING LIGHTING WOULD NEED TO BE REPLACED TO THE ENTIRE BUILDING, AS WELL AS NEW EMERGENCY LIGHTING AND EXIT LIGHTS.

DOORS

- EXISTING TIMBER PANELLED DOORS WILL REQUIRE REPLACEMENT WITH NEW MATCHING TIMBER PANELLED DOORS AND NEW DDA COMPLAINT DOOR HARDWARE.

WINDOWS

- EXISTING TIMBER WINDOWS TO THE SOUTH SIDE OF THE BUILDING ARE IN REASONABLE CONDITION AND APART FROM SOME SERVICING TO WINDOW HARDWARE, THEY CAN BE RETAINED, BUT THEY SHOULD BE SANDED BACK AND REPAINTED.
- ONCE THE BUILDING HAS BEEN RESTUMPED THEY SHOULD BE ABLE TO OPEN AND CLOSE FREELY
- EXISTING WINDOW OPENINGS THAT HAVE BEEN SHEETED OVER TO THE NORTH SIDE OF THE BUILDING SHOULD BE REINSTATED TO MATCH WINDOWS ON THE OPPOSITE SOUTH SIDE OF THE BUILDING.
- NEW ARCHITRAVES AND NEW TIMBER FLYWIRE SCREENS SHOULD BE INSTALLED. EXTERNALLY THE TIMBER ARCHITRAVES SHOULD BE REPLACED WITH NEW MATCHING PAINTED ARCHITRAVES.

INTERNAL WALLS

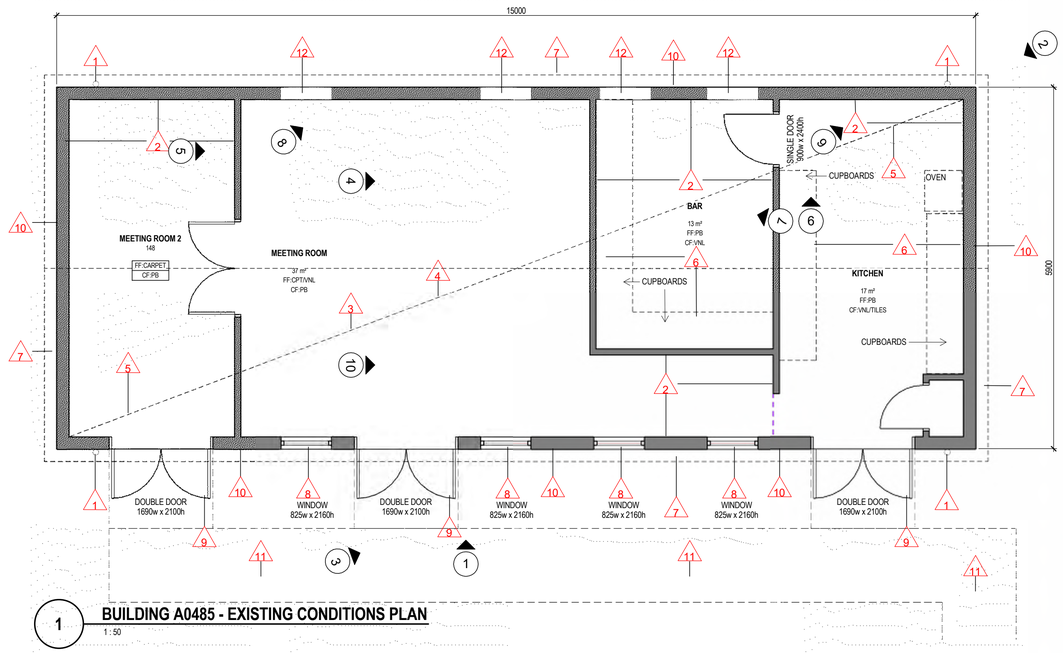
- EXISTING WALL LININGS TO THE ENTIRE BUILDING SHOULD BE REPLACED WITH NEW PAINTED PLASTERBOARD LININGS. ALL EXISTING WALL FITTINGS SHOULD BE REMOVED AND REPLACED WITH NEW FITTINGS AND THSES WOULD INCLUDE ANY LIGHT SWITCHES, GPO'S AND TIMBER SKIRTINGS TO MATCH EXISTING. R2.5 RATED INSULATION SHOULD ALSO BE INCLUDED IN THIS WORKS.

KITCHEN/BAR JOINERY UNITS

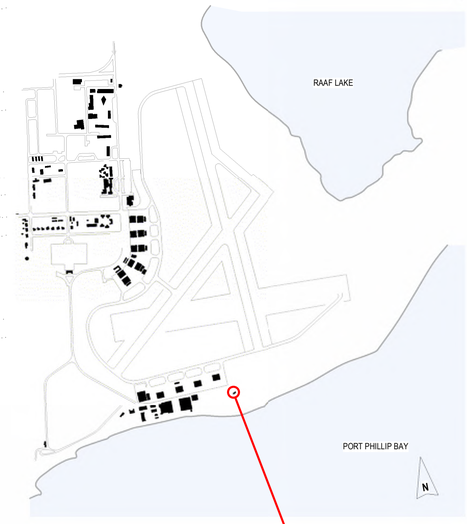
- EXISTING KITCHENETTE AND BAR CUPBOARDS, INCLUDING OVERHEAD CUPBOARDS, SINK, ETC ARE DAMAGED BEYOND REPAIR AND SHOULD BE REPLACED WITH NEW JOINERY UNITS TO MATCH EXISTING CONFIGURATION.THE WORKS SHOULD INCLUDE NEW SS/SINK, WALL OVEN, AND RECESS FOR REFRIDGERATOR. ELECTRICAL REQUIREMENTS INCLUDING NEW POWER AND LIGHTING SHOULD BE PART OF THIS WORKS, AS WELL AS SERVICES TO SINK.
- EXISTING OVEN IS DAMAGED AND THIS SHOULD ALSO BE REPLACED, OR AN ALLOWANCE FOR POWER TO NEW OVEN SHOULD BE ALLOWED FOR.

BUILDING SERVICES

- EXISTING ELECTRICAL WIRING, CONDUITS, SWITCHES, ETC SHOULD BE REPLACED TO THE ENTIRE BUILDING, AS THE EXISTING IS DAMAGED FROM WATER EGRESS AND DAMAGED FROM RODENTS, BIRDS,ETC.ANY NEW WORKS SHOULD INCLUDE CONNECTION INTO EXISTING SUPPLY
- NEW WORKS SHOULD INCLUDE SWITCHES, EMERGENCY LIGHTING, EXIT LIGHTING, DISTRIBUTION BOARDS, SWITCH BOARDS, LIGHTING TO THE ENTIRE BUILDING, INTERNALLY AND EXTERNALLY.
- HYDRAULIC SERVICES TO THE BUILDING SHOULD INCLUDE WATER TO SINK IN KITCHEN AND SINK IN BAR AREA. THE EXISTING PIPING SHOWS SIGN OF CORRODING AND SHOULD BE REPLACED WITH NEW PIPING. THE EXISTING WATER PIPING TO THE BUILDING IS CUT AND ANY NEW WORKS SHOULD INCLUDE REINSTATEMENT AND FLUSHING OF THE EXISTING LINES AND CONNECTION INTO THE EXISTING WATER MAIN.
- THERE IS WALL HEATING UNITS LOCATED IN THE BUILDING BUT NO COOLING TO THE BUILDING AND THIS WILL NEED TO BE INCLUDED IN ANY NEW REFURBISHMENT WORKS. THE EXISTING WALL HEATERS SHOULD BE REMOVED AND DISPOSED OF INCLUDING EXTERNAL VENTS.
- PRIOR TO COMMENCMENT OF ANY WORKS CONTRACTOR SHOULD ALLOW TO CONFER WITH ASBESTOS REGISTER IN REGARDS TO ANY ASBESTOS WITHIN THIS BUILDING AND THEY SHOULD ALLOW FOR CORRECT REMOVAL AND DISPOSAL OF ASBESTOS DEBRIS.
- THERE ARE NO TOILET FACILITIES WITHIN THIS BUILDING AND ANY NEW WORKS TO THIS BUILDING COULD TRIGGER A REQUIREMENT FOR TOILET FACILITIES. ADVICE WILL NEED TO BE TAKEN FROM THE BUILDING SURVEYOR IN REGARDS TO TOILETS AND DDA ACCESS TO THE BUILDING.



1 **BUILDING A0485 - EXISTING CONDITIONS PLAN**
1 : 50



BUILDING 485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AMENDMENTS:

REV	DATE	REVISION DETAILS	APPROVED
A	24/10/18	90% Concept Design	HDR

PLOT DATE & TIME - 29/10/2018 12:07:57 PM

NOTES:
THESE DRAWINGS PRESENT THE DESIGN INTENT. THE CONTRACTOR IS RESPONSIBLE FOR DETAILED SITE COORDINATION. SUBMISSION OF TECHNICAL DATA AND PRODUCING FABRICATION/INSTALLATION SHOP DRAWINGS FOR SUBMISSION TO THE PDS CONTRACTOR FOR REVIEW. WHEN SHOP DRAWINGS ACHIEVE NON-REJECTION THE CONTRACTOR MAY COMMENCE FABRICATION AND INSTALLATION

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Australian Government
Department of Defence

0 0.5 1 1.5 2 2.5m
SCALE 1:50 AT A1
SCALE 1:100 AT A3

DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE

DEFENCE PROJECT: PROJECT DELIVERY SERVICES FY 17-18
PROJECT TITLE: VT12399 POINT COOK

TITLE: BUILDING A0485 EXISTING CONDITIONS PLAN

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
TL	TL	JM	JM

DEFENCE EWP No:	SITE No:	ASSET No.	CONT. KEY:	CONT. REF:
	12399	A0485	AUR	248842

90% CONCEPT DESIGN
PRELIMINARY

DRAWING NUMBER: PDS-12399-DRG-AR-1485
PROJECT CODE | PROJECT ID | DOC. TYPE | DISC. | SHEET No.

REVISION: A

Appendix H
Building Surveyor Reports

PLP Building Surveyors & Consultants Pty Ltd

Melbourne | Brisbane | Perth

VT12399
POINT COOK HERITAGE CONSULTANCY

BCA & MFPE COMPLIANCE REPORT
Buildings A0004

26 OCTOBER 2018

PREPARED BY: PLP BUILDING SURVEYORS & CONSULTANTS PTY LTD

PREPARED FOR: AURECON FOR AND ON BEHALF OF DEPARTMENT OF DEFENCE

JOB NO: 05949

CONTENTS

REVISION HISTORY		
Revision	**Date**	**Purpose/Details Of Revision**
0	11-10-2018	Initial Draft
1	26-10-2018	Issued to team

AUTHORISED BY: .....
FRANK ISGRO, SENIOR ASSOCIATE

EXECUTIVE SUMMARY

Building A0004 located at RAAF Williams (Point Cook) was inspected to establish the broad level of compliance with the requirements of the Building Code of Australia 2016 (Including Amendment 1) (**BCA**), the disability access requirements of the Disability (Access to Premises – Buildings) Standards 2010 (**Premises Standards** or **PS**) and the Manual of Fire Protection Engineering Edition 2 (**MFPE**).

BCA, MFPE and Premises Standards non-compliances identified are allocated a priority rating based on perceived hazard level, statutory obligations to rectify the non-compliance in the circumstances, and risk mitigation considerations. Rectification works are recommended where applicable.

Overall, the building is rated poor in terms of general building regulations compliance.

Access and facilities for people with disabilities are rated poor.

Maintenance of essential safety measures appears to be to a poor standard. An annual essential services declaration was not sighted during the inspection.

Section 4 of this report details defects identified. Items requiring rectification have been allocated a Priority Rating as follows to indicate the degree of risk considered to occur by the auditor:

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or the nature of the non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

SECTION 1- BRIEF AND SCOPE

1.1 Introduction

This report presents an assessment of the office and educational building A0004 against the requirements of the Building Code of Australia, the Disability (Access to Premises – Buildings) Standards and Manual of Fire Protection Engineering Edition 2 (MFPE).

1.2 Assessments

Assessments are against the deemed-to-satisfy provisions of Building Code of Australia 2016 (Including Amendment 1) (BCA), the Access Code provisions of the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards or PS), and Manual of Fire Protection Engineering Edition 2, current at the date of inspection of the building.

Commentary is also provided on requirements for ongoing maintenance and certification of essential fire safety measures and on circumstances under building regulations when upgrade of the building to current day building regulations may become a statutory obligation.

The report makes comments and recommendations with respect to BCA and PS requirements. These opinions are the considered view of PLP Building Surveyors & Consultants Pty Ltd taking into account the specific circumstances encountered and recognising that the circumstances are existing arrangements which have, in many cases, been in place for a significant period of time.

1.3 Basis of Report

The report was prepared on the basis of the following:-

- A brief walk-through inspection of the building undertaken on 9th October 2018.
- Preliminary architectural drawings provided by Aurecon/HDR.
- Building information made available for review.

Documents received and advice provided on site were generally accepted as accurate unless evidence to the contrary became apparent during the course of the inspection.

Comments offered assume that areas sighted are representative of the building as a whole.

Unless noted otherwise, the report assumes that the existing use of the building will continue.

1.4 Scope and Exclusions

The report was prepared on the basis of a “walk through” inspection of the building and represents a broad overview only on compliance with the current provisions of the BCA and the PS. The following limitations apply in the interpretation of findings:-

- The report excludes matters relating to areas or components that were not accessed or were unsighted at the time of inspection. Areas and components not accessed or not sighted are outside the scope of this report.
- The report considers matters of a significant nature only and should not be considered exhaustive.
- The passage of time, manifestation of latent conditions, or impacts of future events, may require further exploration, analysis and re-evaluation of the findings, observations and recommendations expressed in this report.
- PLP Building Surveyors & Consultants Pty Ltd are not qualified Quantity Surveyors and costs provided in any Capital Expenditure Forecasts allow for general order of cost reporting only. Their accuracy should not be relied upon and must be independently verified.
- No analysis or testing of building services systems was performed to confirm compliance with current day performance requirements, codes and specifications.

- No documentation searches were undertaken, either with public authorities or with the building owners, and no attempts were made to determine whether notices, orders or other outstanding requirements of relevant authorities apply.
- Appraisals are limited to the provisions of the BCA, MFPE and the Premises Standards. Except where specifically stated, other legislative requirements have not been considered.
- The report does not constitute a detailed review of essential services maintenance issues. Only an overview of legislative requirements is provided.
- The report does not consider structural compliance issues and does not include review of the structural sufficiency of the building.
- The report does not include a detailed review of compliance with applicable Australian Standards. Rather, the report is limited to commentary on the existence and general appearance of building systems and services.
- Compliance with Australian Standards for glass and glazing systems is not covered.
- Titles and title particulars have not been reviewed.
- Pest or vermin infestation matters are not addressed.
- Although comments are offered on matters relating to the Federal Disability Discrimination Act (DDA), this report does not constitute a full DDA audit and cannot be read as such.
- The report does not include a review of plumbing or electrical installations.
- Requirements under Occupational Health and Safety Legislation are not addressed.
- Dangerous Goods Legislation is not addressed.

1.5 General Limitation Statement

The findings in this report were derived from visual inspection of representative areas of the complex, review of limited documents available, and advice received from individuals with information about the site. No warranty or guarantee, whether expressed or implied, is made with respect to the matters reported.

1.6 Use of Report

This report is prepared for the sole benefit of the Client as noted on the facing page of this report. The report is prepared on the basis of instructions and briefing by the Client. PLP Building Surveyors & Consultants Pty Ltd accepts no liability for the use of or reliance upon this report by any third party.

1.7 Inspection Date and Validity

The inspection was undertaken on 9 October 2018 and is based on circumstances existing on that date.

SECTION 2- LEGISLATION

2.1 Application of the MFPE

The MFPE generally obliges that buildings be maintained to the standards in force at the time that the building was constructed.

There is no general requirement for buildings to be continually upgraded to achieve compliance with current day regulations. Broadly speaking, retrospective application of BCA or the PS is not required unless one of the following circumstances occurs:-

- A significant safety hazard is perceived to exist and building authorities make orders to reduce the hazard.
- Major alterations or additions are proposed as defined in the MFPE.
- The premises become subject to a "change of use" as defined in the MFPE.
- A successful action is brought following lodgement of a complaint under disability discrimination legislation.
- Provisions under Disability Regulations apply as set out in Section 2.2 below such that upgrade of access paths from the main building pedestrian entry to all new work areas is required.
- Specific legislation occurs which requires retrospective upgrade in particular circumstances. e.g. Sprinkler protection and smoke detection to certain residential buildings.

2.2 Access Requirements for People with a Disability

The Disability (Access to Premises – Buildings) Standards came into force throughout Australia on 1 May 2011. In prescribed circumstances, the legislation requires upgraded access for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could generate a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the new building work.

Building owners need to be aware that the provisions can result in the need to undertake significant enhancement of a building in terms of access for disabled persons, even if only minor general building work is proposed.

2.3 Certificates of Classification, Occupation and Works Completion

Signoff certificates for occupation or certificates for completion of buildings work were not available for review. For the purpose of this report, it has been assumed that appropriate commissioning and other certificates were issued at the time of original works completion that the basis of the certificates was valid in each case, and that the building works covered by the certificates were carried out in accordance with the approvals granted. If available, it is recommended that these documents be sourced as they may include information, conditions or requirements for ongoing management and occupation of the building.

2.4 Performance Building Solutions

The current day BCA and the Premises Standards are performance based building codes. Compliance may be achieved by either satisfying prescriptive deemed-to-satisfy provisions or by formulation of an Performance Solution. A valid Performance Solution enables deemed-to-satisfy provisions to be varied. Whilst a Performance Solution can relate to any matter, those with the greatest impact on a building generally relate to fire safety and access for people with a disability.

It is possible that the building may have been subject to past Performance Solutions although details in this regard were not sourced. Performance Solutions can be subject to conditions and obligations affecting the ongoing building use. Hence, it is recommended that details of any Performance Solutions applied to the building be sourced.

No attempt has been made to source such documents. It is again recommended that details of any dispensations, or the like be procured. Any conditions or requirements of these processes may need to be maintained as part of ongoing management and use of the building.

2.5 Maintenance of Essential Safety Measures

Maintenance requirements for the building's essential safety measures are as set out in legislation. These provisions require building owners to have fire safety services and other essential safety measures maintained and checked as specified.

An annual compliance certificate is required in most jurisdictions and it is a building owner's duty to ensure that essential fire safety services and other measures are maintained to ensure the ongoing safety of the building. Local councils or fire brigades can randomly audit buildings to ensure that maintenance is occurring.

Refer to Section 5 of this report for more detailed commentary.

SECTION 3- COMMENT ON OVERALL LEVEL OF COMPLIANCE

3.1 General BCA and MFPE Provisions

Overall, the building is rated poor in terms of the current day BCA and MFPE compliance. The building does not comply with a number of BCA requirements. Some non-compliances observed are reflective of changed regulatory requirements over time. Alternatively, it is possible that the building may have received dispensation from the approval authority at the time of construction.

Based on the current conditions this building is not suitable for Occupation due to obvious signs of mould and dampness. There were also obvious signs of structural defects which will require review from a qualified structural engineer.

3.2 Access Provisions

Access and facilities for persons with disabilities are rated poor against the provisions of the BCA and the Premises Standards.

The building does not comply with the access requirements of the BCA and Premises Standards and does not therefore meet obligations under the Federal Disability Discrimination Act 1992 and similar State and Territory legislation. Disability legislation is often complaints based and there are procedures whereby upgrade works may be required and enforced. Building owners need to consider their obligations and risks in this regard and it is recommended that an action plan for progressive upgrade works be developed for the building in accordance with procedures under the Disability Discrimination Act 1992.

In addition, the lack of access and features for persons with a disability may need to be addressed if building work is proposed, even if the proposed work is relatively minor. Refer to Section 2.2 above for further discussion in this regard.

3.3 Maintenance of Essential Services

Based on a random review of maintenance tags fixed to fire services in the building, the level of maintenance of these essential services appears to be fair.

An annual essential services declaration was not sighted.

It is recommended that contractors continue to be engaged to ensure that all essential services and safety systems within the building are routinely audited and subjected to maintenance processes.

It is further recommended that a full Maintenance Schedule for all essential safety measures be prepared as is now required pursuant to the provisions of the Victorian Building Regulations 2018.

SECTION 4 – SCHEDULE OF COMPLIANCE WITH BCA, MFPE &PS DEEMED-TO-SATISFY PROVISIONS

The table below provides a summary of observed areas of non-compliance with deemed-to-satisfy provisions of the BCA, the MFPE and the PS. Recommendations are included and a priority for recommendations is provided. The priority ratings adopted are as follows:-

Priority Ratings

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or level of non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
General	**Description of Building** The height, size and other parameters of the building affect BCA provisions applicable to the building.	The building comprises a 2 storey building with offices and educational class rooms. The building is currently not occupied.		
MFPE	**Building Criticality** Chapter 2 of the MFPE requires all buildings to be categorised into one of the following contribution factors: • CF1 Major Asset • CF2 Important Asset • CF3 Support Asset • CF4 General Purpose Asset • CF5 Low Importance Asset Buildings are also categorised as being tolerable or intolerable to loss in a fire event.	A completed criticality assessment has not been provided. This report has been prepared on the basis that the building contribution factor is CF4. It is also assumed that the loss of all or part of the building is tolerable.	Complete a criticality assessment form in accordance with MFPE Chapter 2.	2
General	**Maintenance of Essential Safety Measures** All essential fire and other safety systems throughout the complex must be maintained fit for purpose at all times to ensure the safety of building occupants.	The required Annual Essential Safety Measures (AESM) Statement was advised not to be completed.	Rectify shortfalls in maintenance of Essential Safety Measures and update the AESM Statement. Collate all historic building works records and information for the building and produce a maintenance schedule for the building as required by current Victorian legislation.	1 1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
A3.2	**Usage** The nature of the building's usage influences BCA provisions applicable to the building.	Usage and BCA usage class on each level is as follows:- Level / Use / BCA Class Ground / Office / Teaching / 5/9b Level 1 / Office / teaching / 5/9b	Note.	
D1.13	**Populations** Populations throughout are based on BCA floor area per person allowances or project briefing as appropriate.	Public Assembly and Function areas have the capacity for high populations. Based on BCA area per person figures, population estimates are as follows:- Level / Zone / Max Populatic Ground / All / 160 Level 1 / All / 160		
A1.1, C1.2	**Effective Height and Rise in Storeys** Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as the vertical distance between the lowest level of the building providing direct access and the exterior and the level of the floor of the highest occupied level. These parameters influence the BCA provisions applicable to the building.	The following parameters apply:- Rise in storeys 2 storeys Effective Height: 12m (approx. 3.5m)		
C3.2, A4.1, C2.7, C3.5	**Connections to Adjoining Buildings** Fire protection requirements apply at connections between separate buildings. The scope and extent of BCA compliance required is particularly impacted when separate buildings are linked to form a single building or when links between buildings are disconnected so as to create individual separate buildings. Where links and other connections occur, fire separation must typically be provided. The following would apply in this regard:- • Walls on each side of the boundary are constructed as fire walls.	Connecting link openings to the adjoining building occurs at level 1. Protection of openings does not comply with typically accepted fire protection criteria as follows:- - No fire wall is provided to separate the building. - The link bridge is not provided with the required protection. - The egress door on level 1 is bolted shut with a timber nogging.	Further review is required to confirm compartment limits are not exceeded when both buildings are considered as a single united building. Should the compartmentation limits be exceeded a fire wall will be required between the buildings.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Openings in the boundary walls are fitted with fire doors. (One fire door on each wall located either side of the boundary.) • Fire doors may be held open by electro-magnetic devices linked to the fire detection system such that the doors automatically close on fire alarm in either building. • Additional smoke detectors should occur within 1.5m on each side of the fire doors which also close the doors on activation. • Sliding fire doors must have a 20-30 second closing time, have an audible warning system and flashing red light when closing, be fail safe, and have 'WARNING – SLIDING FIRE DOOR' signage.			
Part B1	**Structural Provisions**			
	Various Australian Standards are referenced to establish the structural adequacy of a building.	Compliance not assessed, report to structural engineers report.	Although the structure was not assessed in detail it was noted that the internal structure was in poor condition. Structural engineer to confirm.	2
		As Australian Standards are upgraded periodically, it is likely that the building no longer conforms to current day standards which may have increased from those applicable at the time of construction. In particular, requirements for earthquake resistance and glazing have been significantly increased in recent years.	If major alterations, a change of use, or other trigger for retrospective upgrade to BCA compliance could apply, structural engineering advice should be sought in terms of the extent of work needed to upgrade the building to compliance with current day standards. Earthquake response levels should be assessed to verify that a reasonable level of earthquake resistance occurs.	3 3
C1.1 & Spec C1.1, C1.9, C1.13 Spec A1.1	**Type of Construction** The BCA applies "Type of Construction" requirements to a building to define the extent and level of fire resisting construction required. <u>Building 004</u> The building is required to be of Type B partially fire resisting construction. Basic requirements for Type A or B Construction are non-combustible construction with fire ratings as follows:-	A reinforced concrete and masonry base structure generally occurs and is consistent with the Type of Construction and fire resistance levels required. However, framed concrete and masonry structural elements would be considered to adequately satisfy basic requirements for fire resistance.	Considered acceptable. Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	Building Member / **Requirement** External walls (loadbearing) and internal loadbearing structures supporting floors* — 2 hr FRL (non-combustible) External walls (non-loadbearing) within 3m of Other buildings — 2 hr FRL (non-combustible) Floors — 2 hr FRL Roofs/ceilings and internal columns and walls supporting roofs — Nil (where sprinklers installed) or 1 hr FRL if not sprinklered (non-combustible covering) Lift, stair and services shafts (non-loadbearing) — 2 hr FRL Fire walls — 2 hr FRL			
C1.1, C1.9, C1.14	**Combustible Façade Cladding (CFC)** Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or Composite Panels, means that it is unlikely that any CFC façade linings would be considered compliant.	Unable to determine purely on visual inspection but there were no obvious signs of combustible materials used to the façade. The glazed façade and masonry external walls would typically comply.	Review as built documentation to ensure that installed materials are BCA compliant and are installed to manufacturer's requirements and specifications,. Any non-compliances should be reviewed by a fire engineer and upgrades carried out as required. Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or similar Composite Panels means that it is unlikely that these would be considered compliant.	3
C1.10, C1.10a	**Fire Hazard Properties** Requirements for early fire hazard properties apply to wall, ceiling and floor coverings and for construction materials generally.	The fire hazard properties of floor & wall linings and other elements were unable to be fully determined. However, materials installed appear to be typical for a building of this type and age.	Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
C2.2, C2.3 E2.2	**Floor Area Limits (Type B Construction)** A fire compartment size limit of 5,500m^2/33,000m^3 applies for office or public assembly assuming Type B construction.	The area of the building is 767m² (not including adjoining building) The volume of the building is 2800m² The area and volume is within prescribed limits.	Further clarification should be provided to confirm if the combined areas with the building and adjoining building to which a ling is provided are under the prescribed limits. This will also assist in clarifying if fire separation is required at links.	2
C2.6	**Vertical Separation of Openings in External Walls** Fire rated construction separating external wall openings that occur above one another in external walls is required in buildings required to be Type A Construction, unless the building is sprinkler protected. Fire resistant vertical separation of windows and other openings in external walls should typically comprise one hour fire rated 900mm vertical separation of which 600mm should occur above floor level. Alternatively 1100mm projection fire resistance balconies or similar should occur.	No requirements apply as the building is assumed to be of Type B construction.		
C2.7, C3.3, C3.5,C3.6 & C3.15	**Separation by Fire Walls** The following requirements apply to fire walls provided for fire isolation or fire compartmentation of a building:- • Fire walls should extend from the lowest floor/ground level to the underside of the roof; • Supporting construction must be fire rated to the requirements of the fire wall; • Fire protection is required to openings and service penetrations through the fire wall; and • Fire protective measures are required at external wall openings where there is the possibility of fire spread between the different fire compartments via the external openings. Doors in fire walls must be self or automatic closing and achieve an equivalent fire rating to that of the wall concerned. Fire doors may be held open by electromagnetic devices. Requirements apply for the timing of closure of sliding fire doors, the need for smoke detectors	Fire compartmentation occurs at various locations. Detailed analysis of the fire walls was not possible and fire resistance levels of the walls were unable to be assessed. However, the following non-compliance issues appear to occur:- • Doors of unknown or questionable smoke or fire resistance occur at various locations. • A number of doors have thermal fusible link release devices. Magnetic door holders and smoke detectors for quick activation are not apparent. • Fire walls do not always extend fully across the building over all areas or	Clarification on floor areas of adjacent building to be confirmed.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	within 1.5m of both sides of the doors and the need for warning signage and lights. Fire doors should not exceed 50% of the length of the fire wall in which they occur.	levels to provide a complete barrier between zones. • Warning systems for fire shutter and sliding fire door operation do not occur.		
C3.2 C3.4	**External Openings Near Fire Sources** External wall openings must be fire protected where they occur within 3m of the allotment boundaries, within 6m of boundaries on the opposing side of public roadways, or within 6m of other buildings on the same allotment. Openings that require fire protection should not occupy greater than 1/3 of the elevational area of the storey concerned.	Further detail required to confirm if fire separation is required at links bridges.	Plans on the adjoining building will be required to confirm compliance.	2
C3.12-C3.15	**Fire Stopping of Services** Services penetrations of fire rated structure must be fire stopped and/or located in fire rated riser shafts.	A random sighting of service penetrations in accessible areas indicated that fire seals/stopping have generally been installed as required. However, missing protection was noted at the following locations:- • Hydrant riser to internal hydrants	Audit and upgrade fire stopping of services as required. Current BCA requires floors to be separated to at least 30 minutes in a class 9b type B building. Penetrations in the floor slabs are to be sealed with an approved product.	3
D1.2	**Number of Exits and Exits from Fire Zones** At least two exits need to serve all areas of every storey as follows:- • High rise buildings over 25m in effective height • Each basement level	A sufficient number of exits occur with the exception of: • The exit on level 1 is bolted shut.	The exit via the link bridge is to be made accessible. As the first floor would accommodate more than 50 occupants 2 exits are required.	1
D1.4, D1.5	**Exit Travel Distances** The following travel distance limits apply: • ≤ 20m to a single exit or to a point of choice alternative egress path. • ≤ 40m to the closest alternative exit. • ≤ 60m travel distance between alternative exits and not less than 9m between alternative exits. • Exit paths to alternative exits should not converge at any point to be less than 6m apart.	As the exit via the link bridge on level 1 is blocked a total travel of approximately 30m to a single exit was observed.	As above the exit doors via the link are to be unblocked to ensure there are alternative egress routes.	1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D1.6	**Exit Widths** Minimum aggregate exit widths are required based on building populations served. Exit pathway and doorway widths and heights must achieve minimum requirements.	Compliance occurs.	Considered acceptable.	
D1.9	**Non-Fire Isolated Exit Stairs Serving Non-Residential Levels** Where exit travel occurs via a non-fire isolated stair, the following requirements apply:- • Stairs must provide continuous travel via their own flights and landings down to the level of discharge. • Overall travel distance from any point on a floor to the exterior via a non-fire isolated stair should not exceed 80m. • The stair point of discharge should not be located further than 20m from a door to a road or open space or more than 40m from one of two such doors where access to them is in opposite directions.	Compliance occurs.	Considered acceptable	
D1.10	**Discharge from Exits** Exits must discharge to a street or road or to open space leading to a street or road and should not pass through a tenancy space. No more than two thirds of the required exits serving the main auditorium can be located in the main foyer. i.e. At least one third of required exits must involve travel and egress that avoids the main foyer.	Compliance Occurs.	Considered acceptable.	
D1.16	**Plant and Lift Motor Room Exits** Steep stairs and ladders may serve plant and lift motor rooms in certain circumstances subject to compliance with AS1657-2013.	Compliance Occurs.	Considered acceptable.	
D2.3	**Non-Fire Isolated Stairs and Ramps** Non fire isolated stairs must be constructed of concrete, minimum 6mm steel or minimum 44mm hardwood timber.	Construction details are considered acceptable.		

<table>
<tr><th>BCA Ref (PS Ref)</th><th>BCA Requirement</th><th>Observations</th><th>Recommendations</th><th>Priority Rating</th></tr>
<tr><td>D2.7</td><td>Services in Exits and Paths of Travel

Electrical meters and motors, distribution boards and telecommunication boards must not be accessed from fire isolated exits and, if located in corridors leading to exits, should occur in non-combustible or fire protective smoke sealed enclosures.</td><td>Smoke isolating fire protective construction does not occur at switch and telecom boards in egress paths.</td><td>Install smoke seals to the Distribution boards.</td><td>3</td></tr>
<tr><td>D2.10, D2.13, D2.14</td><td>Slip Resistance of Ramps, Steps and Landings

Ramp surfaces, stair tread surfaces or nosing strips and stair landing surfaces or nosing strips to a flight below, must achieve slip resistance classifications to AS4586-2013 as follows:-
<table><tr><th>Application</th><th>Dry Surface Condition</th><th>Wet Surface Condition</th></tr><tr><td>1:14 or steeper ramps</td><td>P4 or R11</td><td>P5 or R12</td></tr><tr><td>Ramps of 1:14 to 1:20</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Tread or Landing Surface</td><td>P3 or R10</td><td>P4 or R10</td></tr><tr><td>Nosing or Landing Strip</td><td>P3</td><td>P4</td></tr></table></td><td>Concrete stair generally acceptable.</td><td>Considered acceptable.</td><td></td></tr>
<tr><td>D2.13</td><td>Goings and Risers

To provide safe passage, stairways must comply with the following:-
• No more than 18 and no fewer than 2 risers in each flight.
• Risers and goings that are consistent in a flight and within a prescribed range of dimensions.
• Riser gaps and step openings that do not exceed 125mm.
• Non-slip treads and non-skid tread nosings.
• Solid treads if the stair height exceeds 10m or three storeys.
• If used for egress, contain no winders or triangular treads.
• If not used for egress, have limited winders at landings with even goings.</td><td>Stairs were not reviewed in detail however stairs generally appeared to be acceptable.</td><td>Considered acceptable.</td><td></td></tr>
</table>

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.14	**Landings** Stair landings must comply with the following:- • Maximum 1 in 50 falls. • Minimum 750mm length. • Non-slip finish with non-skid nosings.	Generally appears to comply.		
D2.15(c)	**Door Thresholds in Buildings Required to be Accessible** All doors from the exterior into a building required to be accessible under Part D3 must have a threshold ramp or step ramp to AS1428.1	The doors leading to the external stair contain a threshold.	The landing outside the door can be built up to match the floor level of the building.	3
D2.16	**Balustrades** Requirements apply to the provision and design of barriers at locations where a person could fall 1m or more. Generally 125mm maximum gap size limits apply between balusters or rails and a 1m minimum height applies, with alternate dimensions permitted in fire isolated stairs and industrial areas. Climbable balustrade elements are prohibited where a person could fall 4m or more. Minimum sill heights apply at openable windows where people could fall more than 4m.	Assessment of balustrades indicated a number of non-compliances:- • Gaps in the barriers to the landings and stairs exceeded 125mm (approx. 250mm) • Barrier height not 1m above the floor at landings (approx. 940mm).	Rectify external balustrades as upgrading or maintenance dictates.	2
D2.17(a)	**Exit Stair Handrails in Accessible Areas** Handrails to exits (including fire isolated exits) serving an area required to be accessible to people with disabilities must comply with Clause 12 of AS1428.1, viz:- • Handrails not to obstruct circulation space • 30-50mm diameter • 865-1000mm above nosing line of stairs • 865-1000mm above ramps and landings • Consistent height throughout • 50mm grip clearance and no obstructions to handhold • Continuous at internal (return) landings	The external stair requires accessible features in accordance with AS 1428.1 2009 including handrail extensions, tactile indicators etc.	Upgrade handrails to current day requirements.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Provided with handrail extensions and 1800mm curled ends			
D2.18	**Fixed Platforms, Walkways, Stairways and Ramps** Platforms, walkways, stairs, ladders and the like that give access to and around plant and equipment, machine rooms, attic spaces and other low use areas of the building are permitted provided that construction details are to AS1657-2013.	Generally appears to comply.		
D2.20	**Door Swings** Except where serving areas of 200m^2 or less, exit doors and discharge doors from the building should swing outward in the direction of exit travel.	Generally appears to comply.		
D2.21	**Exit Door Hardware** Exit doors and doors in a path of travel to an exit must be provided with "free handle" egress via single handed downward (lever) or pushing action door hardware, and if serving an area accessible to people disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances.	Some of the doors were observed to have dead bolts locks.	Remove dead locks from the doors to ensure egress is not impeded.	2
D2.21	**Exits Locked** Exit doors should not be locked or fitted with lockable devices.	Exit doors at link is fixed shut.	Ensure all exits are maintained, accessible and openable at all times of lawful occupation.	2
OHS	**Blocked, Locked Off or Inaccessible Exits** Stored goods should not occur within, or obstruct access to exits. Required exits should not be locked off, dead bolted or otherwise made inaccessible.	The door to the link on level 1 is fixed shut.	Remove obstructions to exits and remove storage from fire passages, and ensure that travel and access to exit doors and stairs is adequate.	1
D3.1 **(D3.1)**	**General Access for People with a Disability** <u>Commercial Buildings</u> The building is required to be generally accessible to persons with a disability throughout all areas unless specifically exempted. Exemption: A lift or ramp need not serve a storey (other than an entrance storey) in an office, retail, warehouse or	The following non-compliances were noted. • No access is provided via a lift to level 01	Provide compliant lift access to level 01.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	factory building if the building: - contains 3 or less storeys - each non accessible storey does not exceed 200m².			
D3.2 (D3.2)	**Access to Buildings** External access to the building must be provided:- • From main entry points at the allotment boundary. • Through the principle public entrance. • Through at least 50% of pedestrian entries. • From accessible car parking spaces. • For buildings over 500m², so that an accessible entry occurs within 50m of any non-accessible entry. • From any another accessible building on the site.	Considered acceptable as a level entry is provided to the ground via the double doors.		
D3.3 (D3.3)	**Access within Buildings** All main areas of the building must be accessible. Turnstiles, revolving doors and the like that restrict access by wheel chair users are not permitted unless alternative access arrangements occur. Public stairs and ramps connecting the upper and lower levels must comply with AS1428.1 - 2009 including:- • Handrails on both sides of the stair with curled extensions at the ends. • Closed risers. • Colour contrasted nosings.	The following further non-compliances were observed:- • Stairs and ramps generally do not incorporate handrails, rail extensions and other design features required by AS1428.1 -2009. Contrasting nosing strips also do not occur. Handrails do not occur to both sides of stairs, steps and ramps in various cases.	The external stairs are to be upgraded so that they contain accessible features.	3
Part D3	**Disabled Persons Access Details** Buildings required to be accessible must have travel paths, facilities and details which comply with AS1428.1. – 2009. Enhanced requirements apply to public transport buildings. Principle requirements are:- • Continuous accessible paths of travel throughout • Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc.	The following non-compliances were observed:- • Access and circulation spaces around doors and passageways do not meet full compliance with current standards. • Doors are provided with a 900 door leaf which does not achieve the required 850mm clearance.	Implement an action plan to the principles of disability legislation for progressive upgrade.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• No deep pile carpets or grates with large slots. • 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard. • 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways. • Turning spaces at 20m intervals. • Splayed 1.5m x 1.5m 90 deg turning spaces if the intersecting corridors are less than 1.5m wide and 1.54m x 2.07m long 180 deg turning spaces including at dead ends in passageways. • Step ramps, kerb ramps and threshold ramps as prescribed. • 1:14 maximum ramps with 9m between landings. • 1.9m x 1 in 10 (maximum 190mm rise) step ramps. • 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps. • 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc. • 850mm clear doorways with 340 - 900mm latchside clearances and 1220-1670mm approach clearances depending on arrangements. • Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs. • Decals to glazing. • 900-1100mm door hardware height. • Lever handle hardware with low opening forces. • Landings at doorways, direction changes and at intervals on ramps and inclined walkways. • Walkways with colour contrast borders. • Flat even surfaces. • Colour contrasted hand rails and door frames. • 850mm clear door widths. • Non-slip “D” pull handles to doors with 35-45mm hand clearance.			

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Continuous protected paths from disabled carspaces to lifts, access points, etc. • Ambulant disabled person's toilets with grabrails and outward swinging doors or longer cubicles. • Prescribed types of water entry arrangements for swimming pools depending on pool size. • Stairs (other than fire stairs) with opaque risers. • All stairs with colour contrasting nosing strips. • All switches and controls 900-1100mm above floor level. • A 1.54m x 2.07m long turning space is required at the ends of corridor dead legs that exceed 2m in depth and at 20m intervals in corridors. • 2m x 1.8m passing spaces are also required at intervals in corridors where a direct line of sight is not available. "T" and "+" corridor and accessway intersections may substitute for a required passing space. (Provided these zones allow wheelchair turning, 1,800mm wide corridor zones are not required at "T" or "+" intersections.) • Right angle corridor bends require a splayed 1.5m x 1.5m turning space if the intersecting corridors are less than 1.5m wide. Refer to Appendix D3 and F2.4 attached for further details. • Passing bays and turning zones for wheelchairs need to be confirmed in corridors.			
D3.6 (D3.6)	**Identification of Facilities, Services and Features** Braille and tactile signage is required to identify sanitary facilities, areas with hearing augmentation systems and to identify accessible entries and lifts and the location of accessible and ambulatory sanitary facility locations and details. Doors requiring exit signage must be provided with Braille and tactile signs identifying the exit and floor level number. Signage details must be in accordance with AS1428.1 and Specification D3.6 of the BCA.	Limited signage is provided and does not include Braille and tactile signage as required.	Upgrade signage to comply.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D3.7 (D3.7)	**Hearing Augmentation** AS1428.1 hearing augmentation systems are required to supplement amplification systems if installed in:- • Auditoria • Meeting rooms • Public service counters	Hearing augmentation systems were not apparent however given the building is no longer in use would not be required.	Considered acceptable.	
D3.8 (D3.8)	**Tactile Indicators (TGSIs)** AS1428.4.1 compliant Type B tactile ground surface indicators are required to publicly accessible stairs, ramps, escalators, travelators, low height projections and where pedestrian paths meet vehicular ways without a kerb. General requirements Include: • 600-800mm deep TGSIs at top and bottom of stairs and ramps and where landings exceed 3m in depth. • 300-400mm deep TGSIs at enclosed landings that are accessible. • TGSIs are not required in fire isolated stairs. • 600-800mm deep TGSIs at other hazards.	Tactile ground surface indicators are not apparent at public stairs and ramps or at the main entry doors at the junction with vehicle driveways.	Implement an action plan to the principles of disability legislation for progressive upgrade.	3
E1.3	**Fire Hydrants** An AS2419.1-2005 compliant fire hydrant system is required to provide hydrant cover throughout.	Hydrants occur but the system does not comply with the current AS2419.1-2005 standard. The system installed appears to be original to the building.	Maintain system to standards applicable at original installation and upgrade system to current standards when maintenance or upgrading works occur.	3
E1.4	**Fire Hose Reels** Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to exits except as follows:- • Class 2, 3 or 4 residential areas protected by 2.5kg ABE type extinguishers located in common areas on the storey served not more than 10m from each sole occupancy unit entry door • Electrical substations Hose reels are not permitted to pass through fire or smoke doors to achieve hoes reel cover.	Hose reels occur but the system does not comply with the current AS2441-2005 standard. The system installed appears to be original to the building.	Maintain system to standards applicable at original installation and upgrade system to current standards when maintenance or upgrading works occur.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
E1.6	**Fire Extinguishers** Portable fire extinguishers installed to AS2444 are required in prescribed risk areas and to fire brigade requirements including at:- • Emergency services switchboards • Kitchens • Flammable liquid stores • At nurses stations • Special risk areas	Portable fire extinguishers occur at various locations throughout the building.	Considered acceptable.	
E2.2	**Smoke Hazard Management** Smoke hazard management systems include zone smoke control, stair pressurisation, smoke detection & alarm systems or sprinkler systems. The requirement for smoke hazard management is determined based on the BCA classification, rise in storey and area/volume of the building. The MFPE also requires Smoke Hazard Management for CF1/CF2/Intolerable loss building and stores/workshops and hangars the meet the prescribed criteria	A smoke hazard management system is not mandatory, however, smoke detectors were provided throughout the building however installation would be as per the standards when the structure was built.	Considered acceptable.	
E3.6 (E3.6)	**Lifts for use by People with Disabilities** Passenger lifts should be fitted out for disabled persons use with handrails, information aids, doors, sensors and buttons to AS1735.12. Lift car dimensions must not be less than1.4m x 1.6m, or 1.1m x 1.4m for lifts with travel up to 12m or for lifts in an existing building. In limited circumstances conventional lifts may be replaced by stairway platform, low-rise platform, or similar lifts for persons with reduced mobility.	No lifts are available to access level 01.	Implement an action plan to the principles of disability legislation for progressive upgrade.	2
E4.2, E4.4, E4.5,E4.6, E4.8	**Emergency Lighting & Exit Signage** A system of emergency lighting and exit signage is required throughout to AS2293.1, or for photoluminescent exit signs, BCA spec E4.8.	Emergency lighting and illuminated exit signage generally occurs.	Upgrade emergency lighting and exit signage to current standards when maintenance or upgrading works occur.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
Part F1	**Damp and Weatherproofing** Construction performance standards apply for stormwater systems, roof coverings, sarking, waterproofing to wet areas, damp proofing, location of floor wastes, sub floor ventilation and weatherproofing of glazed assemblies.	Multiple areas were found to contain excessive dampness and mould due to holes in structure.	Water damage seems to be excessive and major works are required to bring the building to a suitable level. The building is a Hazard to occupy in PLPs view.	1
F1.4	**External Waterproofing Membranes** External waterproofing membrane systems for roofs, decks, balconies and the like must comply with AS4654 Parts 1 and 2.	The standard membrane detailing for waterproofing including minimum upturn termination lengths, requirements for stepped balcony details at doorways and windows and provision of continuous grates where stepping does not occur.	Compliance assumed.	
F1.11	**Wet Area Floor Wastes** Every bathroom and every laundry located at any level above another sole occupancy unit or public space must have a floor waste and the floor must be graded to the waste to allow drainage of water.	Compliance not determined.	Audit and upgrade during refurbishment.	3
F2.2, F2.3 & F2.6	**Sanitary Facilities** Adequate separate male and female sanitary and toilet facilities required in buildings.	A detailed assessment of the number of toilet and other sanitary facilities has not been undertaken. However, sanitary facilities occur and appear generally adequate.	Considered acceptable.	
F2.4 (F2.4)	**Facilities for People with Disabilities** Accessible unisex disabled persons toilets are required on each storey and at 50% of toilet banks on any storey. Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. The following general requirements apply:- • Unisex facility. • ~1.9 x 2.63m or 2.3 x 2.3m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies).	No accessible facilities for persons in a wheelchair or ambulant facilities are provided.	Install toilets within the building that are suitable for people with disabilities.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 30-40mm grabrails with 50-60mm clearances. • Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies • Washbasins with clearances as required. • Shielded hot water pipes. • Mirror, shelf, dispensers and coat hooks. • Mirrored layout for alternative facilities. A toilet cubicle for people with ambulant disabilities is also required for males and females at each bank of conventional toilets. (900 – 920mm wide with 900mm clear in front of WC and no door swing encroachment. Grab rails are required within the cubicle. Accessible showers of prescribed dimensions, designs and accessibility details are required to supplement required conventional shower facilities.			
F2.5	**Construction of Sanitary Compartments** Sanitary facilities should be adequately screened for privacy and for separation of the sexes.	Compliance is apparent.		
F2.7	**Microbial (Legionella) Control** Legionella control systems are required when hot, warm and cooling water systems are installed within a building. Compliance with AS3666.1 is prescribed.	Systems for chemical control of cooling water plant were not determined.	Undertake testing and control procedures as part of ongoing management in use of the building.	1
F3.1	**Height of Rooms or Other Spaces** Minimum ceiling heights apply throughout buildings, including:- • Offices: 2.4m • Car parks, corridors, sanitary facilities: 2.1m • Conference/Auditorium spaces: 2.7m	Compliance was generally apparent where observed.	Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F4.1, F4.2	**Natural Light to Specified Rooms** Natural lighting aggregating 10% of room floor area is required as follows:- • To all habitable rooms in residential buildings. • In bedrooms and dormitories of hotels, motels and the like. • To rooms used for sleeping in health care and aged care buildings. • To general purpose classrooms in primary and secondary schools. • To playrooms of early childhood centres.	A detailed review has not been undertaken. However, considered acceptable.		
F4.4	**Artificial Lighting** Artificial lighting within buildings should comply with AS1680.0.	Compliance could not be verified. However, adequate lighting levels appear to occur throughout areas inspected.	Considered acceptable.	
F4.5, F4.6 & F4.7	**Ventilation of Rooms** Buildings must be naturally ventilated via fixed or openable vents, windows, etc or mechanically ventilated in accordance with AS1668.2-2012.	Mechanical ventilation is provided to all areas of the building. Code amendments have occurred since the building's original construction which have increased required fresh air rates to buildings. In addition, performance solutions may have been applied using BCA verification method FV4.1. The installed mechanical systems may not be to current day standards. Details in this regards were not determined but systems would be considered adequate if maintained to original design standards.	Considered acceptable.	
Section J	**Energy Efficiency** Buildings must be designed and constructed to include energy efficiency measures. Applicable requirements include:- - The extent and method of insulation of external building envelope elements; - Thermal performance of external glazing; - Sealing of openings in external building elements;	Compliance was not able to be assessed but may not occur given the building predates the introduction of these measures into the BCA.	Upgrade building fabric and services as upgrading works occur.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	- Energy efficient performance of air-handling systems; - Energy efficient performance of power and lighting systems; - Energy efficient performance of heated water systems; and - The need for access to equipment relating to the energy efficient performance of the building.			

SECTION 5 – MAINTENANCE OF ESSENTIAL SAFETY MEASURES

5.1 MFPE

Chapter 7 of the MFPE requires maintenance of essential safety measures to be undertaken in accordance with relevant State legislation.

5.2 OVERVIEW (VIC)

Legislative requirements governing maintenance of essential safety measures of buildings are found in Part 15 of the Building Regulations 2018 made under the Building Act 1993.

Essential safety measures are fire and other safety features installed in or constructed as part of a building to ensure adequate levels of safety for the building. Essential safety measures include active building services such as fire sprinklers and mechanical services, passive fire safety items such as fire doors and fire rated structures and building infrastructure items such as paths of travel to exits.

They also include any other item that is required by or under the Act or the Building Regulations to be provided in relation to an asset for the safety of persons in the event of a fire or any other measure (including an item of equipment, form of construction, or safety strategy) required for the safety of persons using a building.

Standard Essential Safety Measures are listed in Schedule 8 of the Building Regulations 2018.

Maintenance provisions for essential safety measures are incorporated into legislation because it is a community expectation that a reasonable level of fire and general safety should be provided over the life of the building. Increasing onus is being placed on building owners to ensure the continued integrity of essential safety measures in order to meet their obligations under building regulations and under occupational health and safety requirements.

The Building Regulations require relevant building surveyors to schedule essential safety measures installed as part of the building approval and occupancy permit process.

Councils and fire officers are empowered to inspect maintenance records and enforce maintenance requirements for essential safety measures.

DISPLAY OF OCCUPANCY PERMITS

The Building Regulations 2018 require that occupancy permits be displayed in a prominent location accessible to the public and occupants.

MAINTENANCE OF ESSENTIAL SAFETY MEASURES

All buildings are subject to maintenance requirements as set out in Part 15 of the Building Regulations 2018 and summarised as follows.

"Essential Safety Measures" comprise all equipment, materials and components affecting safety.

The Occupancy Permit, Maintenance Determinations and Maintenance Schedules must list every relevant essential safety measure for the building and specify the level of performance and the maintenance regime for each such measure.

Owners must comply with Maintenance Determinations or Maintenance Schedules relevant to their buildings and maintain records of Maintenance Determinations and Schedules and of maintenance checks, service and repair work. In addition, owners must complete an Annual Essential Safety Measures Report (AESMR) every 12 months to declare all maintenance requirements have been carried out. All details must be available for inspection by the council

or fire brigade upon request. It is permissible for multiple Maintenance Determinations due to multiple works packages or permits to be consolidated to a single “Maintenance Schedule”.

The annual essential safety measures report must be in a prescribed form and must include:-

- the building address;
- details of any inspection reports undertaken by council or the fire brigade;
- certain statements of compliance; and
- the signature of the owner.

All AESMR’s prepared within 10 years of the request must be available to council or fire brigade inspectors with 24 hours of the request.

Exits and travel paths must be maintained in an efficient condition and kept readily accessible, functional and clear of obstruction. (This obligation rests with the occupiers of the building.)

LEGISLATION – BUILDINGS CONSTRUCTED PRIOR TO INTRODUCTION OF MAINTENANCE, OBLIGATIONS

All buildings must now be brought into compliance with the maintenance and reporting requirements described above, regardless of their date of construction.

METHODOLOGY FOR COMPLIANCE

A methodology for implementing a system of essential safety measures maintenance should include the following fundamental tasks and systems:-

- Review the building and occupancy permit history for the building and identify the minimum maintenance regime required by the legislation.
- Establish a system to incorporate ongoing and future building and occupancy permits events and provide for suitable adjustment of the maintenance regime.
- Record all maintenance activities undertaken.
- Include systems to ensure that all essential safety measures have been subjected to their individual prescribed maintenance checks.
- Record and report annually to confirm that the regime has been satisfactorily completed over the year.
- Hold documentation for 10 years.

5.2 MAINTENANCE REQUIREMENTS

Outlined below is a schedule of requirements for essential safety measures which may typically occur within a building. The installation standard and frequency and nature of maintenance required relate to requirements listed under Australian Standards or Building Regulations. The list is not necessarily comprehensive as other safety systems may have been specified in the design and construction of the building.

Maintenance Requirements for Essential Safety Measures

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Building Fire Integrity		
Building elements required to satisfy prescribed fire resistance levels, (including walls, columns, beams, floors, ceilings and shafts, etc.)	Section C	Annual inspection to AS1851-2012, Section 12 for damage, deterioration, or unauthorised alteration
Materials and assemblies required to satisfy prescribed fire hazard properties for linings and surface finishes	C1.10	Annual inspection for damage, deterioration, or unauthorised alteration

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Elements required to be non-combustible, provide fire protection, compartmentation or separation (including fire walls, smoke walls, fire resistant exits, and fire resistant elements such as walls, floors, ceilings, protective coverings, access panels and control joints)	C2.5 to C2.14, C3.3, C3. E1.3,	Annual inspection for damage, deterioration, or unauthorised alteration
Fire Doors (hinged and pivoted incl their associated warning systems) and assoc. self-closing, auto closing and latching mechanisms	C.12 to C2.13, C3.4 to C3.8, C3.10 to C3.11, D1.7, D1.8, D1.12	Every six months as per AS1851- 2012 Section 12 check operation of handles, closers and electronic strikes.
Fire Protection at services penetrations through elements required to be fire resisting or have a resistance to the incipient spread of fire	C3.12, C3.13, C3.15	Annually as per AS1851-2012, Section 12 to inspect for damage, deterioration, or unauthorised alteration.
Fire protection associated with construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation	C3.16	Annually as per AS1851-2012, Section 12 to inspect for damage, deterioration, or unauthorised alteration.
Means of Egress		
Paths of travel to exits	D1.6	Inspection every three months to ensure there are no obstructions and no alterations
Discharge from exits (including paths of travel from open spaces to the public roads to which they are connected)	D1.9 to D1.11, D2.12	Inspection every three months to ensure there are no obstructions and no alterations
Exits (including fire-isolated stairways and ramps, non-fire-isolated stairways and ramps, stair treads, balustrades and handrails associated with exits, and fire-isolated passageways)	D2.2, D2.3, D2.8 to D2.11, D2.13, D2.16, D2.17	Inspection every three months to ensure there are no obstructions and no alterations
Doors (other than fire or smoke doors) in a required exit, forming part of a required exit or in a path of travel to a required exit, and associated self-closing, automatic closing and latching mechanisms	D1.6, D2.19 to D2.21, D2.23	Inspection every three months to ensure doors are intact, operational and fitted with conforming hardware
Signs		
Exit identification including signs on fire doors and smoke doors; signs on egress doors leading from fire-isolated passageways; signs and audible and visual alarms on sliding fire doors; chevron stripes; and flashing luminaries	Clauses D2.23 and C3.6 and as approved by the authority having jurisdiction	Annual inspection to determine signs and alarms are intact and operational where relevant
Exit signs (including direction signs),	Specification D1.12, E4.5, E4.6, E4.8	Every six months to AS2293.2-1995.
Lighting		
Emergency lighting	E4.2, E4.4	Every six months to AS2293.2-1995
Fire Fighting Services and Equipment		
Fire hydrant system (including on-site pump set and fire-service booster connection)	BCA E1.3, AS2419.1	Six monthly to AS 1851-2012, Section 4 (also monthly to AS1851-2012, Section 3 where pumps are installed)

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Fire hose reel system	E1.4, AS 2441-2005	Every six months to AS1851-2012 Section 9.
Portable fire extinguishers	E1.6	Every six months to ensure extinguishers are in place and to AS1851-2012 Section 10
Sprinkler protection of openings	C3.4 and as approved by relevant authority	Annually to ensure protection of openings is maintained
Air Handling Systems		
Fans and fan motors associated with the operation of ventilation system (frequent and emergency uses)	AS/NZS 1668.1-1998 and AS 1668.2-2012	Quarterly as prescribed in AS1851-2012 Section 13
Air control dampers – recycled & relief air, smoke spill & outdoor air, and supply and return air exhaust	E2.2	Six monthly as prescribed in AS1851-2012 Section 13
Outdoor intakes	F4.5	Monthly as prescribed in AS1851-2012 Section 13
Automatic Fire Detection and Alarm Systems		
Smoke and heat detection system	Clause 4 of Specification E2.2a	Monthly as prescribed in AS1851-2012 Section 6
Occupant Warning Systems		
Building occupant warning systems including audible alarms, recorded and visual messages	Clause 8 of Specifications E1.5; E2.2a and Clause 6 of Specification E2.2a	Monthly as prescribed in AS 1851-2012 Section 6
Mechanical Ventilation and Hot, Warm and Cooling Water Systems		
Mechanical ventilation systems incorporating cooling tower systems (other than a system serving only a single sole-occupancy unit in a Class 2 or 3 building or a Class 4 part of a building)	E2.2, F4.5 and F4.11	Monthly to AS3666 -2011
Mechanical ventilation systems incorporating hot and warm water systems (other than a system serving only a single sole-occupancy unit in a Class 2 or 3 building or a Class 4 part of a building)	F2.7 (Microbial Control)	Monthly to AS3666 -2011

* Essential Safety Measures marked with an " * " are not currently included within the schedule of measures requiring maintenance under the Victorian Building Regulations 2018, however maintenance of these items is required.

PLP Building Surveyors & Consultants Pty Ltd

Melbourne | Brisbane | Perth

VT12399
POINT COOK HERITAGE CONSULTANCY

BCA & MFPE COMPLIANCE REPORT
Buildings A0007

26 OCTOBER 2018

PREPARED BY: PLP BUILDING SURVEYORS & CONSULTANTS PTY LTD

PREPARED FOR: AURECON FOR AND ON BEHALF OF DEPARTMENT OF DEFENCE

JOB NO: 05949

CONTENTS

REVISION HISTORY		
Revision	**Date**	**Purpose/Details Of Revision**
0	11-10-2018	Initial Draft
1	26-10-2018	Issued to team

AUTHORISED BY: .....
FRANK ISGRO, SENIOR ASSOCIATE

EXECUTIVE SUMMARY

Building A0007 located at RAAF Williams (Point Cook) was inspected to establish the broad level of compliance with the requirements of the Building Code of Australia 2016 (Including Amendment 1) (**BCA**), the disability access requirements of the Disability (Access to Premises – Buildings) Standards 2010 (**Premises Standards** or **PS**) and the Manual of Fire Protection Engineering Edition 2 (**MFPE**).

BCA, MFPE and Premises Standards non-compliances identified are allocated a priority rating based on perceived hazard level, statutory obligations to rectify the non-compliance in the circumstances, and risk mitigation considerations. Rectification works are recommended where applicable.

Overall, the building is rated poor in terms of general building regulations compliance.

Access and facilities for people with disabilities are rated poor.

Maintenance of essential safety measures appears to be to a poor standard. An annual essential services declaration was not sighted during the inspection.

Section 4 of this report details defects identified. Items requiring rectification have been allocated a Priority Rating as follows to indicate the degree of risk considered to occur by the auditor:

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or the nature of the non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

SECTION 1- BRIEF AND SCOPE

1.1 Introduction

This report presents an assessment of the office and educational building A0007 against the requirements of the Building Code of Australia, the Disability (Access to Premises – Buildings) Standards and Manual of Fire Protection Engineering Edition 2 (MFPE).

1.2 Assessments

Assessments are against the deemed-to-satisfy provisions of Building Code of Australia 2016 (Including Amendment 1) (BCA), the Access Code provisions of the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards or PS), and Manual of Fire Protection Engineering Ed.2, current at the date of inspection of the building.

Commentary is also provided on requirements for ongoing maintenance and certification of essential fire safety measures and on circumstances under building regulations when upgrade of the building to current day building regulations may become a statutory obligation.

The report makes comments and recommendations with respect to BCA and PS requirements. These opinions are the considered view of PLP Building Surveyors & Consultants Pty Ltd taking into account the specific circumstances encountered and recognising that the circumstances are existing arrangements which have, in many cases, been in place for a significant period of time.

1.3 Basis of Report

The report was prepared on the basis of the following:-

- A brief walk-through inspection of the building undertaken on 9th October 2018. It is noted that access was unavailable to the building. No keys were provided to PLP.
- Preliminary architectural drawings provided by Aurecon/HDR.
- Building information made available for review.

Documents received and advice provided on site were generally accepted as accurate unless evidence to the contrary became apparent during the course of the inspection.

Comments offered assume that areas sighted are representative of the building as a whole.

Unless noted otherwise, the report assumes that the existing use of the building will continue.

1.4 Scope and Exclusions

The report was prepared on the basis of a “walk through” inspection of the perimeter of building and represents a broad overview only on compliance with the current provisions of the BCA and the PS. The following limitations apply in the interpretation of findings:-

- The report excludes matters relating to areas or components that were not accessed or were unsighted at the time of inspection. Areas and components not accessed or not sighted are outside the scope of this report.
- The report considers matters of a significant nature only and should not be considered exhaustive.
- The passage of time, manifestation of latent conditions, or impacts of future events, may require further exploration, analysis and re-evaluation of the findings, observations and recommendations expressed in this report.
- PLP Building Surveyors & Consultants Pty Ltd are not qualified Quantity Surveyors and costs provided in any Capital Expenditure Forecasts allow for general order of cost reporting only. Their accuracy should not be relied upon and must be independently verified.

- No analysis or testing of building services systems was performed to confirm compliance with current day performance requirements, codes and specifications.
- No documentation searches were undertaken, either with public authorities or with the building owners, and no attempts were made to determine whether notices, orders or other outstanding requirements of relevant authorities apply.
- Appraisals are limited to the provisions of the BCA, MFPE, and the Premises Standards. Except where specifically stated, other legislative requirements have not been considered.
- The report does not constitute a detailed review of essential services maintenance issues. Only an overview of legislative requirements is provided.
- The report does not consider structural compliance issues and does not include review of the structural sufficiency of the building.
- The report does not include a detailed review of compliance with applicable Australian Standards. Rather, the report is limited to commentary on the existence and general appearance of building systems and services.
- Compliance with Australian Standards for glass and glazing systems is not covered.
- Titles and title particulars have not been reviewed.
- Pest or vermin infestation matters are not addressed.
- Although comments are offered on matters relating to the Federal Disability Discrimination Act (DDA), this report does not constitute a full DDA audit and cannot be read as such.
- The report does not include a review of plumbing or electrical installations.
- Requirements under Occupational Health and Safety Legislation are not addressed.
- Dangerous Goods Legislation is not addressed.

1.5 General Limitation Statement

The findings in this report were derived from visual inspection of representative areas of the complex, review of limited documents available, and advice received from individuals with information about the site. No warranty or guarantee, whether expressed or implied, is made with respect to the matters reported.

1.6 Use of Report

This report is prepared for the sole benefit of the Client as noted on the facing page of this report. The report is prepared on the basis of instructions and briefing by the Client. PLP Building Surveyors & Consultants Pty Ltd accepts no liability for the use of or reliance upon this report by any third party.

1.7 Inspection Date and Validity

The inspection was undertaken on 9 October 2018 and is based on circumstances existing on that date.

SECTION 2- LEGISLATION

2.1 Application of the MFPE

The MFPE generally obliges that buildings be maintained to the standards in force at the time that the building was constructed.

There is no general requirement for buildings to be continually upgraded to achieve compliance with current day regulations. Broadly speaking, retrospective application of BCA or the PS is not required unless one of the following circumstances occurs:-

- A significant safety hazard is perceived to exist and building authorities make orders to reduce the hazard.
- Major alterations or additions are proposed as defined in the MFPE.
- The premises become subject to a "change of use" as defined in the MFPE.
- A successful action is brought following lodgement of a complaint under disability discrimination legislation.
- Provisions under Disability Regulations apply as set out in Section 2.2 below such that upgrade of access paths from the main building pedestrian entry to all new work areas is required.
- Specific legislation occurs which requires retrospective upgrade in particular circumstances. e.g. Sprinkler protection and smoke detection to certain residential buildings.

2.2 Access Requirements for People with a Disability

The Disability (Access to Premises – Buildings) Standards came into force throughout Australia on 1 May 2011. In prescribed circumstances, the legislation requires upgraded access for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could generate a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the new building work.

Building owners need to be aware that the provisions can result in the need to undertake significant enhancement of a building in terms of access for disabled persons, even if only minor general building work is proposed.

2.3 Certificates of Classification, Occupation and Works Completion

Signoff certificates for occupation or certificates for completion of buildings work were not available for review. For the purpose of this report, it has been assumed that appropriate commissioning and other certificates were issued at the time of original works completion that the basis of the certificates was valid in each case, and that the building works covered by the certificates were carried out in accordance with the approvals granted. If available, it is recommended that these documents be sourced as they may include information, conditions or requirements for ongoing management and occupation of the building.

2.4 Performance Building Solutions

The current day BCA and the Premises Standards are performance based building codes. Compliance may be achieved by either satisfying prescriptive deemed-to-satisfy provisions or by formulation of an Performance Solution. A valid Performance Solution enables deemed-to-satisfy provisions to be varied. Whilst a Performance Solution can relate to any matter, those with the greatest impact on a building generally relate to fire safety and access for people with a disability.

It is possible that the building may have been subject to past Performance Solutions although details in this regard were not sourced. Performance Solutions can be subject to conditions and obligations affecting the ongoing building use. Hence, it is recommended that details of any Performance Solutions applied to the building be sourced.

No attempt has been made to source such documents. It is again recommended that details of any dispensations, or the like be procured. Any conditions or requirements of these processes may need to be maintained as part of ongoing management and use of the building.

2.5 Maintenance of Essential Safety Measures

Maintenance requirements for the building's essential safety measures are as set out in legislation. These provisions require building owners to have fire safety services and other essential safety measures maintained and checked as specified.

An annual compliance certificate is required in most jurisdictions and it is a building owner's duty to ensure that essential fire safety services and other measures are maintained to ensure the ongoing safety of the building. Local councils or fire brigades can randomly audit buildings to ensure that maintenance is occurring.

Refer to Section 5 of this report for more detailed commentary.

SECTION 3- COMMENT ON OVERALL LEVEL OF COMPLIANCE

3.1 General BCA and MFPE Provisions

Overall, the building is rated poor in terms of the current day BCA and MFPE compliance. The building does not comply with a number of BCA requirements. Some non-compliances observed are reflective of changed regulatory requirements over time. Alternatively, it is possible that the building may have received dispensation from the approval authority at the time of construction.

Based on the current conditions this building is not suitable for Occupation due to obvious signs of mould and dampness. There were also obvious signs of structural defects which will require review from a qualified structural engineer.

3.2 Access Provisions

Access and facilities for persons with disabilities are rated poor against the provisions of the BCA and the Premises Standards.

The building does not comply with the access requirements of the BCA and Premises Standards and does not therefore meet obligations under the Federal Disability Discrimination Act 1992 and similar State and Territory legislation. Disability legislation is often complaints based and there are procedures whereby upgrade works may be required and enforced. Building owners need to consider their obligations and risks in this regard and it is recommended that an action plan for progressive upgrade works be developed for the building in accordance with procedures under the Disability Discrimination Act 1992.

In addition, the lack of access and features for persons with a disability may need to be addressed if building work is proposed, even if the proposed work is relatively minor. Refer to Section 2.2 above for further discussion in this regard.

3.3 Maintenance of Essential Services

Based on a random review of maintenance tags fixed to fire services in the building, the level of maintenance of these essential services appears to be fair.

An annual essential services declaration was not sighted.

It is recommended that contractors continue to be engaged to ensure that all essential services and safety systems within the building are routinely audited and subjected to maintenance processes.

It is further recommended that a full Maintenance Schedule for all essential safety measures be prepared as is now required pursuant to the provisions of the Victorian Building Regulations 2018.

SECTION 4 – SCHEDULE OF COMPLIANCE WITH BCA, MFPE, & PS DEEMED-TO-SATISFY PROVISIONS

The table below provides a summary of observed areas of non-compliance with deemed-to-satisfy provisions of the BCA, MFPE, and the PS. Recommendations are included and a priority for recommendations is provided. The priority ratings adopted are as follows:-

Priority Ratings

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or level of non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
General	**Description of Building** The height, size and other parameters of the building affect BCA provisions applicable to the building.	The building consists of a 2 storey building used as an office and theatre. The building is currently not occupied		
MFPE	**Building Criticality** Chapter 2 of the MFPE requires all buildings to be categorised into one of the following contribution factors: • CF1 Major Asset • CF2 Important Asset • CF3 Support Asset • CF4 General Purpose Asset • CF5 Low Importance Asset Buildings are also categorised as being tolerable or intolerable to loss in a fire event.	A completed criticality assessment has not been provided. This report has been prepared on the basis that the building contribution factor is CF4. It is also assumed that the loss of all or part of the building is tolerable.	Complete a criticality assessment form in accordance with MFPE Chapter 2.	2
General	**Maintenance of Essential Safety Measures** All essential fire and other safety systems throughout the complex must be maintained fit for purpose at all times to ensure the safety of building occupants.	The required Annual Essential Safety Measures (AESM) Statement was advised not to be completed.	Rectify shortfalls in maintenance of Essential Safety Measures and update the AESM Statement. Collate all historic building works records and information for the building and produce a maintenance schedule for the building as required by current Victorian legislation.	1 1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
A3.2	**Usage** The nature of the building's usage influences BCA provisions applicable to the building.	Usage and BCA usage class on each level is as follows:- Level / Use / BCA Class Ground / Office / theatre / 5/9b Level 1 / theatre / 5/9b	Note.	
D1.13	**Populations** Populations throughout are based on BCA floor area per person allowances or project briefing as appropriate.	Public Assembly and Function areas have the capacity for high populations. Based on BCA area per person figures, population estimates are as follows:- Level / Zone / Max Populatic Ground / All / 163 Level 1 / All / 55	Note. Only 50 occupants permitted to level 1 theatre as there is only 1 exit.	
A1.1, C1.2	**Effective Height and Rise in Storeys** Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as the vertical distance between the lowest level of the building providing direct access and the exterior and the level of the floor of the highest occupied level. These parameters influence the BCA provisions applicable to the building.	The following parameters apply:- Rise in storeys 2 storeys Effective Height: <12m (approx. 3.5m)		
Part B1	**Structural Provisions** Various Australian Standards are referenced to establish the structural adequacy of a building.	Compliance not assessed, report to structural engineers report. As Australian Standards are upgraded periodically, it is likely that the building no longer conforms to current day standards which may have increased from those applicable at the time of construction. In particular, requirements for earthquake resistance and glazing have been significantly increased in recent years.	Unable to inspect internal structure however externally seemed acceptable. Photos provided show internal structure is not in an ideal condition. Structural engineer to confirm. If major alterations, a change of use, or other trigger for retrospective upgrade to BCA compliance could apply, structural engineering advice should be sought in terms of the extent of work needed to upgrade the building to compliance with current day standards.	2 3

<table>
<tr><th>BCA Ref (PS Ref)</th><th>BCA Requirement</th><th>Observations</th><th>Recommendations</th><th>Priority Rating</th></tr>
<tr><td></td><td></td><td></td><td>Earthquake response levels should be assessed to verify that a reasonable level of earthquake resistance occurs.</td><td>3</td></tr>
<tr><td>C1.1 & Spec C1.1, C1.9, C1.13 Spec A1.1</td><td>Type of Construction

The BCA applies “Type of Construction” requirements to a building to define the extent and level of fire resisting construction required.

<u>Building 007</u>

The building is required to be of Type B partially fire resisting construction.

Basic requirements for Type A or B Construction are non-combustible construction with fire ratings as follows:-

Building Member — Requirement
External walls (loadbearing) and internal loadbearing structures supporting floors* — 1.5 – 4 hr FRL (non-combustible)
External walls (non-loadbearing) within 3m of Other buildings — 1.5 – 4 hr FRL (non-combustible)
Floors — 1.5 – 4 hr FRL
Roofs/ceilings and internal columns and walls supporting roofs — Nil (where sprinklers installed) or 1 hr FRL if not sprinklered (non-combustible covering)
Lift, stair and services shafts (non-loadbearing) — 1.5 – 2 hr FRL
Fire walls — 1.5 – 4 hr FRL</td><td>A reinforced concrete and masonry base structure generally occurs and is consistent with the Type of Construction and fire resistance levels required.

However, framed concrete and masonry structural elements would be considered to adequately satisfy basic requirements for fire resistance.</td><td>Considered acceptable.

Considered acceptable.</td><td></td></tr>
<tr><td>C1.1, C1.9, C1.14</td><td>Combustible Façade Cladding (CFC)

Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or Composite Panels, means that it is unlikely that any CFC façade linings would be considered compliant.</td><td>Unable to determine purely on visual inspection but there were no obvious signs of combustible materials used to the façade.

The glazed façade and masonry external walls would typically comply.</td><td>Review as built documentation to ensure that installed materials are BCA compliant and are installed to manufacturer’s requirements and specifications,.

Any non-compliances should be reviewed by a fire engineer and upgrades carried out as required.

Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events</td><td>3</td></tr>
</table>

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
			involving Aluminium or similar Composite Panels means that it is unlikely that these would be considered compliant.	
C1.10, C1.10a	**Fire Hazard Properties** Requirements for early fire hazard properties apply to wall, ceiling and floor coverings and for construction materials generally.	The fire hazard properties of floor & wall linings and other elements were unable to be fully determined. However, materials installed appear to be typical for a building of this type and age.	Considered acceptable based on photos provided.	
C2.2, C2.3 E2.2	**Floor Area Limits (Type B Construction)** A fire compartment size limit of 5,500m^2/33,000m^3 applies for office or public assembly assuming Type B construction.	The area of the building is 1075m² (not including adjoining building) The area and volume is within prescribed limits.	Considered acceptable.	
C3.2 C3.4	**External Openings Near Fire Sources** External wall openings must be fire protected where they occur within 3m of the allotment boundaries, within 6m of boundaries on the opposing side of public roadways, or within 6m of other buildings on the same allotment. Openings that require fire protection should not occupy greater than 1/3 of the elevational area of the storey concerned.	Further detail required to confirm if fire separation is required at links bridges.	Plans on the adjoining building will be required to confirm compliance.	2
C3.12-C3.15	**Fire Stopping of Services** Services penetrations of fire rated structure must be fire stopped and/or located in fire rated riser shafts.	Unable to inspect penetrations through floors as no access was provided.	Audit and upgrade fire stopping of services as required. Current BCA requires floors to be separated to at least 30 minutes in a class 9b type B building. Penetrations in the floor slabs are to be sealed with an approved product if required.	3
D1.2	**Number of Exits and Exits from Fire Zones** At least two exits need to serve all areas of every storey as follows:- • High rise buildings over 25m in effective height • Each basement level	A sufficient number of exits occur on ground level and level 1.	Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D1.4, D1.5	**Exit Travel Distances** The following travel distance limits apply: • ≤ 20m to a single exit or to a point of choice alternative egress path. • ≤ 40m to the closest alternative exit. • ≤ 60m travel distance between alternative exits and not less than 9m between alternative exits. • Exit paths to alternative exits should not converge at any point to be less than 6m apart.	Travel distances measured on plans and observed indicate compliance.	Considered acceptable.	
D1.6	**Exit Widths** Minimum aggregate exit widths are required based on building populations served. Exit pathway and doorway widths and heights must achieve minimum requirements.	Compliance occurs.	Considered acceptable.	
D1.9	**Non-Fire Isolated Exit Stairs Serving Non-Residential Levels** Where exit travel occurs via a non-fire isolated stair, the following requirements apply:- • Stairs must provide continuous travel via their own flights and landings down to the level of discharge. • Overall travel distance from any point on a floor to the exterior via a non-fire isolated stair should not exceed 80m. • The stair point of discharge should not be located further than 20m from a door to a road or open space or more than 40m from one of two such doors where access to them is in opposite directions.	Compliance occurs.	Considered acceptable.	
D1.10	**Discharge from Exits** Exits must discharge to a street or road or to open space leading to a street or road and should not pass through a tenancy space.	Compliance Occurs.	Considered acceptable.	
D2.3	**Non-Fire Isolated Stairs and Ramps** Non fire isolated stairs must be constructed of concrete, minimum 6mm steel or minimum 44mm hardwood timber.	Unable to verify compliance with no access		

<table>
<tr><th>BCA Ref (PS Ref)</th><th>BCA Requirement</th><th>Observations</th><th>Recommendations</th><th>Priority Rating</th></tr>
<tr><td>D2.7</td><td>Services in Exits and Paths of Travel

Electrical meters and motors, distribution boards and telecommunication boards must not be accessed from fire isolated exits and, if located in corridors leading to exits, should occur in non-combustible or fire protective smoke sealed enclosures.</td><td>Unable to verify compliance with no access.</td><td></td><td></td></tr>
<tr><td>D2.10, D2.13, D2.14</td><td>Slip Resistance of Ramps, Steps and Landings

Ramp surfaces, stair tread surfaces or nosing strips and stair landing surfaces or nosing strips to a flight below, must achieve slip resistance classifications to AS4586-2013 as follows:-
<table>
<tr><th>Application</th><th>Dry Surface Condition</th><th>Wet Surface Condition</th></tr>
<tr><td>1:14 or steeper ramps</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramps of 1:14 to 1:20</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or Landing Surface</td><td>P3 or R10</td><td>P4 or R10</td></tr>
<tr><td>Nosing or Landing Strip</td><td>P3</td><td>P4</td></tr>
</table></td><td>Unable to verify compliance with no access.</td><td></td><td></td></tr>
<tr><td>D2.13</td><td>Goings and Risers

To provide safe passage, stairways must comply with the following:-
No more than 18 and no fewer than 2 risers in each flight.
Risers and goings that are consistent in a flight and within a prescribed range of dimensions.
Riser gaps and step openings that do not exceed 125mm.
Non-slip treads and non-skid tread nosings.
Solid treads if the stair height exceeds 10m or three storeys.
If used for egress, contain no winders or triangular treads.
If not used for egress, have limited winders at landings with even goings.</td><td>Unable to verify compliance with no access.</td><td></td><td></td></tr>
</table>

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.14	**Landings** Stair landings must comply with the following:- • Maximum 1 in 50 falls. • Minimum 750mm length. • Non-slip finish with non-skid nosings.	Unable to verify compliance with no access.		
D2.15(c)	**Door Thresholds in Buildings Required to be Accessible** All doors from the exterior into a building required to be accessible under Part D3 must have a threshold ramp or step ramp to AS1428.1	The doors leading externally contain thresholds at various locations with no ramps.	Provide threshold and step ramps as required.	3
D2.16	**Balustrades** Requirements apply to the provision and design of barriers at locations where a person could fall 1m or more. Generally 125mm maximum gap size limits apply between balusters or rails and a 1m minimum height applies, with alternate dimensions permitted in fire isolated stairs and industrial areas. Climbable balustrade elements are prohibited where a person could fall 4m or more. Minimum sill heights apply at openable windows where people could fall more than 4m.	Unable to verify compliance with no access.		
D2.17(a)	**Exit Stair Handrails in Accessible Areas** Handrails to exits (including fire isolated exits) serving an area required to be accessible to people with disabilities must comply with Clause 12 of AS1428.1, viz:- • Handrails not to obstruct circulation space • 30-50mm diameter • 865-1000mm above nosing line of stairs • 865-1000mm above ramps and landings • Consistent height throughout • 50mm grip clearance and no obstructions to handhold • Continuous at internal (return) landings	Unable to verify compliance with no access.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Provided with handrail extensions and 1800mm curled ends			
D2.20	**Door Swings** Except where serving areas of 200m^2 or less, exit doors and discharge doors from the building should swing outward in the direction of exit travel.	Generally appears to comply.		
D2.21	**Exit Door Hardware** Exit doors and doors in a path of travel to an exit must be provided with "free handle" egress via single handed downward (lever) or pushing action door hardware, and if serving an area accessible to people disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances.	Unable to verify with no access however main exit doors appeared to be compliant.		
D2.21	**Exits Locked** Exit doors should not be locked or fitted with lockable devices.	Unable to verify with no access however main exit doors appeared to be compliant.	Ensure all exits are maintained, accessible and openable at all times of lawful occupation.	Note
D3.1 **(D3.1)**	**General Access for People with a Disability** <u>Commercial Buildings</u> The building is required to be generally accessible to persons with a disability throughout all areas unless specifically exempted. Exemption: A lift or ramp need not serve a storey (other than an entrance storey) in an office, retail, warehouse or factory building if the building: - contains 3 or less storeys - each non accessible storey does not exceed 200m².	The following non-compliances were noted. - No lifts are available to access level 01. - Only 1 access way is provided with on grade access. - Doors are generally not 850mm clear.	Install a lift to provide access for people with disabilities to level 01. Alter doorways so that they achieve 850mm clear width.	2
D3.2 **(D3.2)**	**Access to Buildings** External access to the building must be provided:- • From main entry points at the allotment boundary. • Through the principle public entrance. • Through at least 50% of pedestrian entries.	Only 1 accessible on grade entry is provided.	Implement an action plan to the principles of disability legislation for progressive upgrade.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• From accessible car parking spaces. • For buildings over 500m², so that an accessible entry occurs within 50m of any non-accessible entry. • From any another accessible building on the site.			
D3.3 (D3.3)	**Access within Buildings** All main areas of the building must be accessible. Turnstiles, revolving doors and the like that restrict access by wheel chair users are not permitted unless alternative access arrangements occur. Public stairs and ramps connecting the upper and lower levels must comply with AS1428.1 - 2009 including:- • Handrails on both sides of the stair with curled extensions at the ends. • Closed risers. • Colour contrasted nosings.	The following further non-compliances were observed:- • Stairs would not be provided with compliant accessible features such as handrails, tactile indicators etc.	The internal stairs are to be upgraded so that they contain accessible features.	3
Part D3	**Disabled Persons Access Details** Buildings required to be accessible must have travel paths, facilities and details which comply with AS1428.1. – 2009. Enhanced requirements apply to public transport buildings. Principle requirements are:- • Continuous accessible paths of travel throughout • Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc. • No deep pile carpets or grates with large slots. • 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard. • 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways. • Turning spaces at 20m intervals. • Splayed 1.5m x 1.5m 90 deg turning spaces if the intersecting corridors are less than 1.5m wide and 1.54m x 2.07m long 180 deg turning spaces including at dead ends in passageways. • Step ramps, kerb ramps and threshold ramps as prescribed.	The following non-compliances were observed:- • Access and circulation spaces around doors and passageways do not meet full compliance with current standards. • Doors are provided with a 900 door leaf which does not achieve the required 850mm clearance.	Upgrade door hardware and doors so that adequate clearances are provided. Implement an action plan to the principles of disability legislation for progressive upgrade.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 1:14 maximum ramps with 9m between landings. • 1.9m x 1 in 10 (maximum 190mm rise) step ramps. • 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps. • 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc. • 850mm clear doorways with 340 - 900mm latchside clearances and 1220-1670mm approach clearances depending on arrangements. • Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs. • Decals to glazing. • 900-1100mm door hardware height. • Lever handle hardware with low opening forces. • Landings at doorways, direction changes and at intervals on ramps and inclined walkways. • Walkways with colour contrast borders. • Flat even surfaces. • Colour contrasted hand rails and door frames. • 850mm clear door widths. • Non-slip “D” pull handles to doors with 35-45mm hand clearance. • Continuous protected paths from disabled carspaces to lifts, access points, etc. • Ambulant disabled person’s toilets with grabrails and outward swinging doors or longer cubicles. • Prescribed types of water entry arrangements for swimming pools depending on pool size. • Stairs (other than fire stairs) with opaque risers. • All stairs with colour contrasting nosing strips. • All switches and controls 900-1100mm above floor level. • A 1.54m x 2.07m long turning space is required at the ends of corridor dead legs that exceed 2m			

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	in depth and at 20m intervals in corridors. • 2m x 1.8m passing spaces are also required at intervals in corridors where a direct line of sight is not available. "T" and "+" corridor and accessway intersections may substitute for a required passing space. (Provided these zones allow wheelchair turning, 1,800mm wide corridor zones are not required at "T" or "+" intersections.) • Right angle corridor bends require a splayed 1.5m x 1.5m turning space if the intersecting corridors are less than 1.5m wide. Refer to Appendix D3 and F2.4 attached for further details. • Passing bays and turning zones for wheelchairs need to be confirmed in corridors.			
D3.6 (D3.6)	**Identification of Facilities, Services and Features** Braille and tactile signage is required to identify sanitary facilities, areas with hearing augmentation systems and to identify accessible entries and lifts and the location of accessible and ambulatory sanitary facility locations and details. Doors requiring exit signage must be provided with Braille and tactile signs identifying the exit and floor level number. Signage details must be in accordance with AS1428.1 and Specification D3.6 of the BCA.	Limited signage is provided and does not include Braille and tactile signage as required.	Upgrade signage where required.	3
D3.7 (D3.7)	**Hearing Augmentation** AS1428.1 hearing augmentation systems are required to supplement amplification systems if installed in:- • Auditoria • Meeting rooms • Public service counters	Hearing augmentation systems were not apparent however given the building is no longer in use would not be required.	Considered acceptable.	
D3.8 (D3.8)	**Tactile Indicators (TGSIs)** AS1428.4.1 compliant Type B tactile ground surface indicators are required to publicly accessible stairs, ramps, escalators, travelators, low height projections and where pedestrian paths meet vehicular ways without a kerb.	It is likely that the internal stairs are not provided with tactile indicators.	Install TGSIs to all stairs.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	General requirements Include: • 600-800mm deep TGSIs at top and bottom of stairs and ramps and where landings exceed 3m in depth. • 300-400mm deep TGSIs at enclosed landings that are accessible. • TGSIs are not required in fire isolated stairs. • 600-800mm deep TGSIs at other hazards.			
E1.3	**Fire Hydrants** An AS2419.1-2005 compliant fire hydrant system is required to provide hydrant cover throughout.	Hydrants occur but the system does not comply with the current AS2419.1-2005 standard. The system installed appears to be original to the building.	Maintain system to standards applicable at original installation and upgrade system to current standards when maintenance or upgrading works occur.	3
E1.4	**Fire Hose Reels** Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to exits except as follows:- • Class 2, 3 or 4 residential areas protected by 2.5kg ABE type extinguishers located in common areas on the storey served not more than 10m from each sole occupancy unit entry door • Electrical substations Hose reels are not permitted to pass through fire or smoke doors to achieve hoes reel cover.	Hose reels occur but the system does not comply with the current AS2441-2005 standard. The system installed appears to be original to the building.	Maintain system to standards applicable at original installation and upgrade system to current standards when maintenance or upgrading works occur.	3
E1.6	**Fire Extinguishers** Portable fire extinguishers installed to AS2444 are required in prescribed risk areas and to fire brigade requirements including at:- • Emergency services switchboards • Kitchens • Flammable liquid stores • Special risk areas	Portable fire extinguishers occur at various locations throughout the building.	Considered acceptable.	
E2.2	**Smoke Hazard Management** Smoke hazard management systems include zone smoke control, stair pressurisation, smoke detection & alarm systems or sprinkler systems.	A system of smoke hazard management to current day requirements is not required.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	The requirement for smoke hazard management is determined based on the BCA classification, rise in storey and area/volume of the building. The MFPE also requires Smoke Hazard Management for CF1/CF2/Intolerable loss building and stores/workshops and hangars the meet the prescribed criteria.			
E3.6 (E3.6)	**Lifts for use by People with Disabilities** Passenger lifts should be fitted out for disabled persons use with handrails, information aids, doors, sensors and buttons to AS1735.12. Lift car dimensions must not be less than1.4m x 1.6m, or 1.1m x 1.4m for lifts with travel up to 12m or for lifts in an existing building. In limited circumstances conventional lifts may be replaced by stairway platform, low-rise platform, or similar lifts for persons with reduced mobility.	No lifts are available to access level 01.	Install a lift to provide access for people with disabilities to level 01.	2
E4.2, E4.4, E4.5,E4.6, E4.8	**Emergency Lighting & Exit Signage** A system of emergency lighting and exit signage is required throughout to AS2293.1, or for photoluminescent exit signs, BCA spec E4.8.	Emergency lighting and illuminated exit signage generally occurs.	Upgrade emergency lighting and exit signage to current standards when maintenance or upgrading works occur.	3
Part F1	**Damp and Weatherproofing** Construction performance standards apply for stormwater systems, roof coverings, sarking, waterproofing to wet areas, damp proofing, location of floor wastes, sub floor ventilation and weatherproofing of glazed assemblies.	Unable to verify compliance with no access however photos provided show a build-up of moisture damage internally.	Further investigation required.	1
F2.2, F2.3 & F2.6	**Sanitary Facilities** Adequate separate male and female sanitary and toilet facilities required in buildings.	A detailed assessment of the number of toilet and other sanitary facilities has not been undertaken. However, sanitary facilities occur and appear generally adequate from the plans provided.	Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F2.4 (F2.4)	**Facilities for People with Disabilities** Accessible unisex disabled persons toilets are required on each storey and at 50% of toilet banks on any storey. Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. The following general requirements apply:- • Unisex facility. • ~1.9 x 2.63m or 2.3 x 2.3m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies). • 30-40mm grabrails with 50-60mm clearances. • Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies • Washbasins with clearances as required. • Shielded hot water pipes. • Mirror, shelf, dispensers and coat hooks. • Mirrored layout for alternative facilities. A toilet cubicle for people with ambulant disabilities is also required for males and females at each bank of conventional toilets. (900 – 920mm wide with 900mm clear in front of WC and no door swing encroachment. Grab rails are required within the cubicle. Accessible showers of prescribed dimensions, designs and accessibility details are required to supplement required conventional shower facilities.	No accessible facilities for persons in a wheelchair or ambulant facilities are provided.	Install accessible and ambulant toilets at each level.	2
F2.7	**Microbial (Legionella) Control** Legionella control systems are required when hot, warm and cooling water systems are installed within a building. Compliance with AS3666.1 is prescribed.	Systems for chemical control of cooling water plant were not determined.	Undertake testing and control procedures as part of ongoing management in use of the building.	1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F3.1	**Height of Rooms or Other Spaces** Minimum ceiling heights apply throughout buildings, including:- • Offices: 2.4m • Car parks, corridors, sanitary facilities: 2.1m • Conference/Auditorium spaces: 2.7m	Compliance was generally apparent where observed.	Considered acceptable.	
F4.1, F4.2	**Natural Light to Specified Rooms** Natural lighting aggregating 10% of room floor area is required as follows:- • To all habitable rooms in residential buildings. • In bedrooms and dormitories of hotels, motels and the like. • To rooms used for sleeping in health care and aged care buildings. • To general purpose classrooms in primary and secondary schools. • To playrooms of early childhood centres.	A detailed review has not been undertaken. However, considered acceptable.		
F4.4	**Artificial Lighting** Artificial lighting within buildings should comply with AS1680.0.	Compliance could not be verified. However, adequate lighting levels appear to occur throughout areas inspected.	Considered acceptable.	
F4.5, F4.6 & F4.7	**Ventilation of Rooms** Buildings must be naturally ventilated via fixed or openable vents, windows, etc or mechanically ventilated in accordance with AS1668.2-2012.	Mechanical ventilation is provided to all areas of the building. Code amendments have occurred since the building's original construction which have increased required fresh air rates to buildings. In addition, performance solutions may have been applied using BCA verification method FV4.1. The installed mechanical systems may not be to current day standards. Details in this regards were not determined but systems would be considered adequate if maintained to original design standards. Considered acceptable.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
Section J	**Energy Efficiency** Buildings must be designed and constructed to include energy efficiency measures. Applicable requirements include:- - The extent and method of insulation of external building envelope elements; - Thermal performance of external glazing; - Sealing of openings in external building elements; - Energy efficient performance of air-handling systems; - Energy efficient performance of power and lighting systems; - Energy efficient performance of heated water systems; and - The need for access to equipment relating to the energy efficient performance of the building.	Compliance was not able to be assessed but may not occur given the building predates the introduction of these measures into the BCA.	Upgrade building fabric and services as upgrading works occur.	3

SECTION 5 – MAINTENANCE OF ESSENTIAL SAFETY MEASURES

5.1 MFPE

Chapter 7 of the MFPE requires maintenance of essential safety measures to be undertaken in accordance with relevant State legislation.

5.2 OVERVIEW (VIC)

Legislative requirements governing maintenance of essential safety measures of buildings are found in Part 15 of the Building Regulations 2018 made under the Building Act 1993.

Essential safety measures are fire and other safety features installed in or constructed as part of a building to ensure adequate levels of safety for the building. Essential safety measures include active building services such as fire sprinklers and mechanical services, passive fire safety items such as fire doors and fire rated structures and building infrastructure items such as paths of travel to exits.

They also include any other item that is required by or under the Act or the Building Regulations to be provided in relation to an asset for the safety of persons in the event of a fire or any other measure (including an item of equipment, form of construction, or safety strategy) required for the safety of persons using a building.

Standard Essential Safety Measures are listed in Schedule 8 of the Building Regulations 2018.

Maintenance provisions for essential safety measures are incorporated into legislation because it is a community expectation that a reasonable level of fire and general safety should be provided over the life of the building. Increasing onus is being placed on building owners to ensure the continued integrity of essential safety measures in order to meet their obligations under building regulations and under occupational health and safety requirements.

The Building Regulations require relevant building surveyors to schedule essential safety measures installed as part of the building approval and occupancy permit process.

Councils and fire officers are empowered to inspect maintenance records and enforce maintenance requirements for essential safety measures.

DISPLAY OF OCCUPANCY PERMITS

The Building Regulations 2018 require that occupancy permits be displayed in a prominent location accessible to the public and occupants.

MAINTENANCE OF ESSENTIAL SAFETY MEASURES

All buildings are subject to maintenance requirements as set out in Part 15 of the Building Regulations 2018 and summarised as follows.

"Essential Safety Measures" comprise all equipment, materials and components affecting safety.

The Occupancy Permit, Maintenance Determinations and Maintenance Schedules must list every relevant essential safety measure for the building and specify the level of performance and the maintenance regime for each such measure.

Owners must comply with Maintenance Determinations or Maintenance Schedules relevant to their buildings and maintain records of Maintenance Determinations and Schedules and of maintenance checks, service and repair work. In addition, owners must complete an Annual Essential Safety Measures Report (AESMR) every 12 months to declare all maintenance requirements have been carried out. All details must be available for inspection by the council

or fire brigade upon request. It is permissible for multiple Maintenance Determinations due to multiple works packages or permits to be consolidated to a single “Maintenance Schedule”.

The annual essential safety measures report must be in a prescribed form and must include:-

- the building address;
- details of any inspection reports undertaken by council or the fire brigade;
- certain statements of compliance; and
- the signature of the owner.

All AESMR’s prepared within 10 years of the request must be available to council or fire brigade inspectors with 24 hours of the request.

Exits and travel paths must be maintained in an efficient condition and kept readily accessible, functional and clear of obstruction. (This obligation rests with the occupiers of the building.)

LEGISLATION – BUILDINGS CONSTRUCTED PRIOR TO INTRODUCTION OF MAINTENANCE, OBLIGATIONS

All buildings must now be brought into compliance with the maintenance and reporting requirements described above, regardless of their date of construction.

METHODOLOGY FOR COMPLIANCE

A methodology for implementing a system of essential safety measures maintenance should include the following fundamental tasks and systems:-

- Review the building and occupancy permit history for the building and identify the minimum maintenance regime required by the legislation.
- Establish a system to incorporate ongoing and future building and occupancy permits events and provide for suitable adjustment of the maintenance regime.
- Record all maintenance activities undertaken.
- Include systems to ensure that all essential safety measures have been subjected to their individual prescribed maintenance checks.
- Record and report annually to confirm that the regime has been satisfactorily completed over the year.
- Hold documentation for 10 years.

5.2 MAINTENANCE REQUIREMENTS

Outlined below is a schedule of requirements for essential safety measures which may typically occur within a building. The installation standard and frequency and nature of maintenance required relate to requirements listed under Australian Standards or Building Regulations. The list is not necessarily comprehensive as other safety systems may have been specified in the design and construction of the building.

Maintenance Requirements for Essential Safety Measures

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Building Fire Integrity		
Building elements required to satisfy prescribed fire resistance levels, (including walls, columns, beams, floors, ceilings and shafts, etc.)	Section C	Annual inspection to AS1851-2012, Section 12 for damage, deterioration, or unauthorised alteration
Materials and assemblies required to satisfy prescribed fire hazard properties for linings and surface finishes	C1.10	Annual inspection for damage, deterioration, or unauthorised alteration

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Fire Protection at services penetrations through elements required to be fire resisting or have a resistance to the incipient spread of fire	C3.12, C3.13, C3.15	Annually as per AS1851-2012, Section 12 to inspect for damage, deterioration, or unauthorised alteration.
Fire protection associated with construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation	C3.16	Annually as per AS1851-2012, Section 12 to inspect for damage, deterioration, or unauthorised alteration.
Means of Egress		
Paths of travel to exits	D1.6	Inspection every three months to ensure there are no obstructions and no alterations
Discharge from exits (including paths of travel from open spaces to the public roads to which they are connected)	D1.9 to D1.11, D2.12	Inspection every three months to ensure there are no obstructions and no alterations
Exits (including fire-isolated stairways and ramps, non-fire-isolated stairways and ramps, stair treads, balustrades and handrails associated with exits, and fire-isolated passageways)	D2.3, D2.8 to D2.11, D2.13, D2.16, D2.17	Inspection every three months to ensure there are no obstructions and no alterations
Doors (other than fire or smoke doors) in a required exit, forming part of a required exit or in a path of travel to a required exit, and associated self-closing, automatic closing and latching mechanisms	D1.6, D2.19 to D2.21, D2.23	Inspection every three months to ensure doors are intact, operational and fitted with conforming hardware
Signs		
Exit identification including signs on fire doors and smoke doors; signs on egress doors leading from fire-isolated passageways; signs and audible and visual alarms on sliding fire doors; chevron stripes; and flashing luminaries	Clauses D2.23 and C3.6 and as approved by the authority having jurisdiction	Annual inspection to determine signs and alarms are intact and operational where relevant
Exit signs (including direction signs),	Specification D1.12, E4.5, E4.6, E4.8	Every six months to AS2293.2-1995.
Lighting		
Emergency lighting	E4.2, E4.4	Every six months to AS2293.2-1995
Fire Fighting Services and Equipment		
Fire hydrant system (including on-site pump set and fire-service booster connection)	BCA E1.3, AS2419.1	Six monthly to AS 1851-2012, Section 4 (also monthly to AS1851-2012, Section 3 where pumps are installed)
Fire hose reel system	E1.4, AS 2441-2005	Every six months to AS1851-2012 Section 9.
Portable fire extinguishers	E1.6	Every six months to ensure extinguishers are in place and to AS1851-2012 Section 10
Air Handling Systems		
Fans and fan motors associated with the operation of ventilation system (frequent and emergency uses)	AS/NZS 1668.1-1998 and AS 1668.2-2012	Quarterly as prescribed in AS1851-2012 Section 13

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Air control dampers – recycled & relief air, smoke spill & outdoor air, and supply and return air exhaust	E2.2	Six monthly as prescribed in AS1851-2012 Section 13
Outdoor intakes	F4.5	Monthly as prescribed in AS1851-2012 Section 13
Automatic Fire Detection and Alarm Systems		
Smoke and heat detection system	Clause 4 of Specification E2.2a	Monthly as prescribed in AS1851-2012 Section 6
Occupant Warning Systems		
Building occupant warning systems including audible alarms, recorded and visual messages	Clause 8 of Specifications E1.5; E2.2a and Clause 6 of Specification E2.2a	Monthly as prescribed in AS 1851-2012 Section 6
Mechanical Ventilation and Hot, Warm and Cooling Water Systems		
Mechanical ventilation systems incorporating cooling tower systems (other than a system serving only a single sole-occupancy unit in a Class 2 or 3 building or a Class 4 part of a building)	E2.2, F4.5 and F4.11	Monthly to AS3666 -2011
Mechanical ventilation systems incorporating hot and warm water systems (other than a system serving only a single sole-occupancy unit in a Class 2 or 3 building or a Class 4 part of a building)	F2.7 (Microbial Control)	Monthly to AS3666 -2011

PLP Building Surveyors & Consultants Pty Ltd

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VT12399
POINT COOK HERITAGE CONSULTANCY

BCA & MFPE COMPLIANCE REPORT
Building A0122

26 OCTOBER 2018

PREPARED BY: PLP BUILDING SURVEYORS & CONSULTANTS PTY LTD

PREPARED FOR: AURECON FOR AND ON BEHALF OF DEPARTMENT OF DEFENCE

JOB NO: 05949

CONTENTS

REVISION HISTORY		
Revision	**Date**	**Purpose/Details Of Revision**
0	11-10-2018	Initial Draft
1	26-10-2018	Issued to team

AUTHORISED BY: .....
FRANK ISGRO, SENIOR ASSOCIATE

EXECUTIVE SUMMARY

T Building A0122 located at RAAF Williams (Point Cook) was inspected to establish the broad level of compliance with the requirements of the Building Code of Australia 2016 (Including Amendment 1) (**BCA**), the disability access requirements of the Disability (Access to Premises – Buildings) Standards 2010 (**Premises Standards** or **PS**) and the Manual of Fire Protection Engineering Edition 2 (**MFPE**).

BCA, MFPE, and Premises Standards non-compliances identified are allocated a priority rating based on perceived hazard level, statutory obligations to rectify the non-compliance in the circumstances, and risk mitigation considerations. Rectification works are recommended where applicable.

Overall, the building is rated poor in terms of general building regulations compliance.

Access and facilities for people with disabilities are rated poor.

Maintenance of essential safety measures appears to be to a poor standard. An annual essential services declaration was/was not sighted during the inspection.

Section 4 of this report details defects identified. Items requiring rectification have been allocated a Priority Rating as follows to indicate the degree of risk considered to occur by the auditor:

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or the nature of the non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

SECTION 1- BRIEF AND SCOPE

1.1 Introduction

This report presents an assessment of Building 122 against the requirements of the Building Code of Australia, the Disability (Access to Premises – Buildings) Standards and Manual of Fire Protection Engineering Edition 2 (MFPE).

1.2 Assessments

Assessments are against the deemed-to-satisfy provisions of Building Code of Australia 2016 (Including Amendment 1) (BCA), the Access Code provisions of the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards or PS), and Manual of Fire Protection Engineering Ed.2, current at the date of inspection of the building.

Commentary is also provided on requirements for ongoing maintenance and certification of essential fire safety measures and on circumstances under building regulations when upgrade of the building to current day building regulations may become a statutory obligation.

The report makes comments and recommendations with respect to BCA and PS requirements. These opinions are the considered view of PLP Building Surveyors & Consultants Pty Ltd taking into account the specific circumstances encountered and recognising that the circumstances are existing arrangements which have, in many cases, been in place for a significant period of time.

1.3 Basis of Report

The report was prepared on the basis of the following:-

- A brief walk-through inspection of the building undertaken on 9th October 2018.
- Preliminary architectural drawings provided by Aurecon/HDR.
- Building information made available for review.

Documents received and advice provided on site were generally accepted as accurate unless evidence to the contrary became apparent during the course of the inspection.

Comments offered assume that areas sighted are representative of the building as a whole.

Unless noted otherwise, the report assumes that the existing use of the building will continue.

1.4 Scope and Exclusions

The report was prepared on the basis of a “walk through” inspection of the building and represents a broad overview only on compliance with the current provisions of the BCA and the PS. The following limitations apply in the interpretation of findings:-

- The report excludes matters relating to areas or components that were not accessed or were unsighted at the time of inspection. Areas and components not accessed or not sighted are outside the scope of this report.
- The report considers matters of a significant nature only and should not be considered exhaustive.
- The passage of time, manifestation of latent conditions, or impacts of future events, may require further exploration, analysis and re-evaluation of the findings, observations and recommendations expressed in this report.
- PLP Building Surveyors & Consultants Pty Ltd are not qualified Quantity Surveyors and costs provided in any Capital Expenditure Forecasts allow for general order of cost reporting only. Their accuracy should not be relied upon and must be independently verified.
- No analysis or testing of building services systems was performed to confirm compliance with current day performance requirements, codes and specifications.

- No documentation searches were undertaken, either with public authorities or with the building owners, and no attempts were made to determine whether notices, orders or other outstanding requirements of relevant authorities apply.
- Appraisals are limited to the provisions of the BCA, MFPE, and the Premises Standards. Except where specifically stated, other legislative requirements have not been considered.
- The report does not constitute a detailed review of essential services maintenance issues. Only an overview of legislative requirements is provided.
- The report does not consider structural compliance issues and does not include review of the structural sufficiency of the building.
- The report does not include a detailed review of compliance with applicable Australian Standards. Rather, the report is limited to commentary on the existence and general appearance of building systems and services.
- Compliance with Australian Standards for glass and glazing systems is not covered.
- Titles and title particulars have not been reviewed.
- Pest or vermin infestation matters are not addressed.
- Although comments are offered on matters relating to the Federal Disability Discrimination Act (DDA), this report does not constitute a full DDA audit and cannot be read as such.
- The report does not include a review of plumbing or electrical installations.
- Requirements under Occupational Health and Safety Legislation are not addressed.
- Dangerous Goods Legislation is not addressed.

1.5 General Limitation Statement

The findings in this report were derived from visual inspection of representative areas of the complex, review of limited documents available, and advice received from individuals with information about the site. No warranty or guarantee, whether expressed or implied, is made with respect to the matters reported.

1.6 Use of Report

This report is prepared for the sole benefit of the Client as noted on the facing page of this report. The report is prepared on the basis of instructions and briefing by the Client. PLP Building Surveyors & Consultants Pty Ltd accepts no liability for the use of or reliance upon this report by any third party.

1.7 Inspection Date and Validity

The inspection was undertaken on 9 October 2018 and is based on circumstances existing on that date.

SECTION 2- LEGISLATION

2.1 Application of the MFPE

The MFPE generally obliges that buildings be maintained to the standards in force at the time that the building was constructed.

There is no general requirement for buildings to be continually upgraded to achieve compliance with current day regulations. Broadly speaking, retrospective application of BCA or the PS is not required unless one of the following circumstances occurs:-

- A significant safety hazard is perceived to exist and building authorities make orders to reduce the hazard.
- Major alterations or additions are proposed as defined in the MFPE.
- The premises become subject to a "change of use" as defined in the MFPE.
- A successful action is brought following lodgement of a complaint under disability discrimination legislation.
- Provisions under Disability Regulations apply as set out in Section 2.2 below such that upgrade of access paths from the main building pedestrian entry to all new work areas is required.
- Specific legislation occurs which requires retrospective upgrade in particular circumstances. e.g. Sprinkler protection and smoke detection to certain residential buildings.

2.2 Access Requirements for People with a Disability

The Disability (Access to Premises – Buildings) Standards came into force throughout Australia on 1 May 2011. In prescribed circumstances, the legislation requires upgraded access for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could generate a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the new building work.

Building owners need to be aware that the provisions can result in the need to undertake significant enhancement of a building in terms of access for disabled persons, even if only minor general building work is proposed.

2.3 Certificates of Classification, Occupation and Works Completion

Signoff certificates for occupation or certificates for completion of buildings work were not available for review. For the purpose of this report, it has been assumed that appropriate commissioning and other certificates were issued at the time of original works completion that the basis of the certificates was valid in each case, and that the building works covered by the certificates were carried out in accordance with the approvals granted. If available, it is recommended that these documents be sourced as they may include information, conditions or requirements for ongoing management and occupation of the building.

2.4 Performance Building Solutions

The current day BCA and the Premises Standards are performance based building codes. Compliance may be achieved by either satisfying prescriptive deemed-to-satisfy provisions or by formulation of an Performance Solution. A valid Performance Solution enables deemed-to-satisfy provisions to be varied. Whilst a Performance Solution can relate to any matter, those with the greatest impact on a building generally relate to fire safety and access for people with a disability.

It is possible that the building may have been subject to past Performance Solutions although details in this regard were not sourced. Performance Solutions can be subject to conditions

and obligations affecting the ongoing building use. Hence, it is recommended that details of any Performance Solutions applied to the building be sourced.

No attempt has been made to source such documents. It is again recommended that details of any dispensations, or the like be procured. Any conditions or requirements of these processes may need to be maintained as part of ongoing management and use of the building.

2.5 Maintenance of Essential Safety Measures

Maintenance requirements for the building's essential safety measures are as set out in legislation. These provisions require building owners to have fire safety services and other essential safety measures maintained and checked as specified.

An annual compliance certificate is required in most jurisdictions and it is a building owner's duty to ensure that essential fire safety services and other measures are maintained to ensure the ongoing safety of the building. Local councils or fire brigades can randomly audit buildings to ensure that maintenance is occurring.

Refer to Section 5 of this report for more detailed commentary.

SECTION 3- COMMENT ON OVERALL LEVEL OF COMPLIANCE

3.1 General BCA and MFPE Provisions

Overall, the building is rated poor in terms of the current day BCA and MFPE compliance. The building does not comply with a number of BCA requirements. Some non-compliances observed are reflective of changed regulatory requirements over time. Alternatively, it is possible that the building may have received dispensation from the approval authority at the time of construction.

3.2 Access Provisions

Access and facilities for persons with disabilities are rated poor against the provisions of the BCA and the Premises Standards.

The building does not comply with the access requirements of the BCA and Premises Standards and does not therefore meet obligations under the Federal Disability Discrimination Act 1992 and similar State and Territory legislation. Disability legislation is often complaints based and there are procedures whereby upgrade works may be required and enforced. Building owners need to consider their obligations and risks in this regard and it is recommended that an action plan for progressive upgrade works be developed for the building in accordance with procedures under the Disability Discrimination Act 1992.

In addition, the lack of access and features for persons with a disability may need to be addressed if building work is proposed, even if the proposed work is relatively minor. Refer to Section 2.2 above for further discussion in this regard.

3.3 Maintenance of Essential Services

Based on a random review of maintenance tags fixed to fire services in the building, the level of maintenance of these essential services appears to be poor.

An annual essential services declaration was not sighted.

It is recommended that contractors continue to be engaged to ensure that all essential services and safety systems within the building are routinely audited and subjected to maintenance processes.

It is further recommended that a full Maintenance Schedule for all essential safety measures be prepared as is now required pursuant to the provisions of the Victorian Building Regulations 2018.

SECTION 4 – SCHEDULE OF COMPLIANCE WITH BCA, MFPE, & PS DEEMED-TO-SATISFY PROVISIONS

The table below provides a summary of observed areas of non-compliance with deemed-to-satisfy provisions of the BCA, MFPE, and the PS. Recommendations are included and a priority for recommendations is provided. The priority ratings adopted are as follows:-

Priority Ratings

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or level of non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
General	**Description of Building** The height, size and other parameters of the building affect BCA provisions applicable to the building.	The original building is understood to have been completed in 1939. The building comprises a single storey, 88m^2 flammable store. The building is currently not occupied and is in poor condition. Safe access into the building was not possible at the time of inspection.		
MFPE	**Building Criticality** Chapter 2 of the MFPE requires all buildings to be categorised into one of the following contribution factors: • CF1 Major Asset • CF2 Important Asset • CF3 Support Asset • CF4 General Purpose Asset • CF5 Low Importance Asset Buildings are also categorised as being tolerable or intolerable to loss in a fire event.	A completed criticality assessment has not been provided. This report has been prepared on the basis that the building contribution factor is CF4 (General Purpose Asset). It is also assumed that the loss of all or part of the building is tolerable.	Complete a criticality assessment form in accordance with MFPE Chapter 2.	1
General	**Maintenance of Essential Safety Measures** All essential fire and other safety systems throughout the complex must be maintained fit for purpose at all times to ensure the safety of building occupants.	The required Annual Essential Safety Measures (AESM) Statement was not sighted.	Rectify shortfalls in maintenance of Essential Safety Measures and update the AESM Statement.	1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
A3.2	**Usage** The nature of the building's usage influences BCA provisions applicable to the building.	Usage and BCA usage class on each level is as follows:- Level — Use — BCA Class Ground — Store — 7b		
D1.13	**Populations** Populations throughout are based on BCA floor area per person allowances or project briefing as appropriate.	Based on BCA area per person figures, population estimates are as follows:- Level — Max Populations Ground — 2		
A1.1, C1.2	**Effective Height and Rise in Storeys** Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as the vertical distance between the lowest level of the building providing direct access and the exterior and the level of the floor of the highest occupied level. These parameters influence the BCA provisions applicable to the building.	The following parameters apply:- Rise in storeys 1 storeys Effective Height: <12m		
Part B1	**Structural Provisions** Various Australian Standards are referenced to establish the structural adequacy of a building.	Compliance not assessed, report to structural engineers report. As Australian Standards are upgraded periodically, it is likely that the building no longer conforms to current day standards which may have increased from those applicable at the time of construction. In particular, requirements for earthquake resistance and glazing have been significantly increased in recent years.	If major alterations, a change of use, or other trigger for retrospective upgrade to BCA compliance could apply, structural engineering advice should be sought in terms of the extent of work needed to upgrade the building to compliance with current day standards.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
C1.1 & Spec C1.1, C1.9, C1.13 Spec A1.1	**Type of Construction** The BCA applies "Type of Construction" requirements to a building to define the extent and level of fire resisting construction required. The building may be of Type C (minimal) fire resisting construction. **Building Member** / **Requirement** External walls within 3m of other buildings: 1.5hr FRL Floors: Nil Roofs: Nil Internal columns and walls: Nil Fire walls: 1.5 hr FRL	The building is greater than 3m from other buildings and the allotment boundary, therefore no elements are required to be fire rated.	Considered acceptable.	
C1.1, C1.9, C1.14	**Combustible Façade Cladding (CFC)** Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or Composite Panels, means that it is unlikely that any CFC façade linings would be considered compliant.	Being Type C construction, the external walls and cladding may consist of combustible elements.	Considered acceptable.	
C1.10, C1.10a	**Fire Hazard Properties** Requirements for early fire hazard properties apply to wall, ceiling and floor coverings and for construction materials generally.	The fire hazard properties of floor & wall linings and other elements were unable to be fully determined. However, materials installed appear to be typical for a building of this type and age.	Considered acceptable.	
C2.2, C2.3 E2.2	**Floor Area Limits (Type B or C Construction)** A fire compartment size limit of 3,000m^2/18,000m^3 applies for office or public assembly for buildings of Type C construction	The area of the building is 88m², hence the area and volume is within prescribed limits.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
C2.12	**Separation of Equipment** The following plant needs to be bounded by 2 hour fire rated enclosures or needs to be otherwise fire isolated from the balance of the building:- • Lift motor rooms • Boilers (as defined in BCA A1.1) • Central mechanical smoke control plant • Batteries above 24 volts and exceeding 10 ampere hours capacity (batteries within an electricity network substation are exempt) • Generators supporting emergency equipment operating in an emergency • Main switchboard and related power cables if sustaining emergency equipment in emergency mode	No Plant or equipment requiring separation occurs.		
C2.13	**Electricity Supply System** Substations, electrical conductors, and main switchboards that sustain emergency equipment operating in emergency mode must be contained within two hour fire rated construction. Switchgear supporting essential services and emergency equipment must be separated from the remaining parts of switchboards by metal partitions to minimise the spread of a fault from non-emergency supplies.	No substations or switchgear requiring separation are located within the building.		
C3.2 **C3.4**	**External Openings Near Fire Sources** External wall openings must be fire protected where they occur within 3m of the allotment boundaries, within 6m of boundaries on the opposing side of public roadways, or within 6m of other buildings on the same allotment. Openings that require fire protection should not occupy greater than 1/3 of the elevational area of the storey concerned. Where required to be fire protected, windows must be self-closing, automatic closing or fixed and provided with external drenchers or one hour fire rated shutters, windows or the like. Other openings required to be fire protected require protection to an equivalent fire rating.	Nil openings occurring within 3m of a fire source feature.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D1.4, D1.5	**Exit Travel Distances** • Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m. • Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m. • A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level. • Alternative travel paths should not converge at any point to be within 6m of each other • Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m. • Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m. • A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level. • Alternative travel paths should not converge at any point to be within 6m of each other	The building is provided with 2 exits direct to outside and travel distances are within prescribed limits.		
D1.6	**Exit Widths** Minimum aggregate exit widths are required based on building populations served. Exit pathway and doorway widths and heights must achieve minimum requirements.	Exit widths are sufficient for the deemed population		
D1.10	**Discharge from Exits** Exits must discharge to a street or road or to open space leading to a street or road and should not pass through a tenancy space. No more than two thirds of the required exits serving the main auditorium can be located in the main foyer. i.e. At least one third of required exits must involve travel and egress that avoids the main foyer.	Discharge from exits on the external are clear of obstructions.		

<table>
<tr><th>BCA Ref (PS Ref)</th><th>BCA Requirement</th><th>Observations</th><th>Recommendations</th><th>Priority Rating</th></tr>
<tr><td>D2.10, D2.13, D2.14</td><td>Slip Resistance of Ramps, Steps and Landings

Ramp surfaces, stair tread surfaces or nosing strips and stair landing surfaces or nosing strips to a flight below, must achieve slip resistance classifications to AS4586-2013 as follows:-
<table><tr><th>Application</th><th>Dry Surface Condition</th><th>Wet Surface Condition</th></tr><tr><td>1:14 or steeper ramps</td><td>P4 or R11</td><td>P5 or R12</td></tr><tr><td>Ramps of 1:14 to 1:20</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Tread or Landing Surface</td><td>P3 or R10</td><td>P4 or R10</td></tr><tr><td>Nosing or Landing Strip</td><td>P3</td><td>P4</td></tr></table></td><td>Based on the inspection carried out on the building the steps and landing do not comply with the slip resistance classifications as per AS4586-2013.

No nosing strips were noted on the steps at the time of inspection.</td><td>It is required that the steps are provided with a resistance of P4 or R11 and nosing strips are installed to the steps.</td><td>2</td></tr>
<tr><td>D2.13</td><td>Goings and Risers

To provide safe passage, stairways must comply with the following:-
• No more than 18 and no fewer than 2 risers in each flight.
• Risers and goings that are consistent in a flight and within a prescribed range of dimensions.
• Riser gaps and step openings that do not exceed 125mm.
• Non-slip treads and non-skid tread nosings.
• Solid treads if the stair height exceeds 10m or three storeys.
• If used for egress, contain no winders or triangular treads.
• If not used for egress, have limited winders at landings with even goings.</td><td>The goings and risers to the steps are inconsistent and the risers are open.</td><td>It is required that the steps be rectified so that there is a consistency in the Going lengths and Riser heights. This is to also include the Risers being made to be solid with no openings.</td><td>2</td></tr>
<tr><td>D2.14</td><td>Landings

Stair landings must comply with the following:-
• Maximum 1 in 50 falls.
• Minimum 750mm length.
• Non-slip finish with non-skid nosings.
• In a health-care building, sized to allow passage of a stretcher. (180 degree landings need to be 1.6m wide and 2.7m long or have alternative approved arrangements.</td><td>Landing lengths comply, however, the decking is in a state of deterioration as the decking has started to lift and there is pieces of the deck missing.</td><td>Replace the deck so that there is no tripping hazards.</td><td>1</td></tr>
</table>

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.15	**Thresholds** Steps should not occur at doorways without a threshold landing except as follows:- • A single 190mm step is permitted in at doors leading to the exterior.	Due to the nature of the building, access in accordance with AS1428.1-2009 is not required.		
D2.16	**Balustrades** Requirements apply to the provision and design of barriers at locations where a person could fall 1m or more. Generally 125mm maximum gap size limits apply between balusters or rails and a 1m minimum height applies, with alternate dimensions permitted in fire isolated stairs and industrial areas. Climbable balustrade elements are prohibited where a person could fall 4m or more. Minimum sill heights apply at openable windows where people could fall more than 4m.	It appears that the deck is higher than 1000mm from the natural ground level and will require a balustrade to be installed around the perimeter of the deck.	Install balustrade around the permitter of the deck in accordance with Clause D2.16 of the BCA.	2
D2.17 **D2.19**	**Handrails** Handrails are required at steps, stairs and ramps. **Doors and Doorways** The type of exit doors permitted in given circumstances is controlled including:- • Revolving doors cannot serve as exits. • Roller shutter or tilt doors at exits or egress paths are not permitted except for small spaces. • Auto-sliding power operated exit doors must be fail safe to open on power failure or fire alarm.	No handrails were installed on either side of the stairs. Building only contains existing swinging doors.	Handrails are to be installed on both sides of the stairs.	
D2.20	**Door Swings** Except where serving areas of 200m^2 or less, exit doors and discharge doors from the building should swing outward in the direction of exit travel.	All doors swing against the direction of egress, however, this is acceptable as the building is less than 200m^2.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.21	**Exit Door Hardware** Exit doors and doors in a path of travel to an exit must be provided with "free handle" egress via single handed downward (lever) or pushing action door hardware, and if serving an area accessible to people disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances.	Could not closely investigate the hardware to the building as there was a fence around the perimeter. Based on the age of the building it is assumed that non compliant hardware is installed.	Replace non-compliant furniture with compliant lever action handles.	2
OHS	**Roof Fall Protection** OHS obligations prescribe provision of roof fall protection for maintenance personnel.	Not Assessed	.	
D3.1 **(D3.1)**	**General Access for People with a Disability** <u>Commercial Buildings</u> The building is required to be generally accessible to persons with a disability throughout all areas unless specifically exempted. Exemption: A lift or ramp need not serve a storey (other than an entrance storey) in an office, retail, warehouse or factory building if the building: - contains 3 or less storeys - each non accessible storey does not exceed 200m².	Due to the use of the building, access is not required to the building as it could pose a risk.		
E1.3	**Fire Hydrants** An AS2419.1-2005 compliant fire hydrant system is required to provide hydrant cover throughout.	As this building is less than 500m^2 in floor area there is no requirement to have fire hydrant protection.		
E1.4	**Fire Hose Reels** Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to exits except as follows:- • Class 2, 3 or 4 residential areas protected by 2.5kg ABE type extinguishers located in common areas on the storey served not more than 10m from each sole occupancy unit entry door • Electrical substations	Fire hose reels are not required to this building.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	Hose reels are not permitted to pass through fire or smoke doors to achieve hoes reel cover.			
E1.5	**Fire Sprinklers** Where combustible external wall components have been justified via BCA verification method CV3, enhanced sprinkler system design measures are required as prescribed in BCA CV3. Sprinkler protection is required where the building contains combustible external wall components justified via BCA verification method CV5. As the building exceeds 25m in effective height, fire sprinkler protection is required throughout. Sprinkler protection is also required to enclosed car parks with >40 vehicles, Class 6 retail areas >3500m^2 and other specified circumstances. Fire sprinkler protection is required in fire compartments greater than 2000m^2 or 12000m^3 where the use of the premises is defined as an occupancy of excessive hazard. (High fuel load storage and manufacturing risks). Sprinkler protection is required to buildings constructed of fire-protected timber or massive timber construction. Sprinkler pumps and valves must be accessible from the street. Sprinkler system activation must be linked to an audible occupant warning system.	A sprinkler system occurs within this building. However, due to the system age, compliance with the current AS2118.1 – 2017 standard is unlikely to occur. It is to also be noted that this building does not require sprinklers under the BCA but it appears that this may have been a requirement under a previous MFPE. Assuming that the storage of dangerous goods no longer occurs, the sprinklers could be decommissioned.	Ensure upgrades have been carried out throughout the formal review process. Maintain system to standards applicable at original installation and upgrade system to current standards when maintenance or upgrading works occur.	3
E1.6	**Fire Extinguishers** Portable fire extinguishers installed to AS2444 are required in prescribed risk areas and to fire brigade requirements including at:- • Emergency services switchboards • Kitchens • Flammable liquid stores • At nurses stations • Special risk areas	As no access was provided into the building it could not be confirmed if any portable fire extinguishers occur at various locations throughout the building.	Ensure Fire Extinguishers are being maintained as per AS2444 & AS1851	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
E2.2	**Smoke Hazard Management** Smoke hazard management systems include zone smoke control, stair pressurisation, smoke detection & alarm systems or sprinkler systems. The requirement for smoke hazard management is determined based on the BCA classification, rise in storey and area/volume of the building. The MFPE also requires Smoke Hazard Management for CF1/CF2/Intolerable loss building and stores/workshops and hangars the meet the prescribed criteria.	A form of smoke hazard management is not required within this building.		
E4.2, E4.4, E4.5,E4.6, E4.8	**Emergency Lighting & Exit Signage** A system of emergency lighting and exit signage is required throughout to AS2293.1, or for photoluminescent exit signs, BCA spec E4.8.	Emergency lighting and illuminated exit signage is not required by virtue of the building size.		
Part F1	**Damp and Weatherproofing** Construction performance standards apply for stormwater systems, roof coverings, sarking, waterproofing to wet areas, damp proofing, location of floor wastes, sub floor ventilation and weatherproofing of glazed assemblies.	It was noted on site that the roofing to the building is deteriorating as you could see parts of the roof and walls were missing.	Repair the holes in the roof and walls	1
F2.2, F2.3 & F2.6	**Sanitary Facilities** Adequate separate male and female sanitary and toilet facilities required in buildings.	No toilets are provided within this building. The location of the toilets to be used by these occupants could not be determined.	Provide sufficient toilets to serve the occupants of this building. The toilets maybe located within the building or within a reasonable walking distance.	2
F2.4 (F2.4)	**Facilities for People with Disabilities** Accessible unisex disabled persons toilets are required on each storey and at 50% of toilet banks on any storey. Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. The following general requirements apply:- • Unisex facility. • ~1.9 x 2.63m or 2.3 x 2.3m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies).	No toilets are provided within this building.	Provide an accessible toilet for people with disabilities either within the building or within a reasonable distance. If a toilet is provided within another building an accessible path of travel must be provided between the buildings	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 30-40mm grabrails with 50-60mm clearances. • Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies • Washbasins with clearances as required. • Shielded hot water pipes. • Mirror, shelf, dispensers and coat hooks. • Mirrored layout for alternative facilities. A toilet cubicle for people with ambulant disabilities is also required for males and females at each bank of conventional toilets. (900 – 920mm wide with 900mm clear in front of WC and no door swing encroachment. Grab rails are required within the cubicle. Accessible showers of prescribed dimensions, designs and accessibility details are required to supplement required conventional shower facilities.			
F3.1	**Height of Rooms or Other Spaces** Minimum ceiling heights apply throughout buildings, including:- • Offices: 2.4m • Car parks, corridors, sanitary facilities: 2.1m • Conference/Auditorium spaces: 2.7m	As there was no access into the building at the time of the inspection this could not be confirmed, however based on measurements provided by HDR the ceiling heights are compliant.		
F4.4	**Artificial Lighting** Artificial lighting within buildings should comply with AS1680.0.	No access was permitted into the building at the time of the inspection and compliance could not be verified.	Ensure lighting within building is sufficient to meet the light levels of AS1680.0.	2
F4.5, F4.6 & F4.7	**Ventilation of Rooms** Buildings must be naturally ventilated via fixed or openable vents, windows, etc or mechanically ventilated in accordance with AS1668.2-2012.	No mechanical ventilation is provided to this building. The openable windows and doors provide adequate mechanical ventilation.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
Section J	**Energy Efficiency** Buildings must be designed and constructed to include energy efficiency measures. Applicable requirements include:- - The extent and method of insulation of external building envelope elements; - Thermal performance of external glazing; - Sealing of openings in external building elements; - Energy efficient performance of air-handling systems; - Energy efficient performance of power and lighting systems; - Energy efficient performance of heated water systems; and - The need for access to equipment relating to the energy efficient performance of the building.	Compliance was not able to be assessed but may not occur given the building predates the introduction of these measures into the BCA but is unlikely to comply with current requirements.	Upgrade building fabric and services as upgrading works occur.	3

SECTION 5 – MAINTENANCE OF ESSENTIAL SAFETY MEASURES

5.1 MFPE

Chapter 7 of the MFPE requires maintenance of essential safety measures to be undertaken in accordance with relevant State legislation.

5.2 OVERVIEW (VIC)

Legislative requirements governing maintenance of essential safety measures of buildings are found in Part 15 of the Building Regulations 2018 made under the Building Act 1993.

Essential safety measures are fire and other safety features installed in or constructed as part of a building to ensure adequate levels of safety for the building. Essential safety measures include active building services such as fire sprinklers and mechanical services, passive fire safety items such as fire doors and fire rated structures and building infrastructure items such as paths of travel to exits.

They also include any other item that is required by or under the Act or the Building Regulations to be provided in relation to an asset for the safety of persons in the event of a fire or any other measure (including an item of equipment, form of construction, or safety strategy) required for the safety of persons using a building.

Standard Essential Safety Measures are listed in Schedule 8 of the Building Regulations 2018.

Maintenance provisions for essential safety measures are incorporated into legislation because it is a community expectation that a reasonable level of fire and general safety should be provided over the life of the building. Increasing onus is being placed on building owners to ensure the continued integrity of essential safety measures in order to meet their obligations under building regulations and under occupational health and safety requirements.

The Building Regulations require relevant building surveyors to schedule essential safety measures installed as part of the building approval and occupancy permit process.

Councils and fire officers are empowered to inspect maintenance records and enforce maintenance requirements for essential safety measures.

DISPLAY OF OCCUPANCY PERMITS

The Building Regulations 2018 require that occupancy permits be displayed in a prominent location accessible to the public and occupants.

MAINTENANCE OF ESSENTIAL SAFETY MEASURES

All buildings are subject to maintenance requirements as set out in Part 15 of the Building Regulations 2018 and summarised as follows.

"Essential Safety Measures" comprise all equipment, materials and components affecting safety.

The Occupancy Permit, Maintenance Determinations and Maintenance Schedules must list every relevant essential safety measure for the building and specify the level of performance and the maintenance regime for each such measure.

Owners must comply with Maintenance Determinations or Maintenance Schedules relevant to their buildings and maintain records of Maintenance Determinations and Schedules and of maintenance checks, service and repair work. In addition, owners must complete an Annual Essential Safety Measures Report (AESMR) every 12 months to declare all maintenance requirements have been carried out. All details must be available for inspection by the council

or fire brigade upon request. It is permissible for multiple Maintenance Determinations due to multiple works packages or permits to be consolidated to a single “Maintenance Schedule”.

The annual essential safety measures report must be in a prescribed form and must include:-

- the building address;
- details of any inspection reports undertaken by council or the fire brigade;
- certain statements of compliance; and
- the signature of the owner.

All AESMR’s prepared within 10 years of the request must be available to council or fire brigade inspectors with 24 hours of the request.

Exits and travel paths must be maintained in an efficient condition and kept readily accessible, functional and clear of obstruction. (This obligation rests with the occupiers of the building.)

LEGISLATION – BUILDINGS CONSTRUCTED PRIOR TO INTRODUCTION OF MAINTENANCE, OBLIGATIONS

All buildings must now be brought into compliance with the maintenance and reporting requirements described above, regardless of their date of construction.

METHODOLOGY FOR COMPLIANCE

A methodology for implementing a system of essential safety measures maintenance should include the following fundamental tasks and systems:-

- Review the building and occupancy permit history for the building and identify the minimum maintenance regime required by the legislation.
- Establish a system to incorporate ongoing and future building and occupancy permits events and provide for suitable adjustment of the maintenance regime.
- Record all maintenance activities undertaken.
- Include systems to ensure that all essential safety measures have been subjected to their individual prescribed maintenance checks.
- Record and report annually to confirm that the regime has been satisfactorily completed over the year.
- Hold documentation for 10 years.

5.2 MAINTENANCE REQUIREMENTS

Outlined below is a schedule of requirements for essential safety measures which may typically occur within a building. The installation standard and frequency and nature of maintenance required relate to requirements listed under Australian Standards or Building Regulations. The list is not necessarily comprehensive as other safety systems may have been specified in the design and construction of the building.

Maintenance Requirements for Essential Safety Measures

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Building Fire Integrity		
Materials and assemblies required to satisfy prescribed fire hazard properties for linings and surface finishes	C1.10	Annual inspection for damage, deterioration, or unauthorised alteration
Means of Egress		
Paths of travel to exits	D1.6	Inspection every three months to ensure there are no obstructions and no alterations
Discharge from exits (including paths of travel from open spaces to the public roads to which they are connected)	D1.7, D1.9 to D1.11, D2.12, G4.3, G4.6, G4.7	Inspection every three months to ensure there are no obstructions and no alterations
Exits (including fire-isolated stairways and ramps, non-fire-isolated stairways and ramps, stair treads, balustrades and handrails associated with exits, and fire-isolated passageways)	D2.2, D2.3, D2.8 to D2.11, D2.13, D2.16, D2.17	Inspection every three months to ensure there are no obstructions and no alterations
Doors (other than fire or smoke doors) in a required exit, forming part of a required exit or in a path of travel to a required exit, and associated self-closing, automatic closing and latching mechanisms	D1.6, D2.19 to D2.21, D2.23	Inspection every three months to ensure doors are intact, operational and fitted with conforming hardware
Fire Fighting Services and Equipment		
Sprinkler system (including alarm monitors connected to approved authority)	E1.5, G3.8, H1.2	Monthly to AS1851-2012 Section 2
Portable fire extinguishers	E1.6	Every six months to ensure extinguishers are in place and to AS1851-2012 Section 10

* Essential Safety Measures marked with an " * " are not currently included within the schedule of measures requiring maintenance under the Victorian Building Regulations 2018, however maintenance of these items is required.

PLP Building Surveyors & Consultants Pty Ltd

Melbourne | Brisbane | Perth

VT12399
POINT COOK HERITAGE CONSULTANCY

BCA & MFPE COMPLIANCE REPORT
Building A0221

26 OCTOBER 2018

PREPARED BY: PLP BUILDING SURVEYORS & CONSULTANTS PTY LTD

PREPARED FOR: AURECON FOR AND ON BEHALF OF DEPARTMENT OF DEFENCE

JOB NO: 05949

CONTENTS

REVISION HISTORY		
Revision	**Date**	**Purpose/Details Of Revision**
0	11-10-2018	Initial Draft
1	26-10-2018	Issued to team

AUTHORISED BY: .....
FRANK ISGRO, SENIOR ASSOCIATE

EXECUTIVE SUMMARY

Building A0221 located at RAAF Williams (Point Cook) was inspected to establish the broad level of compliance with the requirements of the Building Code of Australia 2016 (Including Amendment 1) (**BCA**), the disability access requirements of the Disability (Access to Premises – Buildings) Standards 2010 (**Premises Standards** or **PS**) and the Manual of Fire Protection Engineering Edition 2 (**MFPE**).

BCA, MFPE, and Premises Standards non-compliances identified are allocated a priority rating based on perceived hazard level, statutory obligations to rectify the non-compliance in the circumstances, and risk mitigation considerations. Rectification works are recommended where applicable.

Overall, the building is rated poor in terms of general building regulations compliance.

Access and facilities for people with disabilities are rated fair.

Maintenance of essential safety measures appears to be to a poor standard. An annual essential services declaration was not sighted during the inspection.

Section 4 of this report details defects identified. Items requiring rectification have been allocated a Priority Rating as follows to indicate the degree of risk considered to occur by the auditor:

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or the nature of the non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

SECTION 1- BRIEF AND SCOPE

1.1 Introduction

This report presents an assessment of Building A0221 against the requirements of the Building Code of Australia, the Disability (Access to Premises – Buildings) Standards and Manual of Fire Protection Engineering Edition 2 (MFPE).

1.2 Assessments

Assessments are against the deemed-to-satisfy provisions of Building Code of Australia 2016 (Including Amendment 1) (BCA), the Access Code provisions of the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards or PS), and Manual of Fire Protection Engineering Ed.2, current at the date of inspection of the building.

Commentary is also provided on requirements for ongoing maintenance and certification of essential fire safety measures and on circumstances under building regulations when upgrade of the building to current day building regulations may become a statutory obligation.

The report makes comments and recommendations with respect to BCA and PS requirements. These opinions are the considered view of PLP Building Surveyors & Consultants Pty Ltd taking into account the specific circumstances encountered and recognising that the circumstances are existing arrangements which have, in many cases, been in place for a significant period of time.

1.3 Basis of Report

The report was prepared on the basis of the following:-

- A brief walk-through inspection of the building undertaken on 9th October 2018.
- Preliminary architectural drawings provided by Aurecon/HDR.
- Building information made available for review.

Documents received and advice provided on site were generally accepted as accurate unless evidence to the contrary became apparent during the course of the inspection.

Comments offered assume that areas sighted are representative of the building as a whole.

Unless noted otherwise, the report assumes that the existing use of the building will continue.

1.4 Scope and Exclusions

The report was prepared on the basis of a “walk through” inspection of the building and represents a broad overview only on compliance with the current provisions of the BCA and the PS. The following limitations apply in the interpretation of findings:-

- The report excludes matters relating to areas or components that were not accessed or were unsighted at the time of inspection. Areas and components not accessed or not sighted are outside the scope of this report.
- The report considers matters of a significant nature only and should not be considered exhaustive.
- The passage of time, manifestation of latent conditions, or impacts of future events, may require further exploration, analysis and re-evaluation of the findings, observations and recommendations expressed in this report.
- PLP Building Surveyors & Consultants Pty Ltd are not qualified Quantity Surveyors and costs provided in any Capital Expenditure Forecasts allow for general order of cost reporting only. Their accuracy should not be relied upon and must be independently verified.
- No analysis or testing of building services systems was performed to confirm compliance with current day performance requirements, codes and specifications.

- No documentation searches were undertaken, either with public authorities or with the building owners, and no attempts were made to determine whether notices, orders or other outstanding requirements of relevant authorities apply.
- Appraisals are limited to the provisions of the BCA, MFPE, and the Premises Standards. Except where specifically stated, other legislative requirements have not been considered.
- The report does not constitute a detailed review of essential services maintenance issues. Only an overview of legislative requirements is provided.
- The report does not consider structural compliance issues and does not include review of the structural sufficiency of the building.
- The report does not include a detailed review of compliance with applicable Australian Standards. Rather, the report is limited to commentary on the existence and general appearance of building systems and services.
- Compliance with Australian Standards for glass and glazing systems is not covered.
- Titles and title particulars have not been reviewed.
- Pest or vermin infestation matters are not addressed.
- Although comments are offered on matters relating to the Federal Disability Discrimination Act (DDA), this report does not constitute a full DDA audit and cannot be read as such.
- The report does not include a review of plumbing or electrical installations.
- Requirements under Occupational Health and Safety Legislation are not addressed.
- Dangerous Goods Legislation is not addressed.

1.5 General Limitation Statement

The findings in this report were derived from visual inspection of representative areas of the complex, review of limited documents available, and advice received from individuals with information about the site. No warranty or guarantee, whether expressed or implied, is made with respect to the matters reported.

1.6 Use of Report

This report is prepared for the sole benefit of the Client as noted on the facing page of this report. The report is prepared on the basis of instructions and briefing by the Client. PLP Building Surveyors & Consultants Pty Ltd accepts no liability for the use of or reliance upon this report by any third party.

1.7 Inspection Date and Validity

The inspection was undertaken on 9 October 20187 and is based on circumstances existing on that date.

SECTION 2- LEGISLATION

2.1 Application of the MFPE

The MFPE generally obliges that buildings be maintained to the standards in force at the time that the building was constructed.

There is no general requirement for buildings to be continually upgraded to achieve compliance with current day regulations. Broadly speaking, retrospective application of BCA or the PS is not required unless one of the following circumstances occurs:-

- A significant safety hazard is perceived to exist and building authorities make orders to reduce the hazard.
- Major alterations or additions are proposed as defined in the MFPE.
- The premises become subject to a "change of use" as defined in the MFPE.
- A successful action is brought following lodgement of a complaint under disability discrimination legislation.
- Provisions under Disability Regulations apply as set out in Section 2.2 below such that upgrade of access paths from the main building pedestrian entry to all new work areas is required.
- Specific legislation occurs which requires retrospective upgrade in particular circumstances. e.g. Sprinkler protection and smoke detection to certain residential buildings.

2.2 Access Requirements for People with a Disability

The Disability (Access to Premises – Buildings) Standards came into force throughout Australia on 1 May 2011. In prescribed circumstances, the legislation requires upgraded access for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could generate a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the new building work.

Building owners need to be aware that the provisions can result in the need to undertake significant enhancement of a building in terms of access for disabled persons, even if only minor general building work is proposed.

2.3 Certificates of Classification, Occupation and Works Completion

Signoff certificates for occupation or certificates for completion of buildings work were not available for review. For the purpose of this report, it has been assumed that appropriate commissioning and other certificates were issued at the time of original works completion that the basis of the certificates was valid in each case, and that the building works covered by the certificates were carried out in accordance with the approvals granted. If available, it is recommended that these documents be sourced as they may include information, conditions or requirements for ongoing management and occupation of the building.

2.4 Performance Building Solutions

The current day BCA and the Premises Standards are performance based building codes. Compliance may be achieved by either satisfying prescriptive deemed-to-satisfy provisions or by formulation of an Performance Solution. A valid Performance Solution enables deemed-to-satisfy provisions to be varied. Whilst a Performance Solution can relate to any matter, those with the greatest impact on a building generally relate to fire safety and access for people with a disability.

It is possible that the building may have been subject to past Performance Solutions although details in this regard were not sourced. Performance Solutions can be subject to conditions

and obligations affecting the ongoing building use. Hence, it is recommended that details of any Performance Solutions applied to the building be sourced.

No attempt has been made to source such documents. It is again recommended that details of any dispensations, or the like be procured. Any conditions or requirements of these processes may need to be maintained as part of ongoing management and use of the building.

2.5 Maintenance of Essential Safety Measures

Maintenance requirements for the building's essential safety measures are as set out in legislation. These provisions require building owners to have fire safety services and other essential safety measures maintained and checked as specified.

An annual compliance certificate is required in most jurisdictions and it is a building owner's duty to ensure that essential fire safety services and other measures are maintained to ensure the ongoing safety of the building. Local councils or fire brigades can randomly audit buildings to ensure that maintenance is occurring.

Refer to Section 5 of this report for more detailed commentary.

SECTION 3- COMMENT ON OVERALL LEVEL OF COMPLIANCE

3.1 General BCA and MFPE Provisions

Overall, the building is rated poor in terms of the current day BCA and MFPE compliance. The building does not comply with a number of BCA requirements. Some non-compliances observed are reflective of changed regulatory requirements over time. Alternatively, it is possible that the building may have received dispensation from the approval authority at the time of construction.

3.2 Access Provisions

Access and facilities for persons with disabilities are rated poor against the provisions of the BCA and the Premises Standards.

The building does not comply with the access requirements of the BCA and Premises Standards and does not therefore meet obligations under the Federal Disability Discrimination Act 1992 and similar State and Territory legislation. Disability legislation is often complaints based and there are procedures whereby upgrade works may be required and enforced. Building owners need to consider their obligations and risks in this regard and it is recommended that an action plan for progressive upgrade works be developed for the building in accordance with procedures under the Disability Discrimination Act 1992.

In addition, the lack of access and features for persons with a disability may need to be addressed if building work is proposed, even if the proposed work is relatively minor. Refer to Section 2.2 above for further discussion in this regard.

3.3 Maintenance of Essential Services

Based on a random review of maintenance tags fixed to fire services in the building, the level of maintenance of these essential services appears to be poor.

An annual essential services declaration was not sighted.

It is recommended that contractors continue to be engaged to ensure that all essential services and safety systems within the building are routinely audited and subjected to maintenance processes.

It is further recommended that a full Maintenance Schedule for all essential safety measures be prepared as is now required pursuant to the provisions of the Victorian Building Regulations 2018.

SECTION 4 – SCHEDULE OF COMPLIANCE WITH BCA, MFPE, & PS DEEMED-TO-SATISFY PROVISIONS

The table below provides a summary of observed areas of non-compliance with deemed-to-satisfy provisions of the BCA, MFPE, and the PS. Recommendations are included and a priority for recommendations is provided. The priority ratings adopted are as follows:-

Priority Ratings

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or level of non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
General	**Description of Building** The height, size and other parameters of the building affect BCA provisions applicable to the building.	The building comprises of a single storey warehouse with an approximate area of 1,872m^2. The building is currently not occupied		
MFPE	**Building Criticality** Chapter 2 of the MFPE requires all buildings to be categorised into one of the following contribution factors: • CF1 Major Asset • CF2 Important Asset • CF3 Support Asset • CF4 General Purpose Asset • CF5 Low Importance Asset Buildings are also categorised as being tolerable or intolerable to loss in a fire event.	A completed criticality assessment has not been provided. This report has been prepared on the basis that the building contribution factor is CF4. It is also assumed that the loss of all or part of the building is tolerable.	Complete a criticality assessment form in accordance with MFPE Chapter 2.	2
General	**Maintenance of Essential Safety Measures** All essential fire and other safety systems throughout the complex must be maintained fit for purpose at all times to ensure the safety of building occupants.	The required Annual Essential Safety Measures (AESM) Statement was not completed. Significant breaches in maintenance and operation of essential safety systems were observed viz:- • Sprinklers appeared to be inoperative • Doors were inoperable • Fire extinguishers have not been maintained.	Rectify shortfalls in maintenance of Essential Safety Measures and update the AESM Statement.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
A3.2	**Usage** The nature of the building's usage influences BCA provisions applicable to the building.	Usage and BCA usage class on each level is as follows:- Level / Use / BCA Class Ground / Storage / 7b Office / 5		
D1.13	**Populations** Populations throughout are based on BCA floor area per person allowances or project briefing as appropriate.	Based on BCA area per person figures, population estimates are as follows:- Level: Ground Max Population: 65		
A1.1, C1.2	**Effective Height and Rise in Storeys** Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as the vertical distance between the lowest level of the building providing direct access and the exterior and the level of the floor of the highest occupied level. These parameters influence the BCA provisions applicable to the building.	The following parameters apply:- Rise in storeys 1 storeys Effective Height: <12m		
Part B1	**Structural Provisions** Various Australian Standards are referenced to establish the structural adequacy of a building.	Compliance not assessed, report to structural engineers report. As Australian Standards are upgraded periodically, it is likely that the building no longer conforms to current day standards which may have increased from those applicable at the time of construction. In particular, requirements for earthquake resistance and glazing have been significantly increased in recent years.	If major alterations, a change of use, or other trigger for retrospective upgrade to BCA compliance could apply, structural engineering advice should be sought in terms of the extent of work needed to upgrade the building to compliance with current day standards. Earthquake response levels should be assessed to verify that a reasonable level of earthquake resistance occurs.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
C1.1 & Spec C1.1, C1.9, C1.13 Spec A1.1	**Type of Construction** The BCA applies "Type of Construction" requirements to a building to define the extent and level of fire resisting construction required. The building may be of Type C (minimal) fire resisting construction. **Building Member** / **Requirement** External walls within 3m of other buildings: 1.5hr FRL Floors: Nil Roofs: Nil Internal columns and walls: Nil Fire walls: 1.5 hr FRL	The building is greater than 3m from other buildings (A0210 is set back 4m) and the allotment boundary, therefore no elements are required to be fire rated.		
C1.1, C1.9, C1.14	**Combustible Façade Cladding (CFC)** Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or Composite Panels, means that it is unlikely that any CFC façade linings would be considered compliant.	Being Type C construction, the external walls and cladding may consist of combustible elements.	Considered acceptable.	
C1.10, C1.10a	**Fire Hazard Properties** Requirements for early fire hazard properties apply to wall, ceiling and floor coverings and for construction materials generally.	The fire hazard properties of floor & wall linings and other elements were unable to be fully determined. However, most floor linings were concrete.	Considered acceptable.	
C2.2, C2.3 E2.2	**Floor Area Limits (Type C Construction)** A fire compartment size limit of 2,000m^2/12,000m^3 applies for process or storage usage for buildings of Type C Construction. A fire compartment size limit of 3,000m^2/18,000m^3 applies for office or public assembly for buildings of Type C construction	The area of the building is 1875m² The volume of the building is approximately 11,531m² The area and volume is within prescribed limits.		
C2.12	**Separation of Equipment** The following plant needs to be bounded by 2 hour fire rated enclosures or needs to be otherwise fire isolated from the balance of the building:-	No plant or equipment requiring separation occurs.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Lift motor rooms • Boilers (as defined in BCA A1.1) • Central mechanical smoke control plant • Batteries above 24 volts and exceeding 10 ampere hours capacity (batteries within an electricity network substation are exempt) • Generators supporting emergency equipment operating in an emergency • Main switchboard and related power cables if sustaining emergency equipment in emergency mode			
C2.13	**Electricity Supply System** Substations, electrical conductors, and main switchboards that sustain emergency equipment operating in emergency mode must be contained within two hour fire rated construction. Switchgear supporting essential services and emergency equipment must be separated from the remaining parts of switchboards by metal partitions to minimise the spread of a fault from non-emergency supplies.	No substations or switchgear requiring separation are located within the building.		
C3.2 **C3.4**	**External Openings Near Fire Sources** External wall openings must be fire protected where they occur within 3m of the allotment boundaries, within 6m of boundaries on the opposing side of public roadways, or within 6m of other buildings on the same allotment. Openings that require fire protection should not occupy greater than 1/3 of the elevational area of the storey concerned. Where required to be fire protected, windows must be self-closing, automatic closing or fixed and provided with external drenchers or one hour fire rated shutters, windows or the like. Other openings required to be fire protected require protection to an equivalent fire rating.	Nil openings occur within 3m of a fire source feature.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D1.4, D1.5	**Exit Travel Distances** • Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m. • Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m. • A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level. • Alternative travel paths should not converge at any point to be within 6m of each other.	On the basis that the existing doors are brought into compliance and no additional racking, shelving or walls are installed, travel distances are compliant. However, the installation of any walls, racking or shelving will most likely result in the travel distances exceeding prescribed limits.	Install additional egress doors.	2
D1.6	**Exit Widths** Minimum aggregate exit widths are required based on building populations served. Exit pathway and doorway widths and heights must achieve minimum requirements.	On the basis that the existing doors are brought into compliance there is sufficient exit width from the doors provided.		
D1.10	**Discharge from Exits** Exits must discharge to a street or road or to open space leading to a street or road and should not pass through a tenancy space.	All of the exit doors discharge to open space.		
D1.16	**Plant Room Exits** Steep stairs and ladders may serve plant and lift motor rooms in certain circumstances subject to compliance with AS1657-2013.	Access to plant and roof areas were not reviewed.		
D2.15	**Thresholds** Steps should not occur at doorways without a threshold landing except as follows:- • A single 190mm step is permitted in at doors leading to the exterior.	The current doorways within the large sliding doors incorporate a step at the threshold which is not permitted.	Provide pedestrian door within the external walls to replace the pedestrian doors within the sliding doors.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.19	**Doors and Doorways** The type of exit doors permitted in given circumstances is controlled including:- • Revolving doors cannot serve as exits. • Roller shutter or tilt doors at exits or egress paths are not permitted except for small spaces. • Auto-sliding power operated exit doors must be fail safe to open on power failure or fire alarm.	All of the doors from the buildings are swing doors.		
D2.20	**Door Swings** Except where serving areas of 200m^2 or less, exit doors and discharge doors from the building should swing outward in the direction of exit travel.	Two sets of exit doors swing inwards.	Rehang the inward swinging doors so they swing in the direction of egress.	2
D2.21	**Exit Door Hardware** Exit doors and doors in a path of travel to an exit must be provided with “free handle” egress via single handed downward (lever) or pushing action door hardware, and if serving an area accessible to people disabilities, must have non-slip “D” pull handles with 35-45mm hand clearances.	Door hardware to each of the doors was non-complaint. The double doors adjacent to the main switchboard also has a brace bar.	Alter each of the doors so that the door hardware is fully compliant.	2
OHS	**Roof Fall Protection** OHS obligations prescribe provision of roof fall protection for maintenance personnel.	Fall protection from heights was not accessed.	Audit and upgrade as necessary based on work methods used by maintenance personnel.	2
D3.1 **(D3.1)**	**General Access for People with a Disability** <u>Commercial Buildings</u> The building is required to be generally accessible to persons with a disability throughout all areas unless specifically exempted. Exemption: A lift or ramp need not serve a storey (other than an entrance storey) in an office, retail, warehouse or factory building if the building: - contains 3 or less storeys - each non accessible storey does not exceed 200m².	Access to all parts of the building by people with disabilities is required.	Note.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D3.2 (D3.2)	**Access to Buildings** External access to the building must be provided:- • From main entry points at the allotment boundary. • Through the principle public entrance. • Through at least 50% of pedestrian entries. • From accessible car parking spaces. • For buildings over 500m², so that an accessible entry occurs within 50m of any non-accessible entry. • From any another accessible building on the site.	Movement around the building is typically flat with concrete/asphalt surfaces.		
Part D3	**Disabled Persons Access Details** Buildings required to be accessible must have travel paths, facilities and details which comply with AS1428.1. – 2009. Enhanced requirements apply to public transport buildings. Principle requirements are:- • Continuous accessible paths of travel throughout • Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc. • No deep pile carpets or grates with large slots. • 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard. • 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways. • Turning spaces at 20m intervals. • Splayed 1.5m x 1.5m 90 deg turning spaces if the intersecting corridors are less than 1.5m wide and 1.54m x 2.07m long 180 deg turning spaces including at dead ends in passageways. • Step ramps, kerb ramps and threshold ramps as prescribed. • 1:14 maximum ramps with 9m between landings. • 1.9m x 1 in 10 (maximum 190mm rise) step ramps.	The following non-compliances were observed:- • Access and circulation spaces around doors and passageways in the office areas do not meet full compliance with current standards. • All of the doors are not always to requirements for hardware, clearances, and contrasting trims, door forces.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps. • 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc. • 850mm clear doorways with 340 - 900mm latchside clearances and 1220-1670mm approach clearances depending on arrangements. • Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs. • Decals to glazing. • 900-1100mm door hardware height. • Lever handle hardware with low opening forces. • Landings at doorways, direction changes and at intervals on ramps and inclined walkways. • Walkways with colour contrast borders. • Flat even surfaces. • Colour contrasted hand rails and door frames. • 850mm clear door widths. • Non-slip “D” pull handles to doors with 35-45mm hand clearance. • Continuous protected paths from disabled carspaces to lifts, access points, etc. • Ambulant disabled person’s toilets with grabrails and outward swinging doors or longer cubicles. • Prescribed types of water entry arrangements for swimming pools depending on pool size. • Stairs (other than fire stairs) with opaque risers. • All stairs with colour contrasting nosing strips. • All switches and controls 900-1100mm above floor level. • A 1.54m x 2.07m long turning space is required at the ends of corridor dead legs that exceed 2m in depth and at 20m intervals in corridors. • 2m x 1.8m passing spaces are also required at intervals in corridors where a direct line of sight is not available.			

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	"T" and "+" corridor and accessway intersections may substitute for a required passing space. (Provided these zones allow wheelchair turning, 1,800mm wide corridor zones are not required at "T" or "+" intersections.) • Right angle corridor bends require a splayed 1.5m x 1.5m turning space if the intersecting corridors are less than 1.5m wide. Refer to Appendix D3 and F2.4 attached for further details. • Passing bays and turning zones for wheelchairs need to be confirmed in corridors.			
D3.6 (D3.6)	**Identification of Facilities, Services and Features** Braille and tactile signage is required to identify sanitary facilities, areas with hearing augmentation systems and to identify accessible entries and lifts and the location of accessible and ambulatory sanitary facility locations and details. Doors requiring exit signage must be provided with Braille and tactile signs identifying the exit and floor level number. Signage details must be in accordance with AS1428.1 and Specification D3.6 of the BCA.	No toilet facilities are installed within the building.		
D3.7 (D3.7)	**Hearing Augmentation** AS1428.1 hearing augmentation systems are required to supplement amplification systems if installed in:- • Auditoria • Meeting rooms • Public service counters	Hearing augmentation systems are not required in this building.		
D3.8 (D3.8)	**Tactile Indicators (TGSIs)** AS1428.4.1 compliant Type B tactile ground surface indicators are required to publicly accessible stairs, ramps, escalators, travelators, low height projections and where pedestrian paths meet vehicular ways without a kerb. General requirements Include: • 600-800mm deep TGSIs at top and bottom of stairs and ramps and where landings exceed 3m in depth.	No steps or ramps occur.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 300-400mm deep TGSIs at enclosed landings that are accessible. • TGSIs are not required in fire isolated stairs. • 600-800mm deep TGSIs at other hazards.			
E1.3	**Fire Hydrants** An AS2419.1-2005 compliant fire hydrant system is required to provide hydrant cover throughout.	The building is served by an external hydrant approximately 23m from the building. When connected to a fire brigade pumping appliance compliant coverage should be achieved. The pipe to the hydrant appears to be 60mm diameter which may not provide sufficient pressure and flows.	Test the external hydrant to determine if the available pressures and flows comply with the requirements of AS 2419.	2
E1.4	**Fire Hose Reels** Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to exits except as follows:- • Class 2, 3 or 4 residential areas protected by 2.5kg ABE type extinguishers located in common areas on the storey served not more than 10m from each sole occupancy unit entry door • Electrical substations Hose reels are not permitted to pass through fire or smoke doors to achieve hoes reel cover.	No Fire Hose Reels are installed within the building.	Install fire hose reels within the building AS 2441 requirements.	2
E1.5	**Fire Sprinklers** Sprinkler protection is required in the following instances • where the building contains combustible external wall components justified via BCA verification method CV5. • Where the building exceeds 25m in effective height. • To enclosed car parks with >40 vehicles, • Class 6 retail areas >3500m2 • In fire compartments greater than 2000m2 or 12000m3 where the use of the premises is defined as an occupancy of excessive hazard.	Sprinklers are installed but signage indicates that it is inoperative. In addition, some of the offices within the warehouse are not provided with sprinkler coverage. Sprinklers would only be mandatory within this building if materials were stored above 4m or if the materials stored result in the building being considered an intolerable loss.	Extend the system to provide sprinkler coverage to the offices or demolish these rooms. Undertaken alterations to the system necessary to make the system operational.	2 2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	(High fuel load storage and manufacturing risks). Sprinkler pumps and valves must be accessible from the street. Sprinkler system activation must be linked to an audible occupant warning system.			
E1.6	**Fire Extinguishers** Portable fire extinguishers installed to AS2444 are required in prescribed risk areas and to fire brigade requirements including at:- • Emergency services switchboards • Kitchens • Flammable liquid stores • At nurses stations • Special risk areas	Portable fire extinguishers occur at various locations throughout the building, however tag indicate that they haven't been maintained in some time.	Undertaken maintenance of the installed fire extinguishers to AS1851 requirements.	2
E2.2	**Smoke Hazard Management** Smoke hazard management systems include zone smoke control, stair pressurisation, smoke detection & alarm systems or sprinkler systems. The requirement for smoke hazard management is determined based on the BCA classification, rise in storey and area/volume of the building. The MFPE also requires Smoke Hazard Management for CF1/CF2/Intolerable loss building and stores/workshops and hangars the meet the prescribed criteria.	The installed sprinklers would satisfy the smoke hazard management requirements for this building.		
E4.2, E4.4, E4.5,E4.6, E4.8	**Emergency Lighting & Exit Signage** A system of emergency lighting and exit signage is required throughout to AS2293.1, or for photoluminescent exit signs, BCA spec E4.8.	Some exit signage occurs but is insufficient to identify all exits and alternative exits. Given the height of the light fittings it was not possible to confirm emergency light coverage however it appeared none were provided.	Installed emergency lighting and exit signage throughout the building.	2
Part F1	**Damp and Weatherproofing** Construction performance standards apply for stormwater systems, roof coverings, sarking, waterproofing to wet areas, damp proofing, location of floor wastes, sub floor ventilation and weatherproofing of glazed assemblies.	Compliance unable to be verified.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F2.2, F2.3 & F2.6	**Sanitary Facilities** Adequate separate male and female sanitary and toilet facilities required in buildings.	No toilets are provided within this building. The location of the toilets to be used by these occupants could not be determined.	Provide sufficient toilets to serve the occupants of this building. The toilets maybe located within the building or within a reasonable walking distance.	2
F2.4 (F2.4)	**Facilities for People with Disabilities** Accessible unisex disabled persons toilets are required on each storey and at 50% of toilet banks on any storey. Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. The following general requirements apply:- • Unisex facility. • ~1.9 x 2.63m or 2.3 x 2.3m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies). • 30-40mm grabrails with 50-60mm clearances. • Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies • Washbasins with clearances as required. • Shielded hot water pipes. • Mirror, shelf, dispensers and coat hooks. • Mirrored layout for alternative facilities. A toilet cubicle for people with ambulant disabilities is also required for males and females at each bank of conventional toilets. (900 – 920mm wide with 900mm clear in front of WC and no door swing encroachment. Grab rails are required within the cubicle. Accessible showers of prescribed dimensions, designs and accessibility details are required to supplement required conventional shower facilities.	No toilets are provided within this building.	Provide an accessible toilet for people with disabilities either within the building or within a reasonable distance. If a toilet is provided within another building an accessible path of travel must be provided between the buildings.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F3.1	**Height of Rooms or Other Spaces** Minimum ceiling heights apply throughout buildings, including:- • Offices: 2.4m • Car parks, corridors, sanitary facilities: 2.1m • Conference/Auditorium spaces: 2.7m	Ceiling heights within the building were compliant, however the exit doors that are located within the sliding doors are significantly less than 1980mm high.	Alter existing doors or install additional doors so that they all have a minimum clearance of 1980mm.	2
F4.4	**Artificial Lighting** Artificial lighting within buildings should comply with AS1680.0.	Compliance could not be verified. However, adequate lighting levels appear to occur throughout areas inspected.	Considered acceptable.	
F4.5, F4.6 & F4.7	**Ventilation of Rooms** Buildings must be naturally ventilated via fixed or openable vents, windows, etc or mechanically ventilated in accordance with AS1668.2-2012.	Ventilation to the building is provided by way of openable doors and windows. The size of the doors and windows equate to more than 5% of the floor area of the building.	Considered acceptable.	
Section J	**Energy Efficiency** Buildings must be designed and constructed to include energy efficiency measures. Applicable requirements include:- - The extent and method of insulation of external building envelope elements; - Thermal performance of external glazing; - Sealing of openings in external building elements; - Energy efficient performance of air-handling systems; - Energy efficient performance of power and lighting systems; - Energy efficient performance of heated water systems; and - The need for access to equipment relating to the energy efficient performance of the building.	The building is generally not conditioned and therefore not required to meet Section J. The lighting within the building is unlikely to comply.	Upgrade services as upgrading works occur.	3

SECTION 5 – MAINTENANCE OF ESSENTIAL SAFETY MEASURES

5.1 MFPE

Chapter 7 of the MFPE requires maintenance of essential safety measures to be undertaken in accordance with relevant State legislation.

5.2 OVERVIEW (VIC)

Legislative requirements governing maintenance of essential safety measures of buildings are found in Part 15 of the Building Regulations 2018 made under the Building Act 1993.

Essential safety measures are fire and other safety features installed in or constructed as part of a building to ensure adequate levels of safety for the building. Essential safety measures include active building services such as fire sprinklers and mechanical services, passive fire safety items such as fire doors and fire rated structures and building infrastructure items such as paths of travel to exits.

They also include any other item that is required by or under the Act or the Building Regulations to be provided in relation to an asset for the safety of persons in the event of a fire or any other measure (including an item of equipment, form of construction, or safety strategy) required for the safety of persons using a building.

Standard Essential Safety Measures are listed in Schedule 8 of the Building Regulations 2018.

Maintenance provisions for essential safety measures are incorporated into legislation because it is a community expectation that a reasonable level of fire and general safety should be provided over the life of the building. Increasing onus is being placed on building owners to ensure the continued integrity of essential safety measures in order to meet their obligations under building regulations and under occupational health and safety requirements.

The Building Regulations require relevant building surveyors to schedule essential safety measures installed as part of the building approval and occupancy permit process.

Councils and fire officers are empowered to inspect maintenance records and enforce maintenance requirements for essential safety measures.

DISPLAY OF OCCUPANCY PERMITS

The Building Regulations 2018 require that occupancy permits be displayed in a prominent location accessible to the public and occupants.

MAINTENANCE OF ESSENTIAL SAFETY MEASURES

All buildings are subject to maintenance requirements as set out in Part 15 of the Building Regulations 2018 and summarised as follows.

"Essential Safety Measures" comprise all equipment, materials and components affecting safety.

The Occupancy Permit, Maintenance Determinations and Maintenance Schedules must list every relevant essential safety measure for the building and specify the level of performance and the maintenance regime for each such measure.

Owners must comply with Maintenance Determinations or Maintenance Schedules relevant to their buildings and maintain records of Maintenance Determinations and Schedules and of maintenance checks, service and repair work. In addition, owners must complete an Annual Essential Safety Measures Report (AESMR) every 12 months to declare all maintenance requirements have been carried out. All details must be available for inspection by the council

or fire brigade upon request. It is permissible for multiple Maintenance Determinations due to multiple works packages or permits to be consolidated to a single “Maintenance Schedule”.

The annual essential safety measures report must be in a prescribed form and must include:-

- the building address;
- details of any inspection reports undertaken by council or the fire brigade;
- certain statements of compliance; and
- the signature of the owner.

All AESMR’s prepared within 10 years of the request must be available to council or fire brigade inspectors with 24 hours of the request.

Exits and travel paths must be maintained in an efficient condition and kept readily accessible, functional and clear of obstruction. (This obligation rests with the occupiers of the building.)

LEGISLATION – BUILDINGS CONSTRUCTED PRIOR TO INTRODUCTION OF MAINTENANCE, OBLIGATIONS

All buildings must now be brought into compliance with the maintenance and reporting requirements described above, regardless of their date of construction.

METHODOLOGY FOR COMPLIANCE

A methodology for implementing a system of essential safety measures maintenance should include the following fundamental tasks and systems:-

- Review the building and occupancy permit history for the building and identify the minimum maintenance regime required by the legislation.
- Establish a system to incorporate ongoing and future building and occupancy permits events and provide for suitable adjustment of the maintenance regime.
- Record all maintenance activities undertaken.
- Include systems to ensure that all essential safety measures have been subjected to their individual prescribed maintenance checks.
- Record and report annually to confirm that the regime has been satisfactorily completed over the year.
- Hold documentation for 10 years.

5.3 MAINTENANCE REQUIREMENTS

Outlined below is a schedule of requirements for essential safety measures which may typically occur within a building. The installation standard and frequency and nature of maintenance required relate to requirements listed under Australian Standards or Building Regulations. The list is not necessarily comprehensive as other safety systems may have been specified in the design and construction of the building.

Maintenance Requirements for Essential Safety Measures

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Building Fire Integrity		
Materials and assemblies required to satisfy prescribed fire hazard properties for linings and surface finishes	C1.10	Annual inspection for damage, deterioration, or unauthorised alteration
Means of Egress		
Paths of travel to exits	D1.6	Inspection every three months to ensure there are no obstructions and no alterations
Discharge from exits (including paths of travel from open spaces to the public roads to which they are connected)	D1.7, D1.9 to D1.11, D2.12, G4.3, G4.6, G4.7	Inspection every three months to ensure there are no obstructions and no alterations
Doors (other than fire or smoke doors) in a required exit, forming part of a required exit or in a path of travel to a required exit, and associated self-closing, automatic closing and latching mechanisms	D1.6, D2.19 to D2.21, D2.23	Inspection every three months to ensure doors are intact, operational and fitted with conforming hardware
Signs		
Exit signs (including direction signs),	Specification D1.12, E4.5, E4.6, E4.8	Every six months to AS2293.2-1995.
Lighting		
Emergency lighting	E4.2, E4.4	Every six months to AS2293.2-1995
Fire Fighting Services and Equipment		
Fire hydrant system (including on-site pump set and fire-service booster connection)	BCA E1.3, AS2419.1	Six monthly to AS 1851-2012, Section 4 (also monthly to AS1851-2012, Section 3 where pumps are installed)
Fire hose reel system	E1.4, AS 2441-2005	Every six months to AS1851-2012 Section 9.
Sprinkler system (including alarm monitors connected to approved authority)	E1.5, G3.8, H1.2	Monthly to AS1851-2012 Section 2
Portable fire extinguishers	E1.6	Every six months to ensure extinguishers are in place and to AS1851-2012 Section 10

* Essential Safety Measures marked with an " * " are not currently included within the schedule of measures requiring maintenance under the Victorian Building Regulations 2018, however maintenance of these items is required.

PLP Building Surveyors & Consultants Pty Ltd

Melbourne | Brisbane | Perth

VT12399
POINT COOK HERITAGE CONSULTANCY

BCA & MFPE COMPLIANCE REPORT
Building A0228

26 OCTOBER 2018

PREPARED BY: PLP BUILDING SURVEYORS & CONSULTANTS PTY LTD

PREPARED FOR: AURECON FOR AND ON BEHALF OF DEPARTMENT OF DEFENCE

JOB NO: 05949

CONTENTS

REVISION HISTORY		
Revision	**Date**	**Purpose/Details Of Revision**
0	-	Initial Draft
1	26-10-2018	Issued to team

AUTHORISED BY: .....
FRANK ISGRO, SENIOR ASSOCIATE

EXECUTIVE SUMMARY

Building A0228 located at RAAF Williams (Point Cook) was inspected to establish the broad level of compliance with the requirements of the Building Code of Australia 2016 (Including Amendment 1) (**BCA**), the disability access requirements of the Disability (Access to Premises – Buildings) Standards 2010 (**Premises Standards** or **PS**) and the Manual of Fire Protection Engineering Edition 2 (**MFPE**).

BCA, MFPE, and Premises Standards non-compliances identified are allocated a priority rating based on perceived hazard level, statutory obligations to rectify the non-compliance in the circumstances, and risk mitigation considerations. Rectification works are recommended where applicable.

Overall, the building is rated fair in terms of general building regulations compliance.

Access and facilities for people with disabilities are rated fair.

Maintenance of essential safety measures appears to be to a poor standard. An annual essential services declaration was not sighted during the inspection.

Section 4 of this report details defects identified. Items requiring rectification have been allocated a Priority Rating as follows to indicate the degree of risk considered to occur by the auditor:

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or the nature of the non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

SECTION 1- BRIEF AND SCOPE

1.1 Introduction

This report presents an assessment of Building A0228 against the requirements of the Building Code of Australia, the Disability (Access to Premises – Buildings) Standards and Manual of Fire Protection Engineering Edition 2 (MFPE).

1.2 Assessments

Assessments are against the deemed-to-satisfy provisions of Building Code of Australia 2016 (Including Amendment 1) (BCA), the Access Code provisions of the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards or PS), and Manual of Fire Protection Engineering Ed.2, current at the date of inspection of the building.

Commentary is also provided on requirements for ongoing maintenance and certification of essential fire safety measures and on circumstances under building regulations when upgrade of the building to current day building regulations may become a statutory obligation.

The report makes comments and recommendations with respect to BCA and PS requirements. These opinions are the considered view of PLP Building Surveyors & Consultants Pty Ltd taking into account the specific circumstances encountered and recognising that the circumstances are existing arrangements which have, in many cases, been in place for a significant period of time.

1.3 Basis of Report

The report was prepared on the basis of the following:-

- A brief walk-through inspection of the building undertaken on 9 October 2018
- Preliminary architectural drawings provided by Aurecon/HDR.
- Building information made available for review.

Documents received and advice provided on site were generally accepted as accurate unless evidence to the contrary became apparent during the course of the inspection.

Comments offered assume that areas sighted are representative of the building as a whole.

Unless noted otherwise, the report assumes that the existing use of the building will continue.

1.4 Scope and Exclusions

The report was prepared on the basis of a “walk through” inspection of the building and represents a broad overview only on compliance with the current provisions of the BCA and the PS. The following limitations apply in the interpretation of findings:-

- The report excludes matters relating to areas or components that were not accessed or were unsighted at the time of inspection. Areas and components not accessed or not sighted are outside the scope of this report.
- The report considers matters of a significant nature only and should not be considered exhaustive.
- The passage of time, manifestation of latent conditions, or impacts of future events, may require further exploration, analysis and re-evaluation of the findings, observations and recommendations expressed in this report.
- PLP Building Surveyors & Consultants Pty Ltd are not qualified Quantity Surveyors and costs provided in any Capital Expenditure Forecasts allow for general order of cost reporting only. Their accuracy should not be relied upon and must be independently verified.
- No analysis or testing of building services systems was performed to confirm compliance with current day performance requirements, codes and specifications.

- No documentation searches were undertaken, either with public authorities or with the building owners, and no attempts were made to determine whether notices, orders or other outstanding requirements of relevant authorities apply.
- Appraisals are limited to the provisions of the BCA, MFPE, and the Premises Standards. Except where specifically stated, other legislative requirements have not been considered.
- The report does not constitute a detailed review of essential services maintenance issues. Only an overview of legislative requirements is provided.
- The report does not consider structural compliance issues and does not include review of the structural sufficiency of the building.
- The report does not include a detailed review of compliance with applicable Australian Standards. Rather, the report is limited to commentary on the existence and general appearance of building systems and services.
- Compliance with Australian Standards for glass and glazing systems is not covered.
- Titles and title particulars have not been reviewed.
- Pest or vermin infestation matters are not addressed.
- Although comments are offered on matters relating to the Federal Disability Discrimination Act (DDA), this report does not constitute a full DDA audit and cannot be read as such.
- The report does not include a review of plumbing or electrical installations.
- Requirements under Occupational Health and Safety Legislation are not addressed.
- Dangerous Goods Legislation is not addressed.

1.5 General Limitation Statement

The findings in this report were derived from visual inspection of representative areas of the complex, review of limited documents available, and advice received from individuals with information about the site. No warranty or guarantee, whether expressed or implied, is made with respect to the matters reported.

1.6 Use of Report

This report is prepared for the sole benefit of the Client as noted on the facing page of this report. The report is prepared on the basis of instructions and briefing by the Client. PLP Building Surveyors & Consultants Pty Ltd accepts no liability for the use of or reliance upon this report by any third party.

1.7 Inspection Date and Validity

The inspection was undertaken on 9 October 2018, and is based on circumstances existing on that date.

SECTION 2- LEGISLATION

2.1 Application of the MFPE

The MFPE generally obliges that buildings be maintained to the standards in force at the time that the building was constructed.

There is no general requirement for buildings to be continually upgraded to achieve compliance with current day regulations. Broadly speaking, retrospective application of BCA or the PS is not required unless one of the following circumstances occurs:-

- A significant safety hazard is perceived to exist and building authorities make orders to reduce the hazard.
- Major alterations or additions are proposed as defined in the MFPE.
- The premises become subject to a "change of use" as defined in the MFPE.
- A successful action is brought following lodgement of a complaint under disability discrimination legislation.
- Provisions under Disability Regulations apply as set out in Section 2.2 below such that upgrade of access paths from the main building pedestrian entry to all new work areas is required.
- Specific legislation occurs which requires retrospective upgrade in particular circumstances. e.g. Sprinkler protection and smoke detection to certain residential buildings.

2.2 Access Requirements for People with a Disability

The Disability (Access to Premises – Buildings) Standards came into force throughout Australia on 1 May 2011. In prescribed circumstances, the legislation requires upgraded access for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could generate a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the new building work.

Building owners need to be aware that the provisions can result in the need to undertake significant enhancement of a building in terms of access for disabled persons, even if only minor general building work is proposed.

2.3 Certificates of Classification, Occupation and Works Completion

Signoff certificates for occupation or certificates for completion of buildings work were not available for review. For the purpose of this report, it has been assumed that appropriate commissioning and other certificates were issued at the time of original works completion that the basis of the certificates was valid in each case, and that the building works covered by the certificates were carried out in accordance with the approvals granted. If available, it is recommended that these documents be sourced as they may include information, conditions or requirements for ongoing management and occupation of the building.

2.4 Performance Building Solutions

The current day BCA and the Premises Standards are performance based building codes. Compliance may be achieved by either satisfying prescriptive deemed-to-satisfy provisions or by formulation of an Performance Solution. A valid Performance Solution enables deemed-to-satisfy provisions to be varied. Whilst a Performance Solution can relate to any matter, those with the greatest impact on a building generally relate to fire safety and access for people with a disability.

It is possible that the building may have been subject to past Performance Solutions although details in this regard were not sourced. Performance Solutions can be subject to conditions

and obligations affecting the ongoing building use. Hence, it is recommended that details of any Performance Solutions applied to the building be sourced.

No attempt has been made to source such documents. It is again recommended that details of any dispensations, or the like be procured. Any conditions or requirements of these processes may need to be maintained as part of ongoing management and use of the building.

2.5 Maintenance of Essential Safety Measures

Maintenance requirements for the building's essential safety measures are as set out in legislation. These provisions require building owners to have fire safety services and other essential safety measures maintained and checked as specified.

An annual compliance certificate is required in most jurisdictions and it is a building owner's duty to ensure that essential fire safety services and other measures are maintained to ensure the ongoing safety of the building. Local councils or fire brigades can randomly audit buildings to ensure that maintenance is occurring.

Refer to Section 5 of this report for more detailed commentary.

SECTION 3- COMMENT ON OVERALL LEVEL OF COMPLIANCE

3.1 General BCA and MFPE Provisions

Overall, the building is rated fair in terms of the current day BCA and MFPE compliance. The building does not comply with a number of BCA requirements. Some non-compliances observed are reflective of changed regulatory requirements over time. Alternatively, it is possible that the building may have received dispensation from the approval authority at the time of construction.

3.2 Access Provisions

Access and facilities for persons with disabilities are rated fair against the provisions of the BCA and the Premises Standards.

The building does not comply with the access requirements of the BCA and Premises Standards and does not therefore meet obligations under the Federal Disability Discrimination Act 1992 and similar State and Territory legislation. Disability legislation is often complaints based and there are procedures whereby upgrade works may be required and enforced. Building owners need to consider their obligations and risks in this regard and it is recommended that an action plan for progressive upgrade works be developed for the building in accordance with procedures under the Disability Discrimination Act 1992.

In addition, the lack of access and features for persons with a disability may need to be addressed if building work is proposed, even if the proposed work is relatively minor. Refer to Section 2.2 above for further discussion in this regard.

3.3 Maintenance of Essential Services

Based on a random review of maintenance tags fixed to fire services in the building, the level of maintenance of these essential services appears to be poor.

An annual essential services declaration was not sighted.

It is recommended that contractors continue to be engaged to ensure that all essential services and safety systems within the building are routinely audited and subjected to maintenance processes.

It is further recommended that a full Maintenance Schedule for all essential safety measures be prepared as is now required pursuant to the provisions of the Victorian Building Regulations 2018.

SECTION 4 – SCHEDULE OF COMPLIANCE WITH BCA, MFPE, & PS DEEMED-TO-SATISFY PROVISIONS

The table below provides a summary of observed areas of non-compliance with deemed-to-satisfy provisions of the BCA, MFPE and the PS. Recommendations are included and a priority for recommendations is provided. The priority ratings adopted are as follows:-

Priority Ratings

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or level of non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
General	**Description of Building** The height, size and other parameters of the building affect BCA provisions applicable to the building.	The building comprises a single storey, 144m^2 childcare building. The building is currently not occupied.		
MFPE	**Building Criticality** Chapter 2 of the MFPE requires all buildings to be categorised into one of the following contribution factors: • CF1 Major Asset • CF2 Important Asset • CF3 Support Asset • CF4 General Purpose Asset • CF5 Low Importance Asset Buildings are also categorised as being tolerable or intolerable to loss in a fire event.	A completed criticality assessment has not been provided. This report has been prepared on the basis that the building contribution factor is CF4. It is also assumed that the loss of all or part of the building is tolerable.	Complete a criticality assessment form in accordance with MFPE Chapter 2.	1
General	**Maintenance of Essential Safety Measures** All essential fire and other safety systems throughout the complex must be maintained fit for purpose at all times to ensure the safety of building occupants.	The required Annual Essential Safety Measures (AESM) Statement was not sighted.	Rectify shortfalls in maintenance of Essential Safety Measures and update the AESM Statement.	1
A3.2	**Usage** The nature of the building's usage influences BCA provisions applicable to the building.	Usage and BCA usage class on each level is as follows:- Level – Use – BCA Class Ground – Childcare – 9b		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D1.13	**Populations** Populations throughout are based on BCA floor area per person allowances or project briefing as appropriate.	Based on BCA area per person figures, population estimates are as follows:- Level Zone Max Population Ground 9 48	Note: A breakdown of staff to children is required to confirm the required number of toilets.	
A1.1, C1.2	**Effective Height and Rise in Storeys** Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as the vertical distance between the lowest level of the building providing direct access and the exterior and the level of the floor of the highest occupied level. These parameters influence the BCA provisions applicable to the building.	The following parameters apply:- Rise in storeys 1 storeys Effective Height: <12m		
Part B1	**Structural Provisions** Various Australian Standards are referenced to establish the structural adequacy of a building.	Compliance not assessed, refer to structural engineers report. As Australian Standards are upgraded periodically, it is likely that the building no longer conforms to current day standards which may have increased from those applicable at the time of construction. In particular, requirements for earthquake resistance and glazing have been significantly increased in recent years.	If major alterations, a change of use, or other trigger for retrospective upgrade to BCA compliance could apply, structural engineering advice should be sought in terms of the extent of work needed to upgrade the building to compliance with current day standards.	3
C1.1 & Spec C1.1, C1.9, C1.13 Spec A1.1	**Type of Construction** The BCA applies “Type of Construction” requirements to a building to define the extent and level of fire resisting construction required. The building may be of Type C (minimal) fire resisting construction. **Building Member** — **Requirement** External walls within 3m of Other buildings — 1.5 FRL Floors — Nil Roofs/ceilings and internal columns and	The building is greater than 3m from other buildings and the allotment boundary, therefore no elements are required to be fire rated.	Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	walls supporting roofs Fire walls 1.5 FRL			
C1.1, C1.9, C1.14	**Combustible Façade Cladding (CFC)** Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or Composite Panels, means that it is unlikely that any CFC façade linings would be considered compliant.	Being Type C construction, the external walls and cladding may consist of combustible elements.	Considered acceptable.	
C1.10, C1.10a	**Fire Hazard Properties** Requirements for early fire hazard properties apply to wall, ceiling and floor coverings and for construction materials generally.	The fire hazard properties of floor & wall linings and other elements were unable to be fully determined. However, materials installed appear to be typical for a building of this type and age.	Considered acceptable.	
C2.2, C2.3 E2.2	**Floor Area Limits (Type C Construction)** A fire compartment size limit of $3{,}000m^2/18{,}000m^3$ applies for office or public assembly for buildings of Type C construction	The area of the building is $144m^2$, hence the area and volume is within prescribed limits.		
C2.12	**Separation of Equipment** The following plant needs to be bounded by 2 hour fire rated enclosures or needs to be otherwise fire isolated from the balance of the building:- • Lift motor rooms • Boilers (as defined in BCA A1.1) • Central mechanical smoke control plant • Batteries above 24 volts and exceeding 10 ampere hours capacity (batteries within an electricity network substation are exempt) • Generators supporting emergency equipment operating in an emergency • Main switchboard and related power cables if sustaining emergency equipment in emergency mode	No Plant or equipment requiring separation occurs.		
C2.13	**Electricity Supply System** Substations, electrical conductors, and main switchboards that sustain emergency equipment operating in	No substations or switchgear requiring separation are located within the building.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	emergency mode must be contained within two hour fire rated construction. Switchgear supporting essential services and emergency equipment must be separated from the remaining parts of switchboards by metal partitions to minimise the spread of a fault from non-emergency supplies.			
C3.2 C3.4	**External Openings Near Fire Sources** External wall openings must be fire protected where they occur within 3m of the allotment boundaries, within 6m of boundaries on the opposing side of public roadways, or within 6m of other buildings on the same allotment. Openings that require fire protection should not occupy greater than 1/3 of the elevational area of the storey concerned. Where required to be fire protected, windows must be self-closing, automatic closing or fixed and provided with external drenchers or one hour fire rated shutters, windows or the like. Other openings required to be fire protected require protection to an equivalent fire rating.	Nil openings occurring within 3m of a fire source feature.		
D1.4, D1.5	**Exit Travel Distances** • Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m. • Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m. • A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level. • Alternative travel paths should not converge at any point to be within 6m of each other.	The building is provided with 2 exits direct to outside and travel distances are within prescribed limits.		

<table>
<tr><th>BCA Ref (PS Ref)</th><th>BCA Requirement</th><th>Observations</th><th>Recommendations</th><th>Priority Rating</th></tr>
<tr><td></td><td>• Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m.
• Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m.
• A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level.
• Alternative travel paths should not converge at any point to be within 6m of each other.</td><td></td><td></td><td></td></tr>
<tr><td>D1.6</td><td>Exit Widths

Minimum aggregate exit widths are required based on building populations served. Exit pathway and doorway widths and heights must achieve minimum requirements.</td><td>Exit widths are sufficient for the deemed population</td><td></td><td></td></tr>
<tr><td>D1.10</td><td>Discharge from Exits

Exits must discharge to a street or road or to open space leading to a street or road and should not pass through a tenancy space.</td><td>Compliance occurs</td><td></td><td></td></tr>
<tr><td>D2.7</td><td>Services in Exits and Paths of Travel

Electrical meters and motors, distribution boards and telecommunication boards must not be accessed from fire isolated exits and, if located in corridors leading to exits, should occur in non-combustible or fire protective smoke sealed enclosures.</td><td>Smoke isolating fire protective construction does not occur at the switchboard.</td><td>Install smoke seals to the doors of the switchboard.</td><td>3</td></tr>
<tr><td>D2.10, D2.13, D2.14</td><td>Slip Resistance of Ramps, Steps and Landings

Ramp surfaces, stair tread surfaces or nosing strips and stair landing surfaces or nosing strips to a flight below, must achieve slip resistance classifications to AS4586-2013 as follows:-
<table>
<tr><th>Application</th><th>Dry Surface Condition</th><th>Wet Surface Condition</th></tr>
<tr><td>1:14 or steeper ramps</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramps of 1:14 to 1:20</td><td>P3 or R10</td><td>P4 or R11</td></tr>
</table></td><td>Unable to verify the slip resistance of the ramp and stairs, however likely to comply.</td><td>Considered acceptable.</td><td></td></tr>
</table>

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	<table><tr><td>Tread or Landing Surface</td><td>P3 or R10</td><td>P4 or R10</td></tr><tr><td>Nosing or Landing Strip</td><td>P3</td><td>P4</td></tr></table>			
D2.13	**Goings and Risers** To provide safe passage, stairways must comply with the following:- • No more than 18 and no fewer than 2 risers in each flight. • Risers and goings that are consistent in a flight and within a prescribed range of dimensions. • Riser gaps and step openings that do not exceed 125mm. • Non-slip treads and non-skid tread nosings. • Solid treads if the stair height exceeds 10m or three storeys. • If used for egress, contain no winders or triangular treads. • If not used for egress, have limited winders at landings with even goings.	The rises and going dimensions of the minor stair were more than prescribed tolerances.	Alter stair so that the rises and going dimensions are within prescribed tolerances.	2
D2.14	**Landings** Stair landings must comply with the following:- • Maximum 1 in 50 falls. • Minimum 750mm length. • Non-slip finish with non-skid nosings. • In a health-care building, sized to allow passage of a stretcher. (180 degree landings need to be 1.6m wide and 2.7m long or have alternative approved arrangements.	No landing occurs to minor external stair.	Alter the minor external stair to provide a 750mm long binding.	2
D2.15	**Thresholds** Steps should not occur at doorways without a threshold landing except as follows:- • A single 190mm step is permitted in at doors leading to the exterior.	Note.		
D2.17	**Handrails** Handrails are required at steps, stairs and ramps.	No handrail is provided to external steps.	Install handrails to the external steps and ramp.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.19	**Doors and Doorways** The type of exit doors permitted in given circumstances is controlled including:- • Revolving doors cannot serve as exits. • Roller shutter or tilt doors at exits or egress paths are not permitted except for small spaces. • Auto-sliding power operated exit doors must be fail safe to open on power failure or fire alarm.	The exit doors consist of a swing door and sliding door.	Considered acceptable.	
D2.20	**Door Swings** Except where serving areas of 200m^2 or less, exit doors and discharge doors from the building should swing outward in the direction of exit travel.	The exit door swings in the direction of egress.	Considered acceptable.	
D2.21	**Exit Door Hardware** Exit doors and doors in a path of travel to an exit must be provided with "free handle" egress via single handed downward (lever) or pushing action door hardware, and if serving an area accessible to people disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances. Electronic locking security devices must be fail safe (i.e. Release to the open position) on activation of general fire alarm, or power failure.	The sliding door is a domestic style door which a non-compliant snib.	Replace the door hardware to the sliding door.	3
D2.21	**Exit Discharges to Streets** Exits must discharge to lanes or courts which provide unobstructed access to public streets.	Unobstructed pathways are available from the building to the nearest road.	.	
OHS	**Roof Fall Protection** OHS obligations prescribe provision of roof fall protection for maintenance personnel.	Fall protection from heights is not provided at all roof and elevated accessible areas.	Audit and upgrade as necessary based on work methods used by maintenance personnel.	
D3.1 **(D3.1)**	**General Access for People with a Disability** <u>Childcare Buildings</u> The building is required to be generally accessible to persons with a disability throughout all areas unless specifically exempted.	Access for people with disabilities is required throughout the building.	Note.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	Exemption: A lift or ramp need not serve a storey (other than an entrance storey) in an office, retail, warehouse or factory building if the building: - contains 3 or less storeys - each non accessible storey does not exceed 200m².			
D3.2 (D3.2)	**Access to Buildings** External access to the building must be provided:- • From main entry points at the allotment boundary. • Through the principle public entrance. • Through at least 50% of pedestrian entries. • From accessible car parking spaces. • For buildings over 500m², so that an accessible entry occurs within 50m of any non-accessible entry. • From any another accessible building on the site.	External access is not provided to current standards in that there is no designated and all weather concrete pathway from the bottom of the ramp to the nearest road.	Install an all-weather pathway from the bottom of the ramp to the nearest roadway.	2
D3.3 (D3.3)	**Access within Buildings** All main areas of the building must be accessible. Turnstiles, revolving doors and the like that restrict access by wheel chair users are not permitted unless alternative access arrangements occur. Public stairs and ramps connecting the upper and lower levels must comply with AS1428.1 - 2009 including:- • Handrails on both sides of the stair with curled extensions at the ends. • Closed risers. • Colour contrasted nosings.	Internally, the building is a single level which is served by a ramp. Refer below for further commentary.		
Part D3	**Disabled Persons Access Details** Buildings required to be accessible must have travel paths, facilities and details which comply with AS1428.1. – 2009. Enhanced requirements apply to public transport buildings. Principle requirements are:- • Continuous accessible paths of travel throughout	The following non-compliances were observed:- • The grade of the ramp could not be determined however it appeared to be 1:14. • The ramp was not provided with handrails to both sides. • The installed handrails did not have accessible features	Replace the external ramps with a new ramp that has all accessible features and achieved the required circulation space. Install handrails to the external stairs and provide contrasting nosings.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc. • No deep pile carpets or grates with large slots. • 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard. • 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways. • Turning spaces at 20m intervals. • Splayed 1.5m x 1.5m 90 deg turning spaces if the intersecting corridors are less than 1.5m wide and 1.54m x 2.07m long 180 deg turning spaces including at dead ends in passageways. • Step ramps, kerb ramps and threshold ramps as prescribed. • 1:14 maximum ramps with 9m between landings. • 1.9m x 1 in 10 (maximum 190mm rise) step ramps. • 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps. • 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc. • 850mm clear doorways with 340 - 900mm latchside clearances and 1220-1670mm approach clearances depending on arrangements. • Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs. • Decals to glazing. • 900-1100mm door hardware height. • Lever handle hardware with low opening forces. • Landings at doorways, direction changes and at intervals on ramps and inclined walkways. • Walkways with colour contrast borders. • Flat even surfaces. • Colour contrasted hand rails and door frames. • 850mm clear door widths.	such as extensions, turn downs, 270 deg clearances. • The landing at the top of the ramp was undersized from a door circulation perspective. • Doors hardware did not meet the requirements of AS 1428.1. • The external stair is not provide with handrails. • The external stairs does not have contrasting nosings.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Non-slip “D” pull handles to doors with 35-45mm hand clearance. • Continuous protected paths from disabled carspaces to lifts, access points, etc. • Ambulant disabled person’s toilets with grabrails and outward swinging doors or longer cubicles. • Prescribed types of water entry arrangements for swimming pools depending on pool size. • Stairs (other than fire stairs) with opaque risers. • All stairs with colour contrasting nosing strips. • All switches and controls 900-1100mm above floor level. • A 1.54m x 2.07m long turning space is required at the ends of corridor dead legs that exceed 2m in depth and at 20m intervals in corridors. • 2m x 1.8m passing spaces are also required at intervals in corridors where a direct line of sight is not available. “T” and “+” corridor and accessway intersections may substitute for a required passing space. (Provided these zones allow wheelchair turning, 1,800mm wide corridor zones are not required at “T” or “+” intersections.) • Right angle corridor bends require a splayed 1.5m x 1.5m turning space if the intersecting corridors are less than 1.5m wide. Refer to Appendix D3 and F2.4 attached for further details. • Passing bays and turning zones for wheelchairs need to be confirmed in corridors.			
D3.6 (D3.6)	**Identification of Facilities, Services and Features** Braille and tactile signage is required to identify sanitary facilities, areas with hearing augmentation systems and to identify accessible entries and lifts and the location of accessible and ambulatory sanitary facility locations and details. Doors requiring exit signage must be provided with Braille and tactile signs identifying the exit and floor level number.	Toilet identification signage does not include braille and tactile signage as required.	Install braille and tactile signage to the toilets.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	Signage details must be in accordance with AS1428.1 and Specification D3.6 of the BCA.			
D3.7 (D3.7)	**Hearing Augmentation** AS1428.1 hearing augmentation systems are required to supplement amplification systems if installed in:- • Auditoria • Meeting rooms • Public service counters	Hearing augmentation systems are not required.		
D3.8 (D3.8)	**Tactile Indicators (TGSIs)** AS1428.4.1 compliant Type B tactile ground surface indicators are required to publicly accessible stairs, ramps, escalators, travelators, low height projections and where pedestrian paths meet vehicular ways without a kerb. General requirements Include: • 600-800mm deep TGSIs at top and bottom of stairs and ramps and where landings exceed 3m in depth. • 300-400mm deep TGSIs at enclosed landings that are accessible. • TGSIs are not required in fire isolated stairs. • 600-800mm deep TGSIs at other hazards.	Tactile ground surface indicators are not provided to the stairs or ramp.	Install TGSIs to the external stairs and ramps.	3
E1.3	**Fire Hydrants** An AS2419.1-2005 compliant fire hydrant system is required to provide hydrant cover throughout a building with an area over 500m^2..	Fire hydrant coverage is not required to this building, although coverage is provided by the site external hydrants.		
E1.4	**Fire Hose Reels** Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to exits except as follows:- • Class 2, 3 or 4 residential areas protected by 2.5kg ABE type extinguishers located in common areas on the storey served not more than 10m from each sole occupancy unit entry door • Electrical substations	Fire hose reels are not required to this building.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	Hose reels are not permitted to pass through fire or smoke doors to achieve hoes reel cover.			
E1.5	**Fire Sprinklers** Sprinkler protection is required in the following instances • where the building contains combustible external wall components justified via BCA verification method CV5. • Where the building exceeds 25m in effective height. • To enclosed car parks with >40 vehicles, • Class 6 retail areas >3500m2 • In fire compartments greater than 2000m2 or 12000m3 where the use of the premises is defined as an occupancy of excessive hazard. (High fuel load storage and manufacturing risks). • Where buildings are constructed of fire-protected timber or massive timber construction. Sprinkler pumps and valves must be accessible from the street. Sprinkler system activation must be linked to an audible occupant warning system.	Sprinkler protection is not required to this building.		
E1.6	**Fire Extinguishers** Portable fire extinguishers installed to AS2444 are required in prescribed risk areas and to fire brigade requirements including at:- • Emergency services switchboards • Kitchens • Flammable liquid stores • At nurses stations • Special risk areas	Portable fire extinguishers occur at various locations throughout the building.	Considered acceptable.	
E2.2	**Smoke Hazard Management** Smoke hazard management systems include zone smoke control, stair pressurisation, smoke detection & alarm systems or sprinkler systems. The requirement for smoke hazard management is determined based on	A form of smoke hazard management is not required within this building.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	the BCA classification, rise in storey and area/volume of the building. The MFPE also requires Smoke Hazard Management for CF1/CF2/Intolerable loss building and stores/workshops and hangars the meet the prescribed criteria.			
E4.2, E4.4, E4.5,E4.6, E4.8	**Emergency Lighting & Exit Signage** A system of emergency lighting and exit signage is required throughout to AS2293.1, or for photoluminescent exit signs, BCA spec E4.8.	Emergency lighting and illuminated exit signage is not required by virtue of the building size.		
Part F1	**Damp and Weatherproofing** Construction performance standards apply for stormwater systems, roof coverings, sarking, waterproofing to wet areas, damp proofing, location of floor wastes, sub floor ventilation and weatherproofing of glazed assemblies.	Compliance unable to be verified however sub-floor ventilation has been provided.	Considered acceptable	
F1.11	**Wet Area Floor Wastes** Every bathroom and every laundry located at any level above another sole occupancy unit or public space must have a floor waste and the floor must be graded to the waste to allow drainage of water.	Compliance not determined.	Audit and upgrade during refurbishment.	3
F2.2, F2.3 & F2.6	**Sanitary Facilities** Adequate separate male and female sanitary and toilet facilities required in buildings.	A detailed assessment of the number of toilet and other sanitary facilities could not be undertaken. However, sanitary facilities occur and appear generally adequate.	Confirm the number of staff and children to be accommodated as this will enable a detailed toilet calculation to be undertaken.	3
F2.4 (F2.4)	**Facilities for People with Disabilities** Accessible unisex disabled persons toilets are required on each storey and at 50% of toilet banks on any storey. Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. The following general requirements apply:- • Unisex facility. • ~1.9 x 2.63m or 2.3 x 2.3m minimum room dimensions depending on arrangements.	A toilet for people with disabilities has not been provided for adults or children. Similarly, there are no toilets for people with ambulant disabilities.	Install a unisex accessible toilet and ambulant toilet. Engage an access consultant to advise on the requirements for facilities for children with disabilities.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	(~2.2m x 1.6m if AS1428.1-2001 concession applies). • 30-40mm grabrails with 50-60mm clearances. • Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies • Washbasins with clearances as required. • Shielded hot water pipes. • Mirror, shelf, dispensers and coat hooks. • Mirrored layout for alternative facilities. A toilet cubicle for people with ambulant disabilities is also required for males and females at each bank of conventional toilets. (900 – 920mm wide with 900mm clear in front of WC and no door swing encroachment. Grab rails are required within the cubicle. Accessible showers of prescribed dimensions, designs and accessibility details are required to supplement required conventional shower facilities.			
F2.5	**Construction of Sanitary Compartments** Sanitary facilities should be adequately screened for privacy and for separation of the sexes. If toilet doors wing into fully enclosed WC compartment where the WC pan is less than 1.2m from the doorway, the door to the compartment must be fitted with 'lift-off' hinges.	Compliance is apparent, noting the requirement for children's toilets to be visible to staff.		
F3.1	**Height of Rooms or Other Spaces** Minimum ceiling heights apply throughout buildings, including:- • Offices: 2.4m • Car parks, corridors, sanitary facilities: 2.1m • Conference/Auditorium spaces: 2.7m	Compliance was generally apparent where observed.	Considered acceptable.	

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F4.1, F4.2	**Natural Light to Specified Rooms** Natural lighting aggregating 10% of room floor area is required as follows:- • To all habitable rooms in residential buildings. • In bedrooms and dormitories of hotels, motels and the like. • To rooms used for sleeping in health care and aged care buildings. • To general purpose classrooms in primary and secondary schools. • To playrooms of early childhood centres.	The installed windows provide adequate natural light, however 50% of the windows are not within 500mm of floor level.	Alter the windows so 50% occur within 500mm of floor level.	3
F4.2	**Minimum Light and Ventilation Well Depths** Required natural lighting and ventilation openings must face light/air easements or streets, or must be setback from title boundaries sufficient to allow appropriate light and air penetration into the apartments. Buildings require light wells with a depth equal to 50% of the square root of the wall height measured from the level of the lowest apartment window. (Minimum 1m generally)	Adequate setbacks occur.		
F4.4	**Artificial Lighting** Artificial lighting within buildings should comply with AS1680.0.	Compliance could not be verified. However, adequate lighting levels appear to occur throughout areas inspected.	Considered acceptable.	
F4.5, F4.6 & F4.7	**Ventilation of Rooms** Buildings must be naturally ventilated via fixed or openable vents, windows, etc or mechanically ventilated in accordance with AS1668.2-2012.	Ventilation to the building is provided by way of openable doors and windows. The size of the doors and windows equate to more than 5% of the floor area of the building.	Considered acceptable.	
F4.8 & F4.9	**Restriction of Position of Water Closets and Urinals & Airlocks** Naturally ventilated rooms containing water closets and urinals cannot open directly into particular areas of the building (e.g. kitchens, work spaces, etc) without airlocks, exhaust, screens, etc.	Compliance apparent.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F4.12	**Kitchen Local Exhaust Ventilation** Commercial kitchens require AS1668.2 compliant kitchen exhaust systems with exhaust discharges located so as not to cause a nuisance or safety hazard.	The kitchen installed within the building has a domestic system rangehood which is considered satisfactory for the equipment installed.		
Section J	**Energy Efficiency** Buildings must be designed and constructed to include energy efficiency measures. Applicable requirements include:- - The extent and method of insulation of external building envelope elements; - Thermal performance of external glazing; - Sealing of openings in external building elements; - Energy efficient performance of air-handling systems; - Energy efficient performance of power and lighting systems; - Energy efficient performance of heated water systems; and - The need for access to equipment relating to the energy efficient performance of the building.	Compliance was not able to be assessed but may not occur given the building predates the introduction of these measures into the BCA but is unlikely to comply with current requirements.	Upgrade building fabric and services as upgrading works occur.	3

SECTION 5 – MAINTENANCE OF ESSENTIAL SAFETY MEASURES

5.1 MFPE

Chapter 7 of the MFPE requires maintenance of essential safety measures to be undertaken in accordance with relevant State legislation.

5.2 OVERVIEW (VIC)

Legislative requirements governing maintenance of essential safety measures of buildings are found in Part 15 of the Building Regulations 2018 made under the Building Act 1993.

Essential safety measures are fire and other safety features installed in or constructed as part of a building to ensure adequate levels of safety for the building. Essential safety measures include active building services such as fire sprinklers and mechanical services, passive fire safety items such as fire doors and fire rated structures and building infrastructure items such as paths of travel to exits.

They also include any other item that is required by or under the Act or the Building Regulations to be provided in relation to an asset for the safety of persons in the event of a fire or any other measure (including an item of equipment, form of construction, or safety strategy) required for the safety of persons using a building.

Standard Essential Safety Measures are listed in Schedule 8 of the Building Regulations 2018.

Maintenance provisions for essential safety measures are incorporated into legislation because it is a community expectation that a reasonable level of fire and general safety should be provided over the life of the building. Increasing onus is being placed on building owners to ensure the continued integrity of essential safety measures in order to meet their obligations under building regulations and under occupational health and safety requirements.

The Building Regulations require relevant building surveyors to schedule essential safety measures installed as part of the building approval and occupancy permit process.

Councils and fire officers are empowered to inspect maintenance records and enforce maintenance requirements for essential safety measures.

DISPLAY OF OCCUPANCY PERMITS

The Building Regulations 2018 require that occupancy permits be displayed in a prominent location accessible to the public and occupants.

MAINTENANCE OF ESSENTIAL SAFETY MEASURES

All buildings are subject to maintenance requirements as set out in Part 15 of the Building Regulations 2018 and summarised as follows.

"Essential Safety Measures" comprise all equipment, materials and components affecting safety.

The Occupancy Permit, Maintenance Determinations and Maintenance Schedules must list every relevant essential safety measure for the building and specify the level of performance and the maintenance regime for each such measure.

Owners must comply with Maintenance Determinations or Maintenance Schedules relevant to their buildings and maintain records of Maintenance Determinations and Schedules and of maintenance checks, service and repair work. In addition, owners must complete an Annual Essential Safety Measures Report (AESMR) every 12 months to declare all maintenance requirements have been carried out. All details must be available for inspection by the council

or fire brigade upon request. It is permissible for multiple Maintenance Determinations due to multiple works packages or permits to be consolidated to a single “Maintenance Schedule”.

The annual essential safety measures report must be in a prescribed form and must include:-

- the building address;
- details of any inspection reports undertaken by council or the fire brigade;
- certain statements of compliance; and
- the signature of the owner.

All AESMR’s prepared within 10 years of the request must be available to council or fire brigade inspectors with 24 hours of the request.

Exits and travel paths must be maintained in an efficient condition and kept readily accessible, functional and clear of obstruction. (This obligation rests with the occupiers of the building.)

LEGISLATION – BUILDINGS CONSTRUCTED PRIOR TO INTRODUCTION OF MAINTENANCE, OBLIGATIONS

All buildings must now be brought into compliance with the maintenance and reporting requirements described above, regardless of their date of construction.

METHODOLOGY FOR COMPLIANCE

A methodology for implementing a system of essential safety measures maintenance should include the following fundamental tasks and systems:-

- Review the building and occupancy permit history for the building and identify the minimum maintenance regime required by the legislation.
- Establish a system to incorporate ongoing and future building and occupancy permits events and provide for suitable adjustment of the maintenance regime.
- Record all maintenance activities undertaken.
- Include systems to ensure that all essential safety measures have been subjected to their individual prescribed maintenance checks.
- Record and report annually to confirm that the regime has been satisfactorily completed over the year.
- Hold documentation for 10 years.

5.3 MAINTENANCE REQUIREMENTS

Outlined below is a schedule of requirements for essential safety measures which may typically occur within a building. The installation standard and frequency and nature of maintenance required relate to requirements listed under Australian Standards or Building Regulations. The list is not necessarily comprehensive as other safety systems may have been specified in the design and construction of the building.

Maintenance Requirements for Essential Safety Measures

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Building Fire Integrity		
Materials and assemblies required to satisfy prescribed fire hazard properties for linings and surface finishes	C1.10	Annual inspection for damage, deterioration, or unauthorised alteration
Means of Egress		
Paths of travel to exits	D1.6	Inspection every three months to ensure there are no obstructions and no alterations
Discharge from exits (including paths of travel from open spaces to the public roads to which they are connected)	D1.7, D1.9 to D1.11, D2.12, G4.3, G4.6, G4.7	Inspection every three months to ensure there are no obstructions and no alterations
Exits (including non-fire-isolated stairways and ramps, stair treads, balustrades and handrails associated with exits)	D2.2, D2.3, D2.8 to D2.11, D2.13, D2.16, D2.17	Inspection every three months to ensure there are no obstructions and no alterations
Doors (other than fire or smoke doors) in a required exit, forming part of a required exit or in a path of travel to a required exit, and associated self-closing, automatic closing and latching mechanisms	D1.6, D2.19 to D2.21, D2.23	Inspection every three months to ensure doors are intact, operational and fitted with conforming hardware
Fire Fighting Services and Equipment		
Portable fire extinguishers	E1.6	Every six months to ensure extinguishers are in place and to AS1851-2012 Section 10

* Essential Safety Measures marked with an " * " are not currently included within the schedule of measures requiring maintenance under the Victorian Building Regulations 2018, however maintenance of these items is required.

PLP Building Surveyors & Consultants Pty Ltd

Melbourne | Brisbane | Perth

VT12399
POINT COOK HERITAGE CONSULTANCY

BCA & MFPE COMPLIANCE REPORT
Building A0485

26 OCTOBER 2018

PREPARED BY: PLP BUILDING SURVEYORS & CONSULTANTS PTY LTD

PREPARED FOR: AURECON FOR AND ON BEHALF OF DEPARTMENT OF DEFENCE

JOB NO: 05949

CONTENTS

REVISION HISTORY		
Revision	**Date**	**Purpose/Details Of Revision**
0	11-10-2018	Initial Draft
1	26-10-2018	Issued to team

AUTHORISED BY: .....
FRANK ISGRO, SENIOR ASSOCIATE

EXECUTIVE SUMMARY

Building A0485 located at RAAF Williams (Point Cook) was inspected to establish the broad level of compliance with the requirements of the Building Code of Australia 2016 (Including Amendment 1) (**BCA**), the disability access requirements of the Disability (Access to Premises – Buildings) Standards 2010 (**Premises Standards** or **PS**) and the Manual of Fire Protection Engineering Edition 2 (**MFPE**).

BCA and Premises Standards non-compliances identified are allocated a priority rating based on perceived hazard level, statutory obligations to rectify the non-compliance in the circumstances, and risk mitigation considerations. Rectification works are recommended where applicable.

Overall, the building is rated poor in terms of general building regulations compliance.

Access and facilities for people with disabilities are rated poor.

Maintenance of essential safety measures appears to be to a poor standard. An annual essential services declaration was not sighted during the inspection.

Section 4 of this report details defects identified. Items requiring rectification have been allocated a Priority Rating as follows to indicate the degree of risk considered to occur by the auditor:

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or the nature of the non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

SECTION 1- BRIEF AND SCOPE

1.1 Introduction

This report presents an assessment of Building 485 against the requirements of the Building Code of Australia, the Disability (Access to Premises – Buildings) Standards and Manual of Fire Protection Engineering Edition 2 (MFPE).

1.2 Assessments

Assessments are against the deemed-to-satisfy provisions of Building Code of Australia 2016 (Including Amendment 1) (BCA), the Access Code provisions of the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards or PS), and Manual of Fire Protection Engineering Ed.2, current at the date of inspection of the building.

Commentary is also provided on requirements for ongoing maintenance and certification of essential fire safety measures and on circumstances under building regulations when upgrade of the building to current day building regulations may become a statutory obligation.

The report makes comments and recommendations with respect to BCA and PS requirements. These opinions are the considered view of PLP Building Surveyors & Consultants Pty Ltd taking into account the specific circumstances encountered and recognising that the circumstances are existing arrangements which have, in many cases, been in place for a significant period of time.

1.3 Basis of Report

The report was prepared on the basis of the following:-

- A brief walk-through inspection of the building undertaken on 9th October 2018.
- Preliminary architectural drawings provided by Aurecon/HDR.
- Building information made available for review.

Documents received and advice provided on site were generally accepted as accurate unless evidence to the contrary became apparent during the course of the inspection.

Comments offered assume that areas sighted are representative of the building as a whole.

Unless noted otherwise, the report assumes that the existing use of the building will continue.

1.4 Scope and Exclusions

The report was prepared on the basis of a “walk through” inspection of the building and represents a broad overview only on compliance with the current provisions of the BCA and the PS. The following limitations apply in the interpretation of findings:-

- The report excludes matters relating to areas or components that were not accessed or were unsighted at the time of inspection. Areas and components not accessed or not sighted are outside the scope of this report.
- The report considers matters of a significant nature only and should not be considered exhaustive.
- The passage of time, manifestation of latent conditions, or impacts of future events, may require further exploration, analysis and re-evaluation of the findings, observations and recommendations expressed in this report.
- PLP Building Surveyors & Consultants Pty Ltd are not qualified Quantity Surveyors and costs provided in any Capital Expenditure Forecasts allow for general order of cost reporting only. Their accuracy should not be relied upon and must be independently verified.
- No analysis or testing of building services systems was performed to confirm compliance with current day performance requirements, codes and specifications.

- No documentation searches were undertaken, either with public authorities or with the building owners, and no attempts were made to determine whether notices, orders or other outstanding requirements of relevant authorities apply.
- Appraisals are limited to the provisions of the BCA, MFPE, and the Premises Standards. Except where specifically stated, other legislative requirements have not been considered.
- The report does not constitute a detailed review of essential services maintenance issues. Only an overview of legislative requirements is provided.
- The report does not consider structural compliance issues and does not include review of the structural sufficiency of the building.
- The report does not include a detailed review of compliance with applicable Australian Standards. Rather, the report is limited to commentary on the existence and general appearance of building systems and services.
- Compliance with Australian Standards for glass and glazing systems is not covered.
- Titles and title particulars have not been reviewed.
- Pest or vermin infestation matters are not addressed.
- Although comments are offered on matters relating to the Federal Disability Discrimination Act (DDA), this report does not constitute a full DDA audit and cannot be read as such.
- The report does not include a review of plumbing or electrical installations.
- Requirements under Occupational Health and Safety Legislation are not addressed.
- Dangerous Goods Legislation is not addressed.

1.5 General Limitation Statement

The findings in this report were derived from visual inspection of representative areas of the complex, review of limited documents available, and advice received from individuals with information about the site. No warranty or guarantee, whether expressed or implied, is made with respect to the matters reported.

1.6 Use of Report

This report is prepared for the sole benefit of the Client as noted on the facing page of this report. The report is prepared on the basis of instructions and briefing by the Client. PLP Building Surveyors & Consultants Pty Ltd accepts no liability for the use of or reliance upon this report by any third party.

1.7 Inspection Date and Validity

The inspection was undertaken on 9 October 2018 and is based on circumstances existing on that date.

SECTION 2- LEGISLATION

2.1 Application of the MFPE

The MFPE generally obliges that buildings be maintained to the standards in force at the time that the building was constructed.

There is no general requirement for buildings to be continually upgraded to achieve compliance with current day regulations. Broadly speaking, retrospective application of BCA or the PS is not required unless one of the following circumstances occurs:-

- A significant safety hazard is perceived to exist and building authorities make orders to reduce the hazard.
- Major alterations or additions are proposed as defined in the MFPE.
- The premises become subject to a "change of use" as defined in the MFPE.
- A successful action is brought following lodgement of a complaint under disability discrimination legislation.
- Provisions under Disability Regulations apply as set out in Section 2.2 below such that upgrade of access paths from the main building pedestrian entry to all new work areas is required.
- Specific legislation occurs which requires retrospective upgrade in particular circumstances. e.g. Sprinkler protection and smoke detection to certain residential buildings.

2.2 Access Requirements for People with a Disability

The Disability (Access to Premises – Buildings) Standards came into force throughout Australia on 1 May 2011. In prescribed circumstances, the legislation requires upgraded access for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could generate a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the new building work.

Building owners need to be aware that the provisions can result in the need to undertake significant enhancement of a building in terms of access for disabled persons, even if only minor general building work is proposed.

2.3 Certificates of Classification, Occupation and Works Completion

Signoff certificates for occupation or certificates for completion of buildings work were not available for review. For the purpose of this report, it has been assumed that appropriate commissioning and other certificates were issued at the time of original works completion that the basis of the certificates was valid in each case, and that the building works covered by the certificates were carried out in accordance with the approvals granted. If available, it is recommended that these documents be sourced as they may include information, conditions or requirements for ongoing management and occupation of the building.

2.4 Performance Building Solutions

The current day BCA and the Premises Standards are performance based building codes. Compliance may be achieved by either satisfying prescriptive deemed-to-satisfy provisions or by formulation of an Performance Solution. A valid Performance Solution enables deemed-to-satisfy provisions to be varied. Whilst a Performance Solution can relate to any matter, those with the greatest impact on a building generally relate to fire safety and access for people with a disability.

It is possible that the building may have been subject to past Performance Solutions although details in this regard were not sourced. Performance Solutions can be subject to conditions

and obligations affecting the ongoing building use. Hence, it is recommended that details of any Performance Solutions applied to the building be sourced.

No attempt has been made to source such documents. It is again recommended that details of any dispensations, or the like be procured. Any conditions or requirements of these processes may need to be maintained as part of ongoing management and use of the building.

2.5 Maintenance of Essential Safety Measures

Maintenance requirements for the building's essential safety measures are as set out in legislation. These provisions require building owners to have fire safety services and other essential safety measures maintained and checked as specified.

An annual compliance certificate is required in most jurisdictions and it is a building owner's duty to ensure that essential fire safety services and other measures are maintained to ensure the ongoing safety of the building. Local councils or fire brigades can randomly audit buildings to ensure that maintenance is occurring.

Refer to Section 5 of this report for more detailed commentary.

SECTION 3- COMMENT ON OVERALL LEVEL OF COMPLIANCE

3.1 General BCA and MFPE Provisions

Overall, the building is rated poor in terms of the current day BCA and MFPE compliance. The building does not comply with a number of BCA requirements. Some non-compliances observed are reflective of changed regulatory requirements over time. Alternatively, it is possible that the building may have received dispensation from the approval authority at the time of construction.

3.2 Access Provisions

Access and facilities for persons with disabilities are rated poor against the provisions of the BCA and the Premises Standards.

The building does not comply with the access requirements of the BCA and Premises Standards and does not therefore meet obligations under the Federal Disability Discrimination Act 1992 and similar State and Territory legislation. Disability legislation is often complaints based and there are procedures whereby upgrade works may be required and enforced. Building owners need to consider their obligations and risks in this regard and it is recommended that an action plan for progressive upgrade works be developed for the building in accordance with procedures under the Disability Discrimination Act 1992.

In addition, the lack of access and features for persons with a disability may need to be addressed if building work is proposed, even if the proposed work is relatively minor. Refer to Section 2.2 above for further discussion in this regard.

3.3 Maintenance of Essential Services

Based on a random review of maintenance tags fixed to fire services in the building, the level of maintenance of these essential services appears to be poor.

An annual essential services declaration was not sighted.

It is recommended that contractors continue to be engaged to ensure that all essential services and safety systems within the building are routinely audited and subjected to maintenance processes.

It is further recommended that a full Maintenance Schedule for all essential safety measures be prepared as is now required pursuant to the provisions of the Victorian Building Regulations 2018.

SECTION 4 – SCHEDULE OF COMPLIANCE WITH BCA, MFPE, & PS DEEMED-TO-SATISFY PROVISIONS

The table below provides a summary of observed areas of non-compliance with deemed-to-satisfy provisions of the BCA, MFPE and the PS. Recommendations are included and a priority for recommendations is provided. The priority ratings adopted are as follows:-

Priority Ratings

1 Immediate rectification recommended as a safety hazard is perceived to exist, a liability for mandatory upgrade may occur, or level of non-conformance is considered significant.

2 Rectification is not considered mandatory or in need of immediate attention, but is desirable from a risk management perspective.

3 Non-compliance is considered to present a lower order risk and would only be recommended as part of a major refurbishment or long term strategic upgrade.

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
General	**Description of Building** The height, size and other parameters of the building affect BCA provisions applicable to the building.	The original building is understood to have been completed in 1940. The building comprises a single storey, 102m^2 assembly building. The building is currently not occupied and is in poor condition internally.		
MFPE	**Building Criticality** Chapter 2 of the MFPE requires all buildings to be categorised into one of the following contribution factors: • CF1 Major Asset • CF2 Important Asset • CF3 Support Asset • CF4 General Purpose Asset • CF5 Low Importance Asset Buildings are also categorised as being tolerable or intolerable to loss in a fire event.	A completed criticality assessment has not been provided. This report has been prepared on the basis that the building contribution factor is CF5 (Low Importance Asset). It is also assumed that the loss of all or part of the building is tolerable.	Complete a criticality assessment form in accordance with MFPE Chapter 2.	1
General	**Maintenance of Essential Safety Measures** All essential fire and other safety systems throughout the complex must be maintained fit for purpose at all times to ensure the safety of building occupants.	The required Annual Essential Safety Measures (AESM) Statement was not sighted.	Rectify shortfalls in maintenance of Essential Safety Measures and update the AESM Statement.	1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
A3.2	**Usage** The nature of the building's usage influences BCA provisions applicable to the building.	Usage and BCA usage class on each level is as follows:- Level — Use — BCA Class Ground — Assembly Building — 9b		
D1.13	**Populations** Populations throughout are based on BCA floor area per person allowances or project briefing as appropriate.	Based on BCA area per person figures, population estimates are as follows:- Level — Zone — Max Populatio Ground — All — 100		
A1.1, C1.2	**Effective Height and Rise in Storeys** Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements. Effective height is defined under the BCA as the vertical distance between the lowest level of the building providing direct access and the exterior and the level of the floor of the highest occupied level. These parameters influence the BCA provisions applicable to the building.	The following parameters apply:- Building 485 Rise in storeys 1 storey Effective Height: <12m		
Part B1	**Structural Provisions** Various Australian Standards are referenced to establish the structural adequacy of a building.	Compliance not assessed, report to structural engineers report. As Australian Standards are upgraded periodically, it is likely that the building no longer conforms to current day standards which may have increased from those applicable at the time of construction. In particular, requirements for earthquake resistance and glazing have been significantly increased in recent years.	If major alterations, a change of use, or other trigger for retrospective upgrade to BCA compliance could apply, structural engineering advice should be sought in terms of the extent of work needed to upgrade the building to compliance with current day standards. Earthquake response levels should be assessed to verify that a reasonable level of earthquake resistance occurs.	3

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
C1.1 & Spec C1.1, C1.9, C1.13 Spec A1.1	**Type of Construction** The BCA applies "Type of Construction" requirements to a building to define the extent and level of fire resisting construction required. The building may be of Type C (minimal) fire resisting construction. **Building Member** / **Requirement** External walls within 3m of other buildings: 1.5hr FRL Floors: Nil Roofs: Nil Internal columns and walls: Nil Fire walls: 1.5 hr FRL	The building is greater than 3m from other buildings and the allotment boundary, therefore no elements are required to be fire rated.	Considered acceptable.	
C1.1, C1.9, C1.14	**Combustible Façade Cladding (CFC)** Amendments to the BCA 2016 (Including Amendment 1) that occurred in 2017, undertaken in light of significant fire events involving Aluminium or Composite Panels, means that it is unlikely that any CFC façade linings would be considered compliant.	Being Type C construction, the external walls and cladding may consist of combustible elements.	Considered acceptable.	
C1.10, C1.10a	**Fire Hazard Properties** Requirements for early fire hazard properties apply to wall, ceiling and floor coverings and for construction materials generally.	The fire hazard properties of floor & wall linings and other elements were unable to be fully determined. However, materials installed appear to be typical for a building of this type and age.	Considered acceptable.	
C2.2, C2.3 E2.2	**Floor Area Limits (Type C Construction)** A fire compartment size limit of 3,000m^2/18,000m^3 applies for office or public assembly for buildings of Type C construction	The area of the building is 102m², hence the area and volume is within prescribed limits.		
C2.12	**Separation of Equipment** The following plant needs to be bounded by 2 hour fire rated enclosures or needs to be otherwise fire isolated from the balance of the building:- • Lift motor rooms • Boilers (as defined in BCA A1.1) • Central mechanical smoke control plant • Batteries above 24 volts and exceeding 10 ampere hours capacity (batteries within an electricity network substation are exempt)	No Plant or equipment requiring separation occurs.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Generators supporting emergency equipment operating in an emergency • Main switchboard and related power cables if sustaining emergency equipment in emergency mode			
C2.13	**Electricity Supply System** Substations, electrical conductors, and main switchboards that sustain emergency equipment operating in emergency mode must be contained within two hour fire rated construction. Switchgear supporting essential services and emergency equipment must be separated from the remaining parts of switchboards by metal partitions to minimise the spread of a fault from non-emergency supplies.	No substations or switchgear requiring separation are located within the building.		
C3.2 **C3.4**	**External Openings Near Fire Sources** External wall openings must be fire protected where they occur within 3m of the allotment boundaries, within 6m of boundaries on the opposing side of public roadways, or within 6m of other buildings on the same allotment. Openings that require fire protection should not occupy greater than 1/3 of the elevational area of the storey concerned. Where required to be fire protected, windows must be self-closing, automatic closing or fixed and provided with external drenchers or one hour fire rated shutters, windows or the like. Other openings required to be fire protected require protection to an equivalent fire rating.	Nil openings occurring within 3m of a fire source feature.		
D1.4, **D1.5**	**Exit Travel Distances** • Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m. • Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m. • A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level. • Alternative travel paths should not converge at any point to be within 6m of each other	The building is provided with 2 exits direct to outside and travel distances are within prescribed limits.		

<table>
<tr><th>BCA Ref (PS Ref)</th><th>BCA Requirement</th><th>Observations</th><th>Recommendations</th><th>Priority Rating</th></tr>
<tr><td></td><td>• Travel distance limits of 40m from any point on a floor to an exit apply with maximum travel to a point of choice to alternate exits not to exceed 20m.
• Travel distance from one exit to the other should not exceed 60m, and separation of exits should not be less than 9m.
• A travel distance of 30m is permitted to a single exit for retail/office tenancies at ground level.
• Alternative travel paths should not converge at any point to be within 6m of each other</td><td></td><td></td><td></td></tr>
<tr><td>D1.6</td><td>Exit Widths

Minimum aggregate exit widths are required based on building populations served. Exit pathway and doorway widths and heights must achieve minimum requirements.</td><td>Exit widths are sufficient for the deemed population</td><td></td><td></td></tr>
<tr><td>D1.10</td><td>Discharge from Exits

Exits must discharge to a street or road or to open space leading to a street or road and should not pass through a tenancy space.

No more than two thirds of the required exits serving the main auditorium can be located in the main foyer. i.e. At least one third of required exits must involve travel and egress that avoids the main foyer.</td><td>Discharge to open space is considered acceptable.</td><td></td><td></td></tr>
<tr><td>D2.10, D2.13, D2.14</td><td>Slip Resistance of Ramps, Steps and Landings

Ramp surfaces, stair tread surfaces or nosing strips and stair landing surfaces or nosing strips to a flight below, must achieve slip resistance classifications to AS4586-2013 as follows:-
<table>
<tr><th>Application</th><th>Dry Surface Condition</th><th>Wet Surface Condition</th></tr>
<tr><td>1:14 or steeper ramps</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramps of 1:14 to 1:20</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or Landing Surface</td><td>P3 or R10</td><td>P4 or R10</td></tr>
<tr><td>Nosing or Landing Strip</td><td>P3</td><td>P4</td></tr>
</table></td><td>No compliant steps or ramps were installed to this building for this item to be assessed.</td><td>Install new stair/ramps into the building that comply with BCA requirements.</td><td>2</td></tr>
</table>

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.13	**Goings and Risers** To provide safe passage, stairways must comply with the following:- • No more than 18 and no fewer than 2 risers in each flight. • Risers and goings that are consistent in a flight and within a prescribed range of dimensions. • Riser gaps and step openings that do not exceed 125mm. • Non-slip treads and non-skid tread nosings. • Solid treads if the stair height exceeds 10m or three storeys. • If used for egress, contain no winders or triangular treads. • If not used for egress, have limited winders at landings with even goings.	No compliant going and risers were installed to this building. It appears that there are temporary steps of sorts to this building.	Install new stair/ramps into the building that comply with BCA requirements.	2
D2.14	**Landings** Stair landings must comply with the following:- • Maximum 1 in 50 falls. • Minimum 750mm length. • Non-slip finish with non-skid nosings. • In a health-care building, sized to allow passage of a stretcher. (180 degree landings need to be 1.6m wide and 2.7m long or have alternative approved arrangements.	No landings have been provided to the doors leading into the building from the external side of the building.	Install a landing at entry to the building.	
D2.15	**Thresholds** Steps should not occur at doorways without a threshold landing except as follows:- • 25mm level changes are permitted in health-care buildings. • 25mm level changes with a 1 in 8 ramped gradient are permitted in aged care buildings. • A single 190mm step is permitted in non-health or aged care buildings at doors leading to the exterior.	A threshold ramp in accordance with AS1428.1-2009 would not be able to assist with compliance to this building as the finished height of the buildings floor level is too high. Hence, a landing would be required.	Install a landing at entry to the building.	2
D2.17	**Handrails** Handrails are required at steps, stairs and ramps.	Handrails would be applicable to the building if compliant stairs were installed to the doors providing access to the building.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D2.19	**Doors and Doorways** The type of exit doors permitted in given circumstances is controlled including:- • Revolving doors cannot serve as exits. • Roller shutter or tilt doors at exits or egress paths are not permitted except for small spaces. • Auto-sliding power operated exit doors must be fail safe to open on power failure or fire alarm.	Swinging doors are provided to the building.		
D2.20	**Door Swings** Except where serving areas of 200m^2 or less, exit doors and discharge doors from the building should swing outward in the direction of exit travel.	Swinging doors are provided and as building is less than 200m^2 are allowed to swing inwards.		
D2.21	**Exit Door Hardware** Exit doors and doors in a path of travel to an exit must be provided with "free handle" egress via single handed downward (lever) or pushing action door hardware, and if serving an area accessible to people disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances. Electronic locking security devices must be fail safe (i.e. Release to the open position) on activation of general fire alarm, or power failure.	Non-compliant door hardware has been installed to the doors of the building.	Replace non-compliant furniture with compliant lever action handles.	**2**
OHS	**Blocked, Locked Off or Inaccessible Exits** Stored goods should not occur within, or obstruct access to exits. Required exits should not be locked off, dead bolted or otherwise made inaccessible. Fire and smoke doors should not be chocked or otherwise held in the open position.	The South East double exit doors are obstructed by a shelving unit.	Remove obstructions from the South East exit doors.	1
D3.1 **(D3.1)**	**General Access for People with a Disability** <u>Public Assembly Buildings</u> Access is required to and within all areas used by the occupants.	Access is required to and throughout this building.		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
D3.2 (D3.2)	**Access to Buildings** External access to the building must be provided:- • From main entry points at the allotment boundary. • Through the principle public entrance. • Through at least 50% of pedestrian entries. • From accessible car parking spaces. • For buildings over 500m², so that an accessible entry occurs within 50m of any non-accessible entry. • From any another accessible building on the site.	External access is not provided to current standards in that: • Gradients and other details of pathways providing access from the public roads and external carpark areas are not AS1428.1 complaint.	Provide an all-weather path from the building to the nearest roadway.	3
Part D3	**Disabled Persons Access Details** Buildings required to be accessible must have travel paths, facilities and details which comply with AS1428.1. – 2009. Enhanced requirements apply to public transport buildings. Principle requirements are:- • Continuous accessible paths of travel throughout • Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc. • No deep pile carpets or grates with large slots. • 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard. • 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways. • Turning spaces at 20m intervals. • Splayed 1.5m x 1.5m 90 deg turning spaces if the intersecting corridors are less than 1.5m wide and 1.54m x 2.07m long 180 deg turning spaces including at dead ends in passageways. • Step ramps, kerb ramps and threshold ramps as prescribed. • 1:14 maximum ramps with 9m between landings. • 1.9m x 1 in 10 (maximum 190mm rise) step ramps. • 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps. • 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc.	The following non-compliances were observed:- • Door furniture to the building is to be installed between a height of 900-1100mm from the finished floor level. • Steps occur at the main entries to the building.	Alter building so that access into and throughout is compliant with AS1428.1.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 850mm clear doorways with 340 - 900mm latchside clearances and 1220-1670mm approach clearances depending on arrangements. • Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs. • Decals to glazing. • 900-1100mm door hardware height. • Lever handle hardware with low opening forces. • Landings at doorways, direction changes and at intervals on ramps and inclined walkways. • Walkways with colour contrast borders. • Flat even surfaces. • Colour contrasted hand rails and door frames. • 850mm clear door widths. • Non-slip “D” pull handles to doors with 35-45mm hand clearance. • Continuous protected paths from disabled carspaces to lifts, access points, etc. • Ambulant disabled person’s toilets with grabrails and outward swinging doors or longer cubicles. • Prescribed types of water entry arrangements for swimming pools depending on pool size. • Stairs (other than fire stairs) with opaque risers. • All stairs with colour contrasting nosing strips. • All switches and controls 900-1100mm above floor level. • A 1.54m x 2.07m long turning space is required at the ends of corridor dead legs that exceed 2m in depth and at 20m intervals in corridors. • 2m x 1.8m passing spaces are also required at intervals in corridors where a direct line of sight is not available. “T” and “+” corridor and accessway intersections may substitute for a required passing space. (Provided these zones allow wheelchair turning, 1,800mm wide corridor zones are not required at “T” or “+” intersections.) • Right angle corridor bends require a splayed 1.5m x 1.5m turning space if the intersecting corridors are less than 1.5m wide. Refer to Appendix D3 and F2.4 attached for further details.			

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• Passing bays and turning zones for wheelchairs need to be confirmed in corridors.			
D3.6 (D3.6)	**Identification of Facilities, Services and Features** Braille and tactile signage is required to identify sanitary facilities, areas with hearing augmentation systems and to identify accessible entries and lifts and the location of accessible and ambulatory sanitary facility locations and details. Doors requiring exit signage must be provided with Braille and tactile signs identifying the exit and floor level number. Signage details must be in accordance with AS1428.1 and Specification D3.6 of the BCA.	Not Applicable		
D3.7 (D3.7)	**Hearing Augmentation** AS1428.1 hearing augmentation systems are required to supplement amplification systems if installed in:- • Auditoria • Meeting rooms • Public service counters	Hearing augmentation systems are not required.		
D3.8 (D3.8)	**Tactile Indicators (TGSIs)** AS1428.4.1 compliant Type B tactile ground surface indicators are required to publicly accessible stairs, ramps, escalators, travelators, low height projections and where pedestrian paths meet vehicular ways without a kerb. General requirements Include: • 600-800mm deep TGSIs at top and bottom of stairs and ramps and where landings exceed 3m in depth. • 300-400mm deep TGSIs at enclosed landings that are accessible. • TGSIs are not required in fire isolated stairs. • 600-800mm deep TGSIs at other hazards.	Tactile ground surface indicators are not provided to the stairs or ramp.	Install TGSIs to the external stairs and ramps.	3
E1.3	**Fire Hydrants** An AS2419.1-2005 compliant fire hydrant system is required to provide hydrant cover throughout.	As this building is less than 500m^2 in floor area there is no requirement to have fire hydrant protection.		-

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
E1.4	**Fire Hose Reels** Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to exits except as follows:- • Class 2, 3 or 4 residential areas protected by 2.5kg ABE type extinguishers located in common areas on the storey served not more than 10m from each sole occupancy unit entry door • Electrical substations Hose reels are not permitted to pass through fire or smoke doors to achieve hoes reel cover.	Fire hose reels are not required to this building.		-
E1.5	**Fire Sprinklers** Sprinkler protection is required in the following instances • where the building contains combustible external wall components justified via BCA verification method CV5. • Where the building exceeds 25m in effective height. • To enclosed car parks with >40 vehicles. • Class 6 retail areas >3500m2 • In fire compartments greater than 2000m2 or 12000m3 where the use of the premises is defined as an occupancy of excessive hazard. (High fuel load storage and manufacturing risks). • Where buildings are constructed of fire-protected timber or massive timber construction. Sprinkler pumps and valves must be accessible from the street. Sprinkler system activation must be linked to an audible occupant warning system.	Sprinkler protection is not required to this building.		
E1.6	**Fire Extinguishers** Portable fire extinguishers installed to AS2444 are required in prescribed risk areas and to fire brigade requirements including at:- • Emergency services switchboards • Kitchens • Flammable liquid stores • At nurses stations • Special risk areas	Fire Extinguishers are required to provide protection to this building.	Provide fire extinguishers to this building as per AS2444.	1

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
E2.2	**Smoke Hazard Management** Smoke hazard management systems include zone smoke control, stair pressurisation, smoke detection & alarm systems or sprinkler systems. The requirement for smoke hazard management is determined based on the BCA classification, rise in storey and area/volume of the building. The MFPE also requires Smoke Hazard Management for CF1/CF2/Intolerable loss building and stores/workshops and hangars the meet the prescribed criteria.	A form of smoke hazard management is not required within this building.		
E4.2, E4.4, E4.5,E4.6, E4.8	**Emergency Lighting & Exit Signage** A system of emergency lighting and exit signage is required throughout to AS2293.1, or for photoluminescent exit signs, BCA spec E4.8.	Emergency lighting and illuminated exit signage is not required by virtue of the building size.		
Part F1	**Damp and Weatherproofing** Construction performance standards apply for stormwater systems, roof coverings, sarking, waterproofing to wet areas, damp proofing, location of floor wastes, sub floor ventilation and weatherproofing of glazed assemblies.	It was noted on site that the roofing to the building is deteriorating as you could see parts of the roof missing. Downpipes were also missing and not connected to the stormwater drainage.	Repair walls and roof so the building is weathertight. Connect downpipes to a stormwater system.	2
F2.2, F2.3 & F2.6	**Sanitary Facilities** Adequate separate male and female sanitary and toilet facilities required in buildings.	No toilets are provided within this building. The location of the toilets to be used by these occupants could not be determined.	Provide sufficient toilets to serve the occupants of this building. The toilets maybe located within the building or within a reasonable walking distance.	2
F2.4 (F2.4)	**Facilities for People with Disabilities** Accessible unisex disabled person's toilets are required on each storey and at 50% of toilet banks on any storey. Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. The following general requirements apply:- • Unisex facility. • ~1.9 x 2.63m or 2.3 x 2.3m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies).	No toilets are provided within this building.	Provide an accessible toilet for people with disabilities either within the building or within a reasonable distance. If a toilet is provided within another building an accessible path of travel must be provided between the buildings.	2

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
	• 30-40mm grabrails with 50-60mm clearances. • Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies • Washbasins with clearances as required. • Shielded hot water pipes. • Mirror, shelf, dispensers and coat hooks. • Mirrored layout for alternative facilities. A toilet cubicle for people with ambulant disabilities is also required for males and females at each bank of conventional toilets. (900 – 920mm wide with 900mm clear in front of WC and no door swing encroachment. Grab rails are required within the cubicle. Accessible showers of prescribed dimensions, designs and accessibility details are required to supplement required conventional shower facilities.			
F3.1	**Height of Rooms or Other Spaces** Minimum ceiling heights apply throughout buildings, including:- • Offices: 2.4m • Car parks, corridors, sanitary facilities: 2.1m • Conference/Auditorium spaces: 2.7m	As there was no access into the building at the time of the inspection this could not be confirmed, however based on measurements provided by HDR the ceiling heights are compliant.		
F4.2	**Minimum Light and Ventilation Well Depths** Required natural lighting and ventilation openings must face light/air easements or streets, or must be setback from title boundaries sufficient to allow appropriate light and air penetration into the apartments. Buildings require light wells with depth equal to 50% of the square root of the wall height measured from the level of the lowest apartment window. (Minimum 1m generally or 3m in the case of patient care areas of health care or aged care buildings.)	NA		

BCA Ref (PS Ref)	BCA Requirement	Observations	Recommendations	Priority Rating
F4.2, F4.3, F4.6	**Natural Light and Ventilation to Apartments** For apartment habitable rooms, natural lighting is required at 10% of gross floor area served together with 5% of floor area as openable windows if mechanical ventilation does not occur.	Compliance assumed.		
F4.4	**Artificial Lighting** Artificial lighting within buildings should comply with AS1680.0.	Compliance could not be verified. However, adequate lighting levels appear to occur throughout areas inspected.	Considered acceptable.	
F4.5, F4.6 & F4.7	**Ventilation of Rooms** Buildings must be naturally ventilated via fixed or openable vents, windows, etc or mechanically ventilated in accordance with AS1668.2-2012.	The windows to the building provide adequate natural ventilation.		
F4.8 & F4.9	**Restriction of Position of Water Closets and Urinals & Airlocks** Naturally ventilated rooms containing water closets and urinals cannot open directly into particular areas of the building (e.g. kitchens, work spaces, etc) without airlocks, exhaust, screens, etc.	NA		
Section J	**Energy Efficiency** Buildings must be designed and constructed to include energy efficiency measures. Applicable requirements include:- - The extent and method of insulation of external building envelope elements; - Thermal performance of external glazing; - Sealing of openings in external building elements; - Energy efficient performance of air-handling systems; - Energy efficient performance of power and lighting systems; - Energy efficient performance of heated water systems; and - The need for access to equipment relating to the energy efficient performance of the building.	Compliance was not able to be assessed but likely not occur given the building predates the introduction of these measures into the BCA.	Upgrade building fabric and services as upgrading works occur.	3

SECTION 5 – MAINTENANCE OF ESSENTIAL SAFETY MEASURES

5.1 MFPE

Chapter 7 of the MFPE requires maintenance of essential safety measures to be undertaken in accordance with relevant State legislation.

5.2 OVERVIEW (VIC)

Legislative requirements governing maintenance of essential safety measures of buildings are found in Part 15 of the Building Regulations 2018 made under the Building Act 1993.

Essential safety measures are fire and other safety features installed in or constructed as part of a building to ensure adequate levels of safety for the building. Essential safety measures include active building services such as fire sprinklers and mechanical services, passive fire safety items such as fire doors and fire rated structures and building infrastructure items such as paths of travel to exits.

They also include any other item that is required by or under the Act or the Building Regulations to be provided in relation to an asset for the safety of persons in the event of a fire or any other measure (including an item of equipment, form of construction, or safety strategy) required for the safety of persons using a building.

Standard Essential Safety Measures are listed in Schedule 8 of the Building Regulations 2018.

Maintenance provisions for essential safety measures are incorporated into legislation because it is a community expectation that a reasonable level of fire and general safety should be provided over the life of the building. Increasing onus is being placed on building owners to ensure the continued integrity of essential safety measures in order to meet their obligations under building regulations and under occupational health and safety requirements.

The Building Regulations require relevant building surveyors to schedule essential safety measures installed as part of the building approval and occupancy permit process.

Councils and fire officers are empowered to inspect maintenance records and enforce maintenance requirements for essential safety measures.

DISPLAY OF OCCUPANCY PERMITS

The Building Regulations 2018 require that occupancy permits be displayed in a prominent location accessible to the public and occupants.

MAINTENANCE OF ESSENTIAL SAFETY MEASURES

All buildings are subject to maintenance requirements as set out in Part 15 of the Building Regulations 2018 and summarised as follows.

"Essential Safety Measures" comprise all equipment, materials and components affecting safety.

The Occupancy Permit, Maintenance Determinations and Maintenance Schedules must list every relevant essential safety measure for the building and specify the level of performance and the maintenance regime for each such measure.

Owners must comply with Maintenance Determinations or Maintenance Schedules relevant to their buildings and maintain records of Maintenance Determinations and Schedules and of maintenance checks, service and repair work. In addition, owners must complete an Annual Essential Safety Measures Report (AESMR) every 12 months to declare all maintenance requirements have been carried out. All details must be available for inspection by the council

or fire brigade upon request. It is permissible for multiple Maintenance Determinations due to multiple works packages or permits to be consolidated to a single “Maintenance Schedule”.

The annual essential safety measures report must be in a prescribed form and must include:-

- the building address;
- details of any inspection reports undertaken by council or the fire brigade;
- certain statements of compliance; and
- the signature of the owner.

All AESMR’s prepared within 10 years of the request must be available to council or fire brigade inspectors with 24 hours of the request.

Exits and travel paths must be maintained in an efficient condition and kept readily accessible, functional and clear of obstruction. (This obligation rests with the occupiers of the building.)

LEGISLATION – BUILDINGS CONSTRUCTED PRIOR TO INTRODUCTION OF MAINTENANCE, OBLIGATIONS

All buildings must now be brought into compliance with the maintenance and reporting requirements described above, regardless of their date of construction.

METHODOLOGY FOR COMPLIANCE

A methodology for implementing a system of essential safety measures maintenance should include the following fundamental tasks and systems:-

- Review the building and occupancy permit history for the building and identify the minimum maintenance regime required by the legislation.
- Establish a system to incorporate ongoing and future building and occupancy permits events and provide for suitable adjustment of the maintenance regime.
- Record all maintenance activities undertaken.
- Include systems to ensure that all essential safety measures have been subjected to their individual prescribed maintenance checks.
- Record and report annually to confirm that the regime has been satisfactorily completed over the year.
- Hold documentation for 10 years.

5.2 MAINTENANCE REQUIREMENTS

Outlined below is a schedule of requirements for essential safety measures which may typically occur within a building. The installation standard and frequency and nature of maintenance required relate to requirements listed under Australian Standards or Building Regulations. The list is not necessarily comprehensive as other safety systems may have been specified in the design and construction of the building.

Maintenance Requirements for Essential Safety Measures

Essential Safety Measures	BCA provisions for determining standard of performance	Nature and or frequency of test or inspection
Building Fire Integrity		
Materials and assemblies required to satisfy prescribed fire hazard properties for linings and surface finishes	C1.10	Annual inspection for damage, deterioration, or unauthorised alteration
Means of Egress		
Paths of travel to exits	D1.6	Inspection every three months to ensure there are no obstructions and no alterations
Discharge from exits (including paths of travel from open spaces to the public roads to which they are connected)	D1.7, D1.9 to D1.11, D2.12, G4.3, G4.6, G4.7	Inspection every three months to ensure there are no obstructions and no alterations
Doors (other than fire or smoke doors) in a required exit, forming part of a required exit or in a path of travel to a required exit, and associated self-closing, automatic closing and latching mechanisms	D1.6, D2.19 to D2.21, D2.23	Inspection every three months to ensure doors are intact, operational and fitted with conforming hardware
Fire Fighting Services and Equipment		
Portable fire extinguishers	E1.6	Every six months to ensure extinguishers are in place and to AS1851-2012 Section 10

* Essential Safety Measures marked with an " * " are not currently included within the schedule of measures requiring maintenance under the Victorian Building Regulations 2018, however maintenance of these items is required.

Appendix I
Quantity Surveyor Cost Report

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
	A0211 Demolish		item		229,000
	A0212 Demolish		item		257,000
	A0213 Demolish		item		204,000
	A0214 Demolish		item		228,000
	A0004 Retain		item		1,605,000
	A0004 Demolish		item		337,000
	A0007 Retain		item		1,523,000
	A0007 Demolish		item		329,000
	A0102 Demolish		item		17,000
	A0103 Removal & Remediation		item		1,697,000
	A0112 Demolish		item		12,000
	A0121 Retain		**item**		**113,000**
	A0121 Demolish		item		11,000
	A0122 Retain		item		266,000
	A0122 Demolish		item		36,000
	A0125 Retain		**item**		**364,000**
	A0125 Demolish		item		72,000
	A0132 Demolish		item		24,000
	A0155 Retain		**item**		**323,000**
	A0155 Demolish		item		51,000
	A0156 Retain		**item**		**482,000**
	A0156 Demolish		item		51,000
	A0158 Retain		**item**		**503,000**
	A0158 Demolish		item		51,000
	A0203 Demolish		item		57,000
	A0210 Relocate		item		1,274,000
	A0217 N/A		item		NA
	A0218 Demolish		item		40,000
	A0219 N/A		item		NA
	A0221 Retain		item		3,541,000
	A0221 Demolish		item		620,000
	A0228 Retain		item		362,000
	A0228 Demolish		item		46,000
	A0243 Demolish		item		104,000
	A0319 N/A		item		NA
	A0485 Retain		item		317,000
	A0485 Demolish		item		30,000
	A0485 Relocate		**item**		**927,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
	TOTAL		ITEM		16,103,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0211 Demolish					
	Demolition (Building 211)	1,031	m2	183	189,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**189,000**
				%	
	Contaminated Materials Removal		item		Excluded
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	6,000
	Construction Contingency		item	15.0	29,000
	Escalation				
	- to tender		item	2.0	4,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**229,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**229,000**
	Notes & Assumptions				
	No suspect hazardous materials identified at the time of HAZMAT assessment for Building 211, hence contaminated material removal excluded from this cost plan		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0211 Demolish					
Demolition (Building 211)					
	Building 211				
	Demolition				
1	Allow to cap and seal up all services to building prior to demolition work proceed	1,193	m2	25	29,825
2	Demolish entire building including slab, external walls, roof, internal walls, doors, ceilings, sanitary fixtures and floor finishes	1,193	m2	80	95,440
3	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	1,031	m2	30	30,930
4	Preliminaries (15%)		item		23,429
5	Margin (5%)		item		8,981
	Demolition (Building 211) Subtotal				**189,000**
	A0211 Demolish Subtotal				**229,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0212 Demolish					
	Demolition (Building 212)	1,031	m2	206	212,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**212,000**
				%	
	Contaminated Materials Removal		item		Excluded
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	6,000
	Construction Contingency		item	15.0	33,000
	Escalation				
	- to tender		item	2.0	5,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**257,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**257,000**
	Notes & Assumptions				
	No access to this building at the time of HAZMAT assessment, hence contaminated material removal excluded from this cost plan		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0212 Demolish					
Demolition (Building 212)					
	Building 212				
	Demolition				
6	Allow to cap and seal up all services to building prior to demolition work proceed	1,380	m2	25	34,500
7	Demolish entire building including slab, external walls, roof, internal walls, doors, ceilings, sanitary fixtures and floor finishes	1,380	m2	80	110,400
8	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	1,031	m2	30	30,930
9	Preliminaries (15%)		item		26,375
10	Margin (5%)		item		10,110
	Demolition (Building 212) Subtotal				**212,000**
	A0212 Demolish Subtotal				**257,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0213 Demolish					
	Demolition (Building 213)	1,031	m2	163	168,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**168,000**
				%	
	Contaminated Materials Removal		item		Excluded
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	5,000
	Construction Contingency		item	15.0	26,000
	Escalation				
	- to tender		item	2.0	4,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**204,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**204,000**
	Notes & Assumptions				
	No access to this building at the time of HAZMAT assessment, hence contaminated material removal excluded from this cost plan		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0213 Demolish					
Demolition (Building 213)					
	Building 213				
	Demolition				
11	Allow to cap and seal up all services to building prior to demolition work proceed	1,031	m2	25	25,785
12	Demolish entire building including slab, external walls, roof, internal walls, doors, ceilings, sanitary fixtures and floor finishes	1,031	m2	80	82,512
13	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	1,031	m2	30	30,942
14	Preliminaries (15%)		item		20,886
15	Margin (5%)		item		8,006
	Demolition (Building 213) Subtotal				**168,000**
	A0213 Demolish Subtotal				**204,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0214 Demolish					
	Demolition (Building 214)	1,031	m2	182	188,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**188,000**
				%	
	Contaminated Materials Removal		item		Excluded
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	6,000
	Construction Contingency		item	15.0	29,000
	Escalation				
	- to tender		item	2.0	4,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**228,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**228,000**
	Notes & Assumptions				
	No access to this building at the time of HAZMAT assessment, hence contaminated material removal excluded from this cost plan		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0214 Demolish					
Demolition (Building 214)					
	Building 214				
	Demolition				
16	Allow to cap and seal up all services to building prior to demolition work proceed	1,192	m2	25	29,800
17	Demolish entire building including slab, external walls, roof, internal walls, doors, ceilings, sanitary fixtures and floor finishes	1,192	m2	80	95,360
18	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	1,031	m2	30	30,930
19	Preliminaries (15%)		item		23,414
20	Margin (5%)		item		8,975
	Demolition (Building 214) Subtotal				**188,000**
	A0214 Demolish Subtotal				**228,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Retain					
	Refurbishment (Building 004)	749	m2	1,644	1,231,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**1,231,000**
				%	
	Contaminated Materials Removal		item		90,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	40,000
	Construction Contingency		item	15.0	204,000
	Escalation				
	- to tender		item	2.0	31,000
	- during construction		item	0.5	9,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**1,605,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**1,605,000**
	Notes & Assumptions				
	Contamination allowance for asbestos, SMF, lead paint, biological harzard and ozone depleting substances removal as per HAZMAT assessment		note		
	Cost plan assumes building overall height to be 6000mm for 2 levels and ceiling height to to be 2700mm throughout		note		
	Cost plan excludes works to existing mechanical system - assume existing system could be reused		note		
	Cost plan excludes work to existing fire system - assume existing system could be reused		note		
	Link bridge between building 004 and building 006 is excluded from this cost plan		note		
	Exclusions				
	Ground contamination		note		

Code	Description	Quantity	Unit	Rate	Total
A0004 Retain					*(Continued)*
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Retain					
Refurbishment (Building 004)					
	Building 004				
	Demolition				
21	Allow to internally demolish existing finishes including floor, ceilings, joinery, sanitary fittings to allow for a full refurbishment	749	m2	100	74,900
22	Allow to remove damaged water membrane on roof and clean roof to allow for installation of new metal roof	309	m2	25	7,725
	External Wall Refurbishment				
23	Allow to pressure clean, servicing and change window hardware to external glass curtain wall	498	m2	100	49,800
24	Allow to patch and pressure clean external brick wall	516	m2	50	25,800
25	Allow to pressure clean, prime and paint external soffit	22	m2	80	1,760
26	Allow to pressure clean, prime and paint external cladding to roof plant room	102	m2	100	10,200
27	Allow to pressure clean, prime and paint external dome above the roof		item		10,000
28	Replace external single door with new including frame and hardware	4	no.	2,350	9,400
29	Replace external double door with new including frame and hardware - 1800w x 2100h	1	no.	3,250	3,250
30	Replace external double door with new including frame and hardware - 2500w x 2100h	1	no.	3,250	3,250
31	Allow to pressure clean existing concrete stair and repaint		item		8,000
32	Supply and install tactile indicator to external stair		item		4,000
33	Upgrade existing stair balustrade to comply with building standard	35	m	450	15,750
	Roofing				
34	New metal roof sheeting over existing roof over to a fall to box gutter including roof purlins	307	m2	150	46,050
35	New box gutter to building	49	m	400	19,600
36	New downpipes to replace existing	54	m	200	10,800
37	Allow to connect new roof drainage to existing system		item		10,000
	Internal Refurbishment				
	Internal Walls				
38	Clean, patch and repaint existing internal walls	1,796	m2	45	80,820
39	Clean, patch, repair and repaint existing concrete render (including concrete columns)	141	m2	45	6,345
40	Clean, prime and repaint timber wall panelling	15	m2	40	600
41	New ducted skirting to replace existing	340	m	200	68,000
42	Allow to repair cracks to rendered brickwork wall		item		20,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Retain					*(Continued)*
Refurbishment (Building 004)					*(Continued)*
	Ceilings				
43	New plasterboard ceilings including suspension system and painting	25	m2	100	2,500
44	New acoustic ceiling tiles to ceilings including suspension system	639	m2	70	44,730
45	Allow to clean, patch and repaint concrete stucco ceilings	82	m2	25	2,050
	Floors				
46	Allow to grind and clean floor after demolition of existing finishes	749	m2	30	22,470
47	New carpet including underlay	649	m2	100	64,900
48	New vinyl floor including screed	72	m2	160	11,520
49	New tile floor including waterproofing and screed	25	m2	200	5,000
50	Allow for entry matt		item		5,000
	Doors & Windows				
51	Allow for new internal single doors including frame and hardware	32	no.	1,750	56,000
52	Allow for new internal double doors including frame and hardware	3	no.	2,650	7,950
53	Replace existing timber window sill with new MDF sill including paint	74	m	150	11,100
54	Replace existing window furnishing with new window blinds	44	no.	500	22,000
	Wall Finishes				
55	Wall tiles to toilets and cleaner - assume full height	135	m2	150	20,250
56	Wall tile splashback to kitchen - assume 600h	3	m2	100	300
	Joinery				
57	Kitchenette joinery including benchtop, underbench cupboards and overhead cupboards	5	m	2,000	10,000
58	Vanity joinery to toilet	3	no	1,200	3,600
	Fitments				
59	Allow for whiteboard & pinboards		item		15,000
60	Allow for sanitary accessories - toilet roll holder	8	no.	150	1,200
61	Allow for sanitary accessories - soap dispenser	7	no.	150	1,050
62	Allow for sanitary accessories - paper towel dispenser	3	no.	200	600
63	Hand dryers	3	no.	1,200	3,600
64	Toilet partitions	6	no.	1,100	6,600
65	Disable grab rails	3	no.	700	2,100
66	Mirrors	8	no.	500	4,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Retain					*(Continued)*
Refurbishment (Building 004)					*(Continued)*
	Sanitary Fixtures				
67	Cleaner sink	1	no.	4,000	4,000
68	Kitchen sink	1	no.	4,000	4,000
69	Toilet	8	no.	4,500	36,000
70	Wash basin	7	no.	4,000	28,000
71	Urinal	2	no.	4,200	8,400
72	Floor waste	3	no.	800	2,400
	Services				
73	Allow to upgrade existing electrical services including upgrade switchboard, lighting, emergency & exit lights and power	749	m2	120	89,880
74	Allow to clean existing hydraulic pipework system and reconnect pipework to new sanitary fittings	749	m2	50	37,450
75	Allow to reuse existing mechanical system - assume existing system can be reused		note		
76	Preliminaries (15%)		Item		152,955
77	Margin (5%)		Item		58,633
	Refurbishment (Building 004) Subtotal				**1,231,000**
Contaminated Materials Removal					
	Hazardous Material				
78	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	749	m2	100	74,900
79	Preliminaries (15%)		item		11,235
80	Margin (5%)		item		4,307
	Contaminated Materials Removal Subtotal				**90,000**
	A0004 Retain Subtotal				**1,605,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Demolish					
	Demolition (Building 004)	749	m2	250	187,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**187,000**
				%	
	Contaminated Materials Removal		item		90,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	8,000
	Construction Contingency		item	15.0	43,000
	Escalation				
	- to tender		item	2.0	7,000
	- during construction		item	0.5	2,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**337,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**337,000**
	Notes & Assumptions				
	Contamination allowance for asbestos, SMF, lead paint, biological harzard and ozone depleting substances removal as per HAZMAT assessment		note		
	Cost plan assumes building overall height to be 6000mm for 2 levels and ceiling height to to be 2700mm throughout		note		
	Link bridge between building 004 and building 006 is assumed to be demolished with building 004		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Demolish					*(Continued)*
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0004 Demolish					
Demolition (Building 004)					
	Building 004				
	Demolition				
81	Allow to cap and seal up all services to building prior to demolition work proceed	749	m2	30	22,470
82	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	749	m2	100	74,900
83	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	384	m2	20	7,680
84	Allowance to remove link bridge if building 004 is to be demolished		item		50,000
85	Preliminaries (15%)		item		23,258
86	Margin (5%)		item		8,915
	Demolition (Building 004) Subtotal				**187,000**
Contaminated Materials Removal					
	Hazardous Material				
87	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	749	m2	100	74,900
88	Preliminaries (15%)		item		11,235
89	Margin (5%)		item		4,307
	Contaminated Materials Removal Subtotal				**90,000**
	A0004 Demolish Subtotal				**337,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0007 Retain					
	Refurbishment (Building 007)	900	m2	1,271	1,144,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**1,144,000**
				%	
	Contaminated Materials Removal		item		109,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	38,000
	Construction Contingency		item	15.0	194,000
	Escalation				
	- to tender		item	2.0	30,000
	- during construction		item	0.5	8,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**1,523,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**1,523,000**
	Notes & Assumptions				
	Contamination allowance for asbestos, SMF, lead paint, biological harzard and ozone depleting substances removal as per HAZMAT assessment		note		
	Cost plan assumes building overall height to be 3000mm and ceiling height to to be 2700mm throughout		note		
	Cost plan excludes works to existing mechanical system - assume existing system could be reused		note		
	Cost plan excludes work to existing fire system - assume existing system could be reused		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		

Code	Description	Quantity	Unit	Rate	Total
A0007 Retain					*(Continued)*
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0007 Retain					
Refurbishment (Building 007)					
	Building 007				
	Demolition				
90	Allow to internally demolish existing finishes including floor, ceilings, joinery, sanitary fittings to allow for a full refurbishment	900	m2	100	90,000
	External Wall Refurbishment				
91	Allow to pressure clean, servicing and change window hardware to external glass curtain wall	201	m2	100	20,100
92	Allow to replace existing cracked glazing with new glazing	48	m2	150	7,200
93	Allow to patch and pressure clean external brick wall	441	m2	50	22,050
94	Allow to repair cracks and damages in masonry wall	27	m2	350	9,450
95	Allow to repair cracks to tile pavement at entry	8	m2	200	1,600
96	Allow to repair and paint external soffit	14	m2	80	1,120
97	Replace external single door with new including frame and hardware	1	no.	2,350	2,350
98	Replace external double door with new including frame and hardware - 1600w x 2100h	3	no.	3,250	9,750
99	Replace external aluminium framed glazing single door with new including frame and hardware	3	no.	3,000	9,000
100	Replace external aluminium framed glazing double door with new including frame and hardware	1	no.	5,000	5,000
101	Allow to repair or replace damaged flashing to parapet wall	62	m	100	6,200
102	Allow to pressure clean existing internal concrete stair and repaint	19	m2	80	1,520
103	Supply and install tactile indicator to internal stair		item		2,000
104	Upgrade existing stair handrail to comply with building standard	30	m	450	13,500
	Internal Refurbishment				
	Internal Walls				
105	Clean, patch and repaint existing internal walls	2,030	m2	45	91,350
106	Clean, patch, repair and repaint existing masonry wall	38	m2	50	1,900
107	Clean, prime and repaint existing timber wall panelling	27	m2	40	1,080
108	New ducted skirting to replace existing	346	m	200	69,200
	Ceilings				
109	New plasterboard ceilings including suspension system and painting	853	m2	100	85,300
110	Allow to clean, patch and repaint existing timber ceilings	27	m2	25	675
	Floors				
111	Allow to grind, repair concrete floor after demolition of existing finishes	900	m2	30	27,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0007 Retain					*(Continued)*
Refurbishment (Building 007)					*(Continued)*
112	Allow apply new waterproofing membrane to existing concrete floor - applying Sika Injection 306	829	m2	50	41,450
113	New carpet including underlay	706	m2	100	70,600
114	New vinyl floor including screed	68	m2	160	10,880
115	New tile floor including screed	29	m2	200	5,800
116	Apply epoxy finish to existing exposed concrete floor	37	m2	80	2,960
117	Allow for entry matt		item		5,000
	Doors & Windows				
118	Allow for new internal single doors including frame and hardware	25	no.	1,750	43,750
119	Allow for new internal double doors including frame and hardware	3	no.	2,650	7,950
120	Replace existing window furnishing with new window blinds	20	no.	500	10,000
	Wall Finishes				
121	Wall tiles to toilets and cleaner - assume full height	84	m2	150	12,600
122	Wall tile splashback to kitchen - assume 600h	3	m2	100	300
	Joinery				
123	Kitchenette joinery including benchtop, underbench cupboards and overhead cupboards	5	m	2,000	10,000
124	Vanity joinery to toilet	2	no	1,200	2,400
125	Allow to clean and repair existing fixed joinery unit	4	m	1,000	4,000
	Fitments				
126	Allow for whiteboard & pinboards		item		15,000
127	Allow for sanitary accessories - toilet roll holder	6	no.	150	900
128	Allow for sanitary accessories - soap dispenser	4	no.	150	600
129	Allow for sanitary accessories - paper towel dispenser	2	no.	200	400
130	Hand dryers	2	no.	1,200	2,400
131	Toilet partitions	6	no.	1,100	6,600
132	Disable grab rails	2	no.	700	1,400
133	Mirrors	4	no.	500	2,000
134	Shower shelf	1	no.	200	200
135	Shower seat	1	no.	500	500
	Sanitary Fixtures				
136	Kitchen sink	1	no.	4,000	4,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0007 Retain					*(Continued)*
Refurbishment (Building 007)					*(Continued)*
137	Shower	1	no.	4,000	4,000
138	Shower base	1	no.	2,500	2,500
139	Toilet	6	no.	4,500	27,000
140	Wash basin	4	no.	4,000	16,000
141	Urinal	1	no.	4,200	4,200
142	Floor waste	3	no.	800	2,400
	Services				
143	Allow to upgrade existing electrical services including upgrade switchboard, lighting, emergency & exit lights and power	900	m2	120	108,000
144	Allow to clean existing hydraulic pipework system and reconnect pipework to new sanitary fittings	900	m2	50	45,000
145	Preliminaries (15%)		Item		141,920
146	Margin (5%)		Item		54,403
	Refurbishment (Building 007) Subtotal				**1,144,000**
Contaminated Materials Removal					
	Hazardous Material				
147	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	900	m2	100	90,000
148	Preliminaries (15%)		item		13,500
149	Margin (5%)		item		5,175
	Contaminated Materials Removal Subtotal				**109,000**
	A0007 Retain Subtotal				**1,523,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0007 Demolish					
	Demolition (Building 007)	900	m2	180	162,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**162,000**
				%	
	Contaminated Materials Removal		item		109,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	8,000
	Construction Contingency		item	15.0	42,000
	Escalation				
	- to tender		item	2.0	6,000
	- during construction		item	0.5	2,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**329,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**329,000**
	Notes & Assumptions				
	Contamination allowance for asbestos, SMF, lead paint, biological harzard and ozone depleting substances removal as per HAZMAT assessment		note		
	Cost plan assumes building overall height to be 3000mm and ceiling height to to be 2700mm throughout		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0007 Demolish					
Demolition (Building 007)					
	Building 004				
	Demolition				
150	Allow to cap and seal up all services to building prior to demolition work proceed	900	m2	30	27,000
151	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	900	m2	100	90,000
152	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	855	m2	20	17,100
153	Preliminaries (15%)		item		20,115
154	Margin (5%)		item		7,711
	Demolition (Building 007) Subtotal				**162,000**
Contaminated Materials Removal					
	Hazardous Material				
155	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	900	m2	100	90,000
156	Preliminaries (15%)		item		13,500
157	Margin (5%)		item		5,175
	Contaminated Materials Removal Subtotal				**109,000**
	A0007 Demolish Subtotal				**329,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0102 Demolish					
	Demolition (Building 102)	26	m2	346	9,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**9,000**
				%	
	Contaminated Materials Removal		item		4,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	0
	Construction Contingency		item	15.0	2,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**17,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**17,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, SMF, PCBs and lead-paint as per the HazMat report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0102 Demolish					
Demolition (Building 102)					
	Building 102				
	Demolition				
158	Allow to cap and seal up all services to building prior to demolition work proceed	26	m2	30	780
159	Demolish and break up existing concrete external paving	34	m2	60	2,040
160	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	26	m2	100	2,600
161	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	60	m2	30	1,800
162	Preliminaries (15%)		item		1,083
163	Margin (5%)		item		415
	Demolition (Building 102) Subtotal				**9,000**
Contaminated Materials Removal					
	Hazardous Material				
164	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	26	m2	130	3,380
165	Preliminaries (15%)		item		507
166	Margin (5%)		item		194
	Contaminated Materials Removal Subtotal				**4,000**
	A0102 Demolish Subtotal				**17,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0103 Demolish					
	Removal and remediation (Building 103)		item		1,397,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**1,397,000**
				%	
	Contaminated Materials Removal		item		Included
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	42,000
	Construction Contingency		item	15.0	216,000
	Escalation				
	- to tender		item	2.0	33,000
	- during construction		item	0.5	9,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**1,697,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**1,697,000**
	Notes & Assumptions				
	Cost plan assumes the total area of the earthen mound is approximately 640m2 from google map measure		note		
	Cost plan assumes the earthen mound is approximately 4200 high		note		
	Cost plan used the assumed surface area mutiplied by the assumed height to get the total volumn of the earthen mound - approx. 2690m3		note		
	Cost plan assumes this project will be conducted in conjunction with others under the guidance of a head contractor hence inclusion of builders preliminaries and margin		note		
	Cost plan assumes no explosive found within the mound therefore it can be removed as non-explosive waste		note		
	Cost plan used IWRG soil hazard categorisation and management guidelines to determine the category of the contaminated soil - 210mg/kg (clean fill), 580mg/kg (Cat C), 4200mg/kg (Cat B)		note		
	Cost plan assumed 30% of the total volumn to be Cat B, 30 % to be Cat C and 40% to be clean fill		note		

Code	Description	Quantity	Unit	Rate	Total
A0103 Demolish					*(Continued)*
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0103 Demolish					
Removal and remediation (Building 103)					
	Building 103				
167	Remove existing soil mound and levelling the area to match adjoining level of ground - Cat B Contamination (30% of total volume)	807	m3	800	645,600
168	Remove existing soil mound and levelling the area to match adjoining level of ground - Cat C Contamination (30% of total volume)	807	m3	500	403,500
169	Remove existing soil mound and levelling the area to match adjoining level of ground - Clean (40% of total volume)	1,076	m3	100	107,600
170	Preliminaries (15%)		Item		173,505
171	Margin (5%)		Item		66,510
	Removal and remediation (Building 103) Subtotal				**1,397,000**
	A0103 Demolish Subtotal				**1,697,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0112 Demolish					
	Demolition (Building 112)	33	m2	121	4,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**4,000**
				%	
	Contaminated Materials Removal		item		4,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	1,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**12,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**12,000**
	Notes & Assumptions				
	Contamination removal allowance for lead paint and asbestos as per HAZMAT report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0112 Demolish					
Demolition (Building 112)					
	Building 112				
	Demolition				
172	Allow to cap and seal up all services to building prior to demolition work proceed	33	m2	20	660
173	Demolish entire building including slab, external walls, roof and floor finishes	33	m2	60	1,980
174	Allow to reinstate ground after demolition works completed	33	m2	20	660
175	Preliminaries (15%)		item		495
176	Margin (5%)		item		190
	Demolition (Building 112) Subtotal				**4,000**
Contaminated Materials Removal					
	Hazardous Material				
177	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	33	m2	100	3,300
178	Preliminaries (15%)		item		495
179	Margin (5%)		item		190
	Contaminated Materials Removal Subtotal				**4,000**
	A0112 Demolish Subtotal				**12,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0121 Retain					
	Retain (Building 121)	37	m2	2,486	92,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**92,000**
				%	
	Contaminated Materials Removal		item		Excluded
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	3,000
	Construction Contingency		item	15.0	14,000
	Escalation				
	- to tender		item	2.0	3,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**113,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**113,000**
	Notes & Assumptions				
	No suspect hazardous materials identified at the time of HAZMAT assessment for Building 121, no allowance made for contaminated material removal		note		
	The cost plan assumes there is no existing stormwater drainage system to the building and the stormwater will be discharged directly on to the ground		note		
	The cost plan assumes there is existing electrical submain cable running to the building to allow for electrical connection into the power feed		note		
	Cost plan assumes there is no contaminants within existing barrels stored within building		note		
	Solar LED lighting has been assumed to building to avoid reticulation of LV electrical over large distances to building		note		
	Exclusions				

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0121 Retain					*(Continued)*
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Stormwater connections		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0121 Retain					
Retain (Building 121)					
	Building 121				
	Demolition				
180	Allow to demolish timber door to store room	1	No.	100	100
181	Allow to demolish existing roof to store room	13	m2	50	650
182	Allow to remove rubbish & debris from the gun zone area	37	m2	20	740
	Structural Remediation Works				
183	Allow for structural assessment prior to any works		Item		3,000
184	Allow to underpin and strenghthen existing footing		Item		40,000
185	Allow to repair cracks to existing brick walls	33	m2	150	4,950
	Roof				
186	Supply and install new roof including timber rafters, battens, colorbond roof sheeting, fascia board and insulation	13	m2	150	1,950
187	Allow for eave gutter	5	m	100	500
188	Allow for metal downpipe - 90 x 90mm	3	m	200	600
	Doors				
189	Allow for new double timber door including frame and hardware - 1400w x 2040h	1	No.	3,250	3,250
	Clean				
190	Allow to sand blast and clean existing concrete slab in the gun zone area	22	m2	80	1,760
191	Allow to sand blast clean existing steel screen to remove rust then prime and repaint	1	No.	2,500	2,500
	Remove Vegetation				
192	Allow to remove and clear away weeds, grass and small shrubs around the building (Min. 4m around the building) and remove from site	221	m2	20	4,420
193	Allow to remove vegetation to create a clear path to the store room - assumed 50m x 3m wide	150	m2	20	3,000
	Building Services				
194	Allow to supply and install new solar powered lighting to the store room complete with battery storage / backup - Assumed GFS 200 light including pole provided by Green Frog Systems	2	no	5,000	10,000
195	Preliminaries (15%)		Item		10,113
196	Margin (5%)		Item		4,377

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0121 Retain					*(Continued)*
Retain (Building 121)					*(Continued)*
	Retain (Building 121) Subtotal				**92,000**
	A0121 Retain Subtotal				**113,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0121 Demolish					
	Demolition (Building 121)	37	m2	189	7,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**7,000**
				%	
	Contaminated Materials Removal		item		Excluded
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	1,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**11,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**11,000**
	Notes & Assumptions				
	No suspect hazardous materials identified at the time of HAZMAT assessment for Building 121, no allowance made of contaminated material removal		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0121 Demolish					
Demolition (Building 121)					
	Building 211				
	Demolition				
197	Allow to cap and seal up all services to building prior to demolition work proceed	37	m2	25	925
198	Demolish entire building including slab, external walls, roof, internal walls, doors, ceilings, sanitary fixtures and floor finishes	37	m2	100	3,700
199	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	37	m2	30	1,110
200	Preliminaries (15%)		item		860
201	Margin (5%)		item		330
	Demolition (Building 121) Subtotal				**7,000**
	A0121 Demolish Subtotal				**11,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0122 Retain					
	Refurbishment (Building 122)	81	m2	2,543	206,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**206,000**
				%	
	Contaminated Materials Removal		item		13,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	7,000
	Construction Contingency		item	15.0	34,000
	Escalation				
	- to tender		item	2.0	5,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**266,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**266,000**
	Notes & Assumptions				
	Contamination allowance for PCBs, SMF, lead paint and asbestos removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 3000mm		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0122 Retain					
Refurbishment (Building 122)					
	Building 122				
	Demolition				
202	Demolish existing decking including structure	28	m2	80	2,240
203	Demolish existing office building under the roof	8	m2	80	640
204	Demolish existing timber posts	2	no	250	500
205	Allow for temporary propping to existing roof structure		Item		10,000
206	Allow to remove all debris and rubbish from the storage building	73	m2	50	3,650
207	Allow to demolish existing metal roof sheeting including gutters, fascia, downpipes and roof vents	136	m2	80	10,880
208	Cap and seal services to fire pump, hydrant in rear covered shed, demolish shed and all fittings		Item		5,000
209	Allow to cap and seal services to existing external emergency shower and remove shower from site		Item		1,000
	External Posts				
210	Allow to supply and install new timber posts to support existing roof	2	no	1,000	2,000
211	Allow for foundation to the posts	2	no	2,500	5,000
	External Cladding				
212	New external weatherboard linings including timber stud framing, insulation and sarking to new office area	18	m2	150	2,700
	External Windows and Doors				
213	New timber framed window to new office area	6	m2	600	3,600
214	Allow to sand back existing timber windows and repaint	6	no	500	3,000
215	New double solid core timber doors including frames and hardware - 1600 x 2180	3	no	3,250	9,750
216	New single solid core timber doors including frames and hardware - 700 x 2100	1	no	2,500	2,500
	Roofing				
217	New metal tray sheeting to replace existing roof sheet including insulation, sarking and safety mesh - assume 30 deg pitch	136	m2	150	20,400
218	New fascia/barge board	49	m	80	3,920
219	New roof gutter to replace existing gutters including flashing	33	m	180	5,940
220	New rainwater head to replace existing	7	no	300	2,100
221	New downpipes to replace existing	21	m	200	4,200
222	Allow to connect new drainage to existing system		item		5,000
223	Allow to replace existing vent in roof with new stainless steel rotary vents	6	no	1,000	6,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0122 Retain					*(Continued)*
Refurbishment (Building 122)					*(Continued)*
	Flooring				
224	Existing concrete floor to be cleaned and apply new epoxy floor finish	73	m2	80	5,840
	Ceilings				
225	Supply and install new plasterboard ceilings to new office area	6	m2	100	600
226	Allow to rust clean existing exposed timbre roof truss system, prime and paint	73	m2	45	3,285
	Internal Walls				
227	Allow to provide plasterboard linings to internal side of external walls including insulation	18	m2	80	1,440
228	Allow to patch and paint existing walls in storage area	180	m2	45	8,100
	External Decking				
229	Allow to supply and install new jarrah timber decking including foundation structure, prime and painted to match existing	28	m2	800	22,400
230	Allow to supply and install balustrade to the decking	13	m	350	4,550
231	Allow to supply and install new timber steps to the decking		Item		5,000
	Services				
232	Allow to upgrade existing electrical services including new switchboard, upgrade light fittings, emergency and exit lighting	81	m2	120	9,720
233	Preliminaries (15%)		Item		25,643
234	Margin (5%)		Item		9,830
	Refurbishment (Building 122) Subtotal				**206,000**
Contaminated Materials Removal					
	Hazardous Material				
235	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	81	m2	130	10,530
236	Preliminaries (15%)		item		1,580
237	Margin (5%)		item		605
	Contaminated Materials Removal Subtotal				**13,000**
	A0122 Retain Subtotal				**266,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0122 Demolish					
	Demolition (Building 122)	81	m2	198	16,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**16,000**
				%	
	Contaminated Materials Removal		item		13,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	4,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**36,000**
	Notes & Assumptions				
	Contamination allowance for PCBs, SMF, lead paint and asbestos removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 3000mm		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0122 Demolish					
Demolition (Building 122)					
	Building 004				
	Demolition				
238	Allow to cap and seal up all services to building prior to demolition work proceed	89	m2	25	2,225
239	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	89	m2	80	7,120
240	Demolish external timber decking	28	m2	60	1,680
241	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	117	m2	20	2,340
242	Preliminaries (15%)		item		2,005
243	Margin (5%)		item		768
	Demolition (Building 122) Subtotal				**16,000**
Contaminated Materials Removal					
	Hazardous Material				
244	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	81	m2	130	10,530
245	Preliminaries (15%)		item		1,580
246	Margin (5%)		item		605
	Contaminated Materials Removal Subtotal				**13,000**
	A0122 Demolish Subtotal				**36,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Retain					
	Retain (Building 125)	151	m2	1,868	282,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**282,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	9,000
	Construction Contingency		item	15.0	46,000
	Escalation				
	- to tender		item	2.0	7,000
	- during construction		item	0.5	2,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**364,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**364,000**
	Notes & Assumptions				
	Contamination removal allowance for lead paint and asbestos as per HAZMAT report		note		
	Assume internal ceiling height to be 2700mm		note		
	Assume overall building height to be 3000mm		note		
	Cost plan only allows for connection into existing services system, it excludes any upgrade works to the existing services system		note		
	Exclusions				
	Upgrades to existing stormwater drainage system		note		
	Upgrades to existing water and sewerage systems		note		
	Upgrade of mains electrical feed to building		note		
	Ground contamination		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Retain					*(Continued)*
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Retain					
Retain (Building 125)					
	Building 125				
	Demolition Works				
247	Allow to cap and seal up all services to building prior to demolition work proceed	140	m2	25	3,500
248	Demolish and break up existing concrete external paving	147	m2	60	8,820
249	Demolish and remove existing timber floor boards to expose floor structure	127	m2	10	1,270
250	Demolish and remove existing concrete floor slab	12	m2	120	1,440
251	Demolish and remove existing internal stud wall	38	m2	50	1,900
252	Demolish and remove existing internal lining to external walls	134	m2	20	2,680
253	Demolish and remove existing ceilings	140	m2	20	2,800
254	Demolish and remove skirting and window/door architraves	171	m	5	855
255	Demolish and remove all electrical fittings including lights, switches, conduits, outlets and switchboards	140	m2	10	1,400
256	Demolish and remove kitchen sink	1	No.	200	200
257	Demolish and remove kitchenette joinery unit	3	m	180	540
258	Demolish and remove existing gutters including access equipment	52	m	80	4,160
259	Demolish and remove existing down pipes	12	m	40	480
260	Demolish and remove existing soffit linings	30	m2	20	600
261	Demolish external metal cladding	159	m2	50	7,950
262	Demolish external window/door architraves	90	m	5	450
263	Demolish external doors - double	1	No.	200	200
264	Demolish external doors - single	1	No.	150	150
	Structural Footings and Flooring				
265	Allow to provide temporary propping to existing roof structure		Item		5,000
266	Allow to remove existing floor structure including timber bearers, joists and footings	127	m2	40	5,080
267	Supply and install new flooring structure including concrete pad footings, concrete stumps, timber bearers and floor joists	139	m2	220	30,580
268	Supply and install 18mm structural sheeting to whole floor area	139	m2	30	4,170
269	Supply and install carpet tile floor finish	134	m2	100	13,400
270	Supply and install vinyl floor finish to kitchen area	5	m2	160	800
	External and Internal Walls				
271	Allow to re-frame existing external wall frame after re-stump of floor structure	159	m2	50	7,950
272	Supply and install new metal corrugated wall cladding to new wall frame including paint finish	159	m2	150	23,850

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Retain					*(Continued)*
Retain (Building 125)					*(Continued)*
273	Clean existing windows and repaint existing windows frames (1200 x 1400)	14	No.	500	7,000
274	Supply and install new external window/door architraves including paint	90	m	30	2,700
275	Supply and install new internal stud walls including insulation, 10mm plasterboard to both sides and paint	38	m2	175	6,650
276	Supply and install 10mm plasterboard to internal side of external wall including insulation and paint	134	m2	70	9,380
277	Supply and install new timber skirting to carpet floor area including paint	79	m	30	2,370
278	Supply and install new vinyl skirting to vinyl floor area	2	m	45	90
279	Supply and install new internal timber architrave to windows and doors including paint	90	m	30	2,700
	External Doors				
280	Allow to retain existing doors - clean and repaint	1	No.	200	200
281	Supply and install new timber door including frame, hardware and paint - double	1	No.	2,000	2,000
282	Supply and install new timber door including frame, hardware and paint - single	1	No.	1,500	1,500
	Roof				
283	Supply and install new metal gutters	52	m	180	9,360
284	Supply and install new metal down pipes	12	m	180	2,160
285	Supply and install new 9mm villaboard soffit linings including paint finish	30	m2	100	3,000
	Internal Ceilings				
286	Supply and install 10mm plasterboard ceilings including insulation, sub-framing and paint	140	m2	100	14,000
	Joinery				
287	Supply and install new kitchenette unit including benchtop and underbench cupboards	3	m	1,500	4,500
	Services				
288	Supply and install new stainless steel kitchen sink including tapware and connection to existing water and sewer drainage system	1	No.	5,000	5,000
289	Allow to connect new downpipes to existing stormwater system	4	No.	500	2,000
290	Allow for new electrical system including switchboard, lighting, power, switches, emergency lighting, smoke detectors etc	140	m2	120	16,800
291	Allow for new mechanical system - assume to be split air-conditioning unit		Item		12,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Retain					*(Continued)*
Retain (Building 125)					*(Continued)*
292	Preliminaries (15%)		Item		35,045
293	Margin (5%)		Item		13,434
	Retain (Building 125) Subtotal				**282,000**
Contaminated Materials Removal					
	Hazardous Material				
294	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	151	m2	100	15,100
295	Preliminaries (15%)		item		2,265
296	Margin (5%)		item		868
	Contaminated Materials Removal Subtotal				**18,000**
	A0125 Retain Subtotal				**364,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Demolish					
	Demolition (Building 125)	151	m2	272	41,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**41,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	2,000
	Construction Contingency		item	15.0	9,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**72,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**72,000**
	Notes & Assumptions				
	Contamination removal allowance for lead paint and asbestos as per HAZMAT report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0125 Demolish					
Demolition (Building 125)					
	Building 125				
	Demolition				
297	Allow to cap and seal up all services to building prior to demolition work proceed	151	m2	25	3,775
298	Demolish and break up existing concrete external paving	147	m2	60	8,820
299	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	151	m2	80	12,080
300	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	298	m2	30	8,940
301	Preliminaries (15%)		item		5,042
302	Margin (5%)		item		1,933
	Demolition (Building 125) Subtotal				**41,000**
Contaminated Materials Removal					
	Hazardous Material				
303	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	151	m2	100	15,100
304	Preliminaries (15%)		item		2,265
305	Margin (5%)		item		868
	Contaminated Materials Removal Subtotal				**18,000**
	A0125 Demolish Subtotal				**72,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0132 Demolish					
	Demolition (Building 132 including undercover area)	74	m2	122	9,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**9,000**
				%	
	Contaminated Materials Removal		item		9,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	3,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**24,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**24,000**
	Notes & Assumptions				
	Contamination removal allowance for works to remove lead paint and asbestos as per HAZMAT report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0132 Demolish					
Demolition (Building 132 including undercover area)					
	Building 112				
	Demolition				
306	Allow to cap and seal up all services to building prior to demolition work proceed	74	m2	20	1,480
307	Demolish entire building including slab, external walls, roof and floor finishes	74	m2	60	4,440
308	Allow to reinstate ground after demolition works completed, provide soil and seeding	74	m2	20	1,480
309	Preliminaries (15%)		item		1,110
310	Margin (5%)		item		426
	Demolition (Building 132 including undercover area) Subtotal				**9,000**
Contaminated Materials Removal					
	Hazardous Material				
311	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	74	m2	100	7,400
312	Preliminaries (15%)		item		1,110
313	Margin (5%)		item		426
	Contaminated Materials Removal Subtotal				**9,000**
	A0132 Demolish Subtotal				**24,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0155 Retain					
	Retain (Building 155)	145	m2	1,710	248,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**248,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	8,000
	Construction Contingency		item	15.0	41,000
	Escalation				
	- to tender		item	2.0	6,000
	- during construction		item	0.5	2,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**323,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**323,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, PCBs and lead-paint as per the HazMat report		note		
	Assume internal ceiling height to be 2700mm		note		
	Assume overall building height to be 3000mm		note		
	Cost plan only allows for connection into existing services system, it excludes any upgrade works to the existing services system		note		
	Exclusions				
	Upgrades to existing stormwater drainage system		note		
	Upgrades to existing water and sewerage systems		note		
	Upgrade of mains electrical feed to building		note		
	Ground contamination		note		

Code	Description	Quantity	Unit	Rate	Total
A0155 Retain					*(Continued)*
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0155 Retain					
Retain (Building 155)					
	Building 155				
	Demolition Works				
314	Allow to cap and seal up all services to building prior to demolition work proceed	133	m2	25	3,325
315	Demolish and remove existing timber floor boards to expose floor structure	133	m2	10	1,330
316	Demolish and remove existing internal stud wall	17	m2	50	850
317	Demolish and remove existing internal lining to external walls	132	m2	20	2,640
318	Demolish and remove existing ceilings	133	m2	20	2,660
319	Demolish and remove skirting and window/door architraves	162	m	5	810
320	Demolish and remove all electrical fittings including lights, switches, conduits, outlets and switchboards	133	m2	10	1,330
321	Demolish and remove existing gutters including access equipment	51	m	80	4,080
322	Demolish and remove existing down pipes	12	m	40	480
323	Demolish and remove existing soffit linings	30	m2	20	600
324	Demolish and remove existing timber fascia board	65	m	30	1,950
325	Demolish external metal cladding	156	m2	50	7,800
326	Demolish external window/door architraves	90	m	5	450
327	Demolish external doors - double	1	No.	200	200
328	Demolish external doors - single	2	No.	150	300
	Structural Footings and Flooring				
329	Allow to provide temporary propping to existing roof structure		Item		5,000
330	Allow to remove existing floor structure including timber bearers, joists and footings	133	m2	40	5,320
331	Supply and install new flooring structure including concrete pad footings, concrete stumps, timber bearers and floor joists	133	m2	220	29,260
332	Supply and install 18mm structural sheeting to whole floor area	133	m2	30	3,990
333	Supply and install carpet tile floor finish	133	m2	100	13,300
	External and Internal Walls				
334	Allow to re-frame existing external wall frame after re-stump of floor structure	156	m2	50	7,800
335	Supply and install new metal corrugated wall cladding to new wall frame including paint finish	156	m2	150	23,400
336	Clean existing windows and repaint existing windows frames (1200 x 1400)	14	No.	500	7,000
337	Supply and install new external window/door architraves including paint	90	m	30	2,700
338	Supply and install new internal stud walls including insulation, 10mm plasterboard to both sides and paint	17	m2	175	2,975

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0155 Retain					*(Continued)*
Retain (Building 155)					*(Continued)*
339	Supply and install 10mm plasterboard to internal side of external wall including insulation and paint	132	m2	70	9,240
340	Supply and install new timber skirting to carpet floor area including paint	72	m	30	2,160
341	Supply and install new internal timber architrave to windows and doors	90	m	30	2,700
	External Doors				
342	Supply and install new timber door including frame, hardware and paint - double	1	No.	2,000	2,000
343	Supply and install new timber door including frame, hardware and paint - single	2	No.	1,500	3,000
	Roof				
344	Supply and install new metal gutters	51	m	180	9,180
345	Supply and install new metal down pipes	12	m	180	2,160
346	Supply and install new 9mm villaboard soffit linings including paint finish	30	m2	100	3,000
347	Supply and install new timber fascia board including paint	65	m	80	5,200
	Internal Ceilings				
348	Supply and install 10mm plasterboard ceilings including insulation, sub-framing and paint	133	m2	100	13,300
	Services				
349	Allow to connect new downpipes to existing stormwater system	4	No.	500	2,000
350	Allow for new electrical system including switchboard, lighting, power, switches, emergency lighting, smoke detectors etc	133	m2	120	15,960
351	Allow for new mechanical system - assume to be split air-conditioning unit		Item		6,000
352	Preliminaries (15%)		Item		30,818
353	Margin (5%)		Item		11,813
	Retain (Building 155) Subtotal				**248,000**

Contaminated Materials Removal					
	Hazardous Material				
354	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	145	m2	100	14,500
355	Preliminaries (15%)		item		2,175
356	Margin (5%)		item		834
	Contaminated Materials Removal Subtotal				**18,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0155 Retain					*(Continued)*
Contaminated Materials Removal					*(Continued)*
	A0155 Retain Subtotal				**323,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0155 Demolish					
	Demolition (Building 155)	145	m2	166	24,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**24,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	6,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**51,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**51,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, PCBs and lead-paint as per the HazMat report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0155 Demolish					
Demolition (Building 155)					
	Building 155				
	Demolition				
357	Allow to cap and seal up all services to building prior to demolition work proceed	145	m2	25	3,625
358	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	145	m2	80	11,600
359	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	145	m2	30	4,350
360	Preliminaries (15%)		item		2,936
361	Margin (5%)		item		1,126
	Demolition (Building 155) Subtotal				**24,000**
Contaminated Materials Removal					
	Hazardous Material				
362	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	145	m2	100	14,500
363	Preliminaries (15%)		item		2,175
364	Margin (5%)		item		834
	Contaminated Materials Removal Subtotal				**18,000**
	A0155 Demolish Subtotal				**51,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0156 Retain					
	Retain (Building 156)	147	m2	2,578	379,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**379,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	12,000
	Construction Contingency		item	15.0	61,000
	Escalation				
	- to tender		item	2.0	9,000
	- during construction		item	0.5	3,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**482,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**482,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, PCBs and lead-paint as per the HazMat report		note		
	Assume internal ceiling height to be 2700mm		note		
	Assume overall building height to be 3000mm		note		
	Cost plan only allows for connection into existing services system, it excludes any upgrade works to the existing services system		note		
	Exclusions				
	Upgrades to existing stormwater drainage system		note		
	Upgrades to existing water and sewerage systems		note		
	Upgrade of mains electrical feed to building		note		
	Ground contamination		note		

Code	Description	Quantity	Unit	Rate	Total
A0156 Retain					*(Continued)*
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0156 Retain					
Retain (Building 156)					
	Building 156				
	Demolition Works				
365	Allow to cap and seal up all services to building prior to demolition work proceed	135	m2	25	3,375
366	Demolish and remove existing timber floor boards to expose floor structure	100	m2	10	1,000
367	Demolish and remove existing polished concrete slab	35	m2	120	4,200
368	Demolish and remove existing internal stud wall	73	m2	50	3,650
369	Demolish and remove existing internal lining to external walls	132	m2	20	2,640
370	Demolish and remove existing ceilings	135	m2	20	2,700
371	Demolish and remove skirting and window/door architraves	218	m	5	1,090
372	Demolish and remove all electrical fittings including lights, switches, conduits, outlets and switchboards	135	m2	10	1,350
373	Demolish and remove existing gutters including access equipment	51	m	80	4,080
374	Demolish and remove existing down pipes	12	m	40	480
375	Demolish and remove existing soffit linings	30	m2	20	600
376	Demolish external metal cladding	156	m2	50	7,800
377	Demolish external windows - 1200 x 1400	16	No.	300	4,800
378	Demolish external window/door architraves	90	m	5	450
379	Demolish external doors - double	1	No.	200	200
380	Demolish internall doors - single	2	No.	150	300
381	Demolish and remove existing kitchen sink	1	No.	200	200
382	Demolish and remove existing shower unit including shower base, shower head and tap	2	No.	300	600
383	Demolish and remove existing toilets - assume 2 No.	2	No.	200	400
384	Demolish and remove existing hand basin including vanity unit	2	No.	250	500
385	Demolish and remove kitchenette joinery	5	m	180	900
386	Demolish and remove change room bench seat	7	m	50	350
	Structural Footings and Flooring				
387	Allow to provide temporary propping to existing roof structure		Item		5,000
388	Allow to remove existing floor structure including timber bearers, joists and footings	135	m2	40	5,400
389	Supply and install new flooring structure including concrete pad footings, concrete stumps, timber bearers and floor joists	135	m2	220	29,700
390	Supply and install 18mm structural sheeting to whole floor area	135	m2	30	4,050
391	Supply and install carpet tile floor finish	100	m2	100	10,000
392	Supply and install vinyl floor	35	m2	160	5,600

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0156 Retain					*(Continued)*
Retain (Building 156)					*(Continued)*
	External and Internal Walls				
393	Allow to re-frame existing external wall frame after re-stump of floor structure	156	m2	50	7,800
394	Supply and install new metal corrugated wall cladding to new wall frame including paint finish	156	m2	150	23,400
395	Allow to supply and install new windows including timber frame to match existing style (1200 x 1400)	16	No.	1,500	24,000
396	Supply and install new external window/door architraves including paint	90	m	30	2,700
397	Supply and install new internal stud walls including insulation, 10mm plasterboard to both sides and paint	73	m2	175	12,775
398	Supply and install 10mm plasterboard to internal side of external wall including insulation and paint	132	m2	70	9,240
399	Supply and install new timber skirting to carpet floor area including paint	74	m	30	2,220
400	Supply and install new vinyl skirting to vinyl floor area	32	m	45	1,440
401	Supply and install new internal timber architrave to windows and doors	112	m	30	3,360
	Doors				
402	Supply and install new timber door including frame, hardware and paint - double	1	No.	2,000	2,000
403	Supply and install new timber door including frame, hardware and paint - single	2	No.	1,500	3,000
	Roof				
404	Supply and install new metal gutters	51	m	180	9,180
405	Supply and install new metal down pipes	12	m	180	2,160
406	Supply and install new 9mm villaboard soffit linings including paint finish	30	m2	100	3,000
407	Prime and repaint existing timber fascia board	65	m	50	3,250
	Internal Ceilings				
408	Supply and install 10mm plasterboard ceilings including insulation, sub-framing and paint	135	m2	100	13,500
	Joinery				
409	Supply and install new kitchenette joinery including benchtop and underbench cupboards	5	m	1,500	7,500
410	Supply and install new bench seat to change room	7	m	800	5,600
411	Supply and install wall mount coat hook above change room bench seat	7	m	100	700
	Sanitary Fixtures and Fittings				
412	Supply and install new shower units including floor waste, shower base, shower tap and rose	2	No.	6,500	13,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0156 Retain					*(Continued)*
Retain (Building 156)					*(Continued)*
413	Supply and install new toilets	2	No.	4,500	9,000
414	Supply and install new hand wash basin	2	No.	4,000	8,000
415	Supply and install new kitchen sink	1	No.	4,500	4,500
416	Sanitary accessories including toilet roll holder, soap dispenser and paper towel dispenser	6	No.	200	1,200
417	Hand dryer to toilets	2	No.	1,000	2,000
	Services				
418	Allow to provide hot water service unit for showers, hand basin and kitchen sink		Item		10,000
419	Allow to connect new downpipes to existing stormwater system	4	No.	500	2,000
420	Allow for new electrical system including switchboard, lighting, power, switches, emergency lighting, smoke detectors etc	135	m2	120	16,200
421	Allow for new cooling and heating system - assume to be split air-conditioning unit		Item		9,000
422	Allow for new exhaust system to toilets		Item		1,000
423	Preliminaries (15%)		Item		47,121
424	Margin (5%)		Item		18,063
	Retain (Building 156) Subtotal				**379,000**
Contaminated Materials Removal					
	Hazardous Material				
425	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	145	m2	100	14,500
426	Preliminaries (15%)		item		2,175
427	Margin (5%)		item		834
	Contaminated Materials Removal Subtotal				**18,000**
	A0156 Retain Subtotal				**482,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0156 Demolish					
	Demolition (Building 156)	146	m2	164	24,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**24,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	6,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**51,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**51,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, SMF, PCBs and lead-paint as per the HazMat report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0156 Demolish					
Demolition (Building 156)					
	Building 156				
	Demolition				
428	Allow to cap and seal up all services to building prior to demolition work proceed	146	m2	25	3,660
429	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	146	m2	80	11,712
430	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	146	m2	30	4,392
431	Preliminaries (15%)		item		2,965
432	Margin (5%)		item		1,136
	Demolition (Building 156) Subtotal				**24,000**
Contaminated Materials Removal					
	Hazardous Material				
433	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	146	m2	100	14,640
434	Preliminaries (15%)		item		2,196
435	Margin (5%)		item		842
	Contaminated Materials Removal Subtotal				**18,000**
	A0156 Demolish Subtotal				**51,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0158 Retain					
	Retain (Building 158)	146	m2	2,712	396,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**396,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	12,000
	Construction Contingency		item	15.0	64,000
	Escalation				
	- to tender		item	2.0	10,000
	- during construction		item	0.5	3,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**503,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**503,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, PCBs and lead-paint as per the HazMat report		note		
	Assume internal ceiling height to be 2700mm		note		
	Assume overall building height to be 3000mm		note		
	Cost plan only allows for connection into existing services system, it excludes any upgrade works to the existing services system		note		
	Exclusions				
	Upgrades to existing stormwater drainage system		note		
	Upgrades to existing water and sewerage systems		note		
	Upgrade of mains electrical feed to building		note		
	Ground contamination		note		

Code	Description	Quantity	Unit	Rate	Total
A0158 Retain					*(Continued)*
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0158 Retain					
Retain (Building 158)					
	Building 156				
	Demolition Works				
436	Allow to cap and seal up all services to building prior to demolition work proceed	135	m2	25	3,375
437	Demolish and remove existing timber floor boards to expose floor structure	101	m2	10	1,010
438	Demolish and remove existing polished concrete slab	34	m2	120	4,080
439	Demolish and remove existing internal stud wall	103	m2	50	5,150
440	Demolish and remove existing internal lining to external walls	131	m2	20	2,620
441	Demolish and remove existing ceilings	135	m2	20	2,700
442	Demolish and remove skirting and window/door architraves	296	m	5	1,480
443	Demolish and remove all electrical fittings including lights, switches, conduits, outlets and switchboards	135	m2	10	1,350
444	Demolish and remove existing gutters including access equipment	51	m	80	4,080
445	Demolish and remove existing down pipes	12	m	40	480
446	Demolish and remove existing soffit linings	30	m2	20	600
447	Demolish and remove existing timber fascia boards	65	m	30	1,950
448	Demolish external metal cladding	155	m2	50	7,750
449	Demolish external windows - 900 x 1000	10	No.	250	2,500
450	Demolish external windows - 1200 x 1400	5	No.	300	1,500
451	Demolish external windows - 3000 x 500	2	No.	350	700
452	Demolish external window/door architraves	107	m	5	535
453	Demolish external doors - single	5	No.	150	750
454	Demolish internal doors - single	6	No.	150	900
455	Demolish and remove existing shower unit including shower base, shower head and tap - assume 2 No.	2	No.	300	600
456	Demolish and remove existing toilets - assume 2 No.	2	No.	200	400
457	Demolish and remove existing hand basin including vanity unit - assume 2 No.	2	No.	250	500
	Structural Footings and Flooring				
458	Allow to provide temporary propping to existing roof structure		Item		5,000
459	Allow to remove existing floor structure including timber bearers, joists and footings	135	m2	40	5,400
460	Supply and install new flooring structure including concrete pad footings, concrete stumps, timber bearers and floor joists	135	m2	220	29,700
461	Supply and install 18mm structural sheeting to whole floor area	135	m2	30	4,050
462	Supply and install carpet tile floor finish	101	m2	100	10,100
463	Supply and install vinyl floor	34	m2	160	5,440

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0158 Retain					*(Continued)*
Retain (Building 158)					*(Continued)*
	External and Internal Walls				
464	Allow to re-frame existing external wall frame after re-stump of floor structure	155	m2	50	7,750
465	Supply and install new metal corrugated wall cladding to new wall frame including paint finish	155	m2	150	23,250
466	Allow to supply and install new windows including timber frame to match existing style (900 x 1000)	10	No.	1,200	12,000
467	Allow to supply and install new windows including timber frame to match existing style (1200 x 1400)	5	No.	1,500	7,500
468	Allow to supply and install new windows including timber frame to match existing style (3000 x 500)	2	No.	1,500	3,000
469	Supply and install new external window/door architraves including paint	107	m	30	3,210
470	Supply and install new internal stud walls including insulation, 10mm plasterboard to both sides and paint	103	m2	175	18,025
471	Supply and install 10mm plasterboard to internal side of external wall including insulation and paint	131	m2	70	9,170
472	Supply and install new timber skirting to carpet floor area including paint	99	m	30	2,970
473	Supply and install new vinyl skirting to vinyl floor area	22	m	45	990
474	Supply and install new internal timber architrave to windows and doors	175	m	30	5,250
	Doors				
475	Supply and install new timber door including frame, hardware and paint - single	11	No.	1,500	16,500
	Roof				
476	Supply and install new metal gutters	51	m	180	9,180
477	Supply and install new metal down pipes	12	m	180	2,160
478	Supply and install new 9mm villaboard soffit linings including paint finish	30	m2	100	3,000
479	Supply and install new timber fascia board including paint	65	m	80	5,200
	Internal Ceilings				
480	Supply and install 10mm plasterboard ceilings including insulation, sub-framing and paint	135	m2	100	13,500
	Joinery				
481	Allow for vanity joinery to toilets		Item		3,000
	Sanitary Fixtures and Fittings				
482	Supply and install new shower units including floor waste, shower base, shower tap and rose	2	No.	6,500	13,000

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0158 Retain					*(Continued)*
Retain (Building 158)					*(Continued)*
483	Supply and install new toilets	2	No.	4,500	9,000
484	Supply and install new hand wash basin	2	No.	4,000	8,000
485	Sanitary accessories including toilet roll holder, soap dispenser and paper towel dispenser	6	No.	200	1,200
486	Hand dryer to toilets	2	No.	1,000	2,000
	Services				
487	Allow to provide hot water service unit for showers and hand basin		Item		10,000
488	Allow to connect new downpipes to existing stormwater system	4	No.	500	2,000
489	Allow for new electrical system including switchboard, lighting, power, switches, emergency lighting, smoke detectors etc	135	m2	120	16,200
490	Allow for new cooling and heating system - assume to be split air-conditioning unit		Item		15,000
491	Allow for new exhaust system to toilets		Item		1,000
492	Preliminaries (15%)		Item		49,163
493	Margin (5%)		Item		18,846
	Retain (Building 158) Subtotal				**396,000**
Contaminated Materials Removal					
	Hazardous Material				
494	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	145	m2	100	14,500
495	Preliminaries (15%)		item		2,175
496	Margin (5%)		item		834
	Contaminated Materials Removal Subtotal				**18,000**
	A0158 Retain Subtotal				**503,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0158 Demolish					
	Demolition (Building 158)	146	m2	164	24,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**24,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	6,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**51,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**51,000**
	Notes & Assumptions				
	Contamination removal includes for works to areas containing asbestos, ozone depleting substances and lead-paint as per the HazMat report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0158 Demolish					
Demolition (Building 158)					
	Building 156				
	Demolition				
497	Allow to cap and seal up all services to building prior to demolition work proceed	146	m2	25	3,650
498	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	146	m2	80	11,680
499	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	146	m2	30	4,380
500	Preliminaries (15%)		item		2,957
501	Margin (5%)		item		1,133
	Demolition (Building 158) Subtotal				**24,000**
Contaminated Materials Removal					
	Hazardous Material				
502	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	146	m2	100	14,600
503	Preliminaries (15%)		item		2,190
504	Margin (5%)		item		840
	Contaminated Materials Removal Subtotal				**18,000**
	A0158 Demolish Subtotal				**51,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0203 Demolish					
	Demolition (Building 203)	150	m2	193	29,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**29,000**
				%	
	Contaminated Materials Removal		item		18,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	7,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**57,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**57,000**
	Notes & Assumptions				
	Contamination removal allowance for works to remove lead paint and asbestos as per HAZMAT report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0203 Demolish					
Demolition (Building 203)					
	Building 203				
	Demolition				
505	Allow to cap and seal up all services to building prior to demolition work proceed	150	m2	30	4,500
506	Demolish and break up existing concrete external paving	33	m2	60	1,980
507	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	150	m2	80	12,000
508	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	183	m2	30	5,490
509	Preliminaries (15%)		item		3,596
510	Margin (5%)		item		1,378
	Demolition (Building 203) Subtotal				**29,000**
Contaminated Materials Removal					
	Hazardous Material				
511	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	150	m2	100	15,000
512	Preliminaries (15%)		item		2,250
513	Margin (5%)		item		863
	Contaminated Materials Removal Subtotal				**18,000**
	A0203 Demolish Subtotal				**57,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0210 Relocate					
	Demolition & Relocation (Building 210)	451	m2	2,169	978,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**978,000**
				%	
	Contaminated Materials Removal		item		71,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	31,000
	Construction Contingency		item	15.0	162,000
	Escalation				
	- to tender		item	2.0	25,000
	- during construction		item	0.5	7,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**1,274,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**1,274,000**
	Notes & Assumptions				
	Contamination allowance excludes testing and removal of contaminated soil		note		
	Contamination removal allowance for works to remove lead paint, PCBs and asbestos as per HAZMAT report		note		
	Cost plan assumes the building height is 4000h		note		
	Cost plan assumes no mechanical services required to the building		note		
	Cost plan assumes no hydraulic services required to the building		note		
	Cost plan assumes new site has existing drainage system to be connect into		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0210 Relocate					*(Continued)*
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0210 Relocate					
Demolition & Relocation (Building 210)					
	Building 210				
	Demolition				
514	Allow careful demolition of existing building with metal external cladding, roofing, steel sliding doors and timber ceiling boards to be retained and stored for reuse	451	m2	100	45,100
515	Allow for storage for the retained materials - warehouse storage for 12 months		item		27,000
516	Allow to reinstate existing site including levelling, new soil and seeding	451	m2	20	9,020
	New Build - Reuse Existing Material				
	Foundation and Slab				
517	Provide new concrete slab including footings	451	m2	280	126,280
518	Pad footings to columns	15	no.	2,000	30,000
	Columns				
519	Allow to sand back existing timber columns, prime and repaint before reuse	15	no.	200	3,000
520	Allow to install existing retained timber columns	15	no.	500	7,500
	Wall Framing				
521	Allow to wire brush existing steel wall framing including bracing, columns, girts, prime and repaint before reuse	340	m2	80	27,200
522	Allow to install existing retained steel framing	340	m2	100	34,000
	Roof Framing				
523	Allow to wire brush existing steel roof truss framing including bracing, prime and repaint before reuse	577	m2	45	25,965
524	Allow to install existing retained steel roof truss framing	577	m2	100	57,700
	External Wall Cladding				
525	Allow to clean, prime and repaint existing metal wall sheeting, including replacing missing sheeting ready to be reinstalled	315	m2	50	15,750
526	Allow to reinstall metal wall sheeting to steel framing	315	m2	80	25,200
527	New insulation to external wall	315	m2	20	6,300
	Doors and Windows				
528	Supply and install new solid core timber single doors including frame and hardware	2	No	1,500	3,000
529	Supply and install new aluminim framed windows - 2000 x 2100	6	No	3,000	18,000

Code	Description	Quantity	Unit	Rate	Total
A0210 Relocate					*(Continued)*
Demolition & Relocation (Building 210)					*(Continued)*
530	Allow to remove rust with wire brush clean, prime and repaint the retained steel sliding doors	128	m2	80	10,240
531	Allow to supply and install new bottom and top tracks to sliding doors	64	m	300	19,200
532	Allow to install retained steel doors	8	No	500	4,000
	Roofing				
533	Allow to clean, prime and repaint existing metal roof sheeting, including replacing damaged sheeting ready to be installed	577	m2	50	28,850
534	Allow to reinstall metal roof sheeting including new flashings, sarking and insulation	577	m2	80	46,160
535	Supply and install new timber fascia/barge board	109	m	80	8,720
536	Supply and install new timber soffit board	58	m2	150	8,700
537	Supply and install new gutter	46	m	180	8,280
538	Supply and install new rainwater head/sumps	9	no.	300	2,700
539	Supply and install new downpipes	36	m	200	7,200
	Ceilings				
540	Reinstall timber board ceilings	499	m2	80	39,920
541	Allow to sand back and repaint existing timber board ceilings after reinstallation	499	m2	50	24,950
	Floor Finishes				
542	Allow for epoxy sealant to concrete slab	451	m2	80	36,080
	Services				
543	Allowance for electrical services including new switchboard, power, new lighting, exit and emergency lighting	451	m2	120	54,120
544	Allowance for stormwater pipeworks which allow new stormwater to discharge from this building into existing system on site		item		50,000
545	Preliminaries (15%)		Item		121,520
546	Margin (5%)		Item		46,583
	Demolition & Relocation (Building 210) Subtotal				**978,000**
Contaminated Materials Removal					
	Hazardous Material				
547	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	451	m2	130	58,630
548	Preliminaries (15%)		item		8,795

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0210 Relocate					*(Continued)*
Contaminated Materials Removal					*(Continued)*
549	Margin (5%)		item		3,371
	Contaminated Materials Removal Subtotal				**71,000**
	A0210 Relocate Subtotal				**1,274,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0218 Demolish					
	Demolition (Building 218)	91	m2	231	21,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**21,000**
				%	
	Contaminated Materials Removal		item		11,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	5,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**40,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**40,000**
	Notes & Assumptions				
	Contamination removal allowance for works to remove lead paint and asbestos as per HAZMAT report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0218 Demolish					
Demolition (Building 218)					
	Building 218				
	Demolition				
550	Allow to cap and seal up all services to building prior to demolition work proceed	91	m2	30	2,730
551	Demolish and break up existing concrete external paving	31	m2	60	1,860
552	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	91	m2	100	9,100
553	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	122	m2	30	3,660
554	Preliminaries (15%)		Item		2,603
555	Margin (5%)		Item		998
	Demolition (Building 218) Subtotal				**21,000**
Contaminated Materials Removal					
	Hazardous Material				
556	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	91	m2	100	9,100
557	Preliminaries (15%)		item		1,365
558	Margin (5%)		item		523
	Contaminated Materials Removal Subtotal				**11,000**
	A0218 Demolish Subtotal				**40,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0221 Retain					
	Refurbishment (Building 221)	1,839	m2	1,428	2,627,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**2,627,000**
				%	
	Contaminated Materials Removal		item		289,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	87,000
	Construction Contingency		item	15.0	450,000
	Escalation				
	- to tender		item	2.0	69,000
	- during construction		item	0.5	19,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**3,541,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**3,541,000**
	Notes & Assumptions				
	Contamination allowance for asbestos removal throughout the building including external cladding and roof as identified in the HAZMAT report		note		
	Contamination allowance for PCBs and biological harzard removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 4200mm		note		
	Cost plan excludes internal fitout of the building as the future use of this building is unclear		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0221 Retain					*(Continued)*
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0221 Retain					
Refurbishment (Building 221)					
	Building 221				
	Demolition				
559	Allow to cap and cut services prior demolition works	1,839	m2	25	45,975
560	Allow to demolish internal elements of the building including offices partitions, cages, amenities and kitchen	1,839	m2	75	137,925
561	Allow to remove rubbish and leaves from building	1,839	m2	10	18,390
562	Allow to demolish external elements of the building including cladding, roofing, windows and doors	1,839	m2	80	147,120
	External Cladding				
563	New colourbond metal cladding including secondary framing, insulation, wire mesh, flashings and cappings to existing building structure	671	m2	150	100,650
	External Windows and Doors				
564	New aluminium framed windows to replace existing windows	227	m2	600	136,200
565	Replace polycarbonate sheeting to existing highbay windows - assume 1500h	290	m2	120	34,800
566	New double solid core timber doors including frames and hardware - 1800 x 2180	3	no	3,250	9,750
567	New double solid core timber sliding doors including frames, tracks and hardware - 4000 x 4400	1	no	8,800	8,800
568	Allow to supply and install new exit doors - 950 x 2040 including forming new openings to existing external walls	3	no	2,500	7,500
	Roofing				
569	New metal tray sheeting to replace existing roof sheet including insulation, sarking and safety mesh - assume 30 deg pitch	2,166	m2	150	324,900
570	New fascia/barge board	345	m	80	27,600
571	New roof gutter to replace existing gutters including flashing	195	m	180	35,100
572	New rainwater head to replace existing	10	no	300	3,000
573	New downpipes to replace existing	42	m	200	8,400
574	Allow to connect new drainage to existing system		item		10,000
	Concrete Flooring				
575	Existing concrete floor to be cleaned and apply new epoxy floor finish	1,839	m2	80	147,120
	Ceilings				
576	Allow to rust clean existing exposed metal roof truss system, prime and paint	1,839	m2	45	82,755

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0221 Retain					*(Continued)*
Refurbishment (Building 221)					*(Continued)*
	Internal Walls				
577	Allow to provide plasterboard linings to internal side of external walls including insulation	671	m2	80	53,680
578	Allow to rust clean existing steel columns, prime and paint	24	no	500	12,000
	Kitchenette				
579	Allow to supply and install new kitchenette joinery including overhead cupboard and sink	7	m	2,000	14,000
	Services				
580	Upgrade existing highbay lighting to new comply lighting	25	no	1,500	37,500
581	Allow to upgrade existing electrical services including new switchboard, emergency and exit lighting	1,839	m2	120	220,680
582	Allow to upgrade existing fire services to building including external hydrants	1,839	m2	50	91,950
583	All to provide new cooling and heating to the building	1,839	m2	200	367,800
584	Allow to provide new hydraulic pipework to the kitchen	1,839	m2	50	91,950
585	Preliminaries (15%)		Item		326,332
586	Margin (5%)		Item		125,094
	Refurbishment (Building 221) Subtotal				**2,627,000**
Contaminated Materials Removal					
	Hazardous Material				
587	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	1,839	m2	130	239,070
588	Preliminaries (15%)		item		35,861
589	Margin (5%)		item		13,747
	Contaminated Materials Removal Subtotal				**289,000**
	A0221 Retain Subtotal				**3,541,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0221 Demolish					
	Demolition (Building 221)	1,839	m2	121	222,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**222,000**
				%	
	Contaminated Materials Removal		item		289,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	15,000
	Construction Contingency		item	15.0	79,000
	Escalation				
	- to tender		item	2.0	12,000
	- during construction		item	0.5	3,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**620,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**620,000**
	Notes & Assumptions				
	Contamination allowance for asbestos removal throughout the building including external cladding and roof as identified in the HAZMAT report		note		
	Contamination allowance for PCBs and biological harzard removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 4200mm		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		

Code	Description	Quantity	Unit	Rate	Total
A0221 Demolish					*(Continued)*
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0221 Demolish					
Demolition (Building 221)					
	Building 221				
	Demolition				
590	Allow to cap and seal up all services to building prior to demolition work proceed	1,839	m2	20	36,780
591	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	1,839	m2	60	110,340
592	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	1,839	m2	20	36,780
593	Preliminaries (15%)		item		27,585
594	Margin (5%)		item		10,574
	Demolition (Building 221) Subtotal				**222,000**
Contaminated Materials Removal					
	Hazardous Material				
595	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	1,839	m2	130	239,070
596	Preliminaries (15%)		item		35,861
597	Margin (5%)		item		13,747
	Contaminated Materials Removal Subtotal				**289,000**
	A0221 Demolish Subtotal				**620,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Retain					
	Refurbishment (Building 228)	132	m2	2,136	282,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**282,000**
				%	
	Contaminated Materials Removal		item		16,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	9,000
	Construction Contingency		item	15.0	46,000
	Escalation				
	- to tender		item	2.0	7,000
	- during construction		item	0.5	2,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**362,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**362,000**
	Notes & Assumptions				
	Cost plan assumes external wall height to be 3000 high		note		
	Cost plan assumes internal wall height to be average 3500 high (with a raked ceiling)		note		
	Contamination removal includes for works to areas containing asbestos, SMF and Ozone depleting substances as per the HazMat report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Retain					*(Continued)*
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Retain					
Refurbishment (Building 228)					
	Building 228				
	Demolition				
598	Allow to demolish internal flooring, joinery, sanitary fixtures, doors and windows	132	m2	75	9,900
	External Restoration Works				
599	Allow to clean, prime and repaint existing external walls	183	m2	100	18,300
600	Allow to reinstate and install new aluminium windows	6	no.	3,000	18,000
601	Allow to pressure clean existing windows	7	no.	500	3,500
602	Allow to replace existing concrete steps with new		item		10,000
	Internal Restoration Works				
603	Allow to patch and repaint existing ceilings	132	m2	45	5,940
604	Allow to patch and repaint existing internal walls	343	m2	45	15,435
605	Allow to replace existing doors with new doors	4	no	2,350	9,400
606	Allow to replace carpet	120	m2	100	12,000
607	Allow to replace vinyl flooring	12	m2	160	1,920
608	Allow to replace wall tiles to amenities	49	m2	150	7,350
609	Allow to install new toilets	3	no	4,500	13,500
610	Allow to install new hand basin including tapware	2	no	4,000	8,000
611	Allow to install new shower including tapware	3	no	4,000	12,000
612	Allow to install new shower base including floor waste	3	no	2,500	7,500
613	Allow to install new mirror	2	no	500	1,000
614	Allow to install new toilet/shower partitions	4	no	1,100	4,400
615	Allow to install toilet roll holders	3	no	150	450
616	Allow to install new kitchen joinery including splashback	8	m	2,000	16,000
617	Allow to install new kitchen sink	1	no		
	Services				
618	New heating and cooling system to the building	132	m2	200	26,400
619	Allow to upgrade existing exit and emergency lighting building	132	m2	50	6,600
620	Allow to upgrade existing switchboard, lighting and power outlets	132	m2	120	15,840
621	Allow to upgrade existing hydraulics pipeworks to kitchen sink and amenities	132	m2	50	6,600
622	BWIC (8%)		Item		4,435
623	Preliminaries (15%)		Item		34,505

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Retain					*(Continued)*
Refurbishment (Building 228)					*(Continued)*
624	Margin (5%)		Item		13,449
	Refurbishment (Building 228) Subtotal				**282,000**
Contaminated Materials Removal					
	Hazardous Material				
625	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	132	m2	100	13,200
626	Preliminaries (15%)		item		1,980
627	Margin (5%)		item		759
	Contaminated Materials Removal Subtotal				**16,000**
	A0228 Retain Subtotal				**362,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Demolish					
	Demolition (Building 228)	132	m2	159	21,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**21,000**
				%	
	Contaminated Materials Removal		item		16,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	6,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**46,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**46,000**
	Notes & Assumptions				
	Cost plan assumes external wall height to be 3000 high		note		
	Cost plan assumes internal wall height to be average 3500 high (with a raked ceiling)		note		
	Contamination removal includes for works to areas containing asbestos, SMF and Ozone depleting substances as per the HazMat report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Demolish					*(Continued)*
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0228 Demolish					
Demolition (Building 228)					
	Building 004				
	Demolition				
628	Allow to cap and seal up all services to building prior to demolition work proceed	132	m2	30	3,960
629	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	132	m2	80	10,560
630	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	132	m2	20	2,640
631	Preliminaries (15%)		item		2,574
632	Margin (5%)		item		987
	Demolition (Building 228) Subtotal				**21,000**
Contaminated Materials Removal					
	Hazardous Material				
633	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	132	m2	100	13,200
634	Preliminaries (15%)		item		1,980
635	Margin (5%)		item		759
	Contaminated Materials Removal Subtotal				**16,000**
	A0228 Demolish Subtotal				**46,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0243 Demolish					
	Demolition (Building 243)	239	m2	197	47,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**47,000**
				%	
	Contaminated Materials Removal		item		38,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	3,000
	Construction Contingency		item	15.0	13,000
	Escalation				
	- to tender		item	2.0	2,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**104,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**104,000**
	Notes & Assumptions				
	Contamination materials removal allowance includes for works to remove lead paint, asbestos, SMF and PCBs as per the HAZMAT report		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0243 Demolish					
Demolition (Building 243)					
	Building 243				
	Demolition				
636	Allow to cap and seal up all services to building prior to demolition work proceed	239	m2	25	5,975
637	Demolish and break up existing concrete external paving	54	m2	60	3,240
638	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	239	m2	100	23,900
639	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	293	m2	20	5,860
640	Preliminaries (15%)		Item		5,846
641	Margin (5%)		Item		2,241
	Demolition (Building 243) Subtotal				**47,000**
Contaminated Materials Removal					
	Hazardous Material				
642	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	239	m2	130	31,070
643	Preliminaries (15%)		item		4,661
644	Margin (5%)		item		1,787
	Contaminated Materials Removal Subtotal				**38,000**
	A0243 Demolish Subtotal				**104,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Retain					
	Refurbishment (Building 485)	81	m2	3,099	251,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**251,000**
				%	
	Contaminated Materials Removal		item		10,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	8,000
	Construction Contingency		item	15.0	40,000
	Escalation				
	- to tender		item	2.0	6,000
	- during construction		item	0.5	2,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**317,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**317,000**
	Notes & Assumptions				
	Contamination allowance for PCBs, SMF, asbestos and lead paint removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 2700mm		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Retain					
Refurbishment (Building 485)					
	Building 485				
	Demolition				
645	Allow to cap and cut services prior demolition works	81	m2	30	2,430
646	Allow to demolish internal elements of the building including offices partitions, cages, amenities and kitchen	81	m2	100	8,100
647	Allow to demolish external elements of the building including cladding, roofing, windows and doors	81	m2	100	8,100
	External Cladding				
648	New external metal cladding including secondary framing, insulation, flashings and cappings to existing building structure	114	m2	150	17,100
649	Allow to strengthen existing timber wall framing	114	m2	50	5,700
	External Windows and Doors				
650	Allow to clean existing windows and repaint	4	no	500	2,000
651	New double solid core timber doors including frames and hardware - 1690 x 2100	4	no	3,250	13,000
652	New single solid core timber door including frames and hardware - 900 x 2400	2	no	1,500	3,000
	Roofing				
653	New metal tray sheeting to replace existing roof sheet including insulation, sarking and safety mesh - assume 30 deg pitch	114	m2	150	17,100
654	New soffit linings	9	m2	150	1,350
655	New fascia/barge board	44	m	80	3,520
656	New roof gutter to replace existing gutters including flashing	31	m	180	5,580
657	New rainwater head to replace existing	6	no	300	1,800
658	New downpipes to replace existing	18	m	200	3,600
659	Allow to connect new drainage to existing system		item		5,000
	Flooring				
660	Allow to restump existing floor structure and provide new particleboard floor sheeting	81	m2	40	3,240
661	New carpet	37	m2	100	3,700
662	New vinyl	28	m2	160	4,480
663	New tile flooring	16	m2	200	3,200
664	Aluminium skirting	23	m	15	345
665	Vinyl skirting	28	m	45	1,260
666	Tile skirting	14	m	50	700

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Retain					*(Continued)*
Refurbishment (Building 485)					*(Continued)*
	Ceilings				
667	Supply and install new plasterboard ceilings including painting and insulation (raked)	94	m2	100	9,400
668	Allow to clean and repaint exposed timber trusses	81	m2	45	3,645
	Internal Walls				
669	Allow to provide plasterboard linings to internal side of external walls including insulation	114	m2	80	9,120
670	Allow to resheet existing walls with plasterboard linings including painting	120	m2	60	7,200
	Joinery				
671	Allow to supply and install new kitchenette joinery including overhead cupboard and sink	6	m	2,000	12,000
672	Allow to supply and install new bar joinery including overhead cupboard	7	m	3,000	21,000
673	Allow for splashback to kitchen cupboard	6	m	200	1,200
	Services				
674	Allow to upgrade existing electrical services including new switchboard, new lighting, power, emergency and exit lighting	81	m2	120	9,720
675	All to provide new cooling and heating to the building	81	m2	200	16,200
676	Allow to provide new hydraulic pipework to the kitchen	81	m2	50	4,050
677	Preliminaries (15%)		Item		31,176
678	Margin (5%)		Item		11,951
	Refurbishment (Building 485) Subtotal				**251,000**
Contaminated Materials Removal					
	Hazardous Material				
679	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	81	m2	100	8,100
680	Preliminaries (15%)		item		1,215
681	Margin (5%)		item		466
	Contaminated Materials Removal Subtotal				**10,000**
	A0485 Retain Subtotal				**317,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Demolish					
	Demolition (Building 485)	81	m2	160	13,000
	External Works		item		N/A
	NET CONSTRUCTION COSTS		**ITEM**		**13,000**
				%	
	Contaminated Materials Removal		item		10,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	1,000
	Construction Contingency		item	15.0	4,000
	Escalation				
	- to tender		item	2.0	1,000
	- during construction		item	0.5	1,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**30,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**30,000**
	Notes & Assumptions				
	Contamination allowance for PCBs, SMF, asbestos and lead paint removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 2700mm		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Demolish					
Demolition (Building 485)					
	Building 004				
	Demolition				
682	Allow to cap and seal up all services to building prior to demolition work proceed	81	m2	30	2,430
683	Demolish entire building including walls, roof, sanitary fixtures and floor finishes	81	m2	80	6,480
684	Allow to reinstate the area after demolition including levelling, new soil and seeding to the area	81	m2	20	1,620
685	Preliminaries (15%)		item		1,580
686	Margin (5%)		item		605
	Demolition (Building 485) Subtotal				**13,000**
Contaminated Materials Removal					
	Hazardous Material				
687	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	81	m2	100	8,100
688	Preliminaries (15%)		item		1,215
689	Margin (5%)		item		466
	Contaminated Materials Removal Subtotal				**10,000**
	A0485 Demolish Subtotal				**30,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Relocate					
	Demolish and Relocate (Building 485)	81	m2	3,185	258,000
	External Works & Services Infrastructure		item		495,000
	NET CONSTRUCTION COSTS		**ITEM**		**753,000**
				%	
	Contaminated Materials Removal		item		10,000
	Staging Allowance		item		Excluded
	Design Contingency		item	3.0	23,000
	Construction Contingency		item	15.0	118,000
	Escalation				
	- to tender		item	2.0	18,000
	- during construction		item	0.5	5,000
	TOTAL CONSTRUCTION COSTS		**ITEM**		**927,000**
				%	
	Consultant Fees		item		Excluded
	Authority Fees		item		Excluded
	FF & E		item		Excluded
	ICT & AV		item		Excluded
	Decanting & Relocation		item		Excluded
	Client costs		item		Excluded
	TOTAL END COSTS		**ITEM**		**927,000**
	Notes & Assumptions				
	Contamination allowance for PCBs, SMF, asbestos and lead paint removal as identified in the HAZMAT report		note		
	Cost plan assumes the building height is approximately 2700mm		note		
	Cost plan assumes existing wall cladding, roof sheeting, timber wall framing, timber roof framing, exposed ceiling timber trusses, windows and doors can be reused at the new location. All internal floor finishes, ceiling finishes, joinery units and internal wall linings will be replaced with new.		note		
	Cost plan includes for provisional allowances for services infrastructure as location for relocated building is unknown		note		
	Exclusions				
	Ground contamination		note		
	Asbestos & other hazardous materials unless noted within the cost plan		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Relocate					*(Continued)*
	Heritage rectification works		note		
	Operating & Recurrent costs		note		
	Finance costs		note		
	GST		note		

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Relocate					
Demolish and Relocate (Building 485)					
	Building 210				
	Demolition				
690	Allow careful demolition of existing building with external metal cladding, roof sheeting, timber roof truss, timber framed windows, doors and timber wall framing to be retained and stored for reuse	81	m2	100	8,100
691	Allow for storage for the retained materials - warehouse storage for 6 months		item		13,500
692	Allow to reinstate existing site including levelling, new soil and seeding	81	m2	20	1,620
	New Build - Reuse Existing Material				
	Foundation and Slab				
693	Provide new concrete slab including footings to new site	81	m2	280	22,680
	Wall Framing				
694	Allow to clean existing external timber stud framing	114	m2	50	5,700
695	Allow to reinstall existing external timber stud framing	114	m2	50	5,700
	Roof Framing				
696	Allow to wire brush existing timber roof framing including bracing, prime and repaint before reuse	98	m2	50	4,900
697	Allow to reinstall existing retained timber roof framing	98	m2	50	4,900
	External Cladding				
698	Allow to reinstall existing external metal cladding including clean, repainting. secondary framing, insulation, flashings and cappings	114	m2	120	13,680
	Windows and Doors				
699	Allow to clean existing stored windows and repaint	4	no	500	2,000
700	Allow to reinstall existing windows	4	no	500	2,000
701	Allow to clean, repaint and reinstall double solid core timber doors including frames and hardware - 1690 x 2100	4	no	1,000	4,000
702	Allow to clean, repaint and reinstall single solid core timber door including frames and hardware - 900 x 2400	2	no	500	1,000
	Roofing				
703	Allow to reinstall existing roof sheet including clean, repainting, insulation, sarking and safety mesh - assume 30 deg pitch	114	m2	80	9,120
704	New soffit linings	9	m2	100	900
705	New fascia/barge board	44	m	80	3,520
706	New roof gutter to replace existing gutters including flashing	31	m	180	5,580

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Relocate					*(Continued)*
Demolish and Relocate (Building 485)					*(Continued)*
707	New downpipes to replace existing	18	m	200	3,600
	Floor Finishes				
708	New carpet	37	m2	100	3,700
709	New vinyl	28	m2	160	4,480
710	New tile flooring	16	m2	200	3,200
711	Aluminium skirting	23	m	15	345
712	Vinyl skirting	28	m	45	1,260
713	Tile skirting	14	m	50	700
	Ceilings				
714	Supply and install new plasterboard ceilings including painting and insulation (raked)	94	m2	100	9,400
715	Allow to clean and repaint exposed timber trusses	81	m2	45	3,645
716	Allow to reinstall exposed timber trusses	81	m2	50	4,050
	Internal Walls				
717	Allow to provide plasterboard linings to internal side of external walls including insulation	114	m2	80	9,120
718	Allow to resheet existing walls with plasterboard linings including painting	120	m2	60	7,200
	Joinery				
719	Allow to supply and install new kitchenette joinery including overhead cupboard and sink	6	m	1,500	9,000
720	Allow to supply and install new bar joinery including overhead cupboard	7	m	2,000	14,000
721	Allow for splashback to kitchen cupboard	6	m	200	1,200
	Services				
722	Allow to upgrade existing electrical services including new switchboard, new lighting, power, emergency and exit lighting	81	m2	120	9,720
723	All to provide new cooling and heating to the building	81	m2	200	16,200
724	Allow to provide new hydraulic pipework to the kitchen	81	m2	50	4,050
725	Preliminaries (15%)		Item		32,066
726	Margin (5%)		Item		12,292
	Demolish and Relocate (Building 485) Subtotal				**258,000**

B - VT12399 Point Cook (v01)

Code	Description	Quantity	Unit	Rate	Total
A0485 Relocate					*(Continued)*
External Works & Services Infrastructure					
	Services				
727	Electrical Infrastructure Provisonal Allowance		item		150,000
728	Water Infrastructure Provisonal Allowance		item		80,000
729	Sewer Infrastructure Provisonal Allowance - including possible pumping station due to gravity		item		100,000
730	Stormwater Infrastructure Provisonal Allowance		item		80,000
731	Preliminaries (15%)		Item		61,500
732	Margin (5%)		Item		23,575
	External Works & Services Infrastructure Subtotal				**495,000**
Contaminated Materials Removal					
	Hazardous Material				
733	Allowance for removal of contaminated material - asbestos, SMF, lead painting, biological hazard and ozone depleting substances	81	m2	100	8,100
734	Preliminaries (15%)		item		1,215
735	Margin (5%)		item		466
	Contaminated Materials Removal Subtotal				**10,000**
	A0485 Relocate Subtotal				**927,000**

Appendix J
Safe Design Register

Safe Design Risk Register – 12399 - Point Cook Heritage Consultancy

IDENTIFY SAFE DESIGN RISK						ASSESSMENT SAFE DESIGN RISK - CURRENT EXPOSURE				IMPLEMENT SAFE DESIGN RISK TREATMENT
ID	Risk Title	Event / Cause / Consequence	Persons Affected	Applicable Phases	Inherent Consequence	(Risk Treatment) Current Control Measures	Consequence	Likelihood	Risk Level	(Risk Treatment) Action Summary
1	Exposure to hazardous materials	Constructors may be exposed to hazardous materials such as asbestos during demolition or refurbishment of buildings. This could result in disabling illness of one or more people and liability under the OH&S regulations.	Constructors Demolishers	Construction Demolition	B - Major	An asbestos register is currently available for the base however it is not confirmed that it is completely up to date.	B - Major	3 - Possible	Critical	The risk has been controlled to an acceptable level by undertaking a full hazmat survey during design phase of this project. The report identifies types of hazmat and locations and treatment recommendations. Environmental Management Plan and Safety Plan to be provided by contractor.
2	Working from heights	Fall from heights while working on windows, rooves, gutters etc.	Constructors	Construction Demolition	B - Major	None			-	Working at heights requirements to be specified within tender documentation. Contractor to undertake site visit to identify site access and ensure addressed. Working at heights standards to be applied.
3	Falling objects in demolition	Object falls causing death or injury.	Demolishers	Demolition	B - Major	None			-	Contractor to ensure that there is appropriate signage and bunting on ground floor within the area of demolition. Contractors to wear appropriate PPE (including hard hat). Contractor to provide appropriate signage, etc to ensure occupants are not within the demolition space at any time.
									-	
									-	
									-	
									-	
									-	
									-	
									-	

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Attachment 8

Framework Construction Environmental Management Plan

Australian Government

Department of Defence

CONSTRUCTION ENVIONMENTAL MANAGEMENT PLAN

Demolition of Structures at RAAF Williams – Point Cook, Victoria

(EBPC Ref: 2019/8514)

Proponent: Department of Defence

Date of preparation: <to be inserted>

Department of Defence

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed:	
Full name:	
Organisation:	
Date:	

Document control

Rev	Author	Reviewer	Date	Reason for changes

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No table of contents entries found.

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1. Introduction

1.1 Overview

The Demolition of Structures at RAAF Williams Point Cook Project Victoria ('the proposed action'), to be delivered by the Department of Defence (Defence), involves the demolition and removal of built infrastructure comprising of 19 assets at RAAF Base Point Cook (the Base). The assets proposed for removal include a range of buildings including Bellman hangars, RAAF Standard Huts, store facilities, and toilet blocks.

The project site is located at RAAF Base Point Cook, Victoria. Assets proposed for demolition have been divided in two assessment areas: north of the tarmac for buildings located north and west of the runway, and south of the tarmac for buildings south and southwest of the runway. Location of assets to be demolished are presented on Figure 3.2.

<*Contractor name*>, the Contractor for the project, will implement the Construction Environmental Management Plan (CEMP), which will be developed in consideration of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) guidance document *Environmental Management Plan Guidelines 2014* (Department of the Environment 2014). All personnel undertaking work on the project at the Base are subject to the requirements of this CEMP.

1.2 Key project elements

The key project elements include the demolition and removal of 19 buildings at RAAF Base Point Cook which have been identified as posing a significant safety risk to personnel, or are redundant to both current and foreseeable Australian Defence Force requirements. Construction would involve manual demolition of above ground structures using hand-held tools and mechanical demolition equipment. Minor soil disturbance is expected and would be confined to surface level over an area of approximately 7.5 m^2.

1.3 Main potential impacts

Main potential impacts of the proposed action include impacts to historic heritage and impacts resulting from contaminated soils/hazardous wastes. No short- or long-term impacts are anticipated for any Matters of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) except for National Heritage places and Commonwealth Heritage places.

1.4 Primary strategies

Assets proposed for demolition would be removed in accordance with the guidance provided in *Australian Standard 2601-2001: The demolition of structures* and the relevant Defence management procedures in the Contamination Management Manual Annex J – Infrastructure Demolition (Defence 2021) to minimise risks to the health and safety of site personnel, the environment and adjoining land uses. Additionally, Defence will review and implement relevant provisions from the Heritage Victoria guidelines Demolition (2007) if applicable to the proposed action.

1.5 Purpose of this report

The Framework CEMP has been prepared as a guidance document for the Contractor to assist in the development of their project CEMP.

This document applies to the construction phase of the project and aims to provide practical environmental management objectives, actions, and processes to where possible avoid, mitigate and manage potential environmental impacts that could occur as a result of the works.

All persons undertaking the site construction works will be responsible for implementing the CEMP as applicable to their role.

2. Conditions of approval

The conditions of approval and where they are addressed in this CEMP is outlined in Table 2.1.

Table 2.1 Conditions of approval table

Ref	Cond.	Condition requirement	Reference	Demonstration and commitments
1	*12(c)*	*Example text* *Prepare and submit a Hypothetical Bird Species Habitat Revegetation Plan (HBSHRP) for the Minister's approval, that describes how approval condition 12 c) will be implemented.*	*s2, s3, s4, s5, figure 2*	*Example text* *The following summarises the condition 12(c) revegetation project as addressed in the HBSHRP:* – *Plan outlines ratio of 8:1 for replanting of trees with DBH of >500mm that are removed.* – *Plan has accounted for 600 trees (upper limit) to be cleared and 4800 trees to be replanted over 19.7ha (at density of 250 stems/ha)* – *Selected revegetation sites are all identified as highly degraded.* – *Plan confirms revegetation will be within Hypothetical Regional Park. The final amount and area of replanting required will be determined by the clearing undertaken.* – *Revegetation success/survivorship will consist of annual monitoring (spring) to ascertain whether 80% survival for seedling survival, and weed control to 20% coverage or less. Plan includes commitment to meet success criteria should the survivorship not be met after two years. • Revegetation will be undertaken in consultation with Hypothetical State Agency.* – *Hypothetical Company X will be responsible for implementation and funding the revegetation project. Conditions 12(c)i-iv are addressed in the HBSHRP as highlighted above.*

3. Project description

Note that this section provides background to specific environmental values of the site. The Contractor needs to provide detail of how the works are to be intended to be conducted. A site plan showing no go areas (if any) and specific works areas should be prepared to assist the CEMP.

3.1 Location

RAAF Base Point Cook ('the Base') is a 340.97 ha Defence site located approximately 25 km south-west of Melbourne, on the shores of Port Phillip Bay in Victoria (refer to Figure 3.1). The Base is surrounded by public reserves, residential areas and agricultural land including areas of which are being or will be developed for residential purposes.

The Base is recognised as the oldest military aviation base in Australia, having been in service continually since 1914. It is listed on both the NHL and CHL as a place of exceptional heritage value that contributes to Australia's national identity. The Base has been used for Defence purposes since 1914. The Assets proposed for removal are located across the developed portions of the Base.

The disturbance footprint for the proposed action is approximately 0.8 ha, which includes the total area required for machinery manoeuvre, laydown, stockpile and storage areas. This area is defined as the 'Action Area' for the purposes of this report.

The Action Area has been assessed as being of negligible ecological significance (Biosis 2003; AECOM 2012). The areas immediately adjacent to the Assets are highly disturbed and typically consist of pavements, turfed lawns or minor garden beds. No native vegetation is present within the Action Area. Areas of greater ecological significance are located at the Base, including the foreshore of RAAF Lake in the north-east and the open space in the south-west, and nearby to the Base along the shoreline of Port Philip Bay (refer to Figure 3.1). These areas will not be impacted (either directly or indirectly) by the proposed action.

Figure 3.1 RAAF Base Point Cook Locality Plan

3.2 Scope of works

The proposed action is the demolition and removal of 19 buildings at RAAF Base Point Cook. These assets have been identified as posing significant safety risks to personnel, or redundant to both current and foreseeable Australian Defence Force requirements. Assets proposed for demolition have been divided in two assessment areas: north of the tarmac for buildings located north and west of the runway, and south of the tarmac for buildings south and southwest of the runway. An overview of Asset assessment areas is outlined in Table 3.1 and displayed in Figure 3.2.

Table 3.1 Assets number, types and building assessment area locations

Asset Number	Building type	Location relative to tarmac	
		North	South
Asset 102	Toilet block		✓
Asset 112	Store		✓
Asset 122	Hazardous store		✓
Asset 125	RAAF Standard Hut	✓	
Asset 132	Mask Training Facility		✓
Asset 155	RAAF Standard Hut	✓	
Asset 156	RAAF Standard Hut	✓	
Asset 158	RAAF Standard Hut	✓	
Asset 190	WWII Hut (RAAF Standard Hut)	✓	
Asset 203	WWII Hut (RAAF Standard Hut)		✓
Asset 211	Bellman Hangar		✓
Asset 212	Bellman Hangar		✓
Asset 213	Bellman Hangar		✓
Asset 214	Bellman Hangar		✓
Asset 218	Toilet block		✓
Asset 221	Store		✓
Asset 228	Trainee Sleeping Quarters College (RAAF Standard Hut)	✓	
Asset 243	RAAF College Classroom Block (RAAF Standard Hut)		✓
Asset 485	Point Cook Flying Club (RAAF Standard Hut).		✓

Figure 3.2 RAAF Base Point Cook Heritage Buildings (AECOM 2022)

3.3 Construction

3.3.1 Construction activities

Note: Construction activities are to be updated by the Contractor on award of tender.

The following construction activities are anticipated for the proposed action:

– Manual demolition of above ground structures using hand held-tools such as picks, sledgehammers, jackhammers etc, and mechanical demolition using cranes, excavators, frontend loaders and load-shifting equipment.
  - Concrete, asphalt slabs, timber footings and in-ground services will be left in situ.
– Minor soil disturbance confined to surface level over an area of approximately 7.5 $m^{2.}$
– Categorisation of demolition waste into recyclable and non-recyclable waste streams. Hazardous materials (including materials containing asbestos) will be appropriately managed and disposed offsite in accordance with State government requirements.

3.3.2 Construction timing

It is anticipated the proposed action will commence in Q2 2024, and will be undertaken progressively in stages for the duration of the construction period. Specific timing for individual Asset demolition would be planned in conjunction with Defence and the Contractor.

4. Objectives

The purpose of a CEMP is to identify measures to minimise impact to the environment of undertaking the construction works as detailed in Section 3.3.1.

The CEMP will be developed to:

– Describe the environmental setting and sensitivities associated with the works.
– Identify the regulatory framework applicable to the works.
– Identify the potential environmental impacts of the works.
– Describe the mitigation measures required to be implemented to manage environmental impacts.
– Allocate responsibilities for implementation and management of the CEMP.
– Identify the environmental monitoring, reporting and review requirements.

The CEMP will set out the procedures and practices to be adopted during the construction works to achieve environmental legislative obligations, Defence policy and objectives and Ecologically Sustainable Development (ESD) principles.

5. Environmental management

The following section outlines the overarching management arrangements for the project including roles and responsibilities, reporting, records, training, incident management and complaints.

Note: Sections in italics are to be updated by the Project contractor on award of tender

5.1 Roles and responsibilities

To be updated by the contractor:

- *Descriptions of the different environmental management roles undertaken by those people nominated in the organisational chart*
- *Descriptions of the same responsibilities and roles as they apply for sub-contractors.*
- *Specific nomination of the position responsible for implementation and maintenance of the CEMP*

Defence

Defence will be responsible for approving Contractor's HSE plan, including EMPs for compliance with applicable standards and procedures and then auditing the Contractor throughout the construction phase for compliance with legal requirements and all environmental obligations as set out in the CEMP and the environmental actions committed to.

Principal contractor

The Principal contractor will be the ultimate responsible in ensuring that the project is designed, constructed and operated in accordance with relevant regulatory requirements. Similarly, the Principal contractor is responsible in ensuring that environmental and social impacts caused by the project are reduced or mitigated to acceptable levels through the implementation of mitigation measures and monitoring program. Detailed environmental requirements, mitigation measures, and related roles and responsibilities of Defence and Contractors will be included in the Project/Contractor HSE Plan and other management plans.

Contractors

The Project contractor/s will be responsible for managing environmental issues associated with their component of construction, which include managing their sub-contractors.

- Developing the CEMP based on this framework CEMP and relevant Technical Guidance documents
- Endorsing the CEMP (to the sub-contractors) and committing to adherence to the document
- Developing and implementing a HSE Plan
- Obtaining environmental and other relevant permits
- Undertaking regular environmental monitoring and reporting as well as audit and inspection as required in the CEMP, and submitting compliance reports (where required) to the Project Proponent.

The Contractor is responsible in allocating adequate resources including staff to manage environmental issues associated with their aspect of the project.

Specific responsibilities for Contractor staff (and subcontractors) will be included in the CEMP, including organisation chart. Some key staff include:

- Project Director
- Project Manager
- Project HSE Manager

- Site Manager
- Site HSE Manager
- Supervisors
- Warehouse supervisors
- Subcontractor's Site Manager
- Subcontractor's HSE Representative (s)
- Subcontractors' Supervisors
- Subcontractors' Personnel
- All other Personnel.

5.2 Reporting and emergency contacts

In this section, identify:

- *A contact person available 24 hours a day, 7 days per week who has authority to stop or direct works and manage complaints*
- *Procedures to be followed in the event of an environmental emergency (any event that causes or has potential to cause material harm to the environment)*
- *These procedures must include*
    - *names and all-hours contact details for emergency response personnel*
    - *the responsibilities of those personnel*
    - *contact details for emergency services*
    - *the location of on-site spill containment materials, Material Safety Data sheets and other information on any hazardous materials present*
    - *steps to be followed to minimise damage and control the emergency*
    - *notification instructions and contact details for relevant government agencies*

The following records will be maintained to demonstrate compliance with this CEMP:

- Incident register and reports
- Staff training register
- Complaints register
- Monitoring records where monitoring is undertaken as per the CEMP
- Results of any site monitoring undertake

5.2.1 Communication

In this section, identify and expand upon aspects of your corporate communication strategy relevant to the project such as:

- *Internal communications*
- *Toolbox meetings*
- *Handling of external communications (incl. community liaison)*
- *Meeting minutes and memos*
- *Public complaints*
- *Community liaison*

In all cases identify the person/s responsible for coordinating inputs, outputs and actions arising from these communication aspects.

5.3 Environmental training

All personnel working on site (including sub-contractors) must undergo a level of environmental management training commensurate with their responsibilities under the CEMP. Environmental training can take a variety of forms such as toolbox talks, meetings or more formal training and should include:

– A site induction
– Familiarisation with the requirements of the CEMP
– Any specific training required for particular aspects of the project e.g. dust management training for plant operators
– Familiarity with site environmental controls
– Emergency/incident response processes

In this section, identify:

– *The training that personnel working on the proposed development will have received (for example – general training identified above, specific training on certain sub-plans etc.).*
– *The party responsible for ensuring that all personnel have received the appropriate training.*
– *The location of records confirming who undertook which training events on which dates and who conducted the training.*

5.4 Emergency contacts and procedures

In this section, identify:

– *A contact person available 24 hours a day, 7 days per week who has authority to stop or direct works and manage complaints*
– *Procedures to be followed in the event of an environmental emergency (any event that causes or has potential to cause material harm to the environment)*
– *These procedures must include*
    - *names and all-hours contact details for emergency response personnel*
    - *the responsibilities of those personnel*
    - *contact details for emergency services*
    - *the location of on-site spill containment materials, Material Safety Data sheets and other information on any hazardous materials present*
    - *steps to be followed to minimise damage and control the emergency*
    - *notification instructions and contact details for relevant government agencies*

The Defence Environment and Heritage Manual sets out Defence's commitment to the continual improvement of its environmental performance. Effective Incident Management is required to successfully determine the need for corrective actions, identify trends and improve environmental performance in order to support the long-term sustainability of the ADF capability and the Defence estate.

Environmental incidents are reported using the Garrison Estate Management System (GEMS) Estate Incident process through two main pathways.

1. If you do not have access to GEMS, please complete the **GEMS Incident form**.

2. If you have access to the GEMS incident module, incidents can be directly entered into GEMS using the **Incident Notification and Recording reference guide**.

The Contractor is required to fill in the GEMS Incident Report Form and email it to the Principal Contractor for submission to Defence.

The **Defence Environmental Incident Reporting Guideline** provides general guidance on the environmental incident management process and requirements.

6. Potential environmental impacts and risks

6.1 Threats to matters protected under the EPBC Act

Potential impacts to MNES protected under the EPBC Act are outlined in Table 6.1.

Table 6.1 Overview of threats to MNES

MNES	Analysis
World Heritage properties	The Protected Matters Search Tool (PMST) results indicate there are no World Heritage properties within the search area. No impacts to World Heritage properties are anticipated as a result of the proposed action.
National Heritage places	Point Cook Air Base is listed as a National Heritage place (place ID 105671) for its historic heritage values. The proposed action involves the demolition of 19 buildings, 15 of which are identified as contributing to the heritage values of the Base. Two Heritage Impact Assessments have been prepared in support of the proposed action (ERM 2019, Biosis 2019) to assess the potential impacts to historic heritage values and National Heritage values.
Wetlands of international importance (Ramsar)	One wetland of international importance, Port Philip Bay (western shoreline) and bellarine peninsula, is located within the Base, approximately 3 km east of the proposed action. The proposed action is not located within the wetland catchment. Due to the location, minor scale and short duration of the proposed action, it is not likely to result in a significant impact on the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site. However, as the proposed action involved demolition and within an area of PFAS presence, environmental controls will be implemented for erosion and sediment, and waste and contamination management.
Great Barrier Reef Marine Park	The Great Barrier Reef Marine Park is not located within the search area. No impacts to the Great Barrier Reef Marine Park are anticipated as a result of the proposed action.
Commonwealth marine area	There are no Commonwealth marine areas located within the search area. No impacts to Commonwealth marine areas are anticipated as a result of the proposed action.
Listed Threatened Ecological Communities (TECs)	The proposed action is located in a developed area absent from native vegetation. Mapping indicates the proposed action is not located within an area where biodiversity values are present, additionally no TECs have been identified within the Base (AECOM, 2012). The proposed action is not anticipated to have any impacts to TECs.
Listed threatened species	Threatened flora and fauna species are present within the Base, however the proposed action is located within an area where no biodiversity values are present. Conservation areas of significance and native vegetation are located within the eastern and southern portions of the Base (AECOM 2012). The proposed action is located within a developed and highly modified area consisting primarily of buildings, exotic grass species and planted garden beds. The proposed action involves the demolition of 19 buildings which do not comprise as suitable habitat for threatened fauna species. Inspections of the buildings indicated some have birds and/or bats utilising the roof spaces, however the species and listing status is unknown (Aurecon 2019). The PMST results do not identify any threatened bat species as potentially occurring or being known to occur within the Base. Threatened bird species would be unlikely to utilise the buildings as habitat, and due to their mobility removal of the 19 buildings would not be likely to result in a significant impact. As there is potential for threatened bird species to utilise the buildings, pre-clearance survey mitigation measures are proposed.
Migratory species	The proposed action involves the demolition of 19 Assets which are not important habitat for migratory species The nearest habitat for listed migratory species is the Cheetham wetland located approximately 3 kilometres east of the proposed action. The proposed works are not located within the catchment of Cheetham wetland. Migratory species could potentially be impacted by noise during demolition activities. However due to the minor scale and short duration of the proposed action, and separation of the proposed action from key

MNES	Analysis
	habitat areas, it is not likely the proposed action will result in a significant impact on an EPBC Act listed migratory species.
Nuclear actions	The proposed action does not include a nuclear action and as such no impacts are anticipated.
A water resource (in relation to coal seam gas and large coal mining developments)	The proposed action does not include coal seam gas development or large coal mining development and as such no impacts are anticipated.

6.2 Potential impacts

Note: This section is to be completed by the Contractor. The following are a list of common environmental issues that should be considered during the preparation of the CEMP.

Sediment/Storm water protection and Pollution Prevention

- Design of adequate site specific erosion control features for surface water runoff and identification in the relevant plan
- Protection of drainage inlets
- HAZCHEM storage areas (location, bunding, material safety data sheet (MSDS) availability, spill equipment, fire fighting equipment)
- Identifying re-fuelling areas and re-fuelling procedures, spill kit type and location
- Stockpile management – sedimentation protection and rehabilitation procedure at conclusion of works and during inactivity, siting, recommended heights, types of material to be managed (e.g. topsoil/substrate), mulch (incl. fire risk) and time for materials to be left in-situ.
- Construction septic system management – alarms and back-ups
- Procedure for encountering groundwater/dewatering process
- Controls for system tests that may go wrong, eg fuel hydrant pressure testing, fire protection foam tests

Bushfire Management

- *Fire response and prevention (identifying no hot works on days with a Fire Danger Index of High or above,* response procedures)
- Stockpile management if mulch/compost is used

Landscape and Vegetation Management

- Discussion on establishment period (and any rehabilitation after failure) and any subsequent care required
- Suitability of stabilisation and cover crop species for natural areas vs cantonment/urban landscapes
- Suitability of proposed species for use in Asset Protection Zones/airfields/other areas with security requirements
- Intention to mulch or undertake other forms of stablisation/protection
- Protection of planted stock from feral or browsing species
- Tree protection procedures such as parking outside drip lines, tree replacement rationale
- Clear identification of tree and vegetation removal requirements with clear justification and inclusion of fauna spotters
- Timely submission and implementation of vegetation offset management plans or other offset plans e.g. hollow log homes
- Weed management including restrictions on vehicles and designation of no go areas
- Reporting process for sick/injured wildlife or discovery of unexpected habitat

Waste Management

– Management of airborne litter (especially in proximity to airfields)
– Routine clean up procedures and frequency
– Waste separation procedures and reporting on achievements (even if sub-contracted) such as waste diversion from landfill statistics
– Process for providing waste receipts demonstrating disposal at licenced facilities

Air Quality Management

– Dust suppression techniques and correlation to prevailing conditions (linkage to wind speeds for example)
– Vehicular/machinery compliance with emission standards

Heritage Management

– Acknowledgement of any likely finds
– Chance find protocols (what will be done and is that consistent with a Heritage Management Plan for the base/site?)

Contamination/Material Management

– Appropriate stockpiling methods in advance of offsite disposal
– Nomination of testing procedures to be followed in advance of offsite disposal
– Fire considerations when stockpiling materials

Noise

– Clear identification and justification for noisy tasks proposed to be undertaken outside normal hours, including mitigation measures to reduce impacts

Light Pollution

– Consideration of direction and shielding in proximity to critical areas such as airfields and residences

6.3 Risk assessment

Note: Risk assessment to be revised by the contractor in line with completed Environment Report and approvals on award of tender. Further guidance on evaluating and managing risk can be found in AS/NZS ISO 31000:2009 Risk management – Principles and guidelines (Standards Australia 2009).

Each environmental risk should be given a rating in terms of likelihood and consequence using the criteria below. These ratings are then combined using Table 6.4 to generate a risk rating of low, medium, high or severe.

Table 6.2 Likelihood definitions

Qualitative measures of likelihood (how likely it is that this event/issue will occur after control strategies have been put in place)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

Table 6.3 Consequence definitions

Qualitative measures of consequences (what will be the consequence/result if this issue does occur rating)	
Minor	Minor Incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage.

Using the risk table rating below you can determine whether your risk is low, medium, high or severe.

Table 6.4 Risk matrix

	Minor	Moderate	High	Major	Critical
High Likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium

Table 6.5 Environmental risk assessment

Hazard	Inherent risk			Mitigation measures	Residual risk (following application of mitigation measures)		
	Consequence	Likelihood	Risk rating		Consequence	Likelihood	Risk rating
Environmental matter (i.e. heritage)							
Description of hazard				Description of mitigation measures			
Environmental matter (i.e. hazardous materials)							
Environmental matter (i.e. hazardous materials)							
Environmental matter (i.e. hazardous materials)							

7. Environmental management measures

This section of the CEMP must explain how environmental management activities and controls will be monitored for each phase of the construction (site establishment, construction, de-mobilisation and defect liability period). Monitoring should be conducted in accordance with the requirements established within the Aspects and Impacts Register and/or any relevant environmental sub-plans.

A monitoring checklist shall be developed that specifies:

- *When environmental control activities need to be carried out*
- *Who is responsible for carrying them out*
- *What methods will be used to measure effectiveness*
- *Space for sign-off to confirm the measure was undertaken and is working*
- *Any follow-up actions (such as non-conformance reports) and who is responsible for them*

Details on how monitoring records will be collated, distributed, and stored should also be included.

Where monitoring requires the use of technical equipment, specify the approach required for equipment calibration.

7.1 Environmental management activities and controls

The mitigation measures provided in Table 7.1 are to be implemented in the CEMP and throughout construction to reduce environmental harm and human risks resulting from the proposed works.

Table 7.1 Mitigation measures

Aspect	Measure
General	
Construction	– Prepare and implement a project specific Construction Environmental Management Plan (CEMP) developed in accordance with the DCCEEW *Environmental Management Plan Guidelines 2014* that incorporates project specific environmental controls. – The CEMP must be reviewed and approved by Defence prior to implementation. – The CEMP must include at a minimum: • Measures that address the conditions of any approvals associated with the proposed action. • Erosion and sediment control plan including soil stabilisation measures, that is to be regularly updated based upon work staging and site conditions. • Contamination Management Plan, including an unexpected find protocol for contamination that aligns with Appendix E *Generic Protocol for Unexpected Finds* of DCMM Annex B, and includes a spill management procedure. • Hazardous materials management plan that is in accordance with the Defence Security and Estate Group (S&EG) Asbestos Management Plan and PFAS Construction and Maintenance Framework including a protocol for chance finds of hazardous materials. • Waste Management Plan, including State waste disposal requirements. • Weed Management Plan, including vehicle hygiene requirements, and measures to avoid introduction of spread of weeds as a result of construction. • Fauna management plan, including clearing protocols in consideration of threatened species and requirements for a fauna spotter-catcher, and incident response. • Noise and Dust Management Plan to minimise impact to neighbouring sensitive receivers. • Unexpected Aboriginal Heritage finds protocol in accordance with the RAAF Base Cook Heritage Management Plan (HMP).

Aspect	Measure
	• Notification requirements for incidents that accord with the Defence *Environmental Incident Reporting Guideline.* – During construction, the contractor must implement appropriate construction monitoring to demonstrate management measures are meeting the objectives of the CEMP. These include regular inspections and maintenance and rectification of controls. – The CEMP will include requirements for soil contamination testing, Base management, disposal requirements, and any other factors relevant to environmentally responsible management of the proposed action. For the duration of the proposed action, the contractor(s) will be required to operate under the Environmental Management System for RAAF Base Point Cook. – The CEMP must include a mechanism for continual improvement, and updates are to be notified to site personnel and provided to Defence for approval prior to implementation. – During construction, the contractor must implement appropriate construction monitoring to demonstrate management measures are meeting the objectives of the plan. These include regular inspections and maintenance and rectification of controls.
Training	– All site personnel are to attend an environmental induction prior to commencing work on the proposed action. The induction is to be comprehensive and cover: • Relevant conditions of approval for the proposed action. • Proposed action context and details of site constraints. • Spill and soil management protocols. • Vehicle hygiene requirements. • Unexpected finds and incident response and reporting requirements. • Heritage management plan requirements. • Areas of contamination within the proposed action area.
Incident response	– Report environmental incidents (an environmental incident is any non-routine event or occurrence that may have an effect on the environment) to the Base ESM immediately, in accordance with the Defence Environmental Incident Reporting Guideline.
Timing of works	– Conduct fieldwork in suitable weather conditions, and avoid activities during periods of heavy rainfall that could potentially increase migration of contaminants and soil erosion potential
Heritage	
Planning and design	– A targeted interpretation strategy will focus on the Assets proposed for removal and give guidance and planning tools to ensure the stories of those Assets are later presented within the Base in a tangible, compelling and practical manner. – Archival recording of Assets proposed for removal will be undertaken. To do this, Defence will undertake: • A full archival recording of the Assets impacted by the proposed action. The full archival record will be consistent with the guidelines '*How to prepare archival records of heritage items*' (NSW Heritage Office 1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office, 2006). The archival recording will include an Oral History. • Include the construction instructions for the Bellman Hangars in the RAAF Museum Point Cook collection. • Deposit the Archival record with an appropriate publicly accessible repository, such as the National Archives. A copy of the Archival Recording will also be retained on the Base for future research and appreciation. • Prepare a Heritage Interpretation Plan for RAAF Base Point Cook within two years of commencement and in consultation with DCCEEW, with a focus on the heritage buildings impacted. The Heritage Interpretation Plan will be in accordance with the RAAF Base Point Cook HMP interpretation policies. • Install interpretative signage regarding the significance of the South Tarmac Precinct and provide historical imagery and information around the Base. • Include a small publication on WWII era assets across the Base as part of the heritage interpretation for RAAF Base Point Cook. • Retain Asset footings within the South Tarmac Precinct, to demonstrate WWII functional and spatial relationship between the Assets. If retention of footings/layout elements is not feasible, for example in

Aspect	Measure
	the advent of future development, subtle design interventions will be included as interpretation methods. Design interventions will be informed by a suitably qualified heritage expert. • Revise the Base HMP within two years of commencement to provide for the protection and management of the remaining heritage values at RAAF Base Point Cook. – Defence will commission archival recording of the heritage assets in accordance with the Burra Charter principles and guided by the NSW Heritage Office *Interpreting Heritage Places and Items: Guidelines* (2005). These guidelines are recognised in the Defence Heritage Toolkit as best practice guidelines. The archival recording will be completed before any demolition works begin. Internal archival recording cannot be undertaken in locations deemed unsafe in line with work health and safety obligations. – Archival recording will ensure high quality documentation of the heritage values, including a report detailing the appearance, construction and history of the site and the assets as they existed prior to removal. – A record of changes that occur to heritage assets at RAAF Base Point Cook will be centrally managed by Defence Service Delivery Division. – Archival documents will be retained on Base, in the Garrison Estate Management System (GEMS) and a copy lodged with DCCEEW to provide adequate, publicly accessible information for future reference. – Additional research will be undertaken to inform a small publication on WWII era assets across the Base, with possible areas of focus on use of: • The Bellman Hangars to the South Tarmac • The function of Assets 122 and 221 • The difference between P1 and RAAF Standard Huts • Oral histories on the use of the Huts by the various Base clubs (e.g., Point Cook Flying Club), in accordance with HMP Policy 29 . – The corridor commencing at the entry gates or museum car park, looping around Cole Street and Dalzell Road (South), at the southern boundary of the Parade Ground and north along Williams Road has been identified as an appropriate location for interpretation of the significance of the South Tarmac Precinct. This location will provide historical imagery and information about this place, given that public access to the area is likely to be restricted (HMP Policy 27).
Construction	– Develop and implement a CEMP to appropriately manage known heritage values. The CEMP is to include separate Indigenous heritage, historic, natural heritage management plans where required. – Include an unexpected finds protocol for both historic and Indigenous heritage in the CEMP in accordance with the unexpected finds protocol from the RAAF Base Point Cook HMP. – Implement site specific heritage protection management procedures during construction. – As part of the project's CEMP, all newly discovered Indigenous archaeological sites (i.e., loci with artefacts) will be fully recorded and a site recording will be submitted to Aboriginal Affairs Victoria (HMP Policy 23). Works in the vicinity of the find can only recommence under instruction from the ADES.
Operations	– Ongoing management of the heritage values of RAAF Base Point Cook will occur via the HMP. – The HMP will be updated to reflect the changes in heritage values at the Base as a result of the proposed action.
Contamination/PFAS	
Contaminated materials	– Develop and implement a Contamination Management Plan specific to the proposed action, in accordance with the Defence Contamination Management Manual (2021) and its Annexures, including: • Annex B - Investigations, Remediation and Management • Annex C - Planning to Minimise and Manage Stockpiling • Annex J – Infrastructure Demolition – The Contamination Management Plan is to be developed and implemented in accordance with the Defence PFAS Construction and Maintenance Framework regarding soil management (Chapter 3) and construction and demolition waste (Chapter 5). – Spill response protocol to be included in the Contractor's CEMP. – Spillage of fuel, dangerous goods and hazardous materials from vehicles, storage facilities and construction areas are remediated at the time of occurrence and is reported to the appropriate authority.

Aspect	Measure
	– Erosion and sediment control to be in accordance with the International Erosion Control Association guidelines. Erosion and sediment controls must be maintained throughout the construction period and inspected for integrity. Rectification to controls is to be implemented as identified. Temporary controls must be removed on completion of works. – Periods of rain and or flooding can increase migration of materials from the site, consequently works are to be undertaken predominately during calm weather and to cease during periods of heavy or prolonged rainfall. – Appropriately locate temporary stockpile areas for materials to reduce or prevent potential mobilisation of materials to surface water.
Waste materials	– Develop and implement a Waste Management Plan, including: • Statutory requirements for offsite waste disposal in Victoria • Systems to sort and track the actual types and quantities of waste generated • Options for reuse, reprocessing, recycling • Maintain documents and records of the transport and fates of all materials removed from the Base. – Apply the waste minimisation principles (waste hierarchy) during design and construction phases of the proposed action in accordance with Defence Environment and Heritage Manual, the Defence Smart Infrastructure Handbook 2019 and with reference to the National Waste Policy 2018 and the National Waste Policy Action Plan 2019. – Identify options for reuse of materials if suitable use is available. – All hazardous building material generated from demolition and refurbishment activities is to be managed in accordance with Defence DCMM Annex J – Infrastructure Demolition and Defence PFAS Construction and Maintenance Framework Construction and Demolition Waste (Chapter 5) – Asbestos containing material in buildings and structures, and asbestos in soil and as surface contamination to be managed in accordance with the requirements and procedures set out in the Defence S&EG Asbestos Management Plan, Version 5.1, 2022.
Flora and fauna	
Fauna	– Assets are to be checked for presence of fauna species prior to demolition by a qualified fauna spotter/catcher. – Implement practical measures and operational procedures to minimise vibration and noise that may impact noise sensitive fauna. – Inductions to include fauna management requirements. – Fauna are not to be harmed during works.
Flora	– Implement standard vehicle hygiene measures for vehicles to prevent the introduction and spread of weed species and soil pathogens during construction. – Prevent construction personnel from entering areas outside of project-related activities to minimise vegetation damage.

7.2 Performance targets

Note: Contractor is to provide environmental performance targets with clear indicators of success (i.e. no non-conformances).

7.3 Corrective actions and non-compliance reporting

Complaints will be managed as a matter of priority by the Contractor. Complaints that are advised to any member of the Project Team will be escalated to the Contractor's Project Manager for review and corrective action. All complaints received whilst on site will be communicated to ESM for their situational awareness and action as required. Reports of the complaint will include the following details:

– Date of the event that resulted in a complaint

– Location
– Description of the events that occurred
– Description of immediate actions taken
– Corrective actions

Follow up reporting to confirm the complaint has been addressed and closed out. Table 7.2 reflects the detail that will needs to be captured.

Table 7.2 Complaint Register

Action #	Date	Raised by	Issue	Corrective action	Action by	Status	Comments

7.4 Environmental schedules

Management schedules are forms, registers or reports used during the day-to-day management of a project. Relevant schedules must be included in a CEMP.

Examples include:

– Site Inspection Checklist
– Non-compliance and Corrective Action Report
– Complaint Report
– Environmental Incident Report
– Environmental Training Register
– Waste Register.

8. Audit and review

8.1 Environmental auditing

The process and frequency of periodic auditing of the plan's implementation and effectiveness is to be detailed.

The audit program and procedures should cover both internal and any external auditing requirements. It should include the scope, frequency and methods, as well as responsibilities and requirements for conducting audits and reporting results.

The frequency of auditing should be related to the inherent environmental risk associated with the project – the more environmental aspects potentially significantly impacted by the project the more frequent the auditing should be. Scope of the audits should be guided by the findings of the risk assessment and whether project approval conditions require compliance auditing. The findings of the audit should be fed into the CEMP Reviews. Audit findings will also provide guidance on the rate of audit recurrence required.

8.2 Environmental management plan review

Note: The Contractor must detail requirements for a CEMP review. Suggested triggers below.

The CEMP is not a static document and a review would be triggered by:

– Additional conditions included in the approval to commence works
– Change in project scope
– Outcomes from an environmental incident investigation
– Improvement opportunities identified through audit or inspection
– Change in legislative requirements.

A review and update of the CEMP would require it to be distributed to the key parties identified in the CEMP roles and responsibilities (refer to Section 5). Defence may require resubmission of the CEMP for approval. An update of the CEMP would also require refresher training (e.g. toolbox talk) to be provided to all site personnel including subcontractors. CEMP reviews must be documented and included in CEMP revisions.

Acronyms and abbreviations

Term	Definition
ADF	Australian Defence Force
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCMM	Defence Contamination Management Manual
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EMP	Environmental Management Plan
ESM	Environment & Sustainability Manager
GEMS	Garrison Estate Management System
HMP	Heritage Management Plan
HSE	Health Safety Environment
MNES	Matters of National Environmental Significance
MSDS	Material Safety Data Sheet
PFAS	Per- and polyfluoroalkyl substances
PMST	Protected Matters Seach Tool
TEC	Threatened Ecological Community
S&EG	Defence Security and Estate Group

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Attachment 9

PMST search results

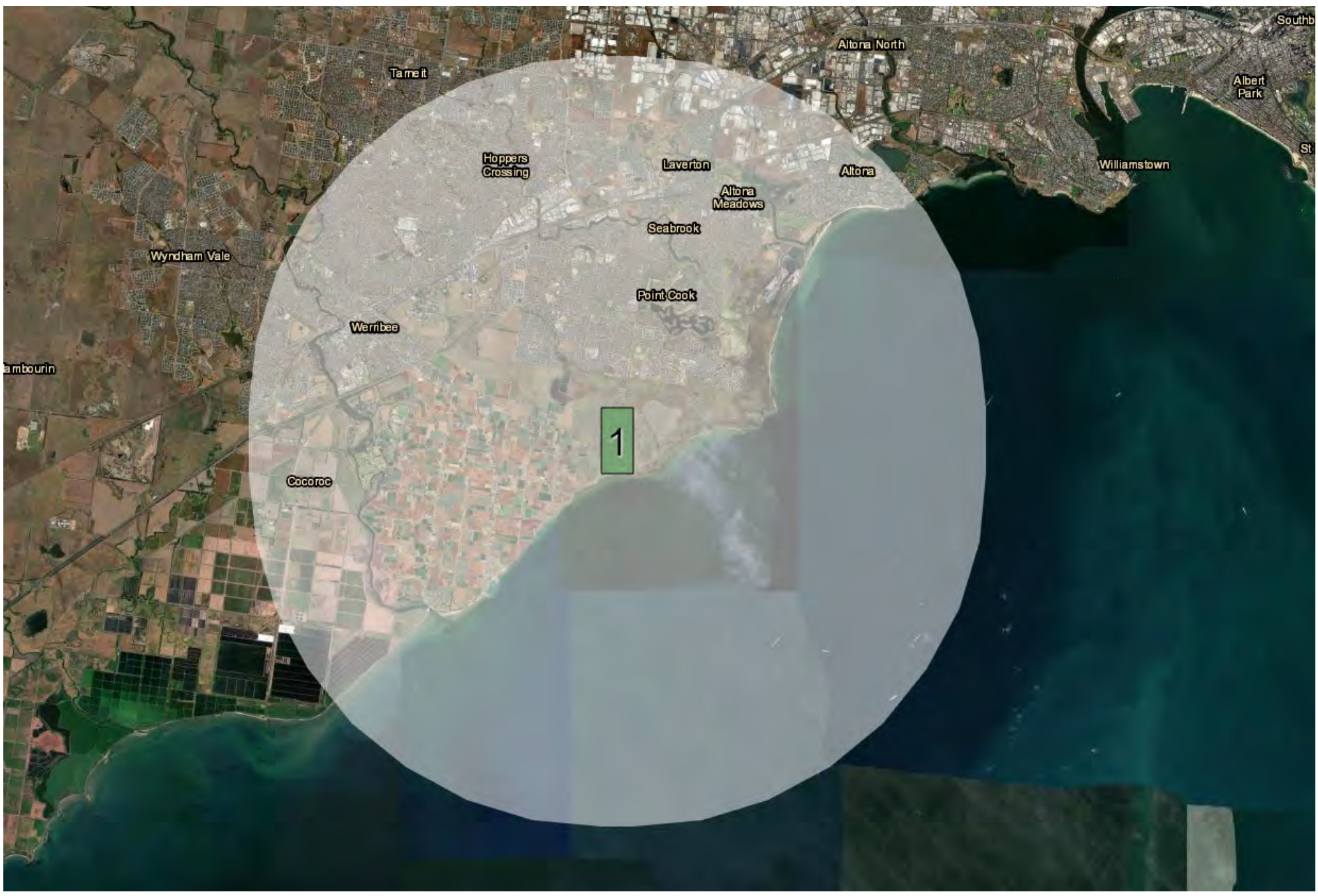
Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 30-Oct-2023



Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	81
Listed Migratory Species:	65

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	93
Commonwealth Heritage Places:	5
Listed Marine Species:	78
Whales and Other Cetaceans:	7
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	6
Regional Forest Agreements:	1
Nationally Important Wetlands:	2
EPBC Act Referrals:	92
Key Ecological Features (Marine):	None
Biologically Important Areas:	5
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Historic			
Point Cook Air Base	VIC	Listed place	In feature area

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Port phillip bay (western shoreline) and bellarine peninsula	Within Ramsar site	In feature area

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Community known to occur within area	In feature area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area	In buffer area only
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community may occur within area	In feature area
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Community likely to occur within area	In feature area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area	In buffer area only
FISH			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Galaxiella pusilla			
Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Nannoperca obscura			
Yarra Pygmy Perch [26177]	Vulnerable	Species or species habitat may occur within area	In feature area
Prototroctes maraena			
Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In feature area
Thunnus maccoyii			
Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
Litoria raniformis			
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Synemon plana			
Golden Sun Moth [25234]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
Antechinus minimus maritimus			
Swamp Antechinus (mainland) [83086]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In buffer area only
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pteropus poliocephalus](#) Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
PLANT			
[Amphibromus fluitans](#) River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Dianella amoena](#) Matted Flax-lily [64886]	Endangered	Species or species habitat known to occur within area	In feature area
[Diuris basaltica](#) Small Golden Moths Orchid, Early Golden Moths [64654]	Endangered	Species or species habitat may occur within area	In feature area
[Diuris fragrantissima](#) Sunshine Diuris, Fragrant Doubletail, White Diuris [21243]	Endangered	Species or species habitat known to occur within area	In feature area
[Dodonaea procumbens](#) Trailing Hop-bush [12149]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Glycine latrobeana](#) Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Lachnagrostis adamsonii](#) Adamson's Blown-grass, Adamson's Blowngrass [76211]	Endangered	Species or species habitat may occur within area	In feature area
[Lepidium aschersonii](#) Spiny Peppercress [10976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Lepidium hyssopifolium](#) Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area	In feature area
[Leucochrysum albicans subsp. tricolor](#) Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pimelea spinescens subsp. spinescens](#) Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea [21980]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pterostylis chlorogramma](#) Green-striped Greenhood [56510]	Vulnerable	Species or species habitat may occur within area	In feature area
[Pterostylis cucullata](#) Leafy Greenhood [15459]	Vulnerable	Species or species habitat may occur within area	In feature area
[Rutidosis leptorhynchoides](#) Button Wrinklewort [67251]	Endangered	Species or species habitat known to occur within area	In feature area
[Senecio macrocarpus](#) Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Senecio psilocarpus](#) Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Thelymitra orientalis](#) Hoary Sun-orchid [88011]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Xerochrysum palustre](#) Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat may occur within area	In buffer area only
REPTILE			
[Aprasia parapulchella](#) Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Delma impar			
Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Lissolepis coventryi			
Swamp Skink, Eastern Mourning Skink [84053]	Endangered	Species or species habitat likely to occur within area	In feature area
Tympanocryptis pinguicolla			
Victorian Grassland Earless Dragon [66727]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
SHARK			
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Galeorhinus galeus			
School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea			
Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis			
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Lagenorhynchus obscurus			
Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Lamna nasus			
Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In feature area
Megaptera novaeangliae			
Humpback Whale [38]		Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis			
Black-faced Monarch [609]		Species or species habitat may occur within area	In buffer area only
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Arenaria interpres](#) Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Roosting known to occur within area	In feature area
[Calidris subminuta](#) Long-toed Stint [861]		Roosting known to occur within area	In feature area
[Calidris tenuirostris](#) Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
[Charadrius bicinctus](#) Double-banded Plover [895]		Roosting known to occur within area	In feature area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Charadrius mongolus](#) Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
[Gallinago megala](#) Swinhoe's Snipe [864]		Roosting likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - RAAF WILLIAMS - POINT COOK [20013]	VIC	In feature area
Defence - Shop 13 [21429]	VIC	In buffer area only
Defence - Shop 13 [21428]	VIC	In buffer area only
Defence - Shop 13 [21423]	VIC	In buffer area only
Defence - Shop 13 [21427]	VIC	In buffer area only
Defence - Shop 13 [21426]	VIC	In buffer area only
Defence - Shop 13 [21425]	VIC	In buffer area only
Defence - Shop 13 [21424]	VIC	In buffer area only
Defence - Shop 13 [21430]	VIC	In buffer area only
Defence - Shop 13 [21438]	VIC	In buffer area only
Defence - Shop 13 [21431]	VIC	In buffer area only
Defence - Shop 13 [21432]	VIC	In buffer area only
Defence - Shop 13 [21433]	VIC	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - Shop 13 [21434]	VIC	In buffer area only
Defence - Shop 13 [21435]	VIC	In buffer area only
Defence - Shop 13 [21436]	VIC	In buffer area only
Defence - Shop 13 [21437]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20023]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20022]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20021]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20020]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20026]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20027]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20024]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20025]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20017]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20016]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20028]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20019]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20018]	VIC	In buffer area only
Defence - WILLIAMS - LAVERTON RAAF BASE [20015]	VIC	In buffer area only
Unknown		
Commonwealth Land - [21512]	VIC	In buffer area only
Commonwealth Land - [21513]	VIC	In buffer area only
Commonwealth Land - [21637]	VIC	In buffer area only
Commonwealth Land - [21524]	VIC	In buffer area only
Commonwealth Land - [21514]	VIC	In buffer area only
Commonwealth Land - [21636]	VIC	In buffer area only
Commonwealth Land - [21523]	VIC	In buffer area only
Commonwealth Land - [21510]	VIC	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [21516]	VIC	In buffer area only
Commonwealth Land - [21515]	VIC	In buffer area only
Commonwealth Land - [21511]	VIC	In buffer area only
Commonwealth Land - [21659]	VIC	In buffer area only
Commonwealth Land - [21654]	VIC	In buffer area only
Commonwealth Land - [21658]	VIC	In buffer area only
Commonwealth Land - [21657]	VIC	In buffer area only
Commonwealth Land - [21650]	VIC	In buffer area only
Commonwealth Land - [21655]	VIC	In buffer area only
Commonwealth Land - [21656]	VIC	In buffer area only
Commonwealth Land - [21653]	VIC	In buffer area only
Commonwealth Land - [21651]	VIC	In buffer area only
Commonwealth Land - [21639]	VIC	In buffer area only
Commonwealth Land - [21652]	VIC	In buffer area only
Commonwealth Land - [21638]	VIC	In buffer area only
Commonwealth Land - [21634]	VIC	In buffer area only
Commonwealth Land - [21635]	VIC	In buffer area only
Commonwealth Land - [21630]	VIC	In buffer area only
Commonwealth Land - [21631]	VIC	In buffer area only
Commonwealth Land - [21632]	VIC	In buffer area only
Commonwealth Land - [21633]	VIC	In buffer area only
Commonwealth Land - [21558]	VIC	In buffer area only
Commonwealth Land - [21649]	VIC	In buffer area only
Commonwealth Land - [21648]	VIC	In buffer area only
Commonwealth Land - [21647]	VIC	In buffer area only
Commonwealth Land - [21646]	VIC	In buffer area only
Commonwealth Land - [21645]	VIC	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [21644]	VIC	In buffer area only
Commonwealth Land - [21643]	VIC	In buffer area only
Commonwealth Land - [21642]	VIC	In buffer area only
Commonwealth Land - [21628]	VIC	In buffer area only
Commonwealth Land - [21641]	VIC	In buffer area only
Commonwealth Land - [21629]	VIC	In buffer area only
Commonwealth Land - [21621]	VIC	In buffer area only
Commonwealth Land - [22896]	VIC	In buffer area only
Commonwealth Land - [21614]	VIC	In buffer area only
Commonwealth Land - [21615]	VIC	In buffer area only
Commonwealth Land - [21616]	VIC	In buffer area only
Commonwealth Land - [21617]	VIC	In buffer area only
Commonwealth Land - [21618]	VIC	In buffer area only
Commonwealth Land - [21619]	VIC	In buffer area only
Commonwealth Land - [22897]	VIC	In buffer area only
Commonwealth Land - [21627]	VIC	In buffer area only
Commonwealth Land - [21624]	VIC	In buffer area only
Commonwealth Land - [21626]	VIC	In buffer area only
Commonwealth Land - [21623]	VIC	In buffer area only
Commonwealth Land - [21620]	VIC	In buffer area only
Commonwealth Land - [21625]	VIC	In buffer area only
Commonwealth Land - [21622]	VIC	In buffer area only
Commonwealth Land - [21640]	VIC	In buffer area only
Commonwealth Land - [22011]	VIC	In buffer area only
Commonwealth Land - [22016]	VIC	In buffer area only
Commonwealth Land - [22018]	VIC	In buffer area only
Commonwealth Land - [21517]	VIC	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
Officers Mess - RAAF Williams Laverton Base	VIC	Listed place	In buffer area only
Point Cook Air Base	VIC	Listed place	In feature area
Point Cook Air Base - College & Training Area	VIC	Within listed place	In feature area
Point Cook Air Base - Museum & Heritage Precincts	VIC	Within listed place	In feature area
RAAF Williams Laverton - Eastern Hangars and West Workshops Precincts	VIC	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In feature area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Limicola falcinellus](#) Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In feature area
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
[Limosa limosa](#) Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In feature area
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area	In buffer area only
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pluvialis fulva](#) Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
[Pluvialis squatarola](#) Grey Plover [865]		Roosting known to occur within area overfly marine area	In buffer area only
[Recurvirostra novaehollandiae](#) Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
[Rostratula australis as Rostratula benghalensis (sensu lato)](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Sterna striata](#) White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area
[Sternula albifrons as Sterna albifrons](#) Little Tern [82849]		Species or species habitat may occur within area	In feature area
[Stiltia isabella](#) Australian Pratincole [818]		Roosting known to occur within area overfly marine area	In buffer area only
[Thalassarche bulleri](#) Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
[Thalassarche bulleri platei as Thalassarche sp. nov.](#) Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
[Thalassarche carteri](#) Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area	In buffer area only
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area overfly marine area	In buffer area only
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In feature area
[Xenus cinereus](#) Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In buffer area only
Mammal			
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In feature area
[Arctocephalus pusillus](#) Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In feature area
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
[Caperea marginata](#) Pygmy Right Whale [39]		Species or species habitat may occur within area	In feature area
[Delphinus delphis](#) Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat may occur within area	In feature area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Altona Meadows N.F.R	Natural Features Reserve	VIC	In buffer area only
Altona N.C.R.	Natural Features Reserve	VIC	In buffer area only
Angliss Grassland (Laverton North) N.C.R.	Natural Features Reserve	VIC	In buffer area only
Laverton Grasslands F.R.	Nature Conservation Reserve	VIC	In buffer area only
Point Cooke	Marine Sanctuary	VIC	In buffer area only
Truganina South N.C.R.	Nature Conservation Reserve	VIC	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
West Victoria RFA	Victoria	In feature area

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Point Cook & Laverton Saltworks	VIC	In buffer area only
Werribee-Avalon Area	VIC	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Aviators Field Precinct Structure Plan	2020/8786		Completed	In feature area
Vopak Victoria Energy Terminal	2023/09507		Assessment	In buffer area only
Controlled action				
Changes in land use at the Western Treatment Plant Werribee, Victoria	2008/4221	Controlled Action	Post-Approval	In buffer area only
Demoltion of structures at RAAF Williams - Point Cook	2019/8514	Controlled Action	Assessment Approach	In feature area
Development of Shipping Container Storage Facility	2005/2161	Controlled Action	Completed	In feature area
Expansion of the Methanol Plant at 171-181 Fitzgerald Road	2013/6837	Controlled Action	Post-Approval	In buffer area only
Housing subdivision	2003/960	Controlled Action	Post-Approval	In buffer area only
Industrial Development, 10 Gordon Luck Avenue, Altona, Vic	2017/7914	Controlled Action	Post-Approval	In buffer area only
Industrial Development, Burns Road	2004/1820	Controlled Action	Post-Approval	In feature area
Industrial Development Lot 1 Maidstone Street	2011/6057	Controlled Action	Post-Approval	In buffer area only
Industrial development - rail transfer hub, Ajax Road, Altona, Vic	2013/6714	Controlled Action	Completed	In buffer area only
Industrial subdivision	2007/3384	Controlled Action	Post-Approval	In buffer area only
Industrial Subdivision, 16-36 Dohertys Road, Laverton North, Vic	2019/8428	Controlled Action	Post-Approval	In buffer area only
Industrial subdivision, Lot H, Ajax Road, Altona	2014/7208	Controlled Action	Post-Approval	In buffer area only
Industrial Subdivision at 33 Jordan Close	2009/5255	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Laverton activity centre and residential development	2006/2504	Controlled Action	Post-Approval	In buffer area only
Mixed Residential Development, Homestead Road	2006/2819	Controlled Action	Post-Approval	In buffer area only
Palmers Road Corridor Duplication	2009/4867	Controlled Action	Completed	In buffer area only
Port Phillip Bay Channel Deepening	2002/576	Controlled Action	Post-Approval	In buffer area only
Proposed Industrial Development at Lot A, 650-62 Kororoit Creek, VIC	2012/6420	Controlled Action	Post-Approval	In buffer area only
Removal of the Bellman Hangars Due to Structural Deterioration	2008/4251	Controlled Action	Completed	In feature area
Residential development including road and drainage infrastructure	2010/5791	Controlled Action	Post-Approval	In buffer area only
Riverwalk Project Residential Development	2006/3176	Controlled Action	Post-Approval	In buffer area only
Waterhaven Estate I and II residential development (stages 5, 6 and final), P...	2004/1680	Controlled Action	Post-Approval	In buffer area only
Western Treatment Plant Environment Improvement Project (post Effluent Reuse Stage 2)	2002/688	Controlled Action	Post-Approval	In buffer area only
Wyndham Cove marina and residential development	2004/1331	Controlled Action	Post-Approval	In feature area
Not controlled action				
Aboriginal and Historical Cultural Heritage Sub-Surface Testing	2008/4202	Not Controlled Action	Completed	In buffer area only
Angliss Industrial Estate Development	2000/67	Not Controlled Action	Completed	In buffer area only
Biogas Utilisation Facility	2000/100	Not Controlled Action	Completed	In buffer area only
Coles Tarneit West Development	2012/6308	Not Controlled Action	Completed	In buffer area only
Construction of a 275 lot residential subdivision, Truganina, Victoria	2004/1821	Not Controlled Action	Completed	In buffer area only
Construction of a pressure sewer pipeline beneath the Werribee River	2009/4918	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Construction of high pressure steel gas main along Caroline Springs Bvd crossing	2005/1968	Not Controlled Action	Completed	In buffer area only
Davis Creek Primary School, 65 Wootten Road, Tarneit, Victoria	2019/8401	Not Controlled Action	Completed	In buffer area only
Desludging and Reinstatement of Lagoons at Altona Treatment Plant	2006/3166	Not Controlled Action	Completed	In buffer area only
develop 8.37 ha industrial subdivision	2005/2190	Not Controlled Action	Completed	In feature area
Development of a Rail Freight Hub and Inland Container Port	2006/3101	Not Controlled Action	Completed	In buffer area only
Effluent Reuse Stage 2	2001/273	Not Controlled Action	Completed	In buffer area only
Enviro Altona Project - Upgrade of City West Water's Treatment Plant Facility	2003/968	Not Controlled Action	Completed	In buffer area only
Expansion and upgrade of Biogas Utilisation Facilities at the Western Treatment	2005/2183	Not Controlled Action	Completed	In buffer area only
Federation Trail	2001/451	Not Controlled Action	Completed	In buffer area only
Grahams Reserve Landscaping & Rehabilitation Program	2003/955	Not Controlled Action	Completed	In buffer area only
Grahams Reserve Weed and Pest Animal Control Program	2002/625	Not Controlled Action	Completed	In buffer area only
Grahams Wetland Reserve walking bay trail connection, south of Werribee, Vic	2013/7097	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Industrial Development, Burns Road, Marshall Court	2004/1901	Not Controlled Action	Completed	In buffer area only
Industrial Development 39-43 Marshall Court, Altona, VIC	2018/8267	Not Controlled Action	Completed	In buffer area only
Laverton Creek Shared Pathway, Laverton North, Vic	2018/8181	Not Controlled Action	Completed	In buffer area only
Laverton Recreation Reserve Stormwater Harvesting Scheme,	2012/6513	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
VIC				
Modifications to Laverton Wetland inflow & outflow structures	2009/5249	Not Controlled Action	Completed	In buffer area only
Palmers Road Rail Overpass and Bridge Works	2010/5738	Not Controlled Action	Completed	In buffer area only
Pipeline to transport recycled waste water	2002/646	Not Controlled Action	Completed	In buffer area only
Point Cooke Coastal Trail	2001/324	Not Controlled Action	Completed	In feature area
Point Cooke recreational trail Stage 2	2002/593	Not Controlled Action	Completed	In buffer area only
Port Phillip Channel Deepening Project - Trial Dredge Program	2005/2164	Not Controlled Action	Completed	In buffer area only
Proposed Footbridge in Wyndham Park, Werribee	2008/4423	Not Controlled Action	Completed	In buffer area only
Regional Fast Rail Project - Geelong Country Works Package	2002/577	Not Controlled Action	Completed	In buffer area only
Reinstate rail link between Footscray Rd and Webb Dock	2004/1438	Not Controlled Action	Completed	In buffer area only
Removal of Sludge to Produce Dried Biosolids, Western Treatment Plant	2002/890	Not Controlled Action	Completed	In buffer area only
Residential development 360-438 Point Cook Road, Point Cook, Vic	2014/7381	Not Controlled Action	Completed	In buffer area only
Residential development - 609 Ballarat Rd, Albion	2006/2575	Not Controlled Action	Completed	In buffer area only
Sanctuary Lakes Recycled Water Main between Altona Treatment Plant to the Sanctu	2007/3645	Not Controlled Action	Completed	In buffer area only
Sludge handling and biosolids management - Western Treatment Plant	2006/2620	Not Controlled Action	Completed	In buffer area only
St Andrews Field Residential Development & Infrastructure	2004/1468	Not Controlled Action	Completed	In buffer area only
subdivision of 195ha into industrial allotments	2005/2048	Not Controlled Action	Completed	In buffer area only
The Development of Werribee River Regional Park	2009/5246	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Upgrade of railway between Laverton Station and Altona Loop	2008/4677	Not Controlled Action	Completed	In buffer area only
Werribee Leisure Centre, Vic	2012/6536	Not Controlled Action	Completed	In buffer area only
Werribee Open Range Zoo - Werribee River Crossing Upgrade	2012/6540	Not Controlled Action	Completed	In buffer area only
Werribee River Weed & Pest Control Program	2002/833	Not Controlled Action	Completed	In buffer area only
Western Distributor Project Melbourne, Vic	2015/7620	Not Controlled Action	Completed	In buffer area only
Western Treatment Plant Stage 2 Augmentation Project, Werribee, Vic	2015/7515	Not Controlled Action	Completed	In buffer area only
West Werribee Dual Water Supply Scheme - Stage One	2010/5743	Not Controlled Action	Completed	In buffer area only
Williams Landing Railway Station Development	2010/5464	Not Controlled Action	Completed	In buffer area only
WTP 115E Lagoon Seawall, Western Treatment Plant WTP, Werribee Victoria	2019/8577	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
'Waterhaven Estate' Residential Development (Stages 3 & 4)	2003/1149	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Class C Recycled Water Supply Reliabilty Improvement at Western Treatment Plant	2011/5921	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Point Cook Coastal Park Bay Trail Construction (Stage 3, nth part)	2008/4023	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Recycled water main from Altona Treatment Plant to the Qenos Olefins Manuf. Plan	2009/4923	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Regional Fibre Optic Project (RFOP)	2003/913	Not Controlled Action (Particular	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
		Manner)		
Residential Development Stage 1	2003/1185	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Upgrade of capacity and supporting infrastructure, Western Treatment Plant	2009/5036	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Westpoint Business Park	2001/191	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Windsor Park Residential Development	2001/272	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
'Waterhaven Estate' residential development (final stage)	2004/1607	Referral Decision	Completed	In feature area
Construction of an upgraded drainage outfall within an area known as Reserve C	2013/6808	Referral Decision	Completed	In buffer area only
Industrial Development: 39-58 Marshall Court, Altona North, VIC	2018/8154	Referral Decision	Completed	In buffer area only
Rail Transfer Hub and Industrial Development, Ajax Rd	2012/6546	Referral Decision	Completed	In buffer area only
Stages 5 and 6 of a 278 Lot residential subdivision at lot 5 Sayers Road Truganina, Victoria	2011/6128	Referral Decision	Completed	In buffer area only
Williams Landing Reserves A and B Infill Project, Melbourne, Vic	2018/8248	Referral Decision	Completed	In buffer area only

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris Short-tailed Shearwater [82652]	Foraging	Known to occur	In feature area
Morus serrator Australasian Gannet [1020]	Foraging	Known to occur	In feature area

Scientific Name	Behaviour	Presence	Buffer Status
Pelagodroma marina White-faced Storm-petrel [1016]	Foraging	Known to occur	In feature area
Pelecanoides urinatrix Common Diving-petrel [1018]	Foraging	Known to occur	In feature area
Thalassarche cauta cauta Shy Albatross [82345]	Foraging likely	Likely to occur	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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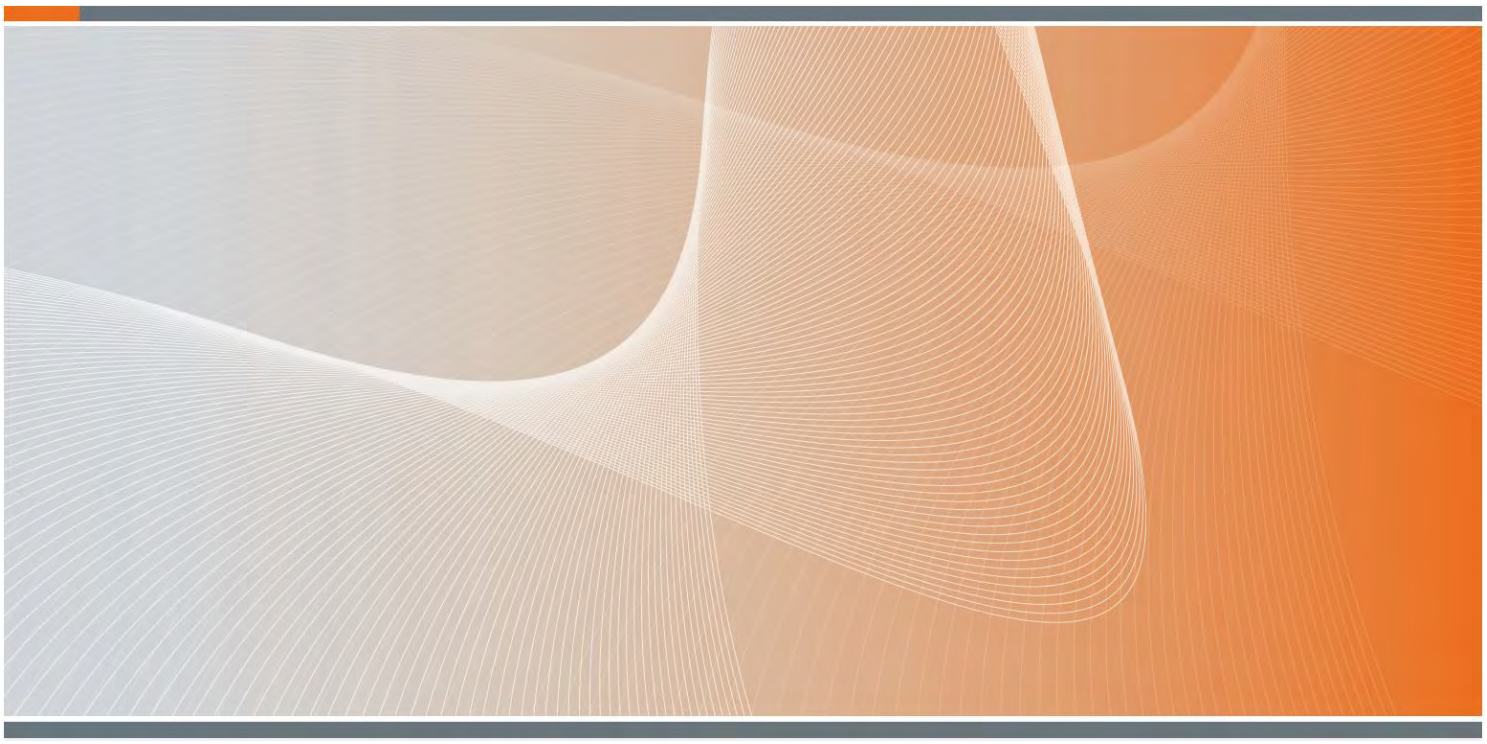
Attachment 10

Defence PFAS Construction and Maintenance Framework

DEFENCE PFAS CONSTRUCTION AND MAINTENANCE FRAMEWORK

Guidance for managing the risks of PFAS contamination for works on the Defence estate



INFRASTRUCTURE DIVISION

DIRECTORATE OF PFAS INVESTIGATION AND REMEDIATION

Version 3.0
August 2021

Change history

Version	Date	Description	Approval
1.0	12/03/2018	Published	Luke McLeod
2.0	June 2019	Internal Release	Luke McLeod
2.1	July 2019	Public Release	Luke McLeod
3.0	August 2021	Public Release	Alison Clifton

KEY MESSAGES

Objective

- To support decision-makers in managing risks from per- and poly-fluoroalkyl substances (PFAS) contaminated soil, water and demolition waste in the context of construction and maintenance works on the Defence estate.

Application

- This document applies to construction and maintenance works on the Defence estate where there is evidence of potential for PFAS contamination. It is to be applied in conjunction with the requirements of the Defence Contamination Management Manual.
- This document does not apply to PFAS remediation or PFAS contaminated site investigation programs managed by the Directorate of PFAS Investigation and Remediation.
- Managing PFAS consistent with guidance in this document does not replace the need for additional risk assessment when managing large volumes of soil and water. Decisions should be supported by consideration of PFAS load, not just PFAS concentration.
- This document does not provide specific guidance for managing very small volumes of displaced soils or water (in aggregate for the works, approximately <10 m^3 soil or <1000 L water) where it is reinstated within the work site. Standard operating procedures apply.
- Where the volume of soil to be managed is > 1,500 m^3, additional risk assessment is required.
- Construction and demolition waste is to be managed in accordance with relevant Defence, State and Territory standards and procedures. This document provides additional guidance for infrastructure associated with aqueous film forming foam (AFFF) or where there is reason to believe that the material has been in direct contact with AFFF concentrate and foam.
- Vegetation including trees, grasses and mulch should not be tested for PFAS unless directly adjacent to a primary source area such as a Fire Training Ground.

PFAS sampling and analysis

- Significant testing has occurred across the Defence estate. Review available PFAS data before sampling. Start with the Defence Garrison Estate Management System (GEMS), then check the Defence PFAS webpage. Additional sampling should be justified as filling critical data gaps. Data in ESdat can be requested from Defence.

Beneficial reuse of PFAS contaminated materials

- Consider beneficial reuse options when managing PFAS contaminated materials. Refer to the DEQMS Waste Minimisation website for more information.
- Locations where contaminated material has been reused for beneficial purposes should be entered in GEMS as per the DCMM.
- Refer to the work objectives and apply this framework using all available data to inform professional judgement and undertake an assessment of risk for the beneficial reuse of material.

Directorate of PFAS Investigation and Remediation (DPFASR)

- DPFASR is currently delivering a range of services for the remediation, assessment and management of PFAS contamination across the Defence estate.
- Where PFAS Management Area Plans (PMAPs) are available, DPFASR should be engaged to ensure alignment and integration of the management actions identified within the PMAP and the works delivered on the base.

Contents

1 INTRODUCTION

1.1 About this document

1.1.1 Purpose

The Defence PFAS Construction and Maintenance Framework has been developed to support decision makers in managing risks from material contaminated with per- and poly-fluoroalkyl substances (PFAS) in the context of construction and maintenance works on the Defence estate.

Specifically, guidance is provided on the management of PFAS contamination for:

- soil;
- water; and
- construction and demolition (C&D) waste.

The framework is not to be used for targeted PFAS investigations or managing wastes generated through pollution incidents, instead refer to the current version of Department of Defence Pollution Prevention Management Manual (PPMM) including Annex 1C Fire Fighting Foam Management.

The PPMM should be used for guidance when there is a risk that PFAS containing foam might pollute an otherwise clean environment. It should be used when managing hangar foam discharge, tank cleaning, foam changeover or spills.

The latest version of the Defence Contamination Management Manual (DCMM) should be used for guidance when the soil, water or other material is already contaminated and needs to be managed. Refer to DCMM Annex C - Planning to Minimise and Manage Stockpiling for guidance on stockpiling.

1.1.2 Goals

The goals of this guidance are:

- to provide options for the management of PFAS contaminated soil, water, construction/demolition waste and other materials such as vegetation, tanks and pipes, that will mitigate the risks associated with PFAS contamination at the works site, on the base, or in close proximity to the base;
- to guide decision-making for efficient and compliant solutions when managing PFAS contaminated materials in this context;
- to minimise the impact of risk-management of PFAS contamination on Defence capability;
- to ensure an integrated approach to PFAS risk management aligned with the PFAS Management Area Plans (PMAPs), Remedial Action Plans (RAPs) and works requirements; and
- to provide guidance that is consistent with the *PFAS National Environmental Management Plan* Version 2.0 (PFAS NEMP; HEPA, 2020).

1.2 Application

1.2.1 Who will use this framework?

This framework applies to:

- all Defence delivered infrastructure works:
  - Defence (including contractors) carrying out public works, including construction and maintenance works on the Defence estate; and
  - Defence Environmental staff responsible for environmental approvals associated with relevant works.

The framework must be provided as a compliance requirement for all managers, developers and deliverers of such works.

This framework should be used during the planning, design and delivery phases of projects. It should assist development of tender specifications, preparation of cost estimates and consideration of management options.

See section 2.3 for a list of roles and responsibilities.

1.2.2 When to use this framework

This framework applies to all Bases and other properties in the Defence estate.

Particular consideration should be given to works that may occur at properties:

- identified online at the Defence PFAS Investigation and Management Program website;
- listed on the Defence Garrison Estate Management System (GEMS) as having PFAS contamination;
- where previous environmental testing has identified PFAS contamination; or
- where there is known history of the use and/or storage of Class B firefighting foam, for either incidents or training, at or nearby the works site or a proposed reuse site.

The framework does NOT apply:

- to targeted PFAS contaminated land investigations, including management of investigation derived waste (IDW);
- to works occurring in an area on base where there is no evidence of actual or likely presence of PFAS contamination;
- where the total volume of soil being displaced at a works site is below 10 cubic metres (m^3) and it is being reinstated back within the works site;
- where the volume of water being displaced from the environment is below 1000 Litres (L) and the water is returned to ground for infiltration within the works site within 48 hours;
- to construction and demolition waste except where it is associated with Class B foam infrastructure (e.g. training, storage or deluge systems) or where there is reason to believe that the material has

What does that word mean?

Appendix A contains a glossary of words and acronyms.

In this document, the word ‘base’ means the Defence property on which the works site is located. This is whether or not the Defence property is a designated ‘base’.

been in direct contact with PFAS containing foam (incident response or other release);

- to operational maintenance and management of sewage treatment plants (STPs) or to sewage treatment, biosolids or wastewater discharge. It would apply to demolition of a STP; and
- to water generated from processes such as hangar foam tests, tank cleaning, spill management.

1.2.3 Other compliance requirements

The guidance in this framework should be applied in conjunction with:

- any existing property approvals or Environmental Clearance Certificates (ECCs);
- site management or BM, ADES, ESM, ESO requirements on base;
- State or Territory environmental regulations;
- *Work Health and Safety Act 2011* (Commonwealth);
- *Work Health and Safety Regulations 2011* (Commonwealth);
- consideration of any other co-contaminants identified at the works site;
- Defence guidance set out in section 1.7.2 as applicable; and
- PFAS Management Area Plan (see section 1.8) and DPFASR guidance on remedial actions relating to the property.
- *PFAS NEMP* Version 2.0, as amended from time to time (HEPA 2020).

When referencing the framework for management and reuse of very large volumes of material (thousands of cubic metres of soil or hundreds of thousands of litres of water), further risk assessment is required. The risks to the receiving environment from the total load (mass) of PFAS need to be assessed in such cases.

1.3 Background

PFAS are a large group of man-made chemicals which include perfluorooctane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS), and perfluorooctanoic acid (PFOA). PFAS have been widely used around the world since the 1950s to make products that resist heat, stains, grease and water. These products include hydraulic fluid, stain resistant applications for furniture and carpets, packaged food containers, waterproof clothing, personal care products and cleaning products.

Due to their effectiveness in extinguishing liquid fuel fires, PFAS are an ingredient in AFFF used extensively worldwide by both civilian and military authorities from about the 1970s. Legacy formulations of AFFF contained long chain[1] PFAS, specifically PFOS, PFHxS and PFOA, as active ingredients that are now known to be persistent in the environment and in humans.

PFOS is listed in Schedule 7 of the Poisons Standard (the SUSMP); and in the Safe Work Australia's Hazardous Chemical Information System. Most people living in developed nations will have some level of PFAS in their bodies due to their widespread use. In June 2019, the Environmental Health Standing

[1] PFAS with longer carbon chain structures are considered more hazardous

Committee (enHealth)[2], published revised guidance statements advising that there is currently no consistent evidence that exposure to PFOS and PFOA has a substantial impact on human health[3]. However, since these chemicals remain in humans and the environment for many years, it is recommended that as a precaution, human exposure to PFAS be minimised.

PFOS was listed in 2009 under the Stockholm Convention on Persistent Organic Pollutants (POPs), with PFOA listed in 2019 and PFHxS is currently under consideration for listing. These chemicals are considered to be highly persistent, can bioaccumulate, and are toxic to some aquatic organisms. PFAS are also highly mobile in aquatic environments, with limited remediation options.

1.4 What's different about PFAS contamination?

1.4.1 The nature of PFAS

PFAS has many qualities that combine to present particular challenges in locating, containing and remediating PFAS contamination.

- Water is the primary method of PFAS contamination transferring from a source, such as a fire training area or fire-fighting foam incident site, to a receptor, such as a person, animal, plant, ecosystem, property or a water body;
- PFAS is reasonably soluble in water and can rapidly leach through soils or disperse in waterways, travelling long distances;
- PFAS can permeate some solid surfaces. This includes concrete and other porous building materials, such as some firefighting appliances and apparatus, storage tanks and fire training pads;
- PFAS does not permeate intact plastic containers or PVC piping;
- Key PFAS relevant to fire-fighting foam (including PFOS, PFHxS and PFOA) are very chemically and biologically stable and have a low vapour pressure, so they are resistant to breakdown and evaporation; and
- Some PFAS (including PFOS, PFHxS and PFOA) are environmentally persistent and bioaccumulative. This means that some plants and animals may take up PFAS through soil and water. It may then bioaccumulate and become a part of the food chain.

1.4.2 New knowledge and new remediation techniques

Developments in analytical methods have improved detection of PFAS over recent years, but there are still levels below which PFAS cannot be accurately quantified at commercial scale, although it may be present (known as the 'limit of reporting' or 'LOR').

As an emerging contaminant, the understanding of the behaviour and impacts of PFAS contamination on human health and the environment is still developing, such as what concentrations of contamination in water and soil give rise to concern, and when. In some cases, site-specific risk management measures may need to be developed to minimise human exposures and protect the environment. PFAS Estate Management is to be contacted at pfas.estatemanagement@defence.gov.au by projects seeking further advice.

[2] enHealth is a subcommittee of the Australian Health Protection Principal Committee, and is responsible for providing agreed environmental health policy advice. Its membership includes representatives from the Health portfolios of Australian and New Zealand governments.

[3] enHealth Guidance Statements on per- and poly-fluoroalkyl substances (2019)

Remediation technologies are at various stages of research and development. They are currently more advanced in the treatment of water than for soil. Advice on the latest technology can be provided by DPFASR.

The science of PFAS impacts and technologies for managing PFAS is constantly evolving. As a result, this framework may be updated to meet changing national standards.

1.5 PFAS on the Defence estate

The majority of PFAS contamination on the Defence estate is the result of the historical use and storage of legacy firefighting foams, specifically Class B PFAS containing foams. These foams have been used for training purposes or incident control. In the Defence context, sources and reservoirs of PFAS contamination are generally associated with current or former fire training areas, accident scenes where PFAS containing foams were used and stored, and fire stations or areas where fire suppression systems were used or tested.

In 2004, on Defence bases, Defence commenced the process of transitioning from foams that contain PFAS and updated the way it uses, stores and trains with AFFF. Ansulite, a product that does not contain PFOS or PFOA as active ingredients (but contains some level of PFAS), was introduced and in its turn is being replaced by a product that does not contain any PFAS. To date, all Aircraft Rescue and Firefighting vehicles have transitioned to fluorine free foams. The transition of portable, handheld and mobile fire extinguishers will be completed by early 2022. The remaining sources of PFAS containing foam will be in our fixed fire suppression systems in certain hangars and bulk fuel areas.

The Defence National PFAS Investigation and Management Program is progressing at Defence properties across Australia as a result of the historical use and storage of legacy PFAS containing foam. For those sites that have concluded the investigations phase, Defence has prepared PFAS Management Area Plans (PMAPs). These are high level plans for managing elevated exposure risks identified as part of the site specific human health or ecological risk assessments.

Defence has undertaken an iterative, evidence-based approach to efficiently prioritise and investigate sites across the estate most likely to be significantly contaminated or that may potentially pose a risk to human health and the environment. All other properties are subject to routine contaminated site investigations, with PFAS considered as a contaminant of potential concern. Further work to address those areas with identified contamination will be considered for remediation and management actions. This information should be considered during all phases of project management for construction and remediation works.

1.6 PFAS contamination risks for works on the Defence estate

The risks associated with PFAS contamination in the context of works on the Defence estate arise because:

- PFAS contamination may be found in soils, water (e.g. groundwater, surface water), or construction and demolition waste;
- works can mobilise existing contamination through demolition, excavation, changed storm water flows, changes to groundwater flows, large-scale dewatering, dust suppression or stockpiling; and
- once mobilised, PFAS can rapidly leach through soils or disperse in groundwater and surface waterways resulting in exposure to humans and the environment.

1.7 Guidance values used in this framework

This framework is based on appropriate risk management of PFAS contaminated material on Defence properties undergoing construction and maintenance works where the nature and extent of required

management actions for PFAS contamination are not yet known. Where the investigation process for a Defence property has been completed, a PMAP will be published on the Defence PFAS webpage that describes PFAS management actions at the property. In these cases guidance in the PMAP may supersede this document (see section 1.8).

The guidance values provided in this framework are not intended to be used for remediation targets, health-based criteria or for regulatory purposes. Rather, the potential need for management of contaminated materials (e.g. remediation or reuse) is identified by an exceedance of guidance values stated in this framework, based on a site-specific assessment. The values should be used in conjunction with relevant, up to date guidance documents (see section 1.7.1).

The guidance values specified in this framework apply to PFOS, PFOA and PFHxS, as human health guidance values are available for these PFAS in Australia. Additionally, some ecological guidance values are available for PFOS and PFOA. As with other components of this framework, guidance values may be expected to be updated as the science, policy and remediation technologies are developed over time.

1.7.1 Source references

In developing categories for management of soils with differing PFAS concentrations, the following was referenced:

- PFAS National Environmental Management Plan (NEMP) 2.0, (HEPA 2020)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, as amended in 2013 (NEPM 2013).

1.7.2 Relationship with other Defence environmental management guidance

Defence environmental management guidance includes, but is not limited to:

- Defence Contamination Management Manual (DCMM), 2019
- Defence, Infrastructure Division, Pollution Prevention Management Manual, 2017.
- Defence, Defence Estate Water Strategy 2014-2019.
- Defence Draft Guidance on Stabilisation and Reinstatement of PFAS Impacted Soils (refer to DPFASR for the most recent version)
- Defence Interim PFAS Remediation Action Plan Guidance. It should also be consulted where a RAP targets a number of contaminants, including PFAS (refer to DPFASR for the most recent version).

1.8 Integrating and aligning PFAS management across the estate

Since PFAS investigations commenced under the Defence National PFAS Investigation and Management Program, Defence has sought to develop a comprehensive evidence-based approach to managing the risks associated with PFAS contamination. This has resulted in a staged approach:

1	**Interim Response Management (IRM) Actions**	During the investigation phase, some risks are identified that require the commencement of management actions before the conclusion of investigations. Providing drinking water to people whose drinking supply is contaminated by PFAS is an example. Other actions may also be commenced on some bases to address off-base migration or treatment of contaminated groundwater.

2	**PFAS Management Area Plan (PMAP)**	A PMAP sets out a comprehensive plan for Defence to manage the elevated risks of PFAS contamination as identified in a completed DSI report and any risk assessment reports, on and from a Defence property. Any IRM actions underway are assessed for efficiency and effectiveness and incorporated as relevant into the PMAP.
3	**PMAP Implementation Plan (PMAP IP)**	A PMAP IP provides a high-level delivery program for PMAP recommendations, how they will be implemented and with approximate timeframes, costs and constraints. A PMAP IP is regularly reviewed and updated to reflect progress.
4	**Remedial Action Plan (RAP)**	A RAP details the preferred remediation strategy for the management of PFAS impacted soils and/or groundwater at a known source area in order to reduce the mass flux of PFAS migrating from the area. The remediation strategy is intended to provide the best balance between the removal/treatment of PFAS mass and cost/logistical constraints.

This means that for some sites, works and PFAS management actions may take place on overlapping or nearby areas. It is important for the works team to liaise with DPFASR to deliver integrated PFAS risk management actions that take advantage of opportunities to align timing and expenditure.

A PMAP is periodically reviewed. This allows changes in circumstances to be taken into account, including regulatory guidance on remediation principles or criteria, the availability of new technologies and the results of an ongoing monitoring plan that informs changes in the behaviour of a contamination plume, evidences progress in risk management or the effectiveness of specific management actions.

2 HOW TO USE THE GUIDANCE IN THIS FRAMEWORK

2.1 Check for updates

Risk management of PFAS contamination is rapidly evolving. To ensure the most recent version of this guidance is being used, check the publication on the DEQMS website.

A *PFAS National Environmental Management Plan* Version 2.0 (NEMP) has been published by the Heads of EPAs Australia and New Zealand (HEPA) (including State and Territory environmental regulators and the Commonwealth Department of Agriculture, Water and the Environment) to guide the management of PFAS across Australia. The PFAS NEMP is updated from time to time.

2.2 Is the base currently being investigated or managed by DPFASR for PFAS contamination?

Properties that are currently being investigated or managed by DPFASR are listed online at Defence PFAS Investigation and Management Program website. Where the works site is on a Defence property being investigated or managed by DPFASR, this means:

- sampling data, detailed site investigation (DSI) reports and risk assessment reports (Human Health and Ecological Risk Assessments [HHERA], Human Health Risk Assessment[HHRA], Ecological Risk Assessment [ERA]) are likely to be available for the base; and
- works should be aligned with any PFAS management actions (remediation, containment, stockpiling) that may be planned by DPFASR. This has the potential to save time and money for both the project/works and for DPFASR.

For properties where PFAS investigations are complete, DSI and risk assessment reports are publicly accessible from the above website.

2.3 Roles and responsibilities

The following roles and responsibilities apply in connection with implementation of this framework.

Table 1 Roles and responsibilities

Roles	PFAS Management Responsibilities
Base Manager (BM)	• Coordinates the provision of base services.
Capital Facilities and Infrastructure (CFI)	• Delivers Defence construction projects. Ensures this Framework is being adopted and implemented for projects.
Commonwealth Department of Agriculture, Water and the Environment	• PFAS Taskforce, PFAS Inter-Departmental Committee, *Intergovernmental Agreement on a National Framework for Responding to PFAS Contamination*, EPBC Act referrals and approvals, PFAS NEMP coordination
Environment and Engineering Branch	• Defence Subject Matter Experts and policy owner for environment, engineering, heritage, contamination management, pollution prevention, energy, water and waste management within Defence.
Environmental/Lead Consultant	• Contracted by Defence to deliver investigations, prepare technical advice (including RAPs) and provide oversight of PFAS management on a base

Estate Maintenance and Operations Services (EMOS)	• Contracted to Defence to provide maintenance and operations support services to the Defence Estate. • Provides delivery of selected maintenance projects and Project Support Services. • Manages the Handover/Takeover process to ensure project data is received and uploaded to GEMS and conversely, provides data to projects through the project support process. • Delivers routine water quality monitoring at select sites and undertakes land management activities at sites.
Main/Lead/Principal/Head Contractor	• Contracted to Defence to undertake construction and maintenance works on the Defence estate.
National Program Services (NPS)	• Contracted to Defence to provide programming and management of the Estate Works Program.
Directorate of PFAS Investigation and Remediation (DPFASR)	• Project management of PFAS environmental investigations and remediation. • Provides policy advice and coordinates resolution of enquires within DPFASR. • Develops & promotes PFAS guidance and management resources to E&IG. • Provision of Defence and whole of government PFAS related policies.
Project Delivery Services (PDS)	• Contracted to Defence (currently Augility and Aurecon) to provide project/contract management of the Estate Works Program. • Holds relevant project and contract documentation including environmental and waste disposal documentation.
Project Manager/Contract Administrator (PMCA)	• Contracted to Defence to provide project/contract management oversight of construction projects (program is part of the contract, such as meeting milestones). • Holds pertinent project and contract documentation including environmental management documentation.
SDD Environment and Sustainability team including ADES, ESM, ESO	• Lead stakeholder when considering reuse of PFAS impacted materials on base. • Oversight of environmental and heritage issues for a specified base/s. • Review Construction Environmental Management Plan; approve Environmental Clearance Certificates.
Service Delivery Division and its contractors (SDD)	• Provides essential on-the-ground services and support to Defence personnel around Australia through the Base Services Contract (BSC). • Product Director SDD – approval delegate and contract manager for works delivered by SDD service providers through the BSC. Provides governance and compliance of the delivery of BSC works.
State/Territory environmental regulator	• Approve licences for transportation of waste and storage/disposal of waste at licenced waste disposal facilities. • Consultation within State/Territory jurisdictions.
Technical Assessor/Site Auditor	• Review and validation of PFAS management and remedial actions.

2.4 Work, health and safety

All works undertaken on the Defence estate must comply with requirements in the *Work Health and Safety Act* (Cth) 2011 (WHS Act), the *Work Health and Safety Regulations* (Cth) 2011 and the Defence Work Health and Safety (WHS) Manual. The Commonwealth Regulator is Comcare. For construction and maintenance works on bases that have completed a PFAS risk assessment, management measures may have been identified to mitigate any risks to human health.

The Defence WHS manual provides safety policy and procedures with electronic links to corporate tools, services and expert advice to address the management of activities where people are exposed to hazards, as required by the WHS legislation as it applies to Defence.

In general, absorption of PFAS due to dermal exposure is considered to be negligible in comparison to the ingestion pathway. Additionally, PFAS compounds of primary concern are not sufficiently volatile, and thus exposure via inhalation is also not considered to be significant where normal precautions for prevention of exposure to dust are followed. The environmental concentrations typically detected on Defence sites are unlikely to pose WHS risks in a typical construction scenario. Therefore additional workplace precautions or PPE are not required beyond compliance with standard Work Health and Safety procedures[4] for construction.

Water quality monitoring must be undertaken in accordance with the WHS requirements of the EMOS/PDS/NPS contractor which are aligned with Defence WHS requirements. For demolition works, standard WHS requirements should also be adopted. Similarly, WHS PFAS exposure risks within the identified Management Area are not within the scope of the PMAP. They are appropriately managed by the relevant contractor in accordance with applicable work, health and safety legislation.

2.5 Sampling data, recording and reporting

2.5.1 Sampling data

Data for the works site and other parts of the base may be available as a result of previous investigations. Check the following:

- Defence PFAS webpage for published PSI reports, DSI reports, PMAPs and human health and ecological risk assessments;
- GEMS EFM – CSR (the former Contaminated Sites Register) for records of PFAS contamination on the project/works site (see section 2.5.2);
- ESdat Database (see section 2.5.3);
- DPFASR for information on investigations not yet concluded; and
- ADES/ESM/ESO for the site/base for information on investigations not yet concluded or other planned and current works programs

Where this information is available, use or supplement it (as required) with site-specific sampling to provide sufficient information on which to base decisions under this Framework.

[4] Reference Safe Work Australia for further information on Hazardous Chemical Information Systems (HCIS) http://hcis.safeworkaustralia.gov.au/ and safety data sheets https://www.safeworkaustralia.gov.au/sds

Potential contamination must be considered early in the design stage to help identify options for soil and water management and allocation of resources. In some cases, early planning can identify suitable beneficial reuse options for PFAS contaminated materials, or identify changes in design to minimise spoil that would otherwise be generated. For example, off-base transport and disposal of contaminated material must comply with regulatory requirements of the relevant State/Territory. National hazardous waste coding (e.g. M270), may be required. There may also be a requirement for sampling other potential contaminants of concern based on a review of site history, and in particular, additional analyses will be required if material is to be disposed of offsite.

Defence has tolerance to accept a certain level of risk and uncertainty to meet its objectives for each project or program. Risks associated with managing PFAS contamination should be balanced with other project risks. Evidence-based decision making, through use of available data and site specific information, will help optimise the risk management.

Avoid oversampling and over-testing by careful planning, consultation and assessment of current data, site characteristics and whether material is intended for reuse on base, stockpiling (generally a temporary measure) or disposal. When scoping projects/works during the procurement phase, ensure that the level of sampling and testing for PFAS contamination is fully justified and conforms to the requirements of this Framework.

Consultation on the appropriate level and type of sampling for works is available:

- directly between the base (ADES/ESM/ESO) and contractors;
- with EMOS contractors;
- with SMEs during project procurement, planning and delivery;
- during the stages of Design Review; or
- directly from DPFASR.

2.5.2 Defence Contaminated Sites Records

Contamination on Defence properties is recorded in the Garrison Estate Management System, Environmental Factor Management - Contaminated Sites Records (GEMS EFM-CSR). Contamination on the works site is to be registered in GEMS EFM-CSR. For further information please refer to the Defence Contamination Management Manual.

2.5.3 Environmental Data Management Software (ESdat) Database

Environmental Data Management Software (ESdat) is a specialist environmental database system used to compile a broad range of environmental data including chemistry results and sampling information. Laboratory analytical results for environmental samples including PFAS and other contaminants is to be entered into ESdat in accordance with the Defence Contamination Management Manual (Annex L). Consultants/contractors can request datasets from PFAS environmental testing, and other potential contaminants, to inform desktop analysis. Consultants and contractors should contact the Directorate of Contamination Assessment Remediation and Management (DCARM) at ncrp@defence.gov.au and DPFASR at pfas.estatemanagement@defence.gov.au to discuss access to ESdat data. Refer to the Defence Contamination Management Manual, Annex L for the sampling naming conventions, data management requirements and data compliance requirements.

2.6 Risk management principles for PFAS contamination

The following risk management principles apply to this guidance.

Under this framework, management actions include:

- On-work site management;
- Off-work site, on-base management; and
- Off-base management.

The following preference hierarchy applies to options for PFAS management actions:

a) On-work site management of the contamination so that the risks are reduced to an acceptable level.

b) Where work site management is not practicable, other locations on base for the beneficial re-use of the material may be considered so that the risks are reduced to an acceptable level and other risks are not created.

c) Where on-base management is not appropriate, off-base management of the contamination in order that the risks are reduced to an acceptable level may be required.

A PFAS management action:

- may only be pursued where the predicted impact of the action does not increase the risk or lead to unacceptable risk of PFAS contamination affecting human exposure or the environment;
- should be proportionate to risks;
- should seek to conform and align with the actions identified within site-specific PMAPs;
- should be adapted for local conditions;
- should be efficient and compliant with the NEMP; and
- should apply the Defence Risk Management Framework, (includes operational considerations).

Source / Pathway / Receptor linkages: categories of risk management for contamination

A risk may occur when a source of contamination (such as soil contaminated with PFAS) is linked to a receptor (such as a person or wildlife or matter of national environmental significance [MNES]) via an exposure pathway.

Response to a risk may involve one or more of the following three principal components:

- **source** management by removal, destruction, treatment, disposal and/or other methods leading to the source no longer being present.
- **pathway** management by capping, containing, stabilisation, diversion, point of use treatment and/or other methods where the source remains in place but pathways are managed.
- **receptor** management by relocation, institutional controls, behaviour management and/or other methods focussed on the receptor.

Figure 1 (page 16) contains a schematic diagram of contamination sources, pathways and receptors, known as a Conceptual Site Model (CSM).

2.6.1 Assessment of risk – beneficial reuse

Beneficial reuse of PFAS contaminated materials is best practice, where practicable. Beneficial reuse of materials avoids the need for stockpiling which can save costs associated with ongoing stockpile management and monitoring. While beneficial reuse of materials helps to achieve Defence's sustainability goals, reuse must not lead to an unacceptable risk to human health and/or the environment or an increase in risk at or near the proposed reuse site. When assessing whether to reuse PFAS contaminated materials generated on a base, it is critical to:

- consider the concentration and total load of PFAS in the materials, especially where large volumes are involved (see Chapters 3, 4 and 5);
- consider whether the additional PFAS load at the proposed site changes the risk at or from the proposed reuse site;
- consider the characteristics of the reuse site, in particular:
  - pre-existing PFAS impacts at the proposed site;
  - site drainage: where does surface water flow or accumulate? Where do stormwater channels drain? In which direction does any groundwater flow? How high is the water table?;
  - proximity to the Defence property boundary: What is the risk of any contaminated water, resulting from the reuse, migrating from the Defence site?;
- consider the risks to sensitive receptors, including direct and indirect receptors, which may be on- and off-Base;
- consider cumulative effects of discharging or irrigating with PFAS contaminated water over time or from multiple projects;
- consider multiple lines of evidence;
- consider future land use – Estate Base Plans;
- understand that beneficial reuse does not include stockpiling;
- consult with the ADES, ESM, BM for any additional considerations.

In many cases, the works team will already be aware of base boundaries and drainage networks. In other cases, this information may already be available in the form of a conceptual site model (CSM). A CSM is a description or image of the characteristics and processes at a site that impact on how contamination at the site can move or change, and where it can end up, such as in drinking water or seafood.

Check GEMS EFM-CSR in the first instance. If the site has been the subject of a PFAS DSI, the CSM will be available in the DSI report on the Defence PFAS webpage. Related health and ecological assessments may also provide useful information.

Depending on the complexity of the site, an assessment may be required by the works team or by an experienced environmental consultant.

2.6.2 Role of remediation in the Framework

The extent to which remediation will be required for any specific area of identified PFAS contamination on specific bases is in the process of being determined for many Defence properties and is described in the corresponding PFAS PMAPs. Remediation principles, criteria and available technologies for PFAS are still evolving so approaches to remediation may also change over time.

Where remediation of areas of elevated PFAS contamination can be efficiently implemented as part of infrastructure works, planning and development of any remediation options should be undertaken in consultation with DPFASR.

In some cases, soil stabilisation may be appropriate to reduce risks due to PFAS leaching to either surface water or groundwater. Soil stabilisation is the addition of an amendment such as activated carbon or a proprietary product to reduce PFAS mobility. Soil stabilisation requires a monitoring strategy to ensure long term reduction in risks has been achieved, and should only be used when identified and managed through a Remedial Action Plan (RAP) prepared by suitably qualified consultants. See Section 3.6.2 and refer to the draft Guidance on Stabilisation and Reinstatement of PFAS Impacted Soils (refer to DPASR for the most recent version).

2.6.3 Adaptation to local conditions

Management options addressed within the framework should be site-specific and consider local conditions. These may include:

a) Environment and land-use characteristics

- Local weather, hydrological and soil characteristics.
- Presence of receptors that may reasonably be affected by the contamination.

b) Technological and financial parameters

- Availability of best-practice management systems, treatments and technologies.
- Availability of treatment/storage management options to manage waste streams.
- Degree of confidence in available treatment techniques.
- Longevity and sustainability of the solution.
- Need for ongoing operations, management, maintenance or monitoring.
- Cost-efficiency.

c) Impacts of proposed action

- Potential for cross-contamination (new contamination resulting from the action), and remobilisation (actions that may trigger movement of PFAS, usually from a previously stable condition).
- Evaluation of proposed reuse sites that may create new potential pathways to human health or sensitive environmental receptors (additional management options that prevent or mitigate new pathways may be required).
- Potential human exposure based on land use.
- Potential impacts on environmental values, both on- and off-base, such as surface water and groundwater quality, aquatic species, and matters of national environmental significance.
- Community impacts (including the impact of any truck movements associated with off-base management, through the local community and on local infrastructure).
- Consideration or guidance by the jurisdictional regulator, where relevant.
- Conflicting redevelopment projects and their footprints.

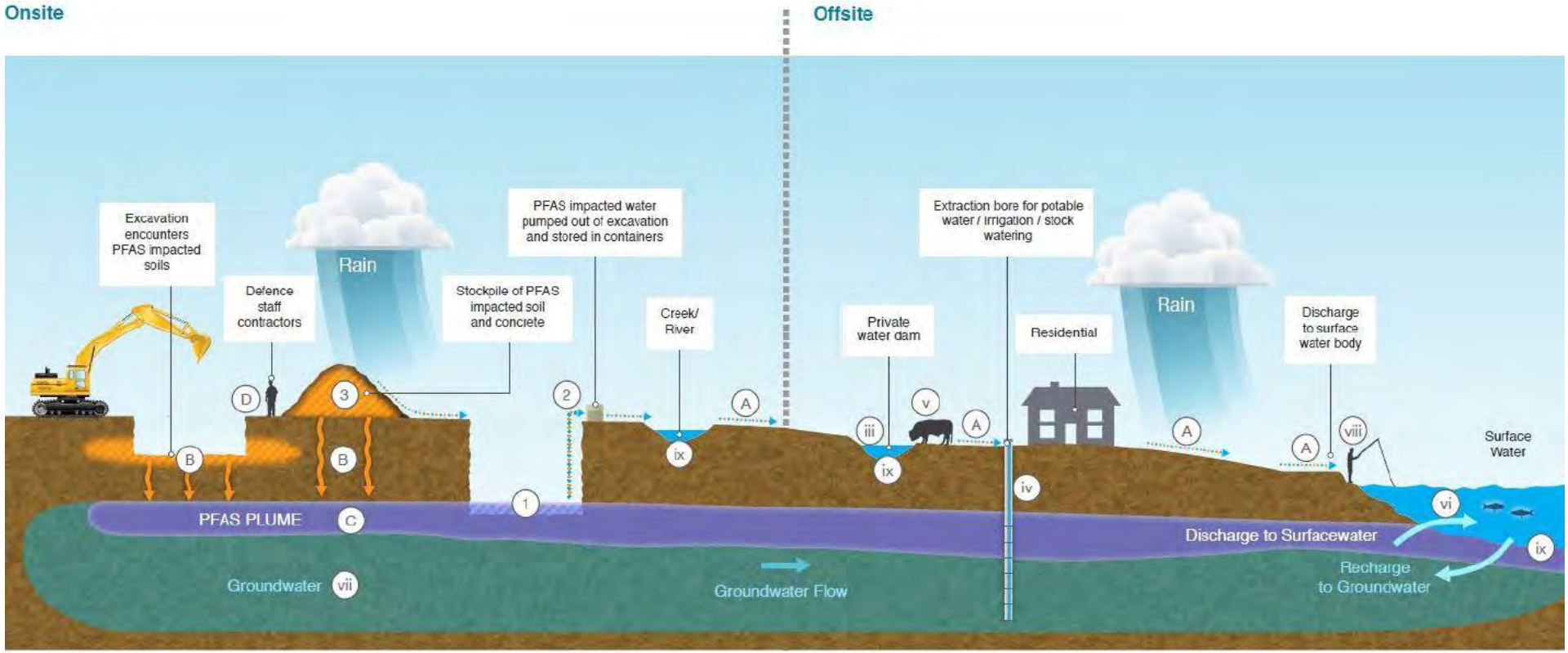
2.7 Expert advice

If environmental consultants have been engaged for a project, they may be able to use their experience and expertise to make recommendations that deviate from the specific requirements of this framework. Deviating from the framework may be justified where it will deliver additional efficiencies through improved mitigation of environmental risks or cost savings. In such case, any deviation needs to:

- comply with relevant national and jurisdictional guidelines, including the PFAS NEMP Version 2.0 (HEPA);
- provide assessments that are data-driven and evidence-based;
- provide recommendations that allow for efficient and effective management options;
- generally follow the principles within this framework, documenting any deviation;
- apply an appropriate risk tolerance; and
- where the deviation is not minor, and a site is subject to a PMAP IP, is agreed to by DPFASM.

Consultation with base environmental management staff and DPFASM may be required depending on the degree of risk in the project.

Figure 1 Conceptual Site Model – Contamination Risks from PFAS (Defence Contamination Management Manual, GHD 2017)



3 SOIL

Manage soil (natural soil and fill materials in the form of rocks, excavation stone, and dried sediment) on a work site in accordance with this Chapter.

3.1 Planning for risk management of PFAS contamination in soil

3.1.1 Consulting with other Defence decision-makers

Guidance on roles, responsibilities and stakeholders involved in decision-making for soil management is provided in section 2.3. Consulting with stakeholders during the planning stage of works should assist with:

- Identifying viable areas for beneficial reuse of soil;
- identifying the potential impact on Defence capability and base redevelopment;
- minimising volume of waste soil requiring management;
- identifying opportunities for beneficial reuse in the works;
- identifying beneficial reuse opportunities in other works (e.g. backfill material);
- identifying material that is suitable for off-base beneficial reuse or disposal;
- avoiding works delays;
- avoiding or minimising stockpiling (generally a temporary measure);
- avoiding double-handling of waste material;
- budgeting and cost-benefit analysis of soil management options;
- identifying sampling and analysis requirements for soil characterisation, beneficial reuse or disposal; and
- overlaying available data with project footprint to inform decision-making.

3.1.2 Soil sampling

The requirement for soil sampling should be carefully considered during the project planning phase. If PFAS has been identified at the project site through previous investigations (see section 2.2) or a site history review indicates legacy activities that may have caused contamination, further sampling and analysis may be required.

However, testing may not be required if a desktop review confirms that PFAS contamination on the base is considered unlikely. Refer to section 2.5 for sources of soil data potentially relevant to the works site.

A reminder!

This framework is to be used for projects/work on the Defence estate.

It is not to be used for targeted PFAS investigations or remediation projects.

3.1.3 Managing very small volumes of contaminated soil

When the total volume of soil being managed for the project/works is less than 10 m^3, it will usually be appropriate and acceptable to reinstate the soil at the work site without testing. This is because responses to PFAS contamination should be proportionate to the risk where disturbing small volumes of soil is unlikely to have a material or measurable impact on the overall contamination on a base. There are significant cost, time and practicability limitations on testing in every scenario.

Areas of significant contamination, such as former Fire Training Areas and other primary source areas, have been extensively investigated and identified across the Defence estate. If work is being conducted within these areas as identified, the volume threshold would not apply.

When the works are adjacent to a water course, or an area potentially connected with groundwater, or are in a hardstand area, consultation should be undertaken with the ESM on appropriate management options.

Where there is no reason to believe that soil is contaminated and it is not proposed to be disposed off-base, testing for PFAS is not required.

Examples where Section 3.1.3 is likely to be applied includes footpath repairs, installing signposts or erosion repairs. It does not apply where the total volume of contaminated soil being managed is greater than 10 m^3.

3.1.4 Managing very large volumes of contaminated soil

Where very large volumes of soil are to be excavated and relocated on- or off-base, considering PFAS concentrations only, and comparing with the soil categories in this chapter, may not be sufficient to inform the overall environmental risks. This is because the total amount of PFAS in the soil may be significant, just because of the scale of the project, despite the concentrations being low.

For projects where the volume of soil to be managed is > 1,500 m^3, additional risk assessment is required to demonstrate that any risks from the additional PFAS load at the receiving location are acceptable. This risk assessment should be done by a suitably qualified environmental expert. This assessment is to include the possibility of PFAS being mobilised from the soil at the receiving site and linkages to potential receptors. DPFASR is to be consulted during the assessment of reuse options and the design process for reusing material. Validation of earthworks should occur as part of HOTO to ensure earthwork operators follow design specifications for layering, capping, compaction and any other reuse specifications.

3.1.5 Management of sludge and slurry

Many works will generate soil sludge or slurry from construction and maintenance projects. De-water the sludge or slurry and manage the separated sediment in accordance with this Chapter. Manage the separated water in accordance with Chapter 4. Alternative solutions are available such as skips with retractable covers where water can be evaporated off leaving only the remaining sludge to be managed.

Non-destructive digging (NDD) technologies such as hydro-vac will mobilise PFAS from soils to water. For larger projects in PFAS-contaminated areas, the planning phase should consider the value proposition of NDD compared with dry methods.

3.2 Soil waste management hierarchy

This section provides the waste soil management hierarchy for soils that cannot be managed in accordance with standard processes due to the presence of PFAS contamination:

1. **Avoid** excavating PFAS contaminated soils where possible
2. **Limit** how much PFAS contaminated soil is excavated to the minimum required
3. **Reuse** excavated PFAS contaminated soil where possible, in order of preference:
    - on-work site;
    - off-work site, on-base; and
    - off-base.

4. **Dispose** of PFAS contaminated soils off-base where possible; and
5. **Stockpile** PFAS contaminated soils on-base temporarily in accordance with the DCMM Annex C.

3.2.1 Treatment technologies

There is currently no Australian framework specifically for remediating or treating PFAS contaminated soil. The PFAS NEMP (HEPA, 2020), Appendix C: Treatment Technologies Potentially Available in Australia provides a list of technologies but does not take into consideration commercial viability or current feasibility.

Several treatment technologies are in the research and development phase with minimal commercially available technologies currently suitable for remediation of PFAS in soils. Defence is working with other Commonwealth agencies, States and Territories to fund research programs to identify viable solutions. When suitable treatment options become available, this guidance will be updated.

3.2.2 On-works site management

Reinstatement on the works site has the potential to give Defence the best environmental outcomes and most efficient solution when managing PFAS contaminated soil.

Where reuse is proposed in areas where there are likely exposure pathways to potentially sensitive receptors – 'high-sensitivity' locations (see section 3.2.53), the proposal should be subject to an assessment of environmental risk, including the potential for bioaccumulation of PFAS in the receiving environment.

Dilution of PFAS contaminated soil is not an acceptable waste management strategy for creation of suitable reuse material. In this context, the total mass, or 'load' of PFAS being added to the receiving environment is also important, rather than their transient concentrations alone.

3.2.3 Off-works site, on-base management

Reuse of soil off the works site but on-base may be considered where:

- the volume of soil available to be reused cannot be utilised on the works site;
- the reuse is considered to be beneficial;
- the engineering properties of the soil make it unsuitable for reuse on the works site; or
- reuse on the receiving site will achieve a better environmental outcome than reuse on the works site.

These are only acceptable scenarios where reuse does not add to or increase the concentration, load or flux of contaminants at the off-works site, such as leads to an unacceptable environmental risk.

The receiving site should be selected following an assessment of risk, including the consideration of a conceptual site model for that site.

When Category 2, 3 and 4 soils (see section 3.5) emplacement is to existing contaminated areas with appropriate mitigation actions (on or off-works site), they are not to be treated as a new contaminated site record within GEMS. However, an existing CSR may need to be updated to include the additional contaminant load and risk analysis.

The location of the reuse site with the required information is to be entered into GEMS by the project at handover/takeover of the project. This could be as an amendment to the CSR through the data load tool or the provision of a spatial data layer with the geographic extent of the reuse area attached to the site information to inform future planning.

Beneficial reuse is defined in the PFAS NEMP Version 2.0. Examples include where there is an existing need for soil for purposes such as landscaping, construction works, roadworks, etc. Putting contaminated soil in a location without such existing need, is considered to be waste disposal. Waste disposal is not supported on the Defence Estate, except under exceptional circumstances, and is subject to approval by the BSM/ESM with supporting documentation. Other characteristics of the soil may preclude beneficial reuse. Consultation and planning for reuse needs to occur in the early planning phases of the project to ensure budget allocation and prevent project delays.

3.2.4 Off-base management

Off-base management includes treatment and/or disposal at a licensed waste facility, either within the State or Territory or interstate.

Acceptance criteria and management options for PFAS contaminated soils vary between the States and Territories. The waste classification and management guidance from the relevant state/territory environmental regulator must be followed. The degree of guidance varies between jurisdictions and in some cases a request will be considered by the approving agency on a case by case basis. Even if regulatory approval is granted, not all landfill operators will accept PFAS contaminated waste.

Subject to State and Territory requirements (including transportation from or through different states/territories), the option may exist for waste to be disposed of at a waste disposal facility within a different state/territory.

3.2.5 Storage on-base

On-base storage is the least preferred option for managing excess contaminated soils.

The DCMM Annex C contains the guiding policy on stockpiling requirements including timeframes for resolving the end-point for the excess material. The ongoing management requirements including financial considerations need to be assessed when deciding on storage options for the long-term. Projects must cost ongoing maintenance and monitoring for the life of the stockpile and budget accordingly.

Suitability of location, material for storage and land availability should be determined through site-specific assessment, noting that stockpiling is a temporary measure while awaiting determination of the appropriate management action. Ongoing management of stockpiles, including monitoring, will need to be factored into overall project costs. The Directorate of Estate and Land Management (DELM) must be consulted if a project is considering leaving a stockpile on site for the long-term.

If there is significant variability in contaminant concentrations, then the material should be appropriately segregated and managed according to the concentrations of PFAS as categorised in Section 3.5.

3.3 Reuse in high-sensitivity areas

Reuse of PFAS contaminated soils in the following scenarios should normally be avoided. If the listed scenarios are considered, then they must be assessed to demonstrate that the environmental and human health risks are acceptable. Reuse in high sensitivity areas is to be approved by the ESM following consultation with DPFASR and other relevant stakeholders. This assessment of direct and indirect risk is required if the soil (including Category 4) is to be applied or used:

- on land used for agricultural or aquaculture purposes;
- as fill in residential developments;
- as compost, fertilisers or soil conditioners;

- as fill or burial within 2.0 metres of the seasonal maximum groundwater level;
- as fill or burial or reuse in locations potentially affected by reasonably foreseeable future rises in groundwater or near stormwater drains;
- within 200 metres of a wetland area or surface water body (e.g. river, pond);
- in areas prone to flooding and with reactive soils; and
- where contaminated soil, sediment or water can enter areas of national environmental significance protected under the EPBC Act 1999, and areas of environmental significance as identified by the relevant State/Territory.

Reuse at some bases is highly constrained due to flooding, proximity to water or elevated groundwater. In these cases reuse options may consider coordination with future planned remediation activities, such as through infrastructure work, PFAS Management Area Plans or other base works where treatment or management of soil may be required.

3.4 Soil sampling and characterisation

Soils to be disturbed by works are to be sampled in accordance with this section, unless:

- the soil has previously been sampled for PFAS; or
- preliminary investigation or desktop analysis has determined that it is not likely for PFAS contamination to be present at the work site or base.

The ESM/ESO should be satisfied that sufficient data are available to apply this management guidance.

In-situ sampling is preferred, to inform availability of management options and potentially avoid mixing areas of low and high PFAS contamination, and thereby increasing management costs. Where this is not feasible, ex-situ sampling for classification of excavated materials will be required.

Samples are to be collected by a suitably qualified and experienced environmental professional.

3.4.1 Approaches to Sampling

Due to the nature of legacy PFAS containing foam use in training and incident response, and the known characteristics of PFAS fate and transport, the impact of PFAS contamination is generally less localised and more widespread than for other contaminants. Australian Standard AS 4482.1 (2005) provides guidance on the number of samples per area needed to detect a hot spot of a given diameter on a contaminated site with sufficient confidence.

State and territory guidance is also available on the minimum number of samples per volume needed to characterise excavated material. These approaches are suitable for sampling at a site not previously assessed. However, where sampling has already been conducted, it may be possible to use a site specific conceptual site model (CSM) to develop an estimated characterisation for soils to be disturbed. In these cases, significantly fewer samples would need to be collected in order to confirm the characterisation. Sampling plans to fill any data gaps prior to the development of management options for excess soils should ensure that the density of sampling is appropriate.

The NSW EPA Sampling Design Guidelines for Contaminated Sites (published in 1995 and currently under review) provides a methodology for adjusting the number of samples required for different hot spot detection diameters and may be applied by projects in some circumstances to justify reducing the number of samples to a more appropriate level.

3.4.2 Soil sampling - disposal off base

Sampling requirements for the purposes of off-site landfill disposal should be undertaken in accordance with the PFAS NEMP Version 2.0 (HEPA, 2020) and specific State and Territory guidance, and may require other contaminants of concern to be analysed. Engagement with the State and Territory regulator will be required.

3.4.3 Soil sampling - reuse on base

Any reuse on base must be for a beneficial purpose and agreed following consultation with the base ADES/ESM and other relevant stakeholders (see 2.3 and 3.1.1). The PFAS NEMP Version 2.0 (HEPA, 2020) provides further guidance on what is considered beneficial and what constitutes an appropriate assessment of risk.

To evaluate on-base reuse/management options, samples are to be analysed for the following:

a) PFAS analysis that includes the standard laboratory suite as per Appendix B with standard laboratory reporting limits, typically 0.005 mg/kg (5 µg/kg).

b) Other identified contaminants of potential concern based on identification through a preliminary conceptual site model. This may include reference documentation such as desktop studies, PSI or DSI if available. Assessment of soil reuse is based on land use criteria identified in the NEPM and not waste disposal criteria.

For on-base reuse of non-stabilised soils, comparison of leachability between the soil to be moved and the receiving location, using standard laboratory leaching procedures, serves no clear purpose. It is more important to consider the total load of PFAS that may be available to leach at the new location and consider whether that load would meaningfully change the risk profile at that location.

3.5 Soil categorisation

Soils disturbed during construction or maintenance work will fall into one of four categories for PFAS concentrations in soil, where Category 1 is the highest concern (refer to Table 2). Other contaminants of potential concern should be considered separately. The soil categories in Table 2 should not form part of a RAP. Soil below LOR is classed as non-detect.

Table 2 Soil Categories

Category 1	Excavated soils with PFOS + PFHxS concentrations of 20 mg/kg[5] or more.	Unacceptable risk → offsite (destroy or landfill) or onsite (options identified through a RAP) Category 1 soil must be managed to address the risk. Options may include off-base disposal to an appropriately licenced facility or on-site management guided by a RAP. Soil at concentrations > 50 mg/kg should be sent for destruction at a licensed facility. DPFASR can provide advice. If the excavated soil is required to be temporarily stockpiled for later treatment, refer to DCMM Annex C.
Category 2	Excavated soils with PFOS + PFHxS concentrations less than 20 mg/kg but greater than 1 mg/kg[6].	High risk → treat and/or contain Category 2 soil can be reused within the works site provided that exposure to receptors is minimised. This should consider both direct exposure at the site and the potential for PFAS transport due to leaching. If reuse is not appropriate on the works site, then an assessment of risk should be undertaken by a suitably qualified person(s) to evaluate the following options: off-base disposal to an appropriately licensed landfill, or on-base encapsulation, containment and/or treatment. If treatment is required, this needs to be guided by a RAP.
Category 3	Excavated soils with PFOS + PFHxS concentrations less than 1 mg/kg but greater than 0.01 mg/kg[7].	Moderate risk → reuse with assessment and mitigation Category 3 soil can be reused within the works site with no additional mitigation procedures or on-base (subject to Base approvals) if the risk to human health or the environment, as determined by a suitably qualified person(s), is not increased or otherwise results in unacceptable risk. Some mitigation may be required if potential pathways exist and there are potential high sensitivity receptors. The overall load of PFAS in the total volume of soil should also be considered when assessing the risk.
Category 4	Excavated soils with PFOS + PFHxS concentrations less than 0.01 mg/kg.	Acceptable risk → reuse on site or on base without assessment or mitigation unless: • a previous site assessment suggests otherwise • soil volumes > 1,500 m^3 (see section 3.1.4). • reuse is in a high-sensitivity area (see section 3.3)
Non-detect at standard LOR	Excavated soils with PFOS + PFHxS concentrations less than the laboratory LOR.	Acceptable risk → reuse on site or on base without further assessment or mitigation. If offsite disposal is needed, re-analysis at a lower LOR might be required by the jurisdiction or waste receiver.

[5] Human health criterion for direct soil contact for industrial land use, PFAS NEMP

[6] Human health criterion for direct soil contact for public open space, PFAS NEMP

[7] Interim soil – ecological indirect exposure for all land uses, PFAS NEMP

Even if soils are identified as Category 4 or non-detect, if no reuse can be found on-Base, and offsite disposal or reuse are proposed as options, further management may be needed. For example, the jurisdiction authority (e.g. EPA) or the receiver (landfill or resource recovery centre) may still require the soil to be analysed at a lower LOR prior to agreeing to receive the soil.

Extensive testing for PFAS on the Defence estate has not identified PFOA as a limiting factor for decision making. Categorisation of soil is usually determined by PFOS and PFHxS concentrations, as relevant guidelines for PFOA are significantly higher than PFOS and the frequency and levels of PFOA detected are less than combined PFHxS and PFOS.

3.6 Soil management actions

The following soil management actions are outlined in accordance with the soil categories detailed in Section 3.5. These actions only apply to soils that cannot be managed as per standard practice due to the presence of PFAS contamination.

3.6.1 Category 1 soil management

Category 1 soils are to be excavated and treated or temporarily placed in a lined and covered stockpile on-Base at a location authorised by a Defence environmental officer (ADES/ESM/ESO) following consultation with work teams (see section 2.3). Management actions are provided in Table 3.

DPFASR is to be notified when Category 1 soils are encountered. The PMAP for the Base may have identified a preferred management approach for the contamination. Where practicable double-handling should be avoided through aligning the excavation with the treatment.

Table 3 Category 1 soil management actions

Category 1	Management actions
Soil - Human Health –Property Users Commercial / Industrial Setting PFOS + PFHxS > 20 mg/kg	Soils with PFOS + PFHxS of 20 mg/kg or more must be excavated and treated or temporarily stockpiled for later treatment with like materials according to Defence policy. The design of the stockpile cell must be impermeable and prevent leaching.
PFOS, PFOA, or PFHxS >50 mg/kg	The reuse of PFAS contaminated material above the Stockholm Convention low content limit of 50 mg/kg will not be considered.

3.6.2 Category 2 soil management

Category 2 soils may be reused within the works site with appropriate mitigation strategies (Table 4), provided that reuse does not:

- increase the cumulative risk profile at the site i.e. increasing risk from additions of contaminated material over time; each volume assessed on its own might be acceptable but cumulatively they may not be. Increasing total mass of PFAS at a site might become an unacceptable risk
- create new pathways to sensitive environmental receptors (including impacted soil runoff into waterways and migration of leached PFAS into surface waterways or groundwater).

The reuse location should be authorised by a Defence environmental officer (ADES/ESM/ESO) following consultation with work teams (see Section 2.3).

If the works site is unable to feasibly reuse this material (e.g. excess to work needs, geotechnical unsuitability), it may be disposed off-Base, reused elsewhere on-Base with risk mitigation, or managed as per Category 1 soils. If stabilisation is the method chosen to mitigate risk, this must be implemented according to a Remediation Action Plan (RAP). The Defence draft Guidance on Stabilisation and Reinstatement of PFAS Impacted Soils Policy provides details of Defence requirements including how to choose acceptable amendment products, testing for appropriate addition rates and monitoring to ensure long-term performance. Stabilised soils should not be placed in an environmentally dynamic area (such as flood prone areas).

Stabilisation may require ongoing monitoring to demonstrate long-term effectiveness and the cost of this, and the mechanism for this, need to be considered. Without a stabilisation option, reuse would likely be limited to very small volumes that can be accommodated under buildings or sealed roads.

On-Base reuse may require risk mitigation measures such as capping or stabilisation and will be dependent upon the site setting. These measures should be selected following consideration of a Conceptual Site Model (CSM) to identify both receptors and exposure pathways and with the authorisation of a Defence environmental officer (ADES/ESM/ESO) following consultation with work teams. Reuse must not increase the level of environmental risk posed by PFAS impacted materials in their current pre-work state or at the proposed reuse location.

Where soil stabilisation is used to mitigate risks, testing of the reduction of leachability is an important part of validating performance. Similarly, leachability testing (ASLP or TCLP) may be needed to support off-site disposal to landfill. For on-base reuse of non-stabilised soils, comparison of leachability between the soil to be moved and the receiving location, using standard laboratory leaching procedures, serves no clear purpose. It is more important to consider the total load of PFAS that may be available to leach at the new location and consider whether that load would meaningfully change the risk profile at that location.

Table 4 Category 2 soil management actions

Category 2	Management actions
PFOS + PFHxS 1.0 mg/kg to < 20 mg/kg	Exceedance of the Category 2 trigger level does not preclude reuse of these materials on the site. Re-use would require careful assessment of risk. Reuse elsewhere on base will likely require mitigation strategies or any other additional measures to prevent new exposure pathways or an increase in risk to environmental or human health. Off-base disposal is permitted subject to the requirements of the jurisdictional regulator. Pre-treatment may be required.

3.6.3 Category 3 soil management

Category 3 soils can be reused on the works site without further treatment or management or on-Base at locations authorised by a Defence environmental officer (ADES, ESM, ESO) following consultation with works teams (see section 2.3) and an assessment of risk.

The assessment of risk should be undertaken to confirm that there is no increased risk, or unacceptable risk, to human health or sensitive environmental receptors as a result of the re-use. The assessment should have

regard to the total mass loading at the re-use location and the likely mass flux arising from the re-use. This will require a practical and evidence-based approach and may include a review of existing conditions, development of a conceptual site model and an evaluation of the change in relative risk.

In general, the concentration of PFAS in the re-use materials should be lower than those at the proposed re-use location, unless management measures have been assessed and can control risk to the environment. For example:

> Reuse of Category 3 material in a Category 4 area – managed by use of capping layers, compaction, impermeable membranes or clay liners. Capping may be under a bitumen sealed road, runway, apron, car park or designed within a platform, pad or mound and separated from lower concentration material with an impermeable marker layer

If the volume of soil to be moved is relatively small compared to volume of contaminated soil at the receiving site, an assessment of the change in risk based on the change in mass load of PFAS, and how this may impact on receptors, may be sufficient. In other words, a comparison of total and leachable concentrations is likely to be of little benefit in this situation. Expert judgement may be required to determine when this assumption is appropriate.

Table 5 Category 3 soil management actions

Category 3	Management actions
PFOS + PFHxS 0.01 to < 1.0 mg/kg	No additional mitigation is required for work-site re-use. An assessment of risk should be conducted prior to re-use elsewhere on base. If it cannot be determined whether the risk profile of the receiving area will be impacted by the reuse, the management actions for soils will be the same as for Category 2 (see section 3.6.2). Off-Base disposal is permitted subject to the requirements of the jurisdictional regulator.

3.6.4 Category 4 soil management

Soils with PFOS + PFHxS less than 0.01 mg/kg[8] are available for reuse on the works site or on-Base, without further treatment or management, unless other considerations indicate that additional management and risk assessment may be required, such as where sensitive environmental receptors are present (E.g. protected marine areas; wetlands) or the scale of soil volumes involved (>1,500m^3) create a potential risk.

For example, if soil is to be moved to an area near the boundary of the base where wetlands are present, further consideration of the change of risk is appropriate. Additional risk assessment may be required in order to consider:

- The likelihood of runoff and the sensitivity of the potential receiving environment

8 This soil is considered protective of indirect exposure to secondary consumers, as the most sensitive exposure pathway for any land management actions.

- Total PFAS load compared to load at the proposed reuse site, where large volumes of soil are to be moved
- Transfer of risk from one area of base to another
- Leaching into surface drainage and off-base transport pathways.

Agreement must be made with the ESM, BM or their representative on the works team prior to reusing soil on parts of the base other than the work site.

Table 6 Category 4 soil management actions

Category 4	Management actions
PFOS + PFHxS LOR < 0.01 mg/kg	Available for reuse on the works site or on-Base, without further assessment or mitigation unless: • soil volumes >1,500m^3 where total PFAS load may require further assessment and potential mitigation • in a high-sensitivity area • previous site assessment suggests otherwise. Reuse will be subject to Defence approval, such as agreement with the BM or their representative on the works team, or where other considerations indicate that additional management may be required, such as where sensitive environmental receptors are present. Off-Base disposal is permitted subject to the requirements of the jurisdictional regulator.

3.6.5 Non-Detect (below standard LOR)

For soil reuse/re-emplacement on Defence land, using a standard limit of reporting is in most circumstances appropriate for PFAS analyses (see Section 3.4.3). Soil with PFAS concentrations below the standard limit of reporting is considered to be non-detect and can be used on base without further risk assessment or mitigation.

If the soil is to be taken off-Base, there may still be additional requirements for sampling and analysis. The strong preference for such material should be reuse via resource recovery, rather than disposal to landfill, consistent with sustainability objectives. However, the receiving entity and/or the relevant EPA may require that PFAS is analysed at trace or ultra-trace limit of reporting in order to support the possible reuse options. Advice should be sought from the receiving entity as to what requirements are needed to support acceptance of the material. Ideally this consultation should occur at a suitable stage in project design to avoid a hold up during the works implementation stage.

If disposal to landfill is necessary (for example other contaminants of potential concern rule out the possibility of reuse), the standard LOR for PFAS should be used.

4 WATER

Manage environmental water on a work site in accordance with this Chapter.

This guidance applies to water generated or encountered during construction works or dewatering actions (e.g. from a trench), including runoff, surface water drainage, groundwater and stormwater.

It does not apply to waste water from hangar foam suppression testing, cleaning of storage tanks and trucks, waste treatment plants, or any other process or industrial waste water. For such cases, refer to the Defence Pollution Prevention Management Manual.

4.1 Planning for risk management of PFAS contamination in water

4.1.1 Water management principles

Water is the primary pathway for PFAS contamination from its source to people and other receptors. This means that managing contaminated water during works is critical to ensuring that exposure risks (new or increased) are not realised.

The following principles apply to the management of all water on or from works:

- the choice of management action should not pollute the environment;
- the assessment of risk should account for potential bioaccumulation of PFAS in the receiving environment;
- the assessment should account for cumulative increases in PFAS where large volumes (>100,000 L) are discharged or used for irrigation of soil (including repeat discharge of smaller volumes in the same catchment);
- in ecologically sensitive areas, a local catchment assessment may be required to demonstrate that the overall PFAS load within the catchment will not be materially increased;
- the choice of management action must comply with applicable State or Territory legislation with any required licences or permits to be obtained. For example, for water leaving the base, regulators may require management actions that substantively decrease PFAS concentrations or loads to the receiving environment; and
- if there is a reasonable expectation that water may contain PFAS, it should not be used in concrete batching.

A conceptual site model, along with site specific hydrology and hydrogeology needs to be considered when determining the impact of water reuse within the work site, the Base or the broader environment. The assessment should include:

- an understanding of potential migration pathways;
- an understanding of environmental values which may be impacted by change in surface water and groundwater quality;
- presence of sensitive on and off-site receptors;
- seasonal fluctuations in surface and groundwater;
- site drainage;
- evaporation and infiltration rates;

- aquifer/groundwater characteristics; and
- surface water / groundwater interactions.

4.1.2 Prevention of stormwater contamination

Stormwater is surface water that originates from precipitation (rain, hail or snow). Stormwater can take up PFAS from contaminated materials such as soil, concrete and asphalt.

To avoid this, stormwater should be diverted around site excavations, to the extent possible, and managed in line with relevant stormwater practices for the Base. This will limit the volume of water required to be managed for the works.

Dewatering should consider the potential risk of surface water flows taking up PFAS from contaminated surface soils and drainage channels.

4.1.3 Managing very small volumes of contaminated water

When the total volume of water being managed for the works is <1000 L, water should be infiltrated near to the work site or in consultation with the ESM/ESO to another adjacent area. This exemption only applies when the water is removed from and returned to the environment in the same location and at the same time. If this is not the case, the environmental impact of infiltrating the water is required to be assessed by a suitably qualified professional.

4.2 Sampling and analysis

Where water samples are to be collected and analysed for PFAS, the below guidance should be followed.

It is important to obtain samples that represent PFAS concentrations in the water from which they are collected. Conventional sample handling and processing practices can generally be applied for PFAS in water samples, with particular care to be taken to avoid cross contamination. Samples are to be collected by a suitably qualified and experienced environmental professional. Laboratory analysis should be conducted according to the NEPM (2013) and the PFAS NEMP Version 2.0 (HEPA 2020). The standard laboratory suite for PFAS analysis is provided in Appendix B.

Some considerations include:

- selecting appropriate sampling equipment;
- obtaining a representative sample or samples; and
- appropriate labelling, preserving, storing and transporting of samples for analysis.

4.2.1 Project coordination

Sampling of monitoring wells and some surface water locations will typically be coordinated by other programs such as:

- Ongoing Monitoring Program (OMP) or Remedial Action Plans (RAP) under the PMAPs;
- the Regional Contamination Investigation Program (RCIP) delivered through the Directorate of Contamination Assessment, Remediation and Management (DCARM);
- the Routine Investigation Close-Out (RICO) monitoring at sites handed over to DPFASR from RCIP;
- the Water Quality Monitoring Program (WQMP) delivered by the Directorate of Estate and Land Management (DELM).

Data from these programs can be used to inform project planning decisions regarding water management. This includes confirmation of other monitoring activities being undertaken, to avoid duplication of effort and other issues, such as an impact on data integrity (e.g. if a well has been accessed and purged recently by another program).

Where there may be a need for on-base water treatment, consult first with the base and DELM to assess whether there is already a water treatment plant (WTP) on base that might be used. Where possible, coordinate scoping requirements to avoid duplication of capital and operating costs and reduce any program delays. Understanding the impacts of extraction, discharge or reinjection of water is critical to the management of aquifers and other water bodies.

4.2.2 Requests to use established Water Treatment Plants (WTPs)

Treating water

Where projects need to treat environmental water with PFAS as the primary contaminant, there is the option to use the PFAS Water Treatment Plants at RAAF bases Williamtown, Edinburgh, and Tindal, and Army Aviation Centre Oakey. Opportunities should also be considered at other bases where water treatment opportunities might be available. Proponents should follow the below relevant procedure in DEQMS and submit a request form to DPFASR.

Guidance for Requests to Use DPFASR Water Treatment Plants

Request form to use DPFASR Water Treatment Plant

Using treated water

Where projects require construction water for dust suppression, wetting down etc, there is the option to use PFAS treated water from WTPs at RAAF bases Williamtown, Edinburgh, and Tindal, and Army Aviation Centre Oakey. Proponents should follow the relevant procedure in DEQMS and submit a request form to DPFASR.

Process for Provision of WTP Treated PFAS Water to Projects

Request Form to use WTP Treated PFAS Water

4.2.3 Other PFAS compounds

Sometimes there are cases where PFOS, PFOA and PFHxS concentrations in water being assessed for reuse are below LOR but other PFAS compounds in the Standard Laboratory Suite (Appendix B) such as PFBA, 6:2 FTS, 8:2 FTS, PFPeA, PFHxA are reported.

The PFAS NEMP Version 2.0 (HEPA, 2020) advises that management decisions can be made with PFOS, PFHxS, and PFOA in relation to the guideline values[9]. Other PFAS contaminants may affect the certainty with which management decisions can be made. If high concentrations of other PFAS are present, then a more conservative assessment may be warranted and consultation should be undertaken with DPFASR.

[9] Published literature could inform management decisions, or State/Territory specific polices.

4.3 Water management

Water management decisions should consider beneficial reuse options and whether discharge of water may change the risk to the environment or human health. This includes any potential measurable difference to PFAS concentrations in the receiving environment, including surface water, groundwater, soils or biota if discharge was to occur through release of non-treated water or water treated to a certain concentration level. Depending on site specific circumstances, regulators may also require treatment prior to discharge.

Discharge of extracted water may be carried out, subject to State or Territory regulations, in order of preference within the risk assessment process:

a) Irrigation or infiltration on-works site.

b) Irrigation or infiltration off-works site but on-base.

c) Discharge to creeks or storm water drains (on-base or off-base).

Irrigation refers to the controlled supply of water growing plants and can include maintenance of playing fields or watering of other vegetation (gardens, bushes, trees).

Infiltration refers to the process by which water on the ground surface enters the soil. Usually this is achieved by putting water in a trench or turkey nest and allowing water to infiltrate the soil passively over time.

Spraying water for dust suppression can be also considered an activity for controlled infiltration. If the application rate exceeds the infiltration rate, runoff will usually occur unless there is some physical barrier. Ongoing dust suppression can also results in PFAS accumulating in soil which may then be source of PFAS to stormwater.

All discharges of water that may impact on soils, surface water or groundwater require a risk-based assessment that considers:

- concentration of PFAS contamination;
- volume of water to be returned to the environment;
- existing soil and/or groundwater conditions or aquifer properties;
- profile (type, concentration) of other contaminants in the water to be discharged relative to the existing soil/groundwater conditions;
- potential sensitive receptors including aquatic ecosystems and direct contact through recreational water use; and
- regulatory requirements.

Where the assessment of risk concludes that there is an unacceptable risk, water may need to be treated to acceptable levels prior to beneficial reuse, discharge or disposal. Depending on the level of treatment, some of the risks noted about may also need to be considered for the treated water.

4.3.1 Irrigation and Infiltration

Irrigation and infiltration should be located within the work area or as close as practicable to the extraction location, although irrigation may in some circumstances take place on the wider base (sports field maintenance, garden irrigation). Such discharges must be agreed with the ADES/ESM/ESO in advance.

Conduct irrigation in a controlled manner to prevent:

- contamination of non-contaminated areas;

- cumulative increases in PFAS contamination resulting in secondary source areas;
- irrigation or dust suppression run-off beyond the applied area;
- the creation of hydraulic gradients that could result in migration of impacted groundwater into surface water bodies; and
- run-off of irrigation water back to its origin or otherwise creating a water 'loop' that may mobilise additional PFAS contamination from soils, unless the loop is part of a treatment system.

Irrigation and infiltration of large volumes of water should be confirmed by an environmental consultant in consultation with a Defence environmental officer once the dewatering volumes and site conditions have been assessed. Projects with extensive lengths of trenching should assess water management as a whole and not divide the project into smaller work areas in order to apply lower volume criteria.

Suitable storage capacity must be provided to allow controlled irrigation, including consideration of precipitation affecting volumes if stored in an open manner, such as holding dams or evaporation ponds. Management measures depend on the volume of extracted water to be irrigated, as provided in Table 7. Refer to the work objectives and application of this framework and source all available data to use professional judgement in making an assessment of risk.

Decision paths for water discharge are provided in Flowchart 1.

Table 7 Management of Extracted Water

Total volume	Irrigation and Infiltration Management Measures
1,000 – 100,000 L	If the PFAS contamination levels of the discharged water are less than or equal to contamination levels in the groundwater and there is no change to the risk profile or cumulative environmental impact caused by discharge, and no unacceptable risk, then no treatment is required and water can be used for irrigation and infiltration.
> 100,000 L	The proposed discharge by irrigation/infiltration should not result in an increased ecological risk, as determined through consultation and assessment of risk by a suitably qualified environmental consultant. This must include an assessment of groundwater-surface water interactions. Where drinking water is known to be a beneficial use for groundwater in the vicinity of the base, an environmental consultant should confirm whether there is a pathway to the drinking water source and assess the risk to sensitive receptors. Treatment of water may be required to mitigate the risks.

4.3.2 Treatment criteria - discharge on-base

If environmental water from a project is to be treated using an existing DPFASR water treatment plant, the treatment criteria or targets contracted for that plant will apply.

If discharge of water on base is likely to result in water transport off base (e.g. via creeks or drains) the considerations for off-base discharge apply (Section 4.3.3).

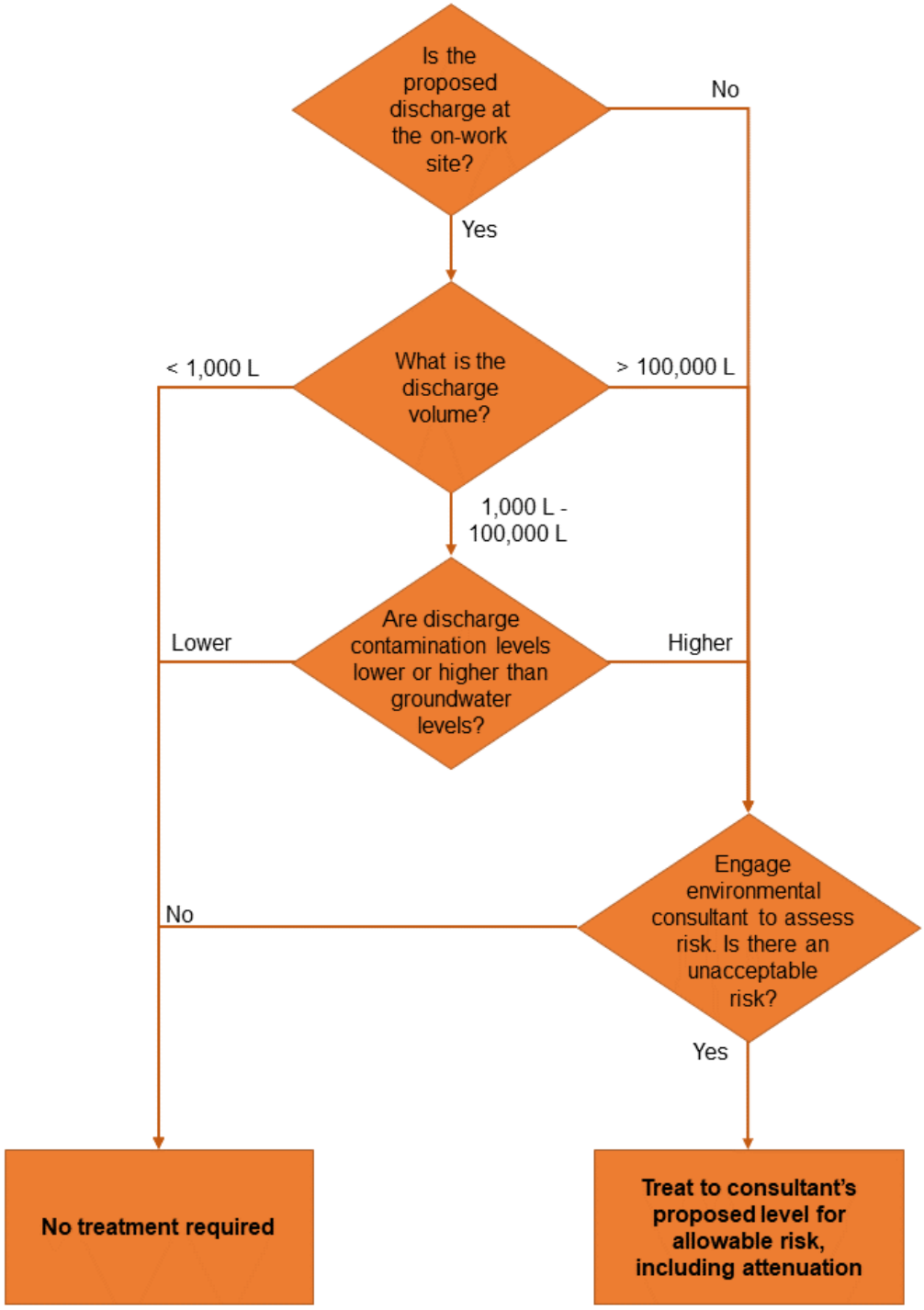
4.3.3 Treatment criteria –discharge off-base

This section applies in the context of treated water taken from the environment to another area arising from construction and maintenance projects only. Discharge via creeks or stormwater drains may only take place:

- in consultation with DPFASR
- where PFAS concentrations are less than the NEMP screening criteria; and
- in accordance with relevant state/territory laws and local water authorities including holding any required licences and permits.

Discharge of contaminated water via creeks or stormwater drains is likely to directly result in an exposure pathway to potential human health or ecological receptors. Therefore, conservatism in decision-making should apply. If treatment is required, water discharged to drainage or surface water should be treated to the NEMP screening criteria or in accordance with a negotiated agreement with the jurisdictional regulator.

Flowchart 1 - Treatment options for irrigation and infiltration



Water discharge to be conducted in a controlled manner.

5 CONSTRUCTION AND DEMOLITION WASTE

5.1 Construction and Demolition waste – management principles

For the purposes of this guidance, Construction and Demolition (C&D) waste refers to materials of the built or natural environment that is neither 'soil' (see Chapter 3) nor 'water' (see Chapter 4). It includes materials that are commonly recycled such as concrete, bricks, asphalt, tiles and metals and materials that are commonly reused or reprocessed such as green waste, trees and boulders.

Currently in Australia there is insufficient regulatory guidance on management options for PFAS contaminated C&D waste. This chapter has been prepared in the interim to bridge this gap in regulatory guidance.

This chapter is subject to and must be read in the context of all other Defence guidance and policy on C&D waste and nothing in this chapter provides authority to deviate from standard Defence policy. This includes but is not limited to:

- Defence Pollution Prevention Management Manual
- Defence Contamination Management Manual
- *Defence Waste and Recycled Materials Handbook* (in preparation)

5.2 Lessons from previous investigations

The extent to which construction materials, plant and equipment may become contaminated will depend on several factors including:

- **Contact** with PFAS impacted soil or water, for example a building slab located in a PFAS contaminated area is more likely to be PFAS impacted than the building walls sitting on the slab. Similarly, pipes carrying PFAS contaminated water may become PFAS impacted, even if the pipes themselves run through an otherwise PFAS free location.
- **The type of material** and its porosity will influence the ability and rate at which PFAS contamination in surrounding soil or water can absorb into the material. For example, asphalt and concrete are known to more easily absorb PFAS than steel.
- **Exposure concentration,** the higher the concentration of PFAS in surrounding soil or water, the higher the potential concentration of PFAS absorbed into the construction materials, particularly if exposure has occurred over a long period of time.
- **Exposure duration,** the longer the construction materials, plant and equipment have been in contact with PFAS contaminated soil or water the more PFAS can be absorbed.

Defence has commissioned a significant amount of testing for PFAS in the natural and built environment. Table 8 summarises important context for this chapter.

Table 8 Observations of PFAS contamination likelihood

LIKELY to be contaminated by PFAS – warrants sampling and analysis for PFAS	NOT likely to be contaminated by PFAS – does not warrant sampling and analysis for PFAS
• Building materials in direct contact with PFAS concentrate; the application of PFAS containing foams; operating structures in trade waste treatment plants, or sewage treatment plants. • Porous building materials in contact with elevated concentrations of PFAS. Typical building materials that are considered porous include: masonry, concrete and timber. • Fire training mock ups. • Vegetation on or immediately adjacent to primary source areas such as fire training grounds. • Tanks and pipes used for PFAS concentrate, fire training wastewater, trade waste or sewage treatment plants. • Concrete or asphalt pavement used for PFAS training. • Areas where PFAS containing foam was used for incident response.	• Building materials (excluding pipes) in contact with concentrations of PFAS < 1 mg/kg in soils or < 10 µg/L in waters. • Non-porous construction materials unless identified in one of the categories under "Likely to be contaminated by PFAS". Such materials typically include metal and plastic objects (e.g. steel/plastic fencing, pipes, and sheet piles), plant and equipment (e.g. water tanks, plastic or metal pipes, pumps, water carts, mobile plant and equipment). • Vegetation in areas not directly adjacent to source areas such as fire training grounds or that did not receive regular applications of PFAS containing foam. • Other tanks and pipes. • Other concrete or asphalt roads and pavements. • Car parks.

5.3 Whether to conduct sampling of C&D waste

5.3.1 Sampling requirements

Refer to Flowchart 2 for determination of sampling requirements of C&D waste. Where sampling of C&D waste is required:

- the PFAS suite must include the standard laboratory suite as per Appendix B with standard laboratory reporting limits (typically 0.005 mg/kg, 5 µg/kg), subject to matrix interference; and
- the analysis must include other identified contaminants of potential concern.

Samples should be taken from both the material estimated to be the most highly contaminated, and material likely to be representative of the bulk of the area to be removed in order to determine a conservative estimate of the concentration of PFAS within the material.

If there is significant variability of contamination levels, material with differing levels should be segregated and managed according to the contamination levels. This will allow more efficient management of waste by avoiding contaminating large volumes of low contaminated waste by mixing with smaller volumes of highly contaminated waste.

There is no need to test vegetation, including trees, shrubs or grasses for PFAS unless the material has been removed from a primary source area such as a fire training ground.

Non-porous materials such as metal should only be tested where they have been used in areas of high PFAS contamination, such as a ship-board mock-up used for emergency training exercises. In such cases, swab testing can be used according to instructions from the laboratory to indicate surface contamination that may indicate cleaning is needed prior to disposal, or disposal as hazardous waste.

5.3.2 Disposal to commercial landfill

If the C&D waste is to be disposed to a commercial landfill, it must be classified in accordance with standard practice and the waste regulations for the relevant jurisdiction. If this process does not require testing for PFAS and the source of the C&D waste is listed in the right hand column of Table 8 above, then the C&D waste should not be tested for PFAS.

Cleared vegetation from non- primary source areas should have any soil knocked from the roots prior to disposal.

Where landfill disposal is to be considered, Toxicity Characteristics Leaching Procedure (TCLP), Australian Standard Leaching Procedure (ASLP) or Total Oxidisable Precursor Assay (TOPA) tests may be required by the State or Territory regulator. Confirm the specific requirements with the landfill operator and the regulator.

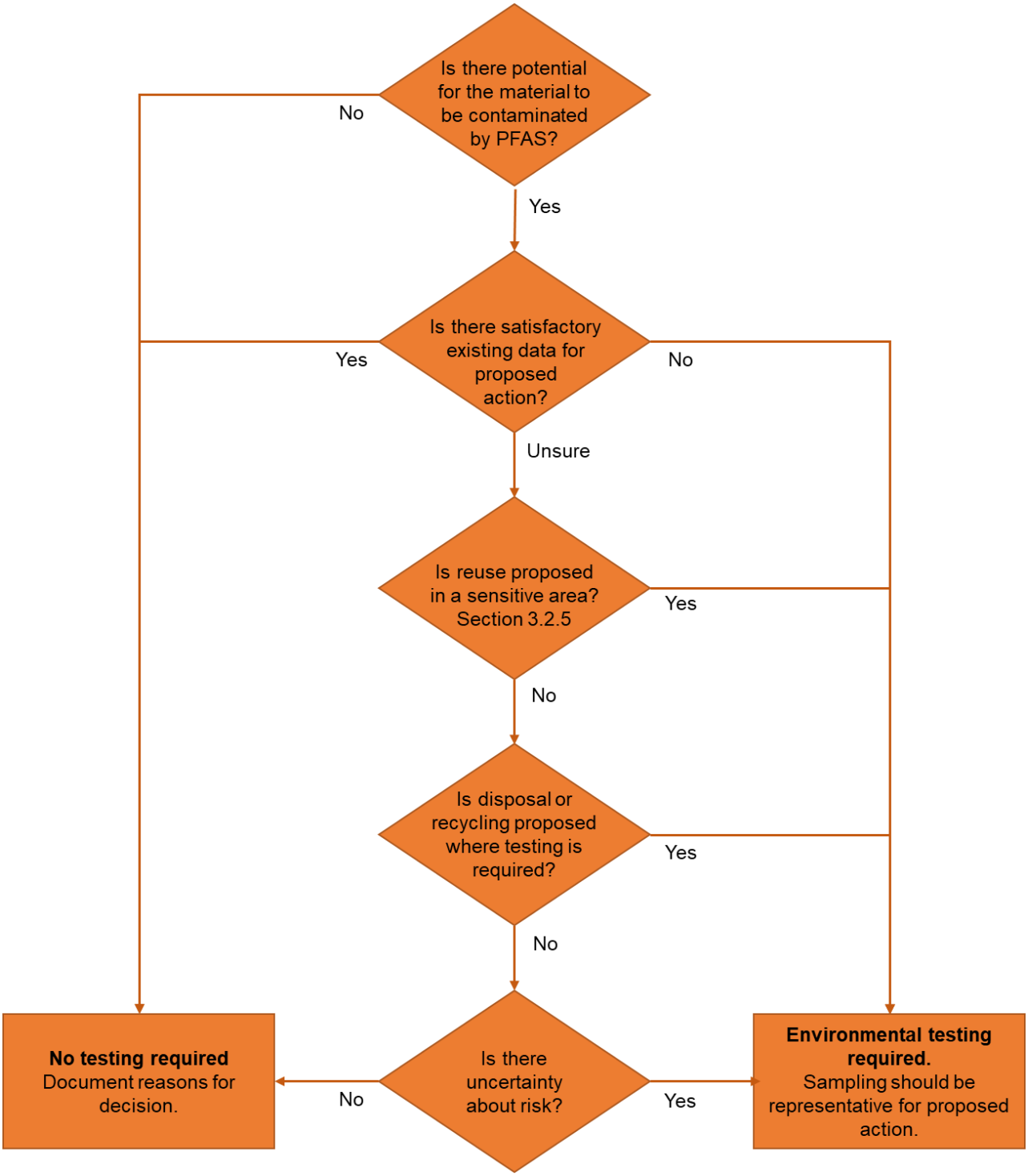
5.4 Beneficial reuse of C&D waste

Beneficial reuse of C&D waste is best practice, where practicable. Beneficial reuse of materials avoids the need for stockpiling or disposal which can save costs associated with ongoing stockpile management and monitoring. While beneficial reuse of materials helps to achieve Defence's sustainability goals, C&D waste should only be reused on the Defence estate in accordance with relevant guidelines and policies.

Analysis and beneficial reuse of C&D waste should ensure that the receiving environment has the same or higher risk profile and new potential pathways to sensitive environmental receptors are not created. Reuse should not increase the level of environmental risk posed by PFAS impacted materials in their current pre-work state.

Mulched vegetation, including trees, should if possible be reused on base for garden cover. Mulch generated from primary source areas should be reused in consultation with the ESM. It should not be disposed of to landfill or to a recycling facility. There is not enough scientific literature or regulatory guidance available to provide definitive criteria for management options on C&D waste. The soil criteria should not be used in the absence of guidance values.

Flowchart 2 – Sampling considerations for C&D waste



APPENDIX A: GLOSSARY

ADES	Assistant Director Environment and Sustainability
AFFF	Aqueous film forming foam
ASLP	Australian Standard Leaching Procedure
Attenuation	For PFAS in soil or groundwater, attenuations refers to dilution and adsorption but degradation is not relevant (Ref Flowchart 1).
Base	In this document, a reference to 'base' also includes a reference to other properties on the Defence estate.
BM	Base Manager
BSC	Base Services Contract
C&D waste	Materials that are not defined as soil or water. Includes concrete, bricks, asphalt, and metals. It does not include rocks and excavation stone
CFI	Defence Capital Facilities and Infrastructure Branch
CSM	A Conceptual Site Model identifies the source of the contaminants, where they are currently found (source), any transport pathways including biological or geochemical transformations, and where they eventually end up (receptors). This information is used to identify the potential risks to human health and ecosystems
Cumulative Environmental Impact	Cumulative environmental impacts result from different actions that would not normally be accounted for collectively but may, when considered together, cause risk to the environment through accumulation. Risk management actions should account for cumulative exposure that may heighten potential impact to the receiving environment.
DCARM	Directorate of Contamination Assessment, Remediation and Management
DCMM	Defence Contamination Management Manual
DELM	Directorate of Estate and Land Management
DPFASR	Directorate of PFAS Investigation and Remediation
EMOS	Estate Maintenance and Operational Services
ESM	Defence Environment and Sustainability Manager
ESO	Defence Environment and Sustainability Officer
GEMS EFM-CSR	Garrison Estate Management System, Environmental Factor Management - Contaminated Sites Records
DSI	Detailed site investigation
ECC	Environmental Clearance Certificate
EE	Defence Environment and Engineering Branch
ERA	Ecological Risk Assessment

EPA	Environment Protection Authority – generally a state/territory environmental regulator
EPBC Act	Environment Protection and Biodiversity Conservation Act, 1999
Exposure pathway	The means by which hazardous substances move through the environment from a source to a point of contact with a receptor (such as a person)
FSANZ	Food Standards Australia New Zealand
HBGV	Health Based Guidance Values
HEPA	Heads of EPAs Australia and New Zealand
HHERA	Human Health and Ecological Risk Assessment
HHRA	Human Health Risk Assessment
HOTO	Handover/Takeover
Infiltration	The process by which water on the ground surface enters the soil
IRM	Interim Response Management
LOR	Limit of reporting
NEMP	PFAS National Environmental Management Plan Version 2.0, Heads of EPA Australia and New Zealand 2020
NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
OMP	Ongoing Monitoring Plan (for PFAS, under the PMAP)
PDS	Project Delivery Services
PFAS	Per- and Poly-fluoroalkyl Substances. The principal compounds, and those being managed by this Framework, are PFOS, PFOA and PFHxS
PFHxS	Perfluorohexane sulfonate
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PMAP	PFAS Management Area Plan
PMCA	Project Management Contract Administrator
PPMM	Pollution Prevention Management Manual
PSI	Preliminary Site Investigation
RAP	Remediation Action Plan
RCIP	Regional Contamination Investigation Program
RICO	Routine Investigation Close-Out
Receptor	Who or what can be affected by pollution
Sensitive receptor	People or other organisms that can be adversely impacted by exposure to pollution or contamination because of increased sensitivity or increased exposure

SDD	Defence Service Delivery Division
SME	Subject Matter Expert
Source	A source can be primary or secondary. Primary sources are generally areas where AFFF was used or stored, secondary sources may be an accumulation of contamination in the environment that causes secondary effects.
TCLP	Toxicity Characteristic Leaching Procedure
TOP Assay	Total Oxidisable Precursor Assay
Works site	The defined area for carrying out specific works.
WQMP	Water Quality Monitoring Plan
WTP	Water treatment plant

APPENDIX B: STANDARD LABORATORY SUITE

CORRECT AS AT JUNE 2021

Group	Acronym	Chemical Compound	CAS No
Perfluoroalkane Sulfonic Acids	PFBS	Perfluorobutane sulfonic acid	375-73-5
	PFPeS	Perfluoropentane sulfonic acid	2706-91-4
	PFHxS	Perfluorohexane sulfonic acid	355-46-4
	PFHpS	Perfluoroheptane sulfonic acid	375-92-8
	PFOS	Perfluorooctane sulfonic acid	1763-23-1
	PFDS	Perfluorodecane sulfonic acid	335-77-3
Perfluoroalkane Carboxylic Acids	PFBA	Perfluorobutanoic acid	375-22-4
	PFPeA	Perfluoropentanoic acid	2706-90-3
	PFHxA	Perfluorohexanoic acid	307-24-4
	PFHpA	Perfluoroheptanoic acid	375-85-9
	PFOA	Perfluorooctanoic acid	335-67-1
	PFNA	Perfluorononanoic acid	375-95-1
	PFDA	Perfluorodecanoic acid	335-76-2
	PFUnDA	Perfluoroundecanoic acid	2058-94-8
	PFDoDA	Perfluorododecanoic acid	307-55-1
	PFTrDA	Perfluorotridecanoic acid	72629-94-8
	PFTeDA	Perfluorotetradecanoic acid	376-06-7
Perfluoroalkyl Sulfonamides	FOSA	Perfluorooctane sulfonamide	754-91-6
	MeFOSA	N-Methyl perfluorooctane sulfonamide	31506-32-8
	EtFOSA	N-Ethyl perfluorooctane sulfonamide	4151-50-2
	MeFOSE	N-methyl perfluorooctane sulfonamidoethanol	24448-09-7
	EtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol	1691-99-2
	MeFOSAA	N-methyl perfluorooctane sulfonamidoacetic acid	2355-31-9
	EtFOSAA	N-ethyl perfluorooctane sulfonamidoacetic acid	2991-50-6
(n:2) Fluorotelomer Sulfonic Acids	4:2 FTS	4:2 Fluorotelomer sulfonic acid	757124-72-4
	6:2 FTS	6:2 Fluorotelomer sulfonic acid	27619-97-2
	8:2 FTS	8:2 Fluorotelomer sulfonic acid	39108-34-4
	10:2 FTS	10:2 Fluorotelomer sulfonic acid	120226-60-0

The standard PFAS Suite is based on consideration of:

- US EPA Method 537.1 (November 2018). Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), Publication EPA/600/R-18/352 Version 1.0.
- Western Australia Department of Environment Regulation (WA DER; January 2017). Interim Guideline on the Assessment & Management of Perfluoroalkyl & Polyfluoroalkyl Substances WA DER, US EPA Method 537 and US EPA Method 821.
- Table B15 of US DoD/DoE QSM 5.2.
- Current capabilities of analytical laboratories in Australia.

The laboratory is required to use NATA accredited methods based on NEPM, US EPA, Table B15 of US Department of Defence/Department of Energy (US DoD/DoE) Quality Systems Manual 5.2 (QSM) and American Society for Testing and Materials (ASTM) methods as appropriate.

The laboratory shall undertake all PFAS analysis in accordance with Table B15 of US DoD/DoE QSM 5.2. Where the laboratory is currently using a method not in accordance with Table B15 of US DoD/DoE QSM 5.2 it should specify the methodology used, variation from Table B15 of US DoD/DoE QSM 5.2 and capacity to modify current methods in accordance with Table B15 of US DoD/DoE QSM 5.2.