NORTHBANK ENTERPRISE HUB, TOMAGO, HISTORICAL ARCHAEOLOGICAL DESKTOP ASSESSMENT AND SENSITIVITY MAPPING

Prepared by

Austral Archaeology Pty Ltd

Archaeological & Cultural Heritage Consultants

For

EJE Heritage

On behalf of Northbank Enterprise Hub Pty Ltd

July 2011

Job Number: 1122

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EXECUTIVE SUMMARY

EJE Heritage on behalf of Northbank Enterprise Hub Pty Ltd has commissioned Austral Archaeology Pty Ltd to undertake an Historical Archaeological Desktop Assessment and Sensitivity Mapping for the area to be affected by the Northbank Enterprise Hub Industrial Estate development proposal (Lot 1001 DP 1127780), Tomago, Port Stephens Local Government Area. The study area is owned by Northbank Enterprise Hub Pty Ltd.

The proposed development intended for the Northbank Enterprise Hub is comprised of an industrial and business park subdivision that involves the deposition of large amounts of fill over the surface of the study area except in areas of landscaping and drainage. Construction activity will take place in this fill layer.

As such, a desktop historical heritage assessment with sensitivity mapping has been conducted to identify areas of potential archaeological significance to enable the formation of management recommendations.

This document provides the results of the desktop assessment based on a review of all available databases for registered archaeological and cultural sites in the vicinity, a general environmental and historical overview and a site inspection by a qualified archaeologist.

It should be noted that this document is provided by Austral Archaeology Pty Ltd to the client to outline, on the basis of general property information, the potential for sites to exist within the development area; it does not serve as a statement of archaeological significance.

CONCLUSIONS AND RECOMMENDATIONS

This report has established the existence of a variety of archaeological sites in the study area. These sites were indicated in the historical documentation and in some instances visually confirmed in the site inspection. Outlined in detail in Section 5 of this report are the archaeologically sensitive areas located through the desktop assessment. These archaeologically sensitive areas can be summarised briefly as; a low to moderately sensitive belt of former housing along Tomago Road to the north east of Tomago House, a low to moderately sensitive belt of former housing along Tomago Road to the southwest of Tomago House, a highly sensitive area associated with the 19th century Tomago Estate immediately to the west of Tomago House, a high sensitivity stable site immediately to the northeast of Tomago House, a highly sensitive military road running through the centre of the site, an area of high sensitivity covering the western half of the anti-aircraft battery and a scattering of house sites of nil to low sensitivity across the study area.

A number of historical archaeological sites have been identified within the study area. Based on the findings of this assessment it is recommended that:

No further archaeological investigation is needed and the proposed development works may proceed as described in the concept plans and development proposal provided to the consultant (Suters 2011: ADW Johnson 2011).

In the event that historical archaeological relics not assessed or anticipated by this report are found during the works, all works in the immediate vicinity are to cease immediately and a qualified archaeologist be contacted to assess the situation and consult with the Heritage Branch of the OEH regarding the most appropriate course of action, as required by the *NSW Heritage Act* 1977.

In the event that Aboriginal archaeological material or deposits are encountered during earthworks, all work within a 50 to 100 m radius must cease immediately to allow an archaeologist to make an assessment of the find. The archaeologist may need to consult with the Regional Archaeologist in the Office of Environment and Heritage (OEH) and the relevant Aboriginal stakeholders, regarding the find. Section 89A of the NPW Act 1974 requires that the OEH must be notified of any Aboriginal objects discovered within a reasonable time.

Should the proposed development be altered significantly from the proposed concept design, then a reassessment of the heritage/archaeological impact may be required.

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Cover Illustration: Outhouse associated with Tomago Chapel, located adjacent to the study area. © Austral Archaeology Pty Ltd 06/07/2011.

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

EJE Heritage on behalf of Northbank Enterprise Hub Pty Ltd has commissioned Austral Archaeology Pty Ltd to undertake a Historical Archaeological Desktop Assessment and Sensitivity Mapping for the area to be affected by the Northbank Enterprise Hub Industrial Estate development proposal (Lot 1001 DP 1127780), Tomago, Port Stephens Local Government Area. The study area is owned by Northbank Enterprise Hub Pty Ltd. The study area has an area of approximately 239.7 hectares and is located between National Park Land to the south east, Tomago Road to the north west, the Part 3A Approved 'Westrac' Facility and industrial subdivision to the north east and the Hunter River to the south west. The study area provides a curtailage around Tomago House and Tomago House Chapel. The study area is currently disused pastoral land.

The proposed development intended for the Northbank Enterprise Hub is comprised of an industrial and business park subdivision and a detailed description of what the development will entail is provided in Section 1.2 of this document.

A previous work, *Heritage Assessment and Statement of Heritage Impact, Northbank Enterprise Enterprise Hub Tomago*, produced by EJE Heritage (2011) has covered the built heritage of the study area and is being updated concurrently with this archaeological desktop assessment and archaeological sensitivity mapping. However, this work will draw on the comprehensive work of EJE Heritage to form an understanding of the study area and place the archaeological assessment and understanding of archaeological sensitivity within the framework of the Tomago historical background.

A site inspection was conducted by Alan Hay and David Marcus on 6 July 2011; Mathew Radnidge of ADW Johnson was also present for the first hour of the inspection. This allowed for the characterisation of the soils, disturbance and morphology of the study area. The site inspection also confirmed the presence of historical materials throughout the study area but was hampered by low ground surface visibility.

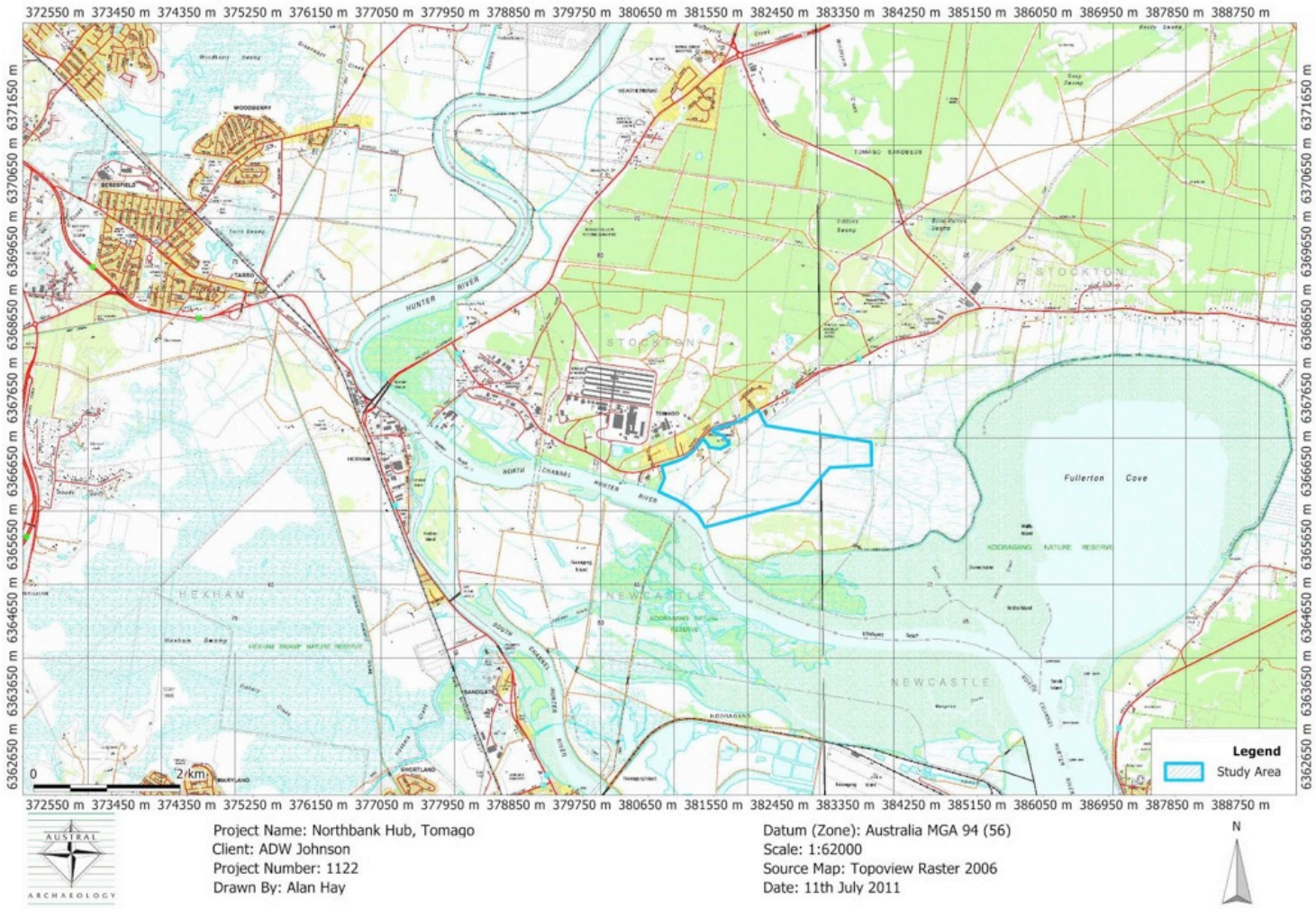

Figure 1.1 Study area location.

1.2 PURPOSE OF REPORT

In undertaking the adequacy review of the Environmental Assessment for the Northbank Enterprise Hub proposal, the NSW DoPI confirmed in its correspondence dated 31/3/11 that a "historical archaeological assessment is required." This report adequately addresses this matter.

1.3 PROPOSED WORK

The proposed development intended for the Northbank Enterprise Hub is comprised of an industrial and business park subdivision (see Figure 1.2, Figure 1.3 and Figure 1.4). A detailed description of what development will entail has been provided by the Client (2011) and this is reproduced below.

- To fill the majority of the site to the 1:100 year flood level (fill area approximately 3.7million cubic metres)
- A subdivision of the land for the purpose of an industrial and business park estate. The design of the subdivision is intended to provide flexibility for future occupants of the site (currently unknown)
- The provision of two (2) new intersections from Tomago Road and a new internal road network to access all allotments.
- The provision of new servicing to the land including the relocation of the existing power lines that traverse the site along a portion of the Tomago Road frontage
- New drainage and water quality management infrastructure
- The provision of a constructed wetland at the southern section of the site
- New landscaping throughout the site including public open space areas at the south western, north western (adjacent to Tomago house) and southern sections of the site. A public open space area towards the southern boundary has been designed to retain four (4) former WWII anti aircraft gun emplacements and an underground command post
- The majority of the site will be filled to the 1:100 year flood level excluding a number of key areas including a heritage park, a significant area adjacent the Hunter River to be maintained for the purpose of flood way and as a riverside open space area
- It is proposed only to use VENM or ENM for the purpose of fill in order to ensure a high quality of fill material that will not result in the leaching of contaminants to significant and nearby wetlands
- All material will be transported to the site via road (truck and dog). This is a process that will occur over a number of years and at different staging intervals as market demand for land dictates.
- The work method used to fill the site will be to preload for consolidation. Geotechnical advice in this regard indicates that 1-2m stockpile depths of preload material will result in acceptable consolidation rates. Soil and water management will be an important consideration during the earthworks for the protection of the receiving waters downstream

- Earthworks will result in appropriate finished surface levels directed to drainage channels created as a preference by filling rather than excavation in order to avoid acid sulphate soil exposure
- The proposed development will be constructed in stages that essentially reflect market demand for land and are yet to be determined in specific detail. It is anticipated that the development will commence within a few years and continue over some twenty years

Figure 1.2 Showing the study area in the lighter grey and marked as T2 (Supplied by Client).

Figure 1.3 Showing the study area and adjoining development to the northeast (Supplied by Client).

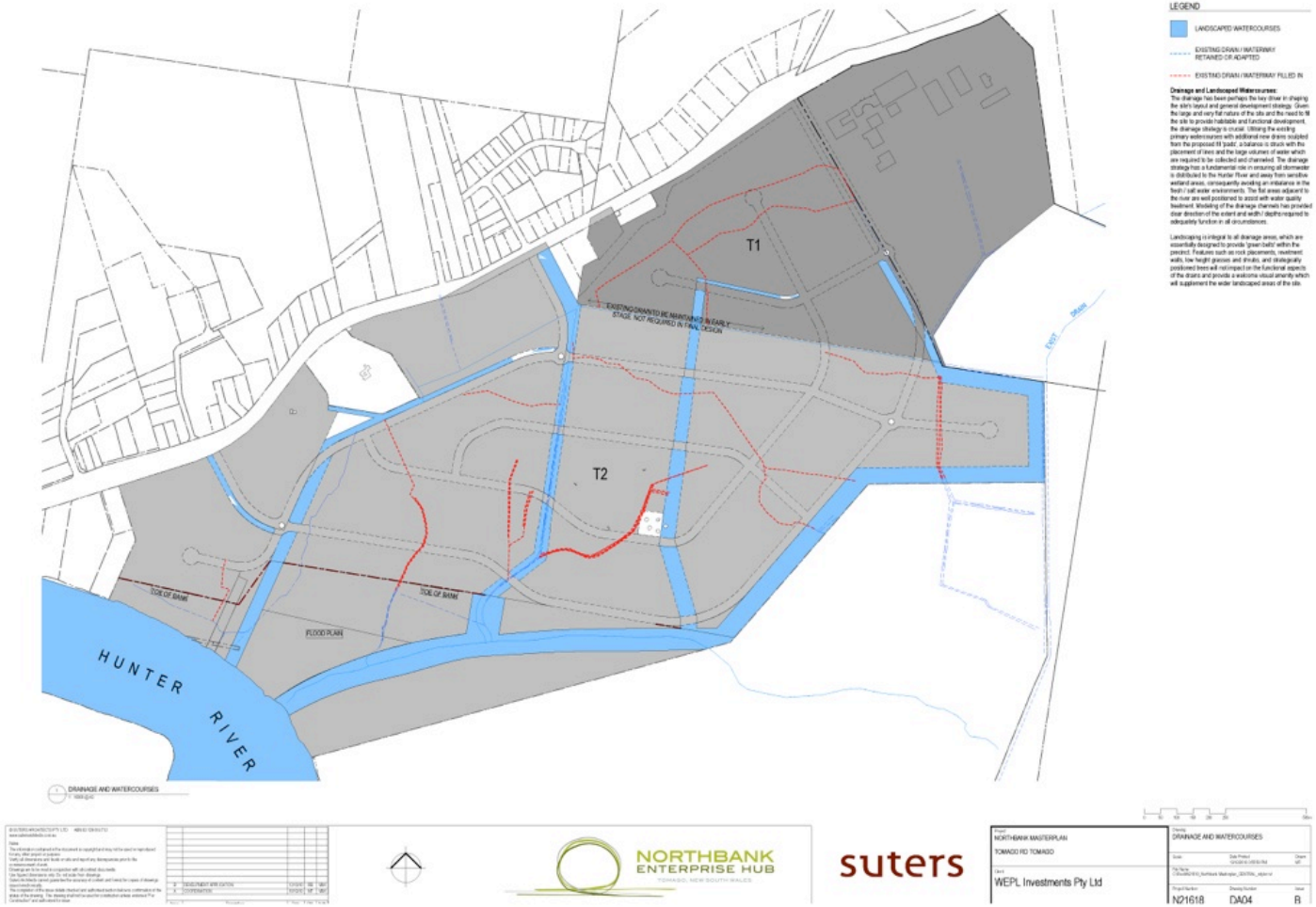

Figure 1.4 Showing the drains to be re-used or added within the study area, the study area is marked T2 and shown in light grey. Note that either existing drains will be reused or fill material sculpted to provide drainage lines (Supplied by Client).

1.4 OBJECTIVES

The objectives of this report are as follows:

- to identify of any potential historical archaeological resources, values or constraints
- to produce a historical archaeological predictive model and sensitivity map to guide any management decisions regarding the study area.

1.5 PROJECT TEAM AND ACKNOWLEDGEMENTS

This project was overseen by Justin McCarthy (Managing Director). The assessment was coordinated and conducted by Alan Hay (Archaeologist). This report was written by Alan Hay. David Marcus (Archaeologist) and Justin McCarthy reviewed the draft report.

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

Barney Collins – Director – EJE Architecture

Craig Marler – Senior Planner – ADW Johnson

Mathew Radnidge – Town Planner – ADW Johnson

Renae Carlisle – Secretary – EJE Heritage

1.6 METHODOLOGY

This report is underpinned by the philosophy of the ICOMOS *Burra Charter.*

This report, especially the historical background in Section 3, draws on the existing work conducted by EJE Heritage (2011) in the *Heritage Assessment and Statement of Heritage Impact, Northbank Enterprise Enterprise Hub Tomago (Tomago Heritage Assessment)*. Additional targeted research was conducted in order to better understand the potential archaeological record that may be present within the study area. A site inspection was also undertaken to clarify the disposition of the archaeological resource within the study area.

1.7 LIMITATIONS OF THE REPORT

This report is based on the previous Tomago Heritage Assessment by EJE Heritage (2011).

Although this report engages with some aspects of post-contact Aboriginal heritage, this report does not include an assessment of the potential for Aboriginal cultural heritage to exist.

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 results, assessments and judgements contained in this report are constrained by the limitations of historical research and by the unpredictability inherent in archaeological zoning from the desktop.

This report is not an archaeological assessment. The information provided herein is based upon desktop searches of listed items of the built and archaeological environment, information collected from previously prepared reports and the site inspection.

1.8 ABBREVIATIONS

The following abbreviations are used within this report:

AHC	Australian Heritage Council
Burra Charter	The Australia ICOMOS Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
CMP	Cultural Management Plan
DoP	NSW Department of Planning
EPA Act	Environmental Planning and Assessment Act, 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act, 1999
EPI	Environmental Planning Instrument
Heritage Act	NSW Heritage Act, 1977
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
LGA	Local Government Area
NHL	National Heritage List
NPW Act	National Parks and Wildlife Act, 1974
NSW HC	NSW Heritage Council
NT Register	Register of the National Trust (NSW)
OEH	Office of Environment and Heritage
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: www.heritage.nsw.gov.au

2.0 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 site and its cultural heritage.

2.1.1 Environment Protection and Biodiversity Conservation Act, 1999

The *Environment Protection and Biodiversity Conservation Act* (EPBC 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 *EPBC 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.

No part of the subject study area appears 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). Since 2007, the RNE has been frozen and no further sites can be added to the Register. For Commonwealth properties, the Register has been superseded by the Commonwealth and National Heritage Lists. The RNE now serves as an indicative list of significant places and remains as a statutory register until 2012. During this period, the Commonwealth Minister is required to continue considering the Register when making decisions under the *EPBC Act* regarding items located on Commonwealth land.

No part of the study area is listed on the Register of the National Estate.

2.1.2 NSW Heritage Act, 1977 & Heritage Amendment Act 2009 (34)

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

(a) demolishing the building or work,

(b) damaging or despoiling the place, precinct or land, or any part of the place, precinct or land,

(c) moving, damaging or destroying the relic or moveable object,

(d) excavating any land for the purpose of exposing or moving the relic,

(e) 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,

(f) altering the building, work, relic or moveable object,

(g) displaying any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct,

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

No part of the study area appears on the State Heritage Register.

2.1.3 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. Full details of the standard exemptions, refer to the Department of Planning's Heritage Branch website (http://www.heritage.nsw.gov.au/14e_index.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 (CMP) endorsed by the Heritage Council or its delegate and using wording agreed upon prior to Heritage Council endorsement.

2.1.4 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 were recently redefined by the 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 Act).

Section 139 of the 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 Department of Planning's Heritage Branch website:

http://www.heritage.nsw.gov.au/06_subnav_02.htm#policy

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.

2.1.5 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 within the study area are owned by the Roads and Traffic Authority.

No items listed on any Section 170 Heritage and Conservation Register are located in the study area.

2.1.6 Environmental Planning Instruments

An Environmental Planning Instrument (EPI) is made under the Environmental Planning and Assessment Act, 1979 (EPA Act). An EPI can be a Local Environmental Plan (LEP) or a State Environmental Planning Policy (SEPP). The applicable LEP for the subject study area is the Port Stephens Local Environmental Plan 2000.

No items listed on Schedule 5 (Heritage Schedule) of the Port Stephens Local Environmental Plan 2000 are located in the study area.

2.1.7 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 RAIA 20th Century Register of Significant Buildings, and the Art Deco Society of NSW's Art Deco Building Register.

A search for National Trust (NT) classified items within the Port Stephens Local Government Area was conducted for this project. No items were identified in the study area. Similarly, no items were listed on the RAIA or Art Deco Society registers.

2.1.8 Adjacent Heritage Items

Tomago House and Tomago Chapel (State significant) are listed as state significant heritage items on the SHR and the Port Stephens LEP.

Tomago House, along with associated grounds and trees, and Chapel are also entered into the National Trust Register.

Aspects relating to the cultural landscape of these items are to be addressed in a separate study undertaken by EJE Heritage and whereas the current work deals solely functions solely as an archaeological assessment.

2.2 SECTION SUMMARY

Table 2.1 (below) lists the relevant statutory and non-statutory registers, listings and orders, and identifies those in which any part of the site is listed.

Table 2.1: 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	No
Section 170 Heritage & Conservation Registers	No	No
Port Stephens Local Environmental Plan	No	No
Register of the National Trust (NSW)	No	No

3.0 HISTORICAL BACKGROUND

The historical background consists of two parts; the first is a history of the settlement of the wider Tomago area while the second is a targeted historical background of the study area. The regional historical overview contextualises the site specific history and is comprised of an overview of Tomago and surrounding area and a brief summary of the area's growth and development. This is followed by the site specific historical background, which describes in detail the historical development of the site and discusses the various uses of the study area up until the present day. The history of the study area has been extensively covered in the EJE Heritage (2011) *Tomago Heritage Assessment* and for a detailed historical analysis the reader is asked to refer to this document. The historical background of the current report aims to highlight and expand upon aspects of the historical background that are germane to understanding the archaeological record that may be present within the study area, and to place it within the context of a wider area.

3.1 THE TOMAGO HISTORICAL BACKGROUND

Tomago is a small rural and industrial area to the north of the Hunter River and to the west of Fullerton Cove. The town of Raymond Terrace lies to the north and Tomago is joined to the suburb of Hexham on the south side of the river by a bridge. The history of the Tomago area can be divided into five elements; Aboriginal context and post-contact history, shell mining, early land grants and the Tomago Estate, colliery and small farms and finally industrial development.

3.1.1 Aboriginal Context and Post-Contact History

The study area is located on the north bank of the Hunter River, a river which served as a natural boundary between the Awabakal to the south and Worimi to the north (EJE Heritage 2011:4). The study area is in Worimi country, which was abundant in natural resources and spiritual significance (EJE Group and Hunter 1995:6-8). Within the Worimi language group, a number of culture groups as large as three hundred were reported by early settlers (EJE Group and Hunter 1995:6-8). Thriving on coastal, riverine and inland resources, the Worimi employed dynamic tactics to pursue their goals and traditions yet the numbers of the Worimi declined rapidly with the arrival of Europeans. Factors such as disease, violent dispossession and the destruction of important resources played key roles in the rapid decline in the size of the Worimi population (EJE Group and Hunter 1995:6-8). However the Worimi were able to successfully adapt to the influx of European colonists and sought ways to control their destiny within the Tomago region.

Smaller groups within the Worimi nation were able to continue their own cultural life, while also participating in the economic life of the European colony by working on the farms and by performing central roles in the river trade, often as expert boat builders (EJE Group and Hunter 1995:6-8). It was noted that in 1869 there was an Aboriginal camp within 1 mile (1.6 kilometres) of Raymond Terrace where Corroborees were also conducted and sometimes European audiences were charged a modest fee to be able to observe (Hartley 1987:16). As late as the 1870s many Aboriginal people continued to live in the Tomago are but soon left for such places as Tea Gardens, Karuah and the Manning River (EJE Group 1995:8) Worimi descendants still live in the region around Tomago today (EJE Group 1995:8).

3.1.2 Shell Mining

During the time that Newcastle functioned as a penal settlement, the area around Tomago was used as a source of shell in the manufacture of lime, used for building materials, with a convict limeburners camp being established around Fullerton Cove and on the Hunter River as early as 1809 (Hartley 1987:4).

This limeburning activity sourced the oyster shells that were plentiful in the area and that were present either as shell middens, accumulated as the result of Aboriginal economic practices, or as naturally occurring shell beds (Pearson 1990:7.01.2). By 1815 the readily available resources in Fullerton Cove had been exhausted and islands within the Hunter River began to be exploited by the colonial authorities (EJE Heritage 2011:6). It has been asserted that the lime used in the manufacture of Hyde Park Barracks and St. James Church was sourced from the Fullerton Cove area (Hartley 1987:5).

Even though the limeburning activities carried out by the convicts had ceased by 1822, when the areas around Newcastle were opened for free settlement (Hartley 1987:5), the industry was carried on by settlers up until 1838 (Pearson 1990:7.01.02). It was noted that the lime produced from the burning of shells was manufactured locally and sold to squatters along the Hunter River, sometimes using boats to transport the shell lime up and down the river (Pearson 1990:7.01.02). The extent of the limeburning activities within the Tomago area is unknown, but as shell as a raw material for lime was at a premium during the first half of the 19th century ,it is unlikely that any readily available deposits would have been left unused.

3.1.3 1824 – 1847 Early Land Grants and the Tomago Estate

When the transportation of convicts to Newcastle ceased in 1823, the area around the Hunter River was opened to the ingress of free settlers (EJE Heritage 2011:6). Although land grants occurred in the area as early as 1824 (Hunter 2001:54), it wasn't until the 1830s that the Tomago area and surrounds began to see an intensification of settlement owing to the depressed economic state of the colony in the 1820s and the subsequent boom of the 1830s, an example of which is the plans of construction for the nearby Township of Raymond Terrace in 1835 (Hunter 2001:36). Among the first wave of wealthy settlers to have an impact on the Tomago area were Maria and Richard Windeyer, who began to buy land within the area in the late 1838 and owned 30,000 acres by 1842 (Hunter 2001:54).

In 1839 the Windeyers began to establish a homestead, known as the Tomago Estate, in between Fullerton Cove and Raymond Terrace (EJE Heritage 2011:7). This estate soon formed the nucleus of the Tomago community and the centre of land practices within the district for some time. The Windeyers operated a system of tenant farming and were instrumental in populating the district with immigrants so as to supply their estate with labourers and farmers (Hunter 2001:54). The Windeyers built a small church, a school and also provided a social focus for the small communities of settlers that clustered in the district; it appears that a close community had soon developed in the area (Hunter 2001:54). This burgeoning Tomago community was to be supplemented in the 1850s with the discovery of coal on a property immediately to the north of the Tomago Estate (Hunter 2001:54).

3.1.4 1847 – 1941 Colliery and Small Farms

With the discovery of coal and the opening of the mine in the 1854, a small mining village grew around the mine workings (Hunter 2001:54). This mining village included an inn, post office, and over forty miner's cottages (EJE Heritage 1995:21). It is not known to what extent the mining village had interaction with the small community that had sprung up around the Tomago Estate, although it is likely that the mining families would have used the house of worship and school. The coal was either sold locally or transported by tram to the Hunter River, from thence it was shipped to Newcastle (EJE Heritage 1995:21). The mine varied in success over the years and changed ownership several times but was eventually closed in 1865 (EJE Heritage 1995:21; Hunter 2001:54). Attempts were made to reopen the mine in the 1880s and 1920s respectively but failed owing to a high water table (Hunter 2001:54).

Up until this time, a variety of crops and farming techniques were attempted in the Tomago region but the swampy conditions precluded much success (EJE Heritage 1995:22). This changed with the introduction of the mechanical cream separator in the 1880s, a device that vastly increased the efficiency of dairying, as cattle came to be the central focus of agricultural production (EJE Heritage 1995:22). This meant that small farms could vastly increase the amount of cattle that they could effectively utilise thereby dramatically increasing their profit (EJE Architects 1995:22). In 1903 prominent local farmers formed the Raymond Terrace Cooperative Dairy and Produce Company Limited and had soon constructed a factory near to Raymond Terrace (EJE Heritage 1995:23). This meant that even more dairy farms were established within the Tomago region (EJE Heritage 1995:23). The peaceful dairying activity that marked Tomago was to continue until the escalation of the Second World War in the Pacific and the resulting defensive preparations undertaken by the Commonwealth Government.

3.1.5 1941 – 1944 Tomago Defence

During the Second World War, the Tomago area was a strategic location for the defence of the manufacturing and industrial areas of Newcastle. In response to the attack on Pearl Harbour, the 1st Australian Infantry Brigade were stationed in Tomago on 9 December 1941 (EJE Heritage 2011:25). The headquarters were located in Tomago House while barns and houses on the former Tomago estate were also used as quarters (EJE Heritage 2011:25). The occupation of the Tomago area by the 1st Australian Infantry Brigade continued until December 1942 (EJE Heritage 2011:25).

On 7 June 1942, this time in response to the attack on Newcastle by Japanese submarines, plans were made for the creation of an anti-aircraft battery at Tomago (EJE Heritage 2011:25-28). This battery was completed by February of 1943 (EJE Heritage 2011:25-28). Along with the creation of the anti-aircraft battery, portions of Tomago had already been in use as a bombing range by the by the RAAF since April of 1941 and this continued until the end of the war (EJE Heritage 2011:28). With the end of the war, the focus of the central Tomago area shifted to towards industry and manufacture, driven to some extent by the construction of a bridge across the Hunter River (RPS 2011:19).

3.1.6 1944 – 2011 Industrial Development

Courtalds Ltd, a textile and chemical firm, purchased a large piece of land within Tomago in the mid-1940s and ushered in an era of industrial development (EJE Heritage 2011:30). Soon, light industries had begun to extend along Tomago Road and the economic emphasis of Tomago had shifted from pastoral pursuits to significant industry (Hunter 2001:55). The construction of the Tomago Aluminium Company's premises in 1981, on the site of the former Courtalds factory, became a dominating influence in the Tomago landscape. The smelter can now produce over 530,000 tons of aluminium annually and they employ over 1200 people. The currently proposed development can be seen in the light of the increasing industrialisation of the Tomago area, reflecting a process that has been occurring since the middle of the 20th century.

3.2 THE NORTHBANK HUB STUDY AREA HISTORICAL BACKGROUND

This targeted history of the study area is not aimed at replicating the historical background produced by EJE Heritage (2011) but instead looks at the overall pattern of land use by individuals and groups in order to determine the possibility for archaeological materials to exist within the bounds of the study area. This targeted history aims to also provide a clear picture of the nature of these remains alongside their historical associations.

3.2.1 Aboriginal Post-Contact History

The Aboriginal history of the study area represented by historical sources is limited to interactions with the Windeyer family although there may have been other dimensions to the post-contact use of the study area that do not appear in the written record.

It was noted that an Aboriginal 'chief' Toocooyoo was buried within the grounds of the estate. Further information is given in an article in the Sunday 19th of August 1953 edition of the *Sunday Herald* that states Toocooyo was buried 'just beyond' the house underneath a pine tree. No further indications of his burial location is recorded in historical sources and there is little chance of this location being observed through visual or geomorphological inspection but it is more likely that he is interred within the area around Tomago House.

Furthermore Aboriginal people appeared to visit the Tomago estate from time to time, either informally for social purposes or by invite to hold a corroboree (Windeyer 2011:170). It also seems that Aboriginal acquaintances of the early Richard Windeyer were in the habit of accompanying him to the theatre (Windeyer 2011:170). However as the 19th century wore on and the hold of Europeans became stronger on the study area these interactions vanish from the historical record and settler history claims the stage alone.

3.2.2 Limeburning

It is possible that convict or free settler limeburners sourced lime from within the study area during the first half of the 19th century, although no direct documentary evidence exists for this having occurred. However, given the intensive limeburning industry known to have operated in the area and the considerable amount of construction occurring around the study area during the first half of the 19th century, it is reasonable to state that any easily accessible shell deposits, having either natural or cultural origins, would have been readily exploited by early settlers.

3.2.3 The Establishment of the Tomago Estate 1838 - 1848

Originally promised to Adam Beveridge in 1834, the study area formed a part of an 850 acre allotment that extended east and north of the current study area (EJE Heritage 2011:7). With the purchase of the land by Richard Windeyer in 1839, the study area was incorporated into a large agricultural and pastoral landholding that extended throughout the Hunter Valley (EJE Heritage 2011:7). The initial clearance and modification of the Tomago Landscape was superintended by Edmund Doherty, operating from another part of the Windeyer land in Grahams Town (MLMSS 5221). Doherty, an employee of Richard Windeyer, was using convict labour to clear land, build structures and begin agriculture over portions of the Windeyer land around the Hunter River (MLMSS 5221). At the end of 1839 Doherty reports sending convicts to work on the construction of wells at Tomago and it is likely that during this time other work was conducted within the study area (MLMSS 5221). That convict labour was likely used in the initial land clearance of the estate is further indicated by the absconding of William Atkinson Guildford, a convict, from Tomago in 1840 (*The Sydney Herald* 29 December 1840).

The building of Tomago House and adjoining structures most likely began in 1842 and continued through to 1848, although as the house was nearly complete by this point it is likely that some final touches remained to be added; these were forgone in the light of the sudden demise or Richard Windeyer (EJE Heritage 2011:9-10). Tomago House, and its inmates, can be seen to be at the centre of the history of the development of the Tomago community for over a century and it can also be seen as the centre of the structures associated with the Tomago community. The construction of Tomago House is dealt with at length in EJE Heritage's (2011) background history that covers the study area, however a number of additional structures, relating to rural, social and domestic activity, were built around the Tomago Estate during the 1840s. These will be given

detailed examination as their material remains are likely to contribute to the archaeological record existing within the study area.

In the notice of mortgage that appeared in 1848 *The Maitland Mercury & Hunter River General Advertiser* on 23 August, structures within the Tomago estate were described in detail;

The Out-buildings consist of superintendent's House, brick-built and shingled, containing two rooms, laundry, and kitchen; brick-built Store and storekeeper's residence, a stone-built Gothic Cottage in the vineyard, a double weather-boarded Cottage, gardener's Cottage, and eight Huts and Stabling ; also, Stockyard, &c.

This description indicates a comprehensive estate and associated structures situated in association with Tomago House. Although not all of them may have been situated in the study area, there is a strong possibility that a lot of them were, although specific locational information is not available in contemporary sources.

During the construction of Tomago House, a large professional workforce was employed in construction at Tomago, with Maria Windeyer noting in 1846 that as the house was nearing completion '5 out of 10 or 11' Masons had been discharged. She also notes that 4 carpenters were currently at work while they were expecting more to arrive from Launceston, Tasmania (MLMSS 5221). Whether or not these masons and carpenters were used to build other items around the estate is unclear but remains a possibility.

A glimpse into the manner of construction is provided by an 1841 letter by Richard Windeyer that stipulates the conditions of a lease on one of his properties, including the construction of a three rail fence along the boundary of the property and general improvements to the house (MLMSS 5221). The symbiotic relationship between the denizens of Tomago House and their tenants seems to have gone further, with the Windeyer's furnishing them with 'fruit trees of various kinds' (MLMSS 5221). This arrangement appears to have been a common feature at Tomago with tenants completing development activities as part of their payment for taking the land and the Windeyers supplying what help they could.

A school was also built on the Tomago Estate near to Tomago House by 1844, although Hartley (1987:23) argues that it was around 1843, for in a letter to her son dated 10 March that year, Maria Windeyer mentions working alongside six other teachers at a Sunday school containing 30 children (MLMSS 5221). A description of this school is furnished by Maria Windeyer in her lease of it to the Board of National Education in 1851 (Cited in Hartley 1987:23);

All that building at Tomago now used as the National School 50 ft. from the Public Road leading from the River Hunter to Raymond Terrace and at the back of a building now used as a place or worship - the Schoolhouse is of weatherboard and is 24ft. x 12ft., the land being 68ft. x 61ft. – bounded by a fence dividing it from Mr. Pepper's Farm – being part of a Grant of 850 acres made on 12.7.1839 to Richard Windeyer dec'd."

It is important to note that Maria mentions that the adjoining Church is referred to as a 'building now used as a place of worship' clearly implying that it was constructed for some other purposes and in terms of architecture or fabric may not have been ecclesiastical at all. A plan of these buildings included as part of a certificate of title has been included as Figure 3.1 below.

The clearing and development of the Tomago landscape continued apace with a letter from Maria Windeyer in 1844 reporting the measurements of a new drain in the 'big swamp' (MLMSS 5221). This drain was measured to be 287 rods (1.44 kilometres) long, 29 feet (8.8 metres) wide and having an average depth of around 40 7/8 inches (1.04 metres) (MLMSS 5221). A further 10 foot (3.4 metre) wide drain is also noted as having been constructed prior to this (MLMSS 5221). Both

of the drains are said to empty into a 'duck pond' (MLMSS 5221), though no indication survives as to where this duck pond may have been.

Vineyards were a central feature of the early estate and wine from Tomago was able to win several awards, including one from the *Paris Exposition Universalle* in 1855 (Hartley 1987:24). The first cask was ready in October of 1845, while the vineyards were superintended by Ludwig Staeder, a 'shrewd and cheerful' German immigrant who continued to work there for some time (MLMSS 5221). In a letter of 1846, William Charles Windeyer writes from Tomago that the 'vines look beautiful near the house' (MLMSS 5221), demonstrating that it is likely the vines were located adjacent to Tomago House, possibly to the south east or north east, as the area to the west had already been taken up by community buildings. With the death of Richard Windeyer and the discovery of the insolvent nature of his estate, the rapidity of building at Tomago slackened and large portions of Windeyer landholdings throughout the Colony were soon sold off to appease creditors (MLMSS 5221). During these initial years a Tomago community had taken root in the swampy soil of Tomago, and it is the development of this community, centred on Tomago House and Maria Windeyer, which dictates land use within the study area for the next thirty years.

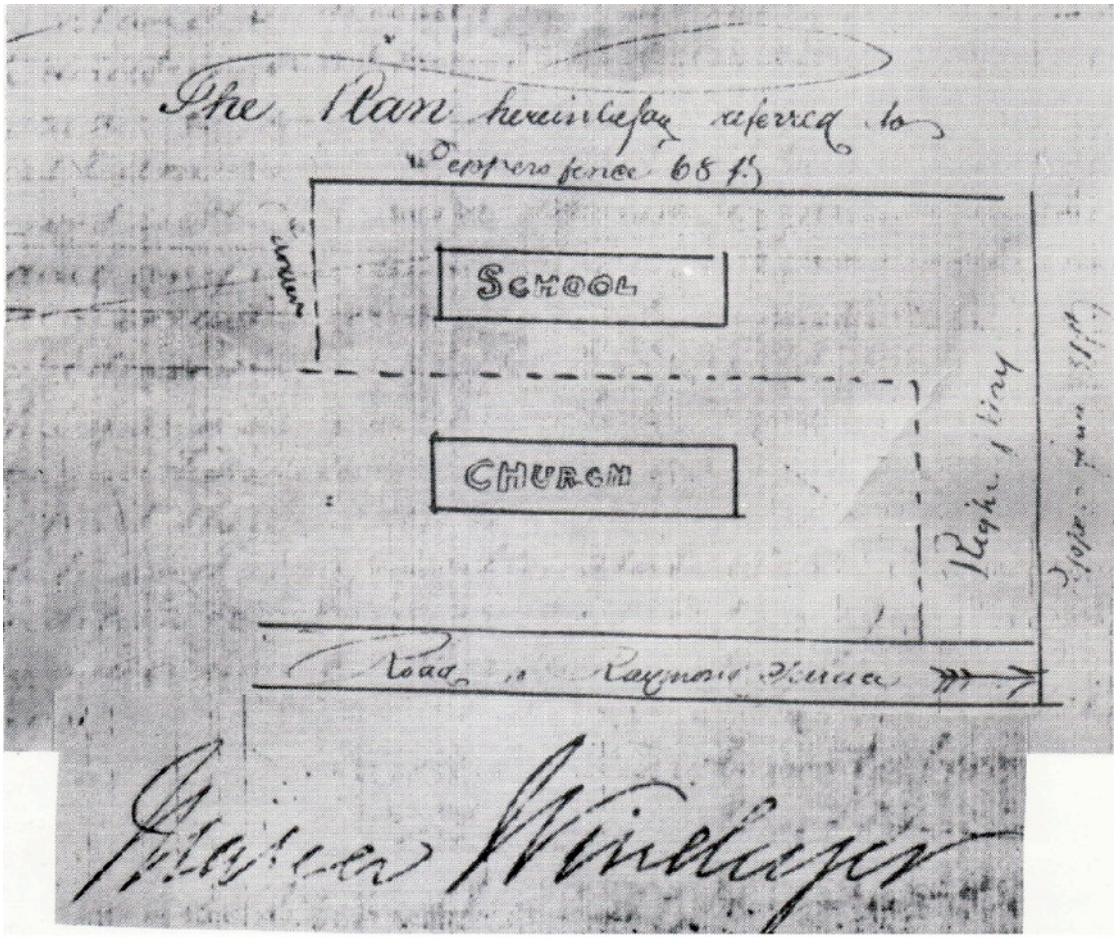

Figure 3.1 Picture showing the location of the school, building used as church and road going through the study area from the Hunter River to Tomago Road (This plan copied from EJE Heritage 2011).

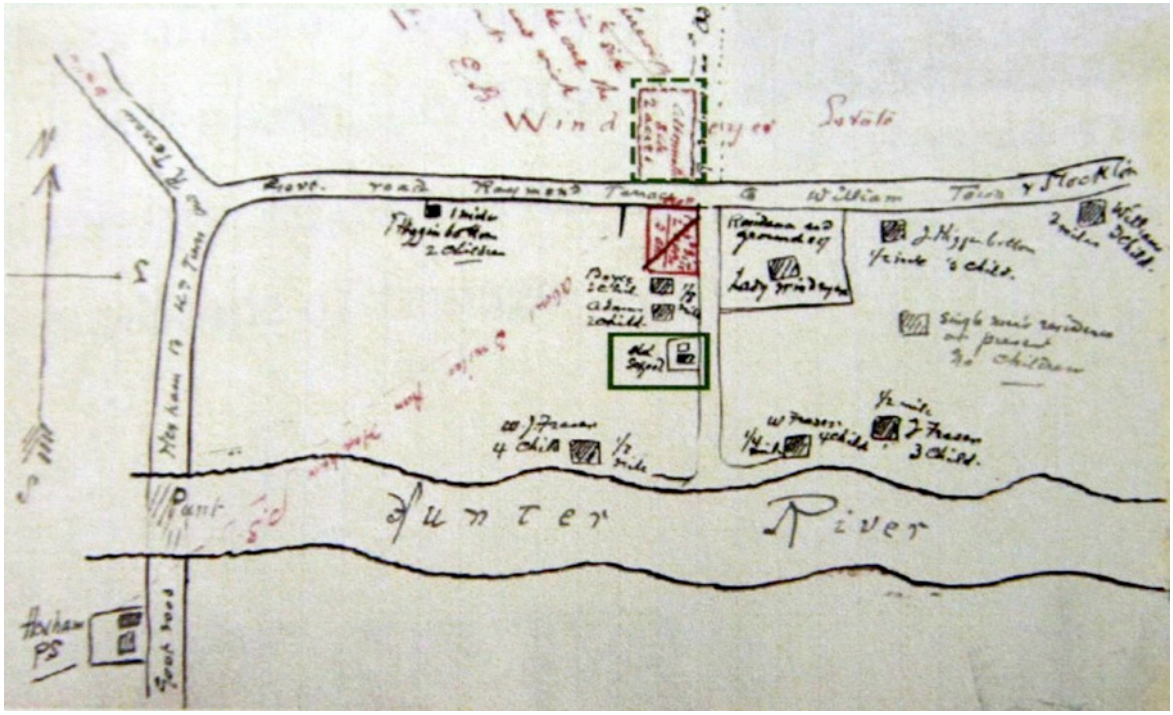

Figure 3.2 Plan of the Tomago Estate in 1903 in support of an application for a new school. (Original in Anon n.d. This image copied from EJE Heritage 2011)

3.2.4 Tomago Community 1848 – 1878

The 'feudal system' of tenancy imported by the Windeyers had the result of creating a centralised community (Hartley 1987:22). An example of this was at the 1849 grape harvest when it was reported that the tenants harvested the grapes for free and for payment were able to eat any they liked at the time, although they could 'take none away' (MLMSS 5221). As was the case of the first period of Tomago House, the leases offered during this time commonly included stipulations such as the construction of fences and drains and the maintenance of buildings (Hartley 1987:21). That the estate still prospered can be seen in 1851 when Maria Windeyer was seeking more immigrant families to work the land as tenants despite her straitened circumstances (MLMSS 5221).

The school and old church appear to have been located on higher ground than the rest of the property for in 1857, when a large flood had swept down the Hunter, the residents closer to the river took shelter in the school building (MLMSS 5221).

It also appears that the land in between Tomago House and the Tomago Colliery was inundated along with all the fields of the estate, as Maria further notes that as a result of the flood there would be no produce from the farms for about a year; as winemaking on the estate was given up around this time it is possible that the flooding may have further accelerated the end of this endeavour.

Shortly after the death of Richard, Maria Windeyer began to transform the landscape immediately adjoining Tomago House itself. She notes in an undated letter to her son that she had 'continued the road up to the front door & put in trees as was originally intended' (MLMSS 5221). It is likely that this letter was written in the early 1850s owing to a mention of Richard Windeyer as "departed". It also mentions the coming confirmation of William Charles Windeyer, who was already thirteen in 1847 and due for the enactment of this rite. In light of a later reflection that records the gardens in front of Tomago House being 'terraced down towards the river' (Margaret Trail Batleet cited in EJE Heritage 2011:14) it is clear that the land to the west of Tomago house formed cohesive landscape during the 1850s that was to be further augmented by the construction of a chapel in 1860 to 1861.

The death of her father in 1850 and the arrival of her sister soon afterwards would have provided financial support to Maria (EJE Heritage 2011:11-12). This, combined with the careful management of the Tomago Estate, allowed for Maria to build a stone chapel between 1860 and 1861, to the west of Tomago House (EJE Heritage 2011:13). This chapel can still be seen as fitting into the landscape to the west of Tomago House where the main domestic and community buildings had already been constructed. No further significant changes to the land use of the study area were noted until William Charles Windeyer inherited the estate in 1878.

3.2.5 Residence and Country Estate 1878 - 1912

Sir William Charles Windeyer, son of Maria and Richard, Supreme Court Justice of New South Wales and Minister of the Crown, inherited the Tomago Estate upon Maria Windeyer's death in 1878 (EJE Heritage 2011:14). The estate was quickly noted for award winning cattle and was clearly in a state of good repair (EJE Heritage 2011:14). This can be seen as in 1884 it was noted that the whole estate was well fenced and that the tenants upon the estate were also well housed (EJE Heritage 2011:14). It was further noted that the school, with a teacher's residence and a post office were also part of the estate (EJE Heritage 2011:14). Tomago House appears to have been set in a landscape with numerous plantings, orchards and an extensive garden (EJE Heritage 2011:14). A plan of 1893 gives a possible indication of these features and is shown in Figure 3.3.

Photographs taken of Tomago House in 1909 (see Figures 3.4 to 3.8) display verdant grounds along with the associated rural structures. It is not possible to infer much about the location of the structures situated on the estate at this time but these photographs indicate the nature of some of the buildings. An extensive wooden farm structure is displayed along with three railed fences in some of the photographs. Numerous brick and wooden structures are seen throughout the landscape as well as established laneways.

William Charles Windeyer was survived by his wife Lady Mary Windeyer, who used Tomago House as her primary residence until her death in 1912 (EJE Heritage 2011:15). Upon her death the estate passed to her son Richard Windeyer.

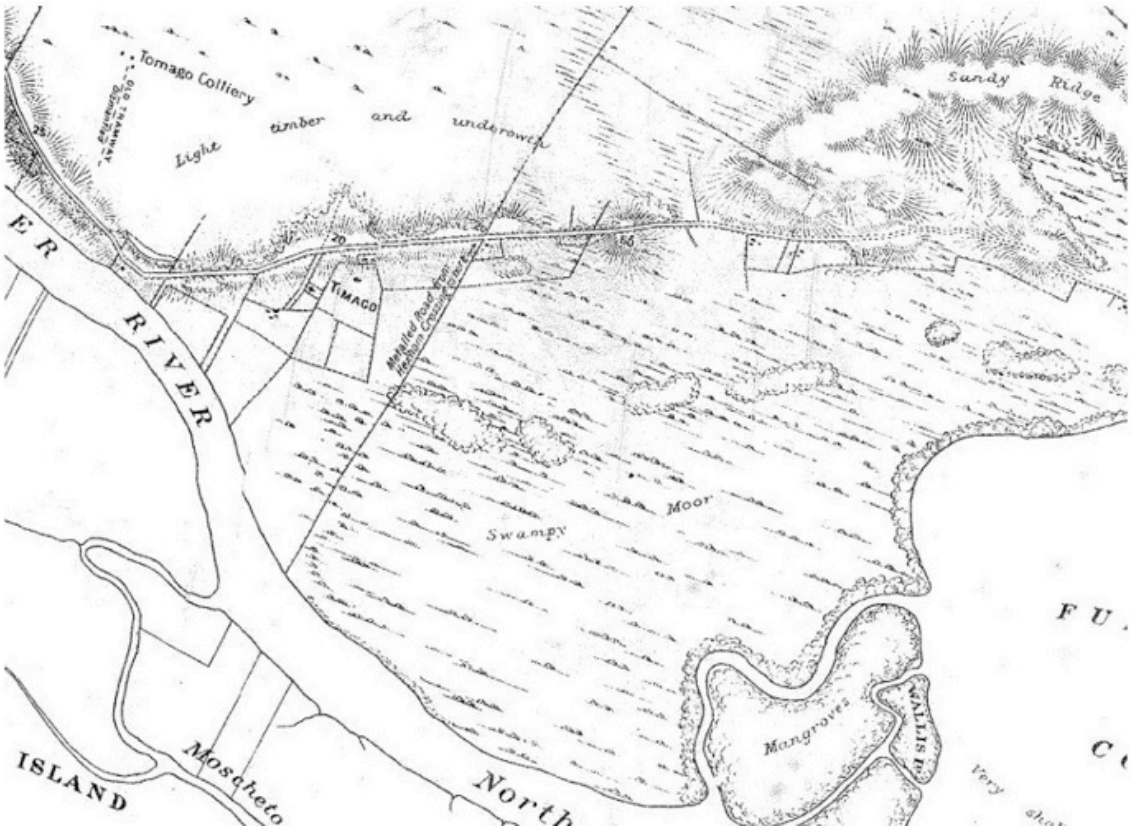

Figure 3.3 Plan of the Tomago Estate and surrounds in 1893 (Original: Major T.S. Parrott, Map of the Country around Newcastle NSW, 1893 NRL. This plan copied from EJE Heritage 2011).

Figure 3.4 A photograph showing pastoral land and cattle. (Original held in the Mitchell Library, State Library of NSW, PXA163. This image copied from EJE Heritage 2011).

Figure 3.5 A farming structure on the Windeyer estate (Original held in the Mitchell Library, State Library of NSW, PXA163. This image copied from EJE Heritage 2011).

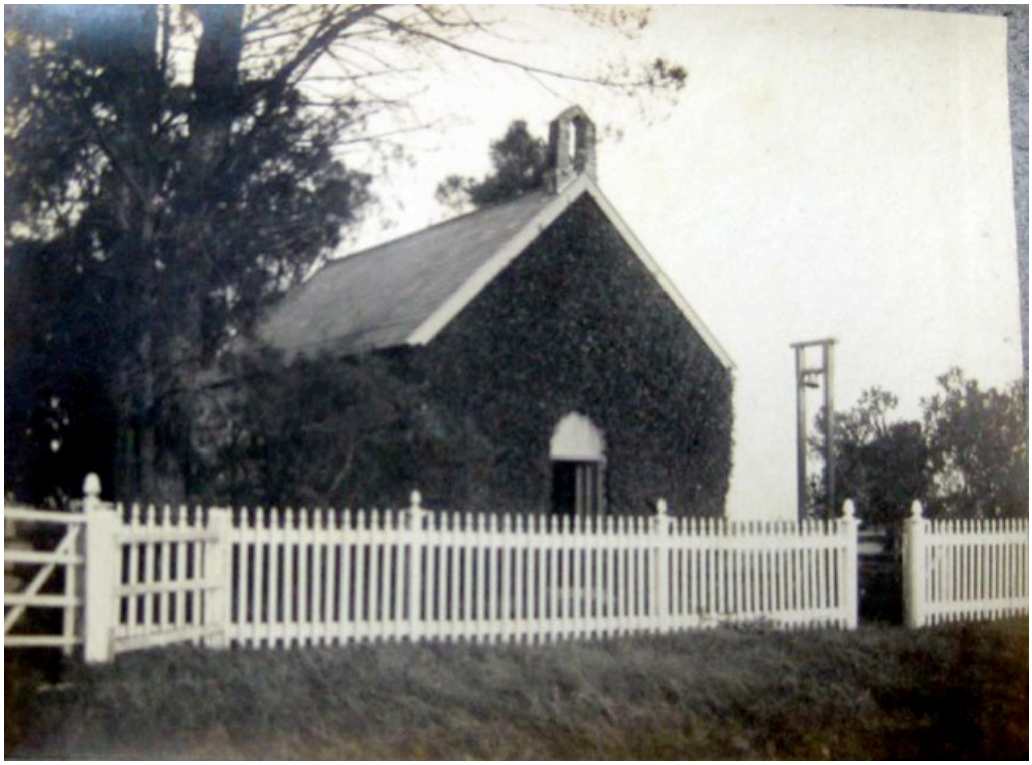

Figure 3.6 Tomago Chapel. (Original held in the Mitchell Library, State Library of NSW, PXA163. This image copied from EJE Heritage 2011)

Figure 3.7 Buildings and structures on Tomago Estate (Original held in the Mitchell Library, State Library of NSW, PXA163. This image copied from EJE Heritage 2011)

Figure 3.8 Photograph showing a dairy located on the Tomago Estate. (Original held in the Mitchell Library, State Library of NSW, PXA163. This image copied from EJE Heritage 2011)

3.2.6 Subdivision and Dairying 1939 – 1941

The Tomago Estate remained in Richard Windeyer's hands until he subdivided and sold the bulk of the land in 1939, subsequently selling Tomago House in 1946 and disposing of Tomago Chapel to the Methodist Church (EJE Heritage 2011:20). Until the subdivision and sale, little alteration was noted in the historical record as occurring to the fabric of the estate, although by 1939 there are a series of houses and rural features across the estate (see Figure 3.9).

The land within the study area was divided into eight large allotments; an advertising poster for this subdivision can be seen overlaid with the study area in Figure 3.9 and the survey plan of the subdivision can be seen in a similar overlay in Figure 3.10. What can be further inferred from this is that the estate must have undergone considerable alteration since the plan in 1893 (Figure 3.3). The complex of structures to the west of Tomago House is no longer visible, while additional houses and rural structures are scattered across the site. Table 3.1, drawn directly from the EJE Heritage report (2011), illustrates the sale of the subdivision and the structures present on the site at this time.

Table 3.1 Subdivision allotments, owners and structures present at the time of purchase. (EJE Heritage 2011:23)

Lot No.	Area (acres)	Improvements	Purchaser	Purchase Price
1	50	A house.	B. Blanch	£1,725/0/0
2	116	A house, windmill, cultivation drain and a right of way.	W. Chesworth	£4,296/1/10
3	68	A house, stone stable, windmill, stone stable and a right of way.	S. Iveson	£2,125/1/3
4	140	A house.	H. & C. Cleary	£3,187/19/4
5	196	A house, outbuilding and two windmills.	R. Campbell	£1,750/0/0
6	120	A house and cultivation drain.	W. O'Hara	£1,797/3/8
7	325	A house, two cultivation drains and a right of way.	H. & E. Gregory	£3,472/19/9
8	238	Nothing.	H. & E. Gregory	£1,200/0/0

When considered alongside Figure 3.2, this table indicates much about the character of the study area. Blanch is the surname of a tenant on the estate responsible for the excavation of some of the drains, as long ago as Richard Windeyer's time (MLMSS 5221). Coupled with the fact that he only purchased 50 acres along Tomago Road and that the single structure noted on the property is a house, it becomes likely that his property has a residential focus. Furthermore this section of the

study area may have been occupied by Blanch's ancestors since the early European history of Tomago.

Particularly striking is the stone stable noted in Lot 3, to the north east of Tomago House; this stable is visible in the subdivision plan (Figure 3.9) and is also visible in the 1944 aerial photograph of Tomago (Figure 3.11). Its proximity to Tomago House and its construction material (i.e. stone as opposed to iron or concrete) is suggestive of antiquity and it is possible that this stable may have been constructed during the early building phases at Tomago. Dairying activity continued throughout the Second World War but appeared to involve little further change to the landscape; it was the impact of military activity that was to involve the most noticeable changes to the study area during the course of the war.

Figure 3.9 Advertising poster for sale of the Tomago Estate, 6 May 1939 (Hunter History Consultants collection).

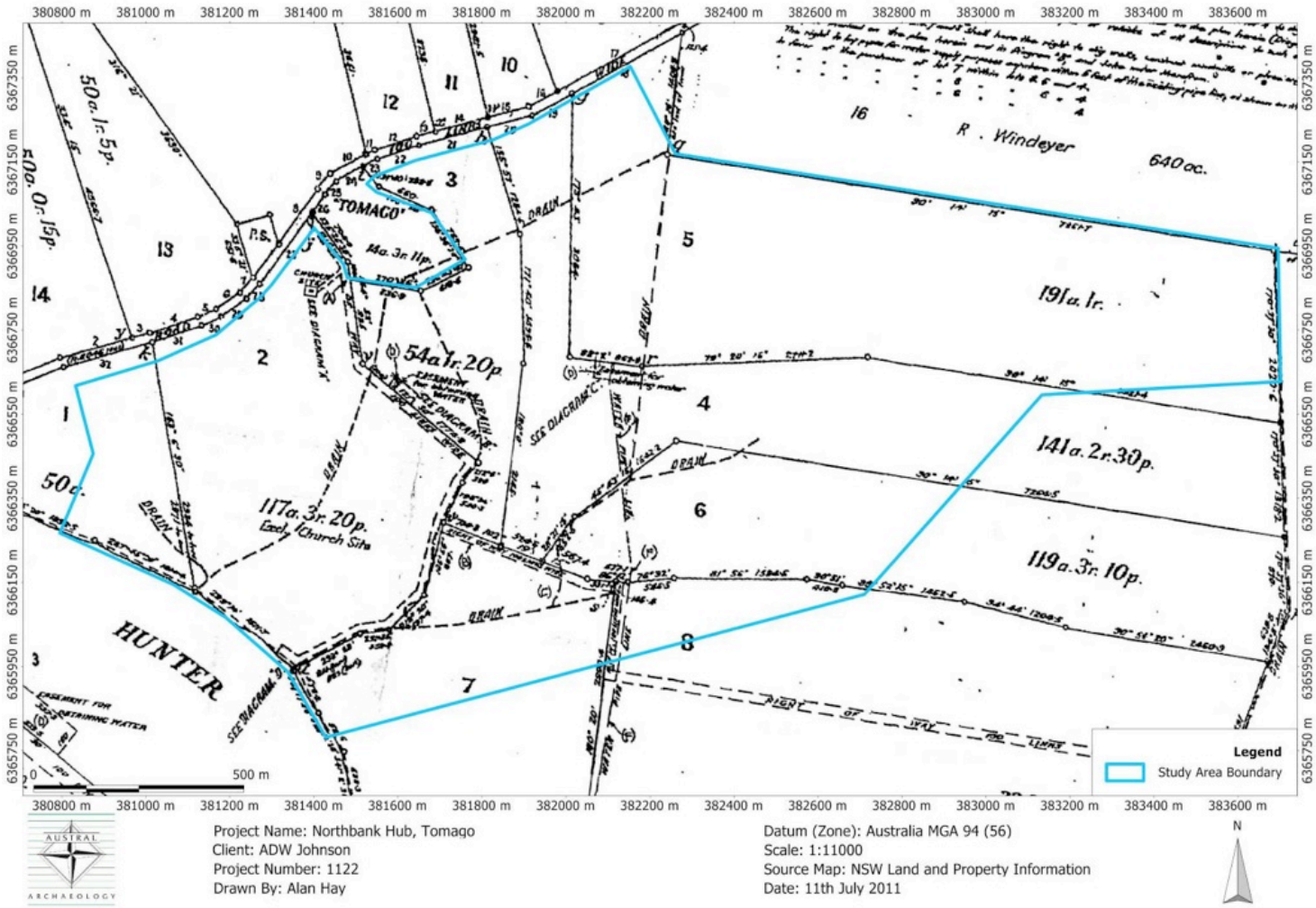

Figure 3.10 Plan of subdivision, showing access roads and drainage channels. (Original Plan of Part of Portion 7 and part of Portion 10, FP37876, 6 November 1939, NSW LPI. This plan supplied by EJE Heritage)

3.2.7 Second World War

As discussed in Section 3.1.5 above, as a result of the Second World War, the main use of the study area was the occupation by the 1st Australian Infantry Brigade, the construction of an anti-aircraft battery with associated structures and the use of the easternmost extremity of the study area as a bombing range by the RAAF. The study area also was the location of training activities for searchlight crews who formed part of the defensive organisation of the Newcastle area. Each of these aspects of military action had a different impact on the way in which land was used within the study area.

The occupation of the study area by the 1st Australian Infantry Brigade from December 1941 until December 1942 was concentrated around the already existing structures on the site, with headquarters established at Tomago House and several barns on neighbouring dairies becoming occupied by soldiers (EJE Heritage 2011:25). In particular, the soldiers occupied a house and barn on Samuel Iveson's property, while on Wilfred Chesworth's property a galvanised iron barn was used (EJE Heritage 2011:25). The temporary occupation of the area by the army was the beginning of a military interest in the study area that was to last for the duration the Second World War.

The anti-aircraft emplacement was built soon after the Japanese attack on Newcastle in an effort to protect the vital industries of Newcastle from aerial attack (EJE Heritage 2011:25). It should be noted that the battery itself formed the centre of a network of ancillary structures that spread across the study area, which included a graveled access track and three ammunition bunkers (EJE Heritage 2011:26). The battery itself was formed of four gun emplacements and a command bunker (EJE Heritage 2011:26).

Other structures are shown to be located at the site in the 1944 aerial but their identity remains unclear (see Figure 3.11). A high level of detail regarding the construction and design of the battery itself and the ammunition bunkers is included in the 2011 work by EJE Heritage; this study will focus on the aspects of the military landscape that are likely to form part of the archaeological record.

Clearly shown in the 1944 aerial photograph (Figure 3.11) is the military road, which is described by a contemporary source as being 1250 yards (1.15 kilometres) long and 4 yards (approximately 3.50 metres) wide (EJE Heritage 2011:27). The main road was supported by three byways of 20 yards (approximately 18.25 metres) long and extending to a distance of 7 yards (approximately 6.5 metres) from the main road (EJE Heritage 2011:27). The swampy nature of the terrain quickly made it clear to the designers that the height of the road needed to be increased by 12 inches (approximately 300 millimetres) to reach a height of 18 inches (approximately 450 millimetres) above the surrounding ground surface and that five concrete culverts needed to be included (EJE Heritage 2011:28), presumably to secure access across the drains that intersected the road. The entirety of the road was gravelled, with a gravel verge extending 12 inches (approximately 300 millimetres) from the road itself (EJE Heritage 2011:28). A cattle pit (cattle grid) was also added at the entrance of the military road where it connected with Tomago Road (EJE Heritage 2011:28).

Shown in the 1944 aerial (Figure 3.12) are several other structures in association with the anti-aircraft gun emplacements and command bunker; one is located close to the road and to the south west of anti-aircraft guns, the other two to the north west. There are a number of possibilities as to what these structure may be, including historical information that there were tents for the maintenance personnel, an igloo and several iron sheds located at this site during the war (EJE

Heritage 2011:28-29). It can also be inferred that although no crews were housed on site it is possible that maintenance teams lived there part of the time. (EJE Heritage 2011:28).

Together with the ruined command bunker and gun emplacements, the road, tents, sheds and igloo make up a small hub of military activity associated with the operation of air defences.

During 1942 two searchlight crews were active on Lot 4 and Lot 6, shown in Figure 3.9, while beginning in April 1942 and lasting for the duration of the war, the eastern portions of Lot 4, Lot 5 and Lot 6 were also used as a bombing range by the RAAF (EJE Heritage 2011:25). The RAAF cleared the land prior to using it as a bombing range, removing shade trees and thick windbreaks (EJE Heritage 2011:25).

With the closing of the war, the only structures to be removed from the study area were the two iron sheds and an igloo (EJE Heritage 2011:29). The command bunker, ammunition bunkers and gun emplacements were not removed owing to the difficulty of their demolition and the unfortunate farmer received £30 compensation for his property being nearly split in two by the abandoned anti-aircraft battery (EJE Heritage 2011:29).

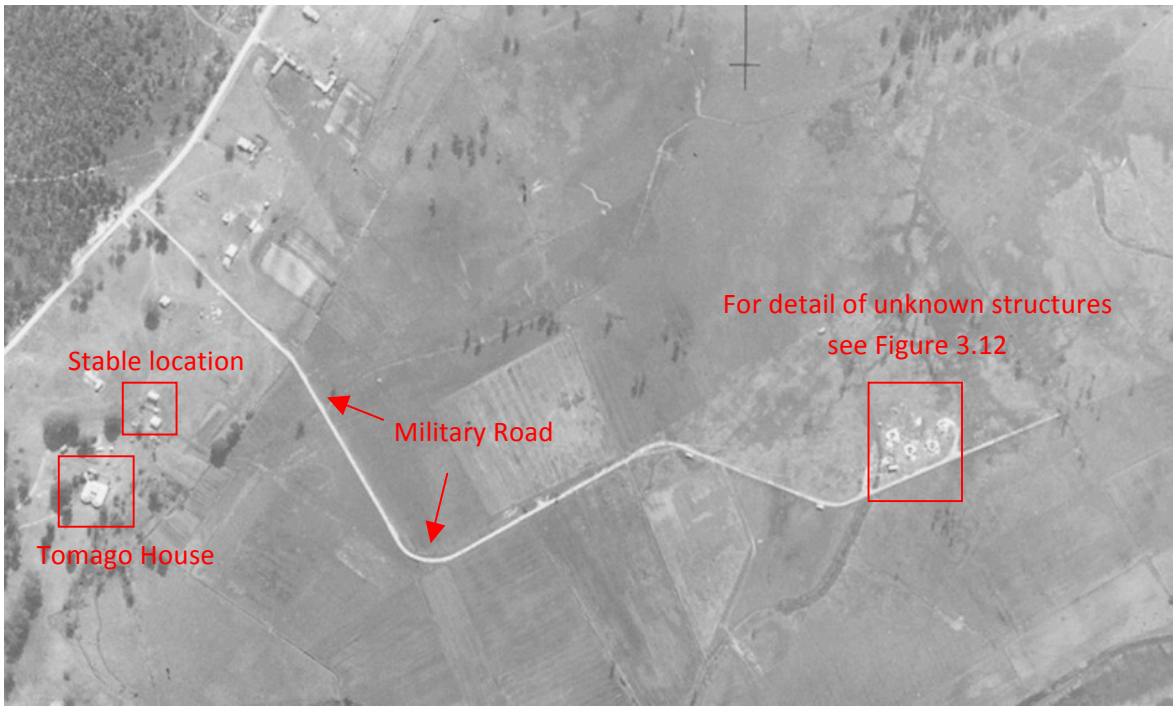

Figure 3.11 Aerial photograph showing the site in 1944 shortly after construction of gun emplacements and ammunition shelters (Supplied by EJE Heritage).

Figure 3.12: Close-up image of unidentified structures surrounding the anti-aircraft batteries from the 1944 aerial image (Supplied by EJE Heritage).

3.2.8 Post War Commercial and Agricultural Use 1944 – 2011

The end of the Second World War saw the beginning of a steady increase in industrial land use in the Tomago area and the marked the gradual cessation of dairying within the study area. Although dairying continued for the decades immediately following the Second World War, the ever-increasing encroachment of industry into the Tomago area meant that the area became unsuitable for the production of food. Following an established pattern in the history of the area, change first occurred at Tomago House before radiating out into the surrounding landscape.

Tomago House was purchased by Courtalds Ltd in 1944 and was used as the local headquarters for the development of a large manufactory on the opposite side of Tomago Road, where the Tomago colliery was once located (EJE Heritage 2011:30). In 1980 Courtalds Ltd sold the site of their Tomago manufactory to Tomago Aluminium, and the construction of a smelter at this location during the 1980s significantly altered the land use practices within the study area (EJE Heritage 2011:30). The chief cause of this was the increased levels of chemicals expelled by the smelter, which meant that the diaries within the study area were unable to function and were all closed by 1985 (EJE Heritage 2011:31).

A turf farm had operated in the southern portions of the study areas since 1974, but this also suffered the adverse impact of the nearby aluminium smelter (EJE Heritage 2011:30-31). However, from the beginning of the 1980s the study area was used progressively less and less for pastoral pursuits and gradually came to be viewed as a site suitable for the further industrial development, first with the proposed Austeel steelworks in 2001 and currently with the proposed Northbank Enterprise Hub (EJE Heritage 2011:31-32).

3.3 SECTION SUMMARY

The history of the study area reveals a complex web of social interaction, development and defence that is now obscured by the swampy renaissance overtaking the landscape. The interactions between the Worimi people and the Windeyer family, the victories and vicissitudes of the Windeyer Family themselves and the struggles of small landholders contribute to a many layered history of the area. The dairies that occupied the study area can be seen as a natural extension of the pastoral and agricultural activity that had previously characterised the area while the use of parts of the study area during the Second World War touch on themes and concepts linked to one of the central narratives of Australian culture. In short the history of the area is a palimpsest of historical influences and traces that has left a variety of traces on the land within the study area.

4.0 SITE ANALYSIS

The study area is currently Lot 1001 DP 1127780, Tomago, Port Stephens Local Government Area, and is located between National Parks and Wildlife Services' Land to the south east, Tomago Road to the north west, the Part 3A Approved 'Westrac' Facility and industrial subdivision to the north east and the Hunter River to the south west. The northern portion of the study area abuts Tomago House and Tomago Chapel, which were excluded from the larger area paddock in 1939.

The study area is located amongst low lying swampy land with a slight incline from west to east. Swampy conditions prevail across the whole of the area, with isolated pockets of drier ground; evidence of European land use is readily evident in the disposition of the whole landscape.

Located in the Tomago area, the study area is situated amongst late 20th century industrial developments, natural swamps, and packets of pastoral land. The study area is itself bordered on the south west by the Hunter River and is occasionally subject to inundation when the river is in flood.

4.1 SITE INSPECTION RESULTS

4.1.1 Conditions Prevailing Across the Study Area

A site inspection was conducted by Alan Hay and David Marcus on 6 July 2011, beginning at 8.30 am and continuing until 3.20 pm. From 8.30 am until 9.00 am Mathew Radnidge of ADW Johnson was present, and he provided access to the study area through a gate on Tomago Road, located between Tomago House and Tomago Chapel. Mathew then showed the Austral staff the central access routes through the property. The weather during the day remained sunny but windy with small amounts of scattered cloud increasing after 12.00 pm.

The most consistent feature of the study area was high levels of vegetation and low ground surface visibility and this precluded the identification of any possible archaeological features or deposits. Over large parts of the study area there was considerable amounts of surface water; in areas where the swamp was less prevalent, grass growing up to 600 or 700 millimetres high predominated with occasional clumps of brambles and thistles. In areas where the surface water had a depth of 500 millimetres or more, reeds up to 2 metres tall covered the area. Occasional small native shrubs were seen in better drained areas that presented firmer ground, whereas in remnant drains, or natural drainage lines, it was possible to observe water lilies and other small waterborne plants.

Some plantings resulting from European activity were sparsely visible throughout the study area, mostly along roadsides or in association with the dairy farms of the 20th century. This was particularly the case where structures associated with the dairy farms were located along Tomago Road. This may have been owing to the better drained ground in these areas that allowed for the trees to grow, in contrast to the resurgence of the swamp that appears to have occurred across most of the southern portion of the site.

Specific areas where vegetation could be associated with particular features and structures that were identified in the historical sources included; the area around Tomago House and the Tomago Chapel, the anti-aircraft battery, the three dairy farms to the north east of Tomago House, the location of the house towards the south west of the study area; and the location of the house and several tanks within the centre of the study area.

The area around Tomago House and Tomago Chapel displayed evidence of numerous historical plantings. This could be seen in several stands of garden plants, such as oleander, that had grown to some size without regular maintenance. Of particular interest was the large fig tree along the lane that leads from the house to the chapel, and the stump of another fig tree of similar proportions located on the south of the same laneway. This considerably-sized stump bore evidence of cutting with a modern chainsaw.

Although not originally associated with the anti-aircraft battery, a number of trees had colonised the easternmost gun emplacement site and shrouded it within a state of picturesque ruination. The trees themselves had possibly contributed to the destruction of the structure. None of the other gun emplacement sites displayed such a large amount of vegetation or vegetation of such size and it is possible that the trees may reflect deliberate planting after the disuse of the antiaircraft battery. It should also be noted that a large succulent had taken hold within the remains of the command post structure; this kind of plant had not been noted anywhere else within the study area except in a small terracotta pot placed within the confines of the command structure.

The house sites associated with the residences along Tomago Road, to the north of Tomago House, all had a compliment of European trees in associated plantings. It should be noted that several large trees in association with one house site were located near the entrance to the property and were in a state of decay: one of the trees had fallen directly on to the road blocking vehicular access to the property. This also blocked the access to the road constructed by the defence force to service the anti-aircraft batteries.

It is of critical importance to note that the vegetation across the study area strongly precluded the identification of any archaeological deposits or features on the ground. An exception to this are the concrete features that inhibit the vegetation growth and are therefore more visible through aerial photography as well as by direct observation. It is likely that this interaction of the concrete building material with vegetative processes at the site would bias the observable archaeological record in favour of more recent sites that were able to utilise this building material.

Along the banks of the Hunter River was a small rocky shoreline at water level covered in detritus. In some areas the banks could be seen to be eroding, showing a very thin humic layer over a sandy layer, occasionally with large rock inclusions, overlying a thicker, rocky clayey layer. Also along the banks were a number of small trees, although this was particularly the case around the outlets for drains. It is possible to state that the trees around the drain outlets are the result of conscious land management practices by Europeans. A raised earth embankment ran along the shoreline at a distance of several meters from the water's edge which doubled as a levee and to provide a means of access to the infrastructure and drainage structures positioned along the water's edge. Although a considerable age is indicated in the historical sources for the numerous drainage channels within the study area, it appears that ongoing maintenance has impacted two large drains where they expel their waters into the Hunter River, with the introduction of cement pipes underneath the earth embankment mentioned above.

Two sets of overhead power lines extended across the study area, running from the north east to the south west.

The northernmost line reflects the latest construction practices and supplants the line to the south, which is no longer in use. Several small maintenance tracks were associated with the modern power line and could be considered to reflect an extension of the existing system of tracks rather than the introduction of comprehensive new networks to the study area.

Overall, the tracks within the study area were in poor condition. Although it appears some of the arterial tracks have been maintained, smaller tracks, or ones less critical in the overall maintenance of the landscape, had been affected by the return to swampy conditions that

characterised the majority of the study area. The track in best repair is the one shown in the 20th century plans of the study area. This may be owing to the fact that it serves as a key access to the National Park property to the southeast of the study area, the embankment along the Hunter River and the power line infrastructure within the site.

In particular it should be noted that the road constructed by the Defence Force to service the anti-aircraft structures in the study area would present problematic access in wet periods, and possibly difficult access in the remaining seasons. Tracks associated with the dairying system noted in the 20th century have decayed to the extent that some areas of the site are inaccessible to vehicles and needed to be accessed on foot during the site inspection. A common occurrence was the impassibility of tracks where they either had previously crossed drains or had ran parallel to them. This was owing to the destruction of the track integrity as the track surface had become so waterlogged and porous from the nearby drain so as to be unable to support the weight of a vehicle. Furthermore some tracks shown in historical plans had become invisible due to the growth of vegetation across the whole site.

Exposures across the site were present as either churned up mud along boggy tracks or patches of sand in the northernmost portion of the site, particularly in association with the houses along Tomago Road. In places where demolition rubble denoted houses that were demolished, but without evidence of concrete floors/footing, the rubble was invariably mixed with sand. It can be asserted that the soil profile for the entire site consisted of a thin layer of dark brown humic material over a thicker layer of loose grey/white sand with very small stone inclusions.

Faunal activity was noted throughout the study area, including swallows, which had built nests within the entranceways of the ammunition bunkers, eagles, kangaroos and rabbits. It is unlikely that these animals would have had significant impact upon any archaeological materials within the boundaries of the study area.

4.1.2 Identification of Archaeological Features and Deposits

It is important to reiterate the extreme levels of vegetation covering the surface of the entire site and the total lack of ground surface visibility in most areas. Inspecting surface features is the crucial factor for understanding the archaeological features and deposits identified during the site inspection. The lack of visibility biased the observed sites to those that intrinsically resist being obscured by vegetation cover, such as concrete, large drains and areas still in use. This does not mean that these sites were not partially or completely obscured by vegetation but that the they presented a far greater chance of being observable than archaeological features or deposits that do not resist or actually encourage the growth of vegetation. This problem was further compounded by the length of time some of the older features or deposits on the site could have been exposed to natural transformation process, such as flooding and plant growth.

During the site inspection, all possible sites were examined with all key locations inspected. A representative sample of sites were taken from each period identified in the historical sources. As a result of this it is possible to consider several types of sites that were identified during the site inspection:

- House sites
- Rural structures
- Potential archaeological deposits
- Infrastructure

A description of each site type follows and a plan is presented that shows each site identified by type and their location in the study area (Figure 4.1).

House sites consisted of features or deposits almost certainly relating to the dairy farming phase of building (1900s to 1980s) within the study area. Overall the house site observed within the study area appeared to conform very closely to one another, with concrete foundations and little else showing above the verdure (Figure 4.2). Alternatively, they consisted of areas of sand with numerous artefacts scattered throughout and areas of modern brick rubble and concrete floors in direct association. As the sandy areas occurred more frequently at house sites along the northern part of the study area, it is understood that they reflect a change in soil deposition associated with higher ground as opposed to the more humic and swampy areas further south. However, these sandy areas may also reflect a more recent date of demolition that meant vegetation has not had time to adequately cover the area.

Potential archaeological deposits are locations where significant deposits of cultural material are likely to exist beneath the ground surface and they related chiefly to the anti-aircraft battery and the colonial portions of the Tomago Estate. The archaeological deposit considered to represent the former Tomago Estate Village is located to the west of Tomago House and can be considered as the location of the majority of the buildings noted in the historical record, such as the school and the church building (Figure 4.3 and Figure 4.4). There were strong indications in the historical sources that this was the likely area for such items to be located and this was further reinforced by observations made during the site inspection. These indications took the form of European plantings observed in the area, such as large fig trees or their stumps, and a variety of building materials. The building materials were almost uniformly of 20th century origin and included modern bricks, concrete and thin window glass. It was therefore clear that the area had been occupied during the 20th century, however the extent of the European occupation clearly indicated that there was more than house sites at this location and that it was likely that this area had continued as a centre of community focus after the dissolution of the Tomago Estate, showing that there is a high likelihood that this area has enjoyed a long history of use.

Rural structures are a type of site that consists of a variety of tanks, sheds and drains. Only one tank was identified during the site inspection and consisted of a concrete base. One shed was noted still standing alongside the military road but, owing to its ramshackle construction, using assorted pieces of pipe, corrugated iron and rough timbers, it is most likely a rural structure rather than anything associated with military activity. Several concrete floors with no other indication of their use were also noted during the site inspection (Figure 4.5). Owing to their large open plan and the lack of any identification of these structures in the historical record it is to be considered that they are the remnants of a shed or dairy rather than a domestic site.

Drains were encountered throughout the entirety of the site, varying in dimensions and in states of repair, although it is clear that all the drains are slowly silting up. Also identified was a single piece of iron pipe (Figure 4.6), likely from the 20th century that may have been an element in the drainage network.

To the east of Tomago House, a series of depressions in the grass seemed to indicate the location of the stone stables and the associated rural structures displayed in the 1944 photograph (see Figure 4.7 and Figure 3.11). The site around the anti-aircraft battery was indicated by changes in vegetation in a fashion that may indicate the possibility of features and deposits being situated beneath. This included large clumps of grass in otherwise relatively low lying terrain (Figure 4.8). Like the stable location, the key to interpreting this vegetation change during the site inspection was the 1944 aerial photograph that showed the structures still extant (for detail see Figure 3.12). This means that the vegetation difference noted during the site inspection is used to refine the area identified in the historical sources rather than providing the main source of interpretation.

Two infrastructure sites were identified; a concrete block and large wooden post at the mouth of one of the drains and the military road running through the study area. The military road is in a poor state of repair, mostly obscured by low grass though clearly observable. Some parts of the original road surface are visible (see Figure 4.9). The concrete block and large wooden post were positioned at the mouth of a large drain in the south western portion of the study area (Figure 4.10). The role that these items would have played in the study area is unclear and likely of little importance.

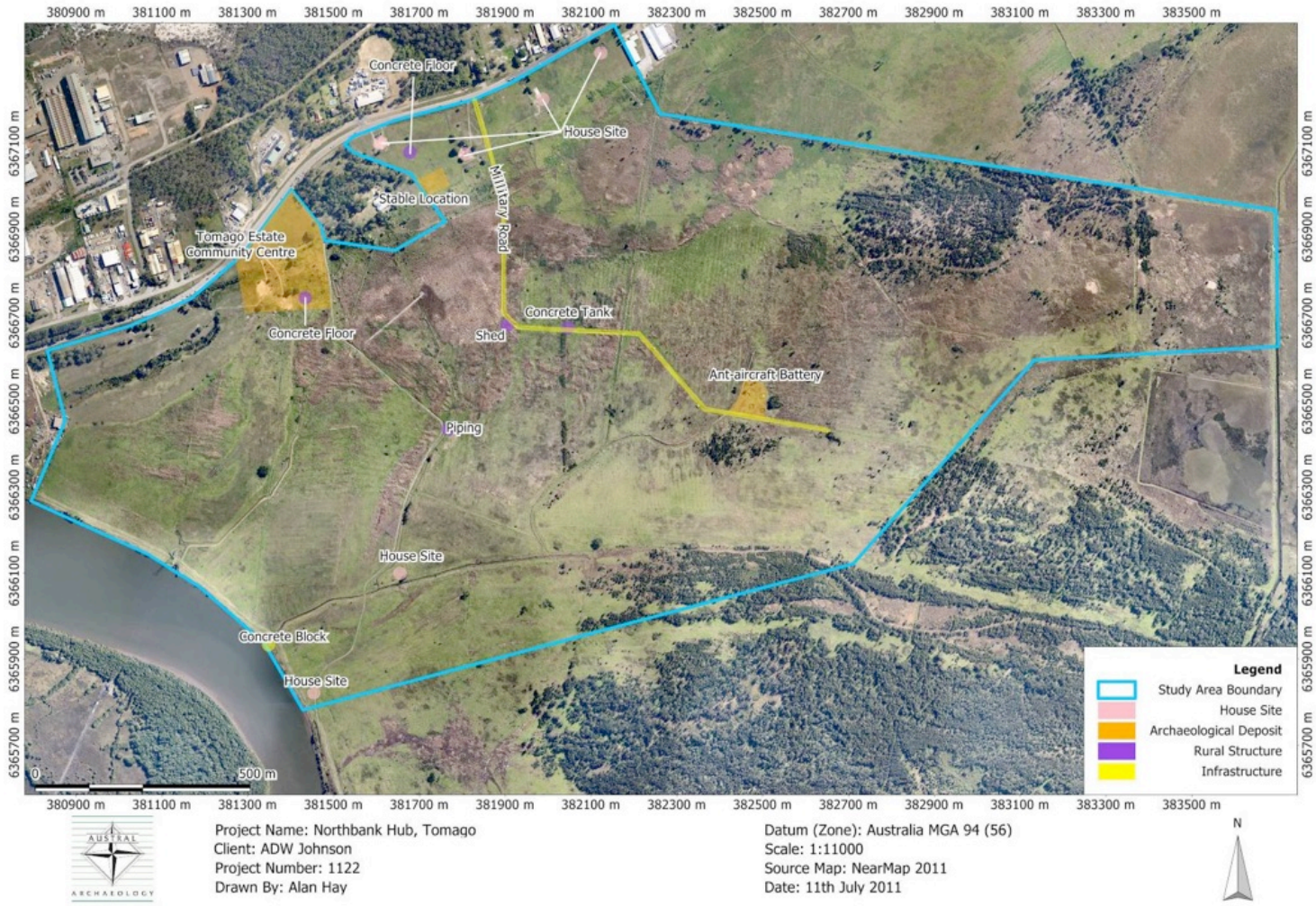

Figure 4.1 Site inspection results.

Figure 4.2 View to the southwest of the concrete base of a house site in the extreme northeastern corner of the study area. Austral Archaeology © 06/07/2011.

Figure 4.3 View to the south of the former Tomago Estate village area, Tomago Chapel is shown on the right of picture and the fig tree is shown in the left of picture. Austral Archaeology © 06/07/2011.

Figure 4.4 View to the southwest over the demolition site of a 20th century house within the Former Tomago Estate village area. Austral Archaeology © 06/07/2011.

Figure 4.5 View to the south over a large concrete dairy floor on the southern boundary of the Former Tomago Estate village. Austral Archaeology © 06/07/2011.

Figure 4.6 View of cast iron pipe located at a corner of the main access track, note that by its size it was most likely used for pumping considerable quantities of water. Austral Archaeology © 06/07/2011.

Figure 4.7 View to west showing the Tomago House plantings in the background and in the middle ground the vegetation change associated with the stone stables. Austral Archaeology © 06/07/2011.

Figure 4.8 View to the northeast over the anti-aircraft battery, the location of undescribed structures shown in Figure 3.12 is in the foreground of the picture. Austral Archaeology © 06/07/2011.

Figure 4.9 View to the southeast over the military road within the study area. Austral Archaeology © 06/07/2011.

Figure 4.10 View of concrete block located at drain mouth on the Hunter River. Austral Archaeology © 06/07/2011.

5.0 ARCHAEOLOGICAL PREDICTIVE MODEL AND SENSITIVITY MAPPING

An assessment of archaeological potential usually considers the historic sequence of occupation in comparison to the structures which are currently extant, as well as the impact that the more recent constructions and works would have had on the earlier occupation phases and, as such, the intactness of the resource. This, in turn, is tied in with the extent to which a site may contribute knowledge not available from other sources to current themes in historical archaeology and related disciplines.

In regards to the present assessment of study area, the archaeological potential depends upon the anticipated likelihood for the survival of buried structural fabric and cultural deposits as well as an estimation of archaeological integrity. Structural fabric refers to what is generally regarded as building or civil engineering remnants. Cultural deposits refer to archaeological deposits, i.e. deposited sediments containing artefacts etc.

Having analysed the historical and physical evidence in the previous chapters, the following section presents a summary of the potential archaeological resource in the study area, that is, its archaeological sensitivity/potential.

5.1 DISCUSSION OF ARCHAEOLOGICAL POTENTIAL

The features and deposits that remain within the study area today can be divided into three broad phases, colonial, pastoral and military. The colonial phase related to the social, economic and architectural activity of the Tomago Estate from 1839 through to 1939. The pastoral phase has no clear beginning but rather represents the enterprise of small farmers that took over the land of the Windeyer estate; it can be concluded, however, that the pastoral phase had terminated by 1985. The military phase occurs from 1941 to 1945 and is associated with a variety of defensive activities carried out in response to threats to Newcastle arising during the Second World War. Owing to its length of time, range of activities and extension across the landscape the colonial phase has left large archaeological evidence within the study area.

The majority of archaeological features and deposits within the study area can be considered as subsurface, with the exception of a few still extant features like drains, which also form part of the archaeological landscape. As such, the location of the majority of the archaeological items within the study area have been determined through historical sources and particularly through mapping; this is especially true in the case of items associated with the colonial phase as they were often invisible during site inspection. There are three exceptions to this: the areas of plantings to the west of Tomago House, the location of the stone stables noted in the 1939 subdivision plan and the network of drains across the site, will be dealt with first before less visible areas of archaeological potential and significance are examined.

The area to the west of Tomago House has the highest archaeological potential within the study area, but of particular note were the extant oleander bushes and fig tree as well as the stump of another fig tree. A number of other European trees were scattered throughout the area. These plantings most likely date from the time of Maria Windeyer and are likely to be part of the landscaping activity she carried out in the 1850s. These plantings are significant in themselves but they further help to indicate the location of the main community buildings mentioned below.

The location of the stone stables is clearly shown in the 1944 aerial photograph (Figure 3.11), the 1939 subdivision plan (Figure 3.9) and its location is visible on the ground owing to a change in vegetation. Therefore it is possible to define a tight area within which the stables were located. The

date of construction of these stables is not noted but given their position in relation to Tomago House and the manner of their construction, there is a high likelihood that this structure was associated with the early activity of the Tomago Estate. Figure 3.9 shows only the location of the stone stables but Figure 3.11, taken five years later, shows several additional buildings around the site of the stables. These additional structures have clearly been added during the initial dairying phase and together with the stone stables constitute a cohesive site, demonstrating aspects of animal husbandry from the colonial era through to the 20th century.

The drains across the site are numerous, in varying states of repair and can be considered to represent drain construction and maintenance practices that have continued from the 1840s until the 1980s. In this way it can be seen that the drainage network began in the colonial phase but was under continuous modification during the whole phase of European activity in the study area. There is little to identify the provenance of any of the drains on site as it is clear that they have suffered much decay therefore they are to be considered to have no archaeological sensitivity.

Although it is not possible to definitively state when each drain was constructed, it can be assumed that the longer and wider drains were more likely constructed earlier on, not only owing to the substantial measurements of a drain recorded by Maria Windeyer in 1844 but also as smaller landholders were less likely to be able to co-ordinate and perform such extensive projects.

The areas of archaeological sensitivity associated with the colonial phase and not located during the ground inspection are concentrated along Tomago Road in the north of the study area. There are two kinds of sensitivity associated with these areas; a moderate level of sensitivity for a scatter of rural and domestic structures and a high level of sensitivity for the concentration of community and domestic buildings that were located to the west of Tomago House. The structures making up the area of low sensitivity include the possible locations of vineyards, stockyards, outbuildings and the location of the residential and farming structures associated with the tenants that would have occupied the area. From the historical sources it is clear that the area immediately around Tomago House was used for viticulture, animal husbandry and orcharding. Given that the area immediately to the west of Tomago House was the Tomago Estate village, it is likely that the southern and eastern edges of Tomago house were likely also the site of these activities. This assertion is given further weight by the 1893 plan (Figure 3.3) that shows fenced areas along Tomago Road, indicating that the land to the south east consisted of swampy moor. This plan also indicates the location of the former Tomago Estate village to the west of Tomago House.

This village is indicated in several fashions; the numerous historical descriptions of the area; the considerable amount of European tree plantings in the area; the densely clustered structures noted in the 1893 plan (Figure 3.3); the location of the school and church in the 1903 sketch (Figure 3.2); and the obvious traces of European land use practices throughout the area. The precise location of any of these buildings is not known and only the general area to the west of Tomago House can be directly considered as an archaeologically sensitive area. However, owing to the extensive range of structures and their considerable number and variety, it is reasonable to assign a high level of sensitivity to the whole of this area.

The archaeological features and deposits in the study area associated with the pastoral phase can be considered to take three forms, namely; isolated and sporadic sites of structures or small groups of structures; rural infrastructure; and a belt of features and deposits along Tomago Road in the northern part of the study area. The isolated sites and the rural infrastructure are considered to be of nil to low potential whereas the belt of features and deposits along Tomago Road contribute to the low to moderate level of sensitivity of these areas.

The isolated and sporadic sites occur across the whole of the study area and are easily identifiable in both the 1939 subdivision advertisement (Figure 3.9) and on the ground. This is largely owing to their recent date of construction, as it allowed for the use of concrete materials that are able to

resist obscuration by grass. These remnant features can readily be associated with houses, windmills and water tanks. Rural infrastructure spreads across the site and forms part of a continuous network which ties in with the early colonial phase infrastructure, especially in the case of the drains. Other forms of this rural infrastructure include fence lines, gates and tracks. The archaeological sensitivity of all these areas can be considered to be nil to low as there is little likelihood of any archaeological deposits accumulating or significant amounts of structures with any research potential existing below the surface.

The belt of housing associated with the pastoral phase and located along Tomago Road can be seen as contributing to the potential of areas already identified as part of the colonial phase. Numerous domestic and rural sites, such as houses and sheds, were identified in the historical record and during the site inspection, adding to the likelihood that the area was used during the colonial era habitation of the area. As such, this area is deemed to be of moderate sensitivity as it is likely that there is a considerable amount of archaeological features and deposits, not just from the colonial period but also including the bulk of the 20th century.

The military road running through the study area forms the central archaeological feature that is part of the military phase, while the whole area around the anti-aircraft battery is to be considered highly sensitive. The military road consists of several elements, including the raised road area itself, the cattle pit (cattle grid) near Tomago Road and the concrete culverts interspersed along its length. Within the bounds of the anti-aircraft battery, a number of other structures were visible in the 1944 aerial photograph (Figure 3.11) and changes in the ground vegetation identified their position during site inspection. The western half of the area around the ant-aircraft battery is to be considered an archaeological deposit of high potential as this is the location of the structures shown in the aerial photograph and marked by vegetation changes on the ground.

5.2 PREDICTIVE MODEL

The areas of archaeological sensitivity demarcated in Figure 5.1, and elaborated on above, are described below in the form of an archaeological predictive model.

- Archaeological items associated with the colonial phase have a moderate possibility of being extant in the area along Tomago road and around Tomago House
- An area of high archaeological sensitivity is to be considered to extend west from Tomago House along Tomago Road and represents the remnants of the focus of community life at the early Tomago estate, including church, schoolhouse, post office, domestic sites and landscaped gardens
- The housing areas along Tomago Road have been the location of rural structures associated with the Tomago Estate, domestic sites associated with their tenants and a range of 20th century domestic and rural sites and are of low to moderate archaeological potential
- Dairying structures, such as tanks and house sites, occur sporadically across the site but owing to their late date of construction they are to be considered of nil to low archaeological potential
- The immediate vicinity of the anti-aircraft battery is to be considered of high archaeological potential as strong evidence exists that numerous structures were demolished there at the end of the war

- The military road from Tomago Road to the anti-aircraft battery is to be considered of high potential, although badly damaged through years of disuse it is still largely intact and forms part of a cultural landscape with the anti-aircraft battery.

5.3 SENSITIVITY MAPPING

The results of the above predictive model are depicted in an archaeological sensitivity map, Figure 5.1. This map shows areas of high, moderate and low archaeological sensitivity. This map forms the basis for the conclusions and management recommendations outlined in the following section.

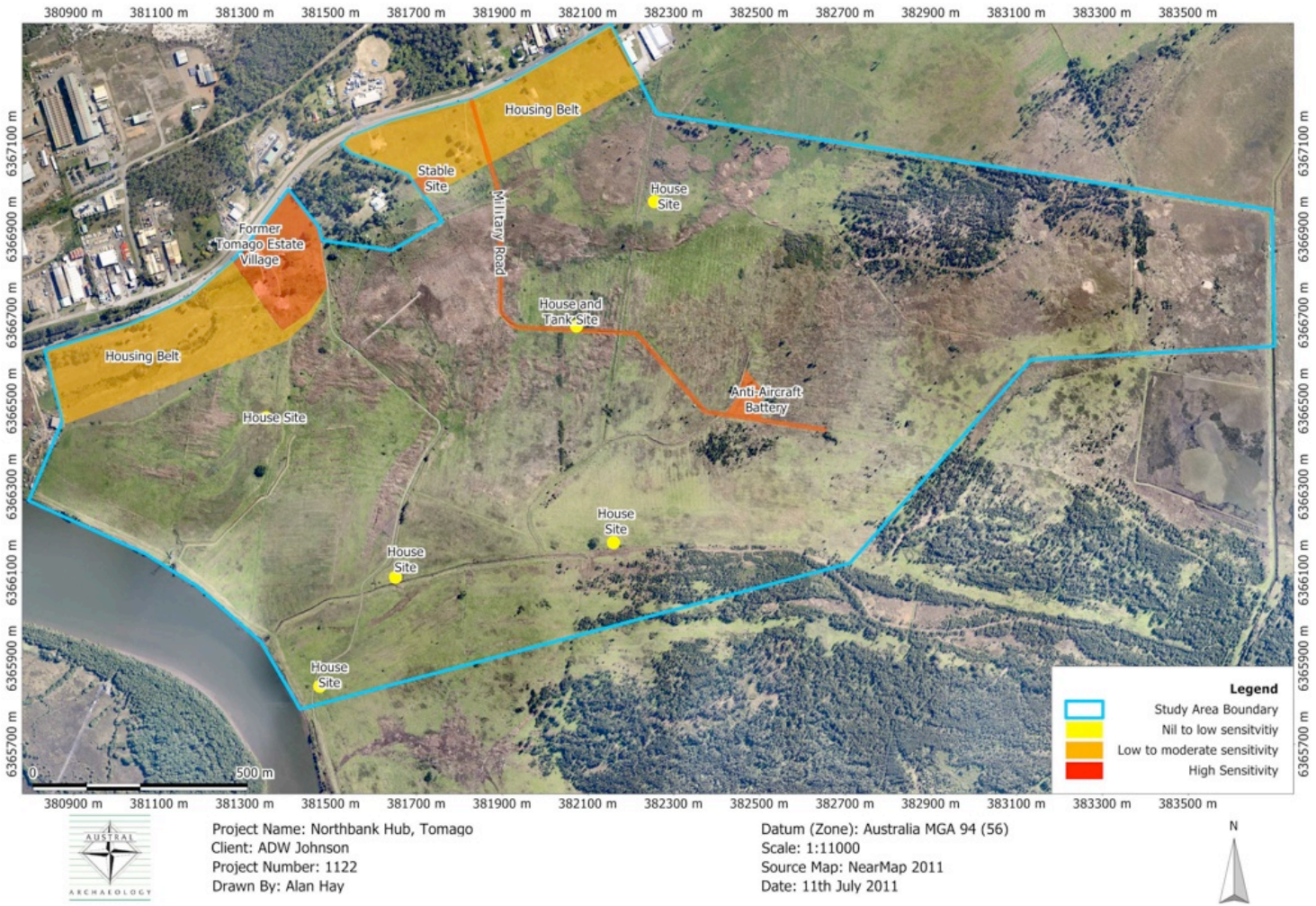

Figure 5.1 Archaeological sensitivity mapping.

6.0 CONCLUSIONS AND RECOMMENDATIONS

This report has established the existence of a variety of archaeological sites in the study area. These sites were indicated in the historical documentation and in some instances visually confirmed in the site inspection. Outlined in detail in Section 5 of this report are the archaeologically sensitive areas located through the desktop assessment. These archaeologically sensitive areas can be summarised briefly as; a low to moderately sensitive belt of former housing along Tomago Road to the north east of Tomago House, a low to moderately sensitive belt of former housing along Tomago Road to the southwest of Tomago House, a highly sensitive area associated with the 19th century Tomago Estate immediately to the west of Tomago House, a high sensitivity stable site immediately to the northeast of Tomago House, a highly sensitive military road running through the centre of the site, an area of high sensitivity covering the western half of the anti-aircraft battery and a scattering of house sites of nil to low sensitivity across the study area.

A number of historical archaeological sites have been identified within the study area. Based on the findings of this assessment it is recommended that:

No further archaeological investigation is needed and the proposed development works may proceed as described in the concept plans and development proposal provided to the consultant (Suters 2011: ADW Johnson 2011)

In the event that historical archaeological relics not assessed or anticipated by this report are found during the works, all works in the immediate vicinity are to cease immediately and a qualified archaeologist be contacted to assess the situation and consult with the Heritage Branch of the OEH regarding the most appropriate course of action, as required by the *NSW Heritage Act* 1977

In the event that Aboriginal archaeological material or deposits are encountered during earthworks, all work within a 50 to 100 m radius must cease immediately to allow an archaeologist to make an assessment of the find. The archaeologist may need to consult with the Regional Archaeologist in the Office of Environment and Heritage (OEH) and the relevant Aboriginal stakeholders, regarding the find. Section 89A of the NPW Act 1974 requires that the OEH must be notified of any Aboriginal objects discovered within a reasonable time

Should the proposed development be altered significantly from the proposed concept design, then a reassessment of the heritage/archaeological impact may be required.

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