



artefact

9 April 2020

Fei Chen
Graduate Project Manager
Tactical Group

Dear Fei,

Re: Aboriginal heritage assessment: Moorebank Precinct West Stage 3 Subdivision

Artefact Heritage (Artefact) has been engaged by Tactical Group (Tactical), on behalf of the Sydney Intermodal Terminal Alliance (SIMTA), to prepare this Aboriginal heritage assessment to inform the Moorebank Precinct West (MPW) Stage 3 Environmental Impact Assessment (EIS). MPW Stage 3 includes progressive subdivision of the MPW project area and establishment of a temporary works compound and associated road and underground utilities.

SIMTA has been issued Development Consent (SSD 5066) for MPW Stage 1 and (SSD 7709) for MPW Stage 2, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), to construct and operate an intermodal terminal (IMT) and associated warehouses on the western side of Moorebank Avenue, Moorebank (the MPW site).

The purpose of this report is to provide an Aboriginal heritage assessment that provides an impact assessment for MPW Stage 3 (SSD 10431) and a consistency assessment of the MPW Stage 3 proposed against the approvals for SSD 5066 and SSD 7709. A separate non-Aboriginal heritage assessment has also been prepared to inform MPW Stage 3.

MPW Stage 3 Location

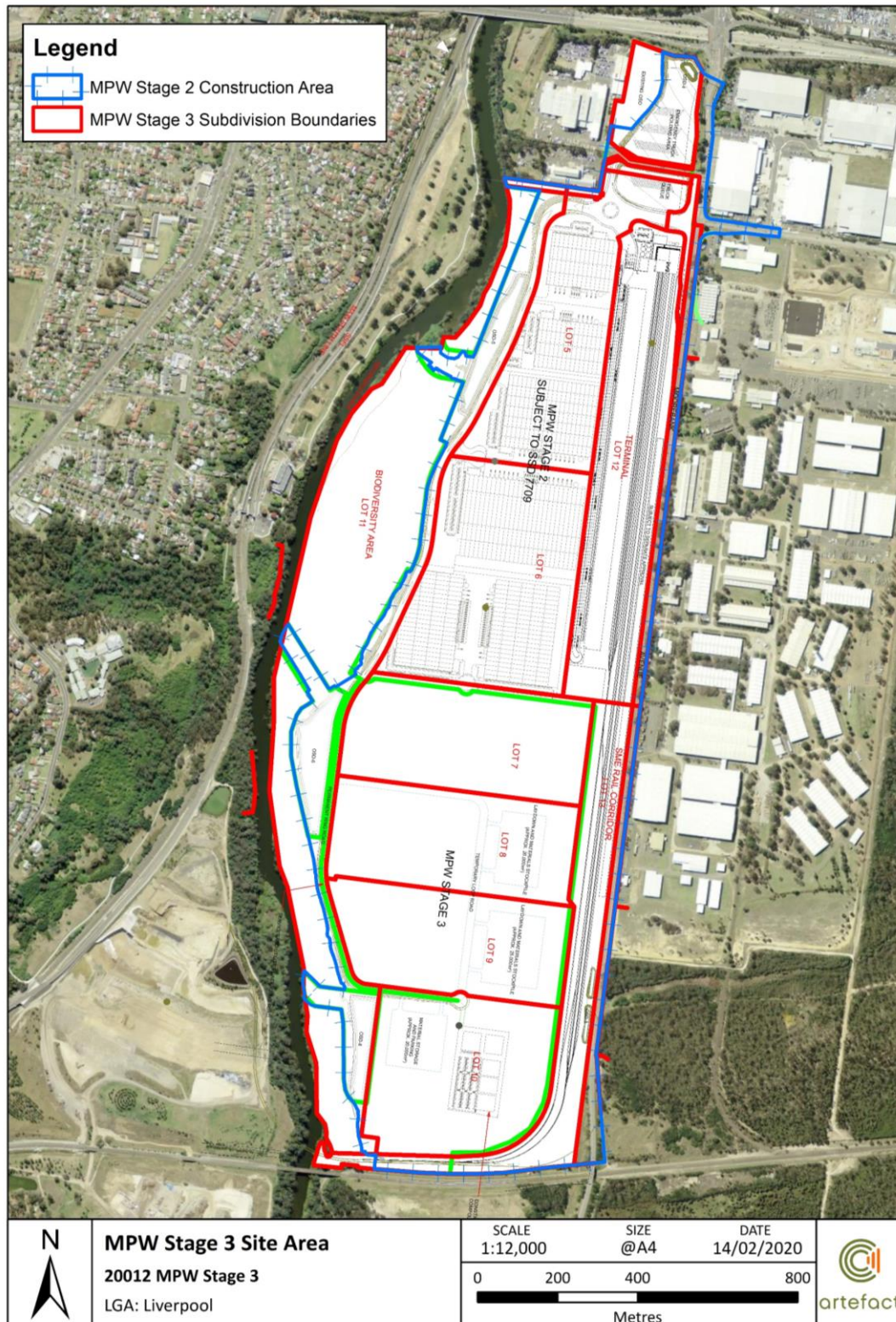
The MPW Stage 3 site is generally bounded by the Georges River to the west, Moorebank Avenue to the east, the East Hills Railway Line to the south and the M5 Motorway to the north. It is located on Moorebank Avenue, Moorebank and currently forms Lot 1 in Deposited Plan (DP) 1197707. The MPW site also contains Lot 100 DP1049508, which is located north of Bapaume Road and west of Moorebank Avenue.

MPW Stage 3 would see Lot 1 in DP 1197707 progressively subdivided into nine smaller lots. The majority of the warehousing footprint and northern half of the operational area for MPW Stage 2 would be progressively subdivided into Lot 5 and Lot 6, and the southern half of the construction area would be progressively subdivided into Lot 7 to Lot 10. Along Moorebank Avenue, the IMT facility area would become Lot 12 (Terminal), and the south-eastern side of the operational area would become Lot 13 (SME Rail Corridor). The remaining portion of Lot 1 in DP 1197707, the MPW Stage 2 conservation area, would become Lot 11 (Biodiversity Area). Lot 100 DP1049508 would remain as it is.

The proposed temporary works compound, temporary road, permanent road, and associated underground utilities would primarily be located within the proposed subdivided Lot 8 to Lot 11 (see Figure 2).

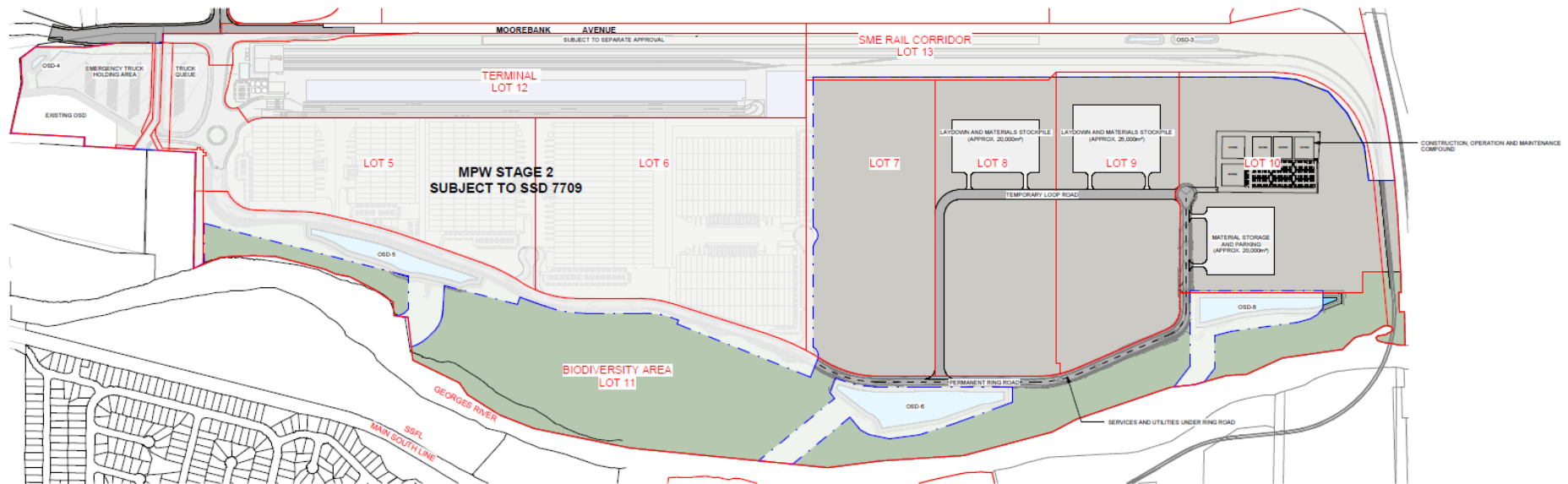
This MPW Stage 3 assessment is for progressive subdivision and construction of a temporary works compound and associated ancillary infrastructure only. With the exception of the temporary works compound and associated roads and underground utilities, MPW Stage 3 subdivision does not include ground-disturbing activities. Ground-disturbing activities are approved under MPW Stage 1 (SSD 5066) and MPW Stage 2 (SSD 7709).

Figure 1: Location of the MPW Stage 3 site in relation to the MPW Stage 2 construction area



Document Path: D:\GIS\GIS_Mapping\MPW_Stage_3\MXD\Site_Location_V1_13.02.2020.mxd

Figure 2: Layout of the proposed MPW Stage 3 progressive subdivisions and location of the proposed temporary works compound and infrastructure



Authorship

This report was prepared by Jayden van Beek (Senior Heritage Consultant) with management input and review from Josh Symons (Principal).

Legislative Context

Commonwealth Heritage Legislation

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) includes 'national heritage' as a matter of National Environmental Significance and protects listed places to the fullest extent under the Constitution. It also establishes the National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

There are no CHL or NHL places in the project area.

On 27 September 2016 a referral made to the Minister for the Environment under sections 130(1) and 133 of the EPBC Act for MPW Stage 2 was approved.

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act), deals with Aboriginal cultural property (intangible heritage) in a wider sense. Such intangible heritage includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. These values are not currently protected under the NPW Act.

There is no cut-off date and the ATSIHP Act may apply to contemporary Aboriginal cultural property as well as ancient sites. The ATSIHP Act takes precedence over state cultural heritage legislation where there is conflict. The Commonwealth Minister who is responsible for administering the ATSIHP Act can make declarations to protect these areas and objects from specific threats of injury or desecration. The responsible Minister may make a declaration under Section 10 of the Commonwealth Act in situations where state or territory laws do not provide adequate protection of intangible heritage.

Where an Aboriginal individual or organisation is concerned that intangible values within the project are not being adequately protected, they can apply to the Minister for a declaration over a place. No intangible places have been identified during the heritage assessments and investigations undertaken for MPW Stage 1 or MPW Stage 2 to date, however consultation is ongoing for the project and may identify intangible places as the project proceeds.

Native Title Act 1993

The main purpose of the *Native Title Act 1993* is to recognise and protect native title. Native title is the rights and interests in land and waters that Aboriginal and Torres Strait Islanders have under their traditional laws and customs.

The following list is indicative of the type of land, which might be subject to native title;

- Vacant Crown land and any other public or Crown lands including oceans and inland waterways, beaches and foreshores, State forests, national parks and public reserves
- Pastoral leases
- Land held by government agencies
- Land held in trust for Aboriginal communities.

Under the amended *Native Title Act 1993*, native title is extinguished by the following;

- Private freehold land, valid grants of private freehold land or waters
- Residential, commercial or exclusive possession leases
- Mining dissection leases
- Community purpose leases (e.g. religious, sporting or charitable purposes)
- Scheduled interests that give exclusive possession
- Public works (e.g. schools, public amenities, hospitals etc.).

Section 24KA of the *Native Title Act 1993*, requires that native title claimants are notified of any 'future act' which may result in a change in land use for Crown lands affected by claims. 'Future act' is defined in Section 233 of the Act as a proposed activity or development on land and/or waters that may affect native title, by extinguishing (removing) it or creating interests that are inconsistent with the existence or exercise of native title. If after one month there has been no response, then the proponent will be deemed to have fulfilled their obligations under the Act.

A search of the National Native Title Tribunal database was completed on 13 February 2020. It was found that there are no Native Title claims registered in the area.

State Legislation

Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the land use planning, development assessment and environmental impact assessment processes. The EP&A Act consists of three main parts of direct relevance to Aboriginal cultural heritage; Part 3 which governs the preparation of planning instruments, Part 4 which relates to development assessment processes for local government (consent) authorities, and Part 5 which relates to activity approvals by governing (determining) authorities.

Part 3, Division 3.4 deals with the development of Local Environmental Plans (LEPs). Planning decisions within Local Government Areas (LGAs) are guided by LEPs. Each LGA is required to develop and maintain an LEP that includes Aboriginal and historical heritage items which are protected under the EP&A Act and the *New South Wales Heritage Act 1977* (Heritage Act). The project site is located across the boundaries of the Liverpool City Council LGA and is covered by the Liverpool LEP 2008. No Aboriginal heritage items listed on the LEP are located within the MPW site.

MPW Stage 1 (SSD 5066) and MPW Stage 2 (SSD 7709) were assessed and determined under what was then Part 4.1 of the EP&A Act, which established an assessment and approval regime for SSD. MPW Stage 3 is consistent with the SSD requirements under Part 4, Division 4.7 of the EP&A Act and the Matters of Consideration under Section 4.15. Section 4.41 of the EP&A Act specifies that approvals or permits under section 90 of the National Parks and *Wildlife Act 1974* (NPW Act) are not required for approved SSD projects.

Secretary's Environmental Assessment Requirements

The SEARs were issued for MPW Stage 3 under Section 4.12(8) of the EP&A Act on 20 March 2020 (SSD 10431). The relevant requirements under item 8 Aboriginal Heritage are outlined in Table 1 below and are addressed in this report. Under item 9 of the SEARs the EIS must include an assessment of the heritage impacts of the proposal and must include the following:

Table 1: Relevant SEARs issued for MPW Stage 3 (SSD 10431)

SEARs	Requirement	Addressed in report
8(a)	Identify and describe the Aboriginal cultural heritage values that exist across the whole area that would be affected by the development and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values must be conducted in accordance with the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (OEH 2010), and guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011)	Aboriginal cultural and archaeological context outlined in this report This report does not fulfill the DPIE requirements for an ACHAR
8(b)	Where impacts are identified, undertake and document consultation with Aboriginal people in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR	RAPs identified on p. 7 Consultation in accordance with DPIE guidelines and NPW Regulation 2019 not undertaken as part of this report
8(c)	Assess and document impacts on Aboriginal cultural heritage values in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to the Environment, Energy and Science Group in the Department of Planning, Industry and Environment	Assessment of potential impacts documented on p. 27

National Parks and Wildlife Act 1974

The NPW Act, administered by the Department of Environment, Energy and Science (DPIE - Heritage), provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community).

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister for the Environment is satisfied that sufficient evidence exists to demonstrate that the location was or is, of special significance to Aboriginal culture.

There are no gazetted Aboriginal Places in the MPW site. All Aboriginal objects, whether recorded or not are protected under the NPW Act.

A section 90 permit is the only Aboriginal Heritage Impact Permit (AHIP) available and is granted by DPIE - Heritage. Various factors are considered by DPIE - Heritage in the AHIP application process, such as site significance, Aboriginal consultation requirements, Ecological Sustainable Development (ESD) principles, project justification and consideration of alternatives. The penalties and fines for damaging or defacing an Aboriginal object have also increased.

As this project is being assessed under Part 4 Division 4.7 of the EP&A Act 1979 permits issued under Section 90 of the NPW Act 1974 are not required.

Note that this document does not comply with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH 2011) for Part 6 of the NPW Act and therefore is not sufficient to meet the requirements for preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR) in accordance with the National Parks and Wildlife Regulation 2019.

Aboriginal Land Rights Act 1983

The *Aboriginal Land Rights Act 1983* (ALR Act) established Aboriginal Land Councils (at State and Local levels). Under Division 1A section 52(4) of the ALR Act these bodies have a statutory obligation to:

-
- (a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and*
 - (b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.*
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There are no Registered Aboriginal Owners pursuant to Division 3 of the ALR Act for the MPW site. The project site is within the boundary of the Tharawal Local Aboriginal Land Council (LALC).

Consultation

Registered Aboriginal Parties (RAPs)

Aboriginal community consultation has been conducted by NOHC, Artefact, and Biosis throughout the MPW Stage 1 and MPW Stage 2 approval process.

Nine RAPs are registered for the MPW Project:

- Tharawal Local Aboriginal Land Council (TLALC)
- Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC)
- Darug Land Observations (DLO)
- Darug Custodian Aboriginal Corporation (DCAC)
- Darug Aboriginal Cultural Heritage Assessments (DACHA)
- Darug Aboriginal Landcare Incorporated (DALI)
- Banyadjaminga
- Gandangara Local Aboriginal Land Council (GLALC)
- Tocomwall Pty Ltd.

Consultation in accordance with the DPIE 'Aboriginal cultural heritage consultation requirements for proponents 2010' and the NPW Regulation 2019 has not been undertaken as part of preparation of this report.

A copy of this report must be forwarded to the registered Aboriginal parties to inform them of the findings of this assessment.

Background Information

Environmental Context

The MPW site is situated along the upper Georges River, in a transitional area between Wianamatta Shale and Hawkesbury Sandstone zones. Wianamatta Shale terrain is typical of the Cumberland Plain Woodland located to the west of the MPW site. Hawkesbury Sandstone terrain extends from the upper Georges River to the east (NOHC 2014).

The majority of the MPW site is capped by Tertiary alluvial clayey quartz sands, salty sands and clays and forms part of the Berkshire Park Soils Group (Hazleton and Bannerman 1990). This soil landscape unit generally overlies alluvium, often on elevated terraces, and comprises shallow clayey sand soils, with frequent ironstone pisoliths (Hazleton and Bannerman 1990 in NOHC 2014). The Berkshire Park Soils landscape is mapped on the Penrith sheet as being developed on the Tertiary terraces of the Hawkesbury/Nepean River System. Landforms on the east side of the Georges River are lower in altitude than on the west, so flooding incidence is much higher (NOHC 2014). The banks of the Georges River and Maxwells Creek are characterised by the South Creek soil landscape. The soil profiles of the South Creek soil landscape generally comprise an A1 horizon of brown sandy loam with an A2 horizon of more compact bleached clay loam with gravels. This is underlain by a yellow to brown clay B horizon with high gravel content. The fluvial soils would have been subject to frequent flood events, possibly resulting in a deep, homogenous deposit susceptible to mixing (OEH 2014, Artefact 2016). The modern geomorphology, hydrology and wetland habitats of the Georges River reflect disturbance throughout the catchment which has occurred since European settlement (NOHC 2014).

Aboriginal ethno-historic context

Aboriginal people traditionally lived in small family or clan groups that were associated with particular territories or places. The language groups occupying the region surrounding the MPW site are thought to have been the Dharawal, the Darug and the Gundungurra (Attenbrow 2010:221, 222). Laila Haglund has suggested that the Campbelltown area may have represented the intersection between the boundaries for these language groups, and that the Narellan Valley may have been part of a 'travel corridor' facilitating movement between the northern Cumberland Plain and the Illawarra (JMcDCHM 2007:21 after Haglund 1989).

The Dharawal language group was largely coastal and is thought to have extended from the Shoalhaven River, north to Botany Bay and then inland to Camden (Attenbrow 2002:34). Historical records show that the Gundungurra were located to the west and southwest of the Dharawal and into the southern Blue Mountains. It is not known whether this represented recent displacement patterns as a result of European colonisation or was part of a longer term interaction with the Dharawal (Karskens 2010:496). The Darug language group occupied much of the Cumberland Plain between the Blue Mountains and the coast, with the language being divided into coastal and hinterland dialects (Attenbrow 2002:34). British colonisation had a profound effect on the Aboriginal population of the Sydney region. In the early days of the colony Aboriginal people were disenfranchised from their land as the British claimed.

Liverpool Camp was utilised by the Australian Imperial Force (AIF) to train new recruits during World War I. Internees at the Old Army Camp at Holsworthy were made to quarry sandstone, build stone structures and construct a branch of the railway line. The colonists, often at the expense of the local Aboriginal groups, also claimed resources such as pasture, timber, fishing grounds and water sources.

Some Aboriginal people of southwestern Sydney may have seen cattle before being first confronted by the colonists. Two bulls and four cows escaped from the Sydney colony in 1788 and were not recovered. In 1790 a group of cows were observed grazing near Camden in what became known as the 'Cowpastures'. The herd expanded and by 1801 were thought to number in the hundreds and efforts were made to recapture them (Turbet 2011: 88, Kayandel 2010:23).

In the early 1800s relationships between the Aboriginal people of the area and the European settlers were generally amicable. Grace Karskens notes several examples of close relationships between land owners and local Aboriginal people, including Charles Throsby who gave the Dharawal protection on his Glenfield Estate during later not so peaceful times (Karskens 2010).

Relations between Aboriginal people and colonists did not remain amicable. A sustained drought during 1814 and 1815, and continued disenfranchisement lead to tensions between farmers and Aboriginal people who remained to the southwest of Sydney. The Aboriginal people were accused of stealing corn and potatoes and spearing cattle. A number of farmers were killed on their properties. In a dispatch Governor Macquarie wrote that 'The Native Blacks of this country...have lately broken out in open hostility against the British Settlers residing on the banks of the River Nepean near the Cow Pastures'. Aboriginal people were targeted and it was ordered that Aboriginal men be strung from trees when they were killed as an example (Turbet 2011:234).

In 1816 the tensions culminated in the Appin massacre when Aboriginal people were pursued by a detachment led by Captain James Wallis. Fourteen Aboriginal people of the Dharawal nation were shot or driven over a cliff to their deaths by the soldiers. The bodies of two of the Aboriginal men were strung up at the site (Turbet 2011).

Although the numbers of Aboriginal people in the area decreased as settlers and farmers moved into the locality, communities remained living at Camden Park and along the Georges River near Liverpool (Liston 1988).

Historical Land Use Context

European expansion throughout the Cumberland Plain displaced Aboriginal people from their traditional land and effectively cut off access to many resources. The first European activity in the area was exploratory shortly followed by settlement. The first land parcels in the Liverpool area were granted in 1798.

Liverpool was founded in 1810 by Governor Macquarie who named the area after the Earl of Liverpool. Following the completion of the road between Sydney and Liverpool in 1813 settlement expanded rapidly. The rich soils on the floodplain of the Georges River provided for a growing agricultural industry. In the 1860s many small farmers moved away from the river after a particularly large inundation and the area became open to larger scale agriculture such as dairy farming. Up until the mid-twentieth century agriculture co-existed with suburban areas in the Liverpool region.

The following site specific information has been taken from Chapter 21 - European Heritage of the EIS document prepared by Parsons Brinkerhoff and NOHC (2014:6) for the MPW Concept Plan EIS.

At the turn of the 19th century, the [MIC] Proposal site was part of the Moorebank Estate, which comprised small rural landholdings and farms first established by Thomas Moore (Moorebank Precinct West (MPW) Stage 2 Proposal Page 27). The Project site was first used for military purposes in the late 19th century, when it was established as a military training camp that quickly expanded during World War I. Other uses on the site have included sandmining on the eastern bank of

the Georges River, and the construction of a light railway to service the operation, during the 1930s. The School of Military Engineering (SME) is the largest of the Defence units on the Project site and was established during World War II, in what is now called the Steele Barracks Army Base. The SME is home to the Royal Australian Engineers (RAE), whose role is to provide geospatial, combat and force support engineering capabilities. The buildings and facilities at the SME have undergone major change and redevelopment since the 1940s. Most of the buildings dating from that period have since been demolished and replaced with new structures. Various training facilities and schools have been established at the SME including the School of Signals, Central Training Depot, specialist dog training, explosive ordnance disposal and the nuclear, biological and chemical warfare wing.

The land west of the Georges River was a largely undeveloped rural landscape prior to the 20th century. Later, this area was developed as a golf course. The Southern Sydney Freight Line (SSFL), parallel and immediately adjacent to the Main South Railway Line (passenger line), has resulted in substantial disturbance to all of the remaining locally elevated ground and a proportion of the river flats on this land. This was due to the use of this land as construction depots and ancillary areas for the SSFL construction.

Aboriginal Material Culture

The archaeological understanding of the early Aboriginal settlement of the Sydney Basin and surrounds is constantly expanding and developing. At present, the earliest occupation known is associated with deposits on the Parramatta and Nepean Rivers, which have been dated to c.25-30,000 yBP and 36 000 yBP (years before present) (JMcD CHM Oct 2005; AHMS Feb 2013). Two coastal sites south of Wollongong at Bass Point and Burrill Lake in the Shoalhaven have both been dated to around 20,000 yBP (Lampert 1971 and Nanson et al 1987). Evidence of Aboriginal occupation at Lake Mungo has been dated to 50-60,000 yBP (Bowler et al 2003). Excavations conducted by AHMS within PAD2, located in the southern portion of the MPW Stage 3 site, retrieved a date of 18,000 yBP in association with artefact bearing deposits (AHMS 2015).

The existing archaeological record is limited to certain materials and objects that were able to withstand degradation and decay. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analyses of these artefacts in their contexts have provided the basis for the interpretation of change in material culture over time. Technologies used for making tools changed, along with preference of raw material. Different types of tools appeared at certain times, for example ground stone hatchets are first observed in the archaeological record around 4,000 yBP in the Sydney region (Attenbrow 2010:102). It is argued that these changes in material culture were an indication of changes in social organisation and behaviour.

The Eastern Regional Sequence was first developed by McCarthy in 1948 to explain the typological differences he was seeing in stone tool technology in different stratigraphic levels during excavations such as those at Lapstone Creek near the foot of the Blue Mountains (McCarthy 1948). The sequence had three phases that corresponded to different technologies and tool types (the Capertian, Bondaian and Eloueran). The categories have been refined through the interpretation of further excavation data and radiocarbon dates (Hiscock & Attenbrow 2005, JMcDCHM 2005). It is now thought that prior to 8,500 yBP tool technology remained fairly static with a preference for silicified tuff, quartz and some unheated silcrete. Bipolar flaking was rare with unifacial flaking predominant. No backed artefacts have been found of this antiquity. After 8,500 yBP silcrete was

more dominant as a raw material, and bifacial flaking became the most common technique for tool manufacture. From about 4,000 yBP to 1,000 yBP backed artefacts appear more frequently. Tool manufacture techniques become more complex and bipolar flaking increases (JMcDCHM 2006). It has been argued that from 1,400 to 1,000 years before contact there is evidence of a decline in tool manufacture. This reduction may be the result of decreased tool making, an increase in the use of organic materials, changes in the way tools were made, or changes in what types of tools were preferred (Attenbrow 2010:102). The reduction in evidence for stone tool manufacture coincides with the reduction in frequency of backed blades as a percentage of the assemblage.

After European colonisation Aboriginal people of the Sydney Basin often continued to manufacture tools, sometimes with new materials such as bottle glass or ceramics. There are a number of sites in Western Sydney where flaked glass has been recorded, for example at Prospect (Ngara Consulting 2003) and Oran Park (JMcDCHM 2007).

The following information has been taken from Chapter 22 - Aboriginal Heritage of the EIS document prepared by Parsons Brinkerhoff and NOHC (2014:8) for the MPW Concept Plan EIS.

Previous studies have been conducted in the vicinity of the [MIC] Project site and near the Georges River. Koettig and Hughes (1983) and Haglund (1984) conducted surveys along the proposed route of the East Hills–Glenfield Railway and at Glenfield. No Aboriginal sites were recorded in these areas; however, factors such as poor surface visibility may have contributed to the lack of identified sites. Boot (1990; 1992; 1993; 1994a, 1994b) carried out a series of archaeological investigations at Wattle Grove, along Anzac Creek and north of the East Hills Railway Line. Several scatters were identified along low ridgelines next to drainage lines or swampy areas.

The sandstone dominated terrain within the Holsworthy Military Area also contains a number of Aboriginal sites including rock shelters, pigment art sites, rock engravings and grinding groove complexes, which have been documented in a number of surveys and site investigations (Officer 1984, Sharp 1994, Sefton 1994, Axis Environmental/Australian Museum Business Services Consulting 1995 and McCotter 1995).

Registered Aboriginal Archaeological Sites in the Local Area – AHIMS Search Results

An extensive AHIMS search of the area surrounding the MPW site was undertaken on the 13 February 2020 with the following parameters:

GDA 1994 MGA 56	306360E – 309043E
	6239515N – 6242887N
Buffer	200 m
Number of sites	28
AHIMS Search ID	209348

A total of 28 Aboriginal sites were identified. Figure 3 illustrates the distribution of Aboriginal sites within the vicinity of the MPW site. Table 2 details the frequency of each site type.

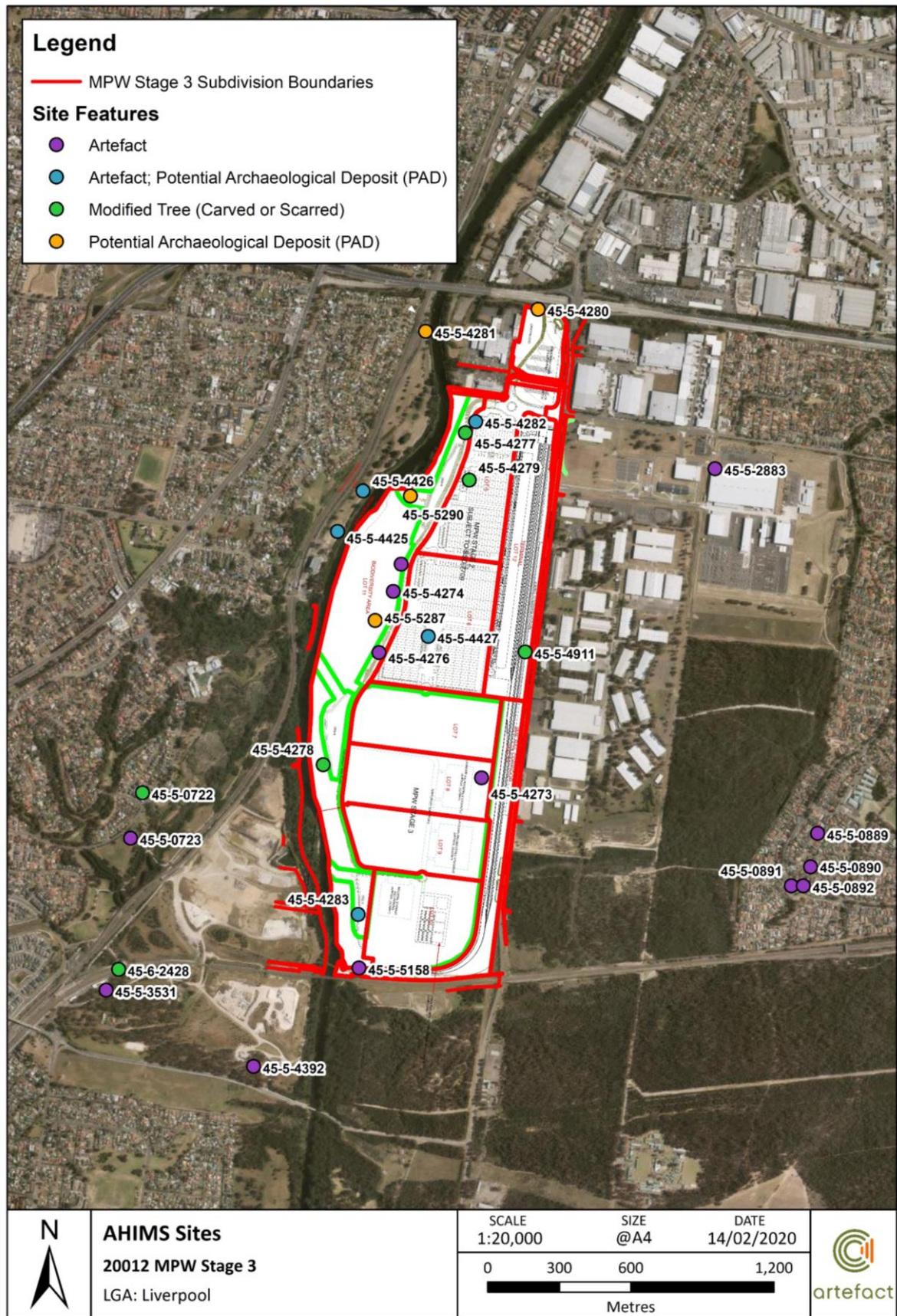
Table 2: Frequency of site types from AHIMS extensive search data

Site type	Frequency	Percentage of total sites (%)
Artefact	13	46.5
Artefact with PAD	5	18
Modified tree (carved or scar)	6	21.5
PAD	4	14
Total	28	100

The most common site types in the search area are artefact sites (n=13) followed by modified trees (n=6), however, previous studies have indicated that some of these trees have not been confirmed as culturally modified (NOHC 2014 and AHMS 2012). Areas of PAD (=4), as well as artefacts with associated areas of PAD (n=5), are less common in the area, although the numbers are comparable to the number of modified trees.

The updated AHIMS search indicates that an additional 12 sites have been recorded within the search area since the preparation of the MPW Stage 2 EIS in October 2016. The most significant change has been the recording of an additional 8 artefact sites, along with 2 additional modified trees and 2 additional PADs. The number of artefact sites with associated areas of PAD decreased by 2. The increase in the number of recorded sites is reflective of the investigations undertaken as part of MPW Stage 1 Early Works.

Figure 3: Recorded AHIMS sites in the vicinity of the MPW Stage 3 site



Existing Approvals

MPW Stage 1 Aboriginal Heritage Technical Paper

In 2014 Navin Officer Heritage Consultants (NOHC) prepared an Aboriginal heritage assessment report as part of the EIS for MPW Stage 1 Early Works (SSD 5066). The assessment identified the potential impacts to recorded Aboriginal sites and potential archaeological remains within the site. The MPW Stage 1 site included the entirety of the proposed MPW Stage 3 site.

The recommendations and conditions outlined in the Minister's Conditions of Approval (MCoA), Revised Environmental Management Measures (REMMs), and EIS Aboriginal Heritage Technical Paper for MPW Stage 1 are outlined in Table 3 to Table 5 below.

The assessment and recommendations in this report are based on the assumption that all of the recommended mitigation measures and requirements outlined for MPW Stage 1 have been conducted during MPW Stage 1 and MPW Stage 2.

Table 3: Minister's Conditions of Approval for MPW Stage 1 Early Works

MCoA	Requirement
B6	<p>The Applicant shall not harm, modify or otherwise impact any heritage items outside the subject site</p>
	<p>Prior to the commencement of Early Works affecting Aboriginal sites MA1, MA2, MA3, MA4, MA5 and MA9, the Applicant shall:</p>
	<p>a) develop a detailed salvage strategy, prepared in consultation with the OEH (Aboriginal heritage) and the Aboriginal stakeholders. The investigation program shall be prepared to the satisfaction of the Secretary; and</p>
B7	<p>b) undertake any further archaeological excavation works recommended by the results of the Aboriginal archaeological investigation program.</p>
	<p>Within 12 months of completing the above work, unless otherwise agreed by the Secretary, the Applicant shall submit a report containing the findings of the excavations, including artefact analysis and Aboriginal Site Impacts Recording Forms (ASIR), and the identification of a final storage location for all Aboriginal objects recovered (testing and salvage), prepared in consultation with the Aboriginal stakeholders, the OEH (Aboriginal heritage) and to the satisfaction of the Secretary.</p>

MCoA	Requirement
D20	<p>(c) a Construction Heritage Management Plan to ensure construction impacts on Aboriginal and non-Aboriginal heritage will be appropriately avoided, minimised and managed. The Plan shall be developed in consultation with OEH, the relevant Council, the NSW Heritage Council (for non-Aboriginal State heritage items) and the relevant Local Aboriginal Land Councils (for Aboriginal heritage), and include, but not necessarily be limited to:</p> <p>(i) in relation to Aboriginal heritage:</p> <ul style="list-style-type: none"> a) details of management measures to be carried out in relation to Aboriginal heritage, including a detailed methodology and strategies for protection, monitoring, and conservation of sites and items; b) procedures for dealing with previously unidentified Aboriginal objects (excluding human remains), including cessation of works in the vicinity, assessment of the significance of the item(s) and determination of appropriate mitigation measures, including when works can re-commence, by a suitably qualified and experienced archaeologist in consultation with the Secretary and Aboriginal stakeholders, assessment of the consistency of any Aboriginal heritage impacts against the approved impacts of the SSD, and, where relevant, registration in the OEH's Aboriginal Heritage Information Management System (AHIMS) register; c) procedures for dealing with human remains, including cessation of works in the vicinity, notification of Secretary, NSW Police Force, OEH and Aboriginal stakeholders, and commitment to cease recommencing any works in the area unless authorised by the OEH and/or the NSW Police Force; d) heritage training and induction processes for construction personnel (including procedures for keeping records of inductions) and obligations under the conditions of this approval including site identification, protection and conservation of Aboriginal cultural heritage; and e) procedures for ongoing Aboriginal consultation and involvement for the duration of the Early Works

Table 4: Revised Environmental Management Measures for MPW Stage 1 Early Works

REMM	Requirement
12A	Where reasonable and feasible, options would be explored to conserve moderate to high significance sites in situ
12B	An Aboriginal heritage interpretation strategy for the Project would be developed in close consultation with the registered Aboriginal parties

REMM	Requirement
	Options for managing impacts at sites MA6 and MA7 would be explored during the detailed design phase in consultation with registered Aboriginal parties (RAP). If the scars are considered to be of Aboriginal origin, possible management options include: <ul style="list-style-type: none"> • Conservation of the tree(s) in situ. This would involve designing the project to ensure that the tree(s) would not be impacted.
12C	<ul style="list-style-type: none"> • Salvage and conservation of the tree(s), or the scarred portion of the tree's trunk, at a location outside the project area. <p>In the event there is not a consensus of views among all of the RAPs, it is recommended that a precautionary approach be taken. This would involve acting upon statements of the tree(s) holding cultural value, even if only a minority of RAPs view either or both trees as holding cultural value</p>
12D	<p>An archaeological salvage excavation program would be implemented to preserve archaeological deposits of moderate to high archaeological/scientific significance located within the construction footprint (items recorded at MA5 and MA9).</p> <p>Consideration would be given to conserving both sites in situ, within open space reserves, or as an extension of the proposed conservation zone</p>
12E	A surface salvage program would be carried out to conserve surface artefacts located within the construction footprint (items recorded at MA1, MA2, MA3 and MA4). Salvage of surface artefacts would be undertaken before any impacts in these areas
12F	The Unanticipated Discoveries Protocol described in Appendix 10 of Technical Paper 10 – Aboriginal Heritage Impact Assessment in Volume 7 of the EIS, would be followed in the event that historical items or relics or suspected burials are encountered during construction works
	Consultation would be ongoing with the registered Aboriginal parties during construction of the Project and would include:
12G	<ul style="list-style-type: none"> • consultation on the future care and management of recovered Aboriginal objects; • methodologies for any future investigations; and • finalisation of management and mitigation strategies subject to detailed design

Table 5: Heritage recommendations made in the EIS Aboriginal Heritage Technical Paper for MPW Stage 1 Early Works

Recommendation
Where practicable, explore options in the detailed design stage to conserve in situ sites of moderate to high or greater significance
An Aboriginal heritage interpretation strategy for the Project should be developed in close consultation with the registered Aboriginal parties. The strategy could consider combining both European and Aboriginal interpretation within the Project area

Recommendation

A program of archaeological subsurface testing within MRS2 and the western component of MA10 should be undertaken in order to inform the full scope of salvage excavations. The extent of such testing and salvage will be determined during detailed design when the exact nature of development impact can be defined. Planning for these investigations will need to include management of risks associated with snakes and impacts to Endangered Ecological Communities (EEC)

If the northern rail access option is to go ahead then the following should be undertaken:

- The phased approach to further investigations at MAPAD2 outlined above in Table 14.1 should be adopted.
- Immediate further data gathering, in a stepped progressive build of information should be undertaken to fill the following knowledge gaps regarding MAPAD2:
 - desktop study (of geotechnical borehole data and levels);
 - drilling to recover undisturbed sediment core (for assessment and dating and as an archive sequence); and
 - subsurface bulk sample retrieval (using augered mud bucket) to assess preservation conditions and artefact presence/absence at depth
- Information recovered from future investigations at MAPAD2 should be incorporated into an Aboriginal heritage interpretation strategy for the project as a whole, developed in close consultation with the Registered Aboriginal parties. The strategy could consider combining both European and Aboriginal interpretation within the project area

If the central rail access option is to go ahead a program of Aboriginal subsurface archaeological investigation should be undertaken. The testing program would need to assess the upper metre of deposits as well as deposits at depth. An approach similar to that outlined in the northern Powerhouse land addendum report (NOHC 2014a) would be applicable to addressing the assessment of deposits at depth

If the southern rail access option is to go ahead a combined geotechnical and archaeological assessment should be undertaken to assess the nature of any deposit and the need for further archaeological investigation and/or salvage

Options for avoidance of impacts at MA6 and MA7 should be explored during the detailed design phase. If impacts cannot be avoided, consultation should be undertaken with the Aboriginal community regarding options for specialist investigations (e.g. a suitably qualified specialist in eucalypts of the Sydney region and dendrochronology be engaged to formally assess the age of the trees and their scars) and culturally appropriate mitigation strategies

MA5 and MA9 contain archaeological deposits of moderate to high archaeological significance. No impacts should occur at these locations without the prior conduct of archaeological salvage

- Consideration should be given to combine archaeological and geomorphological mitigation measures, as outlined in the technical report at Appendix 3.
- Consideration should be given to conserving both sites in situ, within open space reserves, or an extension of the proposed vegetation buffer zone/conservation area. In particular consideration should be given to MA9 due to the existence of both unique remnant landscape features and subsurface archaeological deposits

Surface artefacts have been recorded at MA1, MA2, MA3 and MA4. Salvage of surface artefacts should be undertaken prior to any impacts in these areas

Recommendation

Consultation should be ongoing with the registered Aboriginal parties throughout the life of the Project and would include:

- Consultation on the future care and management of recovered Aboriginal objects;
- Methodologies for any future investigations;
- Finalisation of management and mitigation strategies subject to detailed design; and
- The provision for comments on a draft version of this report

No further archaeological investigations are warranted at MRSA3 or PAD2; and

The unanticipated discoveries protocol at Appendix 10 should be followed in the event that Aboriginal objects or suspected burials are encountered during construction works

1.1.1 MPW Stage 2 Aboriginal Heritage Technical Paper

In 2016 Artefact prepared an Aboriginal heritage assessment report as part of the EIS for MPW Stage 2 (SSD 7709). The assessment identified the potential impacts to recorded Aboriginal sites and potential archaeological remains within the site resulting from the construction of an IMT and associated warehousing. The MPW Stage 2 site included the majority of the proposed MPW Stage 3 site, with the exception of most of the proposed Lot 11 (Biodiversity Area) which was marked as a conservation area for biodiversity offset that was not proposed to be impacted as part of MPW Stage 2 (Figure 1). Although the warehousing area and IMT area were located within the northern half of the MPW site, the assessed construction area included the entire MPW Stage 2 site.

The recommendations and conditions outlined in the Minister's Conditions of Approval (MCoA), Revised Environmental Management Measures (REMMs), and EIS for MPW Stage 2 are outlined in Table 6 to Table 7 below. The REMMs for MPW Stage 2 remain the same as the REMMs for MPW Stage 1 (Table 4) and therefore have not been reproduced below.

The assessment and recommendations in this report are based on the assumption that all of the recommended mitigation measures and requirements outlined for MPW Stage 2 have been conducted during MPW Stage 2.

Table 6: Minister's Conditions of Approval for MPW Stage 2

MCoA	Requirement
B144	A Salvage Strategy must be developed in consultation with OEH and with relevant Registered Aboriginal Parties prior to any impacts on Aboriginal objects and sites
B145	The scar tree portions of Aboriginal sites MA6 & MA7 are to be removed by a qualified arborist and relocated to a suitable area identified in consultation with Registered Aboriginal Parties

MCoA	Requirement
	<p>Staged salvage excavation of selected areas should be conducted in consultation with Registered Aboriginal Parties. These stages include:</p>
B146	<ul style="list-style-type: none"> a) dispersed pits placed along transects within the Terrace PAD and the tertiary terrace (between MA10 and MA14 – refer to Figure 16-2 of the EIS); and NSW Government 25 Moorebank Intermodal Precinct West - Stage 2 Department of Planning and Environment (SSD 7709); b) open area salvage excavation, targeting the artefact concentrations at MA10 and MA14, as well as any additional artefact concentrations identified during (a) above
B147	<p>Following completion of salvage, the Applicant must prepare an Aboriginal Cultural Heritage Salvage Report in accordance with any guidelines and standards or OEH requirements. The report must include details of any archival recording, further archaeological research either undertaken or to be carried out, and archaeological excavations (with artefact analysis and identification of a final repository for finds) and be submitted to the Planning Secretary, OEH, relevant Council(s) and Registered Aboriginal Parties, where relevant, for information within 12 months after the completion of salvage works</p>
	<p>If any Aboriginal object or Aboriginal place is identified on site, or suspected to be on site (other than those identified in the EIS):</p>
B148	<ul style="list-style-type: none"> (a) all work in the immediate vicinity of the object or place must cease immediately; (b) a 10 m wide buffer area around the object or place must be cordoned off; and (c) OEH must be contacted immediately
	<p>Work in the immediate vicinity may only recommence if:</p>
D149	<ul style="list-style-type: none"> (a) the object or place is confirmed by OEH upon consultation with the Registered Aboriginal Parties, not to be an Aboriginal object or Aboriginal place; or (b) an Aboriginal Cultural Heritage Management Plan is prepared in consultation with the Registered Aboriginal Parties and OEH to include the object or place and appropriate measures in respect of it, and the Plan is approved by the Planning Secretary; or (c) OEH is satisfied as to the measures to be implemented in respect of the object or place and makes a written direction in that regard
	<p>All future Development Application shall assess heritage impacts of the proposal. The assessment shall:</p>
E20	<ul style="list-style-type: none"> a) consider impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project should be assessed. Where impacts are identified, the assessment shall demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures)

Table 7: Heritage recommendations made in the EIS Aboriginal Heritage Technical Paper for MPW Stage 2

Recommendation
The scar portions of MA6 and MA7 should be removed by a qualified arborist and relocated to the TLALC property at Thirlmere. The trees should be mounted and housed in a weather protected structure. All costs associated with the removal, relocation and housing of the trees should be covered by the Proponent. Consultation with TLALC regarding the logistics of this mitigation measure are ongoing
Staged salvage excavation should be conducted as part of the Proposal, in consultation with RAPs. Stage 1 would involve dispersed pits placed along transects within MPW Stage 2 Terrace PAD and the tertiary terrace (between MA10 and MA14). Stage 2 would involve open area salvage excavation, targeting the artefact concentrations identified by NOHC at MA10 and MA14, as well as any additional artefact concentrations identified during Stage 1
Where changes are made to the Proposal and areas not assessed by this report or previous reports (NOHC 2014, NOHC Sept 2014, AHMS 2015) are to be impacted, further Aboriginal heritage investigation and consultation should take place
An Aboriginal Cultural Heritage Assessment Report (ACHAR) should be prepared as a condition of the Proposal approvals. That document would outline ongoing management/ mitigation measures relating to MA6 and MA7, and any other mitigation measures not conducted during Early Works
An unexpected finds procedure should be included in the ACHAR and in place for the construction phase of the Proposal
If suspected human remains are located during any stage of the construction works, work should stop immediately and the NSW Police and the Coroner's Office should be notified. The Office of Environment and Heritage, RAPs and an archaeologist should be contacted if the remains are found to be Aboriginal

Archaeological Background

Detailed assessments of archaeological potential have previously been undertaken for the region and archaeological investigations, including test excavations, have been undertaken within the MPW site. A summary of these previous investigations is provided below.

NOHC 2014 MPW Concept Design Aboriginal Heritage Assessment

Three Aboriginal heritage field surveys of the MPW site undertaken by NOHC are summarised in Table 8 below.

Table 8: Summary of NOHC surveys

Date	Area	Results
December 2010	Commonwealth land to the east of the Georges River	<ul style="list-style-type: none"> • Identification of five artefact sites (MA1-MA5) • Identification of three scarred trees (MA6-MA8) • Identification of three PADs (MAPAD1, PAD1 and PAD2) • Identification of three archaeological sensitivity landforms (MRSA1-3)

Date	Area	Results
February 2013	LCC land	<ul style="list-style-type: none"> Identification of one PAD (MAPAD2)
May 2014	Commonwealth land to the west of the Georges River and the central and southern rail options	<ul style="list-style-type: none"> No surface evidence of Aboriginal occupation was observed within the central rail access option; however, areas of potentially intact deposits were identified along the banks of the Georges River that may contain archaeological evidence No surface evidence of Aboriginal occupation was observed within the southern rail access option; however, it was noted that the potential exists for relatively intact deposits at depth that may contain archaeological evidence. Survey of the southern rail access option was restricted to the eastern bank; the western bank being the Glenfield landfill, which displays low archaeological potential

NOHC completed a test excavation program in September 2012. A total of 59 test pits were excavated across the MAPAD1, MAPAD2, PAD2, MRSA1, MRSA2 and MRSA3 with 264 artefacts recovered from 26 pits. A mechanical test pit methodology was employed in all test locations where the predicted archaeological potential is no greater than low (MA1 & PAD1, MA5 and MRSA3). A-hand excavation methodology was employed for all test pits in areas of predicted moderate to high archaeological sensitivity (MAPAD1, PAD2, and MRSA1), to minimise the likelihood of damage to artefacts. There were no artefacts recovered from MRSA3 or PAD2. Following the test excavations, the areas of PADs and representative landforms were given the site names identified in Table 9.

Table 9: Updated site names following 2012 test excavations

PAD/MRSA	Site Name
MAPAD1	MA9
MAPAD2	MAPAD2, MA11, MA12 and MA13
MRSA1	MA10

Further excavations were conducted along the western side of the Georges River in 2013 within MAPAD2. A total of 45 test pits were excavated with 14 artefacts recovered from nine test pits. MRSA2 was not excavated due to safety concerns. The assessment recommended that MRSA2, the western extent of MA10 and areas along the Georges River required further subsurface testing.

The excavation programs concluded that where intact deposits occur, Aboriginal occupation appears to be focussed upon the tertiary terrace edge. The upper catchment of Anzac Creek does not appear to have been a focus of Aboriginal activities that left an archaeological record. Riverside margins of elevated flats in close proximity to higher order drainage, i.e. the Georges River, were favoured locations for repeated and/or longer term encampments. The confluence of resources at site MA9 appears to have been a target of Aboriginal activity. The excavation results from this site were found to indicate a relatively continuous, moderate to high density distribution of artefacts with a diverse range of artefact and material types present.

The excavations along the western side of the Georges River found that the extent of fluvial deposition of sands inhibited the testing of the lower pre-1836 floodplain deposits. It was considered that sandy deposits at or below 10 metres Australian Height Datum (AHD) within the Casula-

Moorebank section of the Georges River Riparian Corridor are likely to be the result of sedimentation processes caused by the construction of the Liverpool Weir (c. 1836).

NOHC Sept 2014 MPW Aboriginal Heritage Assessment Addendum, Archaeological Subsurface Testing – MRSA2

NOHC conducted subsurface testing of MRSA2 in September 2014. The excavations recovered 34 artefacts from three test excavation units. The excavations were found to support the model of archaeological sensitivity presented by NOHC in 2012. Following the excavations, the boundaries of MRSA2 were refined to reflect the concentration of artefacts and the site was designated MA14. The site was recommended for salvage prior to any impacts occurring.

Archaeological & Heritage Management Solutions 2015 MPE Stage 1 Proposal Aboriginal Heritage Impact Assessment

Archaeological & Heritage Management Solutions (AHMS) completed an Aboriginal Heritage Impact Assessment as part of concept approval of the MPE Stage 1 Proposal, located next to the MPW site and overlapping with the southern boundary of the MPW site. As part of the approval process for the MPE Stage 1 Proposal, the SEARS required further investigation of PADs delineated in the original survey report completed by AHMS in 2012. A test excavation program was conducted within the MPE site to further determine the nature and extent of the Aboriginal heritage resource of PAD2 and PAD3. PAD2 extends west of Moorebank Avenue and PAD3 extends to the east of Moorebank Avenue.

The northern extent of PAD2 had previously been tested by NOHC in 2014. The testing program conducted by AHMS was focussed around the southern extent and the area adjacent to Georges River.

A total of 13 test pits were excavated as part of the program by AHMS. These were divided as seven test pits within PAD2 and six test pits on either side of Anzac Creek within PAD3. The program avoided placing excavation units within the modern floodplain closest to Georges River. Test pits were placed 50 metres from Georges River along upper slope and elevated terraces and 30 to 40 metres from Anzac Creek.

The test excavations recovered 28 artefacts from PAD2. The majority of artefacts were from those test pits located closest to the Georges River. This area was designated as MA14 by AHMS (different MA14 to that identified in CoA B146 of SSD 7709). Optical Stimulated Luminescence (OSL) dates obtained for this site indicate that the underlying sand sheet began forming around 60 000 years ago. OSL samples taken in association with the upper assemblage returned dates between 3-4,000 years Before Present (yBP) and samples in associated with the lower assemblage returned a date of 18,000 yBP.

Consultation with RAPs for the MPE Project identified an area of cultural heritage value on the western side of Georges River. This area was considered to be a southern extension of MAPAD2 identified by NOHC (2014b).

An area of cultural heritage value was identified by AHMS (2015) on the western side of the Georges River. The margins of the Georges River were also identified as sensitive landforms and part of a tertiary terrace in the MPW Concept Plan EIS (NOHC 2014b). This landform was only partially investigated by NOHC (2014b). As such, further investigation of this area would be required. Further investigation would entail test excavation, in consultation with RAPs, and salvage excavation where artefact concentrations or intact Aboriginal archaeological deposits are identified.

Artefact Heritage 2016 Moorebank Precinct West (MPW) Stage 2 Proposal Aboriginal Heritage Impact Assessment

Artefact prepared an Aboriginal Heritage Impact Assessment to support the EIS for MPW Stage 2 approvals. That EIS technical paper included a review of previous assessments completed within the MPW site and identified discrepancies in the names assigned to sites by NOHC, AHMS and the AHIMS register. The discrepancy relevant to MPW Stage 3 is identified in Table 10 below. Where the site is not registered the naming convention established by NOHC for Aboriginal sites has been followed.

Table 10: Site names used in this report

AHIMS ID	AHIMS name	NOHC name	AHMS name	Name used in this report
–	–	PAD2	PAD2/MA14	PAD2

The Heritage Impact Assessment included a summary of which recorded sites were to be salvaged as part of MPW Stage 1, which sites were to be salvaged as part of MPW Stage 2, and which sites were not impacted or were managed as part of a separate project. A summary of these sites is provided in Table 11 below.

Table 11: Summary of impacts

Site name	AHIMS ID	Type of harm	Degree of harm/ Staging of impacts	Consequence of harm
To be salvaged as part of MPW Stage 1				
MA1	45-5-4283	Direct	Total	Total loss of value
MA2	45-5-4273	Direct	Total	Total loss of value
MA3	45-5-4274	Direct	Total	Total loss of value
MA4	45-5-4275	Direct	Total	Total loss of value
MA5	45-5-4276	Direct	Total	Total loss of value
MA9	45-5-4280	Partial	Partial (portion of extended site boundary within construction area)	Partial loss of value
To be salvaged as part of MPW Stage 2				
MA6	45-5-4279	Direct	Total	Total loss of value
MA7	45-5-4277	Direct	Total	Total loss of value
MA10	45-5-4282	Direct	Total	Total loss of value
MA14	Not registered	Direct	Total	Total loss of value

Site name	AHIMS ID	Type of harm	Degree of harm/ Staging of impacts	Consequence of harm
MPW Stage 2 Terrace PAD	Not registered	Direct	Total	Total loss of value
Tertiary PAD	Not registered	Direct	Total	Total loss of value
Not impacted or managed as part of a separate project				
MA8	45-5-4278	None	None Outside of construction area	No loss of value
MA11	45-5-4425	None	None Outside of construction area	No loss of value
MA12	45-5-4426	None	None Outside of construction area	No loss of value
MA13	45-5-4427	None	None Outside of construction area	No loss of value
MAPAD2	45-5-4281	None	None Outside of construction area	No loss of value
PAD2	Not registered	Direct	Total Moorebank Precinct East Stage 1	Total loss of value

Biosis 2018 Moorebank Intermodal Terminal: Archaeological Salvage Report

Biosis were engaged to prepare and implement a salvage strategy for surface collection at MA1, MA2, MA3, MA4, and MA5, and subsurface excavation at MA5 and MA9 under SSD 5066 for Stage 1 Early Works at MPW. The salvage excavations involved the placement of 1 m x 1 m pits across a grid. Pits were expanded when high densities of artefacts were identified. A total of 25 pits were excavated within MA5 to a maximum depth of 1.2 m. The excavations at MA5 retrieved 468 artefacts. A total of 25 pits were excavated within MA9 to a maximum depth of 1.2 m. The excavations at MA9 retrieved 331 artefacts.

The study by Biosis concluded that landform and distance from water had an impact on site distribution, with artefacts becoming more numerous closer to creeks, and along higher order creeks. It also found that although artefacts are found on all landforms, landform type influences artefact distribution, with the preference being for slightly elevated, well-drained areas in the lower parts of valleys.

Optically Stimulated Luminescence (OSL) dating of MA5 yielded a date range of $2,800 \pm 300$ yBP – $9,300 \pm 1,000$ yBP. Similarly, the OSL dating of MA9 yielded a date range of $2,900 \pm 300$ yBP – $16,400 \pm 1,500$ yBP.

The high frequency of tools recorded in the assemblage lead Biosis to interpret the sites as having been used as either tool processing areas or as camp sites where tools were discarded. Biosis interpreted the high number of backed artefacts and fragments identified within the assemblages of MA5 and MA9 as an indicator that backed artefacts were being produced within these areas.

It was found that artefacts were present at 400 – 600 mm at MA5, and at 200 – 400 mm at MA9. Biosis interpreted this as evidence of isolated periods of intensive occupation at each site.

Extent Heritage Advisors 2018 Moorebank Intermodal Terminal Development (Package 1) Aboriginal Archaeological Salvage Excavation Report

Extent Heritage Advisors (Extent) were engaged to complete salvage excavations within MAPAD2 (previously excavation by AHMS under the name MA14). A total of 683 artefacts were retrieved from 81 salvage pits (1 m x 1 m). The majority of the salvage pits (80) were excavated to a depth of 1 m with only a single pit excavated to 1.3 m. Samples for OSL dating were retrieved, the results are summaries in Table 12 below.

Table 12: Summary of Extent OSL dates

Depth (mm)	Date range (yBP)
0 – 450	3,000 – 8,000
450 – 800	22,000 – 14,000
800 – 1000	22,000 – 60,000

The assessment found that the artefact assemblage and OSL dates were reflective of the Eastern Regional Sequence. It was noted that further wide scale excavation would not yield additional data of substantial archaeological significance and that further investigations should focus on post excavation analysis and smaller higher resolution investigations.

Artefact Heritage 2020 Moorebank Precinct West (MPW) Stage 2 Project Aboriginal Archaeological Salvage Excavation Strategy

Artefact were engaged to prepare a salvage strategy in accordance with the recommendations of the EIS, the Aboriginal Heritage Impact Assessment, and the MCoA. In accordance with the conditions the salvage strategy outlined the investigation methodology which includes:

Stage 1

- Two open area excavations would be conducted within the highest yielding test pits from MA10 and MA14 (identified in CoA B144 of SSD 7709)
- A grid of salvage pits, comprised of three transects with salvage puts placed at 15 m intervals, would be placed across the Terrace PAD
- Three parallel transects would be placed 30 m apart across the clearing identified within the tertiary terrace.

Stage 2

- The aim of Stage 2 open area excavation would be to expand on selected Stage I pits to retrieve a larger archaeological sample from those areas.

Heritage Assessment

Proposed Works

The proposed MPW Stage 3 works would consist of the progressive subdivision of the MPW site and construction of a temporary works compound and associated ancillary infrastructure.

The proposed progressive subdivisions would be to Lot 100 DP 1197707, which comprises the majority of the MPW site. As the proposed subdivisions would be limited to redrawing the lot boundaries there would be no associated impactful site works. The progressive subdivisions would consist of the following:

- Lot 1 in DP 1197707 would be progressively subdivided into nine smaller lots, consisting of Lot 5 to Lot 13
- Most of the northern half of the MPW site south of Bapaume Road, including the warehousing footprint, would be progressively subdivided into Lot 5 and Lot 6
- Most of the southern half of the MPW construction area would be progressively subdivided into Lot 7, Lot 8, Lot 9, and Lot 10
- Along Moorebank Avenue, the IMT facility area would be numbered Lot 12 (Terminal)
- The south-eastern side of the MPW site along Moorebank Avenue would be numbered Lot 13 (SME Rail Corridor)
- The remaining western portion of Lot 100 DP 1197707, the MPW Stage 2 conservation area, located alongside Georges River would be numbered Lot 11 (Biodiversity Area)
- There would be no changes to the boundaries of Lot 100 DP1049508 north of Bapaume Road.

In addition to the proposed subdivisions MPW Stage 3 would also include the construction of a temporary works compound, including associated access roads, material storage areas, and parking. These developments would be situated at the southern end of the MPW site, within the proposed subdivided Lot 8 to Lot 11. The developments would include the following:

- A temporary laydown and materials stockpile area (measuring approximately 20, 000 m²) along the east side of Lot 8
- A temporary laydown and materials stockpile area (measuring approximately 25, 000 m²) along the east side of Lot 9
- A temporary material storage and parking area (measuring approximately 20, 000 m²) along the west side of Lot 10
- A temporary works compound in the middle of Lot 10
- A temporary loop road through Lot 8 and Lot 9 to provide access to the temporary laydown and materials stockpile areas
- A permanent ring road along the eastern side of Lot 11 (Biodiversity Area) and northern side of Lot 10 to provide access to the temporary works compound
 - Although the permanent loop road would be situated within the newly subdivided Lot 11 (Biodiversity Area), the corresponding area of Lot 100 DP 1197707 is situated within the MPW Stage 2 construction area. The extent of the MPW Stage 3 proposed

- works within the MPW Stage 2 conservation area would be limited to progressive subdivisions.
- Excavations for the installation of services and utilities underneath the permanent ring road.

The location and layout of the MPW Stage 3 works is illustrated in Figure 2.

Impacts to Aboriginal Sites

MPW Stage 3 includes the formalisation of Lots through progressive subdivision across the MPW project area. With the exception of the temporary works compound, temporary road, permanent road, and associated underground utilities, the subdivision will not include any ground-disturbing activities.

To date, a number of archaeological investigations have been undertaken within and in the vicinity of MPW Stage 3 and the majority of the recorded sites within MPW Stage 3 have been salvaged. An overview of the sites salvaged under MPW Stage 1 are illustrated in Figure 4.

Many of the recorded sites are situated within the northern portion of MPW Stage 3 (Figure 3). All recorded Aboriginal sites within the MPW Stage 1 and Stage 2 approvals area have either been subject to impacts during MPW Stage 1 Early Works or are approved for impact during MPW Stage 2 construction works. The recorded Aboriginal sites within Biodiversity Area Lot 11 are in an area that is not approved for ground disturbing works under either MPW Stage 1 or Stage 2 approvals. MPW Stage 3 includes the formalisation of the Biodiversity Area as a lot (Lot 11), with no associated ground-disturbing activities.

The main potential for impacts would be associated with the construction of the temporary works compound and associated infrastructure. These works would be located in the vicinity of four recorded sites AHIMS ID 45-5-4273, AHIMS ID 45-5-4278, AHIMS ID 45-5-4283, and AHIMS ID 45-5-5158, as well as the non-registered PAD2. However, of these only AHIMS ID 45-5-4273 and PAD2 are located immediately adjacent to the temporary works compound, namely the materials stockpile area in Lot 8 and works compound in Lot 10. However, both of these sites were identified in the MPW Stage 2 Aboriginal Heritage Technical Paper as having been totally impacted by either MPW Stage 1 or the adjacent Moorebank Precinct East (MPE) project (Table 11) (Artefact 2016) and have suffered a total loss of value as a result. Therefore, MPW Stage 3 works will not result in additional impacts to those approved under MPW Stage 1 (SSD 5066) or MPE project (SSD 6766).

Furthermore, the proposed works would generally be limited to surface works within areas that have previously been cleared as part of MPW Stage 1. This further limits the risk of impacts to Aboriginal archaeological remains. Overall, it is assessed that the MPW Stage 3 works are not likely to result in impacts that are inconsistent with the MPW Stage 1 (SSD 5066), MPW Stage 2 (SSD 7709) and MPE (SSD 6766) approvals.

Figure 4: Overview of sites salvaged under MPW Stage 1 and sites requiring consideration during future development stages (Source: Arcadis August 2016. Note that many of these sites have subsequently been salvaged)



LEGEND

Requiring consideration during future development stages

- Artefact, PAD
- ▲ Modified tree (carved or scarred)
- PAD

Salvaged as part of Early Works

- ◆ Artefact
- Artefact, PAD
- PAD
- Managed under MPE project
- Terrace PAD

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Conclusion and Recommendations

This Aboriginal heritage assessment has determined that the proposed progressive subdivisions would be non-impactful while the proposed temporary works compound and associated infrastructure would only be situated within the immediate vicinity of recorded sites which have previously been salvaged. Furthermore, the temporary works compound and associated infrastructure will be located outside the areas identified as archaeologically sensitive landforms and would be located within areas that have been disturbed as part of MPW Stage 1.

This Aboriginal heritage assessment does not fulfil requirement 8(a) of the SEARs, which specifies that an ACHAR must be prepared for the MPW Stage 3 EIS.

The following DPIE guidelines are integral to regulation of Aboriginal heritage assessments and consultation with RAPs in NSW:

- 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' (DECCW 2010, now DPIE)
- 'Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales' (DECCW 2010, now DPIE)
- 'Aboriginal cultural heritage consultation requirements for proponents 2010' (DECCW 2010, now DPIE)
- 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' (OEH 2011, now DPIE)
- National Parks and Wildlife Regulation 2019

The requirement for preparation of an ACHAR in accordance with the 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' is generally only triggered where assessment under the 'due diligence' and 'code of practice' guidelines identify potential for impacts to Aboriginal objects and/or areas or Aboriginal cultural significance from proposed works.

This assessment has identified that:

- The progressive subdivision across MPW proposed as part of MPW stage 3 will not involve ground-disturbing activities
- The proposed temporary works compound and associated infrastructure is located in an area identified in the MPW Stage 2 Aboriginal Heritage Technical Paper as approved for total impact under both the MPW Stage 1 and adjacent Moorebank Precinct East (MPE) project (Table 11) (Artefact 2016), with a total loss of value as a result. The proposed temporary works compound and associated infrastructure is also located within the approved construction footprint for MPW Stage 2. Therefore, MPW Stage 3 works will not result in additional impacts to those approved under MPW Stage 1 (SSD 5066), MPE project (SSD 6766), and MPW Stage 2 (SSD 7709)

Preparation of an ACHAR under the DPIE Aboriginal heritage assessment guidelines would not generally be triggered where there is no identified impact to Aboriginal objects, as is the case with MPW Stage 3.

Based on these findings the following recommendations are made for MPW Stage 3 (SSD 10431):

- Ground-disturbing activities must not take place within the Biodiversity Area
- Ground-disturbing activities must not take place outside the areas approved for impacts under MPW Stage 2 (SSD 7709)
- An Aboriginal Construction Heritage Management Plan (ACHMP) should be prepared for MPW Stage 3. The ACHMP must outline Aboriginal heritage approvals from MPW Stage 1 (SSD 5066) and MPW Stage 2 (SSD 7709) relevant to the portion of MPW Stage 3 proposed for the temporary works compound, temporary road, permanent road, and associated underground utilities. The ACHMP must also include an unexpected finds procedure
- All Aboriginal heritage approvals from MPW Stage 1 (SSD 5066) and MPW Stage 2 (SSD 7709) relevant to the MPW Stage 3 temporary works compound, temporary road, permanent road, and associated underground utilities must be complied with
- A copy of this report must be forwarded to the registered Aboriginal parties to inform them of the findings of this assessment