

Appendix I Aboriginal Scar Tree Assessment





Moorebank Intermodal Terminal

Aboriginal Heritage Assessment - Addendum

Scarred Tree Assessment (MA6 and MA7)

Navin Officer Heritage Consultants Pty Ltd

April 2015

Disclaimer:

Since the completion of the Scar Tree Assessment and the writing of this report, amendments to the proposed development have resulted in changed site layouts and the selection of the southern rail access as the rail connection option to the Southern Sydney Freight Line. These changes occurred after the drafting of this report and therefore a number of figures provided in this report are referencing the concept design presented during the EIS exhibition.

EXECUTIVE SUMMARY

Two trees with possible culturally-created scars (site numbers MA6 and MA7) located within the area of the proposed intermodal terminal in Moorebank, south-west Sydney (referred to here as 'the project'), were identified and reported in an Aboriginal Heritage Assessment Report of the project area (Navin Officer Heritage Consultants [NOHC] 2014a).

That report recommended a specialist study of these trees be undertaken, in light of feedback obtained from the Aboriginal community indicating that the trees are potentially of high cultural value, and in light of the fact that the archaeological survey could not conclusively establish whether the scars were, or were not, cultural in origin. Trees that have been scarred by Aboriginals are often held to be of high cultural value, as physical manifestations of past occupation of the land and due to their possible functions relating to Aboriginal spiritual beliefs, rituals and territorial systems. As the cultural value of scarred trees is often due to their connection with intangible aspects of cultural heritage, this aspect of the significance of scarred trees can only be fully assessed by Aboriginal people.

A proposal for analysis of the two trees by a specialist dendrologist was developed (NOHC 2014b), incorporating feedback from registered Aboriginal parties (RAPs). Following the methods developed in this document, core samples and additional data on tree and scar sizes were obtained from MA6 and MA7 in November, 2014, by NOHC. These data were analysed by dendrologist Dr Matthew Brookhouse.

This report details Dr Brookhouse's analysis of MA6 and MA7, and outlines options for the management of these two trees.

The analysis of the scarred trees can be summarised as follows:

- Core samples were taken from both trees, at locations adjacent to and distant from each tree's scar.
- Detailed data were taken on scar size and location, on the diameter of each tree, and the depth of each scar.



- Estimating the age of a scar involved calculating the difference in tree diameter between the scar surface and the current outer surface of the tree (in other words, the amount of growth that has occurred since the formation of the scar), and measuring the rate at which the post-scar growth has occurred, by measuring the width of tree rings evident in the core samples and calculating the amount of growth per year that the tree has experienced.

This enables an estimate of the period of time, in years, over which the post-scar growth has occurred. This period represents the number of years between the formation of the scar and the present day.

- Of eight core samples taken, five were unusable due to fractures that occurred during the coring process.

One usable core sample was obtained from MA6, and two usable core samples were obtained from MA7.

These limitations in the data did not, however, prevent an estimate of the age of both scars to be made.

- The core sample from MA6 showed a slow rate of growth consistent with the observations that the tree is mature and senescent (approaching the end of its lifespan).

The scar is estimated to be between 265 and 219 years old, placing the creation of the scar either in the pre-contact period, or shortly after European contact.

- The core sample from MA7 showed a faster rate of growth consistent with the observations that the tree is healthy and growing vigorously with no signs of dieback.

The scar is estimated to be 86 years old, placing the creation of the scar in 1928.

- The age estimates obtained must be considered as maximum ages for the two scars (265 years ago for MA6 and 86 years ago for MA7).

Options for managing MA6 and MA7 shall be explored in consultation with the RAPs. Management of the two trees is contingent upon the trees' cultural value, which can only be comprehensively assessed by the Aboriginal community.

Possible management options are:

- If a scar is considered not to be of Aboriginal origin, and consequently the tree is not held to have any cultural value, then removal of the tree could go ahead without any constraint or conservation actions.
- If a scar is considered to be of Aboriginal origin, and is considered to hold cultural value as a result, then several alternative management strategies could be considered:
- Conservation of the tree(s) *in situ*. This would involve designing the project to ensure that the tree(s) would not be impacted.
- Salvage and conservation of the tree(s), or the scarred portion of the tree's trunk, at a location outside the project area.

In the event that 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.



BACKGROUND

Project

The Moorebank Intermodal Terminal (IMT) Project ('the Project') involves the development of approximately 220 hectares (ha) of land at the Project site (refer to **Figure 1**) for the construction and operation of an IMT and associated infrastructure, facilities and warehousing.

The Project includes a rail link connecting the Project site to the Southern Sydney Freight Line (SSFL) and road entry and exit points from Moorebank Avenue.

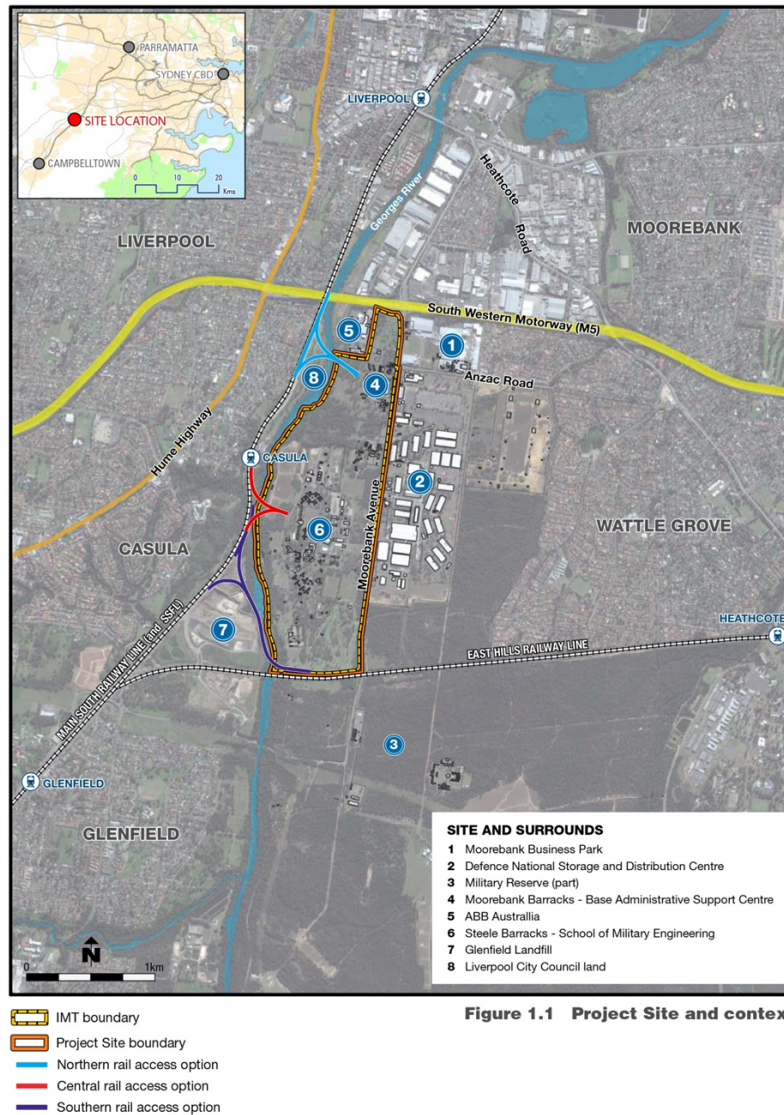


Figure 1.1 Project Site and context

Figure 1: Study area, Project site and context

NOHC was commissioned in 2010 by Parsons Brinckerhoff to undertake a cultural heritage assessment for the Moorebank Defence precinct on behalf of the Commonwealth Department of Finance (DoF) (formerly known as Department of Finance and Deregulation) as part of the Environmental Impact Statement (EIS) for the project.

The assessment has comprised a range of elements including a review of archival sources and existing information, direct physical inspection, archaeological survey and test excavations.



The following summarises the results of IMT Cultural Heritage assessments to date:

Study Component	Results
Field survey (2010)	<ul style="list-style-type: none"> • Five artefact occurrences (MA1-MA5). • Three scarred trees of possible Aboriginal origin (MA6-MA8). • Three potential archaeological deposits (PADs) have been identified (MAPAD1, PAD1 and PAD2). • Three archaeologically sensitive landform types have been defined.
Field survey (2013)	<ul style="list-style-type: none"> • One Potential Archaeological Deposit (PAD).
Field survey (2014)	<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. • 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.
Excavation (2012)	<ul style="list-style-type: none"> • Fifty-nine (59) test pits were excavated across the Moorebank IMT study area. • Detailed geomorphological analysis was undertaken at selected pits at MA5, MAPAD1 and PAD2. • 264 artefacts recovered from 26 pits.
Excavation (2013)	<ul style="list-style-type: none"> • Forty-five (45) test pits were excavated across MAPAD2 comprising 37 by-hand test pits and eight (8) mechanical pits. • Detailed geomorphological analysis was undertaken at Pits 28, 29, 30, 31, 36, 41 and 42. • Deposits excavated across MAPAD2 comprised three groups: <ul style="list-style-type: none"> – poorly sorted clayey gravels that have been introduced in some areas, most notably across the southern and northern extremities of the test area, as fill (Unit 3); – well sorted light grey or light brown clean sands with well-preserved bedding structures and minimal soil development (Unit 2); and – dark grey-brown silty sands with abundant charcoal (Unit 1). • 14 artefacts were recovered from 9 pits.
Excavation (2014)	<ul style="list-style-type: none"> • Seven (7) test pits were excavated by hand at MRSA2. • There was great variation in stratigraphy across the site primarily due to the amount and nature of disturbance. Fill material was present across the whole site. • A total of 34 artefacts were recovered.



The two sites relevant to this report, MA6 and MA7, are located in the north of the project area, to the east of the Georges River (Figure 6). Both sites were recorded during the field survey in 2014, and reported on in the document “*Moorebank Intermodal Terminal, Aboriginal Heritage Assessment*” (NOHC 2014a). The site descriptions for MA6 and MA7 are as follows:

MA6

Map Grid Reference: 307774.6241842 (GDA)

This tree is an old growth Eucalyptus in fair to good health, with a number of hollows and missing limbs (Figures 2 and 3). The tree measured an approximate height of 18 m - 20 m. The scar was recorded as 0.25 m above the ground with dimensions of 3.45 m x 2.0 m. The tree is situated on the south edge of a playing field.

Tree

Approximate height of tree: 18-20 m
girth of tree (at breast height 1.2 m) 4.25 m

Scar

inside scar length (excluding regrowth):	2.8 m
scar length (including regrowth):	3.45 m
maximum width of regrowth	0.55 m
maximum depth of regrowth (including growth into trunk hollow)	0.25 m
maximum scar width (excluding regrowth):	0.67 m
maximum scar width (including regrowth):	2.0 m
height of inside scar above ground:	0.25 m
height of original scar edge above ground	0m
scar faces	west
axe marks?	No

The scar has an irregular and asymmetrical shape, the branch that is situated directly above the top of the scar regrowth may be an epicormic response to trauma and the scar may have extended to the ground. A possible Aboriginal origin is supported by the shape and estimated age of the scar as well the proximity of the tree to the Georges River.

The scar is assessed as being of possible Aboriginal origin.



Figure 2 MA6, looking east



Figure 3 MA6 scar



MA7

Map Grid Reference: 307758.6242040 (GDA)

The tree was recorded as a smooth barked Eucalyptus (Red gum) (Figures 4, 5). The tree had an approximate height of 18 m – 20 m. The scar was recorded as being 0.8 m above the ground with dimensions of 2.5 m x 1.25 m. The tree is located on the north margin of a playing field, close to the tertiary terrace edge and river bank, approximately 80 m - 100 m from the river. The tree is in relatively good health with some dead lower branches, but no hollows.

Tree

Approximate height of tree: 18 - 20 m
girth of tree (at breast height 1.2 m) 3.85

Scar

inside scar length (excluding regrowth):	0.84 m
scar length (including regrowth):	≥2.5 m
maximum width of regrowth	0.65 m
maximum depth of regrowth (including growth into trunk hollow)	0.3m
maximum scar width (excluding regrowth):	0.2m
maximum scar width (including regrowth):	1.25 m
height of inside scar above ground:	1.65 m
height of original scar edge above ground	0.8 m
scar faces	south
axe marks?	No ¹

The scar regrowth is irregular and the age of the tree and the scar may be post European settlement. A possible Aboriginal origin is supported by the symmetrical shape of the scar, the amount of scar regrowth, the tree type, as well the proximity of the tree to the Georges River.

The scar is assessed as being of possible Aboriginal origin.

¹ The initial assessment of MA7 recorded that the presence of axe marks on or around the scar was possible (NOHC 2014a). Inspection of the tree during the fieldwork carried out for this study has established that there is no evidence of axe marks on MA7.



Figure 4 MA7 looking east



Figure 5 MA7 looking north

This initial Aboriginal Heritage Assessment made the following recommendation for conducting a specialist study of the two sites (NOHC 2014a, page 120):

14.1.5 Specialist analysis of the scarred trees

Three scarred trees of possible Aboriginal origin have been identified within the study area. One of these, MA8, is outside the proposed construction footprint and will not be impacted, whereas MA7 is immediately adjacent the proposed construction footprint and will be directly impacted by the southern rail option. MA6 will be impacted by the central and southern rail options. The archaeological evidence, gathered through field survey, regarding the origin of the scars at these recordings is inconclusive. Opinions from the RAPs who have inspected the trees are also mixed. However the Cubbitch Barta Native Tital Claimants Aboriginal Corporation (CBNTCAC), Darug Custodian Aboriginal Corporation (DCAC) and Darug Aboriginal Landcare Incorporated (DALI) groups have all emphasised the cultural significance of these trees. The cultural significance assigned to the two sites is based on the fact that they are material traces of Aboriginal occupation of the land, and due to their role in the relationship between past Aboriginal groups and the landscape in which they lived. The importance of the Aboriginal community being given the right to decide appropriate levels of investigation and mitigation has been highlighted by DCAC.

While the archaeological assessment, based on non-intrusive survey, is inconclusive, consultation with the Aboriginal community suggests that these trees are of high cultural significance to the CBNTCAC, DCAC and DALI groups.



In order to provide further direction on the required scope of impact mitigation it is recommended that extensive consultation be undertaken with the Aboriginal community regarding the management of these trees. Options that might be presented to the Aboriginal community include: explore the opportunities that exist within the detailed design phase for conservation of MA6 and MA7; if conservation is not practicable, consult with the RAPs regarding alternative mitigation options (relocation and preservation of a portion of the tree, development of interpretive strategies); and 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.

It should be noted that specialist investigation requires direct impact to the scar and its regrowth therefore this strategy is best implemented at detailed design stage when the exact nature of development impact can be defined and investigations involving direct impacts to the tree may be justified.

A proposed method of conducting the specialist study of MA6 and MA7 was outlined in the document "*Research Design and Proposed Methodology, Scarred Tree Assessment, Moorebank Intermodal Terminal*" (NOHC 2014b). Following review by all RAPs, the method outlined in the final version of this document was implemented in the current study.

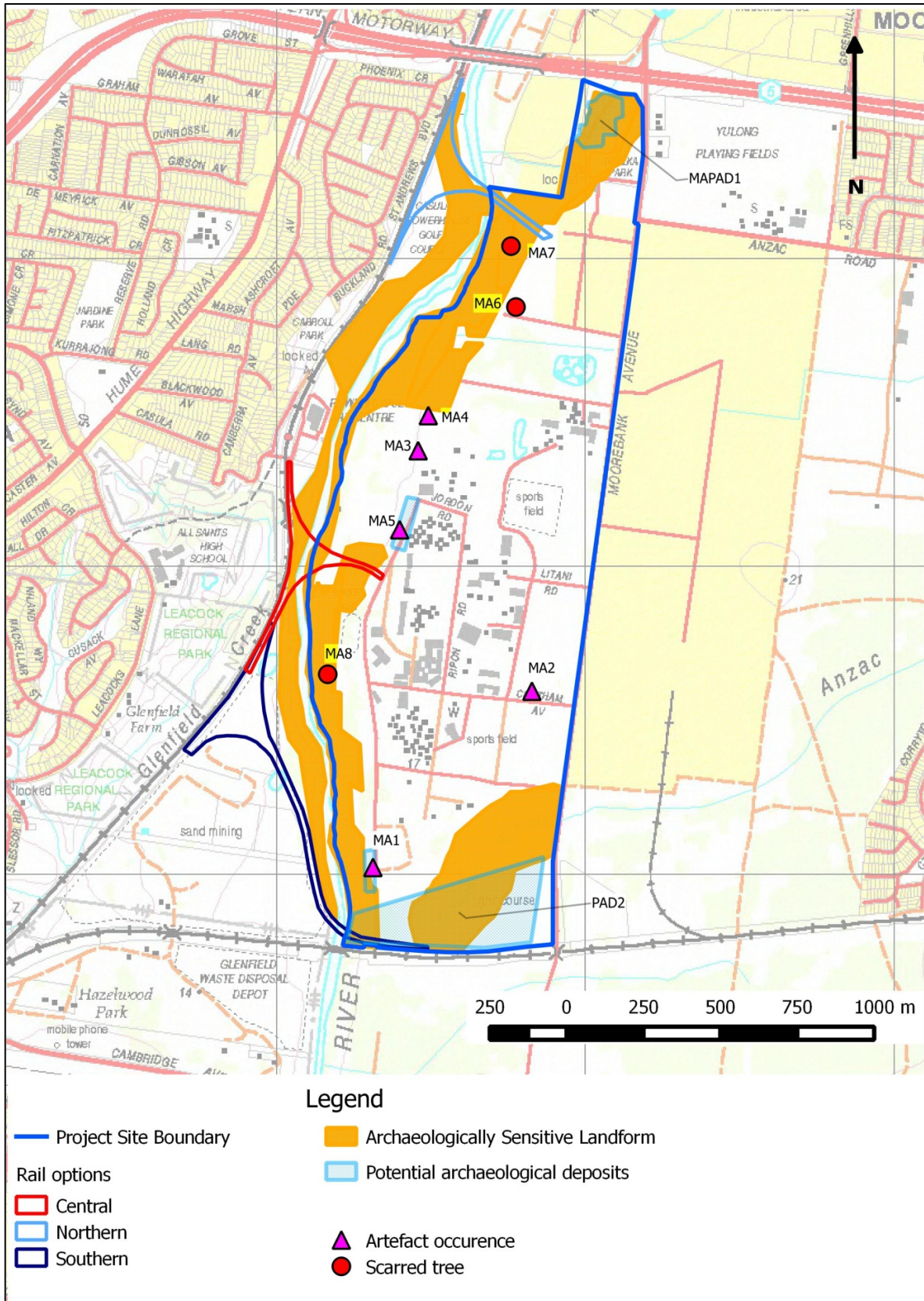


Figure 6 Location of MA6 and MA7 in relation to other Aboriginal recordings and archaeologically sensitive landforms recorded in 2010 and 2012, and the project site boundary.



ABORIGINAL CONSULTATION

The Aboriginal Heritage Assessment Report (NOHC 2014a) was sent to all RAPs to review and submit comments on. The feedback to this request is detailed in the final version of the document (NOHC 2014a).

The feedback relevant to MA6 and MA7 is summarised as follows (NOHC 2014b, page 2):

Opinions from the RAPs who have inspected the trees are also mixed. However, the Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC), Darug Custodian Aboriginal Corporation (DCAC) and Darug Aboriginal Landcare Incorporated (DALI) groups have all emphasised the cultural significance of these trees. The importance of the Aboriginal community being given the right to decide appropriate levels of investigation and mitigation has also been highlighted by DCAC.

While the archaeological assessment, based on non-intrusive survey, is inconclusive, consultation with the Aboriginal community suggests that these trees are of high cultural significance to the CBNTCAC, DCAC and DALI groups.

Representatives from all RAPs for the project were sent a copy of the proposed methodology for this study (NOHC 2014b) and invited to submit comments. The feedback obtained, and responses to the feedback, are documented in the final version of the document (NOHC 2014b).

Timeline for future Aboriginal consultation

A copy of this report will be sent to all RAPs following review of the draft report by the client. A 28 day period will be allowed during which the RAPs can submit comments and feedback on the report. A cover letter will be included with the report stating that comments on the significance of the two sites, and on recommendations for future management of the two sites, would be of particular value.

Following receipt of submissions to the report, it might be necessary for the client and RAP groups to engage in further conversation relating to the management of the sites. This might be the case if there is disagreement from the RAPs with the proposed strategy of removing the trees from their current location and preserving them off-site. It might also be the case that different RAP groups will have differing opinions on matters such as site significance assessment and management strategies. If this is the case, further conversation will need to be entered into. The length of time over which these conversations will extend cannot be predicted at this time.

PERSONNEL

Core samples and additional data on tree and scar morphology was obtained by Nicola Hayes and Dr Oliver Macgregor, of NOHC. Nicola has a Bachelor of Arts majoring in Archaeology, a Bachelor of Science majoring in Geology and a Graduate Diploma in Cultural Heritage Management from the Australian National University (ANU). Oliver has a Bachelor of Science, a Bachelor of Arts with Honours in Archaeology and a PhD in Archaeology from the ANU.

Specialist analysis of the data was carried out by Dr Matthew Brookhouse, of the Australian National University (ANU).

Dr Matthew Brookhouse (Post-Doctoral Research Fellow (RSB)/Lecturer (Fenner School of Environment and Society) holds an Associate Diploma in Applied Science (Horticulture) awarded by the Canberra Institute of Technology, Bachelor of Science (Forestry) with Honours in Dendrochronology and Ph.D. in Dendroclimatology awarded by the Australian National University. During 1997 Dr Brookhouse was employed as a Forest Dendrochronologist by the Department of



Sustainability and Environment (DSE), Victoria. In this role he designed and implemented a range of forest inventory and research programs throughout Victoria. These activities included the collection and analysis of tree-ring materials from native eucalypt forests throughout the state as well as assessment and interpretation of forest structural attributes including external features and injuries associated with internal decay and canopy characteristics associated with tree- and forest-level processes of ageing and disturbance. During and since his doctoral studies, Dr Brookhouse has pioneered dendrochronological research of eucalypt species in southeast Australia. To date his significant contributions to dendrochronology in Australia, relevant to the current report, include proposing and verifying the annularity of reverse-latewood tree rings in eucalypts as a source of forest growth and climatological data as well as developing the first climate-sensitive tree-ring chronologies for eucalypts, identifying elevation-dependent climate sensitivity in eucalypts and their potential climatological/hydrological reconstruction. In line with the significance of his contributions to the field, he is active member of two international societies for tree ring research, has provided peer review of dendrochronological research articles for an array of journals including the international journal of tree-ring research, *Dendrochronologia* and is frequently called upon to provide professional dendrochronological consultancy services.

This report was prepared by Dr Oliver Macgregor, and the attached specialist report (**Appendix 1**) was prepared by Dr Matthew Brookhouse. The specialist report details the analysis of core samples taken from the two trees, and provides an estimate of the age of the scar on each tree based on these data.

METHOD

The method employed in gathering data in the field from MA6 and MA7 is detailed in NOHC 2014b.

The method employed in analysing the data obtained from MA6 and MA7 is detailed in the document "*Analysis of Eucalyptus specimens (MA06 and MA07) located within Moorebank Defence Precinct, NSW, based upon dendrological and dendrochronological data*" (Brookhouse 2015, see **Appendix 1** of this report).

RESULTS

The results of the specialist analysis of data obtained from MA6 and MA7 is detailed in Brookhouse (2015). See **Appendix 1**.

The results can be summarised as follows:

- Estimating the age of a scar involves calculating the difference in tree diameter between the scar surface and the current outer surface of the tree (in other words, the amount of growth that has occurred since the formation of the scar), and measuring the rate at which the post-scar growth has occurred, by measuring the width of tree rings evident in the core samples and calculating the amount of growth per year that the tree has experienced. This enables an estimate of the period of time, in years, over which the post-scar growth has occurred. This period represents the number of years between the formation of the scar and the present day.
- Of eight core samples taken, five were unusable due to fractures that occurred during the coring process. One usable core sample was obtained from MA6, and two usable core samples were obtained from MA7. These limitations in the data did not, however, prevent an estimate of the age of both scars to be made.



- The core sample from MA6 showed a slow rate of growth consistent with the observations that the tree is mature and senescent (approaching the end of its lifespan). The scar is estimated to be between 265 and 219 years old, placing the creation of the scar either in the pre-contact period or shortly after European contact.
- The core sample from MA7 showed a faster rate of growth consistent with the observations that the tree is healthy and growing vigorously with no signs of dieback. The scar is estimated to be 86 years old, placing the creation of the scar in 1928.
- The age estimates obtained must be considered as maximum ages for the two scars (265 years ago for MA6 and 86 years ago for MA7).

DISCUSSION OF SCAR AGE ESTIMATES, AND IMPLICATIONS FOR THE ARCHAEOLOGICAL ASSESSMENT

The purpose of conducting this study was to estimate an age of the two scars, on the basis that the age of a scar is of relevance to assessing whether the scar is cultural in origin, and was produced by Aboriginal people, or whether it was produced through some other (natural or European) process.

The assessment of the scars, based on their size, shape and appearance alone, could not conclusively establish whether the scars were of Aboriginal origin or not. For both trees, the scars were assessed as being of possible Aboriginal origin (NOHC 2014a, page 49-50), but the assessment stated that it was also possible that the scars could have been caused by natural processes or by European activities (NOHC 2014b, page 1).

Establishing the age of a scar is pertinent to assessing the probability that it was created by Aboriginal people – scars that pre-date the arrival of Europeans in the area have a greater likelihood of being of Aboriginal origin (Long 2005:22), although a post-contact age does not necessarily prove that a scar was not of Aboriginal origin. Aboriginal groups have been documented as continuing practises of removing bark from trees during the post-contact period (Long 2005:18).

Assessing whether a scar dating from the post-contact period is likely to be of Aboriginal origin is dependent upon the particular history of the local region, which can provide evidence on the likelihood of Aboriginal groups in the area continuing the traditional practise of harvesting bark from trees during the time period in question.

The scar on MA6 has been estimated to be between 265 and 219 years old. This age estimate places the scar between 1749 AD and 1795 AD. The scar was most likely created during the pre-contact period, with a small chance that it was created just after the first European settlement of NSW in 1788 AD. Even if the scar was created between 1788 and 1795 (i.e. the first seven years after European contact), it is almost certain that Aboriginal people along the Georges River were continuing to harvest bark from trees, and that scarred trees were being created in the area during that time period. Therefore, the age estimate of the scar on MA6 is consistent with the scar being of Aboriginal origin.

The scar on MA7 has been estimated as being much younger, created only 86 years ago. This age estimate places the creation of the scar in 1928 AD. This date places the creation of the scar considerably after the Moorebank area had come under continuous control of the Australian military.



The first documented military exercises at Moorebank were in 1894 (*Sydney Morning Herald* 1894), with periodic training exercises and temporary military camps established within or close to the study area. In 1913 the Australian Commonwealth government acquired a tract of previously privately owned land at Moorebank, which includes the study area, for permanent military use (Commonwealth Gazette 1913). A permanent camp was established during World War 1 (1914-1918) which extended over the northern portion of the study area where MA6 and MA7 are located (NOHC 2014c, page 36-37).

In the years after World War 1, military use of the study area was less intensive, with periodic training camps and manoeuvres being held. No large, permanent camp of the type established during World War 1 existed during the 1920s, on the basis of available historic sources. Use of the study area as part of a firing range for artillery indicates that no permanent military camp or permanent structures were established in the study area (NOHC 2014:42). Permanent structures, such as stores, were established to the north of the study area, but the study area itself remained largely as open bushland (NOHC 2014c, page 39).

An aerial photograph of the study area taken in the 1930's shows that the area in which MA6 and MA7 are situated remain undeveloped apart from some clearing of trees and the establishment of roads and tracks (Figure 7). The aerial photograph is consistent with the age estimates of the scars on MA6 and MA7, which indicate that both trees (and their scars) pre-date the 1930s. In the late 1920s and early 1930s, the Moorebank area was utilised for various non-military purposes: a trade school for the unemployed was established in 1931, and it is documented that parties of unemployed were put to work clearing trees within the military land in 1933 (NOHC 2014c, page 41). These pieces of historical documentation indicate that non-military personnel were periodically using the study area, and that access of the area by civilians was not prevented at all times during the period when MA6's scar is estimated to have been created.

It cannot be conclusively established, from the available historical records of the military's use of the Moorebank area, whether any Aboriginal people living in the area would have been prevented from accessing the study area during the post-World War 1 period, and creating the scar on MA6. Although the Commonwealth had acquired the land for military use prior to World War 1, use of the study area appears to have been opened up to some civilian activities during periods in the early 1930s – and there is the possibility that similar civilian activities occurred on the study area which have not been historically documented. It is possible that Aboriginal people might have been allowed to visit or travel through the study area on an informal basis, and that this arrangement might not have been recorded in writing. It is also possible that Aboriginal people accessed the study area covertly, without the knowledge of the military. The non-intensive use of the study area in the period between the wars, and in particular the absence of any large permanent military camp within the study area, makes it unlikely that security around the study area would have been sufficient to entirely prevent any access to the area by Aboriginal people living nearby.

Another relevant question which cannot be conclusively answered on the basis of available historical data is whether Aboriginal people living in the Liverpool area in the early 1900's were still carrying out traditional practises such as harvesting bark and creating scarred trees. It is important to note that Aboriginal groups living in the post-contact period have frequently been documented carrying out traditional activities such as creating stone or wooden artefacts, or carrying out ritual and ceremonial activities.

Of particular relevance is the fact that the creation of scarred trees is known to have been continued in some parts of NSW throughout the 20th century, and indeed is still practised by some groups in the present day (Long 2005). In essence, Aboriginal groups in the post-contact period, even those who were not living an entirely traditional lifestyle day-to-day, have continued to periodically carry out traditional activities. This has sometimes been done for utilitarian purposes, and has sometimes been done for the purpose of preserving cultural traditions that are seen held to be important and worth preserving.



There is a possibility that Aboriginal people living in the Liverpool area could have continued the practise of harvesting bark and creating scarred trees during the period when the scar on MA6 was created. It is possible that the oral history of the present day Aboriginal community can shed some light on this question, and the feedback provided by RAPs groups to this report will be a very important line of evidence.

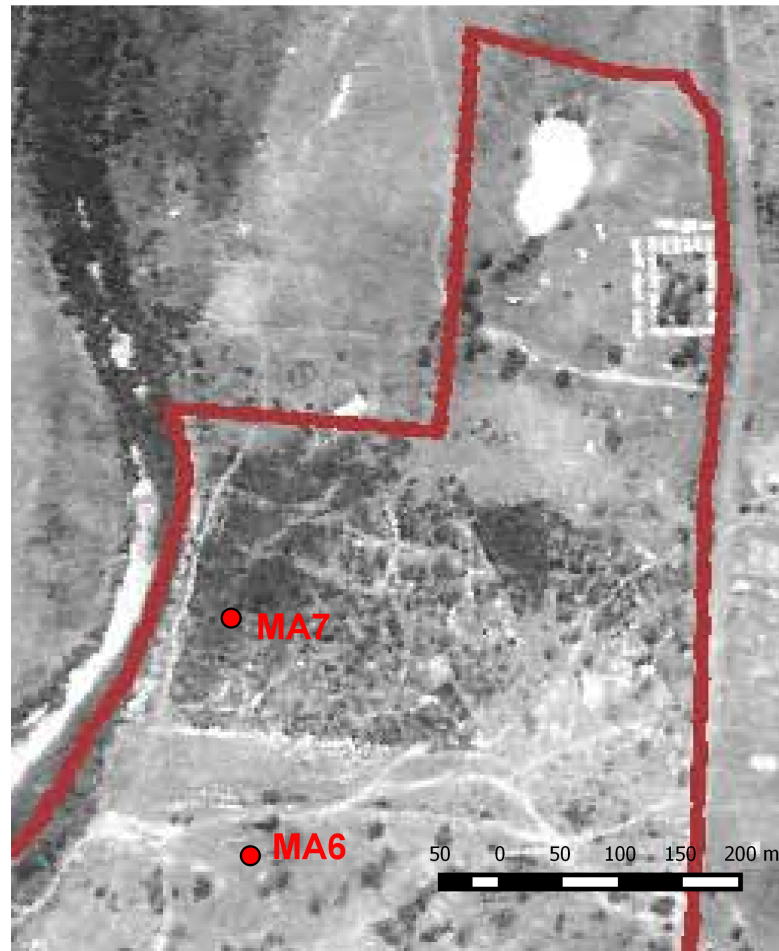


Figure 7. Location of MA6 and MA7 overlain on an aerial photograph from the 1930's (photograph supplied by client).

SIGNIFICANCE ASSESSMENT

The Burra Charter Assessment Criteria

The Burra Charter of Australia defines cultural significance as 'aesthetic, historical, scientific or social value for past, present and future generations' (Aust. ICOMOS 1987). The assessment of the cultural significance of a place is based on this definition but often varies in the precise criteria used according to the analytical discipline and the nature of the site, object or place.

In general, Aboriginal archaeological sites are assessed using five potential categories of significance:

- significance to contemporary aboriginal people;
- scientific or archaeological significance;
- aesthetic value;



- representativeness; and
- value as an educational and/or recreational resource.

Many sites will be significant according to several categories and the exact criteria used will vary according to the nature and purpose of the evaluation. Cultural significance is a relative value based on variable references within social and scientific practice. The cultural significance of a place is therefore not a fixed assessment and may vary with changes in knowledge and social perceptions.

Cultural significance can be defined as the cultural values of a place held by and manifest within the local and wider contemporary Aboriginal community. Places of significance may be landscape features as well as archaeologically definable traces of past human activity. The significance of a place can be the result of several factors including: continuity of tradition, occupation or action; historical association; custodianship or concern for the protection and maintenance of places; and the value of sites as tangible and meaningful links with the lifestyle and values of community ancestors. Aboriginal cultural significance may or may not parallel the archaeological significance of a site.

Scientific significance can be defined as the present and future research potential of the artefactual material occurring within a place or site. This is also known as archaeological significance.

There are two major criteria used in assessing scientific significance:

1. The potential of a place to provide information which is of value in scientific analysis and the resolution of potential research questions. Sites may fall into this category because they: contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a constituent of a larger significant structure such as a site complex.
2. The representativeness of a place. Representativeness is a measure of the degree to which a place is characteristic of other places of its type, content, context or location. Under this criteria a place may be significant because it is very rare or because it provides a characteristic example or reference.

The value of an Aboriginal place as an educational resource is dependent on: the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

The principal aim of cultural resource management is the conservation of a representative sample of site types and variation from differing social and environmental contexts. Sites with inherently unique features, or which are poorly represented elsewhere in similar environment types, are considered to have relatively high cultural significance.

The cultural significance of a place can be usefully classified according to a comparative scale which combines a relative value with a geographic context. In this way a site can be of low, moderate or high significance within a local, regional or national context. This system provides a means of comparison, between and across places. However it does not necessarily imply that a place with a limited sphere of significance is of lesser value than one of greater reference.

The following assessments are made with full reference to the scientific, aesthetic, representative and educational criteria outlined above. Reference to Aboriginal cultural values has also been made where these values have been communicated to the consultants. It should be noted that Aboriginal cultural significance can only be determined by the Aboriginal community, and that confirmation of this significance component is dependent on written submissions by the appropriate representative organisations.



Commonwealth assessment criteria

The Commonwealth Heritage List is a register of natural and cultural heritage places owned or controlled by the Australian Government. These may include places associated with a range of activities such as communications, customs, defence or the exercise of government. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* establishes this list and nominations are assessed by the Australian Heritage Council.

In accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* a place has a Commonwealth Heritage value if it meets one of the Commonwealth Heritage criteria (section 341D).

A place meets the Commonwealth Heritage listing criterion if the place has significant heritage value because of one or more of the following:

The Commonwealth Heritage Criteria (SEWPaC 2011) for a place are any or all of the following:

- a) The place has significant heritage value because of the place's importance in the course, or pattern, of Australia's natural or cultural history.
- b) The place has significant heritage value because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.
- c) The place has significant heritage value because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.
- d) The place has a significant heritage value because of the place's importance in demonstrating the principal characteristics of:
 - i) A class of Australia's natural or cultural places, or
 - ii) A class of Australia's natural or cultural environments.
- e) The place has a significant heritage value because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- f) The place has significant heritage value because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.
- g) The place has significant heritage value because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- h) The place has significant heritage value because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.
- i) The place has significant heritage value because of the place's importance as part of Indigenous tradition.

Note: The cultural aspect of a criterion means the Indigenous cultural aspect, the non-Indigenous cultural aspect, or both.



Thresholds

While a place can be assessed against the above criteria for its heritage value, this may not always be sufficient to determine whether it is worthy of inclusion on the Commonwealth Heritage List. The Australian Heritage Council may also need to use a second test, by applying a 'significance threshold', to help it decide. This test helps the Council to judge the level of significance of a place's heritage value by asking 'just how important are these values?'

To be entered on the Commonwealth Heritage List a place will usually be of local or state-level significance, but must have 'significant' heritage value.

Commonwealth heritage management principles

In addition to the above criteria and thresholds, Schedule 7B of the Environment Protection and Biodiversity Conservation Regulations 2000 (Regulation 10.03D) lists the Commonwealth Heritage Management Principles. These principles are:

1. The objective in managing Commonwealth Heritage places is to identify, protect, conserve, present and transmit, to all generations, their Commonwealth Heritage values.
2. The management of Commonwealth Heritage places should use the best available knowledge, skills and standards for those places, and include ongoing technical and community input to decisions and actions that may have a significant impact on their Commonwealth Heritage values.
3. The management of Commonwealth Heritage places should respect all heritage values of the place and seek to integrate, where appropriate, any Commonwealth, State, Territory and local government responsibilities for those places.
4. The management of Commonwealth Heritage places should ensure that their use and presentation is consistent with the conservation of their Commonwealth Heritage values.
5. The management of Commonwealth Heritage places should make timely and appropriate provision for community involvement, especially by people who:
 - a) Have a particular interest in, or associations with, the place; and
 - b) May be affected by the management of the place.
6. Indigenous people are the primary source of information on the value of their heritage and that the active participation of indigenous people in identification, assessment and management is integral to the effective protection of indigenous heritage values.
7. The management of Commonwealth Heritage places should provide for regular monitoring, review and reporting on the conservation of Commonwealth Heritage values.

When assessing the Commonwealth heritage significance of places within the study area in addition to applying the primary and secondary tests of the Commonwealth Heritage Listing criteria and the significance thresholds, reference also needs to be made to the above Commonwealth Heritage Management Principles. The latter is particularly relevant to the study area where there are:

- Other heritage values of the place that are the responsibility of the ACT Government (Principle 3); and
- A number of indigenous places for which the primary source of information on the value of their heritage has been provided through the active participation of local Aboriginal communities (Principle 6).



Heritage significance can apply to a building or a place at either local, State or Commonwealth level. The principal mechanisms recognising heritage places located on Commonwealth owned or managed land, the National Heritage List and the CHL. Each list has its own criteria for assessment of significance. As the whole of the Project area is owned by the Department of Defence the assessment of cultural heritage significance will be undertaken using the CHL criteria. If the assessment indicates that the place or elements within it meet the criteria for entry on the CHL, preparation of a nomination to the CHL may be recommended for the relevant places.

Significance Assessment of MA6 and MA7

In the Aboriginal Heritage Assessment report for the Moorebank Intermodal Terminal (NOHC 2014a) both MA6 and MA7 were assessed as having high cultural significance according to the criterion of the Burra Charter that states a place is of cultural significance if it has significance to contemporary Aboriginal people.

In the same report, MA6 and MA7 were both assessed as meeting the threshold for listing on the Commonwealth Heritage List, under criterion g of the Commonwealth Assessment Criteria. Criterion g states that a site meets the threshold if “the place has significant heritage value because of the place’s strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.” MA6 and MA7 were both assessed as having high significance against this criterion, as they display a connection for the Aboriginal community to past cultural events.

Both of these significance assessments were made on the basis of feedback obtained from the RAPs who consulted on the project. The significance assessment for both sites was made on the grounds of the sites’ cultural value. The cultural value of a site can only be comprehensively assessed by Aboriginal groups.

It should be noted that the significance assessments made in the initial Aboriginal Heritage Assessment report (NOHC 2014a) were provisional, and are potentially subject to revision based on the data presented in this report, and in the accompanying specialist report by Matthew Brookhouse (**Appendix 1**). The data now available on the estimated age of the scars on the two trees might cause the assessed significance of these two objects to be changed.

As the potential significance of the two sites is contingent upon the cultural value which the sites have to Aboriginal people, the significance assessment made on the basis of data presented in this report can only be made in light of the feedback provided on this report by the RAPs.

The rarity of scarred trees as an archaeological site type also has bearing on their significance. Scarred trees are a rare occurrence in the Australian archaeological record due to their ephemeral nature and the attrition they suffer as a result of the death and decay of the trees themselves (Long 2005: 1). In the Sydney region, the impact of European activities and particularly the widespread clearing of original bushland to make way for urban development has resulted in a relatively small portion of the Sydney basin’s forested areas being preserved (Long 2005: 54). In areas of remnant forest, processes such as selective logging and periodic bushfires contribute to the attrition of old-growth trees throughout the post-contact period. The early date of contact in the Sydney region also functions to reduce the number of scarred trees relative to other parts of Australia, due to the reduced probability of pre-contact scarred trees surviving to the present day. In areas where contact with Europeans occurred at a later date, the survival of pre-contact scarred trees is more likely as a consequence of the shorter post-contact period.

The fact that scarred trees are a rare site type in the Sydney region is relevant to MA6 and MA7’s cultural heritage value under criterion b of the Commonwealth Assessment Criteria. Criterion b states that a site meets the threshold if “The place has significant heritage value because of the place’s possession of uncommon, rare or endangered aspects of Australia’s natural or cultural history”.



The rarity of MA6 and MA7 as archaeological sites is contingent upon the confidence with which they can be assessed as culturally modified trees. As detailed in this report, neither scar could confidently be attributed to creation by Aboriginal people on the basis of the size and shape of the scar alone. The current study was conducted for this reason, with the objective of obtaining an age estimate for the two scars. The fact that MA6's scar has been dated to the pre-contact or early post-contact period, and its age is consistent with having a cultural origin, increases the probability that MA6 is a culturally modified tree. Scarred trees for which an age estimate has been carried out, and for which the age of the scar can confidently be attributed to the pre-contact or early post-contact period, are very rare in Sydney (Irish 2004). Although it is still not definite that the scar on MA6 was culturally created.

The younger age estimate obtained for the scar on MA7, as discussed in this report, raises considerable uncertainty on whether this scar is of Aboriginal origin. As discussed, the possibility of Aboriginal origin of the scar cannot be ruled out, but the likelihood of Aboriginal origin is low due to its creation in the early 1900's.

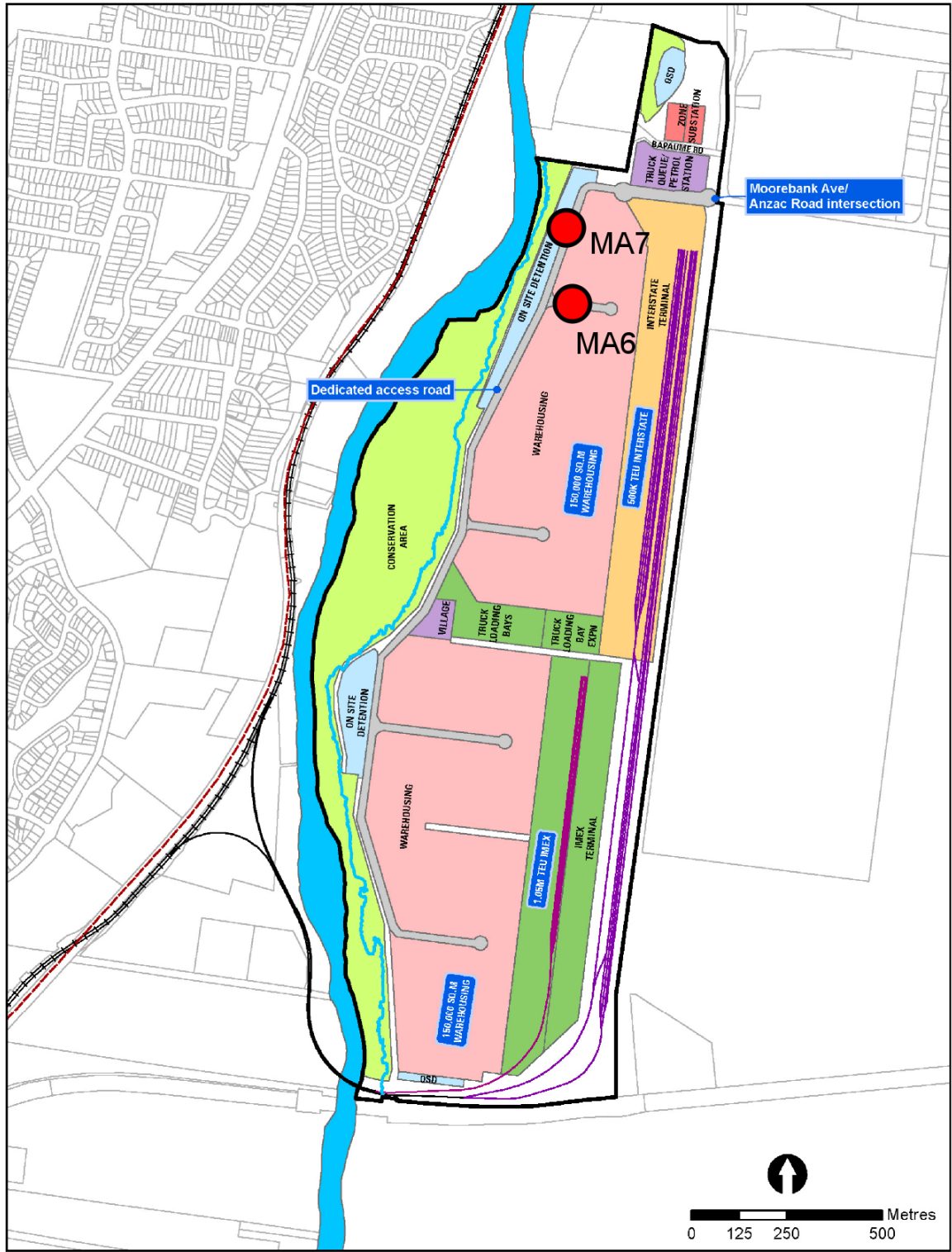
The significance of both sites under criterion b (rarity) is contingent upon their assessed cultural value. If either of the sites is assessed as having significant cultural value (an assessment which can only be made following feedback from the RAPs, then this would cause them to be considered rare sites under criterion b also. Scarred trees which are held by Aboriginal groups to be culturally modified, and consequently to have cultural value, are a rare site type and would be considered to meet the threshold of significance under criterion b as a result. A final assessment of the sites' significance under criterion b can only be made following feedback from the RAP groups for this reason.



Assessment of Impacts

The design of the Intermodal Terminal is mapped in Figure 8, which shows the location of MA6 and MA7 in relation to the footprint of the proposed construction works.

Under the current design, both sites are located within the footprint of construction. Under the proposed design, direct impacts to both sites are anticipated and there would be no capacity for conservation of the two trees in their current locations.



- 1% AEP flood level
- Existing south rail line
- Proposed IMEX Rail line
- Proposed interstate terminal rail line
- Southern rail connection
- Southern Sydney Freight Line
- IMEX Terminal
- Interstate Terminal
- Warehousing
- Services Freight Village / Petrol station
- Zone Substation
- Dedicated Access Road
- Georges River
- On Site Detention
- Conservation Area

Revised IMT layout at Full Build (2030)

Figure 8: Location of recorded Aboriginal sites relative to the Moorebank IMT proposed construction footprint.

W:\psv\03\proj\GIS_Australia\210329A_Moorebank_Intermodal_Terminal\10_GIS\Projects\ESR\1210329A_GIS_F410_A3.mxd / J. Mitchell/En / 24/03/2015



MANAGEMENT OPTIONS

The management of both MA6 and MA7 should be in line with their assessed cultural significance (see above section “significance assessment”). At the time of writing this draft, feedback on this report from the RAPs has yet to be obtained. This feedback will be crucial to informing the cultural value of each of the trees, and consequently in determining each tree’s cultural significance.

It should be noted that the two trees might not have the same level of cultural significance, and in particular the differing ages of the scars on the two trees could well trigger a different level of cultural value being assigned to each of the two sites.

Contingent upon their cultural significance, a number of management options should be explored, for each of the two sites, and in consultation with the Aboriginal community as represented by the RAPs consulting on this project. The options for management of each site could include:

- Destruction of the site in the course of construction activities. This option should only be considered if the site was assessed as not being a culturally scarred tree, and having no cultural value as a result.
- Conserving the site in-situ by avoiding any impact to the tree and leaving it intact and unharmed in its present location. This option would involve adopting a design for the project which ensures the tree and its root-zone are not impacted by any construction activities, or any activities that will occur during the operation of the Intermodal Terminal. A strategy would need to be developed to prevent inadvertent impacts during both the construction phase and the operation phase of the terminal.
- Salvage and conservation of the tree, or the scarred portion of the tree’s trunk, at a location outside the footprint of the terminal. This would involve removing either the entire trunk and canopy of the tree, or a section of the trunk that includes the whole of the scar, and transporting it to a designated location that will not be impacted by the construction of the terminal, or during the operation of the terminal.

The adoption of a management strategy should be made in consultation with the RAPs. The feedback provided by the RAPs to this report will be an important first step in this consultation process.

There is a possibility that the cultural value assigned to either of the two sites, and the management strategies recommended for the two sites, will not be unanimously agreed upon by all of the RAPs. If this is the case, and ongoing consultation cannot establish an agreement on the management strategy to take, then an appropriate management strategy should be developed in consultation with the Office of Environment and Heritage (OEH), as the governing statutory body.



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- Long, A. 2005 Aboriginal Scarred Trees in New South Wales, A Field Manual. Department of Environment and Conservation, NSW.
- Sydney Morning Herald (1894) 28th May, pg. 6



APPENDIX 1

See attached report:

Brookhouse, M (2015) Analysis of Eucalyptus specimens (MA06 and MA07) located within Moorebank Defence Precinct, NSW, based upon dendrological and dendrochronological data. Report for Navin Officer Heritage Consultants.