



THE REPORT OF AN ABORIGINAL ARCHAEOLOGICAL HERITAGE SURVEY OF THE ANKETELL ROAD PROPOSAL AREA (KWINANA FREEWAY TO LEATH ROAD), WESTERN AUSTRALIA

SEPTEMBER 2024

For Main Roads Western Australia (Main Roads)



archae-aus

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WARNING

Please be aware that this report may contain images of deceased persons and the use of their names, which in some Aboriginal communities may cause sadness, distress or offence.

DISCLAIMER

The authors are not accountable for omissions and inconsistencies that may result from information which may come to light in the future but was not forthcoming at the time of this research.

ACKNOWLEDGEMENTS

Archae-aus wish to pay respects to Elders past and present and extend those respects to all Aboriginal people, especially the Noongar people who may view this report.

CONSULTATION

The heritage consultation and recording described in this report took place within the Gnaala Karla Booja Indigenous Land Use Agreement area (WI2015/005), which is a subset of the South West Native Title Settlement (WC1998/058). The Gnaala Karla Booja Aboriginal Corporation (GKBAC) is recognised as the representative body for Gnaala Karla Booja settlement area. All Traditional Owners who participated in the fieldwork were nominated by the GKB Aboriginal Corporation's Cultural Advice Committee.

REPORT FORMAT

The front end of the report includes the terms and abbreviations used in the document and the personnel involved in the heritage survey.

- ▶ **Section One** introduces the project scope, which outlines the work's key objectives, and the relevant legislation used to guide the fieldwork and reporting processes. It outlines the personnel who attended the survey.
- ▶ **Section Two** provides the archaeological background of the Survey Area, and surrounding region, and outlines the survey.
- ▶ **Section Three** describes the methods used for surveying and recording.
- ▶ **Section Four** discusses the results of the heritage assessment.
- ▶ **Section Five** outlines further cultural heritage management recommendations.
- ▶ **Appendix One** contains the coordinates for the ACH site boundaries and surveyed area boundaries.
- ▶ **Appendix Two** contains a copy of the verifying heritage survey information forms.
- ▶ **Appendix Three** contains the Aboriginal Cultural Heritage Information System search results.
- ▶ **Appendix Four** contains information regarding test pitting background and methodology

SPATIAL INFORMATION

All spatial information contained in this report uses the Geocentric Datum of Australia (GDA2020), Zone 50, unless otherwise specified. All information obtained from Main Roads is assumed to be accurate to two decimal places. All spatial information obtained during fieldwork was taken using a handheld Garmin GPS with a purported accuracy of ± 3 m. Where we report spatial information collected in the field, we have opted for a slightly wider degree of accuracy of ± 5 m.

AUTHORSHIP

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The spatial data and maps have been prepared by Tessa Woods.

PERSONNEL

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Georgine Drayton	Roslyn Indich	Charne Hayden
Kay Walley	Shirley Viti	

Main Roads WA

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Heritage Survey 9 July 2024

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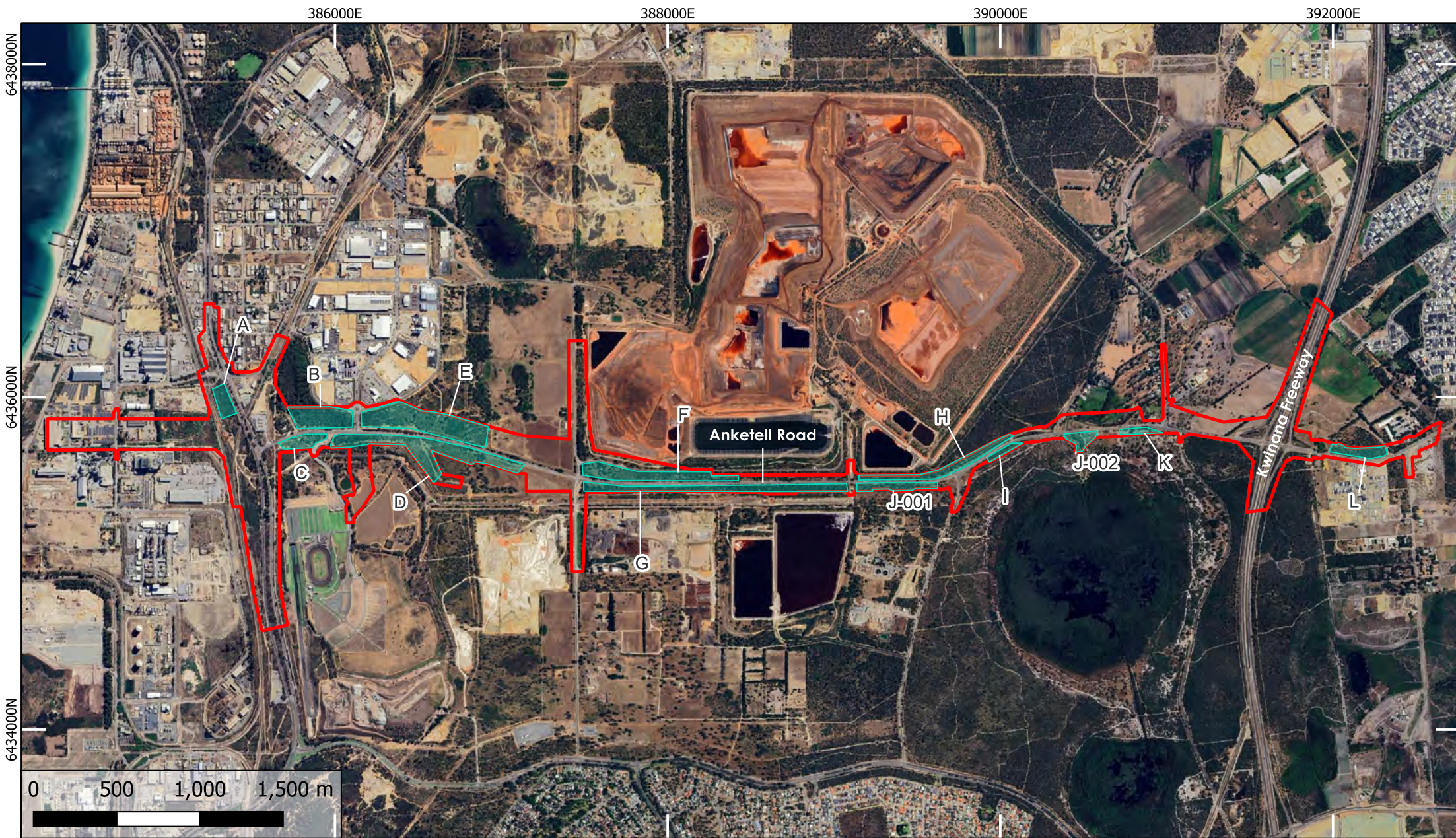
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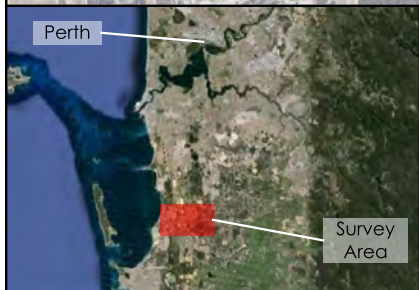
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**Map 1. Overview of the Anketell Road Proposal
(Kwinana Freeway to Leath Road) Survey and
Sample Areas**

Drafted by Tessa Woods, 25 July 2024. GDA94, Zone 50H.
Satellite imagery courtesy of Google Maps.



Legend

- Survey Area
- Sample Areas



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Map 2. Results of the Archaeological Survey of the Sample Areas

Drafted by Tessa Woods, 25 July 2024. GDA94, Zone 50H.
Satellite imagery courtesy of Google Maps.

EXECUTIVE SUMMARY

This document details the results of an Aboriginal archaeological heritage survey of the Main Roads Anketell Road proposal area (Kwinana Freeway to Leath Road), Western Australia. Part of a broader plan to provide a transport corridor across Anketell Road and Thomas Road to service the proposed Westport Port at Kwinana.

A pre-survey meeting was held at the Main Roads Office on the 10th of April 2024. During this meeting Main Roads representatives presented the project to the GKB Knowledge Holders. They provided an overview of the Survey Area and Archae-aus archaeologist Adrian Di Lello discussed which parts of the Survey Area have potential for surface archaeological cultural material, based on the desktop assessment of previous land use and disturbance. The GKB Knowledge Holders agreed on the areas that would require archaeological sample survey and agreed on a survey methodology (see Table 4, and Methods on page 47).

Both archaeological and ethnographic surveys were conducted over the Survey Area during separate consultations. This report details the archaeological component only. The details of the ethnographic survey have been reported on separately.

The objectives of the Scope of Works were to:

- ▶ Conduct Aboriginal Ethnographic and Archaeological surveys to Site Identification level, sufficient for Main Roads to make a successful application under section 18 of the *Aboriginal Heritage Act 1972 (AHA)*; and
- ▶ Conduct the surveys in accordance with the Noongar Standard Heritage Agreement (NSHA), with the participation of the Gnaala Karla Booja representatives as provided by the South West Aboriginal Land and Sea Council (SWALSC).

The main objectives of the Aboriginal Site Identification surveys were to:

- ▶ Identify any known or potential Aboriginal heritage sites within the Survey Area;
- ▶ Undertake research and/or consultation that may be required to meet the requirements of the AHA, particularly for lodging any potential s18 applications (if applicable);
- ▶ Locate and record Aboriginal archaeological sites;
- ▶ Make recommendations regarding the management of the above sites, including any further research and/or consultation that may be required during or after the works component of the proposal; and
- ▶ Summarise the survey and any recommendations arising at the conclusion of the survey and request the Aboriginal consultants verify the information by signing the Verification Form (See Appendix Four).

The archaeological survey was conducted in collaboration with a representative group of SWALSC nominated Gnaala Karla Booja Noongar Traditional Owners. The fieldwork was undertaken over two fieldtrips, from the 13 to 15 May 2024, and a follow up trip on 9 July 2024. no new Aboriginal archaeological sites were identified during the survey.

The ethnographic survey took place after the archaeological survey was undertaken on the 9 July 2024. The results of the ethnographic survey are detailed in a separate report. A search of the Department of Planning, Lands, and Heritage's (DPLH) Aboriginal Heritage Inquiry System (AHIS) uncovered one Historic Aboriginal Cultural Heritage Place (ID 3427) that intersects to the Survey Area (Map 1).

Table 3. Registered Aboriginal Places that are within close vicinity of the Survey Area.

DPLH ID	Site Name	Status	Type	Legacy ID
3427	MANDOGALUP SWAMP/SPECTACLES	Historic	Creation / Dreaming Narrative; Hunting Place; Water Source	S02729

Table 4. Sample Areas assessed in the MRWA Anketell to Thomas Road Corridor

Sample Area	Completed	Maximum dimensions (N/S m x E/W m)	Area (m ²)
A	Yes	191 x 89	16,631
B	Yes	125 X 366	44,409
C	Yes	80 x 277	17,531
D	Yes	268 x 1,500	97,909
E	Yes	175 x 768	99,790
F	Yes	97 x 934	55,732
G	Yes	58 x 1,600	61,423
H	Yes	50 x 968	37,418
I	Yes	36 x 191	6,611
J	Yes	106 x 220	13,579
K	Yes	37 x 262	7,570
L	Yes	75 x 336	18,022

Advice

The following advice concerning the management of the Survey Area's Aboriginal heritage in the context of the defined, proposed works is made to Main Roads and their contractors, in consultations with Gnaala Karla Booja Noongar consultants.

It is **advised** that Main Roads and their contractors are aware:

1. that the archaeological assessment of the Survey Area is **complete**;
2. that no new Aboriginal Archaeological sites or isolated artefacts were located within the Survey Area;
3. that the Survey Area overlaps DPLH registered historic site DPLH ID: 3427/Mandogalup Swamp/Spectacles;
4. That the Heritage Potential Zone has high potential for sub surface cultural material. This area will require archaeological investigation in the form of shovel test pitting to determine the presence of sub-surface archaeological material. If sub-surface cultural material is identified

then further archaeological work will be required to ascertain the artefacts ages and significance; and

5. The Gnaala Karla Booja Noongar survey participants requested that two monitors be present for initial ground disturbance works.

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TERMS AND ABBREVIATIONS

Term / Abbreviation	Meaning / Interpretation
Aboriginal archaeological place or assemblage	A place (or group of physical sites) in which evidence of past activity by Aboriginal people is preserved (either prehistoric or historic or contemporary), and which has been, or may be, investigated using the discipline of archaeology and represents a part of the archaeological record.
Aboriginal Site	<p>This term is used for Aboriginal heritage sites to which the AHA applies by the operation of Section 5. An Aboriginal site is defined by section 5 of the Act to mean:</p> <p>any place of importance where persons of Aboriginal descent have left any object, or have used, in connection with the traditional cultural life of the Aboriginal people, past or present;</p> <p>any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent;</p> <p>any place which is, or was, associated with Aboriginal people and which is of historical, anthropological, archaeological or ethnographical importance to the State; and</p> <p>any place where objects to which the Act applies are stored.</p> <p>How to report Aboriginal Cultural Heritage: https://www.wa.gov.au/government/document-collections/achknowledge-portal#how-to-report-potential-aboriginal-heritage</p>
ACH	Aboriginal Cultural Heritage
ACHA	<i>The Aboriginal Cultural Heritage Act 2021</i>
ACHC	Aboriginal Cultural Heritage Council which previously superseded the ACHMC, now superseded by the Aboriginal Cultural Heritage Committee (Committee)
ACHMC	The former Aboriginal Cultural Material Committee (see ACHC)
ACHknowledge Portal	The portal is used to request advice, lodge and track applications and report information concerning Aboriginal cultural heritage.
Activity Area	Proposed work area / development envelope / Survey Area
AHA	<i>The Aboriginal Heritage Act 1972</i>
ACHIS	The Aboriginal Cultural Heritage Inquiry System which holds information about: Registered Aboriginal Sites (ACH Register Layer) Lodged places (ACH Lodged Layer) Historic records (ACH Historic Layer)
ACHMP	Aboriginal Cultural Heritage Management Plan (no longer required)
AHIS	The DPLH Aboriginal Heritage Inquiry System, an online and publicly accessible copy of the Register of Aboriginal sites, superseded by the ACHIS.
Archaeological site	Is a place (or group of physical sites) in which evidence of human past activity is preserved (either prehistoric or historic or contemporary), and which has been, or may be, investigated using the discipline of archaeology and represents a part of the archaeological record. This term is used to refer to a place regardless of whether it has been assessed under section 5 of the AHA.
Artefact	Any object (article, building, container, device, dwelling, ornament, pottery, tool, weapon, work of art etc.) made, affected, used, or modified in some way by humans.
Assessment	Professional opinion based on information that was forthcoming at the time of consideration
ATSIHP	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (the ATSIHP Act).
CHMP	Cultural Heritage Management Plan
Committee	Aboriginal Cultural Heritage Committee (see ACHC)
Cultural material / archaeological material	Any object (article, building, container, device, dwelling, ornament, pottery, tool, weapon, work of art etc.) made, affected, used, or modified in some way by humans.
DAA	Abbreviation for Department of Aboriginal Affairs, now the Department of Planning Lands and Heritage (the Department)
The Department	See DPLH

DPLH	Department of Planning Lands and Heritage (the Department)
Ethnographic Site	A place that is significant to an Aboriginal group because of its stories and connections. These places have intangible heritage values and are linked to traditional custom and law.
FPIC	Free Prior and Informed Consent
GKB	Gnaala Karla Booja - refers to the Noongar language or dialectal groups of the Binjareb/Pinjarup, Wilman and Ganeang.
GKBAC	Gnaaa Karla Booja Aboriginal Corporation
GPS unit	Handheld device used as a Global Positioning System
Harm	In relation to Activity impacting ACH, including destroying or damaging ACH – except where that harm relates to an Aboriginal person acting in accordance with the person's traditional rights, interests and responsibilities.
Heritage survey	Survey and inspection undertaken in order to investigate and document the archaeological record of a particular area
HISF	Heritage Information Submission Form now superseded by the ACHknowledge portal submission form and Aboriginal Heritage Enquiry Form
HPA	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (the HPA).
ICH	Indigenous Cultural Heritage
LGM	Last Glacial Maximum
Main Roads	Main Roads Western Australia
Native Title	Recognition of the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people
NSHA	Noongar Standard Heritage Agreement https://www.wa.gov.au/government/document-collections/noongar-standard-heritage-agreement-south-west-native-title-settlement
NTA	<i>Native Title Act 1993</i>
Object	An artefact - any object made, affected, used, or modified in some way by humans. Objects may be protected under the AHA if they meet the section 5 criteria for an Aboriginal site.
OHP	Other Heritage Place
PDA	Proposed Development Area
PSP	Primary Shared Path
Survey Area	The entire area where the proposed activity is to take place.
Scope of Works / SoW	The nature of the work undertaken as requested by the client or proponent.
Section 17 Disturbance	When an Aboriginal site has been damaged by ground disturbance works without Section 18 permission.
Section 18 (s18)	The section of the <i>Aboriginal Heritage Act 1972</i> that details the process for permission to disturb the land on which a site is located.
Section 18 (s18) Approval	A letter from the Minister of Aboriginal Affairs providing consent for the disturbance of land on which a site is located.
Section 39(2) Assessment	Process of the ACHC (now the ACHC / Committee) assessing a reported site's significance and interest.
SWALSC	South West Aboriginal Land and Sea Council

SECTION ONE – INTRODUCTION

SCOPE OF WORKS

Main Roads is proposing to upgrade the Anketell – Thomas Road Transport Corridor between Tonkin Highway and Rockingham Road. Along with other associated infrastructure, the proposed works will include localised sub-surface investigations for potentially contaminated areas; investigations to support the development of the design, including geotechnical investigations; noise wall construction, utility relocations, drainage, retaining walls and signage; provision of a dual carriageway (2 lanes in each direction) road between Tonkin Highway and Rockingham Road; provision of freight only free-flow lanes at various locations along the Survey Area; and bridge structures for grade separations and pedestrian accessibility, dedicated pedestrian and bike paths. Grade separation will be installed at Thomas Road and Kargotich Road; Thomas Road and Nicholson Road; Thomas Road and Anketell Road; Anketell Road and Lyon Road; Anketell Road and Treeby Road; Anketell Road and Kwinana Freeway (Three level Interchange); Anketell Road and Mandogalup; Anketell Road and Abercombie Road; Anketell Road and Armstrong Road; and Anketell Road and Rockingham Road.

The objectives of the Scope of Works were to:

- ▶ Conduct Aboriginal Ethnographic and Archaeological surveys to Site Identification level, sufficient for Main Roads to make a successful application under section 18 of the *Aboriginal Heritage Act 1972 (AHA)*; and
- ▶ Conduct the surveys in accordance with the Noongar Standard Heritage Agreement (NSHA), with the participation of the Gnaala Karla Booja representatives as provided by the South West Aboriginal Land and Sea Council (SWALSC).

The main objectives of the Aboriginal Site Identification surveys were to:

- ▶ Identify any known or potential Aboriginal heritage sites within the Survey Area;
- ▶ Undertake research and/or consultation that may be required to meet the requirements of the AHA, particularly for lodging any potential s18 applications (if applicable);
- ▶ Locate and record Aboriginal archaeological sites;
- ▶ Make recommendations regarding the management of the above sites, including any further research and/or consultation that may be required during or after the works component of the proposal; and
- ▶ Summarise the survey and any recommendations arising at the conclusion of the survey and request the Aboriginal consultants verify the information by signing the Verification Form (See Appendix Two).

SURVEY AREA

The Survey Area consists of a corridor that falls within the City of Kwinana and the Shire of Serpentine - Jarrahdale. This Corridor extends for 8.3 kilometres and varies in width according to road design necessities; however, the average corridor width is 100 metres. The Survey Area sits within the Bassendean Sands which can have a high potential for sub-surface archaeology when associated with waterbodies.

The proposed works will include:

- ▶ Investigations to support the development of the design, including geotechnical investigations;

- ▶ Localised sub-surface investigations for potentially contaminated areas
- ▶ Provision of a dual carriageway (2 lanes in each direction) road between Tonkin Highway and Rockingham Road; and
- ▶ Provision of freight only free-flow lanes at various locations along the Survey Area;
- ▶ Grade separation at:
 - Thomas Road and Kargotich Road;
 - Thomas Road and Nicholson Road;
 - Thomas Road and Anketell Road;
 - Anketell Road and Lyon Road;
 - Anketell Road and Treeby Road;
 - Anketell Road and Kwinana Freeway (Three level Interchange);
 - Anketell Road and Mandogalup;
 - Anketell Road and Abercombie Road;
 - Anketell Road and Armstrong Road;
 - Anketell Road and Rockingham Road.
- ▶ Provision of dedicated pedestrian and cyclist paths;
- ▶ Bridge structures to support the grade separations and proposed pedestrian connectivity;
- ▶ Noise wall construction, utility relocations, drainage, retaining walls and signage
- ▶ Other associated works and infrastructure.

The proposed works will require the use of drill rigs, excavators, bulldozers, light and heavy vehicles, rollers, bitumen/concrete trucks, water trucks and other plant and vehicles. A high level of ground disturbance will also be required, however large portions of the area have been significantly altered from previous land use, including the construction of existing road infrastructure, maintenance activities, land development and farming activities

LEGISLATION

The following section briefly summarises the relevant legislation and guiding principles that may relate to the Survey Area.

The Burra Charter

The Burra Charter (*The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, 2013) is the foundational document for conserving Australia's cultural heritage (both Aboriginal and non-Aboriginal). The Charter encapsulates two important aspects in conserving heritage places. First, it establishes the best practice principles and processes for understanding and assessing a place's significance, as well as developing and implementing a conservation plan. Second, the Charter defines and explains the four primary cultural values that may be ascribed to any place: aesthetic, historic, social, or spiritual and scientific. These values are essential as they delineate the types and quality of information needed to accurately determine a heritage place's significance. Recent practice within DPLH with respect to site reporting and significance assessment under the AHA also referred to Burra Charter values.

Aboriginal Heritage Legislation

WA Aboriginal Heritage Legislation

Aboriginal cultural heritage in WA has been protected by the *Aboriginal Heritage Act 1972* (the AHA), administered most recently by the Department of Lands, Planning and Heritage (DPLH). While a progressive piece of legislation in the 1970s, the AHA has come under increasing criticism in recent years and is widely recognised as not meeting 21st century best practice standards of heritage legislation. The destruction of Juukan Gorge by Rio Tinto in 2020 brought problems with the AHA into sharp focus, particularly the section 18 process for approving the destruction of Aboriginal Sites. This process was strongly criticised in *A Way Forward*, the final report of the Parliamentary Inquiry into the destruction of Juukan Gorge (Parliament of the Commonwealth of Australia, 2021). The committee concluded that the original good intentions of the legislation ultimately failed, and the law became in practice 'a mechanism through which the disturbance, damage and destruction of both physical and intangible Aboriginal cultural heritage has repeatedly taken place' (para 4.125). The committee attributed this to:

- ▶ Amendments that undermined the original purpose;
- ▶ How legislation was interpreted and administered by successive Ministers;
- ▶ The prominence of section 18 as the basis for the system of damage by permit;
- ▶ The role of the Minister as arbiter for decisions about approval, to the exclusion of the voice and interests of traditional owners; and
- ▶ In summary, the 'AHA has failed to strike a balance between the needs and aspirations of the various parties and has excessively favoured the interests of proponents' (para 4.126).

Other problems with the AHA include the role of Aboriginal people in the protection of their heritage, including the absence of legislated representation on the ACMC, definitions of Aboriginal cultural heritage and the lack of integration with Native Title legislation.

The committee encouraged the WA government to continue its consultation with regard to its draft Aboriginal Cultural Heritage Bill, recommending that it addressed the concerns already expressed in submissions by Aboriginal people and that it accommodates 'the principles of free, prior and informed

consent', conducting consultation 'in a way that accords with Aboriginal traditions of dialogue' (para 4.135).

The WA government passed the *Aboriginal Cultural Heritage Act 2021* (ACH Act) in December 2021. The objectives of this legislation were:

- ▶ To recognise the importance of Aboriginal cultural heritage and Aboriginal custodianship;
- ▶ To recognise, protect and preserve Aboriginal cultural heritage;
- ▶ To manage activities that may harm Aboriginal cultural heritage; and
- ▶ To promote an appreciation of Aboriginal cultural heritage.

Due to extensive backlash and criticism of the ACHA, the WA Government has now officially repealed the ACHA and instead introduced amendments to the AHA (an amended version), which was proclaimed on the 15 November 2023. The amendments to the AHA attempt to address the criticisms of the Section 18 process by:

- ▶ Formal recognition of Native Title holders and rights of appeal in respect of s18 decisions by the Minister.
- ▶ Replacement of the ACHC with an Aboriginal Heritage Committee, based on the composition of the Aboriginal Heritage Council established under the ACHA, with male and female Aboriginal co-chairs, and preferably a majority of members of Aboriginal descent.
- ▶ Requirement to bring any new information with respect to a s18 approval.

Currently, DPLH have published the following documents following the revival of the AHA:

- ▶ **Consultation Policy** – outlining 'the Government's expectations of proponents to undertake consultation with Aboriginal people prior to submitting a section 18 notice'¹; and
- ▶ **Aboriginal Heritage Act 1972 Guidelines** – providing practical guidance for landowners where section 18 consent is required to impact Aboriginal cultural heritage (sites and objects)².

Under the AHA (s17) it remains an offence to alter an Aboriginal site in any way, including collecting artefacts; conceal a site or artefact; or excavate, destroy or damage in any way an Aboriginal site or artefact; without the authorisation of the Registrar of Aboriginal Sites under Section 16 or the Minister of Aboriginal Affairs under Section 18 of the AHA.

An Aboriginal site is defined in Section 5 of the AHA as:

- a) Any place of importance and significance where persons of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made or adapted for use for, any purpose connected with the traditional cultural life of the Aboriginal people, past or present.

¹ <https://www.wa.gov.au/government/document-collections/aboriginal-heritage-approvals#policy-and-guidelines>

² https://www.wa.gov.au/system/files/2023-11/aboriginal_heritage_act_1972_guidelines.pdf

- b) Any sacred, ritual or ceremonial site which is of importance and special significance to persons of Aboriginal descent.
- c) Any place which, in the opinion of the Committee [i.e. Aboriginal Cultural Heritage Committee, or ACHC], is or was associated with Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State.
- d) Any place where objects to which the AHA applies are traditionally stored, or to which, under the provisions of the AHA, such objects have been taken or removed.

Section 39 (2) states that:

In evaluating the importance of places and objects the Committee [i.e. the ACHC] shall have regard to —

- a) any existing use or significance attributed under relevant Aboriginal custom;
- b) any former or reputed use or significance which may be attributed upon the basis of tradition, historical association, or Aboriginal sentiment;
- c) any potential anthropological, archaeological or ethnographical interest; and
- d) aesthetic values.

Section 39 (3) stated that:

Associated sacred beliefs, and ritual or ceremonial usage, in so far as such matters can be ascertained, shall be regarded as the primary considerations to be taken into account in the evaluation of any place or object for the purposes of this Act.

Information about heritage places and their legal status is available through the DPLH Aboriginal Cultural Heritage Inquiry System (ACHIS)³. There are three categories by which the ACHIS now characterises heritage places:

- ▶ Registered Aboriginal Sites – Aboriginal Cultural Heritage (ACH) **Register layer**;
- ▶ Lodged places⁴ – Aboriginal Cultural Heritage (ACH) **Lodged layer**; and
- ▶ Historic records - Aboriginal Cultural Heritage (ACH) **Historic layer**.

Fees

The WA Government has introduced new fees associated with section 16 and section 18 applications. Commercial and Government proponents are expected to pay the following fees for new applications:

- ▶ A \$250 application fee; and
- ▶ \$5,096 multiplied by the number of **proposed investigation sites** for section 16 applications and **identified sites or places** for section 18 applications.

³ When searching based on shapefiles or coordinates, GDA2020 projection is not currently supported.

⁴ Information about these places is in the process of being verified by the Department and Committee.

The Director General has the ability to waive, reduce or refund fees; and extend the time within which to pay fees. Any such matter will be considered on a case-by-case basis⁵.

Other Heritage Legislation

Aboriginal heritage sites are also protected under the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (the HPA). The HPA complements state / territory legislation and is intended to be used only as a 'last resort' where state / territory laws and processes prove ineffective. Under the HPA the responsible Minister can make temporary or long-term declarations to protect areas and objects of significance under threat of injury or desecration. The HPA also encourages heritage protection through mediated negotiation and agreement between land users, developers and Aboriginal people.

Aboriginal human remains are protected under the AHA and the HPA. In addition, the discovery of human remains requires that the following people are informed: the State Coroner or local Police under section 17 of the *Coroners Act 1996*; the State Registrar of Aboriginal Sites under section 15 of the AHA and the Federal Minister for Aboriginal Affairs under Section 20 of the HPA.

In terms of broader recognition of Aboriginal rights, the *Commonwealth Native Title Act 1993* (the NTA) recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people. Under the NTA, native title claimants can make an application to the Federal Court to have their native title recognised by Australian law. The NTA was extensively amended in 1998, with further amendments occurring in 2007, and again in 2009. Under the future act provisions of the *Native Title Act 1993*, native title holders and registered native title claimants are entitled to certain procedural rights, including a right to be notified of the proposed future act, or a right to object to the act, the opportunity to comment, the right to be consulted, the right to negotiate or the same rights as an ordinary title holder (freeholder).

Corporate Social Responsibility

Aboriginal Community Engagement

In the *A Way Forward* report (Parliament of the Commonwealth of Australia, 2021: 256) the Centre for Social Responsibility in Mining submitted that mining companies do not have the capacity to avoid incidents such as the destruction of Juukan Gorge. The Centre suggested mining companies are not performing in their social responsibility to prevent activities that would be detrimental to the community.

The field of mining and social performance is in decline. This has weakened the ability of community relations and social performance professionals to challenge production priorities in circumstances where risks to community exceed reasonable thresholds. Our research highlights shortcomings across organisational structures, internal lines of reporting, management systems, incentives, and talent management.

⁵ <https://www.wa.gov.au/government/document-collections/aboriginal-heritage-approvals>

Furthermore, Hon Warren Entsch MP (Chair) stated in the Foreword of the 2020 *Never Again Interim Report*, following the Juukan disaster, that corporate Australia ‘can no longer ignore the link between its social licence to operate and responsible engagement with Indigenous Australia’ Owners’ (Joint Standing Committee on Northern Australia, 2020). One of the key lessons learnt by Rio Tinto has been the recognition that they put their social licence to operate in jeopardy by focussing on commercial gain ahead of ‘meaningful engagement with Traditional Owners’ (Joint Standing Committee on Northern Australia, 2020: 7). According to Recommendation 6.91 of the later *A Way Forward Report*:

.... These actions remind corporations that their social licence to operate and corporate ethical positions will affect how they are able to do business in the future – it will affect their investment prospects and return on investment. The same principles apply to other industries, particularly in the context of a transition to renewables, opening the way for them to learn from the mistakes of the mining boom and pay respect to the living heritage of Aboriginal and Torres Islander peoples.

The idea of ‘meaningful engagement’ is encapsulated by the United Nations Declaration on the Rights of Indigenous Peoples, which was signed by Australia in 2007 (United Nations, 2008). Effective engagement with Aboriginal peoples can be underpinned by six inter-related principles:

- ▶ Acknowledging and understanding of the individual aspirations and unique circumstances of different people and groups;
- ▶ Building trust;
- ▶ Maintaining a respectful manner, that acknowledges the need for reciprocity;
- ▶ Effective communication;
- ▶ Ensuring informed consent; and
- ▶ Sustaining the relationship.

Direct and sustained engagement process is the best approach when working with Aboriginal communities.

UN Declaration on the Rights of Indigenous People (UNDRIP)

The UN Declaration on the Rights of Indigenous People (UNDRIP) sets out the rights of Indigenous people around the world to set and pursue their own priorities for development, and to maintain and control their cultural heritage (United Nations, 2008). The key provisions relevant to mineral development in the Australian Context include Indigenous people having the right to:

- ▶ Practice and revitalise their cultural traditions and customs, and states shall provide redress for cultural property taken without free, prior, and informed consent (Article 11);
- ▶ Practice their spiritual and religious traditions, customs, and ceremonies, maintain sites, control ceremonial objects and repatriate human remain, and states shall seek to enable the access and/or repatriation of ceremonial objects and human remains (Article 12);
- ▶ Maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions and intellectual property over such heritage, knowledge and

culture, and states shall, in conjunction with Indigenous peoples, take effective measures to recognize and protect the exercise of these rights (Article 31); and

- ▶ Determine and develop priorities and strategies for the development or use of their lands or territories and other resources, and states shall consult and cooperate with Indigenous peoples in order to obtain their free and informed consent before the approval of any project affecting their lands, territories, and resources, provide effective mechanisms for redress for any adverse impact from such activities (Article 32).

A core principle of UNDRIP is the right of Indigenous people to make decisions about development proposals that have the potential to impact their land and culture from an informed position that is free from coercion, intimidation, or manipulation (Joint Standing Committee on Northern Australia, 2021). In order to uphold these principles, Free and Prior Informed Consent (FPIC) has been recognised as the best practice approach for engaging with Indigenous people when seeking consent for projects or activities that affect Indigenous people's culture or country (Kemp and Owen, 2014).

While the UNDRIP has not been formally adopted into Australian law, there has been an increasing recognition within industry of the importance of FPIC in building meaningful relationships with Traditional Owners and maintaining a social licence to operate. In addition, Mr Buti, the WA Aboriginal Affairs Minister, has indicated that 'new Act embedded consultation, due diligence, agreement making and **informed consent** within legislation' (as reported by Torre, 2022).

Free Prior and Informed Consent (FPIC)

In relation to cultural heritage and development, the UNDRIP means that Indigenous communities have a right to know, and make decisions about, projects that affect them and their heritage. The principles of Free, Prior and Informed Consent (FPIC) for Indigenous persons or communities in relation to development projects are a best practice standard to be applied. They protect and promote Indigenous Rights within the development process. The processes of FPIC should be ongoing throughout the life of the project. To break this down:

- ▶ **Free** - the process to be free of manipulation or coercion (including financial).
- ▶ **Prior** - the process occurring in advance of any activity associated with the decision being made and allowing time for traditional decision-making processes.
- ▶ **Informed** - objective, accurate, current, and easily understandable information.
- ▶ **Consent** - right to approve or reject a project (Hill, Lillywhite and Salmon, 2010).

The 'Darwin Statement' – implementing Best Practice Cultural Heritage Principles

In 2018, the Heritage Chairs and Officials of Australia and New Zealand (HCOANZ) agreed to implement best practice cultural heritage principles under what they termed the 'Darwin Statement'. The Heritage Chairs were joined by representatives of Aboriginal and Torres Strait Islander heritage organisations from the Commonwealth, states and territories in an approach aimed at working together to advance 'a shared approach to Australia's cultural heritage' (Heritage Chairs of Australia and New Zealand, 2020, p. 33). The HCOANZ group emphasised the principles of:

- ▶ Sharing the comprehensive Australian heritage story (including the 'critical importance' of recording and sharing the stories of Aboriginal and Torres Strait Islander cultural heritage);
- ▶ Inclusion and engagement with Aboriginal and Torres Strait Islander people; and

► Cooperation and collaboration.

Their objective was to facilitate Indigenous Cultural Heritage (ICH) legislation and policy across the country that is consistently of the highest standards.

The HCOANZ group made their recommendations at a time of statutory reviews of Commonwealth Acts, including the *Environment Protection and Biodiversity Act 1999* (Cth) (EPBC Act) and the Australian Heritage Strategy, the Commonwealth's key heritage policy document. Their vision, captured in a document entitled *'Dhawura Ngilan'/Remembering Country*, reminds us that, as a foundational principle, Australia's Indigenous Peoples are entitled to expect that Indigenous Cultural Heritage legislation will uphold the international legal norms contained within the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), and that the key to UNDRIP is the principle of self-determination. The four primary visions of *'Dhawura Ngilan'/Remembering Country* are:

1. Aboriginal and Torres Strait Islander people are the Custodians of their heritage. It is protected and celebrated for its intrinsic worth, cultural benefits and the well-being of current and future generations of Australians;
2. Aboriginal and Torres Strait Islander heritage is acknowledged and valued as central to Australia's national heritage;
3. Aboriginal and Torres Strait Islander heritage is managed consistently across jurisdictions according to community ownership in a way that unites, connects, and aligns practice; and
4. Aboriginal and Torres Strait Islander heritage is recognised for its global significance.

This is the current climate under which the new *Aboriginal Cultural Heritage Act 2021* has evolved and been enacted, with the establishment of the ACH Council, and the Local Aboriginal Cultural Heritage Services (LACHS) to manage (their own) Aboriginal cultural heritage. The proposed amendments to the AHA include the replacement of the ACMC with an Aboriginal Heritage Council, with Aboriginal chairs and majority Aboriginal membership and the recognition of Native Title holders.

UNESCO Convention for the Safeguarding of Intangible Cultural Heritage 2003

As noted in the *'Dhawura Ngilan'/Remembering Country* visionary document (Heritage Chairs of Australia and New Zealand, 2020, pp. 38–39), intangible cultural heritage can exist independently of the association with a particular place. Thus, 'the management, protection and promotion of this form of cultural heritage can provide particular challenges in a legislative context'. Whilst this is understood, the HCOANZ group point to the importance of this manifestation of ACH as indicated by the number of international instruments, in addition to the UNDRIP, that address this topic. The 2003 UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (UNESCO 2003) remains the key instrument in the recognition and protection of such cultural heritage; however, Australia has not yet ratified it. Acknowledging the constitutional arrangements in Australia, the HCOANZ group support the development of national legislation for the recognition and protection of intangible ICH/ACH.

For the purposes of this Convention (UNESCO 2003: Appendix 2) 'intangible cultural heritage':

- Means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and

provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

► Is manifested inter alia in the following domains:

- a) oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
- b) performing arts;
- c) social practices, rituals and festive events;
- d) knowledge and practices concerning nature and the universe; and
- e) traditional craftsmanship.

Both the AHA (Section 5 and Section 39 (2) and (3)) and the ACHA (Section 12) include consideration of intangible cultural heritage values that are considered important to the Aboriginal people of the State, and are recognised through social, spiritual, historical, scientific or aesthetic values, as part of Aboriginal tradition. However, most forms of intangible cultural heritage, including oral traditions and rituals, are excluded unless they are associated with place.

Summary

A key result of the Parliamentary Inquiry into the destruction of Juukan Gorge was the reminder to corporations of their ‘social licence’ to operate. In relation to Aboriginal cultural heritage and tradition this means respect for Aboriginal people and meaningful engagement with them as set out by UNDRIP and underpinned by the principles of FPIC. These principles are reflected in both national and international best practice cultural heritage standards and codes.

The AHA’s Section 18 process came under criticism by that Inquiry, which commented that it ‘failed to strike a balance between the needs and aspirations of the various parties and has excessively favoured the interests of proponents (4.126). In commenting on the draft ACH Bill, the Committee supported the aspirations of the WA Government to strengthen Aboriginal voice in the management of ACH and in its efforts to seek a better balance between proponents and traditional owners (4.129). In noting concerns raised in consultation about the Bill, the Committee strongly urged the WA Government to incorporate the principles of FPIC in addressing the issues raised by Aboriginal groups as it progressed the new legislation (4.135).

The ACHA broadened the definition of Aboriginal cultural heritage and acknowledged Aboriginal people as its primary custodians and decision makers. It instituted a new tiered approvals process, based on the amount of ground disturbance. It promoted the role of Aboriginal people in managing harm to their heritage by requiring substantially more engagement with Aboriginal people by proponents at all stages of the approvals process. The establishment of the Aboriginal Cultural Heritage Council (ACHC) and Local Aboriginal Cultural Heritage Services (LACHS) are based on the principle of self-determination.

The proposed amendments to the AHA, following the announcement to repeal the ACHA, attempt to address the criticisms of the Section 18 process by formally recognising the interests of Native Title holders, by extending the right of appeal to Aboriginal people, and by creating a more transparent process of decision-making timelines by the Minister. Increased involvement of Aboriginal people is addressed by replacing the ACMC with a new Aboriginal Heritage Committee, based on the composition of the ACHC established under the ACHA. These amendments may not adequately

incorporate the principles of FPIC or meet the best practice standards recommended by the Parliamentary Inquiry. The onus is on proponents to meet best practice cultural heritage standards in order to avoid or limit any risks that may impact their social licence to operate.

SECTION TWO –BACKGROUND

ARCHAEOLOGICAL BACKGROUND

Archaeological evidence from several sites recorded along the west coast shows that the Aboriginal people first occupied the south-west of Western Australia by 50,000 years ago (Pearce and Barbetti, 1981a; Dortch, Dortch and Cuthbert, 2009a; Monks *et al.*, 2016a; Dortch and Dortch, 2019a). On the Swan Coastal Plain we have evidence for occupation from 41,000 year ago (Table 5).

Table 5. Publicly available dates for archaeological sites on the Swan Coastal Plain

Site	Oldest Date	Landform	Reference
Perth Airport	41,000	Bassendean	(Mattner <i>et al.</i> , 2014); Airport Press Release ⁶
Upper Swan Bridge	38,000	Alluvial Deposits	(Pearce and Barbetti, 1981b)
Fiona Stanley Hospital	33,000	Bassendean	(Dortch, Dortch and Cuthbert, 2009b; Dortch and Dortch, 2019b)
Helena River	30,000	Alluvial Deposits	(Schwede, 1990)
Yellabidde Cave	28,000	Tamala	(Monks <i>et al.</i> , 2016b)
Rottnest Island, Bathurst Point	>17,000	Tamala	(Ferguson, 1986; Dortch and Hesp, 1994; Ward <i>et al.</i> , 2016)
Rottnest Island, Little Armstrong Bay	<27,000	Tamala	(Ferguson, 1986; Dortch and Hesp, 1994; Ward <i>et al.</i> , 2016)
Dunsborough (2 sites)	12,000	Spearwood	(Dortch, 1994, 1996; Dortch and Dortch, 2012)
Minim Cove	10,000	Karakatta	(Clarke and Dortch, 1977)
Bibra Lake (Beeliar Wetlands)	>10,000	Bassendean	(Archae-aus, 2021b)
Walyunga	8,000	Yoganup	(Pearce, 1978a)
NSCP middens	5,000	Quindalup	(Dortch, Kendrick and Morse, 1984; Monks, Sheppard and Dortch, 2015)
Millendon	5,000	Alluvial Deposits	(Schwede, 1985)
Orchestra Shell Cave	4,000	Tamala	(Hallam, 1974)
North Lake (Beeliar Wetlands)	2,400	Bassendean	(Pearce, 1979)

The majority of archaeological surveys and more detailed assessments conducted in the south-west of Western Australia have occurred on the Swan Coastal Plain, particularly in the Perth Metropolitan area (Hallam, 1972, 1975, 1977a, 1986, 1987; Anderson, 1984; Strawbridge, 1988; Bowdler, Strawbridge and Schwede, 1991). The Swan Coastal Plain comprises five geomorphic elements, parallel to the coast and decreasing in age from the Darling Scarp to the present coastline (Garry Middle (Vision Environment), no date; McArthur and Bettenay, 1974; Gozzard, 2007). These are:

- Ridge Hill Shelf – a narrow discontinuous strip 1.5–3 km wide forming the foothills of the Darling Scarp and representing an older Pleistocene shoreline;

⁶ <https://echonewspaper.com.au/news/indigenous-artefacts-found-at-munday-swamp/>

- ▶ Pinjarra Plain – an alluvial plain up to 25 km wide. The surface of the plain has sandy rises and overlies the eastern-most Bassendean dunes and is thus younger than this system;
- ▶ Bassendean Dune System – a 15-km wide zone of low sand dunes made up of well-leached white-grey sands. There are commonly swampy depressions and lakes between the dunes. These dunes formed more than 125,000 years ago;
- ▶ Spearwood Dune System – a core of aeolian limestone overlain by yellow and brown sands of varying depth formed around 40,000 years ago. Chains of lakes and swamps have formed at the interface between the Spearwood and Bassendean Dune Systems; and
- ▶ Quindalup Dune System – unconsolidated calcareous sands bordering the present coast line which began to form at the end of the last ice age from 10,000 years ago.

Intensive archaeological survey carried out in the 1970s and 1980s by Hallam has provided a baseline for understanding the distribution of archaeological sites on the Swan Coastal Plain in terms of past land use patterns (Hallam, 1972, 1977b, 1986, 1987; Strawbridge, 1988). Anderson's work provides a complementary analysis for the forested areas on the Darling Plateau (Anderson, 1984). Archaeological sites on the Swan Coastal Plain are primarily distributed on the Bassendean Sands and alluvial deposits associated with the Swan and Canning Rivers. Sites are rare in association with the Spearwood Dunes and almost absent from the Quindalup Dunes. As a consequence, Hallam (1987) argued that the diverse resources of the swamps and wetlands of the Swan Coastal Plain, as well as the alluvial soils particularly associated with major rivers, were the key focus of past land use. Subsequent work in the Perth Metropolitan area has broadly confirmed this pattern (Dortch and Dortch, 2019a) with the addition that the freshwater lake system that runs the length of the Swan Coastal Plain are also a focus of past land use (Archae-aus, 2001).

Most archaeological sites on the Swan Coastal Plain are surface artefact scatters; other cultural sites include mythological sites, stone arrangements, burials, culturally modified trees and historic camping places. Hundreds of surface stone artefact scatters have been recorded across the Perth Metropolitan area, most commonly on the Bassendean Sands (Hallam, 1972, 1975, 1977b; Anderson, 1984; Strawbridge, 1988; Bowdler, Strawbridge and Schwede, 1991). These mark former camping areas and other activities associated with hunting, gathering and fishing, and collecting materials to make shelters and a range of tools and personal equipment. The stone artefacts include finished tools, as well as the flakes and cores that make up the waste from tool-making. Quartz is the most common stone type used for artefacts on the Swan Coastal Plain. Other materials used include dolerite, granite, mylonite, crystal quartz, silcrete and fossiliferous chert.

There are no natural stone sources occurring on the Swan Coastal Plain. Most stone, therefore, comes from sources in the Darling Range or perhaps even further inland. The exception is Eocene fossiliferous chert. No local sources have been identified for this particular fossiliferous chert and, where sites have been dated, there is no fossiliferous chert in the most recent levels. Sites closer to the present coastline tend to have higher percentages of fossiliferous chert. Therefore, it seems likely that sources of this material were located closer to the edge of the continental shelf and were drowned by rising sea levels by about 6,000 years ago at the end of the last ice age (Glover, 1984). Fossiliferous chert still continued in use, of course, as old artefacts were recovered from sites and reworked. Nevertheless, this means that fossiliferous chert acts as a rough chronological marker for sites on the Swan Coastal Plain, indicating use of particular places going back more than about 5,000 years. Recent sites often include tools made from glass and ceramics.

Past Noongar occupation in the Perth Metropolitan region is thus commonly marked by scatters of stone artefacts, particularly those associated with the chains of lakes and swamps on the Swan Coastal Plain, such as those either side of the Survey Area. These wetland areas would have been rich resource areas. Moreover, rivers, creeks and wetlands in the region continue to be culturally important to Noongar people because of the spiritual associations with the Waugal creative being.

The distribution of these sites suggests a long-term stable pattern of land use particularly focused on the rivers and the resource-rich wetlands and swamps of the Swan Coastal Plain. Preservation of organic material and charcoal is rare at surface artefact scatters, and few have been dated. Dated open sites on the sandplain at Perth airport and Fiona Stanley Hospital, as well as on the alluvial soils of Upper Swan and Helena River on the inland edge of the region, indicate long-term continuity of occupation from 41,000 (Dortch and Dortch, 2019a). Historical sources confirm the importance of wetland resources in past Aboriginal subsistence patterns (Hallam, 1987, 1991). Many wetlands were also used as Noongar campsites within living memory and continue to be visited to access traditional resources. Noongar people moved to manage the seasonal variation in the distribution and abundance of food resources. Local abundance of particular resources provided opportunities for large gatherings and there were seasonal movements between the coastal plain and the jarrah and marri forests of the Darling Scarp (Anderson, 1984).

Many of these sites have been disturbed by a range of European activities, such as farming, and more recently, urban development. Dated sites are rare on the Swan Coastal Plain, with the potential for undisturbed stratified archaeological deposits in the Bassendean Sands questioned in the past (Strawbridge, 1988; Bowdler, Strawbridge and Schwede, 1991). However, recent excavations at both Fiona Stanley Hospital (Dortch, Dortch and Cuthbert, 2009a) and the Beeliar Wetlands (F Hook and Dortch, 2017; Archae-aus, 2021c) have demonstrated the presence of undisturbed artefacts and charcoal at depths of up to 150 cm with intact stratigraphic integrity. Indeed, it is apparent that around lakes on the Swan Coastal Plain there are sub-surface archaeological sites in areas where limited surface archaeology occurs (such as at Beeliar Wetlands) or where no surface archaeology exists (such as at Fiona Stanley Hospital). Therefore, it is predicted that areas adjacent to wetlands, especially elevated sandy areas will have a high potential for sub-surface archaeology.

While many surface sites have been recorded in the Perth Metropolitan Area, the sub-surface record remains poorly understood. The Beeliar Wetlands and Fiona Stanley Hospital projects have demonstrated that the surface archaeological record is a poor guide to the presence of sub-surface cultural material and that an intact archaeological record of the past cultural landscape can potentially be identified beneath the disturbed surface layer relating to the two hundred years since the arrival of Europeans. This has clear implications for planning and management of cultural values elsewhere in the Perth Metropolitan Area as development expands beyond the relatively well-documented area that was surveyed for Aboriginal heritage values in the 1970s and 1980s.

For example, in 2008 at Fiona Stanley Hospital, monitors identified flaked stone tools during construction works. The construction work was halted while shovel test pitting and archaeological excavation occurred. The excavation where the Mental Health building now stands unearthed a mylonite stone adze, or wood-working tool, dated to 33,000 years old. In addition, ochre identified during the excavations also suggests trade or travel was occurring from another region. Ochre was a highly valued resource used during ceremonies, and also as paint and decoration.

At Lake Walliabup (Bibra Lake) during the Roe 8 protests and then during the Rehabilitating Roe 8 works, the results of the Shovel Test Pit program and excavations show that the ancestors of the

Whadjuk Noongar left the traces of their activities much more widely through the area between the Lakes Walliabup and Coolbellup (North Lake) than the limited surface traces would suggest. Noongar traditions attest to the spiritual significance of this wetlands system as well as the economic importance of the rich plant and animal resources of this area. Historical sources confirm the importance of the area as a meeting place and a waypoint for those travelling along the wetland corridor between the Swan and Canning Rivers and the Pinjarra area.

The quantity of sub-surface artefacts discovered during the archaeological investigations at Bibra Lake (Lake Walliabup) indicates that the whole of the higher ground around the lakes would have been favoured for camping. The whole wetland complex is best considered as a single cultural landscape with a high probability of encountering cultural material anywhere in it. On the basis of the density of artefacts found in the Shovel Test Pits, it was estimated conservatively that there could be more than 20 million sub-surface artefacts in the high potential archaeological area around the lakes. Using a more generous calculation the estimated number of sub-surface artefacts could be 40 million. The absolute dating evidence from this project confirms that the Whadjuk Noongar ancestors have used this landscape for at least 10,000 years. The OSL results from Square 1 show that cultural material was first deposited about 10,000 years ago, with a noticeable peak in artefacts between 8,000 and 9,000 years ago. While the oldest date for Square 2 is about 4,500 years, artefacts do continue below this level and the deposition rates suggest that the base of the excavation was about 10,000 years. Sterile deposits were not reached in Square 2 so it is possible that the Whadjuk Noongar ancestors may have been using this locality for even longer.

The artefacts recovered from Lake Walliabup are typical of those from sites in the Perth Metropolitan Area. The lack of stone in the Swan Coastal Plain means that the raw materials artefacts are made from show the cultural connections people using Lake Walliabup and Lake Coolbellup would have had. They would have obtained quartz, dolerite and mylonite from inland along the Darling Scarp. The source for fossiliferous chert is not known but is thought to be offshore, submerged by rising sea levels at the end of the last ice age. Thus, the Whadjuk Noongar ancestors must have ranged widely over a broad coastal plain between the Darling Scarp and the coast, which 10,000 years ago was beyond Rottnest / Wadjemup. The dating evidence from Square 1 is consistent with other dated sites on the Swan Coastal Plain, which support the interpretation that Whadjuk Noongar ancestors lost access to fossiliferous chert sources about 5,000 to 6,000 years ago (Glover, 1975; Pearce, 1978b).

The arrival of European settlers and the establishment of the Swan River Colony in 1829 caused considerable disruption to Noongar life (Green, 1984). Nevertheless, Noongar people maintained strong cultural connections to the Perth Metropolitan area and to traditional resources. Traditional camping and resource areas continued to be used and wetland areas commonly retained mythological associations with the Waugul creation being.

PREVIOUS HERITAGE ASSESSMENTS

DPLH Heritage Places

The Department of Planning, Lands, and Heritage (DPLH) Register of Aboriginal Cultural Heritage (ACH) holds information about Aboriginal ethnographic and archaeological cultural material places across Western Australia. The Register also stores details about heritage surveys that have been conducted and provides a list of consultants' reports. Searches of the Register, using the Aboriginal Cultural Heritage Inquiry System (ACHIS), were made to determine if any previously recorded Aboriginal Heritage places have boundaries with the Survey Area.

The results of the ACHIS search found that one Aboriginal Cultural Heritage Place on the ACH Historic Layer (Table 6) intersects the Survey Area and five are located in the immediate vicinity (within 5 km; Table 6). The search also indicated that 32 previous cultural heritage surveys have intersected the Survey Area (Table 7). (Refer to Appendix One for ACHIS Register search details and map.)

Table 6. Aboriginal Cultural Heritage Place on the ACH Historic Layer intersecting the Survey Area.

DPLH ID	Site Name	Status	Type	Legacy ID
3427	MANDOGALUP SWAMP/SPECTACLES	Historic	Creation / Dreaming Narrative; Hunting Place; Water Source	S02729

Table 7. Aboriginal Cultural Heritage within 5 km of the Survey Area.

DPLH ID	Name	Status	Type	Legacy ID
3555	TREEBY ROAD LAKE	Historic	Artefacts/Scatter; Camp; Other	S02438
3710	THOMAS OVAL	Register	Camp	S02210
4148	NATGAS 127	Historic	Artefacts/Scatter	S01266
17582	HOPE VALLEY TREES 1-12	Lodged	Other	
38661	THOMAS ROAD	Register	Burial; Artefacts/Scatter; Camp; Ritual/Ceremonial; Water Source	

Site Summaries

The following section summarises information regarding the ACH which intersects the Survey Area DPLH ID 3427 (Mandogalup Swamp / Spectacles), and the nearby sites DPLH ID 3710 (Thomas Oval) and DPLH ID 38661 (Thomas Road).

DPLH ID 3427: Mandogalup Swamp / Spectacles

DPLH ID 3427 Mandogalup Swamp/Spectacles is a waterbody associated with the Waugal. It is one in a series of wetlands, extending from Wattleup Road in the north to Hope Valley Road in the south (Fisher, 2008). Mandogalup Swamp and the Spectacles wetlands were originally recorded as an ethnographic Aboriginal site by R. O'Connor, J. Walley, P. Bennell and F. Nannup in 1991. This area had been a freshwater source, a food resource, camping and hunting site for local Aboriginal people before market gardens intruded into it in the post-World War Two years. O'Connor and Hart (2003) also mention that in the past, Noongar people cut bean stalks for market gardeners in the area.

The original site recording form describes the site as a swamp system (i.e.. Mandogalup), and the nearby 'Spectacles', into which it drains, are well known to Aboriginal people. It was reported

specifically by Mr P. Bennell, Mr F Nannup and Mr J Walley. It is located between Rowley Road and Hope Valley Rd., in an area to be traversed by the Kwinana Freeway extension. It is considered significant by Aboriginal people because of:

- ▶ its former usage as a water source;
- ▶ its former usage as a tortoise hunting area; and
- ▶ its mythological association, as its water supply is sustained by actions of a Waugal.

The site is demarcated on an accompanying air photo. Mr Phil Bennell is the appointed spokesperson for this area. (Note: in this site file there are two maps of the site boundary showing the Spectacles. One map shows only the northern water source included in the boundary – this is declared ‘unreliable’; whilst the second map shows the boundary surrounding both water sources. This second boundary is declared ‘reliable’.) (pp. 44-45).

The site was recorded by the DPLH in 1997 and listed as ‘stored data’, meaning the information lodged at that time was considered by the ACMC as not to have met the criteria of Section 5 of the Aboriginal Heritage Act 1972. Following on from this, the site file contains site reports produced in 2000 and 2004 that give the site status as ‘interim register; insufficient information’, followed by a site registry status in August 2008 declaring ‘stored data; not a site’.

In 2010, Traditional Owner Trevor Walley provided a site name: ‘Ngaiyinup’ and Dreaming story. Trevor, along with Cyril Yarran, completed a site registration request at this time and listed the site types as including artefacts; ceremonial; historical; and quarry, with supporting information including: hunting place; water source; archaeological deposit; camp; dated evidence; meeting place; named place; natural feature; reserve; and plant resource.

In 2011, Heritage Consultant, Brad Goode recommended a reassessment of the site be carried out. Details of the recommendation are within an internal DIA Memorandum dated 21/12/2011. This Memorandum states that the current state of the site as ‘Stored data’ was the result of a 2008 assessment which ‘appears to have occurred at a time when the ACMC were not ratifying site assessments’ with a preliminary assessment being made only. Brad Goode requested that a reassessment process occur, due to a concern regarding potential impact to a heritage site due to its ‘stored data’ status. In 2011, the DIA supported a reassessment process occurring, noting that ‘the site may need to be remapped and may not be seen as having enough information to enable an assessment to occur’. Despite this outcome, there is no further information in the site file to show that any more mapping details and/or information has since been provided to DPLH.

Table 8DPLH ID 3710: Thomas Oval

Thomas Oval in Medina was recorded as an Aboriginal campsite used by Aboriginal people in the 1920s. It was recorded during a survey by O’Connor, Bodney and Little in 1985 (DPLH Report ID 102670), located to the south of the western end of the current Survey Area.

DPLH ID 38661: Thomas Road

The Thomas Road site was initially identified in 2020, following the discovery of skeletal remains in the course of earthmoving activities as part of a land development by Aigle Royal on the south side of Thomas Road. Substantial amounts of cultural material in the form of stone artefacts were subsequently discovered in the same area. The skeletal remains and cultural material were not in situ and have been redeposited as a result of ‘cut and fill’ earth moving to level the development area and to fill in the remanent freshwater lake.

After the initial site damage investigation, it was concluded that the burial and the artefact scatter derive from the remnant dune at the intersection of Thomas Road and the Kwinana Freeway. Their discovery indicate that there was a very substantial camping area in this location before disturbance by the construction of the Kwinana Freeway in the 1980s. The Registered Site boundary includes the surviving extent of the remnant dune as well as the location of the redeposited cultural material and skeletal remains (Archae-aus Pty Ltd, 2020; Archae-aus, 2022).

Surveys for the Kwinana Freeway extension and the Kwinana-Harvey 330kV transmission line passed over or were immediately close to the Aigle Royal Development area and the current Main Roads Survey Area (O'Connor and Quartermaine, 1987; Quartermaine, 1987). Neither of these surveys were comprehensive. The field strategy for both surveys involved driving the route, with field inspections at 'regular intervals' and at areas such as watercourse and swamp margins where there was considered to be a high probability of sites occurring.

Two sites were recorded in the vicinity of Thomas Road as a result of the Kwinana-Harvey transmission line survey, namely DPLH ID 3555 Treeby Road Lake, immediately to the north of the Survey Area, and DPLH ID 3554 Woolcoot Road Swamp, 3.5 km to the south. Both were recorded as small low-density quartz artefact scatters on the margin of swamps. None of these sites have been investigated for sub-surface components. More recently, surveys by Archae-aus of Lots 2 & 3 on the northern side of Thomas Road, and for Main Roads Western Australia in association with planned upgrades to Thomas Road, identified numerous isolated artefacts (Archae-aus, 2021a, 2021d).

The skeletal material from the Thomas Road sites is currently housed in Karrakatta Cemetery awaiting analysis. The delay in the analysis has been the result of the changes to the heritage acts and the DPLH inability to provide approval for GKB to access the remains. The coroner identified the remains as belonging to one individual, a male who is of some antiquity. Part of the proposed analysis work may include dating if suitable material is identified.

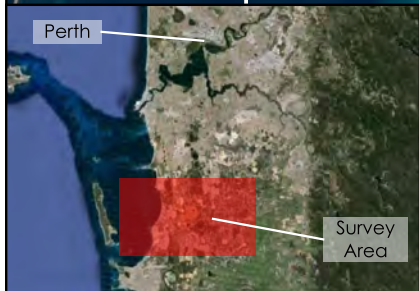
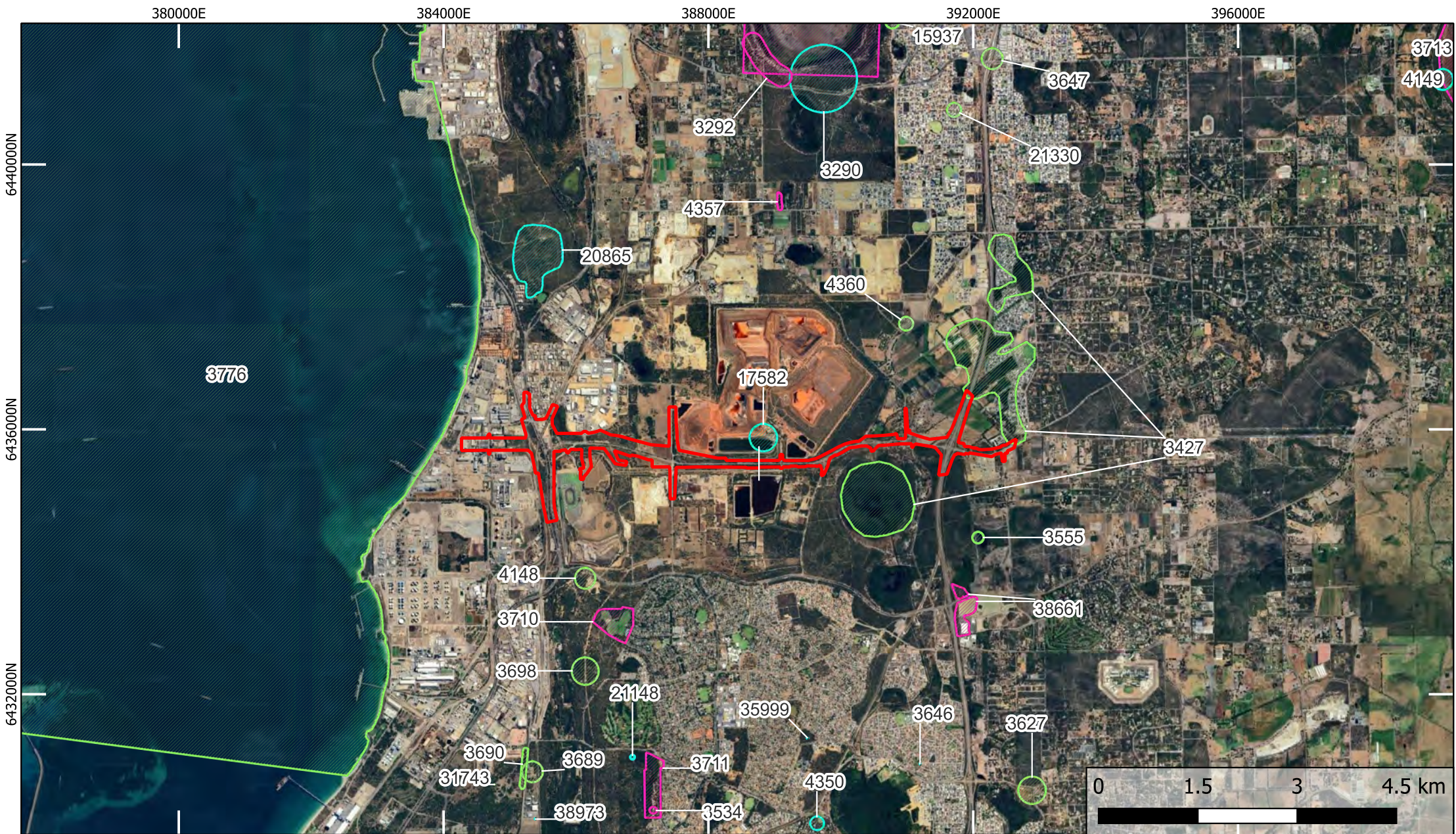
The scattered flaked stone artefacts when recovered were not in their primary context; however, the number of artefacts suggests that this was an important camping area near to the rich wetland resources of the Spectacles and the smaller wetlands. It is likely that cultural material extends over the whole dune, relatively intact remnants of which occur along the western boundary of the Survey Area and on the northern side of Thomas Road, within the Jandakot Regional Park. With the exception of a 1 m x 1 m excavation and the three shovel test pits in the intact dune that were excavated by Archae-aus in 2022, other sections of the site remain uninvestigated. The extensive area available on the dune, suitable for camping in the past, may explain why the limited sub-surface sampling that has been undertaken did not find further artefacts in undisturbed context. Accordingly, more extensive subsurface sampling would be required to document the distribution of past activity over this large area.

A total of 406 flaked stone artefacts were recovered from the surface of the site (**Error! Reference source not found.**). Most (79%) were quartz, while the remainder were fossiliferous chert (19.5%) or other fine-grained siliceous (FGS) materials (1.5%). There were also four fragments of ochre and two quartz manuports – both unworked pebbles. Several shell fragments were collected, all weathered opercula from a marine gastropod. Two fragments of worked glass were collected showing a modern context for the site.

The large number of quartz artefacts is typical of surface artefact scatters on the Swan Coastal Plain. The presence of fossiliferous chert indicates that Thomas Road (ID 38661) was used before about 5,000 years ago when sea levels finally stabilised after the last ice age. There was also a small amount

of other fine-grained material, including several pieces of silcrete and a possible piece of mylonite. There are no dolerite artefacts. The cores from Thomas Road show that both freehand percussion and bipolar techniques were used to flake stone.

Twenty-six of the artefacts were retouched. Most retouched tools are backed pieces, or small woodworking tools (scrapers or adzes). Several of the woodworking tools are broken fragments. There are also several resharpening flakes. Making and repairing a range of tools was clearly an important activity at the Thomas Road site. Backed pieces are usually found on recent sites dated to the last 4,000 to 5,000 years. All except one of the backed pieces are quartz. One is made from a fine-grained silicious material, which is probably mylonite. Together with the evidence of fossiliferous chert and glass artefacts, it is suggested that the Thomas Road site was used over a long time period from before about 6,000 years ago and into the contact period.



Main Roads WA Anketell Road Proposal Area (Kwinana Freeway to Leath Road)

Legend

DPLH Aboriginal Heritage Places

Lodged

Registered Site

ACH Historic Layer



archae-aus

Map 3. ACH Places Intersecting and within 5 km of the Project Area, Kwinana, WA

Drafted by Tessa Woods, 25 July 2024. GDA94, Zone 50H.
Satellite imagery courtesy of Google Maps.

Previous Heritage Surveys

According to the ACH Directory of the DPLH, thirty-two (32) Aboriginal Heritage Assessments intersect the Survey Area. Many of the previous survey assessments are general and non-specific to the Survey Area. The following section summarises a selection of reports which intersect the Survey Area.

Table 9. Previous Heritage Surveys that intersect the Survey Area.

DPLH ID	Report Title	Authors	Type
17059	Dampier to Perth Natural Gas Pipeline Route: A Survey for Aboriginal Sites. March 1979.	Dept of Aboriginal Sites.	Archaeological/ Ethnographic
17663	Report on an archaeological investigation for Aboriginal sites proposed international motor sports complex at Kwinana. August 1999.	Quartermaine, Gary.	Archaeological
17664	Report on an ethnographic survey of the proposed motor sports complex at Kwinana. August 1999.	O'Connor, R	Ethnographic
19122	Summary report section 18 notice to disturb Aboriginal Sites: Tonkin Highway extension Mills Road West, Martin to South Western Highway, Mundijong: March 2001 [OWE]	BSD Consultants Pty Ltd	Ethnographic
20027	From Perth on Harvey to Kwinana 330kv Transmission Line. Appendix 'C' Archaeology. (Dam) August 1987.	Quartermaine, Gary.	Archaeological
20507	Report on an ethnographic survey of the proposed South West Metropolitan Railway Reserve.	O'Connor, Rory.	Ethnographic
20508	Report on further archaeological investigations for Aboriginal sites South West Metropolitan Rail Line Corridor	Quartermaine, Gary.	Archaeological
20633	Management report of Aboriginal Heritage aspects of the Dampier to Bunbury Natural Gas Pipeline corridor through the Perth Metropolitan Area	Hames Consultancy Group	Archaeological/ Ethnographic
20653	Report on an ethnographic survey of the proposed South West Metropolitan Railway Alignment	O'Connor, Rory.	Ethnographic
21422	Report on the archaeological and ethnographic survey of the proposed route of the Perth Seawater Desalination Plant Projects Kwinana Beach Naval Base Nicholson Road Forrestdale in Western Australia	Australian Interaction Consultants	Archaeological Ethnographic
21817	Ballaruk (traditional owners) Aboriginal site recording project	Machin, Barrie	Ethnographic
21818	Ballaruk (traditional owners of Whadjuk territorial boundaries the lands of the Ballaruk Peoples) Aboriginal site recording project: additional material	Machin, Barrie	Ethnographic
22366	Indigenous heritage of the Peel - Harvey Region: a review of previous research and archival data for phase 1 of the Peel Cultural Landscape Assessment Project	Dortch, Joe	Archaeological Ethnographic
22419	Report on New Metro Rail Aboriginal consultative meetings held in August and September 2004	R & E O'Connor Pty Ltd	Ethnographic
22529	Report on the October 2006 Aboriginal Consultative Meetings	R & E O'Connor Pty Ltd	Ethnographic
22530	Report on April 2006 New Metro Rail Aboriginal Consultative Meetings	R & E O'Connor Pty Ltd	Ethnographic

DPLH ID	Report Title	Authors	Type	
22628	Report on archaeological recording, salvage and monitoring: Tonkin Highway extension Mills Road West (Martin) to Thomas Road (Byford)	Tempus Archaeology	Archaeological	
23099	Report on an Aboriginal Heritage Survey of the proposed Kwinana Quay, Town of Kwinana / City of Cockburn, WA	Fisher, Stuart	Archaeological Ethnographic	&
28551	A Report of an Aboriginal Heritage Survey of the Proposed Southern Corridor Infrastructure Upgrade Project	Western Heritage Research Pty. Ltd.	Archaeological Ethnographic	&
101972	Report of an Aboriginal Heritage Survey, South-East Corridor Structure Plan. Oct.1995.	Blockley, E	Archaeological Ethnographic	&
102670	Preliminary Report on the Survey of Aboriginal Areas of Significance in the Perth Metropolitan & Murray River Regions July 1985.	O'Connor, R	Ethnographic	
103564	An Archaeological Survey Project: The Perth Area, Western Australia. Apr 1972.	University of Western Australia.	Archaeological	
103677	Report of an Aboriginal Heritage Survey Department of Planning and Urban Development (Dpu) Land Requirement Plans South-West Corridor Area 'A' W.A. Oct.1993.	Edwards, K	Archaeological Ethnographic	&
104087	An archaeological survey of the Dampier to Perth natural gas pipeline route: section 6 Muchea to Wagerup.	Pickering, M.	Archaeological	
104155	A report of an Aboriginal Heritage assessment of proposed residue disposal areas, Kwinana	Jackson, Gavin.	Archaeological/ Ethnographic	
104160	Report on an Aboriginal Consultation and an Ethnographic Survey of the Forrest Road to Thomas Road Section of the Kwinana Freeway. April 1991.	O'Connor, R	Ethnographic	
104475	An Archaeological Survey for Aboriginal Sites along Gas Pipeline Laterals in the South Metropolitan Area.	Schwede, M.	Archaeological	
104489	A Survey for Aboriginal Sites on the Proposed Route of the Kwinana Freeway Southern Extension (South St-Thomas Rd).	Reynolds, R.	Archaeological/ Ethnographic	
105233	Report on an Aboriginal site survey of the proposed south west corridor transport reserve	O'Connor, R	Archaeological/ Ethnographic	
105321	Proposed Harvey - Kwinana 330kv Transmission Line: Public Environmental Report. Report no. Sd233 February 1988.	Dames & Moore.	Archaeological	
106204	Metropolitan Sites Project Southern Region: draft report	Yates Heritage Consultants	Archaeological	
201130	Report of an Aboriginal Heritage Survey for the Tonkin Highway Extension: Thomas Road to South Western Highway in Shire of Serpentine-Jarrahdale, Western Australia	Brad Goode, Grant Preller, Thomas O'Reilly	Archaeological/ Ethnographic	

Report Summaries

Report ID 17663 - Quartermaine, G. Report on an archaeological investigation for Aboriginal sites proposed international motor sports complex at Kwinana. August 1999.

This report details the archaeological survey conducted for the Kwinana “International Motor Sports Complex” commissioned by Adams and Associates Pty Ltd in 1999. The purpose of the survey was to investigate the Survey Area for Aboriginal sites that may be harmed or disturbed during the proposed construction process.

The survey was conducted as desktop research and a sample survey of the proposed activity area. The sample survey was conducted on foot by walking ‘north-south and east-west meandering traverses’ over accessible terrain. The survey was hindered by low surface visibility, but it was estimated that 50% of the Survey Area was surveyed. The survey found ‘no archaeological sites were located within the designated Survey Area’.

Aboriginal consultants were not present during the archaeological survey; however, an ethnographic survey was conducted by R. O’Connor in July and August of the same year and is detailed in Report ID 17664.

Report ID 17664 - O’Connor, R. Report on an ethnographic survey of the proposed motor sports complex at Kwinana. August 1999.

This report details the ethnographic survey conducted for the Kwinana “International Motor Sports Complex” commissioned by Adams and Associates Pty Ltd in 1999. The purpose of the survey was to locate Aboriginal traditional owners of the Kwinana area and consult with them in regard to the proposed project to determine areas of cultural significance which may be harmed or disturbed during the proposed construction process.

The survey was conducted via desktop research, consulting with Aboriginal organisations, and an inspection of the proposed activity area. The Aboriginal groups contacted were the Ballaruk Group, the Gnaala Karla Booja Group and the Peel Region Group. Members from all groups inspected the proposed activity area and agreed for the project to go ahead.

The report concluded that ‘the development has been approved by the relevant Aboriginal people as clear of significant sites’.

Report ID 19122 - BSD Consultants Pty Ltd. Summary report section 18 notice to disturb Aboriginal Sites: Tonkin Highway extension Mills Road West, Martin to South Western Highway, Mundijong: March 2001 [OWE]

This report outlines the ethnographic research conducted for Main Roads WA in regard to the extension of the Tonkin Highway in March 2001. It details the history of the project seeking and being granted section 18 approval despite the objections from the ‘Nyungah Circle of Elders’.

The Tonkin Highway project received section 18 approval to disturb Aboriginal archaeological sites THMR 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12; S0756 (a and b); S02954; and S02959; as well as Aboriginal ethnographic sites S02550 – Canning River; S02601 – Southern River; Frog Dreaming (Canning Tributary); Waugal Whiskers (Typha Grass); and S02602 – Wungong Brook. Further details of these sites are not provided in this report.

The report recommends continued consultation with Aboriginal Traditional Owners throughout the construction process and that further recording is conducted on sites THMR-6 and THMR-11 prior to construction.

The ethnographic section of the report covers the research conducted to identify areas of Aboriginal significance which intersected the proposed Survey Area. Aboriginal people with long-term traditional and cultural associations with the region were engaged to consult on the project. These people were from the Medina, Armadale, Mandurah, Pinjarra, and Harvey areas.

The ethnographic portion of the survey identifies three previously recorded sites (not listed in the archaeological section) which would be impacted by the project. These were Waugal Cave Avoidance Area (W.A.M. Site S2226) and Adam Road Camping Areas (W.A. Sites S2229 and S2230).

It was recommended that permission be requested to disturb these sites.

Report ID 20027 - Quartermaine, G. From Perth on Harvey to Kwinana 330kv Transmission Line. Appendix 'C' Archaeology. (Dam) Aug 1987.

This report details the site survey for the Kemerton to Kwinana Transmission Line. The report was prepared by Darnes & Moore, Consulting Engineers who approached Rory O'Conner and Gary Quartermaine to conduct an archaeological and ethnographic survey.

These surveys were conducted as sample surveys following the route of the proposed Transmission Line and to provide a suitable Buffer zone for the works.

Seven archaeological *Field Sites* were recorded which were all small quartz artefact surface scatters of a low density (30 pieces per site). All sites were mostly 'dominated by flakes and chips', but Field Site 5 was found to have a microlith scraper, and a core and core fragments. Six were found within the 'margins of swamps' and the seventh 'on the northern bank of the Murray River'. All sites were disturbed due to vegetation clearance and firebreaks. Only Field Site 5 was identified to be at risk by the Survey Area.

The report recommends that continued consultation with Aboriginal Traditional Owners continues throughout construction. There may be further necessity for approval as disturbance is caused to the site.

Report ID 20507 - O'Connor, Rory. Report on an ethnographic survey of the proposed South West Metropolitan Railway Reserve. May 2001.

This report outlines the ethnographic research conducted on behalf of the Department of Transport of the South West Metropolitan Railway Reserve as further study to a survey conducted in 1994.

The research involved consultation with Aboriginal people and groups with traditional and cultural ties to the South West Metropolitan Area in relation to the Railway Reserve and assisted the Department of Transport in identifying any obligations to be fulfilled under the *Aboriginal Heritage Act (1972-95)*.

The Aboriginal groups engaged were the same who had consulted in the 1994 survey, who were the Peel Region Group, the Gnaala Karla Booja native title claimant group, the Naramaya Aboriginal Corporation, and the Medina Aboriginal Cultural Group, who all confirmed that the advice given in 1994 was still current.

The Medina Aboriginal Cultural Group were unable to be contacted as they had disbanded in 1999, and the members who participated in 1994 were now deceased. A different Aboriginal group made recommendations for new consultants who would represent the original Medina Aboriginal Cultural Group Members.

The report confirms that there were 'no sites of Aboriginal significance within the proposed Reserve'.

Report ID 20508 - Quartermaine, G. Report on further archaeological investigations for Aboriginal sites South West Metropolitan Rail Line Corridor. May 2001.

This report outlines the archaeological investigations conducted to assess Aboriginal sites in three sections of realignments for the South West Metropolitan Rail Line Corridor as well as reviewing previous survey results.

Report ID 20653 - O'Connor, R. and Hart, T. (2003), Report on an ethnographic survey of the proposed South West Metropolitan Railway Alignment

In this report, the authors speak to the concept of (cultural) significance (pp. 7-8):

Significance is attributed by Aboriginal people to areas in the Perth-Mandurah region on the basis of former or current domestic usage, or on the basis of relevance to traditional ritual or mythology. ... One area may be viewed as significant from a historical/human/mundane viewpoint, and another from a mythological/sacred viewpoint.

The authors also describe 'rediscovery or realisation' of the existence of sites that may lead to 'an attribution of significance' ... (therefore) 'any archaeological or historical site in the survey region could also be potentially significant to Aboriginal people' (p. 7). They speak of 'generalised significance', whereby Aboriginal people in the Perth Metro Area and in the South West of the State generally tend to attribute significance to wetlands and waterways, 'not necessarily always in terms of the Waugal or water-creative serpent myth, but on the basis that those natural features are repositories of water-dwelling species, who share a spiritual life-force with humans' (pp. 7-8).

O'Connor was involved in the original recording of DPLH Site ID 3427 Mandogalup Swamp and the Spectacles wetlands in 1991 (ref. Site File Summary Section above). He comments on how the water in this site has 'greatly diminished in volume since European usage commenced' and how it was believed that the water was 'maintained by a Waugal spiritual force' (p. 18). He also mentions recommendations from the survey relating to the protection of native wildlife in the vicinity of the bushlands and wetlands, with the Traditional Owners raising no objection to the project at hand, as the project footprint did not impact the wetlands or swamp, despite the fact that 'the Freeway passes through this site, as also will the railway line' (App 3).

Report ID 21422 - Australian Interaction Consultants (2005). Report on the archaeological and ethnographic survey of the proposed route of the Perth Seawater Desalination Plant Projects Kwinana Beach Naval Base Nicholson Road Forrestdale in Western Australia

Monitoring of ground disturbance is recommended. Other nearby sites (artefact scatters) were surveyed for potential disturbance from the project. In regards the Indian Ocean, 'the Elders explained that they were concerned with the disturbance to the Indian Ocean and its bed as well as with the disturbance to the dune system. ... Concerns were on the process of information dissemination and the environmental aspects of the project – especially the impact on the water environment within Cockburn Sound. ... The group asserted the Indian Ocean and the dunal system along the coast to be sites as were the wetlands and lake system (i.e. North Lake to Walyungup Lake)' (p. 42). Monitors were requested for cultural, spiritual, and/or archaeological significance.

Report ID 21817 - Machin, Barrie. Ballaruk (traditional owners) Aboriginal site recording project. 1994.

The report details an ethnographic and archaeological survey for Aboriginal Sites within Whadjuk territorial boundaries. A portion of the report is dedicated to a cultural and historical background of the Noongar people and an investigation into custodianship and the ability to speak for country.

The report details the investigation of five ethnographic locations that were inspected for archaeological and ethnographic significance. It is stated that a comprehensive archaeological survey

was not undertaken for the investigated locations. Two of the ethnographic locations are redacted, the remaining locations are: Bullya Spring, Mead Brook Ramble; South Chittering Gorge; Gingin Brook Aboriginal Cemetery. None of these sites are located within or immediately adjacent to the current Survey Area.

Report ID 21818 - Machin, Barrie. Ballaruk (traditional owners of Whadjuk territorial boundaries the lands of the Ballaruk Peoples) Aboriginal site recording project: additional material. 1995.

This report details an ethnographic survey of sites contained within the Whadjuk territorial boundaries. One Aboriginal Consultant, Corrie Bodney, accompanied the survey team. Six sites were recorded: Bonron Hill; Joondol Muryang Ceremonial Ground; Wokalup Hill; Maamba Reserve; Lesmurdie Falls; and Mundaring Weir Corroboree Site. The report details Corrie Bodney's knowledge of or familial connection to each of these sites. None of these sites are located within or immediately adjacent to the current Survey Area.

Report ID 22366 - Dortch, J., Cuthbert, B., Cuthbert, D., and Walley, J. (2006) Indigenous heritage of the Peel – Harvey Region: a review of previous research and archival data for Phase 1 of the Peel Cultural Landscape Assessment Project

This report documented the Nyoongar cultural landscapes of the Peel Harvey region. The focal location was situated further south/south-west to the current Survey Area, on the eastern foreshore of the Peel and Harvey inlets. Still, the following observations provide a clear summary of the importance of waterbodies in the greater region, (including that of the current project):

- ▶ Page iv: 'The coastal plain contains many wetland and estuary systems that supported large numbers of plants and animals used by Indigenous people, particularly in spring and summer. The estuaries were particularly important for seasonal fish trapping, an activity that sustained hundreds of people at month-long gatherings.'
- ▶ Page 29: 'The Waugal is a particularly important and powerful entity that inhabits all freshwater-bodies. ... All fresh waterbodies may be considered to be highly significant mythological sites, with certain areas having particular significance as a place where the Waugal enters or exits the ground, or where it rests.'

Report ID 22530 - R & E O'Connor Pty Ltd. Report on April 2006. New Metro Rail Aboriginal Consultative Meetings.

This report recommended information boards and plaques provide information about Nyungar cultural histories at South Perth and the Narrows Bridge.

Report ID 22628 - Tempus Archaeology (2003), Report on archaeological recording, salvage and monitoring: Tonkin Highway extension Mills Road West (Martin) to Thomas Road (Byford).

The location of this study lay further east of the current Survey Area. It highlighted a number of archaeological and ethnographic sites located in the broader region and reported on monitoring, salvaging, and heritage signage activities. In studying the archaeological evidence and considering earlier research in the general area, the authors make reference to the outcrops of sand and sand over clay represented within the study area that not only provided areas suitable for camping but also acted as corridors for movement across a dynamically changing landscape characterised by widespread seasonal inundation (p.70).

Report ID 23099 - Fisher, S. (2008) Report on an Aboriginal Heritage Survey of the proposed Kwinana Quay, Town of Kwinana / City of Cockburn, WA.

The survey project involved looking at two options for construction of the Kwinana Quay, which was to provide 'overflow' container and general cargo handling facilities to boost the capacity of existing

infrastructure at Fremantle Inner Harbour. There were five separate survey groups, and one group opposed the proposed development on the grounds that it was likely to disturb the spiritual Dreaming of Cockburn Sound. Another group also stated that they wanted to be adequately compensated. Monitoring was recommended. Also, signage acknowledging Nyoongar ownership and continuing heritage of the area was requested, in addition to employment opportunities. No new Aboriginal cultural heritage sites were found during the survey.

Fisher concluded that the area and its surroundings are of 'significant Aboriginal heritage value' (p. 32). Features of the regional landscape (including DPLH site ID 3427) have mythical associations, and 'some of these sites are interconnected through the Dreamtime' (p. 32).

Report ID 28551 - Western Heritage Research Pty. Ltd. A Report of an Aboriginal Heritage Survey of the Proposed Southern Corridor Infrastructure Upgrade Project.

Survey report missing from DPLH system.

Report ID 102670 - O'Connor, R, Preliminary Report on the Survey of Aboriginal Areas of Significance in the Perth Metropolitan & Murray River Regions, July 1985.

Commissioned by the Centre for Prehistory at UWA on behalf of the Department of Aboriginal Sites at the Western Australian Museum, this report outlines an ethnographic survey conducted as a component of a larger project which required an overview of Aboriginal Sites in the Perth Metropolitan Area.

The report lists the Aboriginal Sites identified and provides an assessment of the significance of Aboriginal Sites as well as the assessment of short-term and long-term land modification developments to assist with effective planning strategies to protect and conserve the most significant sites. The original Survey Area was deemed too small by Aboriginal advisors in the early planning stages of the survey, however the area the advisors suggested was beyond the time and financial scope of the survey. The Survey Area was therefore only extended to include Yanchep National Park, Giddegannup and Pinjarra beyond the Perth Metropolitan Area. The survey was not restricted to Aboriginal knowledge of sites as the ethnographers also spoke to European-Australians and descendants of early settlers who held knowledge and materials of Aboriginal Sites. Information was also gathered by consulting databases and historical records.

Report ID 103564 - University of Western Australia. An Archaeological Survey Project: The Perth Area, Western Australia. April 1972.

This report details an archaeological investigation of the changing patterns of Aboriginal settlement and land use, the ecological and symbolic ordering of life and landscape, in a sample area within the Southwest of Australia, centred on Perth. Three classes of data were used: ethnohistorical, from field survey, and from excavation.

The ethnohistorical sources demonstrate a picture of 'the seasonal round' – whereby Aboriginal people moved to different parts of the landscape during different seasons in order to exploit the more productive and reliable resources at certain times of the year. This is supported by the distribution of archaeological sites, which suggests two main zones of occupancy: one along the coastal plain; the other inland, from New Norcia through toward Albany. Hallam notes that archaeological sites on the coastal plain are highly varied in their material and the presence and absence of grindstones and mullers.

Report ID 104160 - O'Connor, R. Report on an Aboriginal Consultation and an Ethnographic Survey of the Forrest Road to Thomas Road Section of the Kwinana Freeway. April 1991.

Restricted file. (Not reviewed to date – permission from knowledge holders required.)

Report ID 104475 - Schwede, M. (1984) An Archaeological Survey for Aboriginal Sites along Gas Pipeline Laterals in the South Metropolitan Area.

This report details an archaeological survey of the proposed Gas Pipeline Laterals in the south metro area. The Survey Area comprised a single pipeline corridor with 10 m either side of the pipeline. No sites were found within the Survey Area, and comment is made on sites in the broader area generally corresponding to the availability of fresh water. Kangaroo pits located to the south-west of Thompson's Lake were also mentioned in relation to the hunting of resources in the general area.

Report ID 104489 - Reynolds, R. (1984), A Survey for Aboriginal Sites on the Proposed Route of the Kwinana Freeway Southern Extension (South St-Thomas Rd).

In 1984, an archaeological and ethnographic survey of the proposed route of the Kwinana Freeway southern extension (South Street to Thomas Road) was carried out for the Main Roads Dept. No previously recorded sites occurred within the Survey Area. The survey located one site ('small artefact scatter') that would be destroyed by the proposed development. The ethnographic survey gained some information on the general area, but Aboriginal informants had no objections to the route as proposed.

This report speaks to a chain of lakes stretching from North Lake down to the Spectacles, reporting that in addition to the lakes there were 'a large number of low lying swampy areas and depressions, some of which have been drained. A number of creeks cross the Survey Area, most of which have an east-west orientation' (p. 2). The artefact scatter was located on the banks of one of these creeks. The report also says that several creeks have been expanded or transformed into drains and the resulting earthworks may have obscured any archaeological evidence of occupation on their banks' (p. 2).

The ethnographic survey highlighted the importance of the chain of lakes as a 'major economic resource' for both traditional Aboriginal society, as well as for Aboriginal people in more recent times. Reynolds refers to Hammond (1980) recording major gathering places in the South-West, including North Fremantle, Bibra Lake, Rockingham and Mandurah. The tracks or 'pads' that he also records did not go straight from one of these places to another, but followed routes that offered the best resources. Reynolds reported that the route was still in use at the time of his research, with an informant referring to turtling in these lakes and movement from there up to Fremantle, crabbing at Preston Point and using a freshwater spring on the banks of Blackwall Reach. Concern was also expressed over the lack of consultation that had occurred in the past, particularly considering the importance of the area more generally. (Note: this report also talks of an archaeological site associated with the Spectacles, situated on the western side of the lakes. No further location details provided.)

Report ID 105321 - Dames & Moore. Proposed Harvey - Kwinana 330kv Transmission Line: Public Environmental Report. Report no. Sd233 February 1988.

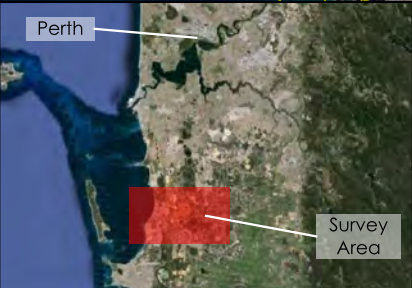
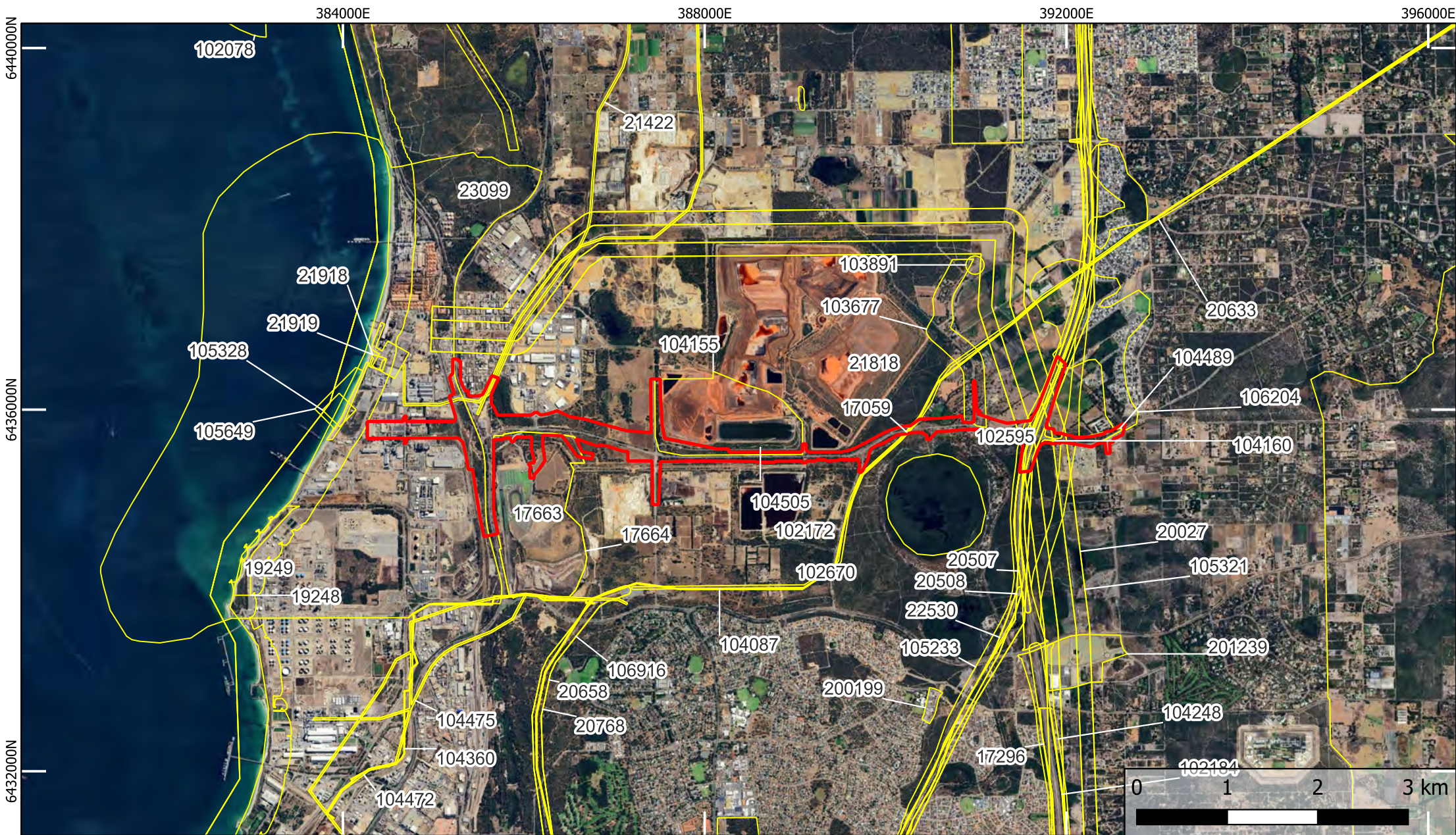
Small, low density, quartz dominated surface artefact scatters were found in the vicinity of water sources (swamp margins), with one scatter on the alluvial terrace of the Murray River being within the Survey Area. These sites represent 'short-term transient campsites' (p. C12).

SUMMARY



Based on the above research, the Survey Area, especially those areas adjacent (within 500 m) to the lakes within the Bassendean Sands, has a very high potential for sub-surface archaeology comprising flaked stone artefacts and burials.

The Thomas Rd burial site is less than 5 km away and was found in an elevated area adjacent to a freshwater lake. As shown at Walliabup (Bibra Lake) (Archae-aus, 2021), and at the Perth Airport sandy areas near freshwater lakes on the Swan Coastal Plain, both have intact sub-surface cultural deposits dating back as far as 41,000 years ago⁷.

⁷ <https://echonewspaper.com.au/news/indigenous-artefacts-found-at-munday-swamp/>



Legend

-  Main Roads WA Anketell Road Proposal Area (Kwinana Freeway to Leath Road)
-  Previous ACH Survey Areas



Map 4. Previous Heritage Surveys Intersecting the Project Area, Kwinana, WA

Drafted by Tessa Woods, 25 July 2024. GDA94, Zone 50H.
Satellite imagery courtesy of Google Maps.

SECTION THREE –METHODS

ARCHAEOLOGICAL ASSESSMENT

Survey Methodology Development- Pre-Survey Meeting

A pre-survey meeting was held at the Main Roads Office on the 10 April 2024. During this meeting Main Roads representatives presented the project to the GKB Knowledge Holders. They provided an overview of the Survey Area and the proposed works. Archae-aus archaeologist Adrian Di Lello discussed the identified Sample Areas within the Survey Area that were noted as having potential for surface cultural material, based on the desktop assessment of previous land use and disturbance. This pre-survey meeting allowed for the GKB Knowledge Holders to make informed decisions about the survey methodology and agree to the Sample Areas prior to the survey occurring.

The areas that had previous land use and ground disturbance had been identified prior to the meeting by Archae-aus archaeologists through a desktop assessment of available historical aerial imagery. This was shown to the GKB Knowledge Holders on maps of the Survey Area. Previous land use and disturbance, including areas of potential chemical contamination, were discussed with the GKB Knowledge Holders, with information provided by Main Roads representatives (see Personnel Section).

The Archae-aus proposed archaeological survey methodology was based identifying on identifying a number of Sample Areas within the Survey Area for pedestrian inspection, where there is potential for surface cultural material. At any point during the survey the Knowledge Holders are able to inspect any additional areas within the Survey Area. The pre-survey meeting resulted in the GKB Knowledge Holders agreeing on 13 Sample Areas that would require archaeological survey, and the survey methodology was unanimously supported.

Sample Area Survey

A total of 13 Sample Areas within the Survey Area were chosen according to previous land use and disturbance, including areas of potential chemical contamination. The 13 Sample Areas were inspected using a series of parallel pedestrian transects with archaeologists and Traditional Owners spaced no more than 30 m apart. Team members visually inspected the terrain for archaeological material, as per the survey methodology developed during the pre-survey meeting.

Sample Identification Survey

The main objectives of the Aboriginal Site Identification surveys were to:

- ▶ Identify any known or potential Aboriginal heritage sites within the Survey Area;
- ▶ Undertake research and/or consultation that may be required to meet the requirements of the AHA, particularly for lodging any potential s18 applications (if applicable);
- ▶ Locate and record Aboriginal archaeological sites;
- ▶ Make recommendations regarding the management of the above sites, including any further research and/or consultation that may be required during or after the works component of the proposal; and
- ▶ Summarise the survey and any recommendations arising at the conclusion of the survey and request the Aboriginal consultants verify the information by signing the Verification Form (See Appendix Four).

SECTION FOUR –RESULTS

ARCHAEOLOGICAL SURVEY RESULTS

The archaeological survey focused on 13 Sample Areas within the Survey Area. No new heritage sites were identified during the surveys. Each Sample Area is described in detail below.

Sample Area A

Location

Sample Area A is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is located at the intersection of Beard Street and Rockingham Road. Sample Area A dimensions are 212 m (north / south) by 146 m (east / west) with a total area of 16,631 m² (Map 1)

Environment

The terrain within Sample Area A consisted of land sloping down towards the south, vegetated with shrubs of *Acacia* spp., *Grevillea* spp. and *Melaleuca* spp, quandongs (*Santalum acuminatum*), grass trees (*Xanthorrhoea* spp.), zamias (*Macrozamia* spp.), parrot bush (*Banksia sessilis*), other *Banksia* spp., and dense thickets of tea tree (*Leptospermum* spp.) (see Plate 1 and Plate 2). Some eastern and central sections were so thickly vegetated they were impenetrable.

The ground surface comprised fine brown sand and limestone rocks. Ground surface visibility varied from zero visibility in areas of thick vegetation, to 10% within clearings. Overall visibility was low and was estimated to average 10%.

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area A.

The archaeological assessment of Sample Area A is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area A.



Plate 1. Sample Area A – Typical ground surface visibility



Plate 2. Sample Area A – View east showing thick vegetation

Sample Area B

Location

Sample Area B is a roughly rectangular polygon approximately 4.5 km north-west of Kwinana and is located between Conway Road and the intersection of Armstrong Road and Anketell Rd. Sample Area B dimensions are 132 m north / south by 397 m east / west with a total area of 44,410 m² (Map 1).

Environment

Sample Area B consisted of terrain sloping gently down to the east. Vegetation was comprised of tuart woodland (*Eucalyptus gomphocephala*) and included shrubs of *Acacia* spp., grass trees (*Xanthorrhoea* spp.), zamias (*Macrozamia* spp.), and banksias (*Banksia* spp.) (see Plate 3 and Plate 4).

The ground surface comprised light brown sand and limestone rocks. Ground surface visibility varied from zero visibility in areas of thick vegetation and leaf litter, to 15% within clearings. Overall visibility was low and was estimated to average 10%. Disturbance in the area included formal walking paths and some rubbish dumping.



Plate 3. Sample Area B – View south-east of area



Plate 4. Sample Area B – grass trees (*Xanthorrhoea* spp.)

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area B.

The archaeological assessment of Sample Area B is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area B.

Sample Area C

Location

Sample Area C is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Armstrong Road and Anketell. Sample Area C dimensions are 89 m (north / south) by 296 m (east / west) with a total area of 17,523 m² (see Map 1).

Environment

The terrain within Sample Area C consisted of a rocky hilltop and steep slopes down towards the east. The vegetation was comprised of shrubs of *Acacia* spp., *Jacksonia* spp., *Hakea* spp., *Melaleuca* spp., *Calothamnus* spp., grass trees (*Xanthorrhoea* spp.) and banksias (*Banksia* spp) (see Plate 5 and Plate 6).

The ground surface consisted of yellow sand and limestone rocks, with a ground visibility varying from zero visibility in areas of thick vegetation to 50% within clearings. Overall visibility was low and estimated to average 20%.



Plate 5. Sample Area C – View north-east of area



Plate 6. Sample Area C – View west

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area C.

The archaeological assessment of Sample Area C is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area C.

Sample Area D

Location

Sample Area D is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Anketell Road and Armstrong on the western end and Abercrombie Road at the eastern end of the Polygon. Sample Area D dimensions are 293 m (north / south) by 1,165 m (east / west) with a total area of 97,910 m² (Map 1).

Environment

The terrain of Sample Area D varied from swampy, low-lying land in the western section to undulating uplands in the east. Vegetation consequently varied from dense, impenetrable *Acacia* spp. shrubs and exotics in low-lying areas to open jarrah (*Eucalyptus marginata*) woodland with *Banksia* spp., *Acacia* spp., grass trees (*Xanthorrhoea* spp.), zamias (*Macrozamia* spp.), *Hakea* spp., and dense stands of veldt grass (*Ehrharta* spp.) on the uplands (see Plate 3 and Plate 4).

The ground surface comprised yellow sand with outcropping limestone and limestone rocks. Ground surface visibility varied from zero visibility in areas of thick vegetation, to 80% within clearings or semi-established service tracks. Overall visibility was low and was estimated to average 10%. The area had been disturbed by the installation of electrical transmission lines and access tracks.



Plate 7. Sample Area D – View east with Marie Walley



Plate 8. Sample Area D – View north-east

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area D.

The archaeological assessment of Sample Area D is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area D.

Sample Area E

Location

Sample Area E is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Armstrong Road and Anketell. Sample Area E dimensions are 280 m (north / south) by 764 m (east / west) with a total area of 99,791 m² (Map 1).

Map 1 Environment

Vegetation within Sample Area E was comprised of open jarrah (*Eucalyptus marginata*) and tuart (*Eucalyptus gomphocephala*) woodland with grass trees (*Xanthorrhoea* spp.), *Allocasuarina* spp., *Hakea* spp., and *Grevillea* spp. (see Plate 9 and Plate 10). Vegetation in some sections was so dense it was impenetrable.

The ground surface consisted of yellow and light brown sand with limestone rocks. Ground surface visibility varied from zero visibility in areas of thick vegetation, to 100% within clearings and roads. Overall visibility was low and was estimated to average 10%.



Plate 9. Sample Area E – View south of area



Plate 10. Sample Area E – View west along bush track

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area E.

The archaeological assessment of Sample Area E is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area E.

Sample Area F

Location

Sample Area F is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area F has the maximum dimensions of 116 m (north / south) by 939 m (east / west) with a total area of 55,733 m² (Map 1).

Environment

The terrain within Sample Area F consisted of undulating land immediately south of Alcoa's holding ponds. Vegetation was comprised of open jarrah woodland with banksias (*Banksia* spp.), grass trees (*Xanthorrhoea* spp.), zamias (*Macrozamia* spp.), *Acacia* spp. shrubs, and veldt grass (*Ehrharta* spp.) (see Plate 11 and Plate 12).

The ground surface was comprised of coarse brown sand. Ground visibility was 0% due to dense leaf litter and dry grasses. The area was densely pock-marked with rabbit holes which made walking dangerous. Due to these hazards and very poor visibility, the Traditional Owners were satisfied to leave this area unsurveyed.



Plate 11. Sample Area F – View east



Plate 12. Sample Area F – View west with Ryan Crawford

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area F.

The archaeological assessment of Sample Area F is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area F.

Sample Area G

Location

Sample Area G is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area G dimensions are 59 m (north / south) by 1,588 m (east / west) with a total area of 61,424 m² (Map 1).

Environment

Sample Area G consisted of undulating terrain with remnant tuart (*Eucalyptus gomphocephala*) and she-oak (*Allocasuarina* spp.) woodland. Other species present included banksias (*Banksia* spp), grass trees (*Xanthorrhoea* spp.), zamias (*Macrozamia* spp.), *Hakea* spp. and *Acacia* spp. (see Plate 13 and Plate 14).

The ground surface was comprised of light brown sand. The eastern section had zero ground visibility due to dense vegetation and leaf litter and consequently the Traditional Owners decided it was futile to walk this section. The western section was more open and was surveyed. Overall visibility was low and was estimated to average 10%.



Plate 13. Sample Area G– View south with laydown area and pipe infrastructure



Plate 14. Sample Area G – View west

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area G.

The archaeological assessment of Sample Area G is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area G.

Sample Area H

Location

Sample Area H is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area H dimensions are 276 m (north / south) by 934 m (east / west) with a total area of 37,418 m² (Map 1).

Environment

Sample Area H consisted of undulating terrain with remnant open woodland of jarrah (*Eucalyptus marginata*) and she-oak (*Allocasuarina* spp.). The other main species present included wattles (*Acacia* spp.), banksias (*Banksia* spp), and *Jacksonia* spp. (see Plate 15 and Plate 16). Dense vegetation rendered some sections impenetrable.

The ground surface was comprised of grey sand. Ground surface visibility varied from zero visibility in areas of thick vegetation, to 100% within clearings and roads. Overall visibility was low and was estimated to average 10%. The Survey Area was disturbed by two tracks which ran parallel to Anketell Road.



Plate 15. Sample Area H – view east



Plate 16. Sample Area H – view west

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area H.

The archaeological assessment of Sample Area H is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area H.

Sample Area I

Location

Sample Area I is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area I has the maximum dimensions of 115 m (north / south) by 216 m (east / west) with a total area of 6,612 m² (Map 1).

Environment

Sample Area I consisted of undulating terrain with remnant open woodland of jarrah (*Eucalyptus marginata*) and she-oak (*Allocasuarina* spp.). The other main species present included wattles (*Acacia* spp.), banksias (*Banksia* spp), *Jacksonia* spp. and exotic grasses.

The ground surface was comprised of grey sand. Ground surface visibility varied from zero visibility in areas of thick vegetation, to 100% within clearings and roads. Overall visibility was very low and was estimated to average 5%.

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area I.

The archaeological assessment of Sample Area I is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area I.

Sample Area J-001

Location

Sample Area J-001 is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area J-001 dimensions are 53 m (north / south) by 486 m (east / west) with a total area of 20,806 m² (Map 1).

Environment

J-001 is located within scrubland with portions of the terrain artificially built-up during construction of Anketell Road. The ground surface comprises brown sand. Vegetation comprised of a dense covering of veldt grass with scattered remnant trees and shrubs of marri (*Corymbia calophylla*), wattles (*Acacia* spp.), *Melaleuca* spp., *Jacksonia* spp., banksias (*Banksia* spp.), zamias (*Macrozamia* spp.), and *Jacksonia* spp. (see Plate 17 and Plate 18). Ground surface visibility was very low, ranging from zero visibility in areas of thick vegetation and leaf litter to 100% along the firebreak. Overall visibility was low and was estimated to average 2%.



Plate 17. Sample Area J – View west of the survey team at J-001



Plate 18. Sample Area J – View west of dense vegetation at J-001



Plate 19. Sample Area J – View west of J-001



Plate 20. Sample Area J – View northwest at the end of J-001

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area J.

The archaeological assessment of Sample Area J-001 is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area J-001.

Sample Area J-002

Location

J-002 is an irregular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area J-002 dimensions are 130 m (north / south) by 207 m (east / west) with a total area of 13,580 m² (Map 1).

Environment

J-002 is located within scrub and bushland south of Anketell Road. The ground surface was comprised of areas of both white and brown sands. The nearest water source is a small creek through the Survey Area (Plate 22). A north / south oriented firebreak and utilised sandy bush track corridor (Plate 24) runs through the southern part of the Sample area.

Vegetation comprised of a dense covering of veldt grass with scattered remnant trees and shrubs of marri (*Corymbia calophylla*), wattles (*Acacia* spp.), *Melaleuca* spp., *Jacksonia* spp., banksias (*Banksia* spp.), zamias (*Macrozamia* spp.), and *Jacksonia* spp. (Plate 21 and Plate 23). Ground surface visibility was very low among the grasses with some areas of no visibility.



Plate 21. Sample Area J002– View west across J-002



Plate 22. Sample Area J-002 – View west toward the creek with Ryan Humphries



Plate 23. Sample Area J-002 – View south across J-002



Plate 24. Sample Area J-002 – View east of firebreak / track corridor

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area J.

The archaeological assessment of Sample Area J-002 is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area J-002.

Sample Area K

Location

Sample Area K is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area K has the maximum dimensions of 46 m (north / south) by 261 m (east / west) with a total area of 7,570 m² (Map 1).

Environment

Vegetation within Sample Area K consisted largely of grasses with remnant trees and shrubs of flooded gum (*Eucalyptus rudis*), banksias (*Banksia* spp), woolly bush (*Adenanthos* spp.), *Melaleuca* spp., and zamias (*Macrozamia* spp.) (see Plate 25 and Plate 26).

The ground surface was comprised of grey sand. Ground surface visibility varied from zero visibility in areas of thick vegetation, to 100% within clearings and roads. Overall visibility averaged 50%.



Plate 25. Sample Area K– View south of area



Plate 26. Sample Area K – View west

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area K.

The archaeological assessment of Sample Area K is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area K.

Sample Area L

Location

Sample Area L is a roughly rectangular polygon approximately 5 km north-west of Kwinana and is near to the intersection of Abercrombie Road and Anketell Road at the western end and the intersection of Anketell Road and an Alcoa service road at the eastern most end of the Survey Area polygon. Sample Area L has the maximum dimensions of 90 m (north / south) by 351 m (east / west) with a total area of 18,0132 m² (Map 1).

Environment

The terrain within Sample Area L was gently undulating. Vegetation was remnant woodland of banksias (*Banksia* spp.), jarrah (*Eucalyptus marginata*) and she-oak (*Allocasuarina* spp.) with an understorey of mainly exotic grasses and occasional shrubs of *Adenanthos* spp. and *Acacia* spp. (see Plate 27 and Plate 28). Four to five red-tailed black cockatoos were nesting in jarrah trees in this area and the Traditional Owners heard the chicks calling out (see Plate 29 and Plate 30). Waypoints were taken for trees the cockatoos were nesting and roosting in and these were passed on to Ryan Crawford for the MRWA environmental team to further investigate. The ground surface was comprised of grey sand. Ground surface visibility varied from zero visibility in areas of thick vegetation to 100% within clearings and tracks. Overall visibility was low and was estimated to average 10%.



Plate 27. Sample Area L– View west



Plate 28. Sample Area L – View east

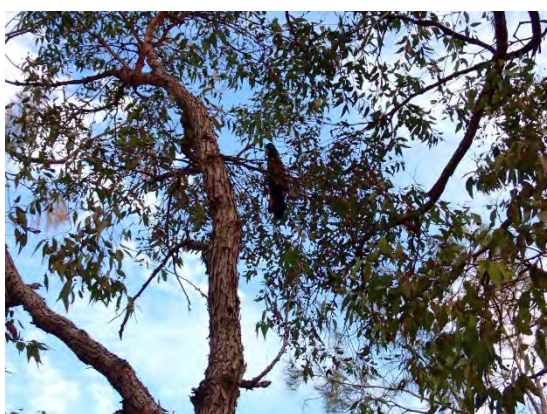


Plate 29. Sample Area L– View southwest of a red-tailed black cockatoo



Plate 30. Sample Area L– View southwest of jarrah trees

Results

Aboriginal Cultural Heritage Sites

No new Aboriginal cultural heritage sites were identified within Sample Area L.

The archaeological assessment of Sample Area L is **complete** (Map 2).

Isolated Artefacts

No isolated artefacts were observed within Sample Area L.

SECTION FIVE – DISCUSSION & RECOMMENDATIONS

Archaeological Discussion

This document details the results of an Aboriginal archaeological Site Identification survey of Main Roads Westport Anketell Road proposal area (Kwinana Freeway to Leath Road). Main Roads Western Australia (Main Roads) is proposing to upgrade the Anketell – Thomas Road Transport Corridor between Tonkin Highway and Rockingham Road, situated within the City of Kwinana and the Shire of Serpentine - Jarrahdale.

No new Aboriginal archaeological heritage sites or isolated artefacts were located during the archaeological assessment of the Survey Area. However as discussed above the lack of surface archaeological finds is not an indicator of the absence of sub-surface cultural material. The Survey Area especially those areas adjacent (within 500 m) to the lakes has a very high potential for sub-surface archaeology comprising flaked stone artefacts and burials. The Thomas Rd burial site is less than 5 km away and was found in an elevated area adjacent to a freshwater lake. As shown at Bibra Lake (Archae-aus, 2021), and at the Perth Airport sandy areas near freshwater lakes on the Swan Coastal Plain have intact sub-surface cultural deposits dating back as far as 41,000 years ago.

Heritage Potential Zone

The Survey Area, which sits in the Bassendean Sands between the two lakes, has a very high potential for the presence of sub-surface archaeological materials associated with Aboriginal people camping and possibly burying their dead. Consequently, this area (see Map 5) has been designated a Heritage Potential Zone.

The Heritage Potential Zone is identified as an area in the eastern part of the Survey Area and encompasses parts of Sample Areas J002 and K, excluding the historically excavated drain (see Map 5). An examination of available historical geographic and topographic layers showed that there has been little to no disturbance and as such, would have high potential to contain sub-surface skeletal and archaeological materials. It should be noted that excavations and shovel test pits adjacent to Hope Road and Walliabup (Bibra Lake) showed minimal disturbance below 30 cm (Archae-aus, 2021b). Subsurface investigations (including shovel test pits and sample excavation) in other nearby wetlands such as Walliabup (Bibra Lake) resulted in the identification and retrieval of flaked stone artefacts from shovel test excavations (Hook and Dortch, 2017). Further the presence of sub-surface cultural material and skeletal remains on Thomas Rd, on the edge of a lake less than 5 m away, suggest that the areas around the lakes in the Survey Area have a high potential for sub-surface cultural material (Archae-aus, 2022).

This potential requires investigation prior to the commencement of any Main Road ground disturbance activities to determine the presence, and then if located, to carry out an assessment of significance of any sub-surface cultural material. Shovel test pitting is technique widely used by archaeologists and a proven first step in detecting the presence or absence of sub-surface cultural material (also see Appendix Four). It is a useful technique in situations where the archaeological materials are not obtrusive, due to factors such as dense ground cover or burial by sedimentary processes. In such cases, conventional methods of pedestrian survey to inspect the ground surface are of little use.

As the name implies, STPs are small test pits up to 50 x 50 cm, dug by hand, using shovels or hand shovels, to a depth of up to about a metre. A key consideration in the design of a shovel-test sampling program is the spacing and layout of STPs. The success of a program in identifying and characterising sites obviously depends on the underlying spacing and density of the targeted cultural materials (Krakker, Shott and Welch, 1983; Shott, 1985; Kintigh, 1988; Way, 2017). A standard well proven approach is to use a sample strategy based on a staggered grid system ensure sufficient coverage (Krakker, Shott and Welch, 1983).

The method for excavating each STP involves using long-handled shovels for initial excavation. Once the depth reaches approximately 40 cm, hand shovels will be utilised to continue the process. Excavation will stop upon the discovery of the first artefact; if no artefact is found, the excavation should proceed to a depth of about 90 cm, unless significant obstacles, such as large tree roots, are encountered. All excavated material should be sifted through nested sieves of 6 mm and 3 mm. The presence of unusually large pieces or concentrations of charcoal will be documented and collected for potential dating, noting depths and associations with cultural material. Any artefacts discovered should be recorded in detail, returned to the excavation hole, and the hole backfilled. Each STP should generally measure 40 x 40 cm.

If sub-surface cultural material is located in the shovel test pits then the age and quantity of the artefacts will need to be established using archaeological excavation and radiocarbon and optically stimulated luminescence dating.

If skeletal remains are found then all work needs to cease and advice sought from the Registrar of Aboriginal Sites and Gnaala Karla Booja Aboriginal Corporation.



Advice

It is **advised** that Main Roads, their contractors, and GKBAC are aware:

1. that the archaeological assessment of the Survey Area is **complete**;
2. that no new Aboriginal Archaeological sites or isolated artefacts were located within the Survey Area;
3. that the Survey Area overlaps DPLH registered historic site DPLH ID: 3427/Mandogalup Swamp/Spectacles;
4. That the Heritage Potential Zone has high potential for sub surface cultural material. This area will require archaeological investigation in the form of shovel test pitting to determine the presence of sub-surface archaeological material. If sub-surface cultural material is identified then further archaeological work will be required to ascertain the artefacts ages and significance; and
5. The Gnaala Karla Booja Noongar survey participants requested that two monitors be present for initial ground disturbance works.



Legend

-  Westport Anketell Road Proposal Area (Kwinana Freeway to Leath Road)
-  High Heritage Potential



Map 5. Zones of Heritage Potential

Drafted by Emily Martin, 24 September 2024. GDA94, Zone 50H. Satellite imagery courtesy of Google Maps.

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APPENDIX ONE – SURVEY AREA COORDINATES

All spatial data is provided in UTM50 GDA2020.

Table 10. Coordinates of Surveyed Sample Areas

Sample Area	Node	Easting	Northing	Node	Easting	Northing
A	1	385263.786	6436047.412	4	385317.504	6435868.656
	2	385333.192	6436081.031	5	385263.786	6436047.412
	3	385409.659	6435901.924			
B	1	385710.830	6435938.731	4	386107.379	6435819.019
	2	385971.467	6435940.973	5	385776.215	6435809.064
	3	386105.836	6435917.062	6	385710.830	6435938.731
C	1	385658.777	6435722.690	7	385884.164	6435722.039
	2	385737.502	6435755.043	8	385865.341	6435695.075
	3	385821.007	6435776.049	9	385751.017	6435689.041
	4	385954.351	6435778.159	10	385687.458	6435689.117
	5	385951.020	6435752.585	11	385658.777	6435722.690
	6	385935.128	6435740.854			
D	1	385997.419	6435766.255	11	386820.635	6435594.130
	2	386029.567	6435775.859	12	386578.008	6435678.600
	3	386336.872	6435772.015	13	386642.134	6435536.730
	4	386506.599	6435756.408	14	386592.882	6435482.877
	5	386574.531	6435746.468	15	386423.429	6435711.345
	6	386811.492	6435694.139	16	386210.772	6435717.841
	7	387139.290	6435595.043	17	386089.268	6435697.689
	8	387097.127	6435540.973	18	385976.815	6435692.723
	9	386930.264	6435596.083	19	385974.650	6435714.080
	10	386843.779	6435610.220	20	385997.419	6435766.255
E	1	386158.003	6435906.753	6	386922.082	6435821.920
	2	386386.634	6435973.655	7	386904.982	6435694.096
	3	386525.170	6435916.147	8	386459.935	6435809.487
	4	386595.241	6435909.122	9	386160.712	6435822.732
	5	386680.418	6435893.599	10	386158.003	6435906.753
F	1	387486.118	6435597.078	7	388425.129	6435496.049
	2	387580.553	6435611.503	8	388251.251	6435495.151
	3	387818.482	6435551.516	9	387685.657	6435497.780
	4	388258.910	6435549.696	10	387491.533	6435528.433
	5	388261.259	6435524.186	11	387486.118	6435597.078

Sample Area	Node	Easting	Northing	Node	Easting	Northing
G	6	388424.264	6435527.656			
	1	387494.542	6435490.162	7	388794.848	6435431.631
	2	387736.750	6435463.665	8	388188.262	6435432.600
	3	387984.436	6435464.987	9	387835.906	6435432.137
	4	388623.073	6435471.131	10	387496.211	6435433.028
	5	389075.361	6435479.630	11	387494.542	6435490.162
H	6	389082.709	6435431.227			
	1	389151.316	6435529.569	7	389817.403	6435595.955
	2	389511.852	6435532.088	8	389676.525	6435526.629
	3	389626.316	6435559.792	9	389605.164	6435505.483
	4	389954.180	6435728.818	10	389148.496	6435500.040
	5	390053.767	6435775.846	11	389151.316	6435529.569
I	6	390082.266	6435767.553			
	1	389920.340	6435636.898	4	389933.525	6435607.646
	2	390067.769	6435722.100	5	389920.340	6435636.898
J-001	3	390135.871	6435722.156			
	1	389138.674	6435480.324	7	389356.903	6435434.628
	2	389232.961	6435484.699	8	389328.287	6435447.140
	3	389622.254	6435484.769	9	389232.995	6435444.968
	4	389623.865	6435448.972	10	389232.927	6435431.620
	5	389488.431	6435448.118	11	389137.529	6435431.468
J-002	6	389468.353	6435439.142	12	389138.674	6435480.324
	1	390380.681	6435777.171	6	390454.565	6435668.121
	2	390587.227	6435797.644	7	390458.615	6435704.925
	3	390573.423	6435758.894	8	390450.632	6435719.573
	4	390512.186	6435700.887	9	390391.282	6435750.895
K	5	390494.380	6435674.572	10	390380.681	6435777.171
	1	390715.080	6435805.409	4	390718.012	6435773.216
	2	390878.282	6435818.720	5	390715.080	6435805.409
L	3	390976.341	6435785.120			
	1	391996.514	6435717.643	8	392312.462	6435706.719
	2	392021.130	6435710.787	9	392326.646	6435660.966
	3	392033.108	6435718.515	10	392306.657	6435644.946
	4	392064.252	6435706.383	11	392222.059	6435628.542
	5	392074.712	6435694.942	12	391975.634	6435671.086
	6	392133.000	6435690.294	13	391996.514	6435717.643
	7	392283.680	6435698.281			

(Datum GDA2020 ±525m)

APPENDIX TWO – VERIFYING HERITAGE SURVEY INFORMATION FORMS

Appendix 2: Template Form for Verifying Heritage Survey Information

Name of Heritage Survey	MR23WPla } Main Roads Westport Anketell to Thomas Road Corridor
Date(s) of Heritage Survey	9th July, 2024
Location	Anketell Road
Proponent	Main Roads
ILUA Group	Gnarlal Karla Goodja (GKGB) Noongar
Consultant	Archae-ans Pty. Ltd.

Summary of Survey

Drove along Anketell Rd. to the Spectacles. Walked through the area, talking about connections to the place. Then headed to the railway line area to the west of the Project Area. Couldn't access Quindong trees.

Aboriginal Consultants' Statement

Marie would like to see the Spectacles registered along with feeder creek to the north (nearby to Project Area) - no issues with main roads current project. Just for protect fauna/flora as much as possible.

Aboriginal Consultants' Recommendations

- Monitoring of ground disturbance works in T. Owners.
- Where possible - protection of remnant vegetation
- ABORIGINAL CONSULTANTS SATISFIED that the additional survey areas added to original scope have been surveyed (as part of original survey).
- Support a culvert if needed to continue flow between North & South side of the road, where waterway flows into Spectacles from north - but there should be no interference with the flow. (Monitors to be onsite).

Names and Signatures of Aboriginal Consultants

Name	Signature	Date
Marie Walley		9/07/2024
Jennifer Ford		9/7/2024
Erin Duck-tecmarie		9/7/2024
THAI HAYDON		
RASHIA FORTEN		
Charne McHayden		
SHIRLEY VET		9-7-2024
MONTANA COUARD		9-7-2024

APPENDIX THREE - DPLH ACHIS REGISTER SEARCH

Search Criteria

26 Heritage Surveys containing 29 Survey Areas in Shapefile - WP_S3_ATRFC_WEST_OF_KWINANA_EPA_REFERRAL_PL_20230829

Disclaimer

Heritage Surveys have been mapped using information from the reports and / or other relevant data sources. Heritage Surveys consisting of small discrete areas may not be visible except at large scales. Reports shown may not be held at the Department of Planning, Lands and Heritage (DPLH). Please consult report holder for more information. Refer to <https://www.wa.gov.au/organisation/departments-and-agencies/departments/departments-of-planning-lands-and-heritage/aboriginal-heritage> for information on requesting reports held by DPLH.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you provide the details to the Department via <https://alt.jotfor.ms/DPLH/aboriginal-heritage-enquiry> and we will make every effort to rectify it as soon as possible.

South West Settlement ILUA Disclaimer

Your heritage enquiry is on land **within or adjacent to** the following Indigenous Land Use Agreement(s): Gnaala Karla Booja Indigenous Land Use Agreement.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Mines, Industry Regulation and Safety (DMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at <https://www.wa.gov.au/organisation/departments-and-agencies/departments/departments-of-the-premier-and-cabinet/south-west-native-title-settlement>.

Further advice can also be sought from the Department of Planning, Lands and Heritage via <https://alt.jotfor.ms/DPLH/aboriginal-heritage-enquiry>.

Copyright

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Access

Some reports are restricted.

Spatial Accuracy

The following legend strictly applies to the spatial accuracy of heritage survey boundaries as captured by DPLH.

Very Good	Boundaries captured from surveyed titles, GPS (2001 onwards) submitted maps georeferenced to within 20m accuracy.
Good / Moderate	Boundaries captured from GPS (pre 2001) submitted maps georeferenced to within 250m accuracy.
Unreliable	Boundaries captured from submitted maps georeferenced to an accuracy exceeding 250m.
Indeterminate	Surveys submitted with insufficient information to allow boundary capture.

Basemap Copyright

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List of Heritage Surveys

Survey Report ID	Survey Area ID	Report Title	Report Authors	Survey Type	Area Description	Spatial Accuracy	Field / Desktop
17059	13207	Dampier to Perth Natural Gas Pipeline Route: A Survey for Aboriginal Sites. March 1979.	Dept of Aboriginal Sites.	Archaeological/ Ethnographic	The survey area consists of the 1486km preferred route of the Dampier to Perth Natural Gas Pipeline. The survey extended from Dampier to Wagerup. The width of the survey corridor is not known. A default 5m width, either side of the centreline is assumed.	Unreliable	Field and Desktop
17663	15749	Report on an archaeological investigation for Aboriginal sites proposed international motor sports complex at Kwinana	Quartermaine, Gary.	Archaeological	Proposed Motor Sports Complex at Kwinana. It is bounded by Anketell Road to the north, Rockingham Road to the west, Thomas Road to the south and the proposed Rockingham Highway alignment to the east as shown in Fig. 2	Very Good	Field and Desktop
17664	14850	Report on an ethnographic survey of the proposed motor sports complex at Kwinana	O'Connor, R	Ethnographic	Proposed Motor Sports Complex at Kwinana. It is bounded by Anketell Road to the north, Rockingham Road to the west, Thomas Road to the south and the proposed Rockingham Highway alignment to the east as shown in Fig. 2	Very Good	Field and Desktop
20027	14087	From Perth on Harvey to Kwinana 330kv Transmission Line. Appendix 'C' Archaeology. (Dam) Aug 1987.	Quartermaine G	Ethnographic	Proposed Harvey-Kwinana 330kV transmission line. The proposed line goes from the proposed Harvey substation site via the Pinjarra and Mandogalup areas to the existing power station at Kwinana, a distance of approximately 102 km. The 500m wide transmission	Good	Field and Desktop
20027	14655	From Perth on Harvey to Kwinana 330kv Transmission Line. Appendix 'C' Archaeology. (Dam) Aug 1987.	Quartermaine G	Archaeological	Proposed Harvey-Kwinana 330kV transmission line. The proposed line goes from the proposed Harvey substation site via the Pinjarra and Mandogalup areas to the existing power station at Kwinana, a distance of approximately 102 km. A 100m corridor either side	Good	Field and Desktop
20507	14294	Report on an ethnographic survey of the proposed South West Metropolitan Railway Reserve	O'Connor, Rory.	Ethnographic	Proposed South West Metropolitan Railway Reserve. A distance of 50m on both sides of the rail route for its entire length between the Anketell Tunnel and Mandurah. It includes the Rockingham Loop alignment and the Rail Car Depot site adjacent to Mandurah	Moderate	Field and Desktop
20508	13957	Report on further archaeological investigations for Aboriginal sites South West Metropolitan Rail Line Corridor	Quartermaine, Gary.	Archaeological	South West Metropolitan Rail Line Corridor. Approximately 80km in length, and stretches from Jandakot through Wattleup, Kwinana and Rockingham to Mandurah, across the Swan Coastal Plain. A width of 50m either side of the centre-line was surveyed for the r	Moderate	Field and Desktop
20633	15361	Management report of Aboriginal Heritage aspects of the Dampier to Bunbury Natural Gas Pipeline corridor through the Perth Metropolitan Area	Hames Consultancy Group	Archaeological/ Ethnographic	Dampier to Bunbury Natural Gas Pipeline corridor, Bullsbrook to Postans, an alignment 70km long by 30m wide as shown in Sheets 1 & 2	Good	Field and Desktop

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List of Heritage Surveys

Survey Report ID	Survey Area ID	Report Title	Report Authors	Survey Type	Area Description	Spatial Accuracy	Field / Desktop
20653	15279	Report on an ethnographic survey of the proposed South West Metropolitan Railway Alignment	O'Connor, R	Ethnographic	Proposed South West Metropolitan Railway Alignment from sections between the Narrows Bridge and the combined Mandurah Train Terminus and Busport as shown in Fig. 1	temp	Field and Desktop
20653	19985	Report on an ethnographic survey of the proposed South West Metropolitan Railway Alignment	O'Connor, R	Ethnographic	Report on an ethnographic survey of the proposed South West Metropolitan Railway Alignment	Moderate	Field and Desktop
21422	19259	Report on the archaeological and ethnographic survey of the proposed route of the Perth Seawater Desalination Plant Projects Kwinana Beach Navel Base Nicholson Road Forrestdale in Western Australia	Australian Interaction Consultants	Archaeological/ Ethnographic	Report on the archaeological and ethnographic survey of the proposed route of the Perth Seawater Desalination Plant Projects Kwinana Beach Navel Base Nicholson Road Forrestdale in Western Australia	Moderate	Field and Desktop
21817	16317	Ballaruk (traditional owners) Aboriginal site recording project	Machin, Barrie	Ethnographic	Whadjuk territorial boundaries the lands of the Ballaruk Peoples as shown in Figure 10.	Unreliable	Field and Desktop
21818	16458	Ballaruk (traditional owners of Whadjuk territorial boundaries the lands of the Ballaruk Peoples) Aboriginal site recording project : additional material	Machin, Barrie	Ethnographic	Whadjuk territorial boundaries the lands of the Ballaruk Peoples as shown in Figure 10.	Unreliable	Field and Desktop
22419	19634	Report on New Metro Rail Aboriginal consultative meetings held in August and September 2004	R & E O'Connor Pty Ltd	Ethnographic	Report on New Metro Rail Aboriginal consultative meetings held in August and September 2004		Field and Desktop
22529	19676	Report on the October 2006 Aboriginal Consultative Meetings	R & E O'Connor Pty Ltd	Ethnographic	Perth Central Business District: section of the proposed Perth to Mandurah Railway		Field and Desktop
22530	19685	Report on April 2006 New Metro Rail Aboriginal Consultative Meetings	R & E O'Connor Pty Ltd	Ethnographic	New Metro Rail		Field and Desktop
23099	15820	Report on an Aboriginal Heritage Survey of the proposed Kwinana Quay, Town of Kwinana / City of Cockburn, WA	Fisher, Stuart	Archaeological/ Ethnographic	The proposed Kwinana Quay covers an area of 1,783 hectares, including 915 ha of Cockburn Sound, at Kwinana/Naval Base in the Town of Kwinana Local Government Area. As shown in KQ Maps 1-3 of Report. The Land part of the survey area is bounded by Rockingham	Very Good	Field and Desktop
102670	16126	Preliminary Report on the Survey of Aboriginal Areas of Significance in the Perth Metropolitan & Murray River Regions July 1985.	O'Connor, R	Ethnographic	Perth Metropolitan & Murray River Regions. A roughly triangular region, with Yanchep National Park as the Northern point, Gidgegannup as the Eastern point and Pinjarra as the Southern point.	Indeterminate	Field and Desktop
103564	14104	An Archaeological Survey Project: The Perth Area, Western Australia. Apr 1972.	University of Western Australia.	Archaeological	The Perth Area. 103 site locations in 67 site groups were investigated.	Indeterminate	Field and Desktop

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List of Heritage Surveys

Survey Report ID	Survey Area ID	Report Title	Report Authors	Survey Type	Area Description	Spatial Accuracy	Field / Desktop
103677	13302	Report of an Aboriginal Heritage Survey Department of Planning and Urban Development (Dpud) Land Requirement Plans South-West Corridor Area 'A' W.A. Oct.1993.	Edwards, K	Archaeological/ Ethnographic	The survey area consists of a sample of the South West Corridor Area A, as shown in Figure 1.	Good	Field and Desktop
104087	14169	An archaeological survey of the Dampier to Perth natural gas pipeline route : section 6 Muchea to Wagerup.	Pickering, M.	Archaeological	Dampier to Perth Naturla Gas Pipeline Route, Muchea to Wagerup. This section runs from the 1314km point, 6 km south west of Muchea, to the 1478km point at Wagerup, a total distance of 164km as shown in Fig. 1.	Unreliable	Field and Desktop
104155	14804	A report of an Aboriginal Heritage assessment of proposed residue disposal areas, Kwinana	Jackson, Gavin.	Archaeological/ Ethnographic	Proposed Residue Disposal Areas, Kwinana. It is an extension to existing bauxite residue areas located to the north of Hope Valley Road as shown in Fig. 1	Good	Field and Desktop
104160	14477	Report on an Aboriginal Consultation and an Ethnographic Survey of the Forrest Road to Thomas Road Section of the Kwinana Freeway. April 1991.	O'Connor, R	Ethnographic	Forrest Road to Thomas Road Section of the Kwinana Freeway. The designated survey area is defined as the road reserve for the Freeway and associated interchange areas as shown in Fig. 1	Very Good	Field and Desktop
104475	14684	An Archaeological Survey for Aboriginal Sites along Gas Pipeline Laterals in the South Metropolitan Area.	Schwede, M.	Archaeological	The survey area comprises a proposed gas pipeline laterals near Thomson's Lake, as shown in Figure 1. The width of the survey corridor was 10m either side of the centreline, except next to the road verge, where it was 10m from the centreline, on the side	Good	Field and Desktop
104489	13902	A Survey for Aboriginal Sites on the Proposed Route of the Kwinana Freeway Southern Extension(South St-Thomas Rd).	Reynolds, R.	Archaeological/ Ethnographic	The survey area comprises the Kwinana Freeway southern extension, South Street to Thomas Road, as shown in Drawings 7721-81-1, 7721-82 and 7721-83.	Good	Field and Desktop
105233	14163	Report on an Aboriginal site survey of the proposed south west corridor transport reserve	O'Connor, R	Archaeological/ Ethnographic	The survey area consists of the proposed South West Corridor Transport Reserve. The survey corridor is approximately 80km long and 100m wide.	Good	Field and Desktop
105321	13954	Proposed Harvey - Kwinana 330kv Transmission Line: Public Environmental Report. Report no. Sd233 February 1988.	Dames & Moore.	Ethnographic	Proposed Harvey-Kwinana 330kV transmission line. The proposed line goes from the proposed Harvey substation site via the Pinjarra and Mandogalup areas to the existing power station at Kwinana, a distance of approximately 102 km. The 500m wide transmission	Good	Field and Desktop
105321	14537	Proposed Harvey - Kwinana 330kv Transmission Line: Public Environmental Report. Report no. Sd233 February 1988.	Dames & Moore.	Archaeological	Proposed Harvey-Kwinana 330kV transmission line. The proposed line goes from the proposed Harvey substation site via the Pinjarra and Mandogalup areas to the existing power station at Kwinana, a distance of approximately 102 km. A 100m corridor either sid	Good	Field and Desktop



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List of Heritage Surveys

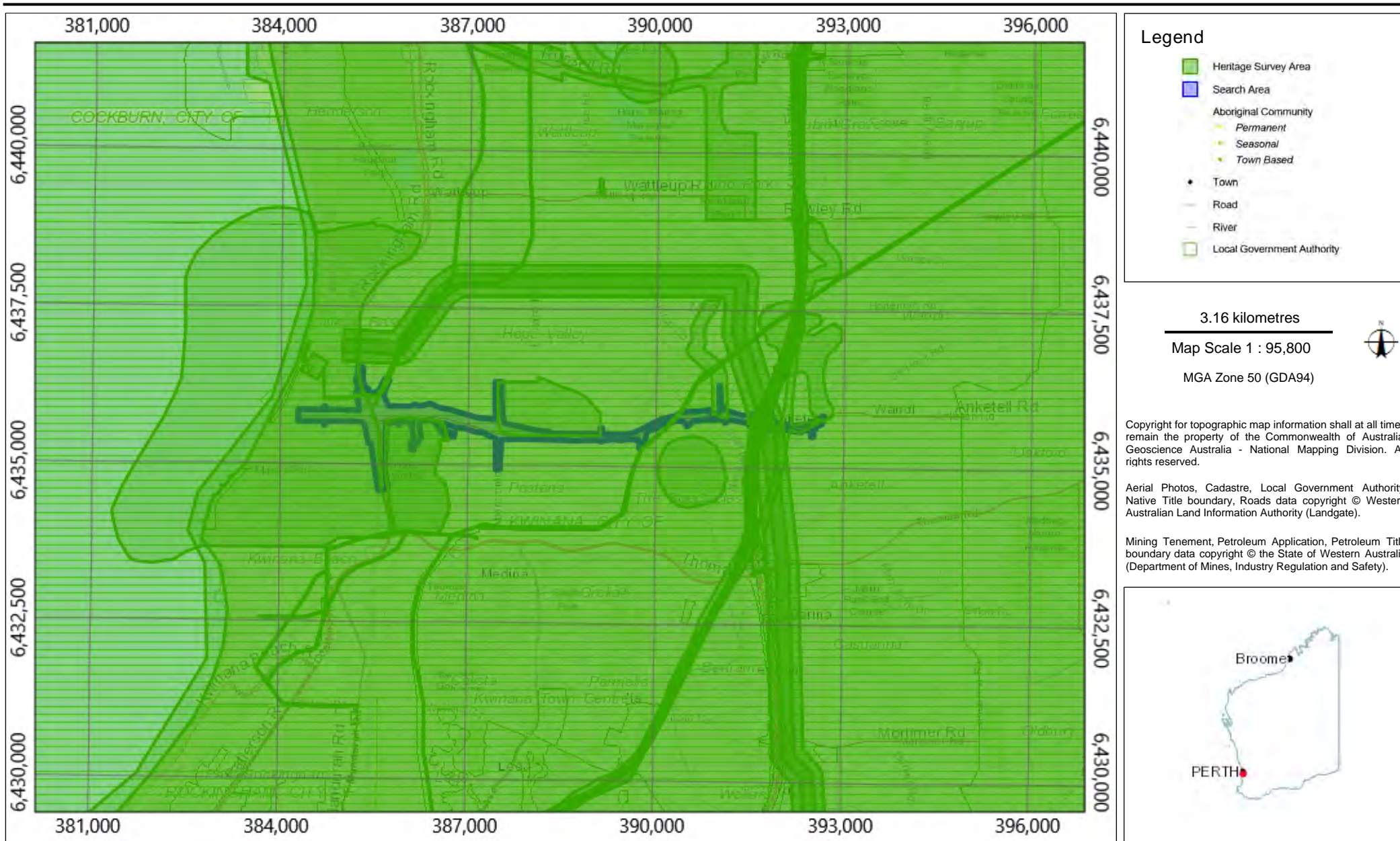
Survey Report ID	Survey Area ID	Report Title	Report Authors	Survey Type	Area Description	Spatial Accuracy	Field / Desktop
106204	15753	Metropolitan Sites Project Southern Region : draft report	Yates Heritage Consultants	Archaeological	Metropolitan Sites Project, Southern Region. 50 heritage locations on the AHMS were re-examined as shown in Tables on pages 1-3, of which 49 were OPEN.	Unreliable	Field and Desktop



Aboriginal Cultural Heritage Inquiry System

Map of Heritage Survey Areas

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Search Criteria

1 Aboriginal Cultural Heritage (ACH) Historic in Shapefile - Anketell_HeritageSurvey_Area_Updated_20240614

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Likewise, from 8 June 2015 the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

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Terminology

ID: ACH on the Register is assigned a unique ID by the Department of Planning, Lands and Heritage using the format: ACH-00000001. For ACH on the former Register the ID numbers remain unchanged and use the new format. For example the ACH ID of the place Swan River was previously '3536' and is now 'ACH-00003536'.

Access and Restrictions:

- Boundary Reliable (Yes/No): Indicates whether to the best knowledge of the Department, the location and extent of the ACH boundary is considered reliable.
- Boundary Restricted = No: Represents the actual location of the ACH as understood by the Department..
- Boundary Restricted = Yes: To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- Culturally Sensitive = No: Availability of information that the Department of Planning, Lands and Heritage holds in relation to the ACH is not restricted in any way.
- Culturally Sensitive = Yes: Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via <https://achknowledge.dplh.wa.gov.au/ach-enquiry-form>.
- Culturally Sensitive Nature:
 - No Gender / Initiation Restrictions: Anyone can view the information.
 - Men only: Only males can view restricted information.
 - Women only: Only females can view restricted information.

Status:

- Register: Aboriginal cultural heritage places that are assessed as meeting Section 5 of the Aboriginal Heritage Act 1972.
- Lodged: Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the Aboriginal Heritage Act 1972.
- Historic: Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the Aboriginal Heritage Act 1972. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Coordinates

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List of Aboriginal Cultural Heritage (ACH) Historic

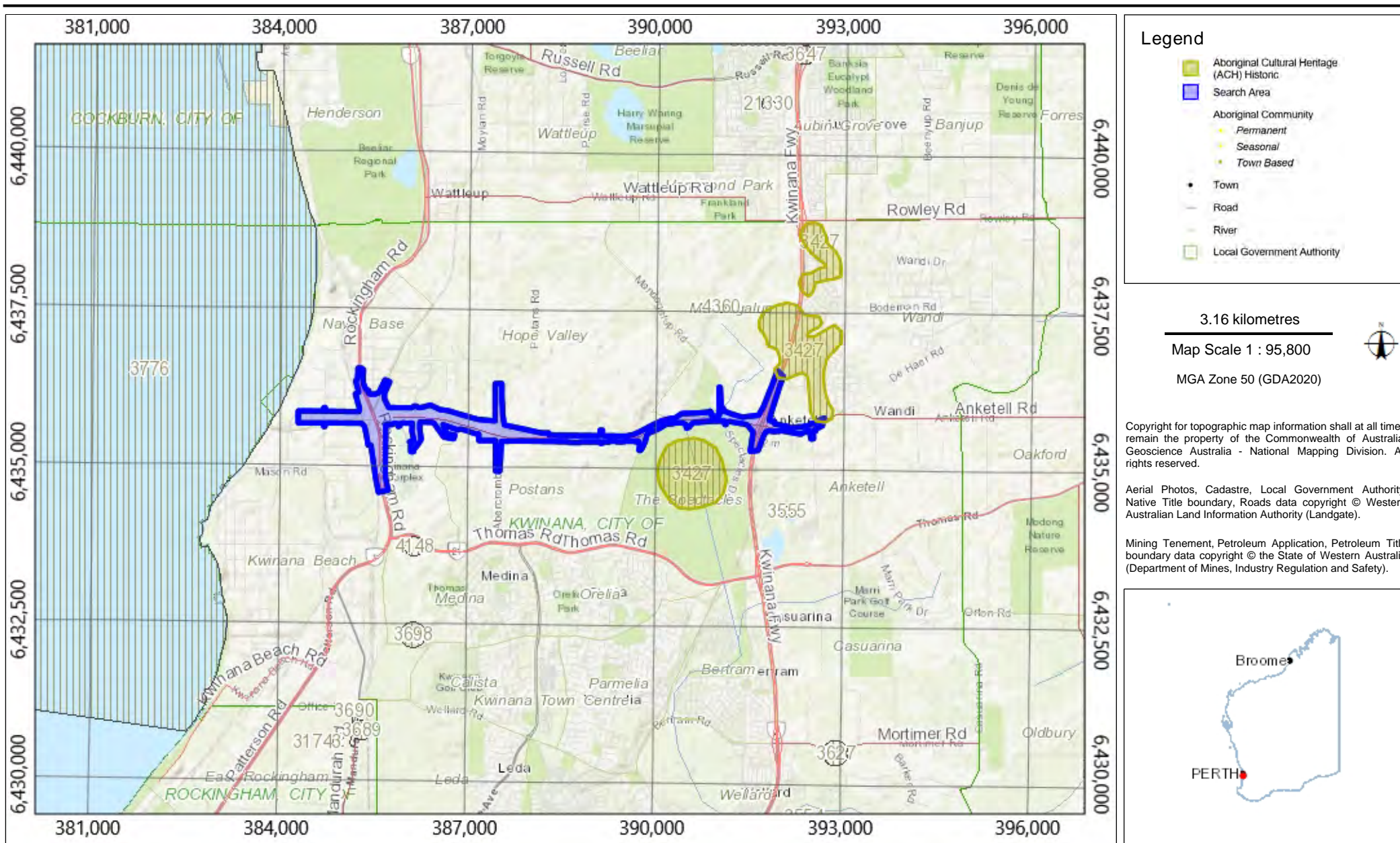
ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
3427	MANDOGALUP SWAMP/SPECTACLES.	No	No	No	No Gender / Initiation Restrictions	Historic	Creation / Dreaming Narrative; Hunting Place; Water Source	*Registered Knowledge Holder names available from DPLH	S02729



Aboriginal Cultural Heritage Inquiry System

Map of Aboriginal Cultural Heritage (ACH) Historic

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Search Criteria

No Aboriginal Cultural Heritage (ACH) Lodged in Shapefile - Anketell_HertiageSurvey_Area_Updated_20240614

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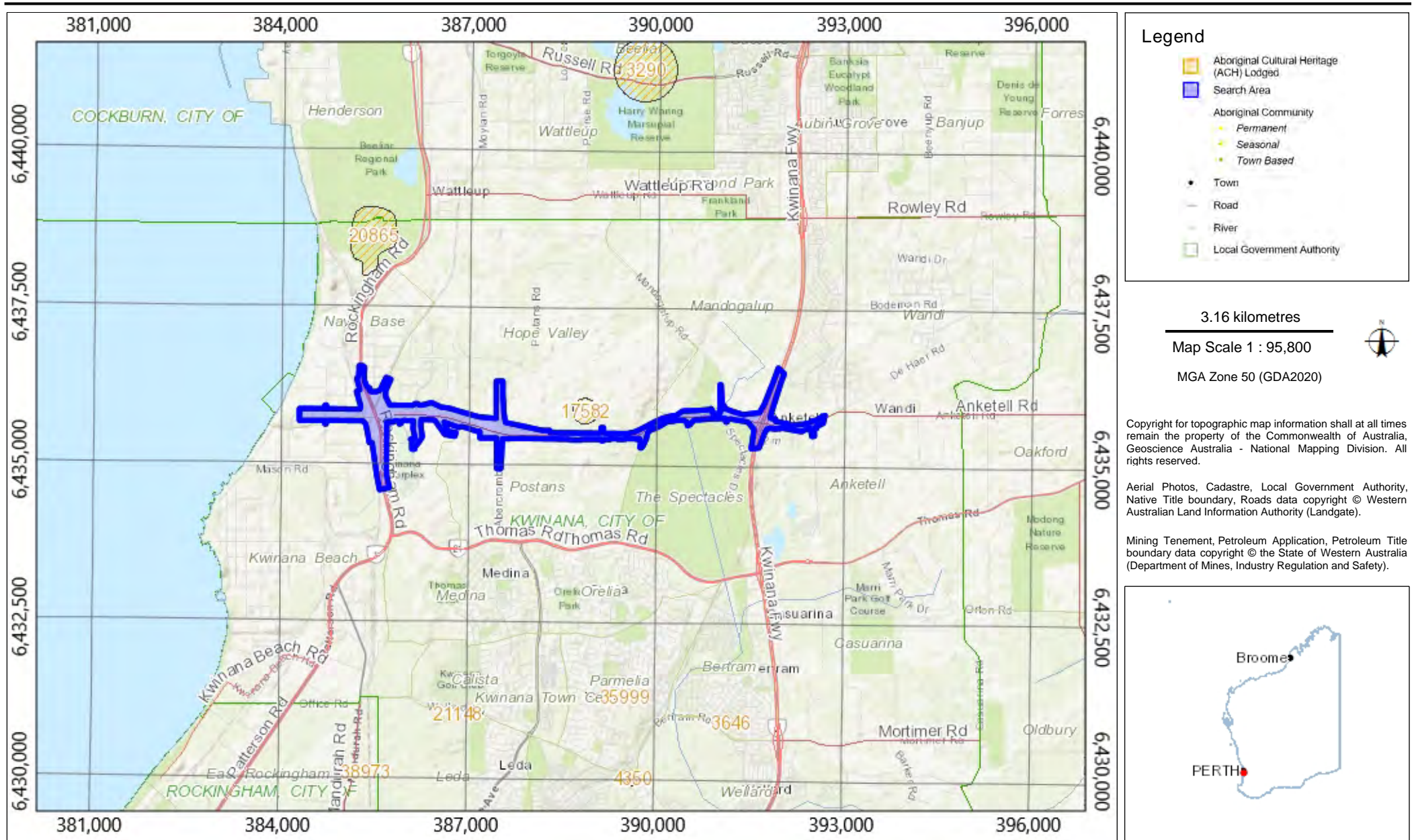
Topographic basemap sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.



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Map of Aboriginal Cultural Heritage (ACH) Lodged

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Search Criteria

No Aboriginal Cultural Heritage (ACH) Register in Shapefile - WP_S3_ATRFC_WEST_OF_KWINANA_EPA_REFERRAL_PL_20230829

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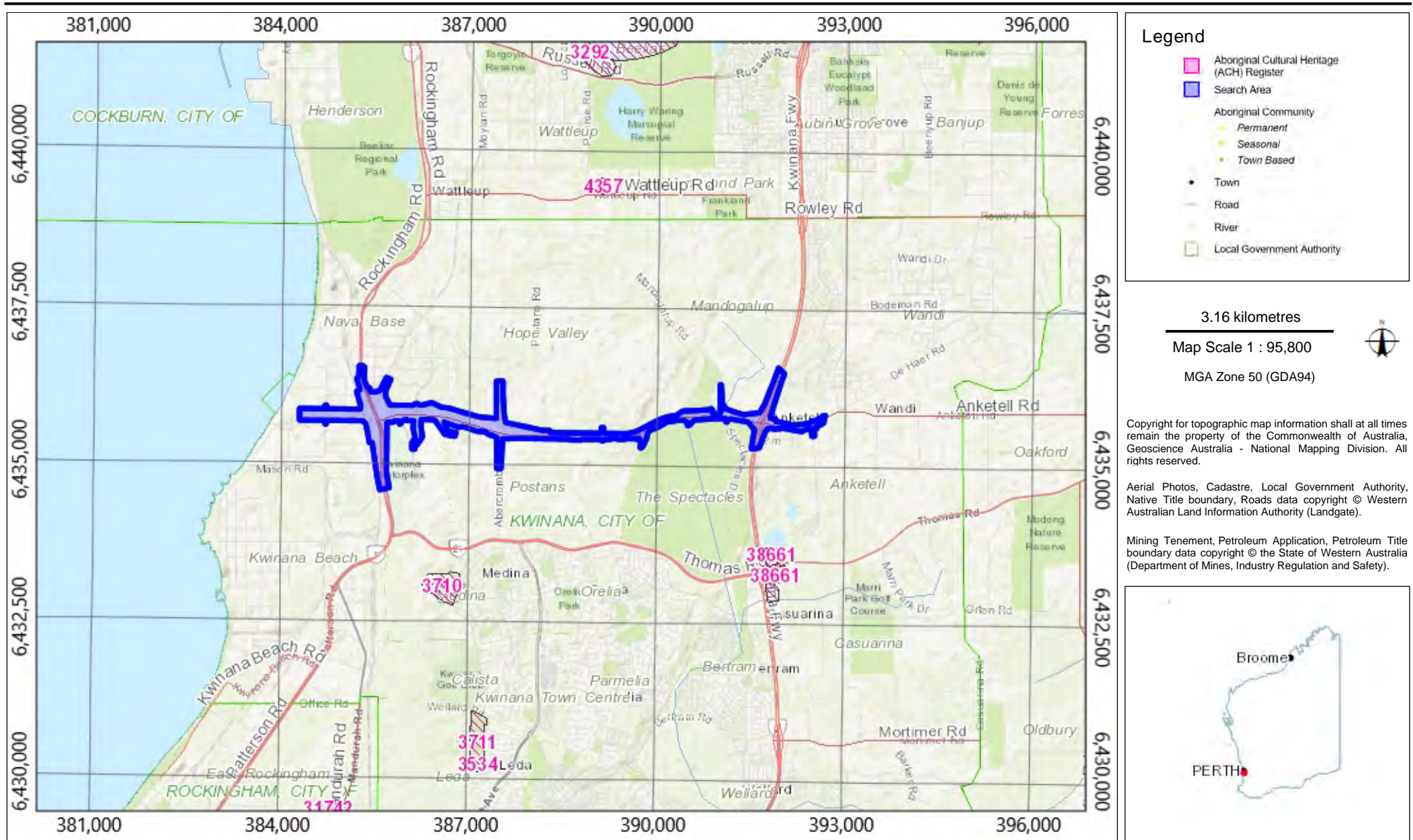
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Aboriginal Cultural Heritage Inquiry System

Map of Aboriginal Cultural Heritage (ACH) Register

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APPENDIX FOUR – TEST PITTING AND EXCAVATION METHODOLOGY

Both the NSW and Victorian Governments have detailed and well-established guidelines for the practice of archaeology in those States. Their standards generally cover sampling strategies, survey techniques, excavation methods and reporting requirements. In Western Australia, recent test excavations on the Swan Coastal Plain demonstrate a best practice approach that can be adapted for the current project (Archae-aus Pty Ltd, 2021, 2022a, 2022b). The test pitting strategies developed by Archae-aus for the Swan Coastal Plain have been informed by those developed in NSW and Victoria, as well as international standards.

One identified problem to consider when designing an archaeological survey is a site's obtrusiveness (McManamon, 1984). This refers to the constituents of an archaeological site combined with its visibility. That is, a site that is widespread combined with a dense artefact distribution would be highly visible on a surface with little or no ground cover. Special techniques must be applied to find such sites when they are covered by dense vegetation and identified sub-surface deposits. Shovel tests are the largest volume surface probe of all the methods to be considered for sub-surface testing.

As Shott (Shott, 1985) suggests, the use of shovel test-pitting (STP) in vegetated environments and sub-surface deposits has outstripped the body of research devoted to assessing its use critically. One of the most important aspects to consider is survey design as this will affect the way in which test-pitting will perform in locating cultural material. There are various configurations that can be used to lay down test pits. These configurations can affect how many artefacts could potentially be located. One of the main problems with test pitting is the very nature of archaeological sites especially artefact scatters. That is, as artefact densities vary over an area and test pits could conceivably be placed in those areas where artefact densities are very low or zero. Accordingly, the identification and sampling of sub-surface deposits is a particular challenge where both the spacing and the size of sample squares have a direct impact on the amount of cultural material recovered (Way, 2017; Way and Tabrett, 2018)



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