



ARCHAEOLOGICAL SIGNIFICANCE ASSESSMENT
Archaeological Sites Listed in Mosman LEP:
A484, A485 & A488

FINAL REPORT



Prepared by
Austral Archaeology Pty Ltd
Archaeological & Cultural Heritage Consultants

For
Mosman Municipal Council

22 February 2017

Job Number: 1609

EXECUTIVE SUMMARY

Mosman Municipal Council (the Council) previously commissioned Austral Archaeology Pty Ltd (Austral Archaeology) to undertake an archaeological heritage assessment (Austral Archaeology 2015) to determine the exact location and extent of the 16 'Archaeological sites' listed in the Mosman LEP (2012). Historic archaeological sites in Mosman were originally listed in the former Mosman LEP 1998 in 2001 on the basis of the 1996 Mosman Heritage Review by Godden Mackay Logan Heritage, however only general information about their location was noted. On both the 1998 and 2012 Local Environmental Plans, the locations of the 16 archaeological sites are represented by a single coordinate with a 100 metre buffer zone drawn around that point. In contrast, other heritage items are represented by set boundaries which reflect the physical extent of the site or the cadastral extent of the land associated with built heritage.

The Austral Archaeology (2015) report recommended the amendment of sites, addresses and property description information, as well as the removal or amalgamation of some heritage items. However, the report (Austral Archaeology 2015) sought only to determine the exact location and extent of the existing archaeological sites, not to assess the significance of the sites and the reasons for their listings as heritage items in the Mosman LEP 2012.

On the basis of the recommendations of the Austral Archaeology (2015) report, the Council prepared a planning proposal to amend the listing of the 16 archaeological sites. However in finalising this planning proposal, the Council resolved to defer its consideration of proposed amendments to archaeological sites which were identified in the Austral Archaeology (2015) report as being located wholly or partly on privately-owned land. The implications for listing are far greater on privately owned land, and as a result it was identified by the Council that this should be the focus of further review.

Of the 16 archaeological sites currently listed in Mosman LEP 2012 three were found in the Austral Archaeology (2015) report to be located partly or wholly on privately owned land. These are identified in the Planning Proposal as:

- Former tram terminus, including enclosing sandstone wall (A484)
- Former stone quarry (A485)
- Site of former Harnett's quarry (A488)

The objectives of this report are to provide a significance assessment of heritage items A484, A485 and A488 listed in the Mosman LEP 2012 under the *Heritage Act 1977* and relevant archaeological heritage guidelines. This will entail a detailed historical assessment of the three archaeological sites under investigation and a review of the statutory listings of each of the archaeological sites.

Conclusions

It was determined that the 'Former tram terminus, including enclosing sandstone wall (A484)' met NSW heritage criteria at the local level from an historical perspective only. The operations of the tram terminus and the different phases of the layout of the tram terminus have been well documented throughout various historical records. While the site holds the potential to contain *in situ* archaeological remains associated with the tram terminus, this will be very limited in its nature. As a result it is considered very unlikely that the potential archaeological remains of the site will contribute to additional knowledge of the former tram terminus that has not already been documented. It was therefore concluded that the former tram terminus (A484) does not meet NSW heritage criteria at the State or local level from an archaeological standpoint. However, the enclosing sandstone wall still retains value as a direct link to the former use of the area, and should remain on the LEP as a heritage item. This wall is contained entirely within the road corridor and does not fall on privately owned land.

It was determined that the 'Former stone quarry (A485)' site met NSW heritage criteria at the local level from an historical perspective only. The documentary evidence of the site was scarce and provided limited information regarding the different phases of the quarry and the changes in its ownership. The day-to-day operations of the quarry were not documented in the historical record. However, it is considered unlikely that information on the processes that were undertaken at the quarry during its operation will be attained from the archaeological record. The multiple phases of development at the site following its use as a quarry have most likely removed any archaeological remains below the current ground level that were once associated with the former stone quarry. The only archaeological material likely present at the site is the extant quarry wall located adjacent to the existing residential apartments. It was therefore concluded that the former stone quarry (A485) does not meet NSW heritage criteria at the State or local level from an archaeological standpoint. However, the quarried rock face still retains value as a direct link to the former use of the area, and should remain on the LEP as a heritage item. While the listing will cover the entirety of the affected lots and DPs, the actual heritage item is intended to only include the actual rock face.

It was determined that the site of 'Former Harnett's quarry (A488)' met NSW heritage criteria at the local level from an historical perspective only. The operations of Harnett's quarry have been very well-documented in the historical record, including the different processes undertaken at the quarry and the significance of the quarry in terms of the extent to which the sandstone was exported to other parts of the colony and overseas. The historical significance of the quarry also lies in the ingenuity of the engineering and construction of the tramway that carried stone between the quarry and the wharf, as well as the site's association with important local historical figures including Richard Harnett and Alexander Stuart. However, similar to the 'Former stone quarry (A485)', the only archaeological material associated with Harnett's quarry present at the site is the extant quarried rock faces. The archaeological remains associated with Harnett's quarry that are below the current ground surface have most likely been removed following subsequent development. It is therefore concluded that the site of 'Former Harnett's quarry (A488)' does not meet NSW heritage criteria at the State or local level from an archaeological standpoint. However, the quarried rock face still retains value as a direct link to the former use of the area, and should remain on the LEP as a heritage item. While the listing will cover the entirety of the affected lots and DPs, the actual heritage item is intended to only include the rock face.

Recommendations

The following recommendations are based on the assessed significance of the three archaeological sites under investigation and the relevant guidelines of the New South Wales Heritage Division. It is recommended that:

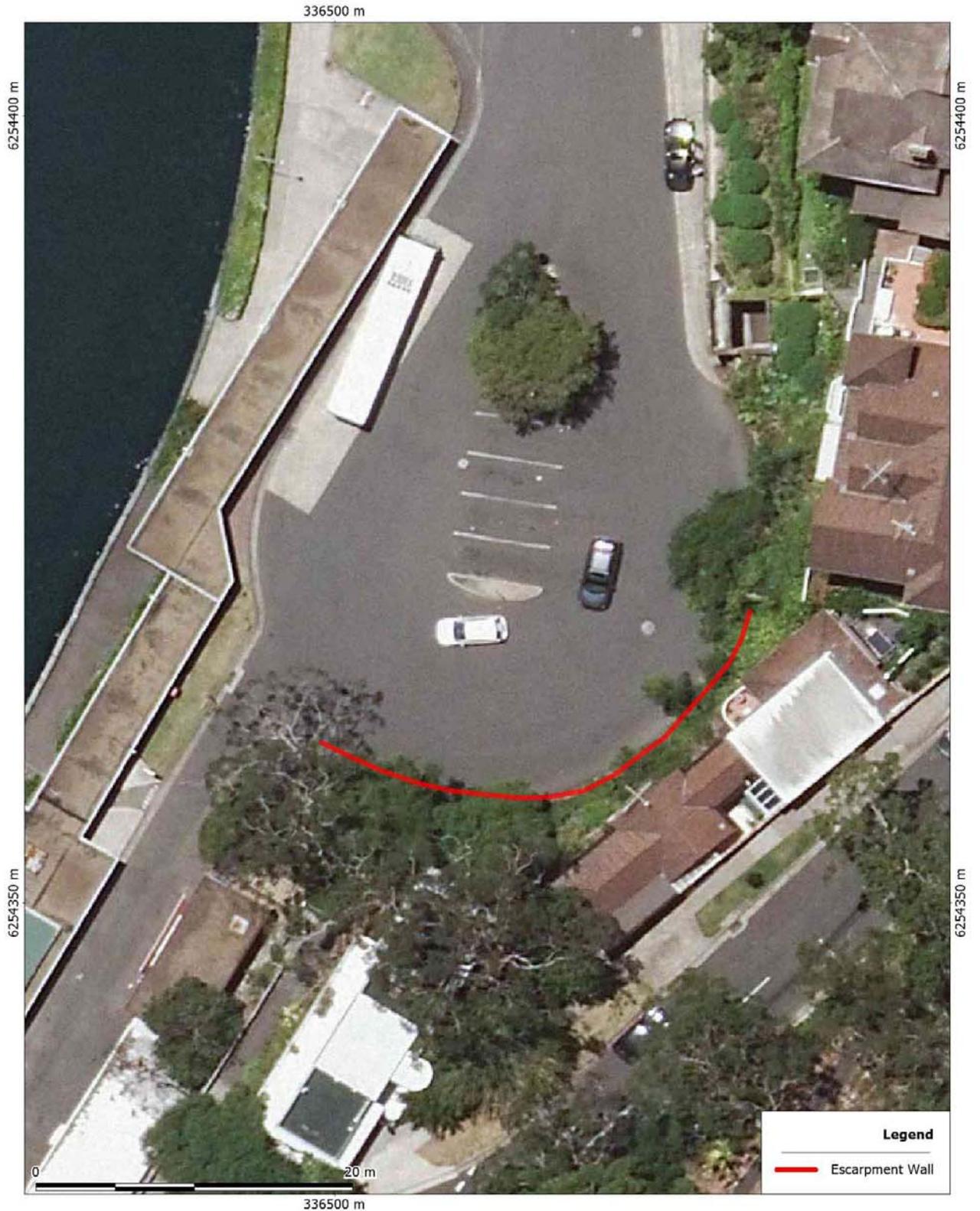
- 1) The three sites listed as 'Archaeological sites' in the Mosman LEP should be delisted. While the three sites have a degree of historical significance, their archaeological potential and significance are low.
- 2) The 'Former Tram Terminus, including enclosing sandstone wall' (Item No. A484) is to be retained in the Mosman LEP as a 'Heritage Item'. The listing should specify that it only applies to the enclosing sandstone wall, which occurs within the road corridor as shown in Figure 0.1.
- 3) The 'Former Stone Quarry' (Item No. A485) is to be retained in the Mosman LEP as a 'Heritage Item'. The listing should specify that it only applies to the quarried rock face forming the exterior wall of 65A Avenue Road (SP38652), 69 Avenue Road (SP 47862) and 71 Avenue Road (SP648) as shown in Figure 0.2.
- 4) The site of 'Former Harnett's Quarry' (Item No. A488) is to be retained in the Mosman LEP as a 'Heritage Item'. The listing should specify that it only applies to the quarried rock face forming part of Royalist Road (LOT 125, DP752067), 11 Royalist Road (SP66746), 13 Royalist Road (Lot 1, DP1052582) and within Royalist Road (no Lot/ DP) to the immediate west of Lot 125, DP752067 as shown in Figure 0.3.

- 5) One copy of this report should be lodged by the proponent with the local studies collection of the local library, and an additional copy should be lodged with the New South Wales Heritage Branch library at:

Heritage Branch

3 Marist Place

Parramatta NSW 2150



Project Name: Mosman Significance Assessment
 Client: Mosman Municipal Council
 Project Number: 1609
 Drawn By: David Marcus

Datum (Zone): Australia MGA94 (56)
 Scale: 1:300
 Source Map: Mosman Municipal Council
 Date: 16 December 2016



Figure 0.1 Location of escarpment wall associated with the tram terminus (Item No. A484)



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Datum (Zone): Australia MGA94 (56)
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 Date: 16 December 2016



Figure 0.2 Location of quarry rock face associated with the 'Former Stone Quarry' (Item No. A485).



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Figure 0.3 Location of quarry rock face associated with Former Harnett's Quarry (Item No. A488).

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1 INTRODUCTION

1.1 Introduction

Mosman Municipal Council (the Council) previously commissioned Austral Archaeology Pty Ltd (Austral Archaeology) to undertake an archaeological heritage assessment (Austral Archaeology 2015) to determine the exact location and extent of the 16 'Archaeological sites' listed in the Mosman LEP (2012). Historic archaeological sites in Mosman were originally listed in the former Mosman LEP 1998 in 2001 on the basis of the 1996 Mosman Heritage Review by Godden Mackay Logan Heritage, however only general information about their location was noted. On both the 1998 and 2012 Local Environmental Plans, the locations of the 16 archaeological sites are represented by a single coordinate with a 100 metre buffer zone drawn around that point. In contrast, other heritage items are represented by set boundaries which reflect the physical extent of the site or the cadastral extent of the land associated with built heritage.

The Austral Archaeology (2015) report recommended the amendment of sites, addresses and property description information, as well as the removal or amalgamation of some heritage items. However, this report (Austral Archaeology 2015) sought only to determine the exact location and extent of the existing archaeological sites, not to assess the significance of the sites and the reasons for their listings as heritage items in the Mosman LEP 2012.

On the basis of the recommendations of the Austral Archaeology (2015) report, the Council prepared a planning proposal to amend the listing of the 16 archaeological sites. However in finalising this planning proposal, the Council resolved to defer its consideration of proposed amendments to archaeological sites which were identified in the Austral Archaeology (2015) report as being located wholly or partly on privately-owned land. The implications for listing are far greater on privately owned land, and as a result it was identified by the Council that this should be the focus of further review.

Of the 16 archaeological sites currently listed in Mosman LEP 2012 three were found in the Austral Archaeology (2015) report to be located partly or wholly on privately owned land. These are identified in the Planning Proposal as:

Table 1.1 Archaeological sites listed in Mosman LEP 2012 as being located on private land.

Suburb	Site	Address	Property description	Significance	Item No.
Mosman	Former tram terminus, including enclosing sandstone wall	Avenue Road	Road reserve at end of Avenue Road	Local	A484
Mosman	Former stone quarry	65A-69A Avenue Road	Excavated indentation on eastern side of Avenue Road	Local	A485
Mosman	Site of former Harnett's quarry	Harnett Avenue and Royalist Road	Steep escarpment between Harnett Avenue and Royalist Road from end of Callope Street to waterfront	Local	A488

This assessment is designed to meet all requirements of the Heritage Branch, the ICOMOS Burra Charter and the Department of Planning *LEP Practice Note PN 11-001* in regard to conducting an archaeological assessment.

1.2 Objectives

The objectives of this report are as follows:

- Provide a detailed historical archaeological assessment of the three archaeological sites listed in the Mosman LEP 2012 under investigation (A484, A485 and A488);

- Review the statutory listings and significance of the three archaeological sites in order to:
 - Provide an assessment of significance of items A484, A485 and A488
 - Determine whether the items meet the threshold for heritage listing as archaeological items
 - Determine whether the items should be retained or removed from heritage listing in the Mosman LEP
 - If retain, assess whether any amendments should be made to the listing

1.3 Project Team and Acknowledgements

This project was overseen by Justin McCarthy (Managing Director). The assessment was authored by Miles Robson (Archaeologist) and reviewed by David Marcus (Senior Archaeologist). Both Miles and David undertook GIS mapping in this report.

Austral Archaeology would like to acknowledge the participation of the following people and organisations that have contributed to the preparation of this report:

- Kelly Lynch Senior Strategic Planner, Mosman Municipal Council

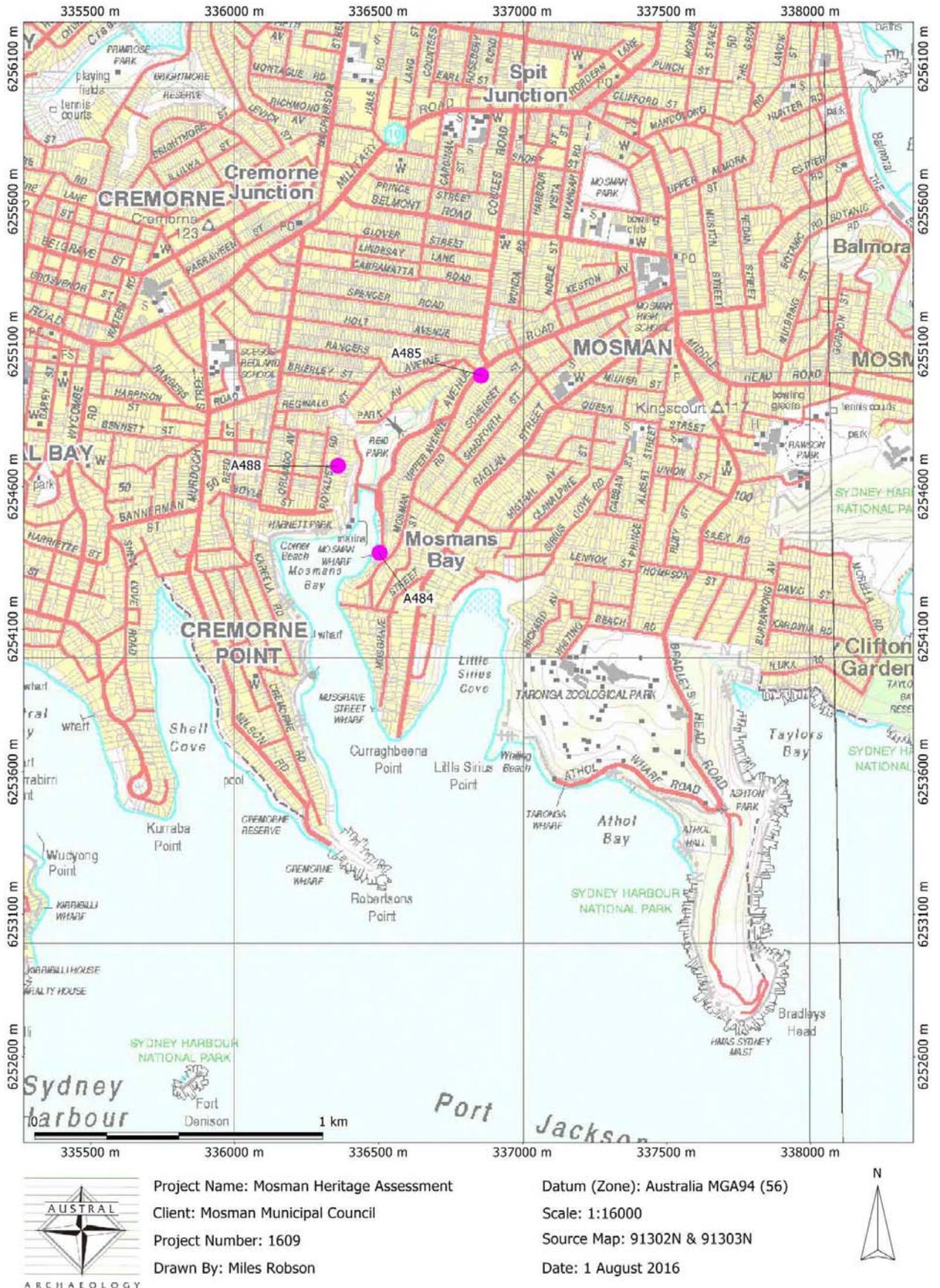


Figure 1.1 Topographic map showing locations of recorded archaeological sites A484, A485 and A488 listed in the Mosman LEP 2012.

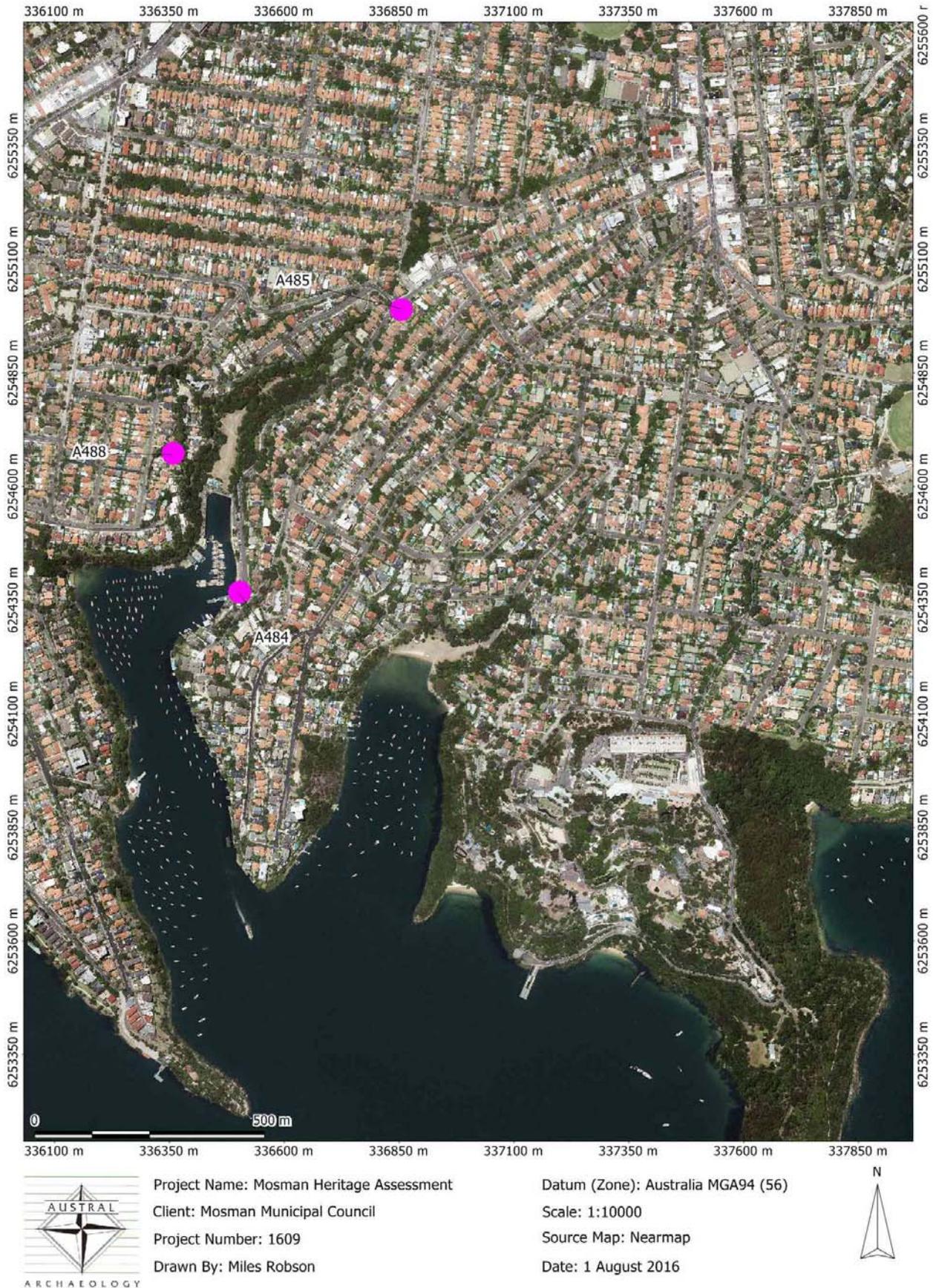


Figure 1.2 Aerial map showing locations of recorded archaeological sites A484, A485 and A488 listed in the Mosman LEP 2012.

1.4 Methodology

This report draws on material contained in the following report:

- *Assessment of Archaeological Sites, Mosman Local Environmental Plan. Historical Archaeological Site Assessment* (Austral Archaeology 2015)
- *Former Quarry Wharf, Mosman, New South Wales. Historical Archaeological Assessment and Statement of Heritage Impact* (Austral Archaeology 2016)

The methodology supporting this report involved a period of research to assist with the analysis of the archaeo-historical context of items A484, A485 and A488 listed in the Mosman LEP 2012. This would in turn assist with assessing the statutory listing and significance of heritage items A484, A485 and A488.

Note that the images included in this report are only intended to be indicative and to indicate sources of archival information which the Council may not be aware of. These images have been supplemented as required with information from the Mosman Municipal Council's TRACE digital archive.

This report is underpinned by the philosophy of the ICOMOS *Burra Charter* and the practices and guidelines of the New South Wales Heritage Branch.

1.5 Limitations of the Report

The results, assessments and judgements contained in this report are constrained by the standard limitations of historical research and by the unpredictability inherent in archaeological zoning without the use of archaeological subsurface investigation. Whilst every effort has been made to gain insight to the historical archaeological profile of the subject site, Austral Archaeology Pty Ltd cannot be held accountable for errors or omissions arising from such constraining factors.

The statement of archaeological potential only applies to subsurface features or deposits associated with the European occupation of the site and not to any built heritage items currently on the site.

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1.5.1 *Issues with the Use of a Geographic Information System*

In order to accurately plot a map or aerial image onto a known geographic coordinate system, a Geographic Information System (GIS) program must perform the act of "georeferencing". For the purpose of this project, the GIS operator took previously georeferenced aerial photos and topographic maps to use as a base for the projection. Known reference points, or "control points", are marked on both the base map and the subject map. The GIS program then predicts the spatial location of each control point on the subject map based on their location on the base map, with a residual error.

Additional errors are also present in early plans due to inherent inaccuracy in early survey plans and recordings. While these inaccuracies may be minor, GIS mapping can compound these errors when comparing different maps, as earlier maps inherently contain less structures and features which can be compared to later maps.

As a result of a combination between the residual error in georeferencing of historical plans and the inherent inaccuracy, many of the figures included in this document show the approximate location of features rather than exact representations of the potential sub-surface archaeology. However, it should be noted that the maximum error is only expected to be up to 5 metres.

It should also be noted that different aerial images used in this report are subject to varying degrees of displacement, which is caused by the distance and angle between the ground and the camera. The displacement is most pronounced in areas with high-storey buildings, where aerial images taken from different flight-paths can result in extremely different areas being visible. Where possible, the displacement effect has been allowed for during the plotting of all mapping included in this report.

1.6 Abbreviations

The following abbreviations are used within this report:

AHC	Australian Heritage Council
<i>Burra Charter</i>	The Australia ICOMOS Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DoP	NSW Department of Planning
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&BC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPI	Environmental Planning Instrument
Heritage Act	<i>New South Wales Heritage Act 1977</i>
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
LGA	Local Government Area
Mosman LEP 1998	<i>Mosman Local Environmental Plan 1998</i>
Mosman LEP 2012	<i>Mosman Local Environmental Plan 2012</i>
NHL	National Heritage List
NP&W Act	<i>National Parks and Wildlife Act 1974</i>
NSW HC	New South Wales Heritage Council
NT Register	Register of the National Trust (NSW)
OEH	Office of Environment and Heritage
RAIA	Royal Australian Institute of Architects
RMS	Roads and Maritime Services
RNE	Register of the National Estate
SEPP	State Environmental Planning Policy
SHI	State Heritage Inventory
SHR	State Heritage Register
SoHI	Statement of Heritage Impact

Refer also to the document Heritage Terms and Abbreviations, published by the Heritage Office and available on the website: <http://www.environment.nsw.gov.au/heritage/index.htm>.

2 STATUTORY CONTEXT

2.1 Introduction

The following section summarises the relevant statutory context, including heritage listings, Acts, and environmental planning instruments which are relevant to the three archaeological sites listed in the Mosman LEP that are under investigation within this report, including the 'Former Tram Terminus, including enclosing sandstone wall', 'Former Stone Quarry' and 'Former Harnett's Quarry'.

2.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EP&BC Act) established the Australian Heritage Council (formerly the Australian Heritage Commission) and provides for the protection of cultural heritage at a national level and for items owned or managed by the Commonwealth. The EP&BC Act has established two heritage registers:

- **Commonwealth Heritage List:** for significant items owned or managed by Commonwealth Government agencies.
- **National Heritage List:** for items assessed as being of national cultural significance.

Australian Heritage Council approval is required for works to an item registered on either of these lists which would impact on its significance.

All three Archaeological sites are not listed on either the Commonwealth Heritage List or the National Heritage List.

The Australian Heritage Council is also responsible for keeping the Register of the National Estate (RNE). In 2007 the RNE was frozen and no further sites were added to it. For Commonwealth properties, the Register was superseded by the Commonwealth and National Heritage Lists. The RNE is now retained as an archive of information about more than 13,000 places throughout Australia.

All three Archaeological sites are not listed on the Register of the National Estate.

2.3 New South Wales Heritage Act 1977

The Heritage Council is the approval authority under the *New South Wales Heritage Act 1977* (the Heritage Act) for works to an item on the State Heritage Register (SHR). Section 57(1) of the Heritage Act identifies the need for Heritage Council approval if the work involves the following tasks:

- demolishing the building or work,
- damaging or despoiling the place, precinct or land, or any part of the place, precinct or land,
- moving, damaging or destroying the relic or moveable object,
- excavating any land for the purpose of exposing or moving the relic,
- carrying out any development in relation to the land on which the building, work or relic is situated, the land that comprises the place, or land within the precinct,
- altering the building, work, relic or moveable object,
- displaying any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct,
- damaging or destroy any tree or other vegetation on or remove any tree or other vegetation from the place, precinct or land

Demolition of an SHR item (in whole) is prohibited under the Heritage Act, unless the item constitutes a danger to its occupants or the public. A component of an SHR item may only be demolished if it does not contribute to the significance of the item.

Section 57(1) of the Heritage Act also applies to archaeological remains (relics) within an SHR site, and excavation can only proceed subject to approval of a Section 60 application by the Heritage Division. Archaeological remains on sites not listed on the SHR are addressed under Section 139 of the Heritage Act.

All three Archaeological sites are not listed on the State Heritage Register.

2.3.1 Exemptions

The process of a standard exemption, which applies to all SHR sites, was designed to streamline the approvals process, particularly where works are minor and/or have little impact on significance. For full details of the standard exemptions, refer to the Heritage Division website:

<http://www.environment.nsw.gov.au/heritage/publications/permitapps.htm>

Prior to conducting any work which may be exempt, an Exemption Notification Form must be completed and submitted to the Heritage Council or its delegate, State Water, with sufficient information to determine whether the works meet the standard exemption guidelines. Sufficient information normally takes the form of a short report clearly stating the scope of the work and how it meets the guidelines. The Exemption Notification Form must be approved prior to work commencing.

Site specific exemptions relate to individual SHR items and can only be employed for works which have no potential to materially affect the item (Standard Exemption 6). Furthermore, site specific exemptions must be specifically identified as exemptions in a Cultural Management Plan endorsed by the Heritage Council or its delegate and using wording agreed upon prior to Heritage Council endorsement.

2.3.2 Excavation Permits

Under Section 139 of the Heritage Act, “a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit”.

Relics are defined by the Heritage Act to be:

any deposit, artefact, object or material evidence that:

- (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
- (b) is of State or local heritage significance.

An excavation permit is also required if a relic has been discovered in the course of excavation without a permit (Section 139(2) of the Heritage Act). Section 139 of the Heritage Act applies to all relics which are not listed on the SHR or protected by an Interim Heritage Order (IHO). Relics protected by an SHR listing or an IHO are subject to approval required by Section 57(1) of the Heritage Act and require a Section 60 Application.

If an excavation permit is required by Section 139 of the Heritage Act, an application is made under Section 140 of the Act. To obtain an excavation permit, the Section 140 application must include an archaeological assessment and Research Design. The archaeological assessment establishes the archaeological sensitivity of the site, its significance and the likely impact of the proposed development. The Research Design outlines the method proposed to mitigate the impact of the development (such as monitoring, test excavation, sampling, or open area excavation). The Research Design also provides research questions which the archaeological resource has the potential to answer. An archaeological assessment and Research Design need to be prepared in accordance with the Heritage Council’s relevant guidelines, including Historical Archaeological Sites and the Historical Archaeology Code of Practice. For further details of these guidelines, refer to the Heritage Division website:

<http://www.environment.nsw.gov.au/heritage/publications/index.htm>

The Heritage Act also contains provisions for the unintentional disturbance of archaeological relics. Under Section 146 of the Act, the Heritage Council must be immediately notified in the event of relics being unintentionally located or disturbed. Works may be required to cease, pending consultation and further research.

2.4 Heritage and Conservation Register (Section 170 Register)

Under Section 170 of the Heritage Act, government instrumentalities must keep a Heritage and Conservation Register (a Section 170 Register) which contains items under the control or ownership of the agency and which are, or could, be listed as heritage items (of State or local significance). Road reserves are owned by the Department of Roads and Maritime Services.

All three Archaeological sites are not listed on Section 170 Heritage and Conservation register maintained by the Department of Planning and Infrastructure.

2.5 Environmental Planning Instruments

An Environmental Planning Instrument (EPI) is made under the Environmental Protection and Assessment Act 1979 (EP&A Act). An EPI can be a Local Environmental Plan (LEP) or a State Environmental Planning Policy (SEPP).

2.5.1 Sydney Regional Environmental Plans

The *Sydney Harbour Catchment Regional Environmental Plan 2005* (the Harbour REP) provides a planning framework and environmental outcomes for Sydney Harbour and its tributaries. The *Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005* (the Harbour DCP) applies to the Foreshores and Waterways Area as identified in the Harbour REP. The DCP includes design guidelines for development, assessment criteria for marinas (including guidelines for undertaking visual impact assessments), and criteria for natural resource protection.

The *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (the Harbour SREP) establishes a set of planning principles to be used by councils for the preparation of planning instruments. The study area is on land controlled by the Harbour SREP. Although the archaeological sites are not listed as heritage items on the Harbour SREP, Part 2, Section 15 of the legislation provides general guidelines recommending the preservation and conservation of heritage sites.

2.5.2 Mosman Local Environmental Plan 2012

The applicable LEP for the three archaeological sites is currently the *Mosman Local Environmental Plan 2012* [the Mosman LEP]. The Mosman LEP deals with heritage conservation in Part 5.10 and heritage items are listed in Schedule 5. The following table provides the Item Number of the three archaeological sites within the Mosman LEP:

Table 2.1 Archaeological sites listed in the Mosman LEP 2012 as being located on private land

Site Number	Site Name
A484	Former tram terminus, including enclosing sandstone walls
A485	Former stone quarry at Avenue Road
A488	Site of former Harnett's Quarry

However, there are known issues with the locational data for sites listed on the Mosman LEP, as the locations of Archaeological sites are represented by a single coordinate with a 100 metre buffer zone drawn around that point. In many instances, the location of the site coordinate does not correspond with the correct location of the listed item. Austral Archaeology was recently engaged by Mosman Council to address this discrepancy, and the results of a public consultation are currently being considered by the Council.

As such, the recorded location of the 'Former Tram Terminus including enclosing sandstone wall', listed as Item A484 on the Mosman LEP does not include features such as extended tracks that lead into the tram terminus (Figure 2.1). The 'Former Stone Quarry', listed as Item A485 on the Mosman LEP 2012, is significantly smaller than the actual extent of the site (Figure 2.2). Furthermore, the recorded location of 'Harnett's Former Quarry', listed as Item A488 on the Mosman LEP 2012, is also significantly smaller than the actual extent of the site (Figure 2.3).



Project Name: Mosman Heritage Assessment
 Client: Mosman Municipal Council
 Project Number: 1609
 Drawn By: Miles Robson

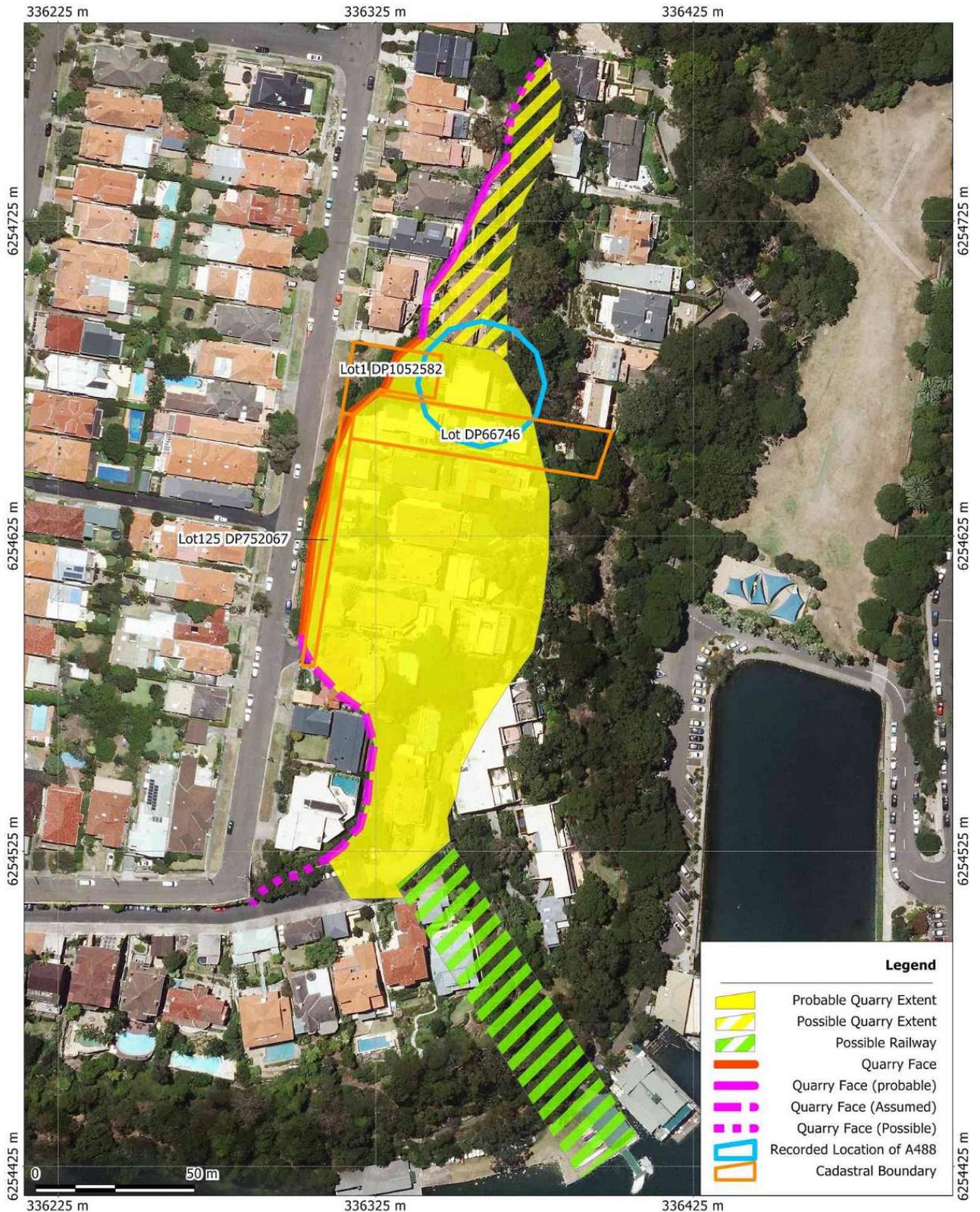
Datum (Zone): Australia MGA94 (56)
 Scale: 1:1000
 Source Map: Mosman Municipal Council
 Date: 1 August 2016



Figure 2.1 Map showing recorded location of 'Former tram terminus including enclosing sandstone wall' (A484) in relation to potential extent of the archaeological site.



Figure 2.2 Map showing recorded location of 'Stone Quarry, Former' (A485) in relation to potential extent of the archaeological site.



Project Name: Mosman Heritage Assessment
 Client: Mosman Municipal Council
 Project Number: 1609
 Drawn By: Miles Robson

Datum (Zone): Australia MGA94 (56)
 Scale: 1:1500
 Source Map: Mosman Municipal Council
 Date: 1 August 2016



Figure 2.3 Map showing recorded location of 'Former Harnett's Quarry (A488)' in relation to potential extent of the archaeological site.

2.5.3 Non-Statutory Heritage Listings

A number of organisations maintain registers of buildings or sites which they have assessed and believe to be of cultural heritage significance. These registers have no statutory authority. However, the inclusion of a place on a non-statutory register suggests a certain degree of community esteem and appreciation. Non-statutory registers include the National Trust Register, the Royal Australian Institute of Architects (RAIA) 20th Century Register of Significant Buildings, and the Art Deco Society of New South Wales's Art Deco Building Register.

All three Archaeological sites are not listed on the National Trust Register.

All three Archaeological sites are not listed on either the RAIA or Art Deco Society registers.

2.6 Section Summary

Table 2.2 lists the relevant statutory and non-statutory registers, listings and orders, and identifies those in which any part of the study area is listed.

Table 2.2 Summary of heritage register listings for the subject study area.

Register/Listing	Inclusion	Statutory implications
National Heritage List	No	No
Commonwealth Heritage List	No	No
Register of the National Estate	No	No
State Heritage Register	No	Yes
Section 170 Heritage & Conservation Registers	No	No
<i>Mosman Local Environmental Plan 2012</i>	Yes	Yes
Register of the National Trust (NSW)	No	No
The RAIA 20th Century Register	No	No
The Art Deco Society's Art Deco Building Register	No	No
Sydney Regional Environmental Plan	No	Yes

3 HISTORICAL BACKGROUND

3.1 Introduction

The following section is designed to contextualise site specific histories which will aid in the understanding of the historical significance as well as archaeological potential of the three archaeological sites (A484, A485 and A488) that are under investigation. This will entail detailed historical overviews of the three sites, outlining the different historical phases and the notable figures that are associated with the sites. This section will analyse the history of the three archaeological sites in chronological order. As such, it will first provide a historic overview of the 'Site of Former Harnett's quarry (A488). This will be followed by an historical analysis of the 'Former stone quarry (A485)' at Avenue Road and finally the 'Former tram terminus, including enclosing sandstone wall (A484)'.

Some of the information contained in this section has been taken from earlier archaeological assessments undertaken by Austral Archaeology (2015 & 2016). However, the majority of the content has involved additional research undertaken specifically for this assessment.

3.2 Former Tram Terminus, including enclosing Sandstone Wall (A484)

The first tramline services in Mosman opened on 30 September 1893, which travelled between Falcon Street, North Sydney and Spit Junction, Mosman. This was 19 days following the Mosman Local Government election, in which Richard Harnett Jnr. was elected Mayor of the district (McLaren 1978:2). It was clear during the campaign of the Mosman Local Government that Harnett had recognised the importance of the establishment of a tramline service through Mosman for the growth of the local community.

"...There is an increase of 60 houses here since last year's assessment was taken and this makes 348 houses in the Borough. The tramway along the Military Road is now complete and trams will soon be running... "A number of side streets of the borough, where many good houses have been erected of late, are greatly in need of improvement. I refer more particularly to streets in the vicinity of the proposed tram terminus, and also to Spofforth, Boyle and Shadforth Streets" (Harnett's Address to the rate-payer, April 1893).

Not only does this demonstrate Harnett's desire for an improved transport system within the Mosman district, but it also illustrates that this new tram terminus was considered a future hub within Mosman and that there is a need for greater access to the Spit Junction terminus. However, this was not the first signs of Harnett's ambitions for better facilities and transport systems in Mosman. When Harnett first settled in Mosman he soon realised that the area was significantly isolated from the rest of Sydney. As a result, he started a ferry service from Mosman Bay to Circular Quay in 1871. Up to this time, the services of licensed boatmen had to be relied upon. In December 1871 Harnett advertised that the safe and commodious iron steamer *Herald* had been engaged to run a half-hourly service between Circular Quay and Mosman Bay offering excursionists an opportunity of seeing the bay. This was a catalyst for new development around the Mosman Bay area in the 1870s, as many homes were erected in Raglan, Musgrave, McLeod, Clanalpine and other streets close to the ferry wharf (Carroll 1949:154).

When it was apparent that the tramway between Falcon Street, North Sydney and Spit Junction, Mosman was operating successfully, the Minister for Railways performed an official opening ceremony at 2:00pm on 30th September 1893. Harnett was right in his prediction of the status of Mosman Junction following the opening of the tramline service, as the area became the focal point of the suburb. Many shops and businesses were erected, and with the construction of the Post Office, the Public School and the Council Chambers in the same vicinity, it gave every indication of becoming the main centre of the district (McLaren 1978:2).

The success of the tramway service at Mosman Junction was clearly apparent to the residents of Mosman, and as a result a desire for a new service at Mosman Bay was requested. As evident in an article from *The Australian Star* dated 2 May 1895, increased population of the district as well as greater access to the ferry service at Mosman Bay were the main factors for the proposal of a tram service at Mosman Bay.

"North Sydney Tram – Extension to Mosman's Tram:

The residents of Mosman's Bay want the North Sydney electric tram extended from the terminus at the Spit Road to the waters of Mosman...The people of the borough thought, owing to the enormous growth of population, that it was successful to have the tram extended...There were three routes proposed, each being a mile and a half long...Mr Harnett, a member of the borough since 1872 said it was necessary the line should be made...Mr Purves said due to the difficulties of getting to parts of Mosman that people were being deterred from going there. There were no more beautiful sites about Sydney than those at Mosman. If an electric tram met the ferry at Mosman people could easily and cheaply be taken up the tableland at the borough" (The Australian Star, 2 May 1895).

Richard Harnett, Mayor of the Mosman District at the time, also saw the necessity for a tram service at Mosman Bay. As a result, construction of this new tramline service, which extended from Spit Junction to Mosman Bay, began from November 1885. This however involved several complications due to the steep incline and changes in gradient between the wharf at Mosman Bay and Mosman Junction (McLaren 1978:2). Less than two years later, on 19th February 1897, an official trip was made on the new Mosman Bay tram service by the railway engineers and local politicians involved in the project in order to assess the safety of the run and any complications that may exist.

"Mosman Bay Tram Extension

An official trip was made yesterday over the electric tram extension to Mosman Bay...The return journey, up a severe grade of line in lift, was accomplished without a hitch. The time occupied twelve minutes from the Bay to the old terminus on the Military Road and twenty minutes thence to Ridge Street. Improved cars are used which have been constructed by Messrs Bignell and Morrison and accommodate twenty two passengers each. Extensive additions have been made to the Ridge Street power house and an auxiliary battery has been erected at Spit Road to provide extra pressure in drawing the cars up the steep incline from the bay. The time table has been compiled, and the line will shortly be opened for traffic. The round trip from Milsons Point to Mosman Bay will be run in 45 minutes. A half-hour ferry service has been arranged from the latter place to work in conjunction with the tram". (Evening News, 20 February 1897).

On March 1 1897, the tramline extension from Spit Junction to Mosman Bay was officially opened to the public. Trams started running to the new terminus through a single track which ran down Avenue Road and split into a scissor crossover parallel to the wharf (*Evening News*, 6 March 1897).

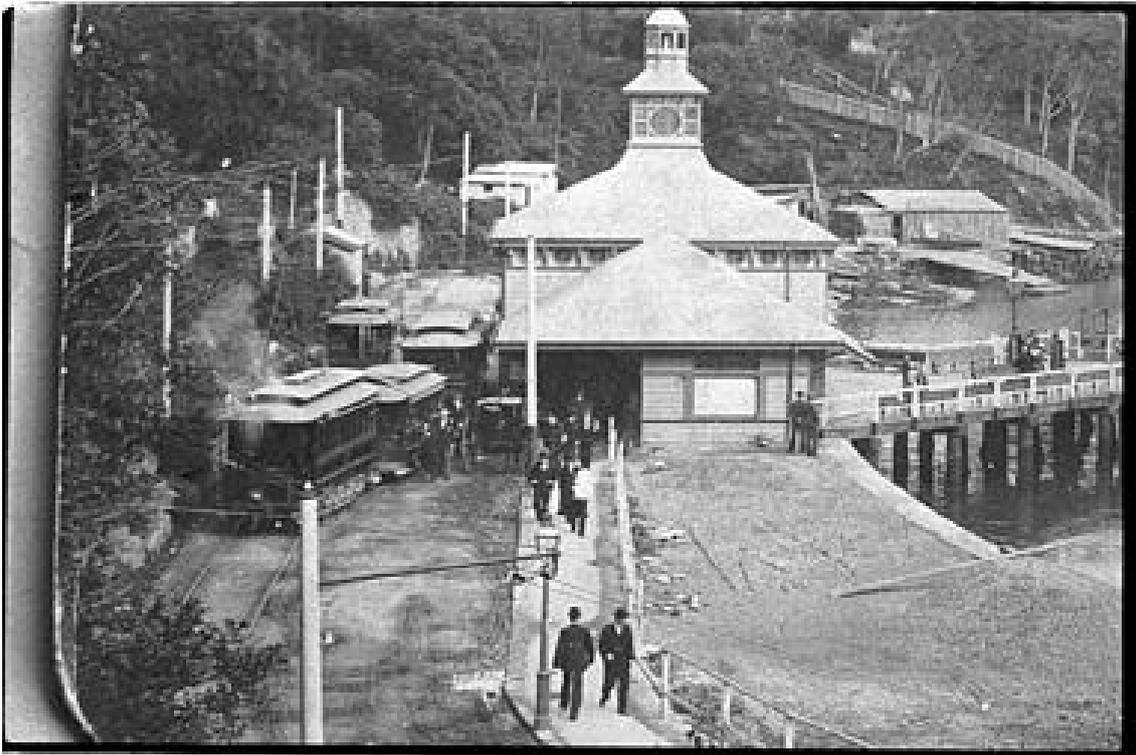


Figure 3.1 South facing view showing Mosman Bay Wharf c.1897, with various trams waiting at the terminus. Note the single track turning into the scissor crossing at the terminus (source: City of Sydney Photo Archive, 079/079104).



Figure 3.2 South facing, wider-angle view of Mosman Bay Wharf, pre-1902. Note single track line running along Avenue Road in the foreground (source: NLA, nla.pci-vn4593087).

Not only did this extension of the tramline at Mosman Bay allow for the interchange of transport systems with the ferry wharf, which was located adjacent to the Mosman Bay tram terminus, but it also acted as a catalyst for further development at Mosman Bay. Mosman Bay became a new hub within the district, as a large proportion of houses were built around the area shortly after the opening of the new tram service. Furthermore, local businesses at Mosman Bay were also built almost immediately following the initial running of the tram extension. This most notably included a large row of shops opening along Avenue Road.

The success of the construction and running of the trams at Mosman Bay resulted in applications being made to the commissioners for several extensions in other directions (Evening News, 21 February 1898). However, these proposed extensions never eventuated.

In January, 1902 the layout of the tram terminus at Mosman Bay changed from a single track that split into a scissor crossover to a balloon loop. It was also at this time that the sandstone escarpment was quarried out to allow for the turning circle. This change in the arrangement of the terminus was much to the delight of the public, who frequently complained about the manner in which people accessed the trams from the terminus due to disorganised layout.

"A balloon loop, similar to that of Circular Quay, has been constructed at the Mosman's tram terminus, and it has facilitated the dispatch of the trams to a great extent. Passengers now have no need to scramble onto trams while shunting". (Evening News, 11 January 1902).



Figure 3.3 Undated, post-1902 photograph showing a tram turning on the new balloon loop (source: SLNSW, a106022).



Figure 3.4 South facing, 1905 photograph of batteries being unloaded at Mosman Bay Wharf. Note the tram is turning on the new balloon loop, while an old track from the scissor crossover is visible to the left (source: TRACE, LH PF / 1503).

Despite the early success of the tramline extension to Mosman Bay, a number of safety concerns arose during the period in which it operated. The safety issue of the steep incline within this extended tramline at Mosman Bay was perhaps the most critical, and certainly the initial concern during the operation of this tramline service. This was noticeable from the first few months in which it operated, as shown in an article from the *Australian Town and County Journal* dated 29 May 1897:

"The gradients of this extension are severe, more so than any other traction in New South Wales other than cable. One ascent runs 1ft in 12ft." (Australian Town and County Journal, 29 May 1897).

Fortunately, however no accidents caused by the steep incline between Mosman Bay and Spit Junction occurred during the period in which this tramline service operated. Nevertheless, a number of incidents on the tramline took place, including a several near-collisions as reported in an article in *The Australian Star* dated 19 November 1908.

"Mosman's Bay Line

The fact that within the past three weeks two collisions have been narrowly averted on the Mosman Bay tramway line forms the subject of a letter to the "Herald" by Oswald Watkin. It is essential that he says that the department should take steps to prevent a recurrence of this sort of thing, and is a strong argument in favour of a duplication of the line from Waters Road to Spit Road, and from Canrobert Road to Mosman's Bay. The traffic on this line thoroughly justifies this, but the excuse given by the commissioners when deputations in the past have asked for lower fares and better conditions on the North Sydney lines has always been that the system did not pay..." (The Australian Star, 19 November 1908).

This report argues that the narrowly-avoided accidents are predominantly due to the lack of money supporting the North Sydney tramway system and that a proposal should be made for the construction of another line from Mosman Bay. It was argued that this would reduce the traffic on the Mosman Bay line, and therefore decrease the likelihood of future accidents. The report goes on to state that the North Sydney tramway system has always been the experimental one, and that this is perhaps the cause of the high number of incidents at this tramline. Furthermore, it states that the North Sydney system was also debited with the excessive cost of erecting the tram sheds at Ridge Street, which had to be altered three times owing to mistakes in craftsmanship (The Australian Star, 19 November 1908).

It seems, however, that this article had little effect on the Department of Railways and no immediate changes were made to the North Sydney tramline system. However, as a result of an increasing occurrence of incidents and near-incidents at the Mosman Bay tram terminus during the early 1910's, further requests were made to change the way in which the trams ran in this section of the line. This is most clearly evident in an article from 'The Sun' dated to 15 July 1913:

"Dangerous Tram Stop. Departmental Apathy

Mosman progress Association recently made two requests to the Railway Commissioner. One was that whenever two trams left the Mosman Bay terminus the first should make only two stops – one at the post office, and the other at Spit Junction. The other was that when a tram from the bay was discharging passengers at the public school stop trams from the opposite direction should not pass it until the lines were clear. The first request was turned down by the department on the ground that the Chief Commissioner considered that existing arrangements met requirements. In connection with the second, it was pointed out in a letter from the department read at the meeting of the association last night that drivers had been warned already to exercise caution in such circumstances, and that the instruction would be repeated" (The Sun, 15 July 1913).

It was agreed by the Railway Commissioner that both requests set out by the Mosman Progress Association were needed requirements and were to be put into practice (The Sun, 15 July 1913). It was also pointed out further in the same article that the primary cause for this frequent occurrence of incidents was due to the side of the tram in which people exited.

"The trouble is that they all live over to the right, and get out on the side nearest their homes. Even if it is not the correct side, there is no reason why they should run the risk of getting cut down by another car" (The Sun, 15 July 1913).

Despite the increased safety precautions and regulations set out for the Mosman Bay tram terminus, accidents continued to occur until the tramline ceased in 1955. One particularly notable accident occurred in 1929 when the tram crashed into the sandstone wall at the terminus.

"Tram Crashes into Wall.

Several passengers shaken.

Sydney. Thursday – Believed to have got out of control, a tram half-filled with passengers crashed into the stone wall at Mosman Bay terminus tonight. One man was slightly cut. Many others were severely shaken". (The Age, 27 September 1929).

In 1934, it was proposed that the layout of the tram terminus was to change from a balloon loop back to a straight terminal with a scissor crossover. However, this caused a great deal of anger from local residents and many protest letters were written to the Department of Railways, including one in *The Sun* which dates to 15 August 1934.

"Mosman Protest / Tram Loop at Bay

The only consideration the Department is giving us is to do exactly the opposite to what we ask. I don't believe what they say', said Ald. Stevenson at Mosman Council last night when the alderman discussed a letter from the Transport Department, which advised that consideration was being given to council's request to cut out the tramway loop at Mosman Bay. It was agreed by council that a straight terminal was required as, besides cutting out a danger zone, it would provide better facilities for the crowds coming from the ferries. Council decided to arrange a deputation to the Transport Commissioner" (The Sun, 15 August, 1934).

As noted in the SHI, the conversion of the tram terminus layout from a balloon loop back to a straight terminal with a scissor crossover was made the following year in August, 1935.

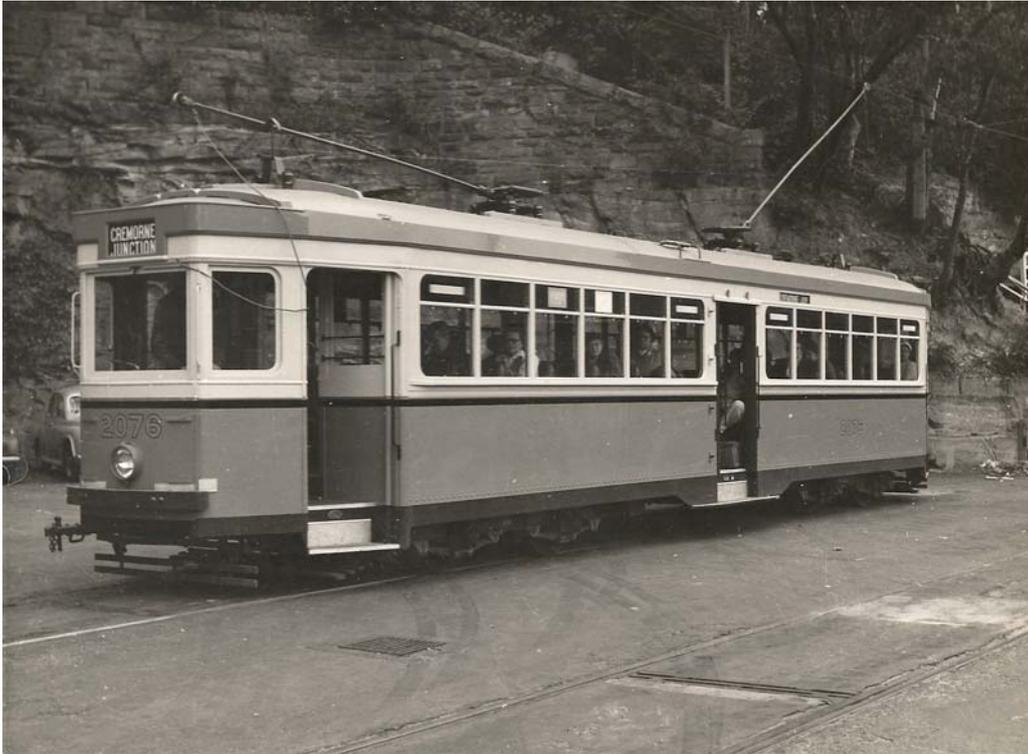


Figure 3.5 Image of a tram waiting on one of the scissor lines at the wharf terminus in 1953 (source: Ian MacCowan).

Trams finally stopped serving the wharf in 1955 when a regular bus service was introduced. As noted in the SHI, the balloon loop was converted into a turning circle, and a small garden bed was placed in the centre of the loop which currently serves as a transport interchange with the adjacent Mosman Ferry Wharf.

Today the site is paved with bitumen and is primarily used by buses and cars travelling to the ferry wharf.

3.3 Former Stone Quarry (A485)

Following the closure of Harnett's quarry, Robert Flew opened his own quarry at Avenue Road with his two sons, Thomas and Albert. This was one of many quarries that were operated by the Flew family during the late 19th century and early 20th century in the Mosman District (Souter 1994:94-95).

Similar to the operations at Harnett's quarry, the quarry at Avenue Road extracted sufficient quantities of sandstone, of which was to meet the great demands of the local building boom in Sydney at the turn of the century. The stone from the Avenue Road quarry was almost entirely utilised for the construction of houses within the Mosman District and lower North Shore (Carroll 1949:78). There are no existing sources which indicate that the Flew family exported the sandstone to other parts of Australia or overseas, as Harnett did in the 1870s and 1880s.

The quarry at Avenue Road was located adjacent to housing properties from the 1890s onwards. Consequently, this limited the spaces of the quarry in which blasting could take place due to the possibility of damaging neighbouring properties. However, it seems as if there was little consideration taken to neighbouring properties by the Flew family during the blasting works of the quarry. They had received several letters of complaints about the state of the quarry and the damage caused by sherds of stone to their properties from the blasting. In December of 1910 the Flew brothers were taken to court and sued over damages to a neighbouring house belonging to Mrs Gray that was caused by the blasting of sandstone from their quarry at Avenue Road. A report from the *Sydney Morning Herald* describes the incident and the cost of the damages in which Thomas and Albert Flew owed to Mrs Gray for repairing her property.

"A Mosman Quarry.

Gray v Flew.

This was a motion to continue the injunction to the hearing Plaintiff was Catherine Annie Gray, and the defendants Thomas Flew and Albert Flow...Adjacent to her land is a stone quarry, worked by defendants in which wasting operations are carried on. On some occasions pieces of rock had been hurled on to her land and houses, causing damage to the property and danger to herself and family Plaintiff had complained to the defendants of the nuisance but they had neglected and refused to cease from carrying on the blasting operations...By consent the motion to continue the injunction was turned into a motion for a decree, and a decree was made to pay the plaintiff £50 as compensation for the damage done, and also to pay the costs of the suit" (Sydney Morning Herald, 10 December 1910).

In early 1911, the Flew family put an offer in to the Mosman Council on whether they would like to acquire the land. By March 1911, the Flew family sold the quarry to the council, who continued to utilise the land for quarrying sandstone (Mosman Council Minutes 1911, pg. 19).

Following the sale of the quarry, Thomas and Albert Flew continued to operate quarries elsewhere in Mosman, including one at Parriwa Road which stayed in operation until the early 1930s (Souter 1994:96).

The Mosman Council took over the quarry at Avenue Road for the purpose of providing ballast for forming and repairing roads and gutters (Council Minutes 1911, pg. 19). An article from *The Sun* describes the employment contract of the quarry under the ownership of the council. This states that the Mosman Council sub-contracted the works of the quarry out to independent quarrymen, who then employed their own workers for operations.

"From this quarry stone was obtained for kerbing and guttering, also ballast... At present the council had a man to whom they paid a contract price, and he employed men to work for him. In times of emergency the council put some of their own hands on temporarily, having reserved to them the right to do this. If this contract was rescinded the council would have to put on their own men or purchase the stone they required. The municipal employees worked 48 hours per week" ('The Sun', 24 May 1911).

On 9 July 1912, the owner of the land adjoining the quarry, T. Harrison, agreed to lease his land to the Mosman Council in order to extend the operations of the quarry. This was for the agreed price of 5 shillings per pick (labourer) per week. As was indicated in the *Council Minutes* (1912) the arrangement between the Harrison and the Council was that stone was not to be quarried below the level of the street, and also that an agreement was to be drawn up embodying the conditions. The reference to this agreement within the *Council Minutes* (1912) goes onto state that 'rent is only to be paid for each man actually quarrying stone and not for those men who may be removing or assisting to remove any material from the quarry, payment to be made only for those days when the men are quarrying' (Council Minutes, 1912).

Later that same year, on 22 October 1912, James Robb, owner of a property that was also located adjacent to the quarry, agreed to sell his block of land to the council for the price of £4 per foot of land and £10 to be paid to bind the sale (Mosman Council Minutes, 1912). This allowed the council to increase their productivity of the stone quarry as well as increase the employment numbers on the quarry.

However, as was the case with the quarry under the operation of the Flew family, the council received a number of complaints from local residents about the state of the quarry and the damage it causes to neighbouring properties.

As noted in the *Council Minutes* (1914), various degrees of damage was made to the property of I. B. Hodgson, who stated that the considerable amount of blasting that took place at the quarry had consequently damaged his property (Mosman Council Minutes, 1914). Another example of a complaint regarding damage to neighbouring properties is in the *Council Minutes* (1917), in which Mr. Gilbert criticised the 'inconsiderate methods' of the blasting operations that the council were undertaking at the quarry. Gilbert went onto state that as a result, his property had been in the firing line and had been damaged on numerous occasions (Mosman Council Minutes, 1917).

As well as complaints related to damage caused to neighbouring properties, the council had also received a number of complaints regarding the state of the quarry. A particularly frequent concern from the local residents was the lack of drainage of stagnant water that existed in the rocks on top of the quarry. As noted in the *Council Minutes* (1918), Mrs Filsell sent a letter of complaint to the council about this particular subject (Mosman Council Minutes, 1918).

Unlike the Flew family, however, in most circumstance the Council had accepted liability to the damages caused to neighbouring properties and paid for restoration.

From 1919, the quarry became disused and abandoned by the council, eventually becoming a rubbish dump within the area. Eventually, in 1923, the council sold the land to Mr. Lucas who undertook the difficult task of converting the quarry into tennis courts.

"From Rubbish Tip to Courts

Once a worked-out quarry, that was becoming an eyesore, and now a fine recreation ground, aptly describes the recently constructed courts in Avenue Road, Mosman. The courts are to be used in giving exhibition matches to raise funds for the ladies' team to visit England..." (Arrow, 6 March 1925).

As noted in the article above, Mr. Lucas placed his courts at the disposal of the Association for exhibition matches in aid of funding for the women's tennis team trip abroad. These tennis courts were regarded as some of the best in Sydney.

From the 1940s onwards the site was used for the construction of houses and residential apartments, of which continues to be the use for the site today. As noted in the SHI, the only remnants of the quarry that currently exist at the site include an excavated indentation into the escarpment of the eastern side of Avenue Road.



Figure 3.6 1943 aerial image showing the potential extent of the Former Quarry site (A485).



Figure 3.7 Low angle, north-east facing 3-D image of the quarry site showing the sharply defined edges of the former quarry (source: Google Earth).

3.4 Site of Former Harnett's Quarry (A488)

In 1878 Harnett established a sandstone quarry, which consisted of 16 acres on the western ridge above Mosman Bay, along the southern end of what is today Royalist Road, north-west of the study area. Mosman was considered an ideal site for quarrying as, despite the quarried stone being high on the ridgeline, the deep harbour of Mosman Bay meant the stone could be loaded straight onto waiting ships (Thorne 1979:27). Believing Victoria to be more advanced in quarrying than New South Wales, Harnett travelled to Melbourne in search of skilled labour and recruited Robert Flew, who had emigrated six years earlier with his family from the famous stone promontory of Portland in Dorset, England (Souter 2012:110). The sandstone quarry was operated by Robert Flew between 1878 and 1889 under the ownership of Richard Harnett and his business partner Alexander Stuart. Flew and his family moved in to a house provided by Harnett near the quarry site after becoming the backbone of an operation which eventually employed 33 quarrymen at wages of £3 for a 48 hour week (Souter 2012:110). Opening of the quarry saw high levels of excitement and anticipation from both the media and those living in the local area. It was quickly viewed as a local industry which would not only bring high employment to the new community but would also increase exportation of local stone throughout the colony and thus also benefit the shipping trade (Souter 2012:110). This is well portrayed in an article from the *Sydney Morning Herald*, dated 7th April 1879:

"This fact is a most hopeful one for New South Wales, which, with her vast natural resources-boundless, indeed, as the ocean-requires only energy and enlightened enterprise to place her in the foremost rank of civilized communities. It is a pleasant duty to draw attention to the commencement of a new undertaking which promises to expand into an extensive industry, inasmuch as if successful, not only will labour be usefully employed, but the shipping trade of the colony will also be greatly benefited by the consequent addition to our exports. The new works under notice are situated at Mossman's Bay-a region hitherto undisturbed from a solitude which has reigned supreme from remote ages, and the beauty of which can scarcely be excelled by any spot around the harbour. It is part of an estate belonging to Mr Alexander Stuart, and Mr. R Harnett, who, acting on the advice of competent persons, recently determined to turn their property to profitable account" (Sydney Morning Herald, 7 April 1879, pg. 3).

This same article later exemplifies the importance of the sandstone quarry as a potential means of transforming Mosman Bay from a scarcely populated area of Sydney, with intermittent activity since the days of careening and whaling, into a well-formed residential area.

"Perhaps it will not be considered a fantasy that at no distant date a young and thriving hamlet will exist where almost up to this moment the sound of voices has scarcely been heard" (Sydney Morning Herald, 7 April 1879, pg. 3).

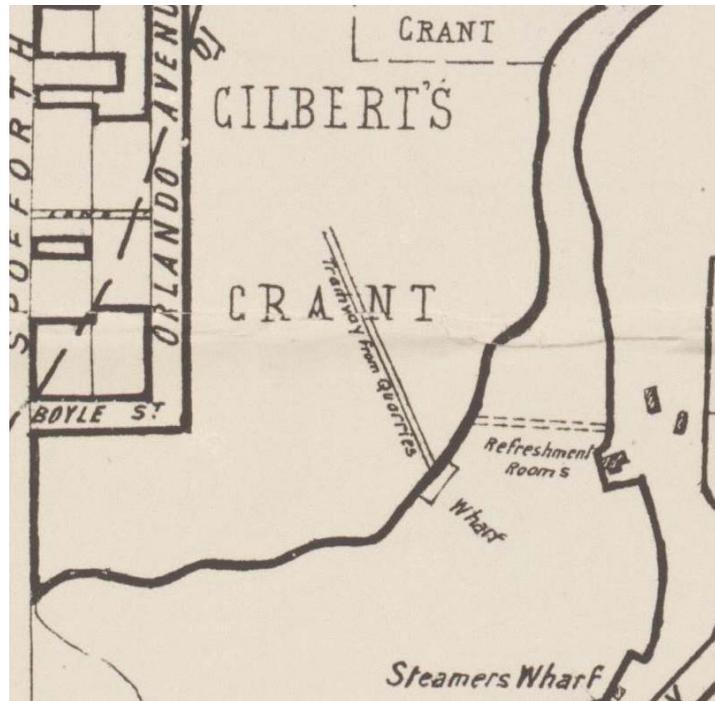


Figure 3.8 Excerpt from a plan showing unsold portions of various estates in Mosman during the first year of the operation of Harnett's quarry in 1878. Note the tramway running uphill from the wharf (source: NLA, LFSP 1614).

In order to fully exploit the quarry, Harnett arranged for the construction of a counterbalanced tramway to transport the stone from the quarry south-eastwards down to the waterfront at Quarry Point, where a stone-faced wharf was built, which forms the present study area. The construction of the tramway was a sizeable undertaking, taking approximately three months of blasting and splitting to create the cutting for the tramway (Souter 2012:110). The most complex and labour-intensive component in the construction of the tramway was to develop a system that could safely and efficiently operate with the steep incline between the quarry and the wharf. A contemporary newspaper article reports the extent of the work involved in the construction of the tramway for the quarry:

"[T]he important preliminary step of constructing a tramway through part of the quarry down to the water's edge was commenced last Christmas [i.e., December 1878]. This entailed an immense amount of labour, as the excavations had to be made through stone varying from 12 to 16 feet [3.6 to 4.8 metres] deep. Fifty men were employed under the direction of Flew, and in three months nearly 900 feet [274 metres] of rails have been laid down. The ascent is about 150 feet [46 metres], and the gradient is often as much as 1 in 5. There are two lines of rails, 3 feet 6 inches [1 metre] in width, and an extra one at the half distance to allow of the [sic] trucks passing each other. At the top end of the rails are two drums, 10 feet [3 metres] from the ground, each 5 feet [1.5 metres] in diameter for drawing up empty trucks and letting down loaded ones, a three-inch [76 millimetre] wire rope being used for this purpose. In the centre of the rails are rollers from twenty to thirty feet [6.1 to 9.1 metres] apart, over which the rope travels, in order to prevent the friction which would otherwise be caused by contact with stone. At each end of the tramway is a 5 ton crane, the one at the top being used for lifting blocks of stone on to the trucks, and the bottom one for lifting them off and depositing them in the punt or ship alongside" (Sydney Morning Herald, 7 April 1879, pg. 3).

A second account from the *Illustrated Sydney News* describes the process undertaken for transporting the stone from the quarry down onto the ships at the waterfront:

“On entering the land-locked bay...the visitor will notice a steep incline down from the range to the water’s edge, and at the top a mass of white sandstone rock. Down this incline a double line of rails has been laid, along one line of which the loaded wagons [sic] descend by gravity, and these being connected with a steel cable wound round a drum at the head serve to hoist the empty wagons [sic] on the other line of rails back to the summit. Thus the elevation of the quarry quite renders unnecessary any other motive power except the powerful crane which is used for hoisting the massive squared blocks of stone, into the ships or barges which may lie in deep water alongside” (Illustrated Sydney News and New South Wales Agriculturalist and Grazier, 6 September 1879, pg 7).

The finished tramway comprised of rail laid in the Portland manner: three parallel rails with a short middle section of four rails where descending and ascending skips could pass one another (Souter 2012: 110). The loaded wagons descended by gravity under their own weight along one line, and in doing so hauled the empty ones back up to be reloaded (Souter 2012:110). Although it is noted from various sources that over 900 feet (275 metres) of track was laid for this project, it is assumed that this measurement relates to the total amount for the two directions rather than being an overall measurement of the length of the track (Souter 2012:110).



MESSRS. HARNETT AND CO.'S FREESTONE QUARRY, MOSSMAN'S BAY.

Figure 3.9 East facing lithograph showing the quarry during its operation, with the tracks running along the quarry floor towards the drop-off down to the wharf (source: *Illustrated Sydney News*, Saturday 6 September 1879, pg 17).

This tramway therefore allowed for quarried stone to be transported down to the edge of the wharf, which was constructed with a dry-laid, roughly coursed sandstone seawall retaining an area of level foreshore curving around Quarry Point. The wharf served as the loading point for stone excavated from Harnett’s quarry, where it would then be loaded onto ships to be transported throughout the colony. A 5 tonne derrick crane was constructed on the western edge of the wharf to load the stone onto ships, with a matching 5 tonne crane also constructed on the quarry floor (Souter 2012: 111). In addition to the 5 tonne derrick crane, it is clear from Figure 3.9 that a number of smaller cranes also operated on the quarry site (Figure 3.9).



Figure 3.10 Excerpt from undated lithograph showing the tramway, crane and wharf (source: Mosman Library).

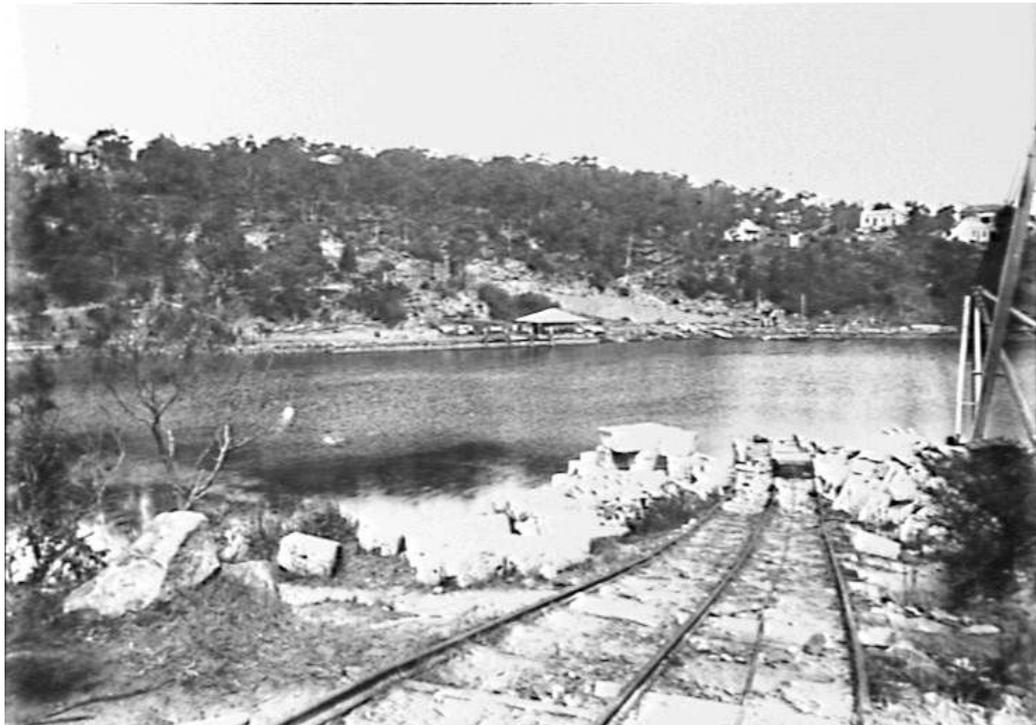


Figure 3.11 South-east facing view showing the tracks running down to the wharf with the crane visible on the right (west) of the wharf (source: TRACE, LH PF 246).

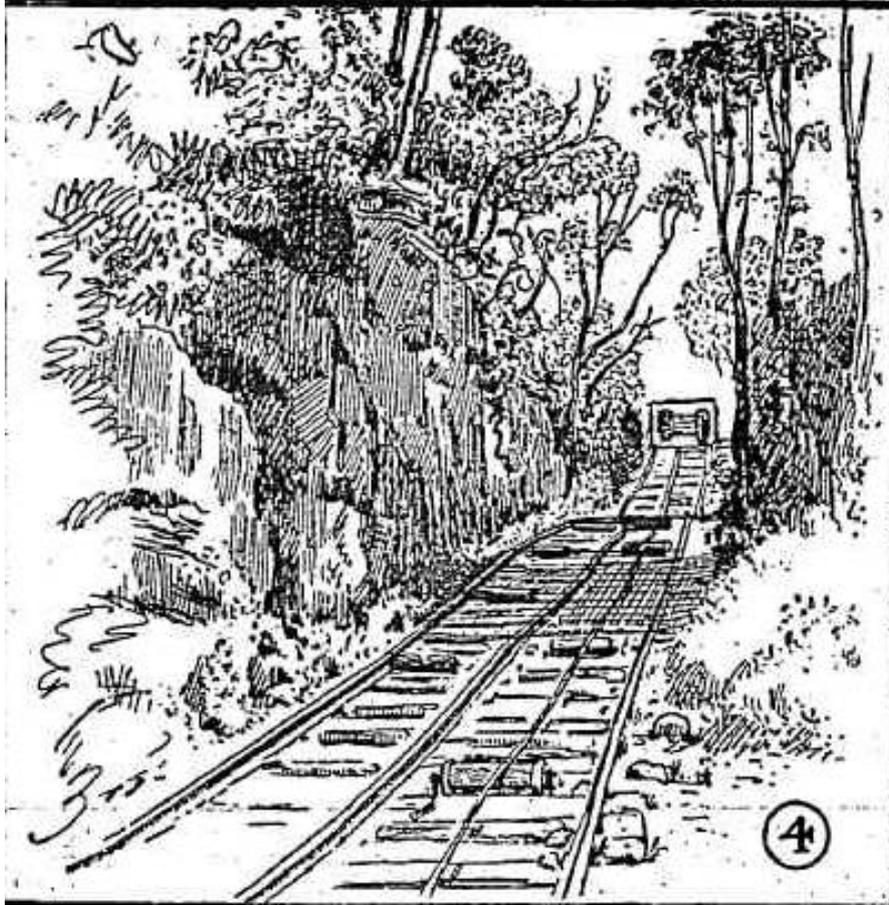


Figure 3.12 Image looking uphill from the wharf to the quarry (source: *Australian Town and Country Journal*, 25 May 1889, pg 27).

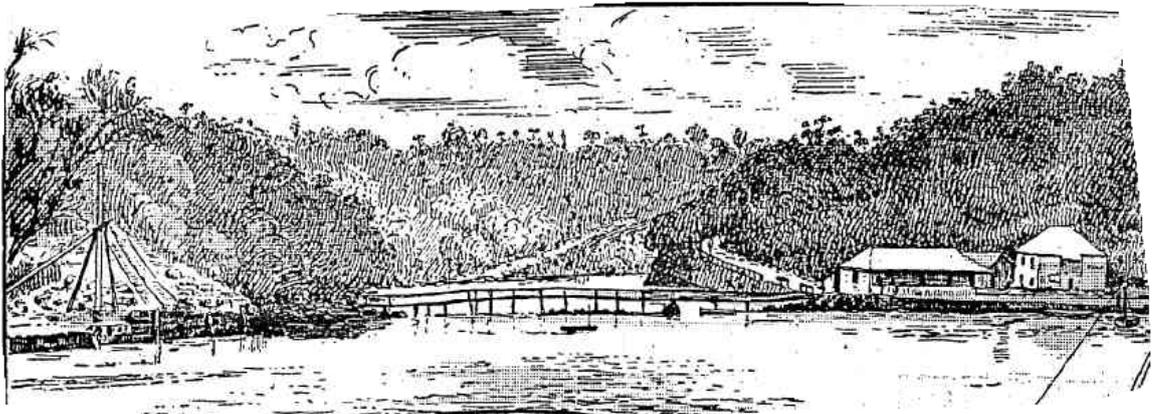


Figure 3.13 Illustration showing Mosman Bay, with the crane and wharf on the left (western) side of the image (*Australian Town and Country Journal*, 25 May 1889, pg 27).



Figure 3.14 Detail of photo of quarry wharf held by Mosman Library. Note the wharf appears to end abruptly to the left (north) of the tracks and the steep slope of the tracks.



Figure 3.15 Detail from a south facing photo of Mosman Bay. Note the crane on the wharf located to the right (western) side of the bay (source: SLNSW, a089944).

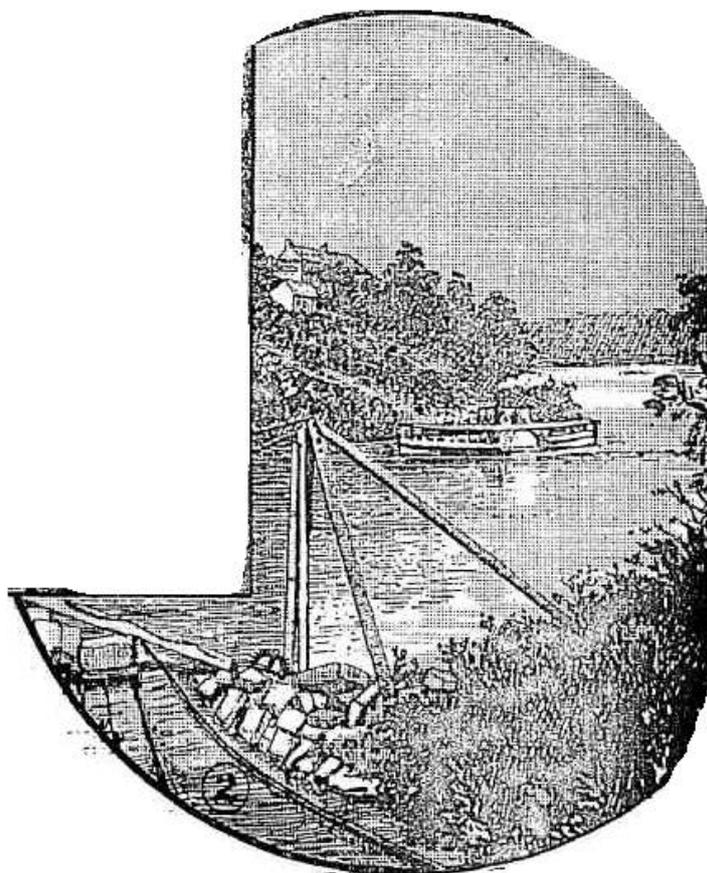


Figure 3.16 View looking down the tracks showing a detailed illustration of the railway line, wharf and crane. Note that the wharf does not appear to extend much further right (westwards) than the tram tracks (*Australian Town and Country Journal*, 25 May 1889, pg 27).



Figure 3.17 Undated south-west facing photograph showing the crane and the wharf (source: Mosman Library).

In the first 12 months of operation, the excavated stone was primarily used to construct many local properties and houses throughout Mosman and the surrounding suburbs of the lower North Shore. The stone to be used locally was loaded at the quarry face onto horse-drawn vehicles for delivery by road (Otto Cserhalmi & Partners Architects 2008:19). The high quality of the stone however was quickly recognised, and as a result it was not long before the stone excavated from Harnett's quarry was utilised for the construction of many of Sydney's public buildings, including schools, town halls, and libraries as well as for the sea wall of the Botanic Gardens. In fact, it has been recorded that over 10,000 tonnes of stone from Harnett's quarry was used for Sydney's buildings between 1878 and 1889 (Souter 2012:112).

The stone from the quarry was described as consisting of two distinct types: an even, whitish sandstone and a slightly yellowish sandstone. The latter was generally found in small quantities near the surface, and therefore was exposed to climatic influences. Consequently, this yellowish sandstone was not as pure as the deeper white sandstone and contained a higher frequency of fracture points (Souter 2012:112). The whitish stone, in contrast, was recorded as reaching a depth of 12-20 metres and was known for its purity. While this white sandstone was soft in its natural state, it was described as rapidly hardening with exposure and was readily worked when freshly quarried. The quality of this whitish stone is emphasised in a contemporary article from the *Sydney Morning Herald*:

"The white stone is remarkable for its purity, in most cases being of a snowy whiteness... is of a somewhat soft composition but from the moment of it being exposed to the air it rapidly hardens, and eventually becomes almost as hard as granite. It is thus admirably adapted for buildings which are required to be of great strength and endurance, as both increase with the age of the stone" (Sydney Morning Herald, 7 April 1879, pg. 3).

As well as being in high demand for the construction of buildings throughout Sydney, the high quality of the stone was exported throughout different parts of the colony, most notably Victoria. Harnett sent sample stones to the 1879 Melbourne exhibition where they were awarded a diploma and a prize (Souter 2012:112). Subsequently, the Victorian Government ordered 5,000 tonnes to be delivered over three years and much of that was used to build Wilson Hall at the University of Melbourne (Souter 2012:112). The importance of this stone in Melbourne can be seen through the following excerpt from a *Sydney Morning Herald* article:

That there is virtually an unlimited demand for this description of stone is proved by the fact that nearly, all the great public institutions and large warehouses in the colonies are built with it. The market, in fact, is not by any means confined to this colony, it is more than probable that our best customer will be Victoria, where freestone is in great request. Indeed, the first contract already entered upon at the Mosmon's Bay quarry, and which may be said to have given its first impetus, is for 80,000 cubic feet of white stone, which is intended for use in the construction of public buildings in Melbourne, where it will be placed in blocks alternately with blue stone (Sydney Morning Herald, 7 April 1879, pg. 3).

The quality of the stone was also realised as far as England, and in the early 1880s a shipment of the sandstone from the Harnett's quarry was sent to London. However, the price it cost to undertake this process was too much to justify any further consignments (Thorne 1979:110).

As noted earlier, Harnett's quarry was seen as a potential catalyst for the development of Mosman as a residential suburb during its first activity in 1878. This became evident within the first two years from the quarry activity commencing with significant changes being made to the surrounding landscape. The dense scrub and bush that covered much of Mosman Bay were cleared, roads were formed and houses for the workmen and their families were built (Otto Cserhalmi & Partners Architects 2008). This saw the population of Mosman Bay significantly increase throughout the 1880s and as a result a number of public buildings were erected, including Mosman Public School and the Congregational Church. Furthermore, postal and telegraph services began, a water supply was connected and an electric tram service was established (Otto Cserhalmi & Partners Architects 2008). While the quarry at Mosman Bay had been a successful industry for 11 years, in 1889 Harnett decided that the land would be more valuable for housing. By this time, Robert Flew and his family had commenced their own quarry business elsewhere in Mosman. However, while sources, including the State Heritage Inventory (SHI) listing for the quarry, note that the operations had ceased by 1889, the quarry had already been listed for sale or let by December 1886:

"Mosman's Bay Quarry to Let or for Sale. R. Harnett, 310 George St" (Sydney Morning Herald, Tuesday 7 December 1886, pg 13).

Following the sale of the quarry in 1889, the land was subdivided and houses were constructed in the vacant lots. In the 1930s landscaping works were undertaken in the area in which tramway that transported quarried stone down to the wharf operated. The site currently continues to be utilised for housing.



Figure 3.18 Low angle, north-west facing 3-D image of the quarry site showing the probable edges of the quarry (marked in red) and the possible lower quarry site where the railway terminated (marked in yellow) (source: Google Earth).

4 SITE INSPECTION

The following section is quoted directly from the previous Austral Archaeology (2015) assessment.

A pedestrian survey was undertaken in order to assess the extent of any visible archaeological remains and to determine the extent of the three archaeological sites listed under the Mosman LEP 2012 (A484), (A485) and (A488) that are under investigation in this report. This site inspection determined that the locations of the three archaeological sites as recorded in the Mosman LEP are incorrect. Maps were therefore created in order to illustrate the recorded location of the sites in relation to the probable extent of the sites following the site inspection.

4.1 Former Tram Terminus including enclosing Sandstone Wall (Item No. A484)

The survey aimed to identify the extent of two main components of the former tram terminus, namely the location of the scissor crossover and the escarpment wall of the balloon loop.

The escarpment wall has largely survived intact, although the northern section of the wall has been lost following construction of garages which are accessed directly off the turning circle. Furthermore, the upper sections of the escarpment wall has undergone several phases of modification following the construction of surrounding apartment blocks, including levelling, construction of retaining walls, and the extensive use of concrete to reinforce the top of the wall.

The terminus of the tramline originally consisted of a two parallel tracks with a scissor loop, with the later construction of the balloon loop. Following the closure of the tram network, the balloon loop was converted into a turning circle and a small garden bed was constructed in the centre of the loop.

The tramlines themselves are likely to have survived *in situ* along the entire length of the terminus and back along Lower Avenue Road, although the construction of the garden bed in the centre of the loop may have disturbed any *in situ* tracks.

The historical research also demonstrated that the tram tracks ran parallel to the wharf itself. As the present wharf building and the original wharf are built on the same location, it is likely that the track extended as far southwards as the end of the wharf building.



Figure 4.1 North facing view along Lower Avenue Road. Note the garages cut into the escarpment wall off Avenue Road, and the low stone border of the garden planter.



Figure 4.2 East facing view of the escarpment wall.



Figure 4.3 South-east facing view of the escarpment wall. Note the garage entrance on the eastern (left) part of the escarpment wall, and the construction of retaining walls and the use of concrete on the remainder of the escarpment wall.



Figure 4.4 North facing view parallel to the wharf building showing the probable extent of the tram lines.

4.2 Stone Quarry, Former (Item No. 485)

The survey aimed to identify the extent of the quarry adjacent to Avenue Road.

The survey was able to clearly locate the northern, eastern and southern extent of the quarry. A multi-level apartment complex has been constructed on the former quarry site. This would have required the insertion of deep footings to support the building. Consequently, it was determined unlikely that any *in situ* archaeological material associated with the quarry below the existing ground level would be present.



Figure 4.5 East facing view along quarry rock face at rear of 65A Avenue Road, Mosman.



Figure 4.6 South facing view along quarry rock face on southern side of 65A Avenue Road, Mosman.



Figure 4.7 East facing view along quarry rock face to the north of 71 Avenue Road, Mosman.

4.3 Site of Former Harnett's Quarry (Item No. A488)

The survey aimed to identify the extent of quarry site to the east of Royalist Road.

The survey was able to clearly identify the western extent of the quarry due to the presence of the quarry-face. However, there were two issues which affected the determination of the overall size of the quarry. Firstly, the northern extent of the quarry wall could not be determined during the survey. It was originally expected that the quarry site would not extend further north than 15 Royalist Road (Lot 1, DP600609), although the results of the survey actually demonstrated that the quarry-face continued further north. Secondly, the eastern extent of the quarry could not be identified. The steep nature of the eastern side of the quarry as it drops down to Mosman Bay has necessitated large amounts of landscaping at the rear of the various buildings constructed on the quarry floor. It is considered that these landscaping works have removed all traces of the quarry on the eastern side.

Note that the presence of relatively dense vegetation along the quarry-face made photography difficult.



Figure 4.8 North facing view along the upper lip of the quarry wall.



Figure 4.9 North facing view along the lower face of the quarry wall.



Figure 4.10 North facing view of the base of the quarry-face. Note the upper part of the wall is intact while the lower part has been carved out, possibly to provide a suitable width for vehicle access to the apartments.

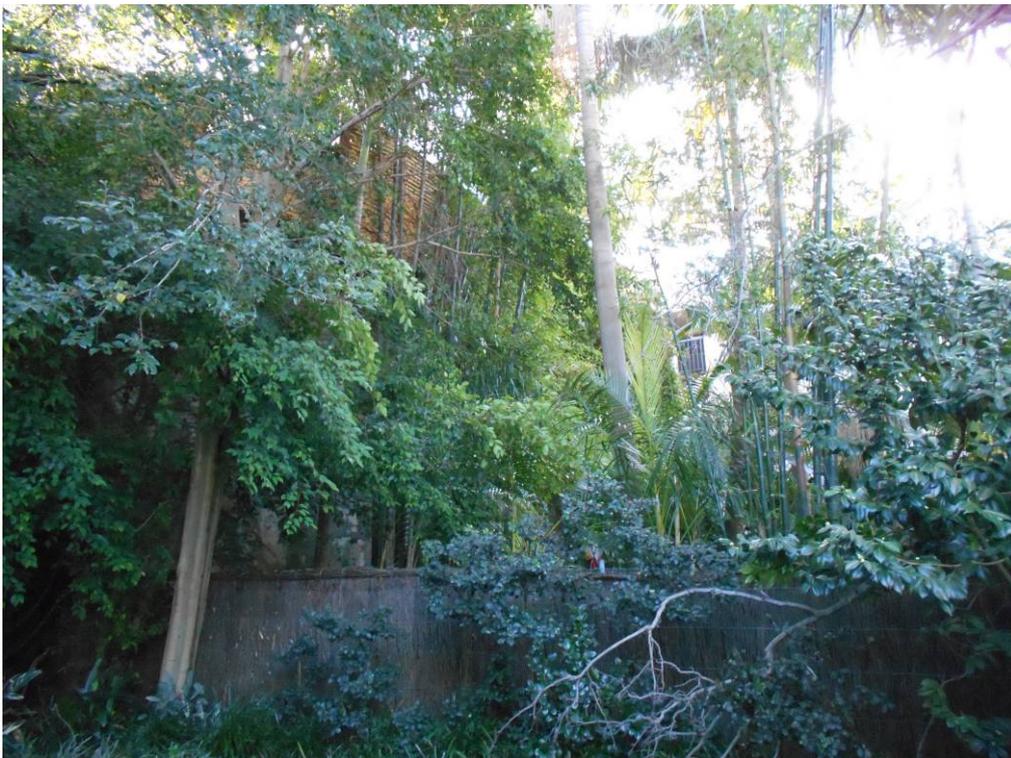


Figure 4.11 North facing view showing quarry-face continuing beyond area of present survey.



Figure 4.12 Ledge on the upper part of the quarry-face, immediately below 13 Royalist Road (Lot 1, DP1052582), most likely result of quarrying activities.

5 ASSESSMENT OF SIGNIFICANCE

5.1 Introduction

An assessment of cultural significance seeks to establish the importance that a place has to the community. The concept of cultural significance is intrinsically tied to the fabric of the place, its history, setting and its relationship to other items in its surrounds and the response it evokes from the community.

The assessment of cultural significance with respect to archaeological sites can present difficulties because the nature and extent of the "relics" are often indeterminate and value judgements therefore need to be made on the basis of potential attributes. The element of judgement can be greatly reduced by historical or other research, as has been completed for the current study. Archaeological deposits and features provide important evidence of the history and settlement of New South Wales. These heritage items may include deposits containing material culture (artefacts) that can be analysed to yield information regarding early urban development that is unavailable from other sources. Archaeological investigations can reveal much about technology, industry, past economic and social conditions and people's lives.

Sites that contain these elements therefore have scientific value that may be of considerable significance when analysed in association with documentary evidence. It is through this potential to reveal information about the past use of a place that archaeological sites have heritage significance.

5.2 Basis for Assessment

The Burra Charter of Australia ICOMOS was formulated in 1979 (revised 2013), based largely on the Venice Charter (for International Heritage) of 1966. The Burra Charter is the standard adopted by most heritage practitioners in Australia. The Charter divides significance into four categories for the purpose of assessment. They are: Aesthetic, Historical, Scientific/Technical, and Social significance.

The Heritage Council of New South Wales has established a set of seven criteria to be used in assessing cultural heritage significance in New South Wales, and specific guidelines have been produced to assist archaeologists in assessing significance for subsurface deposits. These are published in the Heritage Council's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009). The Heritage Council's criteria incorporate those of the Burra Charter, but are expanded to include rarity, representative value, and associative value.

In order to determine the significance of a historical site, the Heritage Council have determined that the following seven criteria are to be considered (Heritage Branch 2009:3):

- **Criterion (a): an item is important in the course, or pattern, of NSW's cultural or natural history (or the local area);**
- **Criterion (b): an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the local area);**
- **Criterion (c): an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);**
- **Criterion (d): an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the local area);**
- **Criterion (e): an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the local area);**
- **Criterion (f): an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area); and**
- **Criterion (g): an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments (or the local area).**

These criteria were designed for use on known or built heritage items, where above ground heritage is both tangible and easily identified. As the nature of archaeology is that it is invisible until disturbed, the presence and attributes of archaeological material must be assumed based on the recorded levels of disturbance, known site history and the creation of predictive statements. Ultimately, the actual presence of archaeological material can only ever be framed in terms of the potential for it to be present.

The Heritage Division has assisted archaeologists by creating questions which are framed around the main NSW Heritage Criteria, and which can be used to assess the relative importance of any archaeology which is likely to be present. The questions to be asked of an archaeological deposit differ from the main criteria, but can be seen to be referential to them, in order to create a suitable framework for assessing archaeological sites.

5.3 Significance Assessment – Former Tram Terminus, including enclosing sandstone wall (A484)

5.3.1 Assessment Criteria

The following section addresses the significance of the potential archaeological resource in accordance with the criteria adopted in the Heritage Council's significance guidelines for archaeological deposits (Heritage Council 2009:11-13), using selected questions from the guidelines.

Archaeological Research Potential (current NSW Heritage Criterion e)

- ***To which contexts (historical, archaeological and research-based) is it anticipated that the site will yield important information?***

It is expected that the site would yield information which is related to the archaeological context. The historical context of the tram terminus has been well-documented as an example of the progress of transportation within the Mosman District. As noted in the SHI, the history of the site, including the sandstone escarpment is a representation of the former presence of trams within Mosman. Furthermore, the location of the site was fundamental to the development of the north shore, representing a link between Mosman and the CBD of Sydney.

The archaeological context of the site is expected to yield information related to the construction techniques of the tramline as well as changes in the layout of the tram terminus that occurred overtime. Given that the site has only experienced one phase of development since the closure of the tramlines in 1955, which involved paving the road with a bitumen surface, it is likely that the tramlines themselves have survived *in situ*. However, the construction of a small garden-bed in the centre of the former balloon loop associated with the tram terminus may have disturbed any *in situ* tracks.

Furthermore, considering that such information as the construction techniques of the tramline and the different layouts of the terminus has already been well-documented, it is considered unlikely that new information related to such subjects will be attained from an archaeological context.

- ***Is the site likely to contain the mixed remains of several occupations and eras, or is it expected that the site has the remains of a single occupation or a short time-period?***

The former tram terminus site is likely to contain remains of a single occupation phase. European contact at Mosman Bay was made as early as 1879 and was an area that was associated with activities of ship repairs and whaling prior to the construction of the tram terminus. However, there is no evidence which suggests that the site is associated with any of these activities and there are no known specific occupation phases at the location of the site prior to the construction of the tram terminus. It is therefore expected that the earliest activity within the site is the construction of the tram terminus. Following the closure of the tramlines, the site was paved over with bitumen to allow for buses and cars to access the bay.

- ***Is the site rare or representative in terms of the extent, nature, integrity and preservation of the deposits (if known)?***

The site is not considered rare or representative in terms of the extent, nature, integrity and preservation of deposits.

- **Are there a large number of similar sites?**

Sites such as the former tram terminus at Mosman Bay which were in operation from the early to mid 20th century are well represented throughout the Sydney region. This includes both extant sites and those recorded in the archaeological record. Two such examples of a tram terminus site which dates to the early 20th century include the ‘Former Athol Wharf tram terminus, including escarpment and retaining walls’ in the Mosman LGA and the ‘Former Zetland tram terminus (874 Elizabeth Street)’ in the Sydney LGA.

Few sites however have maintained their original layout and have been subject to later development.

- **Is the excavation of this site likely to enhance or duplicate the data set?**

As stated earlier, the former tram terminus has been well-documented in the historical record. Any *in situ* archaeological deposits or features that were once associated with the former tram terminus are likely to be limited in nature and only likely to identify tram tracks associated with the former tram terminus, which will duplicate the data set obtained from excavation and historical documentation of this site and other such sites. An excavation of the site is therefore unlikely to contribute additional knowledge relating to construction technique of the tracks and layout of the tram terminus.

- **What is the ability of the archaeological evidence to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site?**

In contrast to the documentary evidence which constitutes the major source of knowledge for the former tram terminus, any material recovered within the site from an archaeological context is likely to be limited in nature and of low research potential. There is a very low likelihood that additional information associated with the operation of the former tram terminus will be attained from an archaeological excavation of the site.

It is therefore considered that the site does not provide archaeological research potential at the State or local level and therefore fails to meet NSW Heritage Criterion (e) from an archaeological standpoint.

Associations with individuals, events or groups of historical importance (NSW Heritage Criteria a, b and d)

- **Does the archaeological site link to any NSW Historic Themes? Will the site contain ‘relics’ and remains which may illustrate a significant pattern in State or local history?**

A selection of relevant themes in the SHR listing for the former tram terminus are listed below in Table 5.1.

Table 5.1 Historical Themes in the SHR listing for the Former Tram Terminus

Australian Theme	New South Wales Theme	Local Themes
3. Economy – Developing local, regional and national economies	Transport – Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements.	Railway
3. Economy – Developing local, regional and national economies	Technology - Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	(none) -

- ***Is the site widely recognised?***

The site is recognised for its historical value by local historians and organisations such as the Mosman library and Mosman Historical Society. The site is recognised by the public, yet to a limited degree. It is primarily the extant enclosing sandstone wall feature associated with the former tram terminus that is publicly recognised rather than the documentary evidence of the site.

- ***Does the site have symbolic value?***

The site has symbolic value as a place associated with the development of Mosman in the late 19th century and its association with the progress of public transportation systems throughout both Mosman and Sydney as a city. The site can also be seen as a symbol of the development of tourism throughout Mosman Bay, which, with the ferry service, provided a link between CBD of Sydney and the attractions of the lower North Shore.

Furthermore, the site has symbolic value throughout its association with individuals who were instrumental in the development and shaping of Mosman, most notably Richard Harnett.

- ***Is there a community of interest (past or present) which identifies with, and values the specific site?***

It is not known if any particular communities either past or present identify with and value the site. The absence of identifiable features associated with the tram terminus, with the exception of the sandstone wall, is likely to have reduced interest in the site within the community.

- ***Is the site associated with an important person? (the role of the person in State or local history must be demonstrated/known)***

While Richard Harnett during his term as Mayor of Mosman emphasised the need for a tramline at Mosman Bay saw the importance of this tram terminus, the site does not contain any direct association with an important individual.

- ***Did a significant event or discovery take place at the site? Is that evident/or likely to be evident in the archaeology/physical evidence of the site?***

There is no known significant event or discovery that took place at the site.

- ***Do the archaeological remains have particular associations with individuals, groups and events which may transform mundane places or objects into significant items through the association with important historical occurrences?***

Any archaeological remains present within the study area are unlikely to have any particular associations with individuals of strong importance in the development of New South Wales or the district of Mosman.

Any archaeological remains at the site, however, would have associations with events which were significant in the development of Mosman Bay. It would have the potential to demonstrate the site's transformation from a mundane place into a social hub for Mosman Bay, as well as a site that symbolised the progress of transportation in Sydney and the link between the Sydney CBD and the lower North Shore.

It is considered that the site will contain limited archaeological remains which are considered significant in their association with important historical occurrences at the local level. Therefore the site does not meet NSW Heritage Criteria (a), (b) or (d) from an archaeological standpoint.

Aesthetic or Technical Significance (NSW Heritage Criterion c)

- ***Does the site/is the site likely to have aesthetic value?***

The site has aesthetic value for both its landscape and its views across Mosman Bay. While the tram tracks and any buildings associated with the former tram terminus have been removed when the site was converted into a road for buses and cars in the 1950s, the enclosing sandstone wall has survived and is the only intact feature associated with the tram terminus that has survived. This feature adds to the aesthetic value of the site through its demonstration of the workmanship and design process that were undertaken in the construction of the tram terminus.

The site has also retained extensive views of Mosman Bay which allows a high degree of interpretation of an earlier cultural landscape, specifically by demonstrating the relationship between the ferry service and the tramline at Mosman Bay.

However, while the surrounding landscape and extensive views add to the aesthetic value of the site, the site does not have aesthetic value for the potential archaeological remains located within the study area.

- ***Does the site/is the site likely to embody a distinctive architectural or engineering style or pattern/layout?***

If archaeological remains were present within the study area, it would demonstrate elements of a distinctive engineering style. As evident from contemporary photographs of the site, the tram tracks are typical of those which were constructed in Sydney during that time period. The two different styles of the layout of the tram tracks, including the 'balloon loop' and the 'scissors crossover' style were common features for tram tracks throughout the early 20th century in Sydney.

- ***Does the site demonstrate a technology which is the first or last of its kind?***

While the site does demonstrate progression in technology of transportation throughout Sydney, it does not demonstrate a technology which is the first or last of its kind.

- ***Does the site demonstrate a range of, or change in, technology?***

Due to the nature of the site as a former tram terminus, it is unlikely that the site will demonstrate a range of, or change in technology through the archaeological record. As stated earlier, the primary form in which archaeological material will be derived from the site is through the exposure of the tracks. These tracks are likely to date from at least 1934 when the layout of the tram terminus was changed back from a 'balloon loop' to a 'scissor crossover' layout, a period in which tram services were very common throughout Sydney. Thus, it is unlikely that archaeological features or deposits within the site will demonstrate a range of or change in technology.

- ***Will an archaeological excavation reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, which may allow both professionals and the community to connect with the past through tangible physical evidence?***

As stated above, if present, the archaeological material associated with the former tram terminus will most likely be in the form of tram tracks only. While such finds have the potential to allow both professionals and the community to connect with the past, it would be of a limited nature only.

While the site does meet NSW Heritage Criterion (c) at the local level for the aesthetic and technical values represented by the enclosing sandstone wall and views across Mosman Bay, it is considered that the site does not meet NSW Heritage Criterion (c) on an archaeological standpoint.

Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria a, c, f, and g)

- ***Does the site contain well-preserved or rare examples of technologies or occupations which are typical of particular historic periods or eras of particular significance?***

The site is considered very unlikely to contain well-preserved or rare example of technologies or occupations which are typical of particular historic periods or eras of particular significance.

- ***Was it a long-term or short-term use?***

The site's use as a tram terminus was relatively long term, operating between 1897 and 1955. There is no archaeological or documentary evidence which suggests that the site was occupied prior to the operations of the tramline at Mosman Bay. The tram terminus was converted into a road for buses and cars to access Mosman Bay wharf from 1955.

- ***Does the site demonstrate a short period of occupation and therefore represents only a limited phase of the operations of a site or technology or site? Or does the site reflect occupation over a long period?***

The occupation of the site as a tram terminus took place over a long period, operating between 1897 and 1955.

- ***Does the site demonstrate continuity or change?***

The site demonstrates continuity through its use as a tram terminus.

- ***Are the remains at the site highly intact, legible and readily able to be interpreted?***

The enclosing sandstone wall that was formerly associated with the tram terminus remains extant at the site. This is the only known intact feature of the tram terminus that still exists and therefore readily able to be interpreted. It is likely that an excavation at the site may reveal the tracks associated with the tram terminus, and which are also likely to be intact. However, other features that may have once been associated with the tram terminus are considered unlikely to be intact.

- ***Do the archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation?***

The archaeological remains of the former tram terminus have the ability to demonstrate the layout of the tracks, and possibly the changes in the layout of the tracks over time. However, as stated earlier, such information has already been well-documented and it is unlikely that additional information about the operation processes of the tram terminus will be attained from the archaeological remains.

It is considered that in terms of the archaeological remains likely to be present, this site does not meet NSW Heritage Criteria (a), (b), (c) and (f) in this regard at the local level.

5.4 Summary of Significance – Former Tram Terminus (A484)

The site is listed on the Mosman LEP 2012 for its historical values at a local level, however it does not meet the NSW Heritage Assessment Criteria on an archaeological standpoint:

- it does not meet criterion (e) for historical potential at the local level. It is considered that the limited archaeological material that may be present is unlikely to contribute to additional information on the former tram terminus, and therefore research potential within the archaeological record is low. The research potential of the study area is predominantly within the documentary evidence rather than the archaeological record.
- it does not meet criteria (a), (b) and (d) for containing archaeological remains with demonstrated associations with individuals, groups or events at either State or local level. There are no known important individuals or events that were once associated with the former tram terminus, and it is considered very unlikely that such associations will be identified in the archaeological record.
- it does meet criterion (c) at the local level for its aesthetic and technical values. This is represented by the existing enclosing sandstone wall associated with the former tram terminus, as well as the site's extensive views across Sydney Harbour.
- It does not meet criteria (a), (c), (f) and (g) for demonstrating the past through archaeological remains at the local level. Any remains associated with the former tram terminus are likely to be limited in nature, and any information that is present is unlikely to contribute to further information associated with the tram terminus.

5.5 Statement of Significance – Former Tram Terminus (A484)

The former tram terminus, including enclosing sandstone wall has been listed on the Mosman LEP as being of local significance. This listing primarily relates to the role of the tram terminus and tramline in the development of Mosman as a suburb and its ability to demonstrate the progression of transport systems in Sydney. However, it must be noted that the significance of this site is represented through an historical context only.

The former tram terminus represented a major hub of Mosman Bay during its operation, a place where people would gather in order to travel throughout the lower North Shore. It functioned as a connection to the ferry service, located adjacent to the wharf at Mosman Bay, and was the primary means of access to travel through Mosman for people arriving by ferry from other parts of Sydney.

The site's representative and symbolic value as a place associated with the development of Mosman Bay in the late 19th century and the first half of the 20th century. The site represents the connection between the lower North Shore and the Sydney CBD, and symbolises a means of access for excursionists and tourists from other parts of Sydney to view the attractions of Mosman Bay.

The former tram terminus however not only benefited those travelling from outside of Mosman Bay as a means of access to the suburb, but is also acted as a catalyst for further development and growth within the Mosman Bay area for local residents. Rows of houses and public buildings including schools and post offices were constructed within close vicinity to the tram terminus shortly after it had opened in 1897. A number of businesses were also set up along Avenue Road by the turn of the century and Mosman Bay was subsequently viewed as its own distinct community separate from Mosman.

The site contains high visual and aesthetic value for its extensive views across Mosman Bay which allows a high degree of interpretation of an earlier landscape. The extant enclosing sandstone wall which surrounds the site to the east and south, and which was formerly associated with the tram terminus, further adds to the aesthetic value of the site. The feature represents a physical testament to the former presence of trams in the area.

However, it is vital to note that the significance of the site is from a historical and built heritage context only. The site has been well-documented in the historical record, containing detailed documentary evidence of the different phases of development. Therefore, while the site has limited potential to contain *in situ* archaeological remains associated with the former tram terminus, it is considered unlikely that such archaeological features and deposits will contribute to additional knowledge of the site that has not already been recorded. As such, the archaeological evidence within the study does not meet the Heritage Significance Criteria at State or Local level as an archaeological site.

5.6 Significance Assessment – Former Stone Quarry (A485)

5.6.1 Assessment Criteria

The following section addresses the significance of the potential archaeological resource in accordance with the criteria adopted in the Heritage Council's significance guidelines for archaeological deposits (Heritage Council 2009:11-13), using selected questions from the guidelines.

Archaeological Research Potential (current NSW Heritage Criterion e)

- ***To which contexts (historical, archaeological and research-based) is it anticipated that the site will yield important information?***

It is expected that the site would yield information which are related to the historical and archaeological contexts. The historical context of the stone quarry has been documented to a limited degree. The primary sources associated with the quarry are scarce and the secondary historical sources are non-existent. It is therefore considered that the site has the potential to contribute to the historical context of the site, demonstrating its importance in the supply of sandstone for the construction of local buildings and houses throughout Mosman and thus its role in the development of Mosman in the late 19th century and early 20th century.

The archaeological context of the site is expected to yield information related to the different processes in the operation of the quarry over time. However, the development of the site following the operation the quarry from the early 1920s onwards, including the construction of the tennis courts and the subsequent construction of houses and apartments, has likely removed any *in situ* archaeological features or deposits once associated with the quarry that is below the current ground level. It is highly likely that the only archaeological material associated with the former quarry is the extant quarry wall above the current ground level adjacent to apartments. It is therefore considered unlikely that archaeological material will be recovered in sufficient quantity to answer any research-based questions relating to processes associated with the operation of the stone quarry.

- ***Is the site likely to contain the mixed remains of several occupations and eras, or is it expected that the site has the remains of a single occupation or a short time-period?***

The former stone quarry site is likely to contain mixed remains of several occupations and eras. The earliest known occupation of the site is the stone quarry that was operated by the Flew family from 1889. It is possible that earlier activity at the site took place, however this has not been recorded in the historical record. The site was sold to the Mosman Council in the early 20th century, who continued to utilise the land for quarrying sandstone. However, it is unlikely that the change in ownership of the quarry will be distinguishable in the archaeological record. Following years of disuse and abandonment, the quarry was converted into tennis courts before apartments and houses were constructed on the site.

- ***Is the site rare or representative in terms of the extent, nature, integrity and preservation of the deposits (if known)?***

The site is not considered rare or representative in terms of the extent, nature, integrity and preservation of deposits.

- ***Are there a large number of similar sites?***

Sites such as the former stone quarry are well-represented throughout Sydney and much of the coast of New South Wales. Sandstone quarries were common sites throughout Sydney in the late 19th century and early 20th century due to the abundance of the material and many extant quarry sites can be found throughout the Sydney region. However, like the former stone quarry at Mosman, this is primarily solely evident through the sandstone escarpment. Notable examples of stone quarries in Sydney include the 'Saunders Quarry' in the Sydney LGA and 'Clyde Street Quarry' in North Bondi.

- ***Is the excavation of this site likely to enhance or duplicate the data set?***

The historical record of the former stone quarry site at Mosman is limited. Therefore any *in-situ* archaeological deposits or features present on the site that were once associated with the former stone quarry are likely to enhance the data set. However, as stated earlier, subsequent development of the site following the operation of the quarry has likely removed any *in situ* archaeological associated with the quarry that is below the current ground level.

- ***What is the ability of the archaeological evidence to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site?***

As stated earlier, historical sources related to the former stone quarry at Mosman are very limited in nature. Therefore, any archaeological evidence associated with the quarry is likely to provide information that could not be derived from the historical record. However, given the large scale development of the site since its occupation as a quarry, including the construction of tennis courts and later development of residential apartments and houses, any material associated with the quarry has likely been removed. Consequently, there is a very low likelihood that additional information associated with the operation of the former stone quarry will be attained from an archaeological excavation of the site.

It is therefore considered that the site does not provide archaeological research potential at the State or local level and therefore fails to meet NSW Heritage Criterion (e) from an archaeological standpoint.

Associations with individuals, events or groups of historical importance (NSW Heritage Criteria a, b and d)

- ***Does the archaeological site link to any NSW Historic Themes? Will the site contain 'relics' and remains which may illustrate a significant pattern in State or local history?***

A selection of relevant themes in the SHR listing for the former Stone Quarry are listed below in

Table 5.2.

Table 5.2 Historical Themes in the SHR listing for the Former Stone Quarry

Australian Theme	New South Wales Theme	Local Themes
3. Economy – Developing local, regional and national economies	Environment – Cultural landscape - activities associated with the interactions of humans, human societies and the shaping of their physical surroundings	(none)-
	Industry - Activities associated with the manufacture, production and distribution of goods	Quarrying -
	Mining - Activities associated with the identification, extraction, processing and distribution of mineral ores, precious stones and other such inorganic substances.	Quarrying stone

- ***Is the site widely recognised?***

The site is not considered widely recognised by the public or local residents. The historical values of the site are only likely recognised by local historians and organisations such as the Mosman Library and Mosman Historical Society.

- ***Does the site have symbolic value?***

The site has symbolic value as a place associated with the industrial development of Sydney throughout the late 19th century and early 20th century. The site also holds symbolic value through its role in the development of Mosman as the stone quarried from the site was utilised to construct buildings and residential houses throughout the Mosman district.

Furthermore, the site holds symbolic through its association with the Flew family, who were instrumental in the development and shaping of Mosman.

- ***Is there a community of interest (past or present) which identifies with, and values the specific site?***

The site is closely tied to both the industrial development of Sydney and the Flew family, although it is not known if any particular communities either past or present identify with or value the site for these reasons.

- ***Is the site associated with an important person? (the role of the person in State or local history must be demonstrated/known)***

The site is most notably associated with the Flew family, including Robert Flew and his two sons, Albert and Thomas Flew. Robert Flew was responsible for opening the stone quarry at Avenue Road following the closure of Harnett’s quarry in 1889, where he held the role of managing the operations of the quarry. Robert Flew is a notable figure in the local history of Mosman, who migrated to Sydney from Portland in Dorset, England as a quarryman in 1872 with his wife Elizabeth Flew and six sons. The Flew family were responsible for assisting with the industrial development of Mosman and its development as a suburb at the turn of the century.

- ***Did a significant event or discovery take place at the site? Is that evident/or likely to be evident in the archaeology/physical evidence of the site?***

While records do not that indicate that a significant event or discovery took place at the site, the former stone quarry site is a symbol of the overall state of quarrying technology in the late 19th century and early 20th century and its association with the development of Mosman. However, this is unlikely to be reflected in the archaeological record of the site due to the impacts caused by the subsequent development.

- ***Do the archaeological remains have particular associations with individuals, groups and events which may transform mundane places or objects into significant items through the association with important historical occurrences?***

Although the site is strongly associated with the Flew family, it is very unlikely that this association will be reflected in the archaeological record.

Any archaeological remains of the site, however, would have associations with events which demonstrate the transformation of the site from a mundane place into a site of significance. The significance of the site is seen in its occupation as a stone quarry that was first operated by the Flew family in 1889 and which continued its use as a quarry until the early 1920s before it was converted into tennis courts. Therefore, any archaeological remains present will demonstrate the site's transformation from a mundane place into a site that symbolises the industrial development of Mosman and the importance of quarrying in the development of Mosman.

It is considered that the site contains limited archaeological remains which are considered significant in their association with important historical occurrences at the local level. Therefore the site does not meet NSW Heritage Criteria (a), (b) or (d) from an archaeological standpoint.

Aesthetic or Technical Significance (NSW Heritage Criterion c)

- ***Does the site/is the site likely to have aesthetic value?***

The site has aesthetic value through the presence of the sandstone escarpment that was once associated with the former stone quarry. This is the only intact feature associated with the stone quarry that has survived, yet provides a visual insight of the former stone quarry.

However, much of the site has been heavily developed with the construction of residential apartments, which reduces the aesthetic value of the site. Furthermore, as a result of this subsequent development, it is considered unlikely that the site will hold aesthetic value through the archaeological remains.

- ***Does the site/is the site likely to embody a distinctive architectural or engineering style or pattern/layout?***

If archaeological remains were present within the study area, it would likely demonstrate elements of a distinctive engineering style. As stated earlier, sandstone quarries dating to the late 19th century and early 20th century were common throughout the Sydney region. While the engineering style or technological processes of the former stone quarry is not defined in the historical record, it is likely that if any archaeological remains were present it would demonstrate distinctive features that are evident elsewhere in Sydney.

- ***Does the site demonstrate a technology which is the first or last of its kind?***

The site does not demonstrate a technology which is the first or last of its kind.

- ***Does the site demonstrate a range of, or change in, technology?***

As stated earlier, the technological processes of the former stone quarry during its operation were not defined in the historical record. Due to the likely absence of archaeological remains within the site, a range of, or change in, technology is unlikely to be demonstrated.

- ***Will an archaeological excavation reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, which may allow both professionals and the community to connect with the past through tangible physical evidence?***

Archaeological material associated with the former stone quarry that is below the current ground level has likely been removed following subsequent development phases of the site including the construction of the tennis courts and the later construction of residential apartments. It is therefore unlikely that an excavation will reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures.

It is therefore considered that the site does not meet NSW Heritage Criterion (c) on an archaeological standpoint.

Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria a, c, f, and g)

- ***Does the site contain well-preserved or rare examples of technologies or occupations which are typical of particular historic periods or eras of particular significance?***

The site is considered very unlikely to contain well-preserved or rare example of technologies or occupations which are typical of particular historic periods or eras of particular significance.

- ***Was it a long-term or short-term use?***

The former stone quarry was in operation between 1889 and 1923. There is no archaeological or documentary evidence which suggests that the site was occupied prior to the operations of the quarry. The quarry was converted into tennis courts from 1923, before houses were developed on the site from the 1940s. The site continues to be utilised for residential buildings.

- ***Does the site demonstrate a short period of occupation and therefore represents only a limited phase of the operations of a site or technology or site? Or does the site reflect occupation over a long period?***

The occupation of the site as a quarry took place over a long period, operating between 1889 and 1923. However, given the very limited historical sources available, the quarrying operations and technology of the site are not defined in documentary evidence.

- ***Does the site demonstrate continuity or change?***

The site demonstrates change, as the quarry was converted into tennis courts from 1923 before later occupying residential houses and apartments.

- ***Are the remains at the site highly intact, legible and readily able to be interpreted?***

The quarry rock face that is associated with the former stone quarry remains extant and intact, and is therefore readily able to be interpreted. However, this is limited in its extent due to the subsequent development of residential buildings on much of the site.

It is considered unlikely that an excavation at the site will reveal intact archaeological remains associated with the former quarry.

- ***Do the archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation?***

As a result of the multiple phases of development of the site following its use a quarry in the early 20th century, it is very unlikely that the archaeological remains have the ability to demonstrate how the quarry was used, the processes that occurred and how work was undertaken within the quarry site.

It is considered that in terms of the archaeological remains likely to be present, this site does not meet NSW Heritage Criteria (a), (b), (c) and (f) in this regard at the local level.

5.7 Summary of Significance – Former Stone Quarry (A485)

The site is listed on the Mosman LEP 2012 for its historical values at a local level, however it does not meet the NSW Heritage Assessment Criteria:

- it does not meet criterion (e) for historical potential at the local level. While the historical record of the site is limited, it is also considered that only limited archaeological material is likely to be present. Therefore research potential within the archaeological record is low.
- it does meet for criteria (a), (b) and (d) for its associations with individuals, groups or events at the local level; however it does not meet criteria (a), (b) and (d) for containing archaeological remains with demonstrated associations with individuals, groups or events at either State or local level. While the site is strongly associated with the Flew family, it is considered very unlikely that this association will be demonstrated in the archaeological record.

- it does not meet criterion (c) for containing archaeological remains with aesthetic or technical significance at either State or local level. The aesthetic values of the site are through the extant quarry rock face that was associated with the former stone quarry rather than the archaeological record.
- It does not meet criteria (a), (c), (f) and (g) for demonstrating the past through archaeological remains at the local level. Any archaeological remains associated with the former stone quarry, with the exception of the extant quarry rock face, has likely been removed.

5.8 Statement of Significance – Former Stone Quarry (A485)

The Former stone quarry has been listed on the Mosman LEP 2012 as being an archaeological site of local significance. This listing primarily relates to the significance of the quarry and its role in the industrial development of Mosman throughout the early 20th century, as well as its association with local historical figures.

The site represents one of many sandstone quarries throughout both of Mosman and Sydney, and is a demonstration of the extent to which the industry of sandstone quarrying had grown throughout the late 19th century and early 20th century. As a result of the scarce documentary evidence of the site that is available, the engineering or technological significance of the quarry is unknown.

The site contains associations with local historical figures, most notably the Flew family. Robert Flew operated numerous quarries throughout the Mosman District, including Harnett's quarry prior to the opening of the quarry at Avenue Road. The Flew family held a significant role in the development of the quarrying industry in Mosman and by doing this helped develop Mosman as a suburb.

The site has representative and symbolic value as a place associated with the residential development of Mosman. The stone that was extracted from the Avenue Road quarry was utilised for the construction of many of the houses around Mosman that still exist today.

The significance of the site is further demonstrated through its aesthetic value. This is represented by the extant sandstone escarpment wall that was formerly associated with the Avenue Road stone quarry. However, the extent to which this feature is currently exposed is limited due to the large scale development of residential apartments on the site.

As has been emphasised through this assessment, the significance of the site is unlikely to be represented from an archaeological viewpoint and is only recognisable through historical sources and interpretation of built heritage. The multiple phases of development of the site since the closure of the quarry in the early 1920s, including the construction of the tennis courts and later development of houses, have most likely removed any archaeological material of the quarry that may have existed below the current ground level. Consequently, it is considered very unlikely that the site holds archaeological significance. As such, the archaeological resource within the study area does not meet the Heritage Significance Criteria at any level as an archaeological site.

5.9 Significance Assessment – Site of Former Harnett's Quarry (A488)

5.9.1 Assessment Criteria

The following section addresses the significance of the potential archaeological resource in accordance with the criteria adopted in the Heritage Council's significance guidelines for archaeological deposits (Heritage Council 2009:11-13), using selected questions from the guidelines.

Archaeological Research Potential (current NSW Heritage Criterion e)

- ***To which contexts (historical, archaeological and research-based) is it anticipated that the site will yield important information?***

It is expected that the site would yield information which is related to the archaeological context. The historical context of the sandstone quarry is well documented as being associated with Richard Harnett's, who occupied the site between 1878 and 1889. The site is a representation of early industrial undertaking in the vicinity and is illustrative of the nature and extent of 19th century technology of quarrying. Furthermore, the quarry demonstrates significant engineering accomplishments of the period not only in the quarrying process itself, but more notably in the transportation of the stone from the quarry down to the edge of the wharf by means of a tramway. This is particularly the case when considering the nature of the environment and the gradient of the slope between the two working areas.

The archaeological context for the site is expected to yield information relating to the construction and operation of the quarry and associated tramway. However, as noted in Section 3, the site underwent subdivision and the construction of houses in the late 19th century and early 20th century following its use as a quarry, which have likely removed any archaeological deposits once associated with the quarry that is below the current ground level. The only archaeological material likely present at the site is the extant quarry wall. It is therefore considered unlikely that archaeological material will be recovered in sufficient quantity to answer any research-based questions relating to processes associated with the operation of the quarry or the presence or absence of structures associated with the quarry.

- ***Is the site likely to contain the mixed remains of several occupations and eras, or is it expected that the site has the remains of a single occupation or a short time-period?***

The site of Harnett's quarry is likely to contain remains of a single occupation phase. As mentioned in the previous chapter, European contact at Mosman Bay was made as early as 1789 and was an area that was associated with activities of ship repairs, whaling and the operation of ferry services prior to the development of Harnett's quarry. Yet, there is no evidence which suggests that the study area is associated with these early activities. It is therefore expected that the earliest activity within the study area is the construction of the quarry which in 1878. Following the closure of the quarry, the site was subdivided and developed into houses.

- ***Is the site rare or representative in terms of the extent, nature, integrity and preservation of the deposits (if known)?***

The quarry itself is considered representative of all such sites in Sydney. The one feature which makes this particular site rare however is the use of the tramway; a significant undertaking and unique solution to the problem of transporting quarried rocks down to the wharf at Mosman Bay.

However, the high impacts caused by the later development of houses and landscaping works are likely to have removed all archaeological material associated with the tramline. Consequently, it can only be stated that, where deposits are potentially present, the site is representative in terms of the extent, nature, integrity and preservation of deposits.

- ***Are there a large number of similar sites?***

Quarry sites in the Sydney region which date to the mid - late 19th century are well represented in the archaeological record. In many cases the cutting platforms for many of these sites are still visible despite further development. Two such examples in Mosman include the quarries operated by Flew following the closure of Harnett's quarry, with one quarry located at Avenue Road and the other located near the Spit (Austral Archaeology 2015b). Other notable examples include the 'Paradise quarry' near Saunders St in Pymont which dates to the 1850s and the Northmead quarries near Quarry Branch Creek which dates to the early 1870s (De Vries & De Vries 2014).

- ***Is the excavation of this site likely to enhance or duplicate the data set?***

As stated earlier, the historical record of the quarry site is very well documented given its strong association with Richard Harnett. Any *in situ* archaeological deposits or features once associated with Harnett's quarry that are below the current ground level are likely to have been removed due to the subdivision of the land and construction of houses on the site from the 1890s onwards.

Therefore, an excavation of the site is unlikely to contribute additional knowledge relating to late 19th century quarrying technology or site-specific information such as the means by which the tramline may have operated.

- ***What is the ability of the archaeological evidence to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site?***

In contrast to the documentary evidence which constitutes a great deal of information for the quarry and railway, any material recovered within the study area from an archaeological context is likely to be limited in nature and of low research potential.

The area which comprised of the quarry itself underwent subdivision following its use as a quarry and a number of houses have been constructed on the site from the 1890s onwards. It is therefore unlikely that any archaeological remains associated with the quarry will be present at the site.

In regards to the tramway that transported stone from the quarry to the wharf, subsequent landscaping works have replaced the engineered slope with a levelled flat area. It is therefore unlikely that any archaeological material associated with the tramline is present below the current ground level.

It is therefore considered that the site does not provide archaeological research potential at the State or local level and therefore fails to meet NSW Heritage Criterion (e) from an archaeological standpoint.

Associations with individuals, events or groups of historical importance (NSW Heritage Criteria a, b and d)

- ***Does the archaeological site link to any NSW Historic Themes? Will the site contain 'relics' and remains which may illustrate a significant pattern in State or local history?***

A selection of relevant themes in the SHR listing for the site of Former Harnett's quarry are listed below in Table 5.3.

Table 5.3 Historical Themes in the SHR listing for the Former Quarry Wharf

Australian Theme	New South Wales Theme	Local Themes
3. Economy – Developing local, regional and national economies	Environment – Cultural landscape - activities associated with the interactions of humans, human societies and the shaping of their physical surroundings	(none)-
	Industry - Activities associated with the manufacture, production and distribution of goods	Quarrying -
	Mining - Activities associated with the identification, extraction, processing and distribution of mineral ores, precious stones and other such inorganic substances.	Quarrying stone

- ***Is the site widely recognised?***

The site is widely recognised for its historical value at a local level. However, it is primarily the documentary evidence of the site that is publically recognised rather than its archaeological potential.

- ***Does the site have symbolic value?***

The site has symbolic value as a place associated with the development of Mosman in the late 19th century and its association with sandstone quarrying and the exporting of sandstone throughout different parts of the colony. The site can also be seen as a symbol of the development of New South Wales and other colonies in the late 19th century as the source for the sandstone which was utilised in the construction of many historical buildings around Sydney and other capital cities.

Furthermore, the site has symbolic value throughout its association with individuals and families who were instrumental in the development and shaping of Mosman, including Richard Harnett, Alexander Stuart and Robert Flew.

- ***Is there a community of interest (past or present) which identifies with, and values the specific site?***

The site is closely tied to both the industrial development of Sydney and several significant families, although it is not known if any particular communities either past or present identify with or value the site for these reasons.

- ***Is the site associated with an important person? (the role of the person in State or local history must be demonstrated/known)***

The site of former Harnett's quarry is most strongly associated with Richard Harnett, an influential and well-known figure throughout the lower North Shore during the late 19th century. Harnett migrated to the colony of New South Wales on the *China* in 1840, and in 1859 had acquired 108 acres of land at Mosman Bay from John Stirling. After purchasing an additional 370 acres of land in the area, Harnett instigated a number of projects that would assist in the development of Mosman as a residential suburb, including the construction of a wharf on the opposite side of the bay to the study area which was used to establish a ferry service between Mosman Bay, Neutral Bay, and Circular Quay. Harnett continued to initiate development projects in the Mosman area and in 1878 established a sandstone quarry on the ridge above the head at Mosman Bay, which included a tramway to transport the stone down to the wharf to the south-west. Harnett subsequently kick-started the development of Mosman as a residential suburb by implementing a subdivision on his land holdings following the closure of the quarry.

The site is also associated with Alexander Stuart, a notable developer and politician in New South Wales in the latter half of the 19th century. Originally from Edinburgh, Scotland, Stuart settled in New South Wales in the 1860s and quickly gained influence in commercial circles. In 1874 he was elected to the New South Wales Parliament, becoming Colonial Treasurer in 1876. Stuart was largely influential in the Mosman area in particular through his assistance in the development of roads and public buildings. In 1878 Stuart, along with Harnett, developed the sandstone quarry which is associated with the current study area. Outside of his association with the quarry, Stuart was appointed leader of the opposition in August 1882 and became Premier in January 1883. He received a knighthood in May 1887, but was forced by ill health to resign from parliament in October of that year.

- ***Did a significant event or discovery take place at the site? Is that evident/or likely to be evident in the archaeology/physical evidence of the site?***

While records do not that indicate that a significant event or discovery took place at the site, the former Harnett's quarry is a symbol of the overall state of quarrying technology in the late 19th century and its association with the development of the colony of New South Wales. However, this is unlikely to be reflected in the archaeological record of the site due to the impacts caused by the subsequent subdivision and construction of houses in the late 19th century and 20th century.

- ***Do the archaeological remains have particular associations with individuals, groups and events which may transform mundane places or objects into significant items through the association with important historical occurrences?***

Any archaeological remains present within the study area are unlikely to have any particular associations with individuals of strong importance in the development of the colony of New South Wales. Although the site is particularly associated with Richard Harnett and Alexander Stuart, both of which were instrumental in the development of the Mosman region in the late 19th century, it would prove difficult to directly link any specific aspect of the archaeological record to either individual.

Any archaeological remains at the site would also have associations with events which were significant in the transformation of Mosman Bay as a site of industrial importance in the colony of New South Wales. The significance of the site is in its role as a quarry associated with Richard Harnett between 1878 and 1889. This is considered to potentially demonstrate its transformation from a mundane place into a site that is a symbol for the development of Mosman and role of quarrying in the growth of the suburb.

It is considered that the site does not contain archaeological remains which are considered significant in their association with important historical occurrences at the local level. The site therefore does not meet NSW Heritage Criteria (a), (b) or (d) from an archaeological standpoint.

Aesthetic or Technical Significance (NSW Heritage Criterion c)

- ***Does the site/is the site likely to have aesthetic value?***

The aesthetic value of the site is represented through the extant and exposed face of the quarry wall that is associated with Harnett's former quarry, as well as its views across Mosman Bay. Although much of the site has been heavily developed with the construction of houses, the quarry rock face remains largely intact and has been incorporated within the current streetscape of the area. This feature therefore adds to the aesthetic value of the site through its association with the former quarry wharf during its operation with Harnett's quarry.

However, while the surrounding landscape and extensive views add to the aesthetic value of the site, the site does not have aesthetic value for the potential archaeological remains located within the study area.

- ***Does the site/is the site likely to embody a distinctive architectural or engineering style or pattern/layout?***

Sandstone quarries that were in operation within a similar period to that of Harnett's quarry were common throughout the Sydney region. Documentary evidence indicates that the process of the stone quarrying itself was typical of other quarry sites around Sydney in the late 19th century.

Archaeological remains of the tramway, however, are likely to demonstrate distinctiveness in its design and functionality. As described in the previous sections, there was a significant degree of complexity in the construction of the tramway due to the steep incline between the location of the quarry and the wharf. A number of adaptations therefore had to be made in the design of the tramway and the way in which it operated. Thus, if archaeological remains associated with the tramway were present in the study, they would likely illustrate such adaptations in the engineering style of the tramway.

- ***Does the site demonstrate a technology which is the first or last of its kind?***

While the site does demonstrate progression in technology of industrial practices, specifically sandstone quarrying, it does not demonstrate a technology which is the first or last of its kind.

- ***Does the site demonstrate a range of, or change in, technology?***

As the occupation of the site as a quarry was short term, operating between 1878 and 1889, a range of, or change in quarrying technology is unlikely to have occurred within the site. However, due to the probable absence of archaeological remains within the study area, this is unlikely to be demonstrated.

- ***Will an archaeological excavation reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, which may allow both professionals and the community to connect with the past through tangible physical evidence?***

As stated above, the archaeological material associated with the former Harnett's quarry that is below the current ground level has likely been removed following the high impacts caused by subdivision of the land and the construction of houses from the 1890s, as well as the landscaping works in the 1930s. It is therefore unlikely that an archaeological excavation will reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric or remnant structures. It is considered that archaeological excavation would reveal remains which would only allow professionals to connect with the past through tangible physical evidence.

Therefore, although the SHR note that this site meets NSW Heritage Criterion (c) at the local level for the aesthetic and technical values which is represented through the extant quarry rock face associated with the site of former Harnett's quarry, it is considered that it does not meet NSW Heritage Criterion (c) on an archaeological standpoint.

Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria a, c, f, and g)

- ***Does the site contain well-preserved or rare examples of technologies or occupations which are typical of particular historic periods or eras of particular significance?***

If archaeological remains were present and undisturbed, the site has potential to demonstrate evidence of the tramway, which is considered rare. However, subsequent development of houses and landscaping works are likely to have removed all such archaeological material.

- ***Was it a long-term or short-term use?***

Occupation at the site of Harnett's quarry was relatively short term, operating between 1878 and 1889. There is no archaeological or documentary evidence which suggests that the site was occupied prior to the operations of the quarry. Following the closure of the quarry, Harnett subdivided the land and houses were soon built. The site continues to be used for residential houses today.

- ***Does the site demonstrate a short period of occupation and therefore represents only a limited phase of the operations of a site or technology or site? Or does the site reflect occupation over a long period?***

Harnett's former quarry site demonstrates a short period of occupation and represents only a limited phase of operations and quarrying technology.

- ***Does the site demonstrate continuity or change?***

As a result of the short period of the use of the site as a single phase of occupation, it does not demonstrate continuity or change in occupation.

- ***Are the remains at the site highly intact, legible and readily able to be interpreted?***

The quarry rock face remains the only extant feature associated Harnett's quarry site. However, the extent of the quarry rock face that remains would be sufficient for historical interpretations to be made. Other features associated with the quarry including the tramway are unlikely to be intact and therefore unable to be readily interpreted by experts in historic quarrying technology and rail engineering.

- ***Do the archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation?***

The likely removal of material associated with Harnett's quarry below the current ground level has meant that the ability to demonstrate how the quarry and tramway was used, the processes that occurred within the site and how work was undertaken through the archaeological remains cannot be made.

It is considered that in terms of the archaeological remains likely to be present, this site does not meet NSW Heritage Criteria (a), (b), (c) and (f) in this regard at the local level.

5.10 Summary of Significance - Site of Former Harnett's Quarry (A488)

The site is listed on the Mosman LEP 2012 for its historical values at a local level, however it does not meet the NSW Heritage Assessment Criteria:

- it does not meet criterion (e) for historical potential at the local level. It is considered that only limited archaeological material is likely to be present, and therefore research potential within the archaeological record is low. The research potential of the study area is predominantly within the documentary evidence rather than the archaeological record;
- it does meet for criteria (a), (b) and (d) for its associations with individuals, groups or events at the local level; however it does not meet criteria (a), (b) and (d) for containing archaeological remains with demonstrated associations with individuals, groups or events at either State or local level. It is considered that it will not be possible to identify archaeological deposits or features associated with Harnett's former quarry or tramway. The main associative significance of the study area is with the extant rock face rather than the archaeological record.
- it does not meet criterion (c) for containing archaeological remains with aesthetic or technical significance at either State or local level. The aesthetic values of the site are represented through the extant quarry rock face associated with Harnett's quarry site, as well as its views of Mosman Bay rather than the archaeological record.
- it does not meet criteria (a), (c), (f) and (g) for demonstrating the past through archaeological remains at the local level. With the exception of the extant quarry rock face, any archaeological material within the site that is associated with Harnett's quarry site or tramway and which may shed light on the nature, scale and technology of the quarry operation have likely been removed.

5.11 Statement of Significance - Site of Former Harnett's Quarry (A488)

The site of Former Harnett's Quarry has been listed on the Mosman LEP 2012 as being of local significance. This listing primarily relates to the significance of the site in an historical context, which illustrates the role of the quarry in the development of Mosman as a suburb, the development of the colony of New South Wales and its association with local historical figures.

The quarry site was a notable early industrial undertaking in the vicinity and is illustrative of the nature and extent of 19th century technology of quarrying in the Sydney region. The technological significance of the site is evident in a historical context only, which demonstrates major engineering accomplishments in the transportation of quarried stone by means of a tramway despite a steep incline between the quarry area and the wharf.

The site contains associations with important individuals, most notably Richard Harnett and Alexander Stuart, who both played major roles not only in the industrial development of Mosman through their management of the sandstone quarry but also in the residential development of Mosman following the operations of the quarry.

The site has representative and symbolic value as a place associated with the development of New South Wales and other colonies in the late 19th century. The site represents the source of the sandstone that was utilised in the construction of many historical buildings around New South Wales and Victoria.

Additionally, the site also contains aesthetic value which is represented by the extant quarry rock face once associated with Harnett's quarry.

It is critical to note however that the significance of the site as outlined above is from an historical standpoint only. This assessment has emphasised that the site is unlikely to contain any archaeological material. Subsequent development of the site following its use as a quarry included subdivision of the land and the construction of numerous houses from the 1890s. This has most likely removed all archaeological evidence of Harnett's quarry and the associated tramline that are below the current ground level. The study area is therefore considered to have a low potential for *in situ* archaeological remains. As such, the archaeological resource within the site does not meet the Heritage Significance Criteria at any level as an archaeological site.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The basis of this report follows on from the recommendations set out in the Austral Archaeology (2015) report. The Austral Archaeology (2015) report recommended that the Mosman Council amend the listing of the 16 'Archaeological sites' listed in the Mosman LEP. However, in finalising this planning proposal, the Council resolved to defer its consideration of proposed amendments to the following archaeological sites which were identified in the Austral Archaeology (2015) report as being located wholly or partly on privately-owned land. The implications for listing are far greater on privately owned land, and as a result it was identified by the Mosman Council that this should be the focus of further review.

The purpose of this report was therefore to assess the significance of the three archaeological sites listed in the Mosman LEP which are located on privately-owned land. This included the 'Former tram terminus, including enclosing sandstone wall (A484)', 'Former stone quarry (A485)' and the 'Site of former Harnett's quarry (A488)'. The current statutory contexts of the sites were outlined in Section 2 of the report. By providing a detailed historical overview as well as undertaking a site inspection of each site, this would allow the significance of each of the three archaeological sites to be assessed, which could potentially contradict the statutory listings defined in Section 2.

It was determined that the 'Former tram terminus, including enclosing sandstone wall (A484)' met NSW heritage criteria at the local level from an historical perspective only. The operations of the tram terminus and the different phases of the layout of the tram terminus have been well documented throughout various historical records. While the site holds the potential to contain *in situ* archaeological remains associated with the tram terminus, this will be very limited in its nature. As a result it is considered very unlikely that the potential archaeological remains of the site will contribute to additional knowledge of the former tram terminus that has not already been documented. It was therefore concluded that the former tram terminus (A484) does not meet NSW heritage criteria at the State or local level from an archaeological standpoint. However, the enclosing sandstone wall still retains value as a direct link to the former use of the area, and should remain on the LEP as a heritage item. This wall is contained entirely within the road corridor and does not fall on privately owned land.

It was determined that the 'Former stone quarry (A485)' site met NSW heritage criteria at the local level from an historical perspective only. The documentary evidence of the site was scarce and provided limited information regarding the different phases of the quarry and the changes in its ownership. The day-to-day operations of the quarry were not documented in the historical record. However, it is considered unlikely that information on the processes that were undertaken at the quarry during its operation will be attained from the archaeological record. The multiple phases of development at the site following its use as a quarry have most likely removed any archaeological remains below the current ground level that were once associated with the former stone quarry. The only archaeological material likely present at the site is the extant quarry wall located adjacent to the existing residential apartments. It was therefore concluded that the former stone quarry (A485) does not meet NSW heritage criteria at the State or local level from an archaeological standpoint. However, the quarried rock face still retains value as a direct link to the former use of the area, and should remain on the LEP as a heritage item. While the listing will cover the entirety of the affected lots and DPs, the actual heritage item is intended to only include the rock face.

It was determined that the site of 'Former Harnett's quarry (A488)' met NSW heritage criteria at the local level from an historical perspective only. The operations of Harnett's quarry have been very well-documented in the historical record, including the different processes undertaken at the quarry and the significance of the quarry in terms of the extent to which the sandstone was exported to other parts of the colony and overseas. The historical significance of the quarry also lies in the ingenuity of the engineering and construction of the tramway that carried stone between the quarry and the wharf, as well as the site's association with important local historical figures including Richard Harnett and Alexander Stuart. However, similar to the 'Former stone quarry (A485)', the only archaeological material associated with Harnett's quarry present at the site is the extant quarried rock faces. The archaeological remains associated with Harnett's quarry that are below the current ground surface have most likely been removed following subsequent development. It is therefore concluded that the site of 'Former Harnett's quarry (A488)' does not meet NSW heritage criteria at the State or local level from an archaeological standpoint. However, the quarried rock face still retains value as a direct link to the former use of the area, and should remain on the LEP as a heritage item. While the listing will cover the entirety of the affected lots and DPs, the actual heritage item is intended to only include the rock face.

7 RESPONSE TO LANDOWNER SUBMISSIONS

Following the public exhibition of the archaeological assessment (Austral Archaeology 2015), Council received various responses from the general public regarding the proposed amendments to the LEP. The Council has requested that a response be provided which addresses the general themes received in these submissions.

In addition, a more detailed response was received from the owners of 13 Royalist Road, who engaged GBA Heritage Pty Ltd (GBA) to provide a letter report to address specific issues with the previous archaeological assessment. A more detailed response to that letter is also included below.

1) Whether there is proper evidence to establish the extent of heritage listing of these items.

A submission received from GBA on behalf of a landowner in Royalist Road in respect of Item A488 argues that there is no documentary evidence that the excavated rock face marks the western edge of the quarry; that it is more likely to have resulted from the construction of a sloping access roadway for subsequent 20th century residential development. This is not addressed in the 2015 Austral Archaeology study or 1996 Mosman Heritage Review by Godden Mackay Heritage.

Furthermore, the submission states that identifying only the assumed western edge of the quarry is tokenistic and irrelevant, and cannot be regarded as validly celebrating the location or extent of the quarry. This is contrary to the recommendation of the 2015 Austral Archaeology study.

A detailed response to the GBA submission is provided below. However, in summary, the sloping access track is considered have been constructed against the existing quarry wall rather than having been quarried out of undisturbed ground, hence the construction of the retaining wall on the southern side of the driveway (cf Figure 4.9). This would be a less substantial undertaking than quarrying away the width of the new access roadway and far more cost-effective. It was also acknowledged in the previous report that only "the upper part of the wall is intact, while the lower part has been carved out" (Austral Archaeology 2015:64).

An assumption that the listing is tokenistic and irrelevant is based solely on the opinion of GBA and, as noted, is contrary to the recommendation of two other heritage consultants.

2) Whether a heritage assessment undertaken today would exceed rigorous thresholds of the NSW Heritage Council and result in the three items being of sufficient significance to warrant heritage listing.

Archaeological sites have been listed in Mosman's LEPs for the past 15 years on the basis of the 1996 Mosman Heritage Review by Godden Mackay Heritage. The 2015 Austral Archaeology Review sought only to determine the exact location and extent of these existing sites – not to ascertain their reason for listing in the first place. As the planning framework for archaeological heritage listing has recently changed, it is reasonable that this be reviewed. The implications for listing are far greater on privately owned land, and this should be the focus of further review.

As noted, the previous Austral Archaeology (2015) archaeological assessment purely sought to confirm the location and extent of the archaeological sites which were listed on the Mosman LEP. This assessment has undertaken a significance assessment for three of those sites and found that, in terms of their archaeological potential, it is unlikely that any of these recorded sites would meet the significance threshold.

3) The onerous nature of heritage listing in Mosman LEP 2012 under NSW-wide mandated heritage provisions for archaeological sites.

Unlike general heritage items (such as dwelling-houses and other buildings) which are readily apparent, archaeological sites are more likely to be buried or concealed and therefore more difficult to assess. The identification of an archaeological site is often based on the assumed, possible or probable location of relics sourced from literature research and fieldwork, yet – unlike general heritage items – the exact location and integrity of a relic cannot truly be known, in many instances, unless it is uncovered.

An archaeological site listed in an LEP is now subject to a more rigorous assessment as a consequence of State-mandated planning controls under the Standard Instrument. An archaeological site is now identified as a heritage item and subject to general heritage controls under clause 5.10 of an LEP, in addition to specific controls for archaeological sites under clause 5.10(7), which require a consent authority to notify the NSW Heritage Council and consider their response before granting consent for the carrying out of development on an archaeological site.

The heritage listing of an archaeological site must be equitable, considering on one hand the benefit of heritage conservation to the wider community, and on the other hand, the impact that listing has on a landowner on the basis of knowledge which may only be assumed, possible or probable. Research into the listing of archaeological sites in the LEPs of other councils within the Sydney metropolitan area reveals that there is no consistent approach – some listings apply to both private and publicly owned land, some only to publicly owned land, and some have no archaeological site listings at all.

It is considered that none of the assessed sites should be listed as archaeological heritage items on the Mosman LEP. Where these sites do contain heritage values, these values are limited to the exposed rock faces, and the only constraint should be that any proposed development seeks to not impact on these items.

7.1 Detailed Response to Issues Raised by GBA

- "The requirement for heritage listing any place on the Local Environmental Plan is for it to exceed the rigorous threshold requirements for the various Heritage Assessment Criteria established by the NSW Heritage Council. There is no evidence in The Report that such an analysis has been undertaken or even reviewed as part of the...study."

The brief for the original assessment (Austral Archaeology 2015) was solely to identify and confirm basic information on each of the archaeological sites listed in the Mosman LEP, and to determine the location and geographical extent of the sites. The Council has subsequently commissioned this assessment to review the significance of three specific sites against the relevant criteria.

- "The selection for listing of a small section of part of what is assumed to be the western excavated face of the quarry represents a minute part of the entire extent of the former quarry. To propose the listing of such a token (and incorrect) section of an archaeological site flies in the face of good conservation practice."

The section of rock face selected for inclusion in the listing corresponds with the "probable" rather than "possible" extent of the quarry (Austral Archaeology 2015:66). As the site does not contain any archaeological potential, the quarried rock face serves as the only tangible link to the past, and a decision to list the entirety of visible extent, rather than the potential extent, is seen as good conservation policy. The alternative of not choosing to protect such a heritage item actually "flies in the face of good conservation practice".

The assumption that this is "incorrect" appears to hinge on an arbitrary decision made by GBA that the rock face dates from the 20th century, based solely on the presence of an access track on the 1900 auction notice (Austral Archaeology 2015:61). GBA propose that the access track was quarried out of the existing rock face, while Austral Archaeology suggest it is much more likely that the access road was constructed hard against the pre-existing rock face.

- "The excavated face that has been identified as part of the amended item A488 listing is more likely to date from the construction of the sloping access roadway for subsequent early 20th century residential development than from the late 19th century quarry."

As stated in our original assessment, the State Heritage Inventory (SHI) listing for the quarry notes that "[The site consists of a]n area of steep escarpment with characteristic cut rock faces...Adjacent to Royalist Road, houses have been erected above and below the main quarry face" (my emphasis). Detailed analysis of the documentary sources researched during the preparation of the assessment (Austral Archaeology 2015:59-62), verified the SHI listing and found no evidence to contradict the understanding that the rock face is related to the quarry.

One key piece of evidence was the lithograph showing the quarry during its operation (Austral Archaeology 2015:59). While this may have been stylised, it actually does show the quarry rock face as an angled rock face in the foreground with a ledge, and a straight rock face running southwards towards the tramway which ran down to the wharf. A similar ledge was noted on the rock face contained in 13 Royalist Road (Figure 4.12, also in Austral Archaeology 2015:65).

The only evidence which GBA offer for the access track having been quarried was that the "nature of the quarry's commercial markets and its railway down to the wharf indicates that there had been no operational requirement to transport stone from the quarry floor up to the original topography above the quarry". This is a brave statement indeed by GBA and seemingly based on a somewhat wishful interpretation of the facts to suit their purpose. Well respected historian, journalist, author and patron of the Mosman Historical Society, Gavin Souter (AO) is an acknowledged expert on the history of Mosman having published a comprehensive book on the subject in 1994. Souter clearly determines the direct opposite of GBA's contention when he states that "[s]tone for local use was also loaded at the quarry face on to horse-drawn vehicles for delivery by road" (Souter 1994:94).

We are therefore left in a position where there are two alternating theories; we propose that the rock face is original and the road a later addition, while GBA propose that "the remnant western face of the quarry was further excavated and re-shaped to maximise the effective width of the access roadway". The balance of evidence would suggest that it would not have been necessary nor cost-effective to quarry additional material at the time of the subdivision, when a cheaper and quicker alternative would be to construct a retaining wall and build a new access road.

If the road was quarried at this time, moving the requisite amount of material for the sole purpose of accessing the floor of the quarry would have been a massive undertaking in comparison to building up the ground level against an existing rock face. It must be remembered that at the turn of the century, excavation technology was pretty primitive by modern standards. The internal combustion engine was in its infancy and there were no trucks as such. While steam cranes and draglines did exist, the material would have had to be moved by horse-drawn vehicles such as scoops or drays, a very arduous, time consuming and hence costly operation. Property developers of the period were, no doubt, as loathe to expend funds on such unnecessary works as they are today.

Examining the two viewpoints, Austral Archaeology stands by the conclusions reached in the original assessment.

- "In 1999, Mosman Council gave consent to the developer of No 11 Royalist Road for excavations at the base of the cliff face, one within the property boundary of 13 Royalist Road (without the permission of the owner), in order to upgrade vehicle clearance at the base of the access road to the residential properties set at the lower level of what had been the full extent of the No.13 property. This excavation has further eroded the integrity of the remnant section of the cliff face that may have been the north western extent of the former quarry."

Our report noted that "the lower part [of the wall] has been carved out, possibly to provide a suitable width for vehicle access to the apartments" (Austral Archaeology 2015:64). However, seen in Figure 4.10, the upper part of the rock face remains intact. Partial damage to the lower half of what "may have been the north western extent of the former quarry" does not remove heritage values over the remainder of the rock face, and could equally be argued to increase the value of the remaining sections.

- "Moreover, to include in isolation the site at 13 Royalist Road as part of the proposed amended extent of the A488 listing is discriminatory. It targets and has the potential to adversely affect only one of the many residential lots that now occupy the assumed extent of the former Harnett's Quarry. It is possible that since this lot has yet to be developed for residential purposes, the archaeological inspection team may have assumed that it is publicly owned, and therefore would be suitable for inclusion in the listing as the excavated section of the cliff that forms the remainder of the proposed listing."

There are no grounds for an accusation of discrimination and the proposed amended extent of the A488 listing does not "target" 13 Royalist Road at all. The rock face also passes through the neighbouring property, 11 Royalist Road and along the access road, which is Lot 125 DP752067 and which will also be included in the amended listing. Many residential lots occupy the assumed extent of the quarry. However, both the previous archaeological assessment (Austral Archaeology 2015) and this assessment have determined that they contain no archaeological potential, and 13 Royalist Road is included in this determination. As such, the property, along with four others, will no longer be listed on the Mosman LEP as being an archaeological item (cf. the blue circle on Figure 2.3 which shows the original boundary listing).

Absolutely no consideration was given to the fact that the site is undeveloped. No archaeological potential is or was ascribed to the undeveloped portion of the site, which is level with Royalist Road. Both the inspection and assessment focussed on the lower ground level which relate to the former quarry.

- "There is no documentary evidence illustrating the extent of Harnett's quarry (1878-1889), particularly in relation to the revised location and extent of the A488 listing in the current Planning Proposal to change Mosman LEP 2012."

While this may be true to an extent, there are reliable assumptions that can be made based on the historical plans and lithographs, as was achieved in the assessment report (Austral Archaeology 2015) and, to a certain extent, as the GBA report also does. We know the quarry was located on Gilbert's Grant, and that the tramway ran from the former quarry wharf up to the quarry floor. The tramway formed the eastern side of a proposed extension to Boyle Street; although this extension was never completed, it is reflected in current cadastral boundaries. Taking all these facts into consideration, it is possible to plot the possible route of the tramway up to the quarry (cf. Figure 2.3). As the lithograph of the quarry shows the tram did not terminate at the far rock wall, we know that the rock wall must be further west than the terminus of the railway. It can also safely be assumed that the wall was east of Royalist Road.

- "The recommendation for the extent of the listing is based almost entirely on a physical inspection of the general locality of the former quarry, which was subsequently subdivided for extensive residential development in the late 1890s and subsequently changed beyond all recognition as a quarry. That inspection was unable to identify the northern or eastern extent of the former quarry due to the nature and extent of subsequent residential development. The inspection therefore isolated a steep cliff face against the eastern alignment of Royalist Road and concluded that this was directly associated with and defined the western extent of the former quarry."

Within their own report, GBA acknowledge that quarry floor itself is readily identifiable by the fact that the buildings from the 1902 subdivision are constructed within the quarry. However, the inability to determine a boundary for the eastern and northern extent of the quarry merely confirms the effect that subsequent development has had on the archaeological record, and justifies the recommendation to remove the site as an archaeological item on the Mosman LEP. This is why a physical inspection was undertaken.

The rock face itself was identified as the quarry wall through a combination of factors, including the physical survey, the use of GIS mapping for areas of potential, and the cross-referencing of historical plans and lithographs which demonstrate the general location of Harnett's quarry wall, as well as various features observed on the cliff face as being characteristic of a quarry wall.

- It failed to research or recognise that the steep face was most likely associated with the construction of the sloping access road along the shared Right of Way that was defined between 1900 and 1903 to enable access to the subdivided lots on or near the floor of the quarry."

The conclusion by GBA that the rock face dates from between 1900 and 1903 is based on a single piece of evidence, namely the 1900 auction notice. GBA then attempts to reinforce this evidence with flawed deductive reasoning i.e. that there was never a need to transport stone from the quarry floor by cart. Unfortunately for GBA, Mr Souter's authoritative history puts paid to this argument and confirms that stone was also transported by road from the site.

As previously stated, we remain of the opinion that the rock face forms the last remaining physical vestige of Harnett's quarry, and that its inclusion on the Mosman LEP is justified.

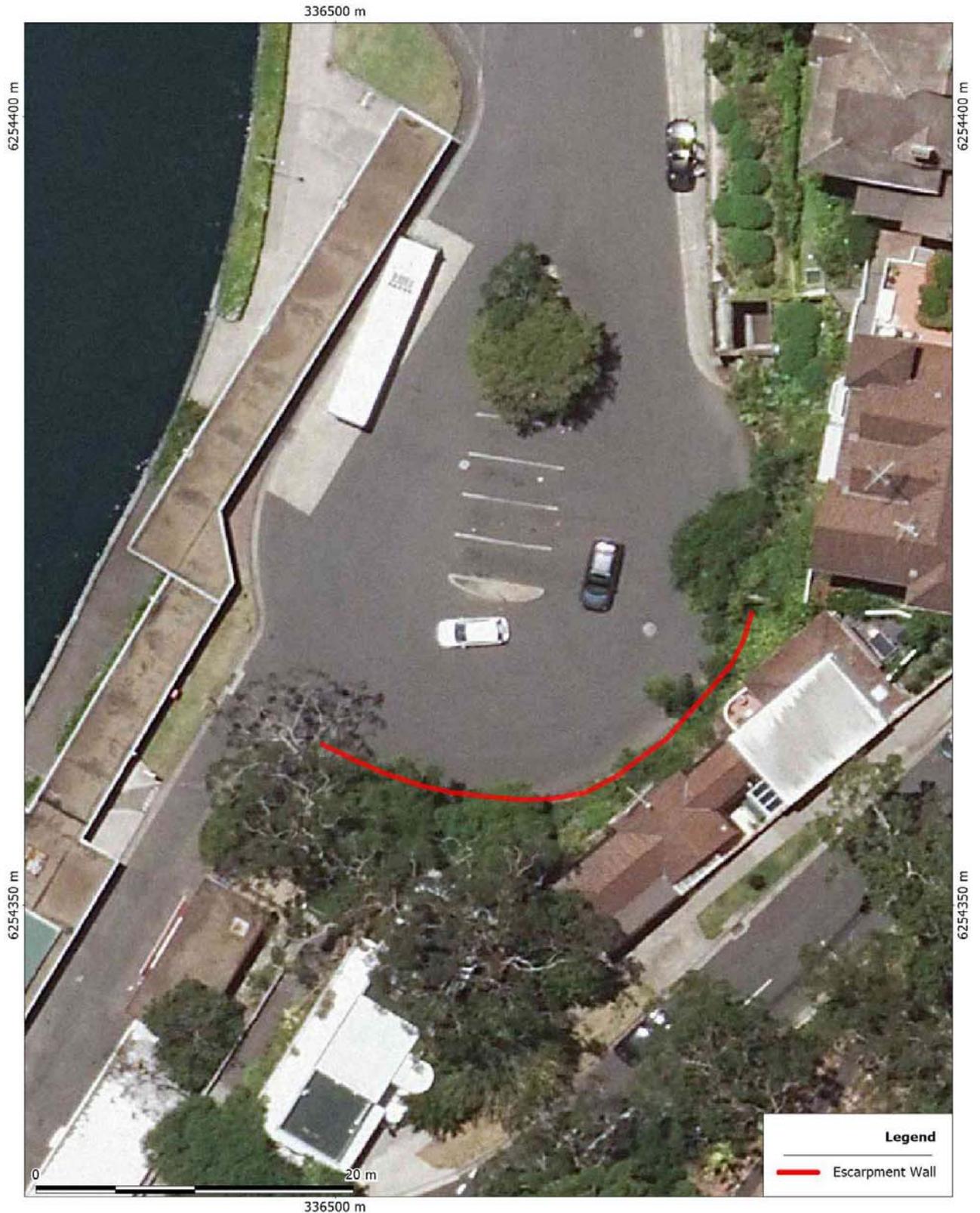
8 RECOMMENDATIONS

8.1 Recommendations

The following recommendations are based on the assessed significance of the three archaeological sites under investigation and the relevant guidelines of the New South Wales Heritage Division. It is recommended that:

- 1) The three sites listed as 'Archaeological sites' in the Mosman LEP should be delisted. While the three sites have a degree of historical significance, their archaeological potential and significance are low.
- 2) The 'Former Tram Terminus, including enclosing sandstone wall' (Item No. A484) is to be retained in the Mosman LEP as a 'Heritage Item'. The listing should specify that it only applies to the enclosing sandstone wall, which occurs within the road corridor as shown in Figure 8.1.
- 3) The 'Former Stone Quarry' (Item No. A485) is to be retained in the Mosman LEP as a 'Heritage Item'. The listing should specify that it only applies to the quarried rock face forming the exterior wall of 65A Avenue Road (SP38652), 69 Avenue Road (SP 47862) and 71 Avenue Road (SP648) as shown in Figure 8.2.
- 4) The site of 'Former Harnett's Quarry' (Item No. A488) is to be retained in the Mosman LEP as a 'Heritage Item'. The listing should specify that it only applies to the quarried rock face forming part of Royalist Road (LOT 125, DP752067), 11 Royalist Road (SP66746), 13 Royalist Road (Lot 1, DP1052582) and within Royalist Road (no Lot/ DP) to the immediate west of Lot 125, DP752067 as shown in Figure 8.3.
- 5) One copy of this report should be lodged by the proponent with the local studies collection of the local library, and an additional copy should be lodged with the New South Wales Heritage Branch library at:

Heritage Branch
3 Marist Place
Parramatta NSW 2150



Project Name: Mosman Significance Assessment
 Client: Mosman Municipal Council
 Project Number: 1609
 Drawn By: David Marcus

Datum (Zone): Australia MGA94 (56)
 Scale: 1:300
 Source Map: Mosman Municipal Council
 Date: 16 December 2016



Figure 8.1 Location of escarpment wall associated with the tram terminus (Item No. A484)



Project Name: Mosman Significance Assessment
 Client: Mosman Municipal Council
 Project Number: 1609
 Drawn By: David Marcus

Datum (Zone): Australia MGA94 (56)
 Scale: 1:500
 Source Map: Mosman Municipal Council
 Date: 16 December 2016



Figure 8.2 Location of quarry rock face associated with the 'Former Stone Quarry' (Item No. A485).



Figure 8.3 Location of quarry rock face associated with Former Harnett's Quarry (Item No. A488).

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