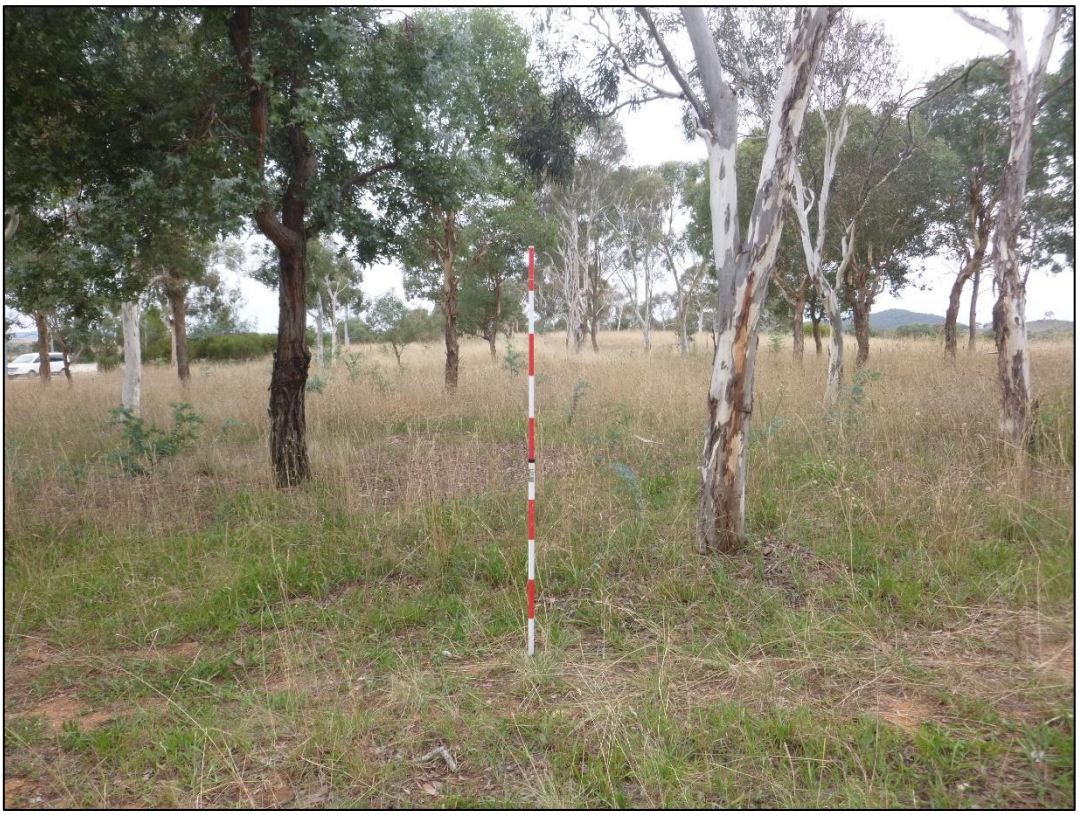
PastTraces Heritage Consultants

Hume Bushfire and Response Training Centre

Aboriginal Cultural Heritage Assessment.



Report Prepared for Forestrack

31/03/2021

Document Control

Revision	Date	Author	Reviewed By
V1	18/03/2021	Georgia Scully	Lyn O'Brien/ RAOs/Client
F1			

Disclaimer

Past Traces Pty Ltd has undertaken this assessment in accordance with the relevant Federal, State and Local Government legislation. Past Traces accepts no liability for any damages or loss incurred as a result of use for any purpose other than that for which it was commissioned.

Restricted Information

Under Part 9 of the Heritage Act 2004 information contained within this report is restricted and should not be made publically available. The information that is restricted includes (but is not limited to):

- Maps, Mapping Grid Reference Co-ordinates or images for Aboriginal heritage sites, places and objects.
- Location or detailed information regarding places of Aboriginal cultural significance, as expressed or directed by Representative Aboriginal Organisations, Aboriginal elders, or members of the wider Aboriginal community.
- Other culturally appropriate restricted information as advised by Aboriginal representatives and traditional knowledge holders.

Information in the report covered by the above categories should be redacted before being made available to the general public. This information should only be made available to those persons with a just and reasonable need for access.

Acknowledgements

This report would not have been possible without the assistance of the following people and organisations in the preparation of this report:

- Reuben House - Mirrabee
- Wally Bell – Buru Ngunawal Aboriginal Corporation
- James Mundy – Ngarigu Currawong Clan
- Adrian Brown – King Brown Tribal Group
- Julia Maskell and Meaghan Russell - ACT Heritage

Abbreviations

CHA – Cultural Heritage Assessment

RAO – Representative Aboriginal Organisation registered under *Heritage Act 2004*

PAD – Potential Archaeological Deposit

SHE – Statement of Heritage Effects

UFP – Unexpected Find Protocol

CONTENTS

Figures

EXECUTIVE SUMMARY

Past Traces Pty Ltd has been engaged by Forestrack to prepare a Cultural Heritage Assessment (CHA) to identify constraints and provide planning information for the proposed Bushfire and Response Training Centre to be located in Hume ACT. The project area covers approximately 3.5 hectares (ha) of Hume Block 45 Section 3. A heritage assessment completed over the block in 2010 (CHMA 2010) identified no heritage sites and recorded a high level of disturbance within the main section of the block (area 1) and identified that potential remained in the north and eastern areas (Area 2). ACT Heritage Council advice requires a survey and assessment of this section (Area 2) and as a result this assessment has been undertaken to determine any potential heritage impacts from the proposed development. The project area is shown in Figures 1 and 2.

This assessment reviewed previous work in the area to gain background information, inform predictive modelling and completed a field survey across the project area to determine if any heritage constraints apply to the project area or the potential to impact on any heritage sites is present.

Archaeological site patterning in the region shows a landscape dominated by low density artefact scatters focused on the areas of Dog Trap Creek to the north west of the project area and Jerrabomberra Creek to the north east. Heritage studies have been undertaken in the surrounding areas for the future developments within the Hume Valley (Ozark 2012, Ironbark 2014, NOHC 2004 a and b) which have located numerous small artefact sites focused on ridge lines, spur crests and reflecting a concentration on creek line utilisation. No recorded heritage sites are located within the project area.

The project has the potential to impact on unidentified Aboriginal and historic heritage sites (places and/or objects), which are protected under the ACT *Heritage Act 2004.* The purpose of the heritage assessment is therefore to investigate the presence of any heritage sites and to assess the impacts and management strategies that may mitigate any potential impact.

Consultation with the Aboriginal Representative Aboriginal Organisations (RAOs) has been undertaken in accordance with ACT Heritage guidelines and the *Heritage Act 2004*. The RAOs were provided with report details, participated in the field survey and provided guidance in regard to significance and appropriate management strategies.

Field survey was undertaken on the 16 March 2021 to confirm the findings of the desktop assessment. The field survey located no Aboriginal or historical sites.

Low to moderate surface visibility (GSV) was present throughout the alignment as a result of intermittent and sparse grass coverage. Small areas of exposure, due to displaced soils, vegetation clearance, old vehicle tracks and areas of erosion were present throughout the project area. Based on the previous levels of disturbance through the project area, no areas of potential archaeological deposit (PAD) were identified within the project area.

As a result of the assessment completed for the project the following findings and recommendations apply:

- No identified Aboriginal heritage sites, or areas of PAD are located within the project area.
- There are no known heritage impacts from the proposed project and as a result no submission of a Statement of Heritage Effects (SHE) for approval to the ACT Heritage Council is required.
- The project should be able to proceed without any further heritage investigations.
- All Aboriginal objects and places are protected under the ACT *Heritage Act 2004*. It is an offence to disturb an Aboriginal site without approvals granted by the ACT Heritage Council. Should any Aboriginal objects be encountered during works then works must cease immediately in the vicinity of the find, and the find should not be moved until assessed by a qualified archaeologist with the participation of the RAOs. Adherence to the Unexpected Discovery Plan (UDP) attached at Appendix 2 is required.
- This CHA should be submitted to ACT Heritage Council for endorsement prior to works commencing.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Past Traces Pty Ltd has been engaged by Forestrack to prepare a Cultural Heritage Assessment (CHA) to identify constraints and provide planning information for the proposed Bushfire and Response Training Centre. The project area covers approximately 3.5 ha of Hume Block 45 Section 3. The project area is shown in Figure 1 in a regional context and in detail in Figure 2.

Secure Aviation (Holdings) Pty Ltd and Forestrack Pty Ltd provide both airborne and ground-based services to a range of emergency and strategic response operations. To meet growing demand, a strategic operations base is required at a suitable location within the ACT. Block 45 Section 3 Hume has been identified as a potential location for development.

The project area is bounded on three sides by constructed roadways and the majority of the block has been modified and has been assessed as holding no potential for heritage sites (Area 1). The remainder, consisting of the north and eastern boundaries consist of areas of prior disturbance and tree plantings. This section has been designated as Area 2. Though these past activities have reduced the potential for heritage sites to be present within Area 2, assessment of this section of Block 45 is required to determine the potential impacts of the proposed development.

This CHA has reviewed heritage registers and previous work in the area to gain background information, inform predictive modelling and completed a field survey across the project area to determine if any heritage constraints or the potential to impact on any heritage sites is present.

1.2 PROPOSED WORKS AND IMPACTS

The proposed works involve redevelopment of the block to allow for construction of the following:

- Access road from Shepperd Street
- Buildings for offices and training facilities
- Storage facilities
- Hard stand areas for vehicles and heavy emergency vehicles parking
- Helicopter landing pad

The proposed layout of the facilities and impact footprint within Block 45 Section 3 Hume is shown in Figure 3.

ACTmapi

Figure 1. Project Area in regional context

Notes:

1: 20,000

DISCLAIMER

The map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current or otherwise reliable.

06-Apr-2021 *Page 1 of 1*

ACT Government

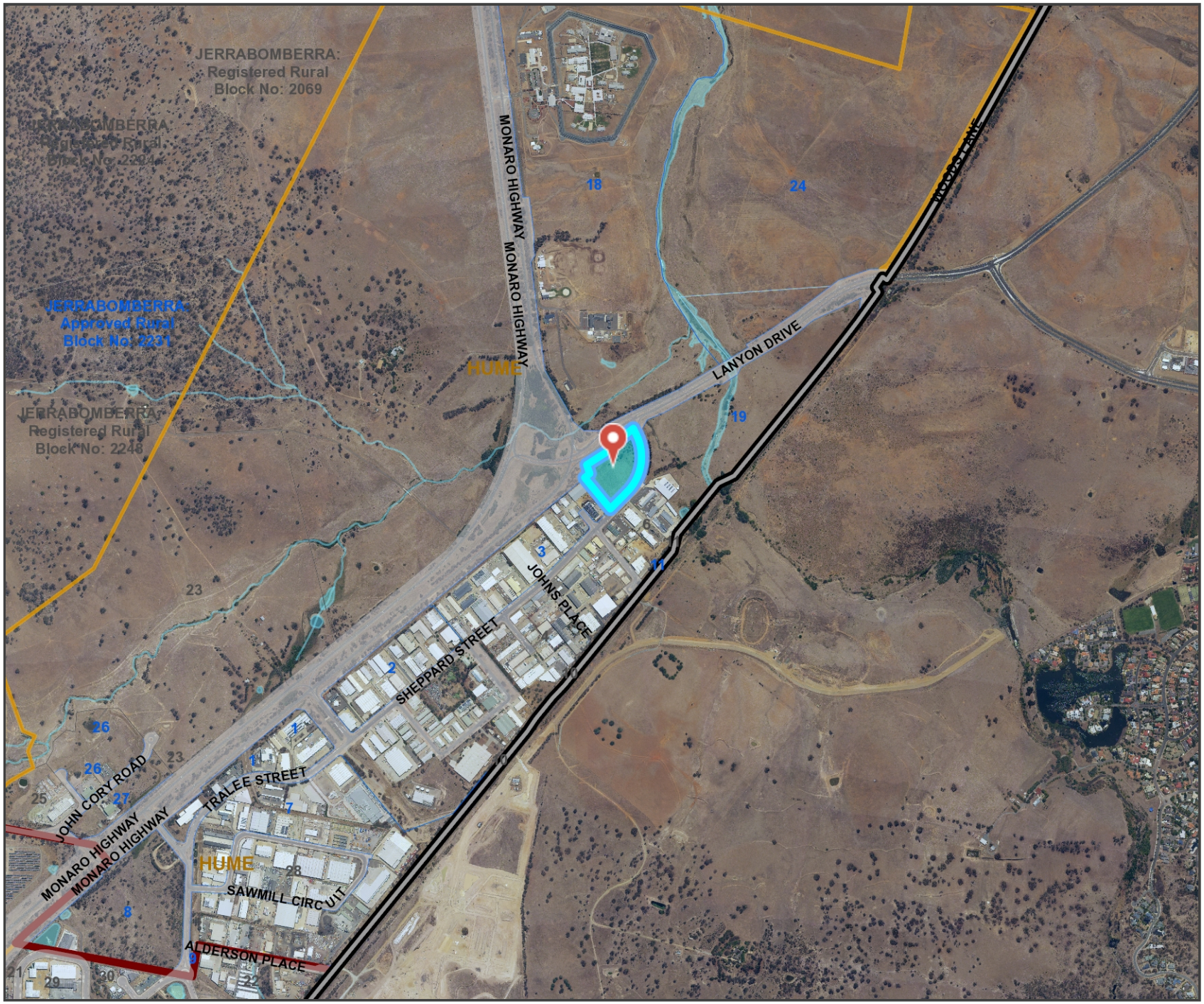
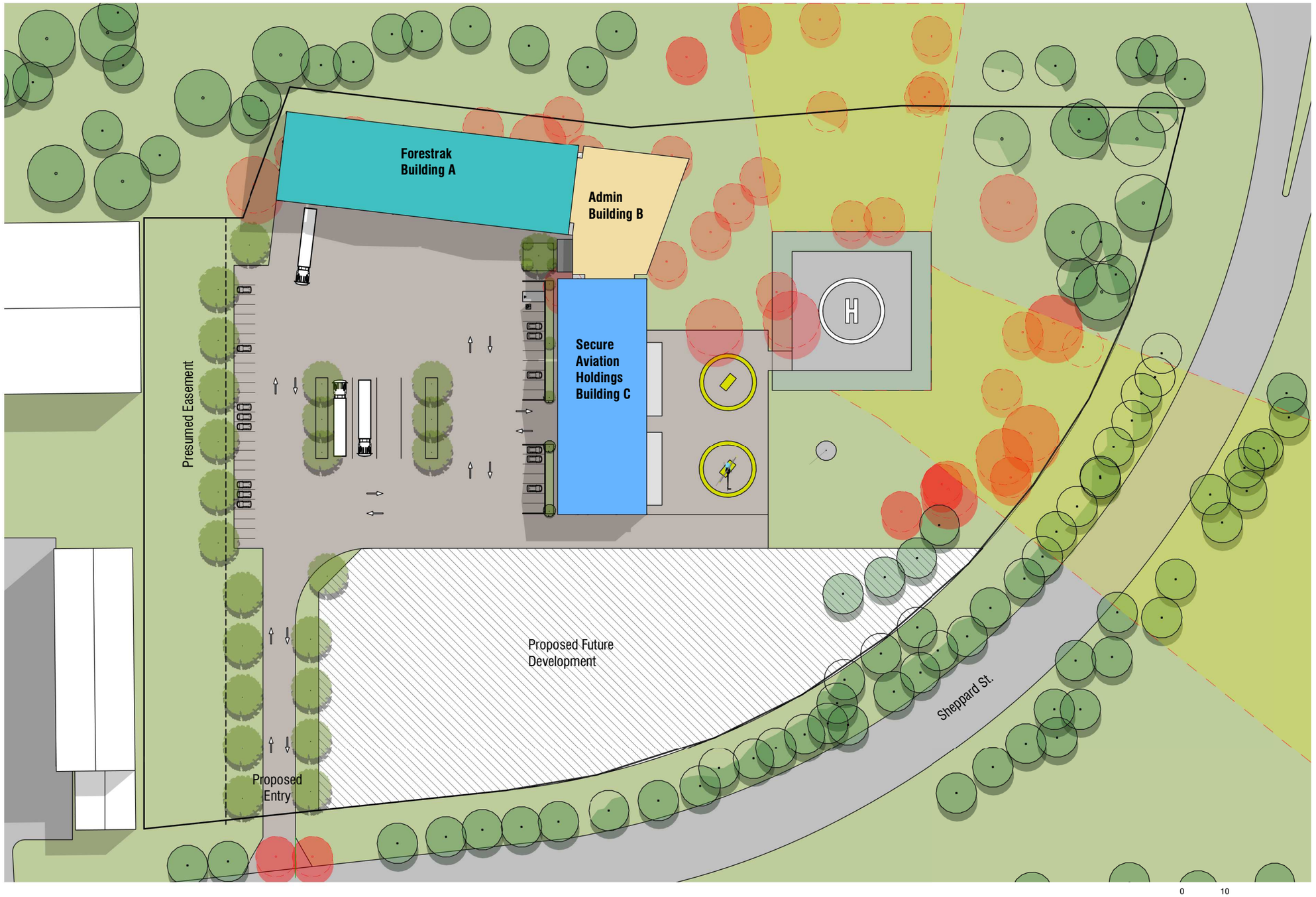


Figure 2. Detail of project area (base map supplied Canberra Town Planning)

Proposed TRG Bushfire Response and Training

Block 45 Section 3
Hume, ACT

AMC ARCHITECTURE +



LEGEND

- Aviation Training
- Forestrak
- Secure Aviation
- Carparking Surface
- Landing Site
- Landing Pad
- Helicopter Stand
- Flight Path
- Proposed Future Development
- Existing Tree
- Tree to be removed
- Proposed Tree

Figure 3: Proposed Development

0 10 50 100m

SCALE: 1:1000

DRAWING	REV	DATE	SCALE	TITLE
SK11	1	08.11.2019	1 : 1000	MASTERPLAN

Suite 1.01, Level 1, 10 Hobart Place, Canberra City ACT 2600
T 02 6257 3222 F 02 6257 4190
AMCARCHITECTURE.COM.AU

1.3 ABORIGINAL CONSULTATION

The four Representative Aboriginal Organisations (RAOs) for the ACT were consulted for the project. The consultation process has been undertaken in accordance with ACT Heritage guidelines and the *Heritage Act 2004*. All of the RAOs were informed of the project and invited to participate in the field survey. All of the RAOs participated in the field survey of the project area and provided guidance in regards to the potential of the area and appropriate management strategies.

The RAOs consulted are:

- Mirrabee
- King Brown Tribal Group
- Buru Ngunawal Aboriginal Corporation
- Ngarigu Currawong Clan

In addition to the discussions held on site with the RAOs, phone calls were placed to each RAO on completion of the draft report to ensure that all comments had been incorporated and to ask for their immediate attention to the review of the draft report due to the urgency of the project. A draft of this report was supplied for comments and follow up phone calls made to each of the RAOs if no response was received to determine if they had any concerns with the management outcomes. The process of consultation to the development of this CHA is provided in Appendix 1.

1.4 REPORT AIMS AND FORMAT

The CHA is being undertaken to complete the following objectives:

- Review of the ACT Heritage sites register to identify any recorded heritage sites within the project area.
- Review of previous reports in area to develop predictive model of site location
- Consult with Aboriginal RAOs
- Assess landforms present in project area against predictive model to determine potential for heritage sites and determine level of disturbance
- Complete field survey over the project area to visually inspect landforms and assess potential based on predictive model. The site visit will also document levels of disturbance within project area.
- Record and assess sites identified during the survey as well as areas of Potential Archaeological Deposits (PADs)
- Identify impacts to all identified Aboriginal cultural heritage sites and places as a result of the proposed works

- Complete CHA report with management recommendations to avoid or minimise impacts within the project area.

The CHA follows the following format as required under ACT Heritage guidelines:

- Review of background information
- Results of field survey and site visit
- Management recommendations – provides mitigation strategies to avoid or minimise impact to unidentified heritage sites.
- Record of Consultation
- Unexpected Finds Protocol.

2 BACKGROUND INFORMATION

The following section briefly summarises the geology and landforms, flora and fauna of the project area. The discussion focuses on those elements of the natural environment that may have influenced past human behaviour and archaeological site formation processes.

2.1 REVIEW OF LANDSCAPE CONTEXT

2.1.1 Geology and Topography

The Hume project area is underlain by the Late Silurian Deakin Volcanics of the Laidlaw Volcanic Suite (Canberra 1:100,000 Geological Sheet). These late Silurian volcanic systems consist mainly of ignimbrite, rhyolitic and dacitic tuffs. Quartz will be present naturally within these formations along with shales. A common geological feature of the area is highly weathered bedrock. Thin shallow soils characterise the area, highly acidic and easily erodible. A duplex soil system overlaying clay bedrock appears in profile across the area (Abell 1991).

The topography of the region consists of gently undulating hills and fans, and valley flats rising to the Tralee Hills to the south. The project area is located on a level area with no drainage lines within the project area boundaries. Dog Trap Creek is the closest water source, running to the north of the project area, with Jerrabomberra Creek located to the east of the project area.

2.1.2 Soil Landscapes

The soils within the project area consist of the Williamsdale Soil Landscape. The Williamsdale Group contains moderately deep well drained Yellow Chromosols on Red and Brown Kandosols on upper rises and fan elements. Moderately to very deep Sodosols on lower rises and fan elements (Jenkins 2000: 132). These soils are hard setting and erodible and also part of a transferral landscape. The topsoils are typically acidic.

Soils on slopes range from texture-contrast Yellow Chromosols to more massive and gradational Red and Brown Kandosols (Red and Yellow Earths). Intergrades between the Chromosols and Kandosols are common. In drainage lines, soils are usually poorly drained, texture contrast and sodic. As part of her PhD Thesis, Hook (1990) examined a small portion of the Williamsdale (wiw) soil landscape. She noted that "...a considerable range in profile form occurs within a small area... this variation leads to major differences in classification." On better drained low sloping land, Red and Brown Kandosols (up to 25% of the landscape) are found in preference to Yellow Chromosols.

2.2 FLORA AND FAUNA

The natural vegetation across the project area has been cleared for pastoral grazing and now consists of open paddocks with pockets of remnant woodland tree species such as Yellow box or Blakely Red Gum within a majority of Brittle Gum forest. Prior to the clearance of the natural vegetation the area would have supported a tall open mixed woodland. These communities supported a wide range of edible plant and fauna species. Fauna present would range from small marsupials (i.e. possums), to avian species and macropods. A range of lizards also inhabit this environment that would have been utilised by Aboriginal groups. The NSW OEH lists over 200 flora and fauna species as present within these woodlands, the majority of which had some utilisation in traditional Aboriginal lifeways.

The Jerrabomberra Creek to the north and east of the project area would have focused activity including camping sites with a variety of resources, such as fish, yabbies, turtles and in the past platypus. Archaeological testing has also shown that Dog Trap Creek to the north of the Monaro Highway was also a focus of activity with large sites recovered (CHMA 2010).

Tributary creek lines also focused mammal and birdlife providing hunting opportunities and access to water supplies. Larger creek lines also supplied fibrous material for weaving into twine for use in a range of activities as well as providing edible tubers and reeds (Percival and Stewart 1971). The ecology report for the area, shows the presence of Native Geranium, a species of tuber harvested by the Ngunnawal and Ngambri people as a traditional food source (Pathco 2020).

2.3 HISTORIC LAND USE

The project area was recorded on Captain M. Currie's 1825 Exploration Map as part of the Isabella Plains. By 1833, the land is part of the larger grazing properties in the region, granted to James Fitzgerald Murray as part of a 2560 Acres Primary Grant in the County of Murray. The property was surveyed by Robert Hoddle in 1833, where the parish map describes the properties landscape as open plains with level open forest, and some grassy areas. There is a road running through the south east corner of the property, which closely follows the current alignment of Lanyon Drive. The property name appears as 'Woden'.

Federal Territory Feature Maps show that the project area was separated from the Woden Homestead (then used as a horse paddock) property by 1915, and became a part of the McDonald's Homestead, used as open grazing land. The project areas occupied a small hill named Donald, which was devoid of timber by this time and overlooked creek flats. A fenced road separating the McDonald and Woden Homesteads follows the current alignment of Lanyon Drive. The project area on the Federal Territory Feature map is shown in Figure 4.

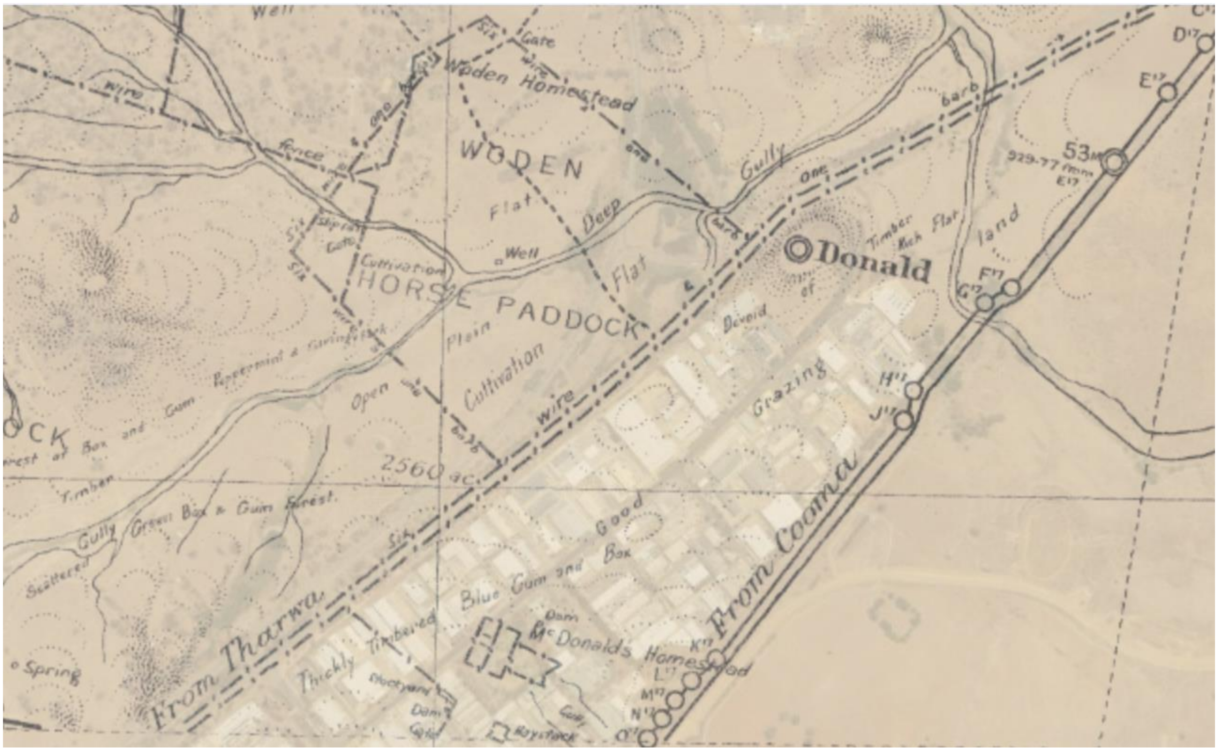


Figure 4. Federal Territory Feature Map.

2.4 LAND USE IMPACTS

The project area has been subject to modification with the original construction of the Hume Industrial area, construction of the Monaro Highway and Shepperd Street. Prior to this, the clearing of land for pastoral properties following European settlement occurred with removal of original vegetation and pasture improvement. Aerial photography from 1980 shows the block to be totally cleared. Replanting of Eucalypts and wattles has occurred in the northern section (Area 2) with review of 1995 aerials showing young trees being planted along the verge of Sheppherd Street. The review of aerial photography indicates that the age of the vegetation coverage is recent and established following the formation of Hume.

As a result of all of these processes, it is anticipated that the original soils will have been removed and displaced throughout the majority of the project area within Area 2. The degree of past disturbance and landscape planting indicated by historical aerial photography is shown in Figure 5 and Figure 6.

The determination of the degree of soil disturbance and the potential for any heritage sites to remain within the project area boundaries will be a major aim of the field survey.

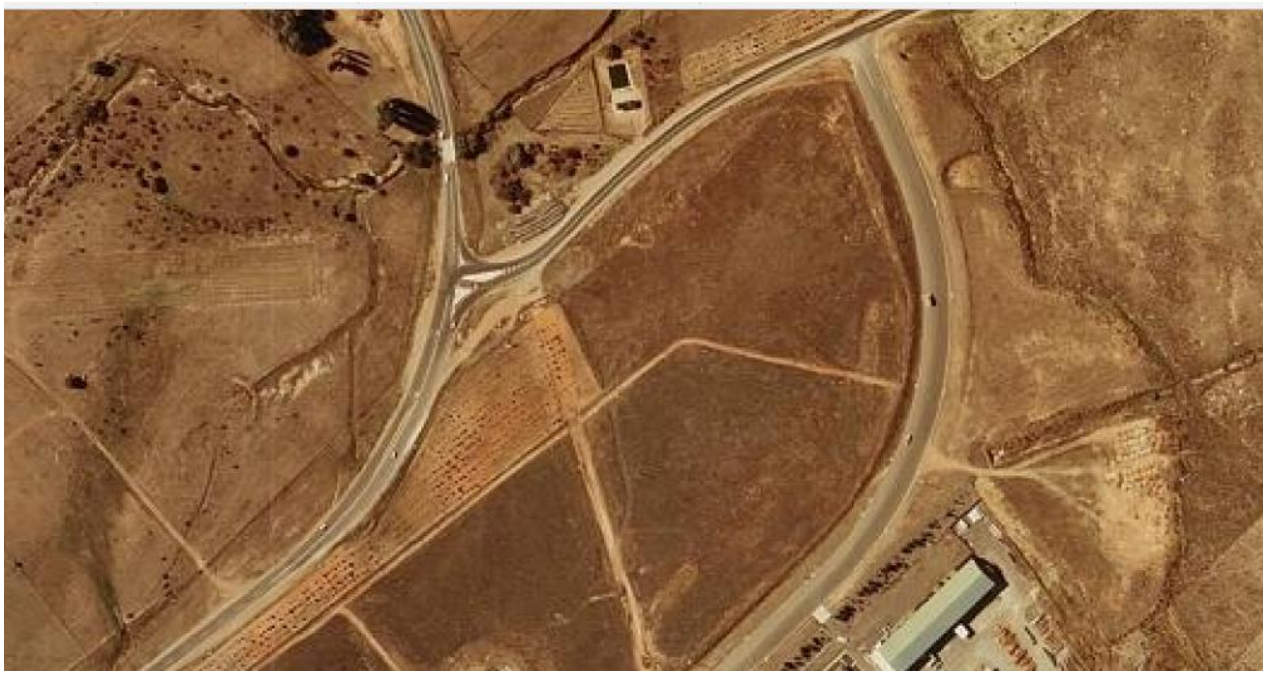


Figure 5. Aerial Imagery 1980 (ACTMAPi)

Figure 6. Aerial Imagery of Project Area 1995 (ACTMAPi)

2.5 REVIEW OF ABORIGINAL ARCHAEOLOGICAL CONTEXT

2.5.1 *Ethnohistoric Setting*

The major language group identified in the Canberra region by Norman Tindale in his seminal work on Aboriginal tribal boundaries are the Ngunnawal people. The Ngunawal (Ngunnawal) were also known as the Yass tribe, Lake George Blacks or Molonglo tribe. The boundaries of the Ngunawal ran to the south east where they met the Ngarigo at the Molonglo and the Gundungara to the north of Lake George (Tindale 1974). This distribution with minor amendments is still accepted and the review of tribal boundaries undertaken in the 1990s (Horton 1996) confirmed these earlier linguistic divisions.

The southern section of Canberra represents the boundary between Ngunnawal and Ngarigo language groups. Currently descendants of both Aboriginal groups hold cultural affiliation with the project area. The northern section of Canberra is considered to be Ngunnawal country with visitations from Wiradjuri people.

Prior to European settlement, the lowlands and hill lines supported dense woodlands, which provided habitat for a broad range of plant and animal species that formed the core of Aboriginal dietary items prior to contact with early European explorers and settlers. Temperate grasslands were present on creek and river flats and open plains and supplied a range of resources including Yam Daisy and fibre plants (Gott 2008) and would have been present along the open banks to the Jerrabomberra Creek line. Major creek lines were a focus of occupation and utilisation and play an important cultural role to the Aboriginal community. Many sites have been recorded in the Hume locality along the Dog Trap and Jerrabomberra Creek lines.

The traditional lifeways of the Aboriginal people were disrupted by the arrival of European settlers in the 1830's. The impact of new disease, displacement from traditional lands and disruption of hunting practices lead to a decline in the local population, with some remaining families finding employment on the large pastoral stations that had become established in the region, including Tralee, Woden and Lanyon.

2.5.2 *Aboriginal heritage search of ACT Heritage Register*

A review of the online heritage overlay shows no registered heritage sites (Aboriginal or Historical) within the project area and preliminary information supplied as a part of the EIS scoping document did not identify any sites within the project area boundary as listed on the ACT Heritage Register.

As a result, no known heritage sites are identified within the project area and no known heritage impacts will result from the proposed development.

2.5.3 *Previous archaeological studies.*

Archaeological evidence has shown that Aboriginal people have occupied the Australian continent for at least 40,000 years and perhaps 60,000 years and beyond (Mulvaney and Kamminga 1999).

Excavations at Birrigai Rock shelter show evidence of occupation of 25,000 years (Flood et al 1987, Theden- Ringl 2016). A number of archaeological heritage assessment have been undertaken in the vicinity of the project area. A brief overview of the most relevant studies are provided below. These studies have been small scale and development focused and no regional synthesis has been completed for the region.

A list of the most relevant studies for the region of the project area are summarised below.

Southern Cross Heritage (Barber) undertook an archaeological assessment of Hume and adjacent areas to inform future planning for Hume Industrial area in 2000. The field survey identified nineteen (19) Aboriginal heritage sites consisting of nine small artefact scatters, eight isolated finds and two culturally modified trees. Sites were located mainly on level ground in proximity to creek lines. Barber predicted that the most common site type would consist of stone artefacts and be in proximity to creek line landforms.

NOHC (2003) undertook the initial survey for the Tralee Development. NOHC surveyed 229 ha identifying 1 small artefact scatter and 1 area of PAD along the southern bank of Jerrabomberra Creek. In 2010 NOHC resurveyed the area identifying a further 6 sites consisting of three artefact scatter and three areas of PAD. This area is located approximately 500 m to the east of the project area.

NOHC (2004) completed an assessment for the Alexander Maconochie Prison Site, located 1.2km to the north of the project area. One area of potential was identified and one historical site. The area was considered to hold low potential overall for Aboriginal sites.

NOHC (2004b) also completed an assessment for the Hume Emergency Services centre, located north of Lanyon Drive and approximately 500m north of the project area. No heritage sites were identified and the area considered to hold low potential for heritage sites.

Huys (2007) undertook an assessment for the proposed Hume West industrial estate. The assessment identified seven small Aboriginal sites. These sites consisted of five artefact scatters, two isolated finds and one area of PAD. The sites were located within the lower slopes overlooking ephemeral tributaries of Dog Trap Creek.

CHMA (2010) conducted the first stage of an Aboriginal and European Cultural Heritage Assessment for several blocks of land within the Jerrabomberra Valley to the east and west of the Monaro Highway, engaged by ACTPLA. This study included the current project area. Sixteen Aboriginal sites were identified, including six isolated finds, six sites with associated PADs, three PADs and one possible scar trees. None of these sites are within the current project area which was assessed as highly disturbed and low in potential.

OzArk Environment and Heritage (2012) completed a survey and assessment for the route of the proposed optic fibre cable from the Hume Industrial mobile tower to the Tralee mobile tower located to the south east. This study recorded one heritage site (Hume OS1) distributed over a 1km section of the access track and containing 25 artefacts. A recommendation for surface collection of the sites was recommended.

Ironbark Heritage (2014) completed a due diligence assessment for the rezoning of South Jerrabomberra for residential development. The study area is located adjacent to the current project area on the southern boundary. Ten aboriginal sites had been recorded within the study area by NOHC previously, and the 2014 survey identified a further 8 sites, three with associated areas of PAD. The majority of sites were located on lower basal slopes in association with creek lines.

NOHC (2014) undertook the assessment for the Northern entry road South Tralee. This reviewed previous work and completed a field survey over the project area. Two previously recorded sites were relocated but no additional sites or areas of potential were recorded.

NOHC (2016) completed further field survey for the South Tralee Residential Development identifying an additional six Aboriginal heritage sites. These sites consisted of 1 artefact scatter, four isolated finds and two areas of PAD which when tested held sub surface deposits. These areas of PAD were located in basal slope contexts in proximity to creek lines.

NOHC reviewed all previous work undertaken for the South Tralee Development in 2018 and completed a field survey of the 183ha development. An additional four isolated finds were located all in valley floor contexts on creek lines. This confirmation of the model through all of the studies for the South Tralee development lends credibility to this site location model and is considered applicable to the current project area which is located adjacent to the north.

2.6 ABORIGINAL LAND USE/PREDICTIVE MODEL

As discussed in the previous section, the results of previous archaeological surveys in the region have resulted in a pattern of site location that relates to the presence of potential resources for Aboriginal use. The recorded sites, mainly consisting of small artefact scatters tend to be present due to the occurrence of small drainage or creek lines with their access to water resources, an essential factor for Aboriginal people.

This model is based on stream order (Strahler 1952) and is considered applicable to a wider area of NSW (White and McDonald 2010) based on the similarity of Aboriginal landscape use and the need for base resources.

Based on the body of previous heritage work summarised in Section 2.4, the landscape context and previous disturbance to the area a site prediction model has been developed for the project (Table 2).

This site prediction model is based on:

- Landscape features within the project area
- Probability of site type to be present within the project area
- Natural resources that may have been present and of use to Aboriginal people
- Past disturbance.

Table 1 Site Prediction Model

Probability	Site Type	Definition	Landform
Low	Isolated finds and surface scatters of stone artefacts	Stone artefacts ranging from single artefact to high numbers	Small scatters and isolated finds have been previously recorded near creek lines and in proximity to project area.
Low	Potential Archaeological Deposits (PADS)	Area considered on landform to hold higher potential for unidentified subsurface deposits	Usually on elevated landforms near creek lines – none present within project area
Nil	Culturally Modified Trees (CMTs)	Trees which have been modified by scarring, marking or branch twining	Wherever old remnant trees remain - all removed
Nil	Axe grinding grooves	Grooves in stone caused by the grinding of stone axes	Usually in creek lines, as water is used as abrasive with sand - not present
Nil	Rock Engravings	Images engraved on flat rock surfaces	Escarpments, rock platforms or rock shelters - not present
Nil	Stone arrangements	Arrangements of stones by human intention, including circles lines or patterns.	Crest lines or large ceremonial areas on level areas – ongoing use of area would have destroyed this site type.
Nil	Burials	Burials of Aboriginal persons	Usually requiring deep sandy soils on eastern facing slopes – not present

2.7 DESKTOP ASESSMENT SUMMARY

The desktop assessment and review of previous studies has shown that registered heritage sites (Aboriginal and Historical) are present within the wider region, but none are located within the project area. The Aboriginal recorded sites in the region consist of artefact scatters or isolated finds of lithic artefacts. The majority of these sites were allocated low significance by the report authors on both scientific and cultural values.

The project area has been subject to a number of disturbance events including the clearance of the area for pastoral usage, impacts from the development of Hume and subsequent replanting along the boundary. All of these disturbance events will have disturbed soil contexts and impacted on any surface cultural material.

Based on the lack of any major water resource within the project area but considering the proximity to Dog Trap Creek to the north, the site types most likely to be encountered would consist of small artefact scatters or isolated finds. Both of these site types are highly vulnerable to surface disturbance and destruction through development and soil displacement.

3 ARCHAEOLOGICAL FIELD SURVEY

Field survey over the project area was undertaken on the 16 March 2021 with four members of the Representative Aboriginal Organisations (RAOs) present – Mr Wally Bell (Buru Ngunawal Aboriginal Corporation), Mr James Mundy (Ngarigu), Mr Reuben House (Mirrabee) and Mr Adrian Brown (King Brown Tribal Group).

The field survey aims, and methodology are provided below.

3.1 ARCHAEOLOGICAL SURVEY AIMS

The principle aims of the survey were to:

- Provide the heritage team an opportunity to view the Project Area and to identify landforms and levels of previous disturbance.
- Complete pedestrian survey of the Project Area focused on areas of construction impacts and visually inspecting areas and landforms with the potential for Aboriginal heritage.
- Identify and record any heritage sites visible on the ground surface.
- Identify and record areas of potential archaeological deposits (PADs).

3.2 FIELD SURVEY METHODOLOGY

Field survey consisted of the heritage team completed pedestrian transects across the project area, sampling all landforms and recording details of ground surface visibility, disturbance and impacts.

The project area was walked by all participants at an approximate spacing of 5-10m across all landforms within the project area. The spacing effectiveness is based on Burke and Smith (2004) who concluded that effective survey coverage extends 2m to the side of each field survey participant. The number of participants ensured that all of the area surfaces was visibly inspected (from road verge to boundary fencing) by more than one participant.

Two main factors contribute to the effectiveness of a field survey, ground surface visibility and rate of exposures.

Ground Surface Visibility (GSV) is the proportion of ground surface visible during the field survey. GSV is affected by conditions of grass coverage, leaf litter, imported gravels and fallen timber. A percentage rating of GSV is applied to each survey area (Terry and Chillinger 1955) based on the proportion of bare soil visible through the surface conditions. Exposures are defined as areas where bare soil is present due to erosional or disturbance factors and is separate and distinctive from the background GSV of the surrounding area. Exposures show the potential subsurface as well as surface contexts as they represent disturbed areas of soils.

The higher the rate of GSV and the occurrence of exposures throughout the project area, the higher the effectiveness of the field survey and robustness of the results of the field assessment.

3.3 FIELD SURVEY CONDITIONS

GSV was generally low across the project area with GSV decreased due to leaf litter, high grasses, low grass and weed cover and densely wooded areas. In sections throughout the project area, minimal areas of exposure were present due to old vehicle tracks, erosion areas and small areas of rocky outcrop. The northernmost corner of the project area has a particularly low GSV due to being very densely wooded with abundant plant cover. The GSV overall for the buffer zone is considered to be low at about 10%.

Areas of exposure (estimated at an occurrence rate of 20%), were present throughout the project area. GSV within the areas of exposure was moderate estimated at 70% but were mainly present in areas of past disturbance such as fence line boundaries and past vehicle access tracks.

High levels of impacts have occurred throughout the project area. The project area consists of disturbed soils which are shown in uneven land surface, with numerous hollows and ridges. The predominate landform consists of undulating slopes, with converging at the highest point at the north western corner of the buffer zone. Blackberries, wattles, gums and other weeds abound, all species that thrive on disturbed ground.

A small number of beehives were located in the northern buffer zone, parallel to Sheppard Street.

The conditions within the project area at the time of survey are shown in Plate 1 to 4.

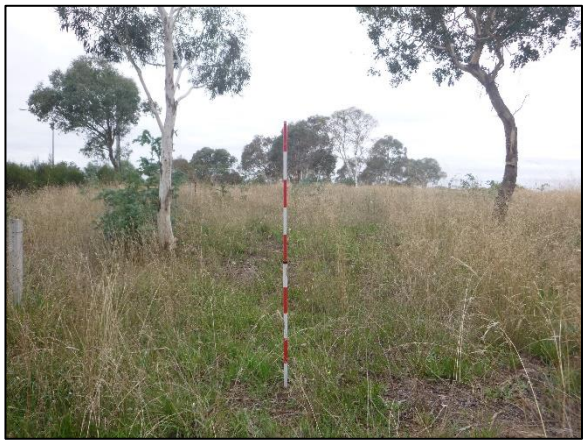


Plate 1. View north

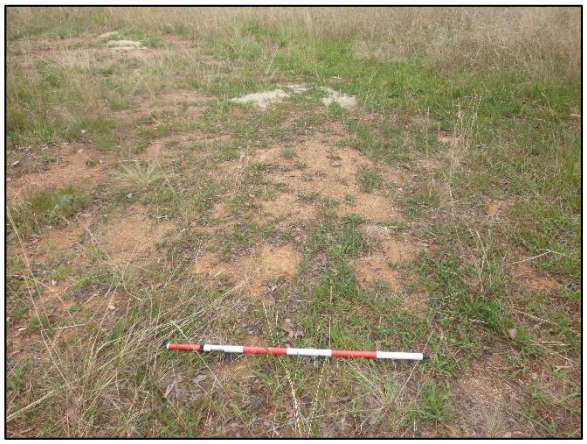


Plate 2. Example of exposure

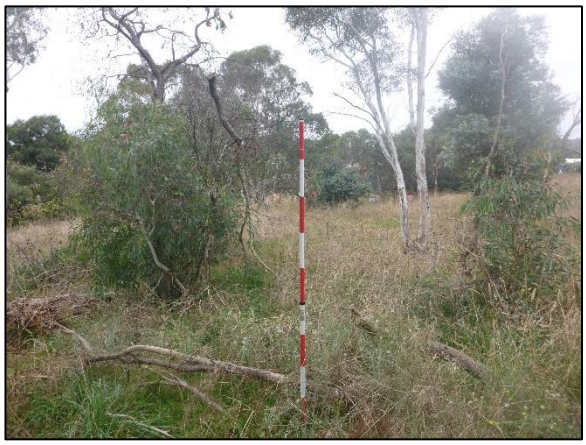


Plate 3. Northern buffer zone

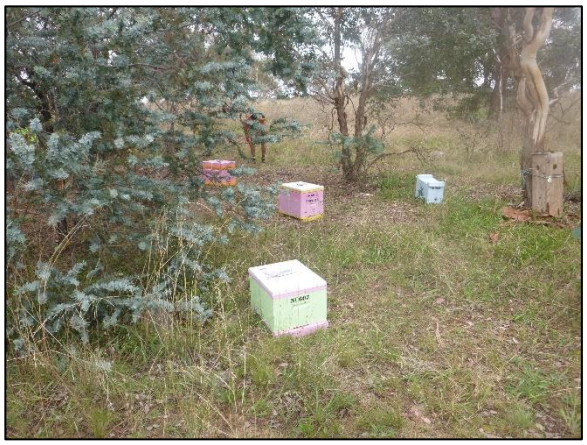


Plate 4. Area on verge used for bee keeping

3.4 SURVEY RESULTS

No heritage sites or areas of subsurface archaeological potential were located or identified during this survey.

The level of widespread impacts across all sections of the project area has reduced the potential for subsurface deposits and would have resulted in the destruction and removal with surface soils of any surface sites which may have once been present within the project area.

The landform is covered by naturally regenerating Eucalypts and introduced grasses and weed species. GSV was overall low throughout the project area with uneven soils and displaced soils evident. Despite the low GSV the occurrence of exposures throughout the area allowed for surface inspection and the survey is considered to have provided an effective coverage to assess potential and the presence of heritage sites.

4 IMPACT ASSESSMENT

The project area is currently used as vacant land within the Hume Industrial Estate, bounded by two main arterial roads, Lanyon Drive and Sheppard Street. A review of heritage overlays and previous heritage reports completed for the area resulted in no known Aboriginal or historical heritage sites being recorded within the project area. A field survey undertaken for the assessment in March 2021 located no Aboriginal heritage sites within the project area and recorded high levels of soil disturbance and landscape plantings on the road verges which based on aerial photography date from the 1990s. No remnant trees were identified within the project area boundaries. A finding of low archaeological potential through the project area was recorded.

As a result of the assessment, there are no known heritage impacts from the proposed development and low potential for any unrecorded heritage sites to be present within the project boundaries.

4.1 MANAGEMENT RECOMMENDATIONS

The recommendations are based on the following information and considerations:

- Results of the ACT Heritage register search and locations of recorded sites in the vicinity of works
- Consideration of results from other local archaeological studies
- Results of the field survey
- Consultation with RAOs

As a result of the assessment completed for the project the following findings and recommendations apply:

- No identified Aboriginal heritage sites, or areas of PAD are located within the project area.
- There are no known heritage impacts from the proposed project and as a result no submission of a Statement of Heritage Effects (SHE) for approval to the ACT Heritage Council is required.
- All Aboriginal objects and places are protected under the ACT *Heritage Act 2004*. It is an offence to disturb an Aboriginal site without approvals granted by the ACT Heritage Council. Should any Aboriginal objects be encountered during works then works must cease immediately in the vicinity of the find, and the find should not be moved until assessed by a qualified archaeologist with the participation of the RAOs. Adherence to the Unexpected Discovery Plan (UDP) attached at Appendix 2 is required.
- This CHA should be submitted to ACT Heritage Council for endorsement prior to works commencing.

5 REFERENCES

ACT Heritage Council. (2018). *Heritage Assessment Policy.* Environment and Sustainable Development Directorate, ACT Government.

Barber, M. (2000). *Cultural Resource Survey of Hume and Adjacent Areas.* Report to Dept of Urban Services.

Biosis. (2012). *Theodore to Gilmore Electricity Easement Cultural Heritage Study.* Report to Purdon Associates.

Burke, H and Smith,C. (2004). *The Archaeologists Field Handbook.* Sydney NSW: Allen and Unwin.

Cultural Heritage Management Australia. (2010). *Amtech Industrial Estate Symonston Aboriginal and European Cultural Heritage Assessment.* Report to ACT Land Development Agency.

Cultural Heritage Management Australia. (2010). *Eastern Broadacre Planning: Symonston, Hume and Jerrabomberra.* Report to ACTPLA.

Flood et al . (1987). Birrigai: a Pleistocene Site in the South Eastern Highlands. *Archaeology in Oceania*, 22: 9-26.

Gott, B. (2008). *Indigenous use of Plants in south-eastern Australia.* Telopea 12 (2) 215-226.

Horton, D. (1994). *The Encyclopidea of Aboriginal Australia: Aboriginal and Torres Strait Islander History, Society and Culture.* Canberra: Aboriginal Press Studies.

Huys, S. (2007). *Hume West Industrial Estate: Investigation of Heritage Places.* report prepared by AASC for ACTPLA.

ICOMOS. (2013). *The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance .* Australian ICOMOS.

Ironbark Heritage. (2014). *South Jerrabomberra Due Diligence Assessment.* Report to Queanbeyan Council.

Jenkins, B. (2000). *Soil Landscapes of the Canberra 1:100 000 Sheet. .* Sydney: Department of Land and Water Conservation .

Marquis-Kyle, P and Walker, M. (1992). *The Illustrated Burra Charter: Making Good Decisions about the Care of Important Places.* Brisbane.: Australian ICOMOS.

Mulvaney, D.J and Kamminga, J. (1999). *Prehistory of Australia.* St Leonards, NSW.: Allen and Unwin.

Navin Officer Heritage Consultants . (2013). *Desktop Assessment Tralee Northern Road Entry.* Report to Village Building Co.

Navin Officer Heritage Consultants . (2014). *Northern Entry Road South Tralee NSW Queanbeyan NSW Aboriginal Cultural Heritage Assessment.* Report tof Canberra Estates Consortium.

Navin Officer Heritage Consultants. (2003). *Tralee Local Environment Study Cultural Heritage Component.* Report to URSCorp.

Navin Officer Heritage Consultants. (2004). *ACT Prison Site Investigation Block 6 (part) and 12 Section 18 Hume Cultural Heritage Assessment.* Report to Brown Consulting.

Navin Officer Heritage Consultants. (2004). *ESB Headquarters and Joint Emergency Services Training Academy Hume: Cultural Heritage Survey.* Report to WP Brown and Partners.

Navin Officer Heritage Consultants. (2010). *North and South Tralee Residential Development CulturaL Heritage Review.* Report to Canberra Estates Consortium .

Navin Officer Heritage Consultants. (2016). *South Tralee Residential Area NSW: Technical Paper.* Report to Canberra Estates Consortium.

Navin Officer Heritage Consultants. (2018). *South Tralee Residential Development Stage 1 Aboriginal Cultural Heritage Assessment.* Report for Elton Consulting.

Ozark Pty Ltd. (2012). *Aboriginal Heritage Assessmnet Proposed Fibre Optic Cable Near Sutton NSW.* Report for Telstra NSW Country Design.

Stewart, K and Percival, B. (1997). *Bush Foods of New South Wales.* Sydney: Royal Botanic Gardens.

Strahler, AN. (1952). *Dynamic Base of Geomorphology.* Geological Society of America Bulletin 63:923-938.

Terry and Chillinger . (1955). *Summary in 'Concering some additional aids in studying sediment function.* in Shetsov, S.M. Journal of Sedimentary Research 25: 229-234.

Theden-Ringl, F. (2016). Aboriginal Presence in the high country: new dates from the Namadgi Ranges in the Australian Capital Territory. *Australian Archaeology* , Vol 82 No 1: 25-42.

Tindale, N. (1974). *Aboriginal Tribes of Australia.* Canberra: ANU Press.

White, E and McDonald,J. (2010). *Lithic Artefact distribution in the Rouse Hill Development Area Cumberland Plain.* Australian Archaeology 70:29-38.

Appendix 1. Aboriginal consultation

RAO	Date and type of contact	Response
All RAOs	09/03/2021 – phone call to all RAOs to arrange participation in field work for 15th March. Follow up email to all with date change to 16th March.	Wally Bell– cannot attend on the 15th but may on later date. Send new date for meeting in email. James Mundy – left message and email to call. Left details of project for his information. Adrian Brown will attend 16th. Paul House – will attend 16th.
James Mundy - Ngarigu	Received text and follow up call.	Will attend 16th.
All RAOs	16th March 2021 – field survey and on site meeting. Text message.	Wally Bell - Buru Ngunawal Adrian Brown – King Brown James Mundy – Ngarigu Reuben House – Mirrabee – received messaged from Paul House to confirm Mirrabee representative as Reuben House. No heritage sites identified on field survey.
All RAOs	6/4/2021 – Draft report provided to all RAOs	No Responses to date

Appendix 2. Unexpected Finds Protocol

The process outlined below provides guidance to project personnel so that obligations in accordance with the *Heritage Act 2004* can be meet.

If any items are uncovered during the course of works, which are considered to possibly be of Aboriginal or historical significance the following unanticipated discovery plan should be implemented. All Aboriginal and significant historical heritage places or objects are protected under the *Heritage Act 2004*. Offence provisions (Section 74 and Section 75) of the Act apply to impacting heritage sites. Any unanticipated find of potential heritage value should follow the process outlined below to avoid breaching obligations under the Act.

5.1 1. UNEXPECTED DISCOVERY OF ABORIGINAL CULTURAL HERITAGE

If suspected Aboriginal Heritage items (including but not limited to isolated stone artefacts, artefact scatters, archaeological deposits or scarred trees) are found then the following management process must be implemented:

1. Work must immediately stop in the area within a buffer zone of 10 metres
2. ACT Heritage (132281) must be informed of the suspected find asap and within 5 working days.
3. A suitably qualified heritage advisor and the Representative Aboriginal Organisation (RAOs) must be engaged to assess the potential site.
4. If the items are not considered to be Aboriginal, activity may recommence.
5. If the items are considered to be Aboriginal, the Proponent, RAOs and the Cultural Heritage Advisor, will discuss the possibility of avoiding and minimising harm to the Aboriginal cultural heritage, and the Proponent must avoid or minimise harm to the Aboriginal cultural heritage, where possible.
6. If the items are considered to be Aboriginal, an assessment report will need to be prepared in consultation with the RAOs and submitted to the ACT Heritage Council. After approval from the ACT Heritage Council, the cultural material can be salvaged with the approved methodology.
7. After approval of the salvage report, works can recommence.

2. UNEXPECTED DISCOVERY OF HISTORICAL CULTURAL HERITAGE

If suspected historical items are found then the following management process must be followed:

1. Work must immediately stop in the area within a buffer zone of 10 metres
2. ACT Heritage must be contacted on 13 22 81 for advice.
3. A suitably qualified heritage advisor needs to be engaged to assess the potential site.
4. If the items are not considered to be historically significant, activity may recommence.

5. If the items are considered to be historically significant, a management recommendation should be given by the heritage advisor.
6. Following approval by ACT Heritage Council and completion of the management recommendation, the activity may then recommence.

3. UNEXPECTED DISCOVERY OF HUMAN REMAINS

If any suspected human remains are discovered during any works, all activity in the areas must cease immediately. Any such discovery at the activity area must follow these steps.

1. Work must immediately stop in the area within a buffer zone of 10 metres from the primary grid coordinate.
2. The ACT Federal Police must be notified immediately. All details of the location and nature of the human remains must be provided to the relevant authorities. All of their directions must be followed.
3. If there are reasonable grounds to believe that the remains are Aboriginal, ACT Heritage must be contacted immediately on 13 22 81.
4. The Project Manger must be contacted immediately.
5. In the event that the remains are considered to be Aboriginal by the AFP an appropriate management and mitigation, or salvage strategy will be implemented following consultation with the RAOs and ACT Heritage Council through ACT Heritage.