EMGA Mitchell McLennan

Archaeological assessment and research design Kellyville Station

North West Rail Link

Prepared for Baulderstone Pty Ltd | 12 August 2013

Planning + Environment + Acoustics

Archaeological assessment and research design

Kellyville Station | North West Rail Link

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Archaeological assessment and research design

Final Draft

Report J13006RP1 | Prepared for Baulderstone Pty Ltd | 12 August 2013

Prepared by	**Rebecca Newell**	Approved by	**Pamela Kottaras**
Position	Archaeologist	Position	Heritage Team Manager
Signature		Signature	
Date	12 August 2013	Date	12 August 2013

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Executive Summary

The North West Rail Link (NWRL) is a priority transport infrastructure project for NSW and will provide a new 23 km electrified passenger rail line between Epping and Rouse Hill. The Project includes eight new stations (Cherrybrook, Castle Hill, Showground, Norwest, Bella Vista, Kellyville, Rouse Hill and Cudgegong Road), a stabling facility and associated infrastructure.

Transport for NSW (TfNSW, the NSW Department of Transport) has commissioned Baulderstone Pty Ltd (BPL) as the managing contractor for the 'Early Works' to allow construction site establishment prior to commencement of the major works for the NWRL.

The works program specific to the Kellyville Station construction area includes the construction of an elevated station and viaduct, temporary and permanent road works, and the temporary relocation of some North West T-Way facilities.

Heritage constraints were initially indentified in the preliminary phase of the project, specifically three well sites, the Stanhope Farm Alignment of Old Windsor Road, four boundary markers on Old Windsor Road and the potential remains of a pre 1900 house site (Figure 1.2, GML 2012a p.35). A 1947 plan of the area showed a structure in a typical farmland setting fronting Old Windsor Road (GML 2012a p.35). The rest of the area was identified as cleared paddocks.

The historical and archaeological research on the site has concluded that there is moderate potential for the remains of the nineteenth century cottage belonging to the James and Rudd families and high potential for three wells which may contain archaeological evidence of the families who lived at the site. Additionally two boundary stones showing the original alignment of Old Windsor Road have moderate potential to be present in the study area.

The study area contains the potential remains of a locally significant archaeological site. The archaeological resource has the potential to yield information relating to the domestic and agricultural practices of farming and fruit growing families in the Kellyville area. The lives of farmers and fruit growers supplying the market in Sydney but located beyond what was then the outskirts of the town, is not well understood. The orchardists that lived and worked within the study area were locally important residents, particularly the James family who were long term and well known members of the community. They are also representative of a group of people, who left their physical marks on the landscape. This is an opportunity to investigate what survives archaeologically of their lives. Additionally the site has the potenetial to yield further information on the rare surviving boundary stones which marked the Old Windsor Road.

The recommendations relating to the archaeological resource are to:

- Conduct an archaeological test excavation on targeted areas of the site to test the conclusions of this report. The targeted archaeological test excavations to determine the extent of significant archaeological resource and this section is the archaeological excavation program.

- Prepare a Research Design to guide the archaeological test excavation and frame the approach. This is the Research Design.

- Ensure that if during the course of excavation Aboriginal cultural material is found, work must cease and the indigenous heritage consultant be alerted.

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1 Introduction

1.1 Background

EMGA Mitchell McLennan Pty Ltd (EMM) has been commissioned by Baulderstone Pty Ltd (BPL) to undertake an archaeological program at the Kellyville Station construction area (Figure 1.1). This report details the archaeological assessment and research design for the archaeological program.

Heritage constraints were initially indentified in the preliminary phase of the project, specifically three well sites, the Stanhope Farm Alignment of Old Windsor Road, four boundary markers on Old Windsor Road and the potential remains of a pre 1900 house site (Figure 1.2, GML 2012a p. 35). A 1947 plan of the area showed a structure in a typical farmland setting fronting Old Windsor Road (GML 2012a p.35). The rest of the area was identified as cleared paddocks.

1.2 Project description

The North West Rail Link is a priority transport infrastructure project for NSW and will provide a new 23 km electrified passenger rail line between Epping and Rouse Hill. The Project includes eight new stations (Cherrybrook, Castle Hill, Showground, Norwest, Bella Vista, Kellyville, Rouse Hill and Cudgegong Road), a stabling facility and associated infrastructure (Figure 1.3). The Early Works include site establishment prior to the commencement of the Major Works and can be grouped into the following categories:

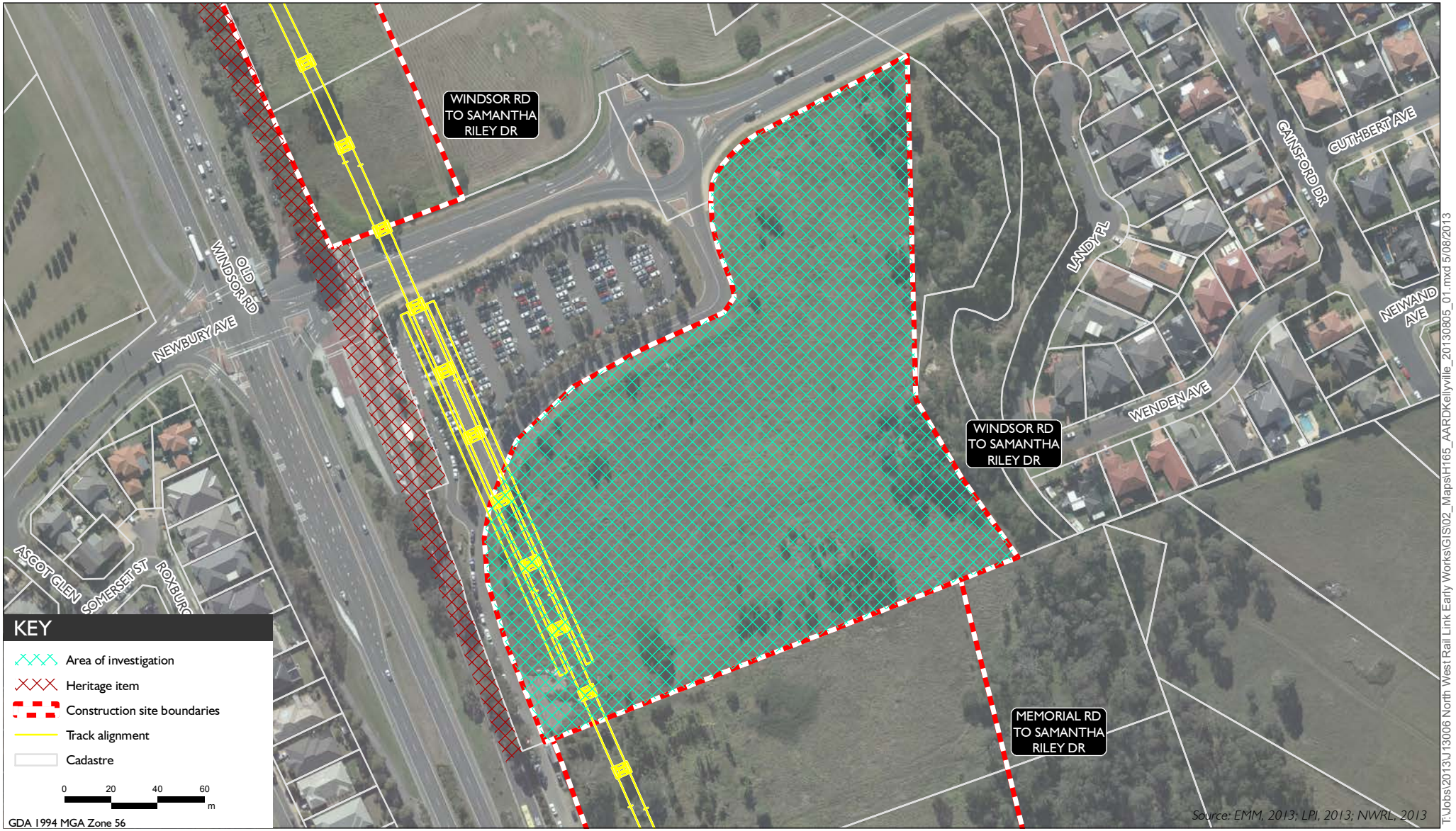
- tunnelling construction power – high voltage power supplies for construction;
- demolition – demolition of a mixture of residential and commercial properties and/or facilities;
- roads and traffic – road adjustments, signalling, and existing transport network facilities relocation; and
- precinct preparation – utilities, services relocations and miscellaneous works.

Transport for NSW (TfNSW, the NSW Department of Transport) has commissioned BPL as the managing contractor for the 'Early Works' to allow construction site establishment prior to commencement of the major works for the NWRL.

The works program specific to the Kellyville Station construction area includes the construction of an elevated station and viaduct, temporary and permanent road works, and the temporary relocation of some North West T-Way facilities.

1.3 Kellyville Station

Early Works are proposed in the area selected for the location of Kellyville Station. The proposed Station site is approximately 40,000 m^2 and set about 20 m north from Old Windsor Road with the old alignment of the road (now the North West T-Way alignment) directly adjacent to the south. It is bounded by the Samantha Riley Drive North West T-Way car park in the west and housing developments to the north and east (Figure 1.1).



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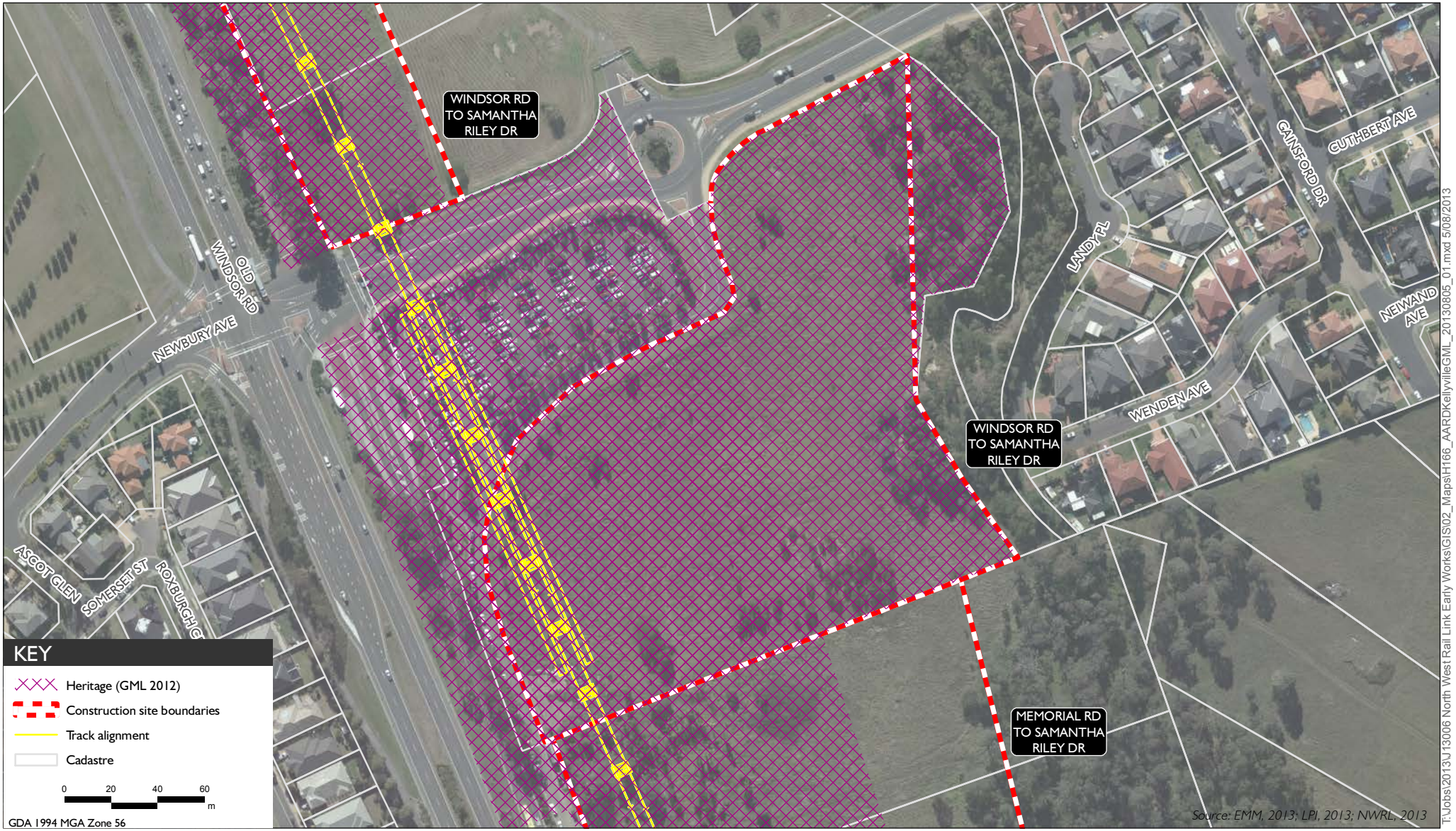
Kellyville Station study area

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 1.1



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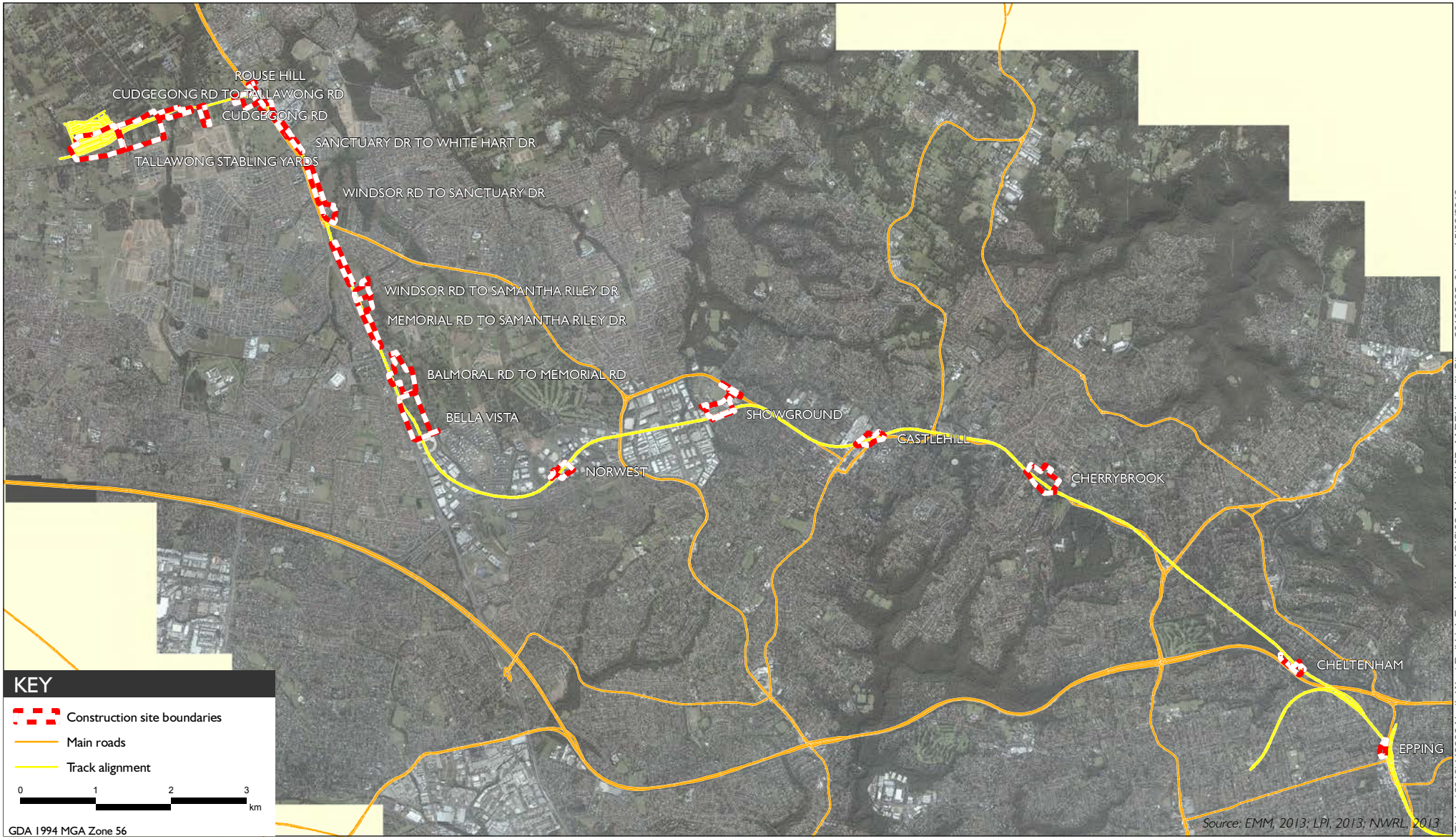
Archaeological potential - GML 2012

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 1.2



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North West Rail Link Early Works sites

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 1.3

The affected lots are shown in Table 1.1, with the lots that have been identified as possessing archaeological potential being marked with an asterisk. The construction area boundary for Kellyville Station is shown in Figure 1.1.

Table 1.1 Affected lots

Lot//DP	Lot//DP
100//1122070*	1//1028391
30//215650	31//215650

1.4 Area of archaeological investigation

The land under investigation (study area) at the Kellyville Station construction area is located approximately 10 m from Windsor Road, adjacent to the Samantha Riley Drive North West T-Way stop and car park and is Lot 1 DP 1122070.

For the purposes of the current assessment the study area is located within the Hills Shire Council Local Government Area (LGA). The Blacktown LGA is located directly opposite the study area to the south and as such it was also canvassed for heritage items and historical information.

Heritage items located in the vicinity of the study area include:

- Old Windsor Road including the Old Windsor Road Heritage Precinct – Stanhope Farm Alignment; a surviving section of the old alignment of Windsor Road showing early construction and design methods also containing alignment stones.

1.5 Legislative context

In 2012, the Early Works were approved under Part 5.1 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act). The planning approval process does not involve the requirement for excavation permit approval under the *Heritage Act 1977* (s140) but retains the notification for unexpected finds clause (s146) of the Act. The management strategies presented in this report are a response to the Minister's Conditions of Approval (MCoA), which require consultation with the Heritage Council of NSW.

The MCoAs list a number of requirements for heritage including the heritage management tasks EH1 to EH19 in the Heritage Report (GML 2012a) to mitigate the associated impacts. Not all the MCoAs relate to potential archaeological sites but the following relates specifically to this report:

> *E10. Prior to the commencement of pre-construction and/or construction activities that will impact the historical archaeological sites identified in Table 4.2 of the North West Rail Link EIS: Technical Paper 3 – European Heritage, dated March 2012, the Proponent shall undertake an archaeological excavation program in accordance with the Heritage Council of NSW Archaeological Assessments Guideline (1996) using a methodology prepared in consultation with the Heritage Council of NSW, and to the satisfaction of the Director General. This work shall be undertaken by an appropriately qualified heritage consultant.*
>
> *Within 2 years of completing the above work, unless otherwise agreed by the Director General, the Proponent shall submit a report containing the findings of the excavations, including artefact analysis and the identification of a final repository for any finds, prepared in consultation with the Heritage Council of NSW and to the satisfaction of the Director General.*

This report details the methodology devised for the archaeological excavation program for review and comment from the Heritage Council and the Department of Planning and Infrastructure (DP&I).

1.6 Objectives

This report has been prepared to meet the requirements of the MCoA listed above for the NWRL Early Works Project and the conditions detailed in the Construction Heritage Management Plan (Baulderstone 2013). This report also aims to:

- investigate the historic archaeological resource identified in the North West Rail Link Heritage Zoning Plan (GML 2012a) through historical research;
- determine the likely location of the archaeological resource;
- assess the level of potential for archaeological resources;
- provide a preliminary assessment of significance;
- present appropriate archaeological management strategies for the historic archaeology; and
- provide recommendations on future procedures required to best mitigate impacts on the archaeological resource.

1.7 Research method

This report was prepared in accordance with the *Archaeological Assessment Guidelines* (Heritage Council 1996) as prescribed by the MCoA. This report is also guided by the philosophy of the *Charter for Places of Cultural Significance* commonly known as the *Burra Charter* (Australian International Council on Monuments and Sites, ICOMOS 1999).

Significance and impacts to significance have been assessed using the following guidelines:

- *Statements of Heritage Impact Guidelines* (Heritage Office 2006);
- *Investigating Heritage Significance* (Heritage Office 2004);
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch Department of Planning 2009);
- *Historical Archaeology Code of Practice* (Heritage Office 2006); and
- *How to Prepare Archival Records of Heritage Items* (Heritage Office 1998).

At this stage the significance assessment is preliminary and based on the historical documentation obtained thus far. If an archaeological field program is determined to be the most appropriate management strategy, the assessment of significance will be updated to reflect new data recovered through excavation.

To determine the likely location, survival and heritage significance of the archaeological resource the following sources were consulted:

- historic maps and plans;

- previous historical or archaeological reports;
- geotechnical investigations of the study area;
- modern and historic aerial photography;
- survey field books and plans;
- probate records;
- primary applications and land title records;
- general histories of the area (secondary sources);
- the NSW Calendar and Post Office Directory; and
- additional local historical resources including rate books.

Research was undertaken a number of sources listed below:

- Land and Property Information: title searches;
- Picture Australia for historic photographs;
- Land and Property Information: Six Spatial Information Exchange (online);
- the Mitchell Library;
- the State Records Authority NSW;
- Hornsby Shire Local Studies Library;
- Hills Shire Local Studies Library;
- Trove Newspapers online;
- the Australian Dictionary of Biography online;
- Heritage Branch Library: Consultant reports;
- Archaeology Online: Consultant reports; and
- Miles Lewis: Online database.

1.8 Consultation

A meeting with the Heritage Branch, TfNSW and EMM occurred on 13 June 2013. This meeting presented information on each of the study areas with archaeological potential and the preliminary research and excavation strategies planned for each. The Heritage Branch comments from that meeting noted the requirement that this report be submitted to the Heritage Branch on behalf of the Heritage Council for review and comment.

1.9 Limitations of the investigation

Limitations of the investigation are due to the constraints of project timing. Nevertheless, research on the study area investigated a number of sources, many of which assisted with characterising the archaeological sensitivity of the area and provided a better understanding of the properties in the region and the people that lived there. However, some gaps in our knowledge of the site still exist, which can be addressed through archaeological investigation. Additional research may be required during and after the completion of any excavation and reporting on the excavation results.

1.10 Authorship

This report was written by Rebecca Newell BA (EMM) with assistance from Ryan Desic (EMM). Research was conducted by Rebecca Newell, Ryan Desic (EMM), Pamela Kottaras and Louise Doherty (Heritage Advisory Services). Analysis, report direction and review was provided by Pamela Kottaras BA Hons (Archaeology) – Associate Archaeologist (EMM) and David Kelly BTP (Hons) – Senior Environmental Planner (EMM). External review was undertaken by Tory Stening of Comber Consultants, who is one of the nominated excavation directors.

1.11 Acknowledgments

- Libby Robinson at the Heritage Branch library provided invaluable assistance with locating and providing consultant reports to review;
- members of the Hills Historical society provided assistance on;
- Staff at the State Library and the State Records also provided invaluable assistance;
- Robert Parkinson at the Land and Property Information Division of the Department of Finance and Services for assistance in investigating land titles and early mapping; and
- Castle Hill Local studies librarian Kylie Dobbie for her assistance in researching the Hills area.

2 Historical analysis

2.1 Aboriginal people

The majority of information about the social and cultural structure of Aboriginal society before contact with new settlers comes from accounts made by Europeans. These accounts and observations were made after massive social disruption due to disease and displacement. As a result, this information is often contentious, particularly in relation to language area boundaries. The discussion below is based on information obtained for early settlers and explorers in the Castle Hill area.

The dominant Aboriginal language group for the study area was the Darug (hinterland) (according to Attenbrow 2010 p.34). Their territory extended from the mouth of the Hawkesbury River inland to Mount Victoria, Campbelltown and Liverpool (Tindale 1974). The surrounding landscape, including the Hawkesbury River, would have yielded fresh water and fresh water fish, crustaceans and shellfish. Men and women fished, women hunted small animals such as lizards and snakes while men hunted the larger animals such as kangaroos (GML 2012c, Hornsby Shire Council 2013). This diet was supplemented by edible flowers and plant roots, honey, berries and fruits.

Suitable stone for manufacture of stone tools occurs across the Cumberland Plain. The closest raw material would have been the silcrete of the St Mary's formation at Plumpton Ridge, Eastern Creek and Marsden Park (GML 2012c p.13).

The Aboriginal cultural heritage issues in the study area have been addressed in GML 2012c.

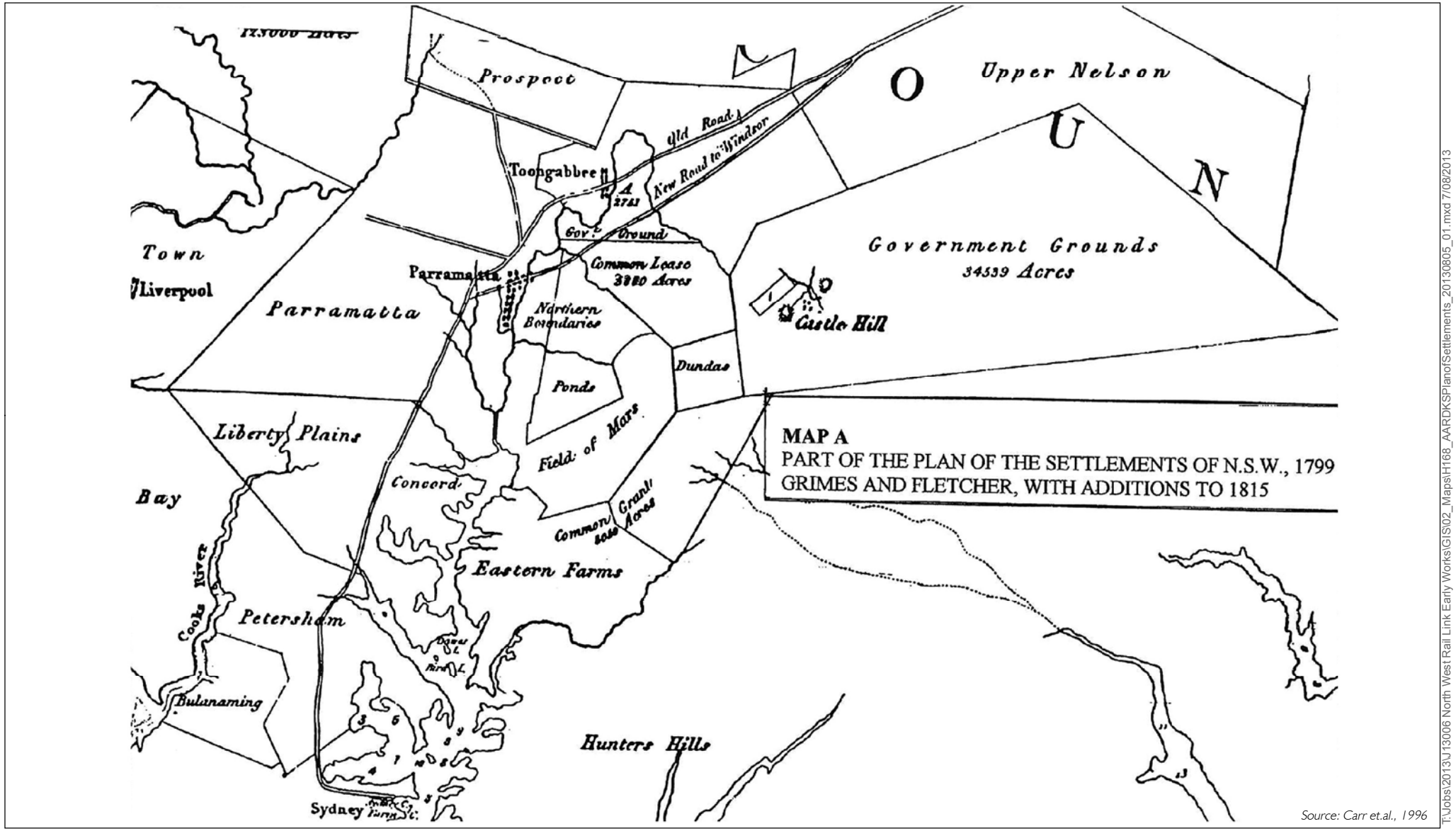
2.2 Historical context

2.3 Development of the Kellyville study area

The early colonial settlers ventured into the Kellyville area in search of farming land, however it was considered hilly and difficult to clear (Galea 1983 p.16). Instead they began farming on the flatter land around Rose Hill (Galea 1983 p.16). For many years Kellyville remained a place to pass through on a journey to somewhere else such as Windsor or the Hawkesbury and was not a place where people lived (Galea 1983 p.18). The area was first set aside as a government farming area (Figure 2.1) however it became too costly to run and Governor Macquarie closed it down (Galea 1983 p.57). The land was granted to free settlers in the early 1800s and the area became the site of private farming enterprises. Early land holders included John Tivett, John Hillias, George Acres, Hugh Kelly and Michael Hancey.

It is possible that Kellyville was named after former convict Hugh Kelly, who on his death was a respected member of the community (Galea 1983 p.57 and Geographical Names Board of New South Wales reference 26371).

Houses were scattered along the main roads, such as Windsor and Old Windsor Roads, but there were no distinct towns or villages between Castle Hill and Windsor. Kellyville was often referred to as 'there or nowhere' or 'nowhere here' or 'there and nowhere else' (Galea 1983 p.30). It is believed bushrangers roamed the area during its time as a government farm (Galea 1983 p.57). The Kellyville Estate subdivision in 1889 resulted in the pattern of many major roads today, including Withers Road.



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Part of the plan of the settlements of NSW 1799 Grimes and Fletcher, with additions to 1815

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.1

Kellyville was a rural area with production centred on wheat crops, fruit growing and cattle. Early crops also included grapes, however they were wiped out with an outbreak of phylloxera (Kellyville Public School P&C 1973 p.8). As a result the vineyards were removed and production centred on the citrus crops that would dominate the Hills District well into the twentieth century.

Oranges were by far the most popular to grow though lemons and other citrus varieties also thrived. The largest orchard in the district was that of the Acres family at the site of the Castle Hill Country Club (Kellyville Public School P&C 1973 p.8). It is possible the oranges were called 'Parramatta' which went on to become the basis of all sweet orange stock. Many dairy farms also existed and by 1935 the area along with Camden produced all of Sydney's milk (Kellyville Public School P&C 1973 p.8).

During World War II Kellyville was considered a primary produce area and classified as essential industries. Local Kellyville farmers were refused permission to join the armed forces and produce was required to be delivered to Richmond Air Base for the use of America troops (Ardley 1993 p.45).

Kellyville was provided with a mail service in 1889 first serviced by Miss Pryce as postmistress (Kellyville Public School P&C 1973 p.8). Transport was scarce, a coach service operated from Castle Hill throughout the eighteenth and nineteenth centuries, to be replaced by a bus in the 1950s which ran every two hours or so. The first church in the area was the St Stephens Church of England in 1890 on land given by the Acres family. In 1893, the second Seventh-day Adventist church in Australia was built in Kellyville.

Most early houses were built along main roads such as Windsor and Old Windsor Roads. Inns operated along the coaching routes at various points. Early house construction included wooden slabs with bark roofs and dirt floors (Dallas *et al* 1989 p.53).

Development increased steadily in the twentieth century until the 1990s when the Kellyville area was subject to subdivision and the release of many new areas of land for houses. The population increased rapidly and today Kellyville is a large suburb with continuing housing development.

2.3.1 1788 – 1900

The subject land was originally part of 150 acres granted to John Hillias in 1804. Hillias' grant is shown on parish maps for the area in the 1840s (Figure 2.2), 1850s (Figure 2.3), 1897 (Figure 2.4) and in 1924 (Figure 2.5). No buildings are shown on the map of this area by Robert Dixon (Figure 2.6).

The Hillias family did not appear to live in the study area, instead living on the northern portion of their grant. They were farmers and likely used the study area for cattle grazing or crop production. It was passed through the Hillias family until it was purchased by James James in 1875.

Mark Hillias, the son of John Hillias, was an infamous character who was involved in corrupt dealings, stealing a land title from a blind woman, Mrs Ballard, which was a matter taken to the courts (*The Sydney Morning Herald* 1844). Mark Hillias was back in the courts in 1845 when an argument arose of the ownership of a horse and cart between Hillias and Donohoe (*The Sydney Morning Herald* 1845). In 1860 Mark Hillias once again used the courts to sort out a dispute over payment of lease and the sale of a property (*The Sydney Morning Herald* 1860). Mark Hillias died in 1872 (*The Sydney Morning Herald* 1872).

James James married Amelia Fishburn married in Castle Hill in the Church of England in 1841. They had twelve children including Elizabeth (1842), Emily (1844), William (1848 d1920), Albert (1853 d1936), Samuel (1846 d1904), George (1851), John (1855 d1944), Edward (1858), Amanda (1860 d1862), Joseph (1862 d1949), Mathew (1862 d1895) and Fredrick (1864). Emily was married to Fredrick Black in 1874. John James became a teacher and on his death had only one surviving brother, Joseph James 82 years old (*Windsor and Richmond Gazette* 1944).

Bemi's Castle Hill Parish Map 1840s

North West Rail Link Early Works

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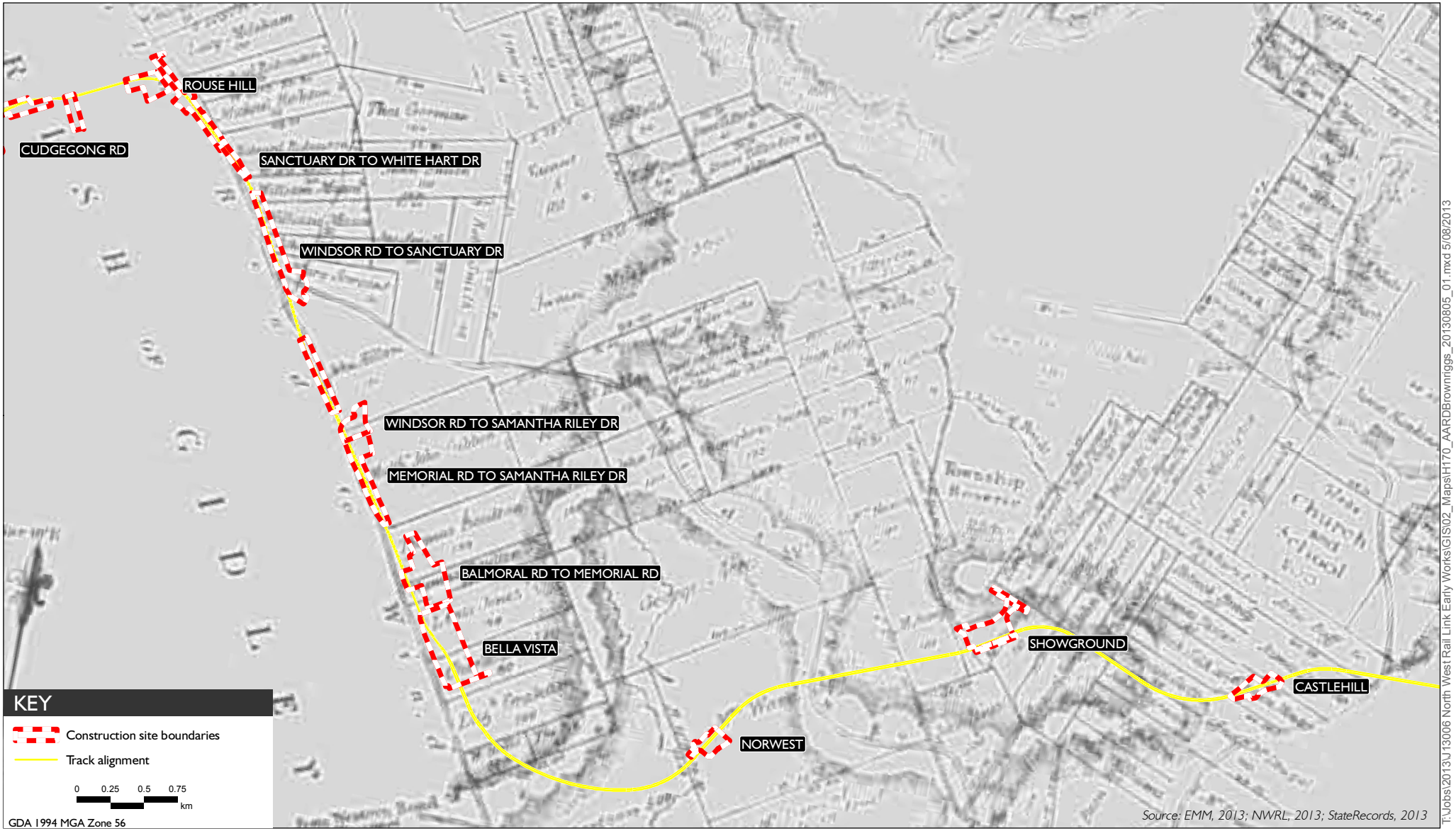
Figure 2.2



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Brownrigg's Castle Hill Parish Map 1850

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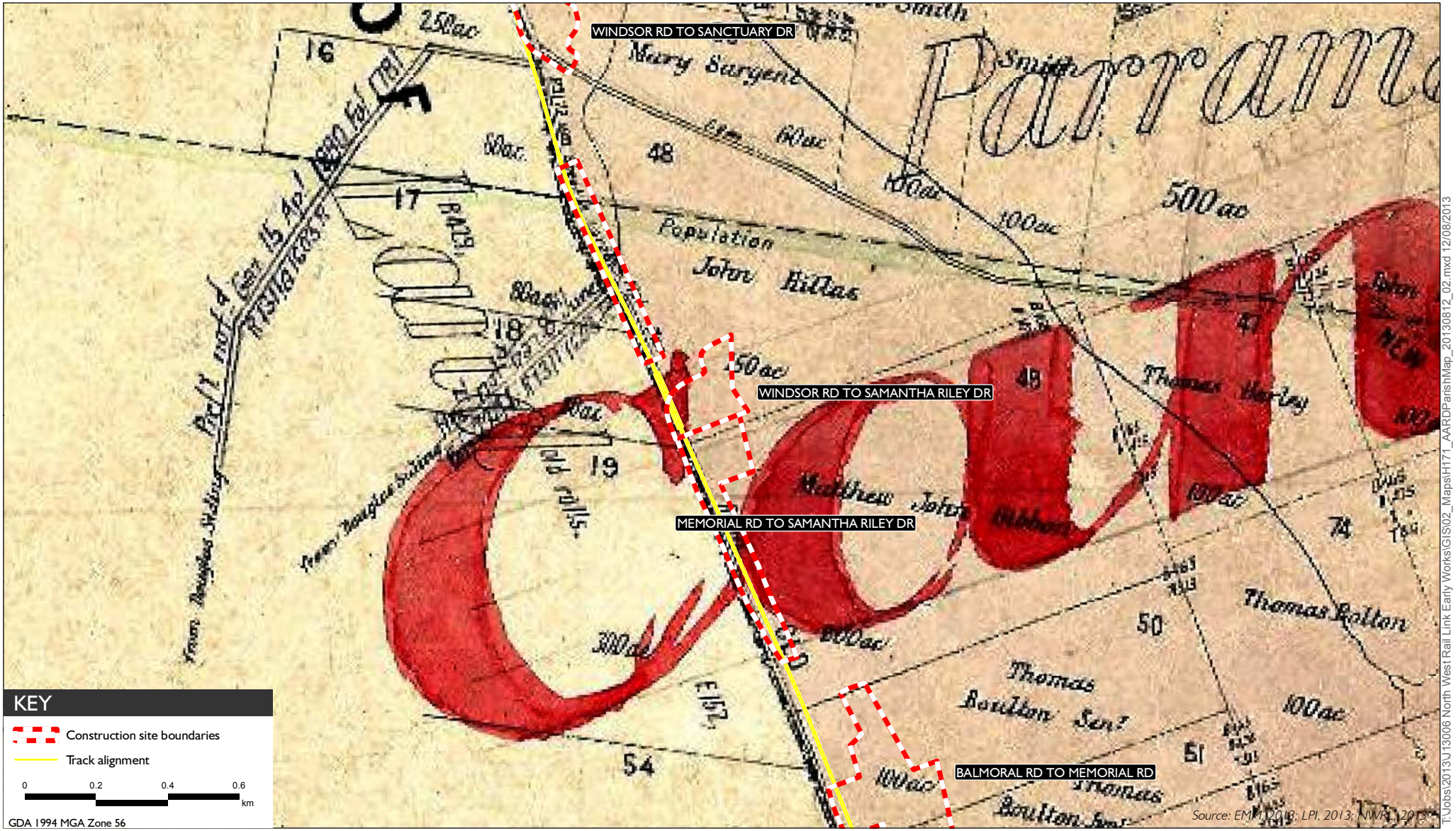
Figure 2.3



Castle Hill Parish Map 1897

North West Rail Link Early Works

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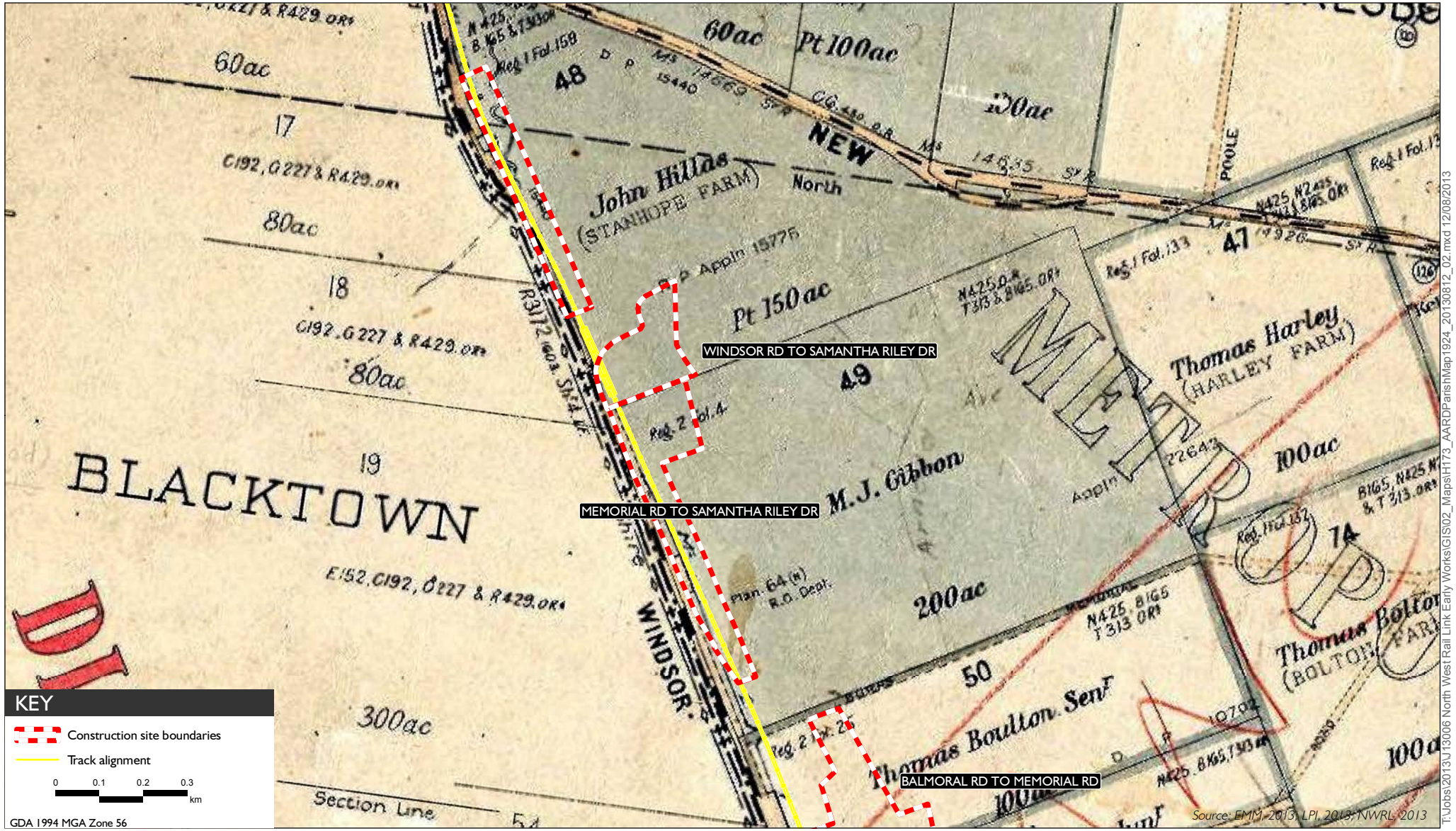
Figure 2.4



Castle Hill Parish Map 1924

North West Rail Link Early Works

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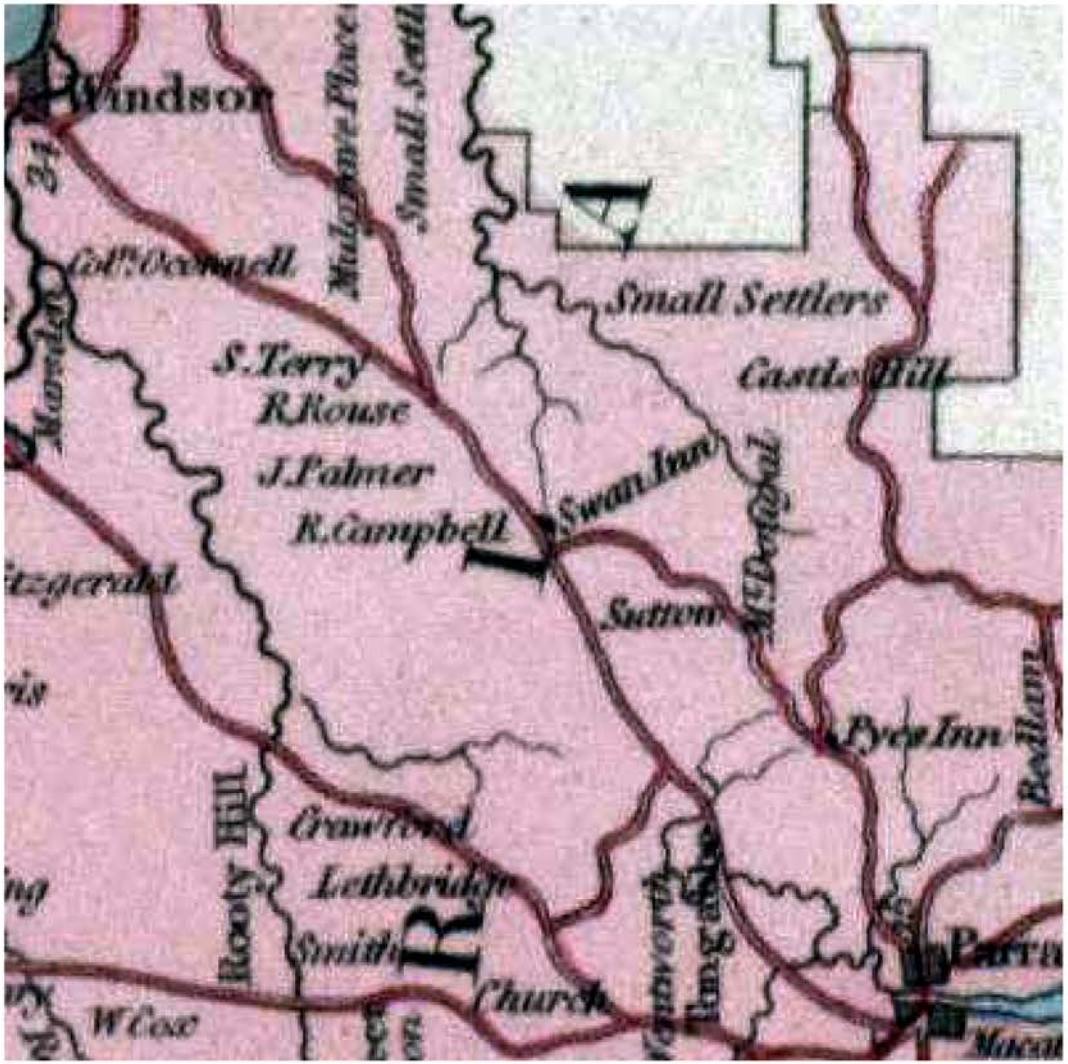
Figure 2.5



Source: Carr et.al., 1996

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Map of the Colony of New South Wales, Robert Dixon 1837 (detail)

North West Rail Link Early Works

Archaeological Assessment and Research Design - Kellyville Station

Figure 2.6

James James and his family were long term residents in the study area. They were also well known in the local district and hosted a local journalist on his travels to Windsor with great hospitality (*Windsor and Richmond Gazette* 1893). This article also notes that during 1893 Kellyville consisted of only a dozen scattered houses with orange groves and cultivated holdings (*Windsor and Richmond Gazette* 1893). The James family were practicing Seventh Day Adventists, which had a strong presence in Kellyville at this time. The Seventh Day Adventists held meetings in a tent and due to their keeping of the Sabbath on Saturdays instead of Sundays risked censure by the police force (*The Cumberland Argus and Fruitgrowers Advocate* 1893). The congregation was baptised in The Lagoon in Cattai Creek, now located at the end of Wrights Road (Ardley 1993 p.157). In 1893 the first Seventh Day Adventist Church was built in Kellyville on land donated by Harry and William Firth (Ardley 1993 p.157).

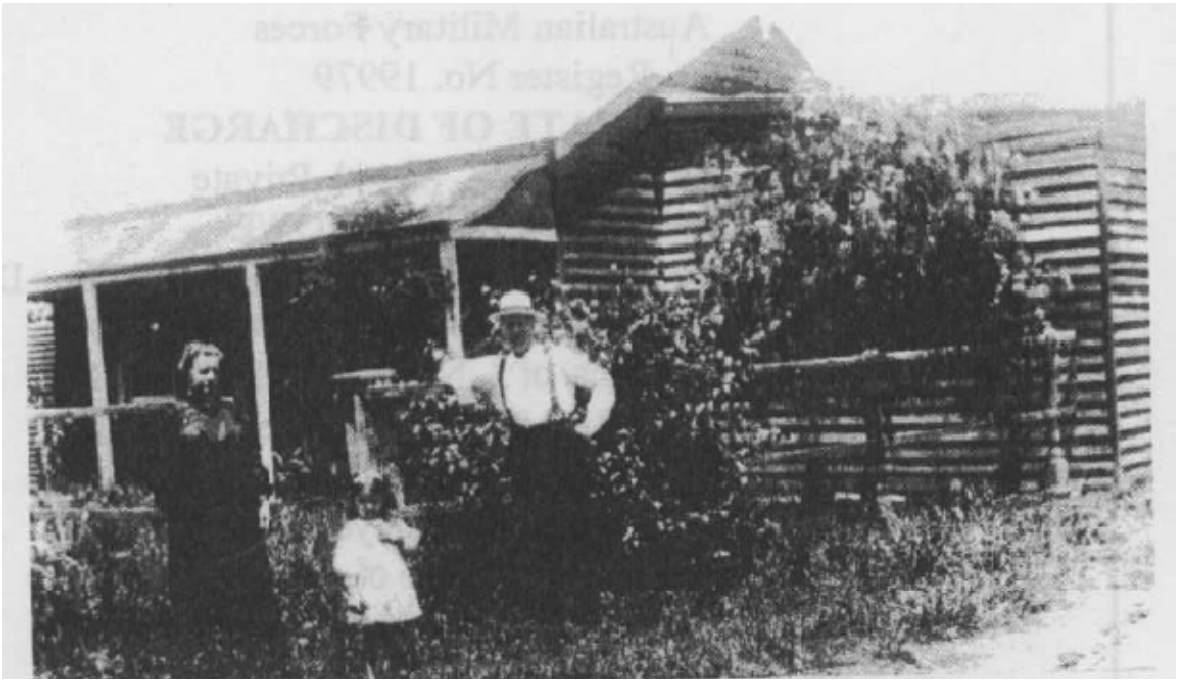
In 1894 Amelia James gave birth to a child and fell gravely ill. Her health struggles were documented in the local newspaper, which described the removal of fluid from her lungs and the sad death of the child she bore (*The Cumberland Argus and Fruitgrowers Advocate* 1894a, 1894b, 1894c, 1894d). The family were also considered keen cricketers who would happily take other families at this game (*The Cumberland Argus and Fruitgrowers Advocate* 1905a). In the great storm of 1901 the roof was taken off the James family home and a hay stack removed (*The Cumberland Argus and Fruitgrowers Advocate* 1901). The James family owned the land during Mackenzie's 1885 survey of Windsor Road, when a house was captured on the land and James James is listed as the owner of the property (Figure 2.6). The house is noted as a weatherboard cottage with an iron roof and a verandah. The surrounding land is listed as orchards as post and rail fences contain the property. Mackenzie's survey also noted the presence of four boundary stones along Old Windsor Road in the vicinity of the study area.

2.3.2 1900 – present date

James James died in 1905 and his funeral was well attended by the population of Castle Hill and Kellyville including the Stranger family who lived north near the junction of Windsor and Old Windsor Roads (*The Cumberland Argus and Fruitgrowers Advocate* 1905b). Amelia James continued to live in the family home until her death in 1909 (*The Cumberland Argus and Fruitgrowers Advocate* 1909) with her sons who were listed as owners and lessees of the land as noted in the land title records. Marion Boyce Byrne obtained the land for two years between 1908 and 1910 but James James is listed as the ratepayer in the rate books from 1907 - 1913 which is after his death. It is possible that his family continued to list him as the ratepayer while Amelia remained on the property, possibly with her now adult children.

In 1910 Walter Rudd purchased the land from Marion Boyce Byrne. He consolidated this into a larger holding spanning the land between Windsor and Old Windsor Roads. Walter Rudd was a carpenter but the rate books identify him as a poultry farmer and also an orchardist. Married to Helen Ryan in 1881, they had only one son, Walter Albert Rudd, in 1882. They bought 165 acres at Kellyville which encompassed the area from the junction of Windsor and Old Windsor Roads to Samantha Riley Drive, including the study area (Ardley 2006 p.114). Ardley (2006 p.114) notes that this area of land had three cottages on it, of which one was demolished to upgrade the other two. Photograph 2.1 shows Walter and Helen Rudd outside their cottage with their granddaughter Lorna.

On his death in 1943 Walter Rudd's estate comprised a weatherboard cottage of four rooms, iron roof, incubator room, sheds, barn, poultry house, tank, underground well and another five roomed weatherboard cottage. One of these cottages is likely to be the house occupied by the James family as it strongly resembles the description noted on Mackenzie's plan in 1885. The estate was called Wanecliffe Grange. His death notice noted that he was found deceased at his house by his son who lived next door (*The Cumberland Argus and Fruitgrowers Advocate* 1943).

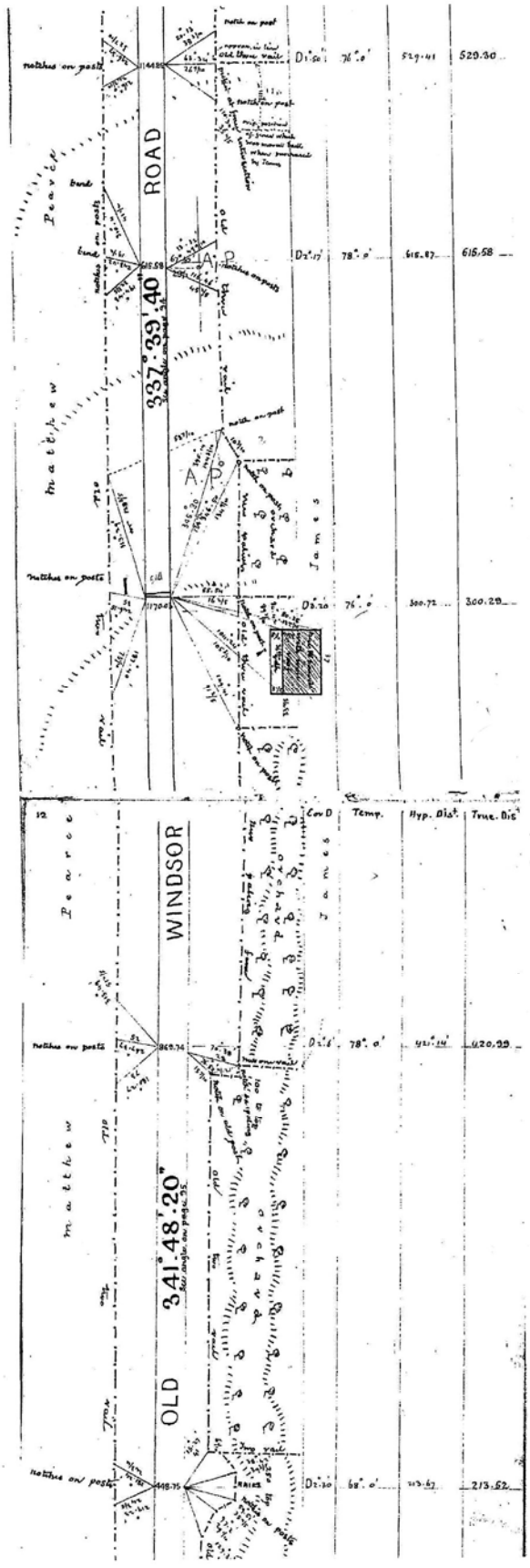


Photograph 2.1 **Walter and Helen Rudd and granddaughter Lorna outside their house. Note what appears to be either a water tank or an extension of the cottage to the left side of the house (Source: Ardley 2006 p.114).**

The study area was then passed to Rosalie Constance O'Brien the wife of John Desmond O'Brien, in 1950. Stella Alice Mitchell obtained the study area in 1952 after which it was passed to Edward Hector Stanley in January 1959. By February 1959 the land was owned by Mansfield Holdings Pty Limited and in March 1959 it was owned by A and J Parts Pty Limited. The land was then passed to Clyburne Finance in 1973 and the Director of Defence Homes in 1974. In 1984 Joseph and Carla Prince became tenants. It was bought by the Roads and Traffic Authority in 1985.

Due to the longevity of the families at the study area this site was not the subject of any subdivision until the purchase of the area by the Department of Defence. The tenancy of the land by the Price family shows the study area is part of a division of the land into five acre lots stretching from approximately Samantha Riley Drive to Burns Road.

Aerial photography is not available until 1943. A structure is shown on the 1943 aerial photo in a typical farmland setting fronting Old Windsor Road (Figure 2.7). The house and some outbuildings remain in 1947 (Figure 2.8) but are not visible by 1955 (Figure 2.9), though it is possible an outbuilding remains. In 1961 the study are remains grassed paddocks, with the lines of furrows for the orchards clearly visible around the house site (Figure 2.10). The study area remains the same in 1978 (Figure 2.11) however houses are encroaching on the adjacent landholdings to the south. In the 1982 aerial photograph (Figure 2.12), the study area is a grassy field with an oval shaped track in the eastern portion of the area, which has disappeared in the 1994 aerial photograph (Figure 2.13). In 2002 (Figure 2.14) the study area remains largely unchanged, however the surrounding areas have been subject to dramatic development including subdivision, house building and the widening of Old Windsor Road.



Source: Edward Higginbotham and Associates, 2006

T:\Jobs\2013\J13006 North West Rail Link Early Works\GIS\02_Maps\H175_AARDMackenzie1885_20130805_01.mxd 7/08/2013

Survey of Windsor and Old Windsor Roads Mackenzie 1885 (detail)

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.7

2.3.3 Old Windsor Road

The Windsor Road alignment is noted for its overarching historical significance as one of Greater Sydney's early examples of a major road and for its contribution to the development of the settlement of Hawkesbury.

In 1794, the first land grants in the Hawkesbury were made, necessitating a track (the future Old Windsor Road) linking the Parramatta settlement with the Green Hill/Hawkesbury area to be surveyed on the orders of Lieutenant Governor Major Grose (Austral Archaeology 2008 p.4). In 1797 the track was improved and widened to 20 feet (Austral Archaeology 2008 p.4). In 1805 surveyor James Meehan surveyed what was to become the alignment of Windsor Road between Parramatta and Kellyville (AECOM 2010 p. 5). At this time Meehan also surveyed the new Windsor Road avoided the troublesome hilly section known as Seven Hills as well as the multiple crossings of Toongabbie Creek and the Government Domain at Parramatta (Austral Archaeology 2008 p.4).

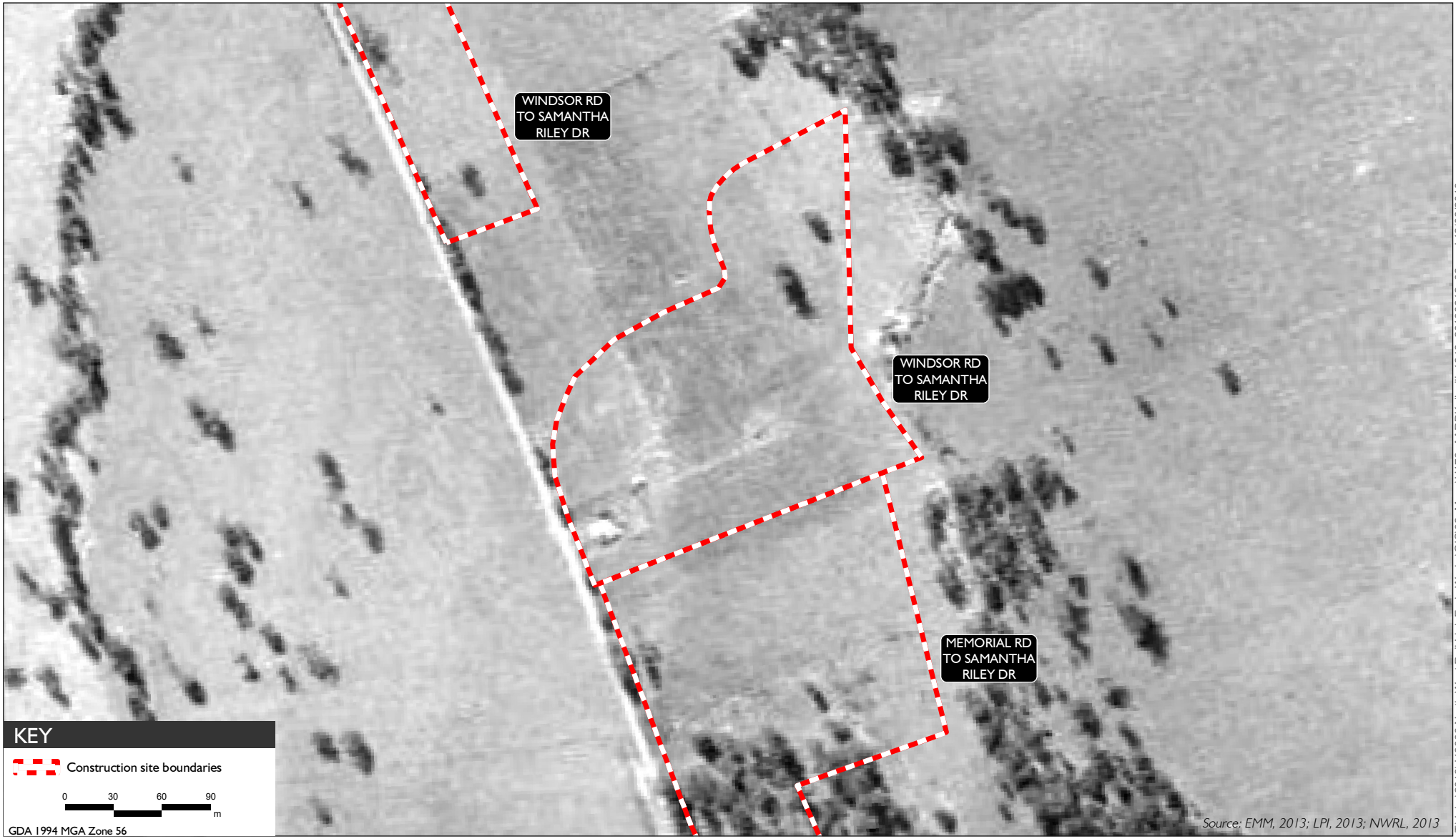
In 1810, Governor Macquarie, unhappy with the state of the Old Windsor Road, contracted to have Meehan's alignment constructed (Clive Lucas and Stapleton Partners CMP 2005). Works were completed in 1813 and included 70 bridges and numerous boundary and alignment markers. Macquarie introduced a toll system in 1816, with toll booths north of Parramatta and south of Rouse Hill (AECOM 2010).

Windsor Road was declared a Major Road in 1833, and subsequently was required to be maintained at the public's expense. As a result, a convict gang was commissioned to undertake minor upgrades and maintenance of the Road (Austral Archaeology 2008 p.6). Mackenzie surveyed the road in 1885 and installed the sandstone boundary stones, also noting that the width of the road was 42 feet south of Toongabbie Creek and 33 feet north of Toongabbie Creek (Austral Archaeology 2006 p.8). A Parramatta Roads Trust was appointed in the 1840s to oversee the repair and administration of the road (Austral Archaeology 2006 p.8).

The road was still in a bad state of repair in 1924 when the Department of Public Works seat about resurfacing the road. Bitumen was laid down in 1925 – 1926 and again in 1928- 1929 (Austral Archaeology 2006 p.8). In the 1940s the road was substantially cut and filled by the US Army to prepare the road as an evacuation route should the Japanese invade Sydney (Austral Archaeology 2006 p.8). Works to seal the entirety of Old Windsor Road occurred between 1981 and 1984 by the Department of Main Roads (Austral Archaeology 2008 p.8). In the 1990s a new and wider alignment of Old Windsor Road was established adjacent to the original Old Windsor Road, due to the population growth in the Hills district (Austral Archaeology 2006 p.8). This lead to the disuse of the original alignment of Old Windsor Road, some sections of which remained into the 2000s (Austral Archaeology 2006 p.8). The most recent changes to Old Windsor Road have occurred as the result of the construction of the North West T-Way which followed the original alignments of Old Windsor Road and resulted in archaeological excavation and removal of many surviving sections of Old Windsor Road.

i Boundary Stones

Surveyor Roderick Baylis Mackenzie bought and placed boundary stones at the alignment intersections during his survey of Old Windsor Road in 1885. In a memo to the surveyor general (Philip Francis Adams), Mackenzie writes that he "paid cash" for the stones - to hurry on the work..." and requests that the account is "dealt with by the Department to which [he believes] they belong" (20 August 1885). The boundary stones were set to demarcate bends in the road where the alignment had been encroached upon by landowners to save interference with adjoining properties. It was from these boundary stones that Mackenzie took many of his survey measurements from (State Records NSW, Lands Department, Road Branch Correspondence Files: File No. 84/106 from location 10/15181 – The Old Windsor Road).



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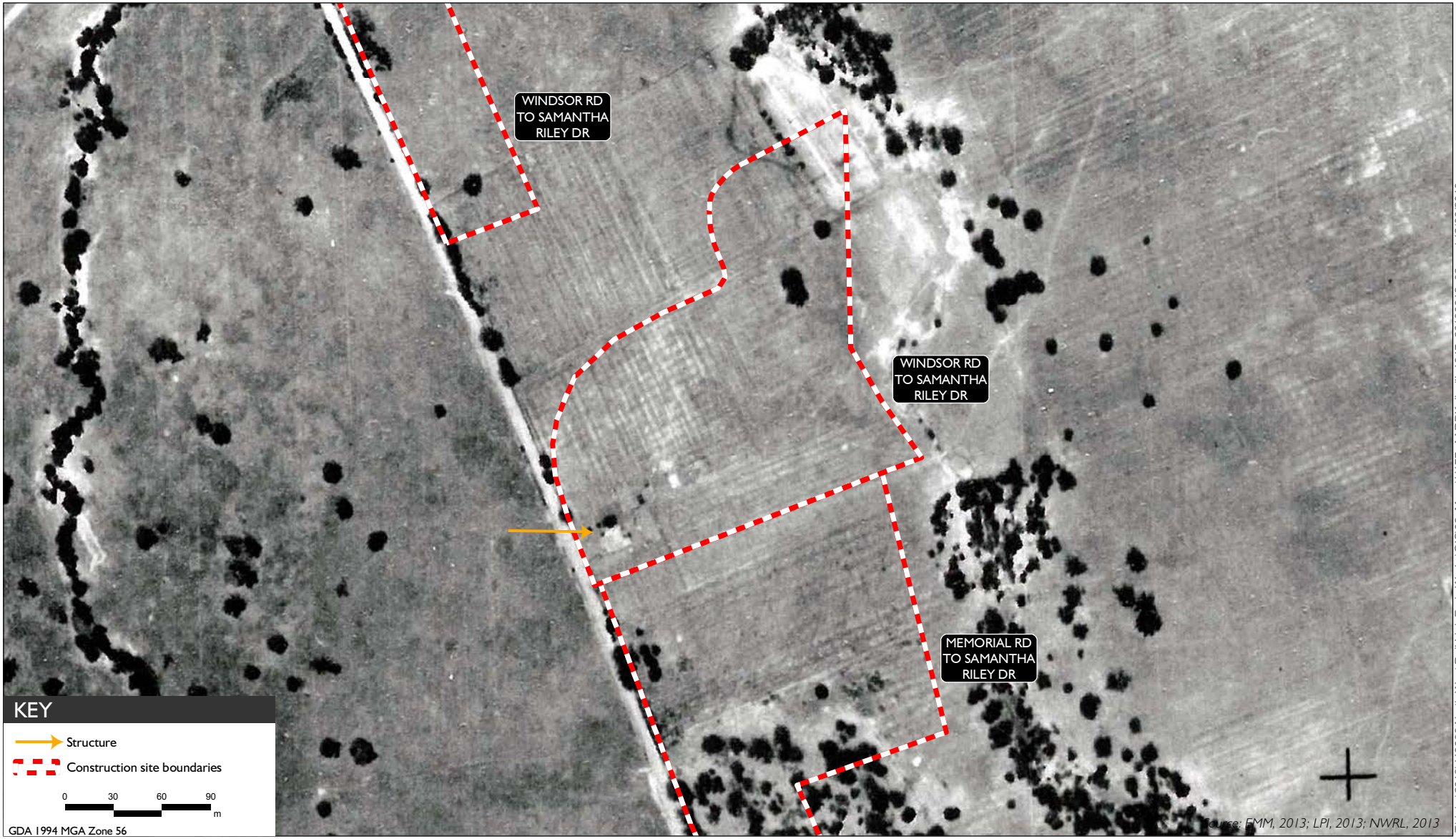
Aerial photograph Kellyville 1943

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.8



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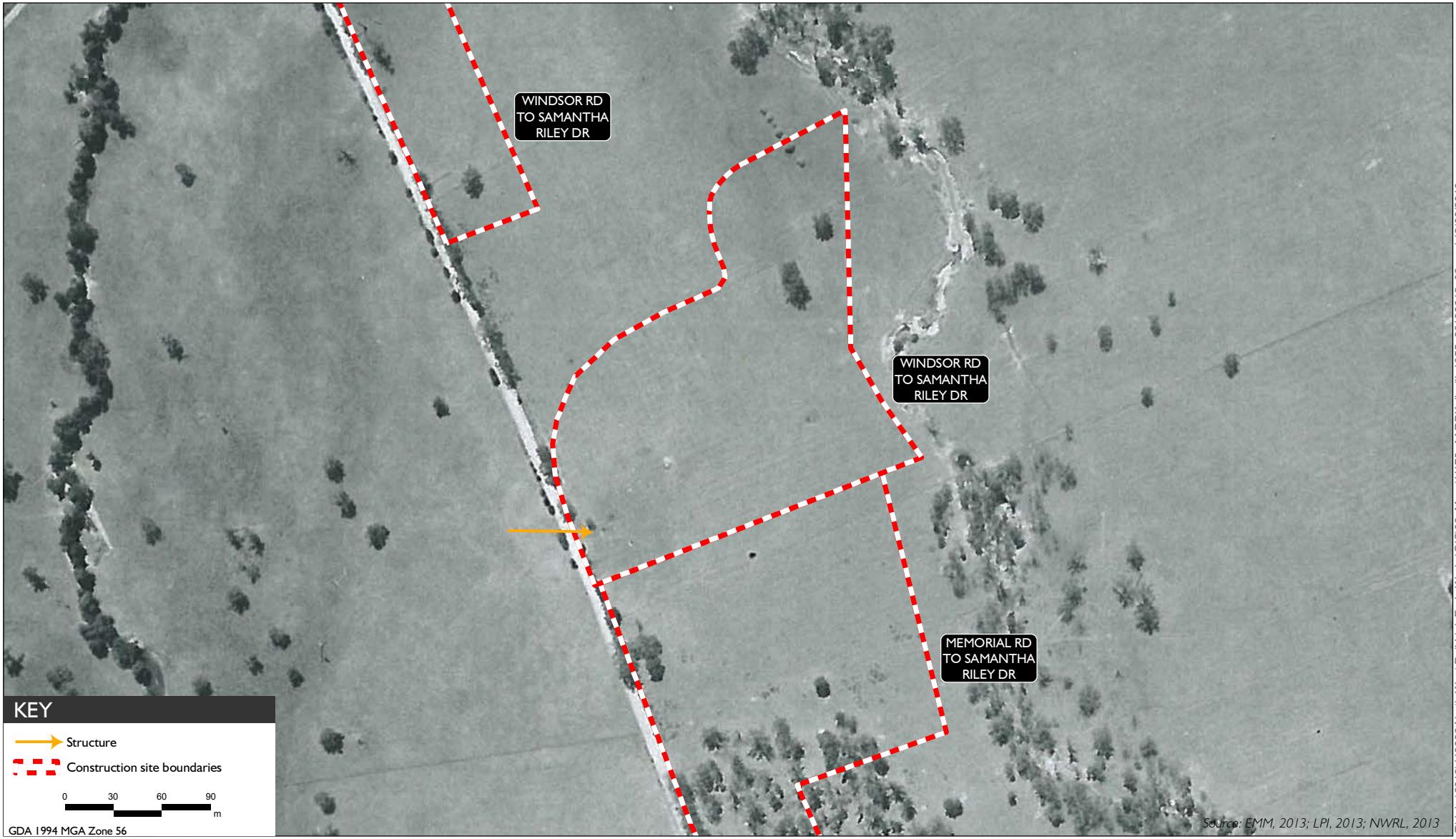
Aerial photograph Kellyville 1947

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.9



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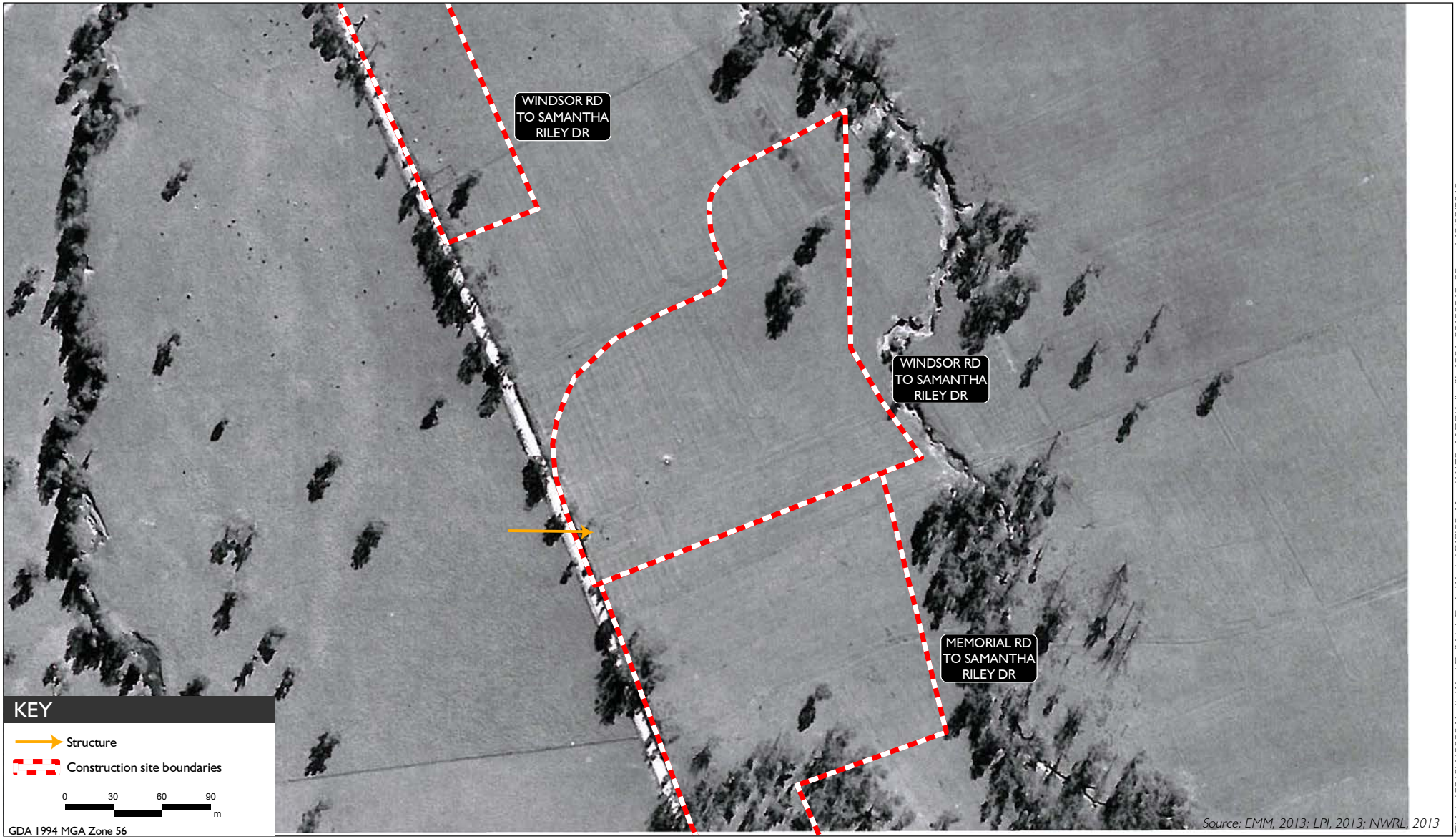
Aerial photograph Kellyville 1955

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.10



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Aerial photograph Kellyville 1961

North West Rail Link Early Works
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Figure 2.11

Aerial photograph Kellyville 1978

North West Rail Link Early Works

Archaeological Assessment and Research Design - Kellyville Station

Figure 2.12

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Aerial photograph Kellyville 1982

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.13

Aerial photograph Kellyville 1994

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.14

Aerial photograph Kellyville 2002

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.15

2.3.4 Present date

Today the study area is a grassed paddock surrounded by a tall wire fence. Plantings such as palms, a cycad and other non-endemic species are located outside the study area to the south. The three wells are individually surrounded by hurricane fencing and are generally inaccessible. Trees are located along Elizabeth Macarthur Creek which is located to the north-east of the study area. Surrounding the study area is Old Windsor Road in the west, housing developments further to the east, the Samantha Riley T-Way car park to the north and vacant land to the south.

Two boundary stones are located on the old Old Windsor Road alignment in very close proximity to the study area.

The 2013 aerial photograph (Figure 2.15) shows the study area remains a grassed paddock protected by fencing with a service road to the west between the North West Transit way and the study area.

2.4 Historic themes

The historic themes relevant to the archaeological investigation of the study area were taken from the NSW Heritage Branch website (www.environment.nsw.gov.au/heritage/index.htm). These have been used as a source and starting point in the formulation of research questions for the proposed archaeological monitoring program.

The national historic themes relating to the study area are:

- building settlements, towns and cities;
- developing Australia's cultural life; and
- developing local, regional and national economies.

The NSW historic state themes relating to the study area are:

- pastoralism;
- accommodation;
- domestic life;
- land tenure;
- environment – cultural landscape;
- persons; and
- agriculture.

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Aerial photograph Kellyville 2013

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 2.16

3 Site evaluation

3.1 Overview from research

An evaluation of the study area aids in the identification of archaeological potential as well as the significance of potential relics. It is achieved through a process of analysing the archival sources, historical maps, plans and photographs, comparing historic aerials with modern aerials and the results of the site visit, as well as reviewing previous reports for sites in the vicinity and other like-sites. The following sections address the sources of information that have assisted with the assessment of archaeological potential and assessment of significance.

3.1.1 Aboriginal archaeological investigation

Aboriginal people utilised and passed through the Kellyville area for thousands of years. A due diligence Aboriginal heritage assessment identified the area of the Kellyville Station site as having low to moderate potential for Aboriginal archaeological remains (GML 2012b p.69). A survey identified a potential archaeological deposit (NWRL PAD 9) on the hill top overlooking Elizabeth Macarthur Creek (GML 2012b p.68). Excavations will occur in these areas and the results of the excavations communicated in a separate report.

In the event that any subsurface deposits containing Aboriginal relics are found, they are likely to consist of isolated or low density artefacts with disturbed soil profiles. The unexpected finds protocol includes Aboriginal heritage objects and should these objects be found all work will cease in the vicinity of the finds until an assessment of significance can be made in consultation with the registered Aboriginal parties for the project.

3.1.2 Written sources

The historical summary of the study area was compiles using a number of written sources including land titles records, previously prepared histories, newspaper articles and consultant reports. The research undertaken to date confirms the general knowledge available for the area and adds quite some detail about the specific study area.

A large portion of the study area was used for been used for agriculture, particularly the citrus growing that the Kellyville area is well known for. The historical records show that the James and Rudd families lived in the area and that the James family were orchardists. The area is characterised as a rural and agricultural district well into the twentieth century.

The local soil was considered loamy and good for farming. Citrus and fruit trees thrived and large portions of the Castle Hill and Kellyville areas was turned into orchards (Watson 2010 p.9; refer also to Section 2 historical analysis). This included the study area. Mackenzie's survey plans of 1885 show the study area was orchards and cultivated paddocks; the evidence of these remains in the aerial photographs of the site in the 1940s to the 1970s (Figures 2.7 to 2.13).

Insights into the residents of the study area have been gleaned from newspaper articles published at the time. Both James James and Walter Rudd's deaths are noted in the local newspapers as deaths of pioneer and well known members of the community (*The Cumberland Argus and Fruitgrowers Advocate* 1905b, 1943).

The James family particularly, appear to be well known in the local area with the newspapers recording details about their family's hospitality (*Windsor and Richmond Gazette* 1893), health (*The Cumberland Argus and Fruitgrowers Advocate* 1894a, 1894b, 1894c, 1894d), favourite pastimes such as cricket (*The Cumberland Argus and Fruitgrowers Advocate* 1905a).

These articles help to establish the local significance of these families. No further information is provided on the house or other structures in the study area.

3.1.3 Maps and plans

The study area was originally part of the 34,539 acre Government Grounds and used for farm production until approximately 1804. It is likely that the study area and its surrounds were used for cattle grazing and crops during this time. While it is possible that vernacular structures were built illegally, on government grounds, no documentary evidence has been found that suggests this and any evidence of early structures may have survived only in fragmentary form. Subsequent subdivision and cultivation of the land is likely to have disturbed the context of early structures.

The study area was part of a large grant to John Hillias in 1804. There is little information on his land grant though it does appear on parish records into the 1900s. No information has been found in regards to his use of the land or to any structures which may have been present. The sequence of aerial photographs and subsequent land ownership research suggests that the land has been heavily cultivated which may have removed evidence of Hillias' use of the land, if indeed either proceeded with modifications.

Minimal information has been obtained for the majority of the title holders of the study area from maps and plans, particularly in relation to any structures which may have been present during their holding of the title.

The parish records for this area do not provide any further indication of structures on the study areas. Parish maps are available for 1897, 1905 and 1924 and one map that has not been definitively dated. All parish maps, regardless of the year show John Hillias as the owner of the land.

The most complete information comes from the plan and notebook from Mackenzie's survey of Old Windsor Road and Windsor Road in 1885. He notes a structure on land occupied by James James which is described as weatherboard with an iron roof. The sketch includes a verandah and orchards surrounding the house. A schematic version of the 1885 map is overlaid onto the 2013 aerial photograph in Figure 3.1. It shows the location of the house in the western portion of the study area.

Little other mapping information was forthcoming. There are no subdivision plans for the study area. Town water and sewerage was not connected in the study area until well after the 1920s. Thus, it was considered unlikely that water board plans of the area would be present or able to provide further information on the study area. Similarly, fire and insurance maps were also considered but relevant information was not obtained.

Water Rudd's land valuation on his death listed his assets including two houses on the land he owned in Kellyville. His property is known as Wanecliffe Grange and contains a weatherboard cottage of four rooms with an iron roof, laundry, incubator room, sheds, barn, poultry house, tank, underground well, a second weatherboard cottage with an iron roof of five rooms, fencing and clearing.

The study area has also been subject to varying levels of disturbance from existing utility trenches. Areas disturbed by utility trenches within the study area include:

- fibre optic/phone network cables;

- electricity cables; and
- PVC sewerage piping.

The impact of the existing utility trenches on the potential archaeological deposit is likely to be low. The disturbance areas for these utilities are largely discrete and isolated, and are unlikely to have significantly affected any potential archaeological deposit. However, there is the possibility for these trenches to have affected the intactness of certain archaeological features or deposits.

3.1.4 Aerial photographs

The historic aerial photographs provide information on structures present in the study area. No aerial photography occurs in the study area prior to 1943. The 1943 (Figure 2.7) and 1947 (Figure 2.8) aerial photograph show a structure located in the study area adjacent to Old Windsor Road. It has been removed by the 1956 aerial photograph (Figure 2.9) though crop marks are still clearly visible. The aerial photograph from 1947 has been overlaid onto a modern aerial photograph to show its location in the current landscape (Figure 3.2).

The study area remains unchanged until the present day consisting of open paddocks however the surrounding land is subject to rapid subdivision and house building and Old Windsor Road is subject to widening and the construction of the North West T-Way.

3.1.5 Photographs

The photograph of Walter Rudd standing outside his house with his wife and granddaughter (Photograph 2.1) provides valuable information on the form and building materials of the weatherboard cottage located in the study area. It is not possible to ascertain if this is the cottage located in the study area as two cottages were built on Walter Rudd's land; one for him and one for his son Walter Albert. However, it is likely the two houses would have been of a similar design and built using similar materials.

The photograph shows a weatherboard and timber cottage with a verandah and corrugated iron roof. An addition has been made to the side of the cottage. It is not possible to ascertain the type of foundations from this photograph. There is an extensive garden surrounding the house including a mature tree and smaller shrubs. It is possible the tree is a citrus or peach tree. Additionally in the left corner of the photograph a structure that may be a cistern or water tank is visible abutted to the side of the cottage. It is possible that this is one of the three wells visible on the property today and may help pinpoint the location of the house.

3.1.6 Data from geotechnical investigations

Geotechnical testing was conducted by Coffee Geotechnics in May 2013. Four boreholes sites were investigated for the proposed Kellyville Station. Three test pits (TP 131, TP 130 and TP 129) were located adjacent to Elizabeth Macarthur Creek and one borehole (BH 209) was located adjacent to the North West T-Way (Figure 3.3).

TP 131 was located at the Samantha Riley Drive T-Way near Elizabeth Macarthur Creek. It was excavated in May 2013. The first 0.4 m was identified as a dark brown silty clay topsoil and clayey gravel fill overlaying a red, brown, orange clay residual soil. Bedrock was reached at 3 m.

TP 130 was located at the Samantha Riley Drive T-Way near Elizabeth Macarthur Creek. It was excavated in May 2013. The first 1.70 m was identified as brown, orange clay topsoil and fill overlaying extremely weathered siltstone bedrock. Bedrock was reached at 3 m.

TP 129 was located at the Samantha Riley Drive T-Way near Elizabeth Macarthur Creek. It was excavated in May 2013. The first 2.20 m was identified as dark brown clay topsoil overlaying red brown clay residual soil. Extremely weathered siltstone bedrock was reached at 1.9 m. Bedrock was reached at 3.30 m.

BH 209 was located the Samantha Riley Drive T-Way near Windsor Road. It was excavated in May 2013. The first 1.9 m was dark brown clay topsoil overlaying brown clay residual soil. Extremely weathered siltstone bedrock was reached at 1.9 m. Bedrock was reached at 3.0 m.

The recorded data from the geotechnical samples yielded material that could be described as archaeological deposit but not artefactual material. The noting of “fill” and “residual soil” in the boreholes indicates that residual soil survives beneath fill, for a depth of 2 m in some places. This soil has the potential to retain all its horizons, including historic topsoil.

3.1.7 Study area site visit

An inspection of the study area occurred on 15 February 2013 (Photographs 3.1 – 3.4). The study area was noted as a grassy paddock. Three brick wells were visible in the paddock protected by hurricane fencing (Photographs 3.1 –3.4). Remnants of a barbed wire fence were also visible. Grass cover was high. The lot boundary is protected by a 2 m high fence separating it from the adjoining service road and the North West T-Way. A creek runs to the north-east of the study area.

Schematic of Mackenzies 1885 survey overlaid onto 2013 aerial photograph

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Figure 3.1

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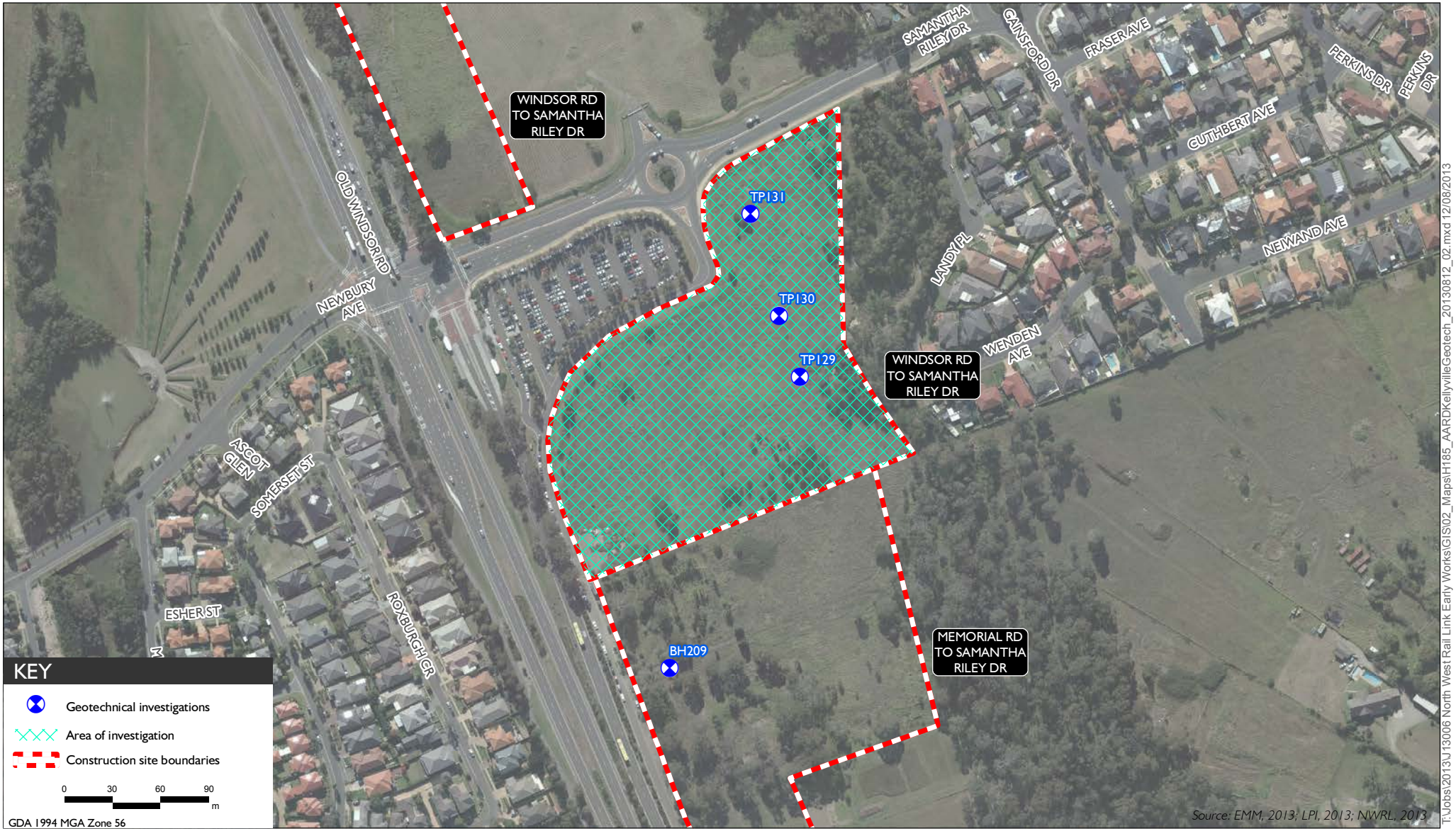
1947 aerial photograph overlaid onto 2013 aerial photograph

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 3.2



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Geotechnical investigations plan

North West Rail Link Early Works

Archaeological Assessment and Research Design - Kellyville Station

Figure 3.3

Photograph 3.1 Kellyville Station construction area looking towards Windsor Road. Two of the well locations are visible in this photograph.

Photograph 3.2 Well 1 – Kellyville Station

Photograph 3.3 **Well 2 – Kellyville Station**

Photograph 3.4 **Well 3 – Kellyville Station**

3.1.8 Comparative studies

Comparative studies relevant to this assessment can be grouped into the following themes:

- late nineteenth century vernacular buildings and the orcharding industry;
- wells and cisterns; and
- boundary stones.

i Overview of studies in the local area

The local area has been subject to a limited number of archaeological investigations relating to domestic vernacular buildings in the late nineteenth century and beyond. As such, a search of the Heritage Branch library catalogue and other library resources identified only a few relevant previous investigations. Two such investigations include the historical and archaeological study of Kentwell Cottage on Old Northern Road Castle Hill (discussed further in Section 3.1.7.iii) and the archaeological investigation of the Castle Hill Heritage Park which is assessed to be of State significance.

The Castle Hill Heritage Park contains a number of known and potential archaeological sites, including the Third Government Farm, a lunatic asylum and barracks, a church and school, the remains of early dwellings and wells, roads, tracks fencing, and bridges of the early to mid-nineteenth century. The site was later adapted for orcharding from 1870 to 1930 (GML 2007). The Castle Hill Heritage Park has little comparative value with the current study area as it does not encompass late nineteenth to early twentieth vernacular buildings that were occupied during the orcharding phase of the study area. A mid-twentieth century domestic building and cistern remains in the north-east quadrant of the heritage park, however, it is likely to post-date any historical buildings constructed within the study area.

The nearest towns to the study area were Windsor and Parramatta. Investigations of houses and farm buildings have been completed in these towns. However, the differences between town and rural houses would have been strong and it is not clear how useful a comparison of these buildings would be.

Wells are one of the most frequently investigated archaeological resource and have been the subject of numerous individual studies as well as forming parts of larger excavation programs. The most relevant of these to the study area include excavations at Parramatta and Penrith.

GML identified the boundary stones, the house site and the wells as requiring further background research and potential archaeological excavation prior to construction works (GML 2012a p.72). The site of these house structures was also identified in the preliminary report on the North West Rail Link as item 74 (Casey and Lowe 2006, p.22). The site of the wells and additional stumps are noted in plan drawings in the Stanhope Farm alignment archival record (Austral Archaeology 2008) and the Samantha Riley Bus station archaeological excavation reports (Austral Archaeology 2005, 2006, 2009a and 2009b) completed as part of the North West T-Way works along Samantha Riley Drive.

In its Shire-wide heritage study during the 1990s, the Hills Shire Council considered archaeological sites but apart from Windsor Road itself no sites were listed in the study area.

ii Nineteenth century cottages and orchards

The study area included the farms and houses of the James and Rudd families during the late nineteenth and early twentieth centuries. References to these structures have been found in Mackenzies 1885 plan which describes a weatherboard structure with an iron roof and verandah and in the land valuation of Water Rudd's estate which lists two weatherboard cottages with iron rooves of four and five rooms respectively plus associated outbuildings. Austral Archaeology (2005 p.15) identified the cottage site including sandstone blocks and timber foundations. They were described as in good condition and with little surface soil build up over the items (Austral Archaeology 2005 p.17).

Previous investigations of vernacular residences in Castle Hill may provide further insights into the structure within the study area.

In 2006, an historic and archaeological study was completed on a nearby house and property known as 'Kentwell Cottage' at 244 Old Northern Road Castle Hill (Edward Higginbotham and Associates 2006). This was undertaken in response to a proposed road widening that would impact the site. The Kentwell Cottage property was owned by John Kentwell from 1823, while the house was owned and occupied by the Kentwell family from its construction c. 1857 through to the 1890s and demonstrates the improvement, extension and additions to the cottage. The house was one of the few surviving 'slab' cottages in the Baulkham Hills Shire Council Area: an upstanding single-storey timber cottage with several outbuildings in various states of collapse.

The house was originally a two-roomed wooden slab construction with a shingle roof, later covered with weatherboards and a galvanised iron roof. It was observed that this vernacular design dated back to the first years of historic settlement in Australia (Higginbotham 2006 p. 25). The original house contained a fireplace (with a chimney of sandstock bricks) in the larger room and a smaller bedroom, with possibility of a detached kitchen. Initial weatherboarding of the house was likely to have occurred in the 1890s (based on cladding method and nails; see Higginbotham 2006 p. 30). Kentwell Cottage underwent considerable additions into the twentieth century, and contained eight rooms in total. Outbuildings on the property included a toilet and laundry (each with cement floors), a carport and a shed (Figure 3.7).

Kentwell Cottage was considered to have State significance, and was listed on the Baulkham Hills Council 1991 LEP as an item of local significance only. It was considered that Kentwell Cottage was an item of rare local significance as the majority of slab cottages are found in other local government areas and regions. However, the Hills Shire Council LEP 2012 does not list the Kentwell Cottage in its heritage schedule as it was removed during construction of new apartments, which are now present at 244 Old Northern Road. Kentwell Cottage also had potential to yield important information concerning the structural and technological development of vernacular buildings over time. It was recommended that the house be subject archival recording dismantled and relocated as part of heritage management and conservation. The current assessment was unable to verify whether or not the proposed management measures for Kentwell Cottage were undertaken.

Kentwell Cottage shares similar and historic themes with the current study area as it follows the historical development of the Castle Hill Area from mixed agricultural to fruit growing and orchards. It may also provide insights into the archaeological potential of the cottage and outbuildings built before the twentieth century. Kentwell Cottage and the current study area share a similar context of having vernacular buildings constructed on land used for agriculture and orchards in the late nineteenth century. As such, it is likely that similar construction methods and materials were used for the cottage as those mentioned above for Kentwell Cottage.

The previous investigation of Kentwell Cottage may provide information on the nature of the archaeological remains in the study area; however this is based only on the assessment of an existing standing structure. There is therefore limited comparative information on the subsurface potential and survival for the cottage and other outbuildings within the study area.

An historic archaeological assessment was undertaken in June–July 2013 for the NWRL Cherrybrook Station (EMM). This assessment identified two potential archaeological sites relating to a weatherboard cottage and outbuildings constructed in the 1880s. These structures existed within the context of the orcharding industry of the late nineteenth and early twentieth centuries. The site was assessed to be of local heritage significance and to have moderate potential for relics relating to a weatherboard structure. Subsequently, a research design and test excavation methodology was prepared to further investigate the potential archaeological resource. The test excavation will aim to answers research questions about the structures, their material and design and the orchardists who inhabited the site. The 2013 EMM assessment at Cherrybrook station is directly relevant to the current assessment. The research questions relating to the cottage's structure, its date, and the lives of the people who inhabited the residence are also applicable to the current study area. The Stranger family were well known in the locality, particularly for their orcharding and participated in the life of the local area. As such, this assessment may provide information on some of the more notable local characters associated with orcharding, than that of the Cherrybrook Station assessment.

iii Wells and cisterns

The history of occupation in the study area is dominated by two families, the James and the Rudds. The James family occupied the study area from the 1870s to 1910. James James and his wife had 12 children, many who would have been raised within the study area. The James family also owned the property during the 1885 survey of Old Windsor Road by Mackenzie. Walter Rudd and his family occupied the site from 1910 to 1943, possibly improving their land with another cottage, but certainly retaining the James home as well. Three wells are located on the property which may provide information on these families. Wells were often used as rubbish dumps after they became dry or the water was too difficult to access.

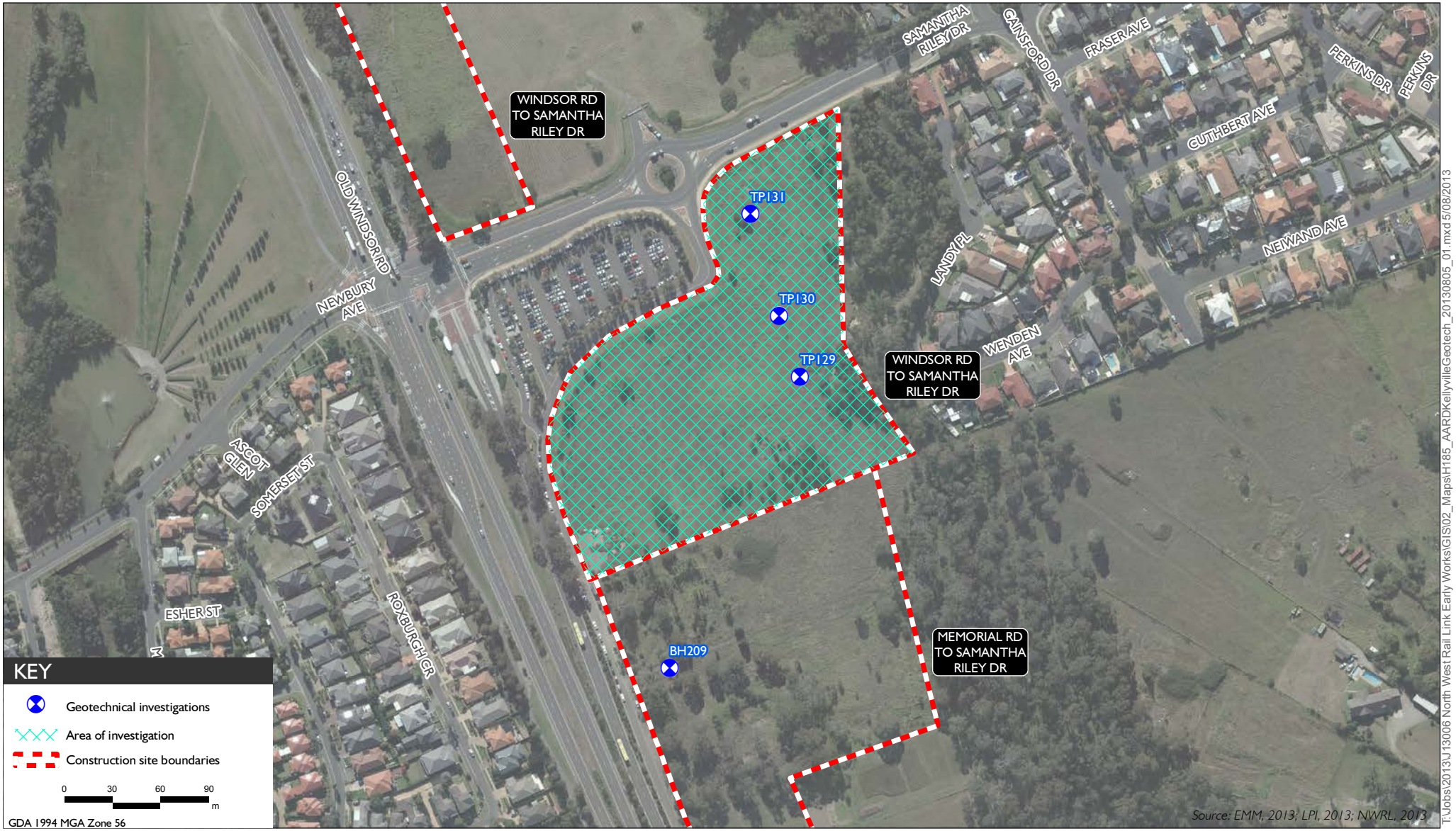
The search for water was a critical part of ensuring settlement at both the government and individual level. Early water supplies in the colony were quickly established and proximity to fresh water was the driving force behind many settlements and explorations. The nineteenth century saw many advances in water supply technology including the development of water supply system, the establishment of the links between disease and impure water and the development of drainage and sewerage systems (Hughes Trueman and Ludlow 1984, p.2). Wells and cisterns, their use location and disuse were part of these advances and reflect the changing attitudes and technologies of water supply in the colony (Hughes Trueman and Ludlow 1984, p.2).

In the colony there are two main types of water capturing systems including:

- wells – an excavation to store water from a below ground source requiring porous material to allow inflow of the groundwater; and
- cisterns – an excavation to store water from an above ground source which require lining and should have two connections an inlet and an outlet.

Wherever settlement spread in the colony, wells were dug to ensure consistent water supplies (Hughes Trueman and Ludlow 1984, p.10). Many early colonists may have been inexperienced in the digging of wells and the construction of cisterns, though others used existing natural waterholes (Hughes Trueman and Ludlow 1984, p.11). Additionally, digging of these wells for personal use would have been difficult and expensive, though necessary for those far away from the main centres of the colony such as the families in the study area (Hughes Trueman and Ludlow 1984, p.12).

Problems for wells outside the main towns and cities also included seepage from sewerage, collapse and the drying up of wells which would require the construction of new wells to ensure a water supply for the household. Many households would have used a combination of wells and cisterns to supply their water and wells became highly sought after, particularly for crop growing which often required irrigation (Hughes Trueman and Ludlow 1984, p.30).



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Geotechnical investigations plan

North West Rail Link Early Works
Archaeological Assessment and Research Design - Kellyville Station
Figure 3.4

The production and use of galvanised and corrugated iron, shipped from England in the late nineteenth century allowed the increase in cistern use and was in use in western Sydney by 1885 (Mackenzie records "gal. iron roof" in his field books for the survey of Windsor and Old Windsor Roads. Corrugated iron could support roof gutters which drained into cisterns (Hughes Trueman and Ludlow 1984, p.32). Most cisterns associated with cottages and small farms such as the study area were of crude construction techniques and may have been accidently connected to the water table by being dug too far into the ground. The doming of wells was the result of innovations in hand pumps and the growing understanding that open wells posed health risks to the community as well as considerable safety issues (Hughes Trueman and Ludlow 1984, p.32). Most wells after the 1860s were domed (Hughes Trueman and Ludlow 1984, p.32).

Well and cistern construction was relatively simple. For wells, a hole was dug deep enough to tap the source of underground water. Lining of the well was only required to prevent unwanted material such as salty or polluted water, or surrounding soil from entering the well (Hughes Trueman and Ludlow 1984, p.38). The circular form of wells was the most efficient in terms of excavation, the use of minimum lining material and stability. Common materials included timber slabs, brickwork, stone and render (Hughes Trueman and Ludlow 1984, p42). Many circular wells were brick usually 13 bricks in circumference (Hughes Trueman and Ludlow 1984, p.39) and bricks were not generally bonded with mortar. Well digging was often undertaken in teams of two with one person working in the shaft and the other working on the surface (Hughes Trueman and Ludlow 1984, p.39). Render and concrete lined the inside and were generally loosely bound with mortar.

Cisterns were dug into the soil deep and wide enough to have sufficient capacity and were usually located close to houses and structures to capture the water run-off from roofs. Cisterns were lined to ensure the tank remained watertight (Hughes Trueman and Ludlow 1984, p.38). Excavating techniques were similar to those for well building, but were usually shallower than wells (Hughes Trueman and Ludlow 1984, p.41). Cistern lining material depended on the location of the cistern and the availability of material. Lining of cisterns was always masonry (stone or brick) with render rare in domestic construction (Hughes Trueman and Ludlow 1984, pp.53, 55).

Archaeological excavation of wells and cisterns occurs frequently, and these items are often a part of larger sites. They are an important archaeological resource as when their use-life is completed they are often filled with household rubbish, which can provide important information on the people living at a site.

Due to the large number of excavations of well and cistern sites in NSW this comparative study has been limited to those wells located in rural areas. City wells, while likely to be of similar construction techniques represent different types of use and post use phases which are unlikely to be relevant to the rural wells present at the Kellyville Station site.

Archaeological assessment of an existing cistern a Prestons by Austral Archaeology occurred in 2010. The cistern is located in a rural farming area and the land was not subject to heavy disturbance or subdivision (Austral Archaeology 2010, p.20). This cistern was a brick structure with a brick and concrete dome identified as being built in the late nineteenth century (Austral Archaeology 2010, p.30). The cistern was described as being located at the rear of the house, constructed of sandstock brick with rectangular frogs and with a domed top approximately 1 m out of the ground (Austral Archaeology 2010, p.23). It was measured as 2.7 m in diameter, with an opening 0.9 m wide and was approximately 5 m deep (Austral Archaeology 2010, p.30). A large rectangular piece of concrete had been placed on top of the cistern, though it was suggested that it would have had a wooden lid originally (Austral Archaeology 2010, p.23). Two vent holes were constructed into the side of the cistern and a round water inlet pipe was attached to the inside. There was also evidence of a rectangular pipe below the round inlet (Austral Archaeology 2010, p.23).

GML (2010) identified and excavated a brick well in farming land near Castlereagh Road Penrith. Excavations of the well suggested that it was built in the late nineteenth to early twentieth century (GML 2010, p.5). The well was identified as having a maximum external diameter of 1.9 m and a depth of over 9 m (GML 2010, p.6). It was constructed of machine made bricks, with a central inverted gable frog (GML 2010, p.7). The upper two courses of the well wall were constructed with two layers of brick though the rest were only constructed of one (GML 2010, p.7). Inside the well were three layers of fill were identified including dark brown fill, orange dark sand and dark brown sand (GML 2010, p.7). GML (2010, p.7) identified three phases of the wells use including:

- original function as a well;
- the well goes out of use and is capped; and
- the well is used as a rubbish pit.

A well was documented at Armidale TAFE by Dan Tuck in 2012. The brick lined well was identified as being 1.1 m in diameter and lined with an un-bonded dry-pressed machine made bricks with a shallow rectangular frog (Tuck 2012, p.11). The depth of the well was not ascertained.

An excavation of a well associated with Elizabeth Farm in Harris Park was completed by Stedinger and Associates in 2008. The historical research and excavation identified the date of the well to the early nineteenth century. The well had an internal diameter of 1.36 m with the bricks laid in a header bond formation (Stedinger and Associates 2008, p.32). The bricks were handmade and measured approximately 98 mm wide and were considered to pre-date the 1850s (Stedinger and Associates 2008, p.33). It was also noted that at some stage a timber lid covered the well (Stedinger and Associates 2008, p.48). Artefacts uncovered included nineteenth century domestic artefacts possibly associated with the sites use by the Macarthur family (Stedinger and Associates 2008, p.47).

Discussion

From this sample of archaeological excavations of well and cistern it is evident that the wells at Kellyville conform to the general pattern. They are all made of brick and some lining is visible in each. It is likely that the study area contains a mix of wells and cisterns based on the techniques used and the proximity of the wells to the remains of the house. This will be further investigated in any archaeological excavation. Bricks within the well are unlikely to be bonded. Additionally from those excavations of the interior of the wells, it can be suggested that these structures will contain evidence of past use, including modern rubbish.

Dating wells to a particular time period is difficult. Wells construction techniques remained consistent throughout the nineteenth century and do not offer a conclusive indication of age (Hughes Trueman and Ludlow 1984, p.3). Building materials provide some form of dating but require detailed analysis before confirmation is possible. At this stage these wells are likely to be nineteenth century in origin and based on one photograph of what is very likely, but not confirmed, to be the house, at least one of the extant features may be a cistern.

iv Boundary stones

This section is included here for the benefit of the discussion rather than being a comparative analysis.

Boundary stones were located at regular intervals along Windsor and Old Windsor Road. The boundary stones close to Kellyville station are part of the Old Windsor Road heritage precinct listed on the RTA S170 Register, labelled as OWR1— Stanhope Farm Alignment. Previous archaeological investigations have been completed for portions of the Stanhope Farm Alignment site by Austral Archaeology. Austral Archaeology undertook photographic archival recording of portions of the Stanhope Farm Alignment of Old Windsor Road in 2005, including the road alignment, boundary stones and a post and rail fence along the eastern side of the road (2008). Additionally, in 2005 Austral Archaeology undertook a program of archaeological salvage excavation to firstly indentify any remnant deposits relating to one former alignment of Old Windsor Road. The program also excavated, recorded and reburied two boundary stones (labelled as 3436 and 3437 in the Lucas and Stapleton Partners CMP 2005) directly beneath their original location to avoid destruction by the proposed T-Way and Riley Bus Station construction. Two other boundary stones (labelled as 3434 and 3435 in the 2005 CMP) were identified outside the T-Way and Riley Bus Station construction zone and were not excavated. Boundary stone 3440 referred to in the 2005 CMP was not identified during the 2005 archaeological excavation.

Boundary stones are an important component of the greater Old Windsor Road alignment. Old Windsor Road has undergone a number of historical and archaeological research projects since 1989, mainly as a result of road upgrades and residential development adjacent to the alignment. Documentary and archaeological evidence of boundary stones has been the subject of ongoing discussion regarding their provenance and function. The Old Windsor Road Boundary Stones are typically defined as being the marker stones that occur along the Old Windsor Road Alignment at 33 feet apart (10 m or half a chain) and have been explained as marking the boundary of the road (Austral Archaeology 2009). The dimensions of the excavated stones are 300 mm x 300 mm square across the top and about 900 mm long. They were inserted into the ground upright, with 200 mm to 300 mm of the stone left exposed above the ground surface (Casey & Lowe 1994: 1-2). The majority of the stones were made of sandstone, although a few made of Aplite, an igneous rock from mid-west NSW.

Boundary stones marking an old alignment of Old Windsor Road continue to the north and south of the Stanhope Farm Alignment site. Boundary stones are also located on Windsor Road (from the Old Windsor Road junction), but are historically referred to as “Alignment Stones” and have been defined as marking the alignment at the outer edge of the road reserve (Austral Archaeology 2009, p.9).

As part of the works for the North West T-way a number of boundary stones were excavated and reburied. Alignment stones on Windsor Road were also excavated and reburied as part of the Windsor Road upgrade in c. 2005.

The general methodology employed to rebury these marker stones was as follows:

- visible stones were located using previous studies and field survey;
- buried stones were located using Mackenzie’s plan and re-calculating the survey points (by licensed surveyors);
- the tops of the stones were found using a combination of hand excavation and machine scrapes over the top;
- when the stones were located, they were excavating by machine with a smooth-edged mud bucket digging around the object to the base that it was sitting on;

- the stone was recorded as was the archaeological context it was sitting on and removed by wrapping it in geofabric and pulling it out with a sling;
- further recording was undertaken when the stone was removed from its context; and
- the stone and label was then wrapped fully in geofabric and reburied in the same location to a depth the 3 metres at the top.

3.2 Archaeological potential

The assessment of the potential for archaeological evidence, known as “archaeological potential”, is based on a predictive model that assumes historical archaeological evidence is generally located in close proximity to occupation and activity areas.

”Archaeological potential” refers to an areas potential to contain archaeological relics which fall under the provisions of the *Heritage Act* 1977. This potential is identified through historical research and by judging whether current building or earlier development activities have removed all evidence of known previous lands uses (Heritage Council 1996). From this evidence conclusions are drawn from this section to identify the likely location, survival of the archaeological evidence. The preceding Section 3.1, the “evaluation”, is where each area of investigation was analysed to ascertain the potential for the survival of archaeological resources.

3.2.1 Aboriginal occupation

Aboriginal people utilised and passed through the Kellyville area for thousands of years. Excavations are planned in this area and will be covered in a separate report.

In the event that any subsurface deposits containing Aboriginal relics are found, they are likely to consist of isolated or low density artefacts with disturbed soil profiles. The unexpected finds protocol as listed in the BPL Heritage Management Plan includes Aboriginal heritage objects. As noted in the unexpected finds protocol should these objects be found all work will cease in the vicinity of the finds until an assessment of significance can be made in consultation with the registered Aboriginal parties for the project.

3.2.2 Assessment of archaeological potential

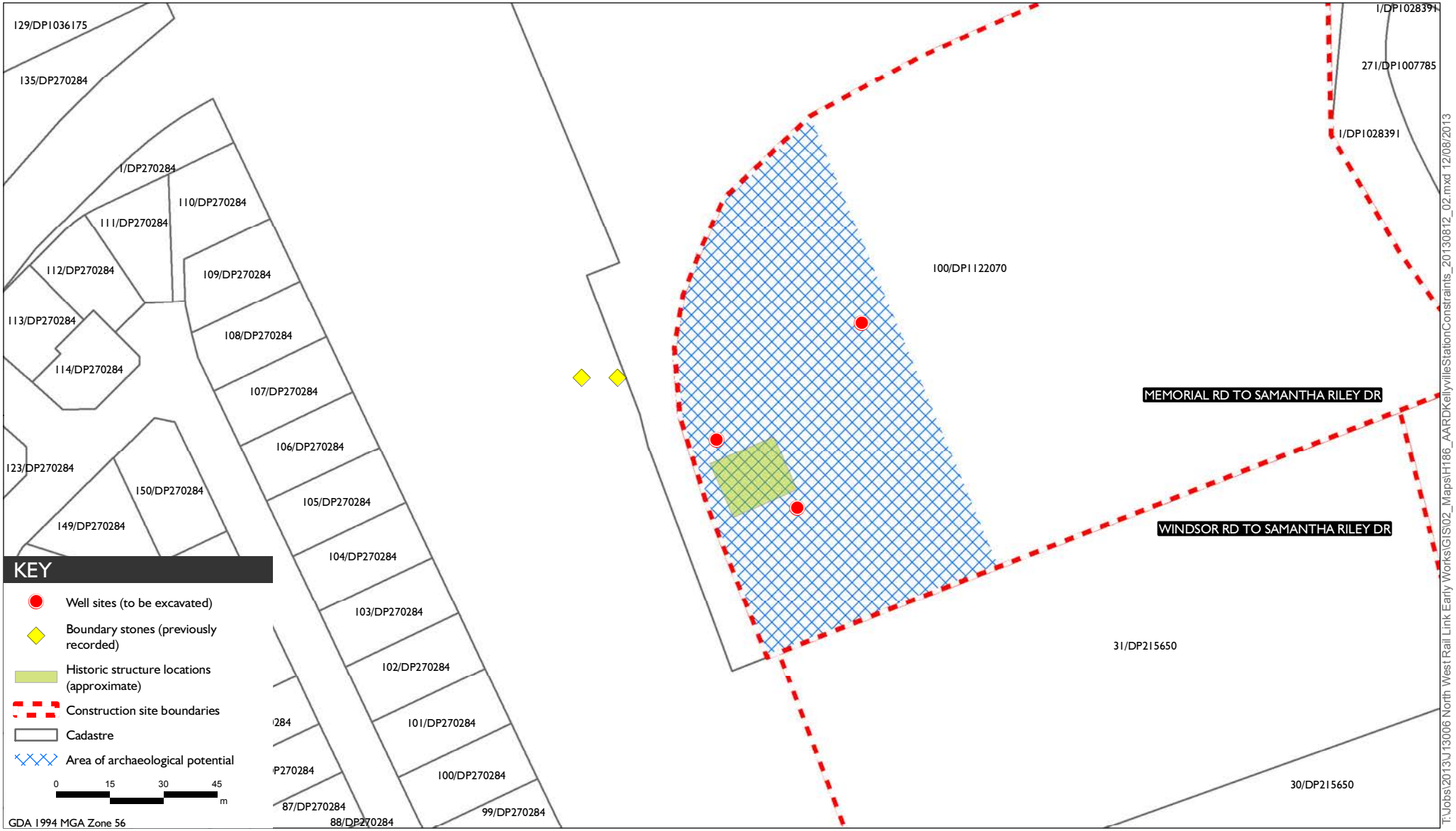
Figure 3.5 presents the evidence for where the remains of structures are likely to be found. This is based on the most accurate information available from the research. There is likely to be some margin of error in the maps and plans in relation to the real location of archaeological deposits. This can be attributed to inaccuracies in historic plans and the difficulties of geo-referencing the various historical data sources. This assessment has used the most reliable sources available to identify areas of archaeological potential.

The study area has previously been assessed to have low medium archaeological potential (GML 2012a, p.72). However, the assessment was based on preliminary historical information which did not include information from the excavations at the North West T-way. The GML assessment suggested that part of the site along Windsor Road was likely to have been impacted by the construction of the North West T-way and that there was some potential for the remains of outbuildings and services to remain (GML 2012a, p.36). The current study has provided further information on the archaeological resources.

i Early grants

There is no historical evidence of structures or other archaeological deposits within the study area from its use as the Government Grounds or from the early land grants in 1810 until the 1870s. Other than fencing, it is unlikely that the site retains evidence of modification that can be tied to its early grant phase. Modifications to the landscape such as tree felling may survive but the likelihood of associating it directly with the early grants would be difficult. Subsequent impacts to the landcape including, farming and commercial tile production would have also had an impact on the integrity of what is likely to be ephemeral archaeological evidence, if it existed at all.

Relics from the early grants phase of the study area are low.



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Potential remains of archaeological significance

North West Rail Link Early Works

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Figure 3.5

ii Nineteenth century structures and associated wells

Remnants of the house of the James and Rudd families may be present in the eastern portion of the study area. The most likely location for this site is shown in Figure 3.5. These families would have constructed a number of buildings on their land including a house, outbuildings, sheds and orchards. This is confirmed by the historical evidence from Walter Rudd's land valuation which lists two cottages, outbuildings, sheds a well and a water tank.

Archaeological monitoring during the construction of the North West T-way has confirmed that remnants of the house have survived including a driveway, pathway and wooden foundation posts. It is thus highly likely that additional archaeological evidence would have survived below the ground surface. Additionally the study area has been subject to minimal disturbance and has remained a grassed paddock until the present day. Three wells are visible and may contain artefacts which can provide information on the lives of those living at the site.

It is possible that remnants of these cottages and houses such as walls and subfloor deposits may exist. Houses during this period were built with tongue and groove floorboards, reducing the amount of subfloor deposit that would normally accumulate under other types of floorboards. However, this house was built in a rural setting remote from the city and may have been built using earlier techniques. Therefore, underfloor deposits may exist and if it is found that the house was built prior to the 1870s, there may be the potential for earlier structural evidence such as an earthen floor and slab construction.

Due to the fact the study area has remained a grassed paddock there is the possibility that crop marks have survived in this area. It is also possible that the archaeological remains of sheds and other agricultural buildings have survived due to the undeveloped nature of the study area. Some of these items are visible on aerial photographs from the 1940s (Figures 2.7 and 2.8) and 1970s (Figure 2.10) however none of these items are visible on aerial photographs from the 1980s onwards.

In summary, the assessment concludes that the following may exist below the ground surface:

- a house demonstrated by remnants of wooden slabs, posts, framework, subfloor deposits and earthen floor;
- bricks as remnants of a fireplace;
- postholes for shed structure;
- structural materials, including nails and wire;
- cesspits/wells/cisterns with deposit;
- rubbish pits;
- cement pads for outbuildings such as toilets or laundries; and
- remnants of fencing including fence post holes and wire.

A review of comparative studies in the local area has indicated that the cottage and possible outbuildings may share common features with the nearby Kentwell Cottage (see Section 3.6.1).

iii Boundary stones

Two boundary stones remain *in situ* on the Old Windsor Road alignment directly adjacent to the study area. Previous research on boundary stones along the alignment has not identified other extant stones in close proximity to the study area although 2 additional stones were buried to the north of Samantha Riley Drive in c.2006.

3.3 Heritage significance

The following section presents the statement of significance for the potential archaeological resources at the Kellyville Station site. The statement of significance is based on the guideline *Assessing Heritage Significance* (Heritage Office 2001). No previous statement of heritage significance has been completed for these potential archaeological remains. Analysis in Section 2 and 3 of this report presented a range of evidence regarding the potential archaeological remains which has been used in the assessment of significance.

The concept of cultural significance is defined as "aesthetic, historic, scientific, social or spiritual value for past, present or future generations" (*Burra Charter* 1999: Article 1.2). It identifies that conservation of an item of cultural significance should be guided by the item's level of significance.

Table 3.1 provides a summary of the assessment criteria and their application to the potential archaeological remains. Section 3.4 provides a full statement of significance.

Table 3.1 Statement of significance summary

NSW Heritage criteria (NSW *Heritage Act* 1977)	The potential archaeological remains at Kellyville Station.
Criterion (a) an item is important in the course, or pattern, of NSW's cultural or natural history (or the local area);	*Nineteenth century structures and associated wells* The potential archaeological resources is historically associated with the late eighteenth and early twentieth century use of the local area particularly orcharding and farming. The agricultural use of the site demonstrates the importance of the region in producing food for the region and was one of many such orchards, none of which survive commercially in the local area. Archaeological evidence demonstrating the commercial uses of the study area may survive and this with evidence of domestic use of the study area associated with orcharding would be of local significance. The wells have historical significance as they are associated with rural life in Kellyville and may provide information on the families living at the site. *Boundary stones* The boundary stones are associated with one of the oldest road alignments in NSW, being Old Windsor Road. They represent the growth of the colony and the construction and surveying techniques used to facilitate the development of the colony. They remain present in their originally surveyed locations and remain an important feature of the history of this area. The boundary stones have an established level of State significance.

Table 3.1 Statement of significance summary

NSW Heritage criteria (NSW *Heritage Act* 1977)	The potential archaeological remains at Kellyville Station.
Criterion (b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the local area);	*Nineteenth century structures and associated wells* The James and Rudd families were people of interest key to the local orcharding industry. James James and his sons were known orchardists and were considered stalwarts of the district offering hospitality to those who passed through. James James was also a religious man and a practicing seventh day Adventist. Walter Rudd was a poultry farmer and a carpenter who lived on the site for forty years. Archaeological evidence associated with these families cottage would provide further information of their lives and contribute to an understanding of these people. Archaeological resources associated with the families that lived in the house would be of *local* significance. *Boundary stones* The boundary stones are associated with the highly significant Old Windsor Road and with those who built, surveyed and planned this important piece of colonial infrastructure. The boundary stones have an established level of *State* significance.
Criterion (c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);	*Nineteenth century structures and associated wells* The research conducted to date has not indicated that the potential archaeological resource fulfils this criterion. The expected archaeological resource may include remains of a cottage that is unlikely to be aesthetically significant. However, if evidence survives that demonstrates rudimentary building techniques such as slab construction, these technical aspects of the resource would be of local significance. The wells as an archaeological resource would have some aesthetic significance. These would be of *local* heritage significance. *Boundary stones* The boundary stones are markers of Old Windsor Road and mark the technical achievement that this road represents. They were marked in accordance with the roads specifications and display careful manufacturing techniques on the surfaces meant to be visible. They have technical value at a *State* level.
Criterion (d) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the local area);	*Nineteenth century structures and associated wells* While the James family were part of the Seventh Day Adventist religious movement there is no evidence from the historical research to suggest that their house was used for regular meetings or formed a strong part of the day to day life of the Seventh Day Adventists in Kellyville. The site may add to the knowledge of the Seventh Day Adventists through the existence of an artefact assemblage. Any archaeological evidence relating to the James' religious practice would be of *local* significance. *Boundary stones* The research conducted to date has not indicated that the potential archaeological remains fulfils this criterion.

Table 3.1 Statement of significance summary

NSW Heritage criteria (NSW *Heritage Act* 1977)	The potential archaeological remains at Kellyville Station.
Criterion (e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the local area);	*Nineteenth century structures and associated wells* The archaeological aspects that have been identified thus far have the potential to yield information on many aspects of the site. The wells have the potential to contribute scientific and historical information about the techniques of well construction in rural Kellyville. Artefacts within them, if present may provide insights into the lives of the families who lived on the study area. Evidence of the house and activities that would have taken place by the families living there, evidence of orcharding and gardens, outbuildings, pathways and cesspits all have the potential to be of *local* significance. *Boundary stones* The boundary stones that survive on site were placed there by Surveyor Roderick Baylis Mackenzie, who surveyed the road alignment in 1885. The boundary stones are an important element in the re-survey and constant maintenance of the road and represent a period when government took a renewed interest in the route. The boundary stones are also significant for their *in situ* preservation and for the fact that they are one of the last visible pair along an alignment that was originally marked with timber and stone mile and road markers. The boundary stones are extant and of established State significance.
Criterion (f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area); and	*Nineteenth century structures and associated wells* Archaeologically, there is little known about structures and the domestic life of the orcharding industry. The nearby investigation of Kentwell Cottage is the only of its type into housing of this period. Even so, the study was of a standing house and not the archaeological remains. The cottage remnants may provide insight into the important but deleted history of the area. Additionally few well and cistern sites have been excavated in the Hills area. This site has the potential to provide additional information on the local people of this area. This resource fulfils this criterion at a local level. *Boundary stones* The boundary stones adjacent to the study area are rare for two broad reasons: while a large number once existing to mark the boundary of Old Windsor Road and similar markers were installed on Windsor Road, many have been removed trough theft and vandalism; most of the surviving boundary stones were excavated and reburied in 2005-2007 to protect them from road upgrades and the construction and operation of the North West T-way. The pair of surviving boundary stones directly adjacent to the study area are particularly rare surviving *in situ* and visible. They are of established *State* significance.

Table 3.1 Statement of significance summary

NSW Heritage criteria (NSW *Heritage Act* 1977)	The potential archaeological remains at Kellyville Station.
Criterion (g) an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments (or the local area).	*Nineteenth century structures and associated wells* The potential archaeological remains of the cottage are likely to be a good example of a successful orcharding and farming family and their life. The potential archaeological resources are associated with the James and Rudd families who owned the study area. The archaeological evidence from the wells may provide evidence that is representative of early well construction in rural Kellyville. The archaeological evidence would be of *local* significance. *Boundary stones* Boundary stones, or road markers, were a standard road defining tool in the historic period. Their association with a road as significant as Old Windsor and Windsor Roads, the history of development of the region and the skill that went into producing them makes them of *State* significance.

3.4 Statement of significance for the potential archaeological remains

The potential remains of the late nineteenth century cottage and associated wells are considered to be of *local* heritage significance. The cottage was the residence of the locally well known James and Rudd families. If archaeological resources of the cottage or the wells (or cisterns) survive, they have the potential to contribute to our understanding of a well-known orchardist's domestic life, at a local level, during the late nineteenth and early twentieth century. The potential archaeological resource may also yield information relating to the construction techniques used to build the cottage, wells and cisterns during this period. Any other features such as cesspits, and the remnants of outbuildings and stockyards would also be of *local* significance.

The pair of boundary stones marking the boundary of the 1885 alignment of Old Windsor Road is of *State* heritage significance. They represent a former method of road marking on one of the earliest and significant roads in the colony and were placed there by the surveyor Roderick Baylis Mackenzie.

4 Impact assessment

4.1 Impacts from the proposed development

The entire area of the Kellyville Station footprint will be disturbed before the construction of the station. The Station will be built above ground and will include a viaduct to transport trains to and from the station. Construction works will result in the removal of soil. Impacts to all areas of archaeological potential are expected due to the large amount of soil to be removed.

The potential archaeological remains will be impacted by:

- the removal of soil to create the station area;
- the levelling of areas surrounding the station area to create walkways, parks;
- the creation of access roads through the study area;
- excavation for services including water, sewer and electricity; and
- the construction of a car park to service the station.

Figure 4.1 shows the development plan for the Kellyville Station study area. It is noted that the current development plan may be revised during construction and installation of the station buildings. However, this is not expected to change the comprehensive impacts to the potential archaeological remains.

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Figure 4.1

5 Conclusions and recommendations

5.1 Conclusions

The Kellyville Station study area was the site of two farming families the James and the Rudd families. They study area was part of a rural landscape used for orchards and cropping in the nineteenth century, following a trend occurring in Castle Hill and the greater Hills Shire. The James family built a cottage on the site which was also used by the Rudd family. At some time during the occupation of the site three wells (or cisterns) were built to provide the families with a consistent water supply. Nearby boundary stones for the alignment of Old Windsor Road were laid down and helped guide travellers and landholders throughout the district.

The area has remained paddocks into the present day and has not been subject to disturbance or subdivision. Research on the nature of the structures and potential archaeological deposits within the study area has shown that there is moderate potential for the remains of a late nineteenth century cottage structure related to the James and Rudd families to be present along with three wells. Additionally there is high potential for two boundary stones for Old Windsor Road to exist. These potential archaeological remains are assessed to be of local significance and are therefore "relics" as defined by the *Heritage Act 1977.*

Relics associated with the cottage have the potential to yield information relating to the construction, size and building techniques of a vernacular residence of the period

The cottage and the associated wells may also provide information about the locally significant orchardists and farmers in the James and Rudd families. The lives of fruit growers/orchardists who supplied the market in Sydney but were located beyond what was then the outskirts of the town, is not well understood. There are historical references to the expertise of the James family in their fruit growing pursuits and their honourable character, but their domestic lives are not well documented. The James family may be examples of a group of people who left their physical marks on the landscape. The potential archaeological resource may provide information on how the James family lived and therefore contribute to knowledge about life in the orchard district on the outskirts of Sydney.

These potential archaeological deposits will be totally removed by the construction of Kellyville Station.

5.2 Recommendations

Research undertaken for this report indicates that the potential for relics exists within the identified study area and that these resources may be able to answer questions relating to the growth of local agricultural economies and the families that drove them, and the transport industry of Sydney.

The recommendations relating to the archaeological resource are to:

- conduct an archaeological test excavation on the targeted area identified by BPL surveying services to test the conclusions of this report. The targeted archaeological test excavations to determine the extent of significant archaeological resource. This archaeological excavation program is provided in Appendix A;

- prepare a Research Design to guide the archaeological test excavation and frame the approach. This Research Design is provided in Appendix A;

- Protect the extant boundary stones from harm by creating a highly visible no-go area around them, with at least 3 m clearance around them, and
- ensure that if during the course of excavation Aboriginal cultural material is found, work must cease and the indigenous heritage consultant be alerted as per the unexpected finds protocol as part of the Construction Heritage Management Plan.

Abbreviations

Abbreviation	Term
£	Pounds
$	dollars
AHD	Australian Height Datum
AHIMS	Aboriginal heritage information management system
BOM	Bureau of Meteorology
BH	borehole
c	circa
cm	centimetres
DP	Deposited Plan
DP&I	Department of Planning and Infrastructure
EMM	EMGA Mitchell McLennan Pty Limited
EP&A Act	*Environmental Planning and Assessment Act 1979*
GML	Gooden Mackay Logan
km	kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
m^2	metres squared
MCoA	Ministers Conditions of Approval
mm	millimetres
NSW	New South Wales
NWRL	North West Rail Link
OEH	Office of Environment and Heritage
PAD	Potential archaeological deposit
RMS	Roads and Maritime Services
SHR	State Heritage Register
t	Tonne
TfNSW	Transport for NSW
TP	Test pit

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Glossary of Terms

Many of these definitions use throughout this report have been taken from the *Archaeological Assessments Guidelines* (Heritage Branch 1996).

Archaeological Potential: a sites potential to contain archaeological relics as defined in the Heritage Act 1977. The degree of physical evidence present on an archaeological site usually assessed on the basis of physical evaluation and historical research. It refers to the surviving condition of archaeological sites). Common terms for describing archaeological potential are:

- known archaeological features/sites (high archaeological potential);
- potential archaeological features/sites (medium archaeological potential); and
- no archaeological features/sites (low archaeological potential).

Archaeological Site: a place that contains evidence of past human activity. Below ground archaeological sites may include building foundations, occupation deposits, features, artefacts and relics. Above ground archaeological sites may include buildings, works, or industrial structures that are intact or ruined.

Archaeology: the study of the human past using material evidence.

Archaeological investigation or excavation: the manual excavation of an archaeological site.

Artefact: an object produced by human activity. In historical archaeology the term usually refers to small objects contained within occupation deposits. The term may also encompass food or plant remains and ecological features (for example, pollen).

Conservation: all of the processes of looking after a place so as to retain its cultural significance.

Building: a part of a building, structure or part of a structure.

Heritage: encompasses both Aboriginal and historic heritage including sites that predate European settlement and a shared history since European settlement such as the shared associations in pastoral landscapes as well as associated link with the mission period.

Heritage Item: an item defined under the *Heritage Act* 1977 and assessed as being of local, State and/or National heritage significance

Heritage Significance: a term used to encompass all aspects of significance (see Cultural Significance). Defined in the *Heritage Act* 1977 (Section 4A) as being of State or Local significance in relation to historical, scientific, cultural, social, archaeological, natural or aesthetic value of the item.

Historical Archaeology: in NSW historical archaeology is the study of the physical remains of the past, in association with historical documentation, since European occupation of NSW in 1788.

Item: a place, building, work, relic, moveable object or precinct.

Listing: an item is placed on a statutory heritage list.

Local Significance: in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

Place: site, area, land, landscape, building or other work group of buildings or other works and may include components, contents, spaces and views.

Potential Archaeological Site: a place which may contain physical evidence of past human activity (see Archaeological Site).

Relic: any deposit 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.

Research Design: a set of questions, which can be investigated using archaeological evidence and a methodology for addressing them. A research design is intended to ensure that archaeological investigations focus on genuine research needs. It is an important tool which ensures that when archaeological resources are destroyed by excavation, their information content can be preserved and can contribute to current and relevant knowledge.

Research Potential: the ability of a site or feature to yield information through archaeological investigation. The significance of archaeological sites is assessed according to their ability to contribute information to research questions.

State Significance: in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item. An item can be both of State heritage significance and local heritage significance. An item that is of local heritage significance may or may not be of State heritage significance.

Appendix A

Research design

A.1 Introduction

A.1.1 Background

EMGA Mitchell McLennan Pty Ltd (EMM) has been commissioned by Baulderstone Pty Ltd (BPL) to undertake an archaeological program at the Kellyville Station construction area (Figure 1.1). This report details the archaeological assessment and research design for the archaeological program.

The requirements for the archaeological program come from the Ministers Conditions of Approval E10. Condition E10 states that:

> *E10. Prior to the commencement of pre-construction and/or construction activities that will impact the historical archaeological sites identified in Table 4.2 of the North West Rail Link EIS: Technical Paper 3 – European Heritage, dated March 2012, the Proponent shall undertake an archaeological excavation program in accordance with the Heritage Council of NSW Archaeological Assessments Guideline (1996) using a methodology prepared in consultation with the Heritage Council of NSW, and to the satisfaction of the Director General. This work shall be undertaken by an appropriately qualified heritage consultant.*

Additionally TfNSW has requested that the archaeological investigations for these sites are completed in the earliest possible timeframe to facilitate a smooth transition between the various stages of the project.

Heritage constraints were initially indentified in the preliminary phase of the project, specifically three well sites, the Stanhope Farm Alignment of Old Windsor Road, four boundary markers on Old Windsor Road and the potential remains of a pre 1900 house site (Figure 1.2, GML 2012a, p. 35). A 1947 plan of the area showed a structure in a typical farmland setting fronting Old Windsor Road (GML 2012a, p.35). The rest of the area was identified as cleared paddocks.

The majority of the study area has been subject to minor disturbance and is currently a grassed paddock.

Research on the nature of structures and potential archaeological sites which may be present in the study area has been hampered by a lack of primary information. Historical records for the site are incomplete and some information from secondary sources has not been able to be verified by primary information.

The historical and archaeological research on the site has concluded that there is moderate potential for the remains of the nineteenth century cottage belonging to the James and Rudd families and high potential for three wells which may contain archaeological evidence of the families who lived at the site. Additionally two boundary stones showing the original alignment of Old Windsor Road have moderate potential to be present in the study area.

The study area contains the potential remains of a locally significant archaeological site. The archaeological resource has the potential to yield information relating to the domestic and agricultural practices of farming and fruit growing families in the Kellyville area. The lives of farmers and fruit growers supplying the market in Sydney but located beyond what was then the outskirts of the town, is not well understood. The orchardists that lived and worked within the study area were locally important residents, particularly the James family who were long term and well known members of the community. They are also representative of a group of people, who left their physical marks on the landscape. This is an opportunity to investigate what survives archaeologically of their lives. Additionally the site has the potential to yield further information on the rare surviving boundary stones which marked the Old Windsor Road.

The recommendations relating to the archaeological resource are to:

- Conduct an archaeological test excavation on targeted areas of the site to test the conclusions of this report. The targeted archaeological test excavations to determine the extent of significant archaeological resource and this section is the archaeological excavation program;
- Prepare a Research Design to guide the archaeological test excavation and frame the approach. This is the Research Design.
- Ensure that if during the course of excavation Aboriginal cultural material is found, work must cease and the indigenous heritage consultant be alerted.

A.1.2 Site location

Early Works is proposed in the area selected for the location of Kellyville Station. The proposed Station site is approximately 40,000 m^2 set approximately 20 m north from Old Windsor Road. It is bounded by Samantha Riley Drive in the north and housing developments to the east (Figure 1.1 of the archaeological assessment and research design). Lot 100 DP1122070 is the affected Lot and has been assessed for archaeological potential.

A.1.3 Limitations

This report deals specifically with items of historical archaeological significance within the study area. Issues related to heritage items outside the scope of the NWRL Project are not covered in this report. A detailed assessment of Aboriginal heritage for the study area is separate to this report.

A.1.4 Author Identification

This report has been prepared by Rebecca Newell BA Hons (Archaeology) and Ryan Desic BA Hons (Archaeology). Analysis and review for the report was undertaken by Pamela Kottaras BA Hons (Archaeology) — Associate and Archaeology Team Leader and David Kelly (BTP) (Hons) — Senior Environmental Planner EMM. It was also externally reviewed by Tory Stening from Comber Consultants.

A.2 Development proposal

A.2.1 Project description

The North West Rail Link is a priority transport infrastructure project for NSW and will provide a new 23 km electrified passenger rail line between Epping and Rouse Hill. The Project includes eight new stations (Cherrybrook, Castle Hill, Hills Centre, Norwest, Bella Vista, Kellyville, Rouse Hill and Cudgegong Road), a stabling facility and associated infrastructure (Figure 1.1 of the archaeological assessment report. The Early Works include site establishment prior to the commencement of the Major Works and can be grouped into the following categories:

- tunnelling construction power – high voltage power supplies for construction;
- demolition – demolition of a mixture of residential and commercial properties and/or facilities;
- roads and traffic – road adjustments, signalling, and existing transport network facilities relocation; and
- precinct preparation – utilities, services relocations and miscellaneous works.

Transport for NSW (TfNSW, the NSW Department of Transport) has commissioned BPL as the managing contractor for the 'Early Works' to allow construction sites establishment prior to commencement of the major works for the NWRL. Works at the Kellyville Station site are expected to result in removal of a large amount of soil to construct the station precinct. This will result in removal of all potential archaeological evidence at the Kellyville Station.

The works program specific to the Kellyville Station construction area includes the construction of an elevated station and viaduct, temporary and permanent road works, and the temporary relocation of some North West T-Way facilities.

A.2.2 Impacts from the proposed development

The entire area of the Kellyville Station footprint will be disturbed before the construction of the station. The Station will be built above ground and will include a viaduct to transport trains to and from the station. Construction works will result in the removal of soil. Impacts to all areas of archaeological potential are expected due to the large amount of soil to be removed.

The potential archaeological remains will be impacted by:

- the removal of soil to create the station area;
- the levelling of areas surrounding the station area to create walkways, parks;
- the creation of access roads through the study area;
- excavation for services including water, sewer and electricity; and
- the construction of a car park to service the station.

Figure 4.1 of the archaeological assessment report shows the development plan for the Kellyville Station study area. It is noted that the current development plan may be revised during construction and installation of the station buildings. However, this is not expected to change the comprehensive impacts to the potential archaeological remains.

A.3 Proposed research design and archaeological program

A.3.1 Research design

A research design is a set of research questions developed for a specific site, which contributes to current and relevant knowledge. The questions posed must be responsive to the nature of the archaeological evidence that is likely to be encountered. In addition, the how and where of the excavation is described in this document.

The archaeological assessment for Kellyville Station by EMM (2013) assessed the site as having moderate potential for archaeological resources relating to a cottage built in the late nineteenth century, wells and two boundary stones associated with the 1885 Mackenzie re-survey of Old Windsor Road. The significance of the potential archaeological resources pertaining to the cottage site has been assessed to be of *local* heritage significance. The significance of the boundary stones is of State significance.

This research design proposes a program of archaeological salvage excavation to record the nature and extent of the archaeological resource present at the site. An archaeological test excavation program is unnecessary as the sensitivity of the site is visible. The three wells on site, one or two of which may be cisterns, are visible and appear to be structurally sound. Although not noted during the last field inspection, it is likely that the timber footings of the cottage survive as they were photographed *in situ* for the North West T-way project (Austral Archaeology 2005 p16). As the site has not undergone significant disturbance since the North West T-way project, it is likely that the archaeological resource remains intact. It is therefore proposed to commence salvage excavation without the need to conduct a test excavation.

A.3.2 Research questions

The significant heritage items addressed in this report relate to two separate events: the nineteenth century cottage within the project area and the old alignment of Old Windsor Road with two boundary stones directly adjacent. The archaeological resources that are the subject of the salvage excavation are those associated with the occupation of the site in the late nineteenth and early twentieth century. The boundary stones are going to be identified as no-go area and will be monitored by EMM and BPL to ensure they do not suffer any damage during the construction process.

The cottage and three wells are within the context of a rural landscape characterised by orcharding and farming, where it belonged to locally eminent fruit growers, the James and later, the Rudd families. The James family were also part of the emerging Seventh Day Adventist movement in the colony in the later nineteenth century. Subsurface deposits relating to the cottage, three wells and other associated structures and deposits have high potential to exist as subsurface relics.

The boundary stones were part of the road marking system in the colony and marked the width of Old Windsor Road, one of the oldest roads in NSW. This technology represents the attempts of the Government to develop the local economy by transport infrastructure. Two boundary stones are likely to be present in the study area.

The area has remained a grassy paddock with little evidence of disturbance over the site. It is possible that post-depositional events have affected the intactness of the potential archaeological resource; however this is a low likelihood.

Research questions for the cottage have been guided by comparative study of a nearby weatherboard house and property in Castle Hill named 'Kentwell Cottage' (described in Section 3.6 of EMM 2013). This report has considered the structural components and physical layout of Kentwell Cottage in the formulation of site specific research questions. Further information may be gained at the completion of the former house site in the Cherrybrook Station area, which will be subject to archaeological excavation in the near future.

Research questions for the wells have been guided by comparative studies of well technology including those in Parramatta and Penrith. This report has considered the predicted structural components of the wells and the potential deposit which may be found within them in the formulation of specific research questions.

Research questions for the boundary stones have been guided by the previous studies into boundary stones by Austral Archaeology (2009), Lavelle (DATE) and research completed on the Old Windsor Road. This report has considered the predicted structural components of the boundary stones and the interaction with the original Old Windsor Road in the formulation of specific research questions.

Research questions have been guided by historic themes relevant to the site which have been taken for the NSW Heritage Branch website (www.environment.nsw.gov.au/heritage/index.htm). These have been used to ensure that the site may be a comparable resource for previous and future archaeological investigations in NSW and nationally.

The national historic themes relating to the study area are:

- building settlements, towns and cities;
- marking the phases of life;
- developing Australia's cultural life; and
- developing local, regional and national economies.

The NSW historic state themes relating to the study area are:

- transport;
- commerce;
- social institutions;
- agriculture;
- leisure
- towns, suburbs and villages
- accommodation;
- domestic life;
- land tenure;
- environment – cultural landscape; and
- persons.

It should be noted that the archaeological program may uncover a range of information not expected and the research questions are likely to evolve depending upon the type of evidence and artefacts found at the site.

i General research questions

- Does the archaeological resource verify the assessed potential and significance of the site?

That is:

i) What is the condition and extent of the surviving archaeological evidence?

ii) What is the nature of extant archaeological features?

iii) Do the deposits and features contribute new information about the occupation and development of the site?

General questions concerning the settlement of rural north-western Sydney, agricultural economies and the cultural life surrounding these events in the late nineteenth and early twentieth century are also appropriate for comparative purposes.

ii Site specific research questions

Nineteenth century cottage

iv) If physical evidence of the cottage, or associated outbuildings survive, can the data assist with understanding the spatial organisation of the house and its associated features?

v) Do any structural remains or material culture deposits at the site tell us about the social status and standard of living of those who occupied the site? If, so can this information be tied to a particular family, namely the Knight Family?

vi) Do the structural remains indicate a specific design or style of vernacular architecture? If so, are they comparable to other archaeological sites, or existing structures on a local, regional or national level?

vii) Do the structural remains indicate additions or alterations over time, and does this coincide with changes in occupancy as shown in the historic record?

viii) Is there evidence of domestic occupation at the site? If so, does the material culture assemblage change through time and with phases of occupation? Is there any historical evidence linking these changes to certain people, occupational phases, or other events?

ix) Is there evidence that can be specifically tied to the two families that lived at the cottage?

x) Does any domestic material deposit provide a link to the local orcharding industry? If so, what can it tell us about people's domestic lives in relation to their work?

xi) What does the material cultural assemblage reveal about the owners and occupants of the house, when compared with assemblages from other sites?

xii) Is there any evidence of agricultural produce at the site, especially fruit growing? If so what form does it take and how does the information contribute to our knowledge of the agricultural practices in the area?

Wells

xiii) Can the water reservoirs be determined as wells or cisterns? Can a date for the wells construction be established?

xiv) Do the structural remains indicate a particular design style? If so, are they comparable to other archaeological sites, or existing structures on a local, regional or national level?

xv) Do the structural remains show changes or additions over time, such as capping and does this coincide with changes in occupancy as shown in the historic record?

xvi) Is there any cultural deposit in the wells? What does this deposit tell us about the social status and standard of living of those who occupied the site? If, so can this information be tied to a particular family, either the James or Rudd families?

xvii) What does the material cultural assemblage reveal about the owners and occupants of the house, when compared with assemblages from other sites?

xviii) What is the relationship of the wells to the archaeological remains of the house site? Can it be established? Are they connected?

Boundary stones

xix) Do the boundary stones remain *in situ*? If so, what is their condition.

xx) Is there evidence of road marking or original road surfaces associated with the boundary stones?

A.4 Methodology

An excavation strategy has been prepared which represents the most appropriate archaeological methodologies for the archaeological program. This strategy responds to the requirements above, the development plans and the local heritage significance of the site.

The study area has remained a grassy paddock for over fifty years and has been subject to minimal disturbance. Due to the different archaeological resources present at the site the excavation strategy will involve salvage of the well sites and the cottage site. Test excavation at the cottage is necessary as it is not certain to what extent the remains of the cottage have survived and if the information is of merit to salvage. As such a test excavation will be completed at the house site to quantify and characterise any potential subsurface deposit. This archaeological management strategy presented here is based on the findings of the archaeological assessment (EMM 2013) and geotechnical testing within the site.

The archaeological excavation of the cottage site will involve excavation of initial trenches targeted at locating the area that is predicted to contain the highest volume of archaeological resources. If the resource is intact, the trench will be extended to encompass the entire house site, its relationship to the wells/cisterns and will be fully salvaged and recorded. The knowledge retrieved from salvage will aim to answer the general and specific research questions provided in the research design.

The archaeological excavation of the well sites will involve vertical excavation of a half section of each well and salvage of all deposit within the well. The salvage of the well sites is also dependent on safety and benching may be required. It is anticipated that at the completion of the excavation of the wells, a half section revealing the height of the well wall will survive to be photographed. For precautionary reasons the retained section of well wall will be drawn and photographed as the excavation proceeds to ensure that some recording is complete if the wall requires dismantling for safety reasons.

The boundary stones will be cordoned off and protected during all phases of the NWRL project work.

A.4.1 Salvage excavation

Excavation will commence in the area that is predicted to have the highest level of intact deposit, which, other than the well deposits, is within the footprint of the house starting at the front of the site. The original trench will be extended to encompass the entire house footprint, external areas, gardens etc. The excavation is intended to continue outwardly until the relevant archaeological resource has been exhausted horizontally and vertically. Areas with existing utility trenches and other previous development areas will be avoided where possible.

If, during the start of the excavation program, it becomes apparent that the archaeological resource has been damaged or disturbed significantly or removed, excavation of the cottage site will cease and focus will be on the wells/cisterns only.

The archaeology program will require the use of an excavator with a smooth edged mud bucket, to remove overburden down to just above any occupational surface, archaeological fabric or natural soil levels. Where relics are uncovered they will be excavated by hand using standard excavation techniques, and recorded on data sheets and photographically. Where fabric survives *in situ* or where phases are evident, the site will be planned. Archaeological sections will also be drawn and photographed.

The proposed excavation area is shown in Figure A.1.

The approach to the archaeological excavation will be:

i Cottage site

- Targeting test trenches in order to investigate the archaeological evidence according to historical imagery and plans.

- Test trenching via machine-excavation to a depth the archaeologist consider appropriate for finding relics, and also to determine culturally sterile layers.

Excavating one 4 m by 6 m trench at the predicted location of the cottage. This will aim to identify any structural remains, including walls and will be expanded to encompass the entire footprint of the cottage and its external spaces. The width of the trench also has the potential to include occupational deposits inside or outside any structure. Salvage excavation will largely be guided by the nature and extent of the archaeological remains as they are uncovered. The basic principles of open area salvage excavation that will be used on the site are:

- Excavation of the test areas to remove overburden will proceed by using appropriate machinery, including a 5 tonne excavator with a smooth-edged mud bucket.

- Monitoring the removal of any overburden, fill or other culturally non-significant layers until any significant archaeological evidence, occupational surface or structure is identified by a qualified archaeologist.

- Hand excavation by field archaeologists to fully expose or characterise the archaeological evidence. The decision to excavation stratigraphically or by feature will be determined in the field based on the archaeological evidence uncovered. For example, cesspits and wells would be excavated as features.

- Recording of remains and deposits according to the detailed recording methodology outlined below.

- Dealing with artefacts according to the artefact methodology outlined below.

- If the deposits are of state heritage significance, the Heritage Branch will be contacted to review the excavation. Salvage excavation would preferably commence within a week of finishing the test excavation.

Where appropriate, the archaeologists will sample any cultural and non-cultural deposits that may provide significant information regarding the pre and post European environment and occupation of the site. Soil samples will be analysed by a soil specialist.

In the event that evidence of Aboriginal cultural remains are found on site all works in the immediate vicinity of the area will cease and Baulderstone will be contacted. Appropriate measures provided in the NWRL Early Work Aboriginal Cultural Heritage Management Plan will be adhered to before works recommence.

ii Wells

The water in each well will be pumped out approximately 2 weeks prior to the field work to prepare the site and to monitor re-fill. Pumping equipment will remain on standby should they be required during the excavation of the well.

The wells will be fully excavated to collect information relating to the fill and their construction.

The basic principles of excavation will apply for this area:

- salvage excavation will aim to retrieve a level of information relative to the significance and intactness of the archaeological resources;

- salvage excavation will aim to answer research questions provided in the research design;

- salvage excavation will involve the expansion of test trenches to adequately characterise the archaeological evidence initially exposed;

- recording of remains and deposits according to the detailed recording methodology outlined below; and

- dealing with artefacts according to the artefact methodology outlined below.

A staged excavation of the well will occur using a combination of machine and hand excavation. The well will be half sectioned and excavated to the depth of the well.

The side of the well facing away from the cottage archaeological remains will be excavated to protect the potential archaeological remains of the house site and the preserve the potential relationship between the house and the wells.

Bricks on the side of the well to be sectioned will be recorded and removed. Excavation of the well deposit will occur in arbitrary spits of approximately 50 cm unless excavation director deems a different approach necessary due to changes in the soil or well features.

Soil will be stripped around the well as it progresses and battering will be used when required to enable excavation to continue beyond the 1 5 depth. It is likely that the wells will require pumping out at intervals to ensure the water level does not encroach on the excavation.

The excavation of the wells may stop due to safety concerns such as falling materials or the inability to bench sufficient distance to continue excavating safely. To ensure safety of the excavation crew while excavating and compliance with the environmental controls for the project BPL will provide water storage, ventilation and pumping equipment during the excavation of the wells.

A.4.2 Recording methodology

All recording will be undertaken using the following principles:

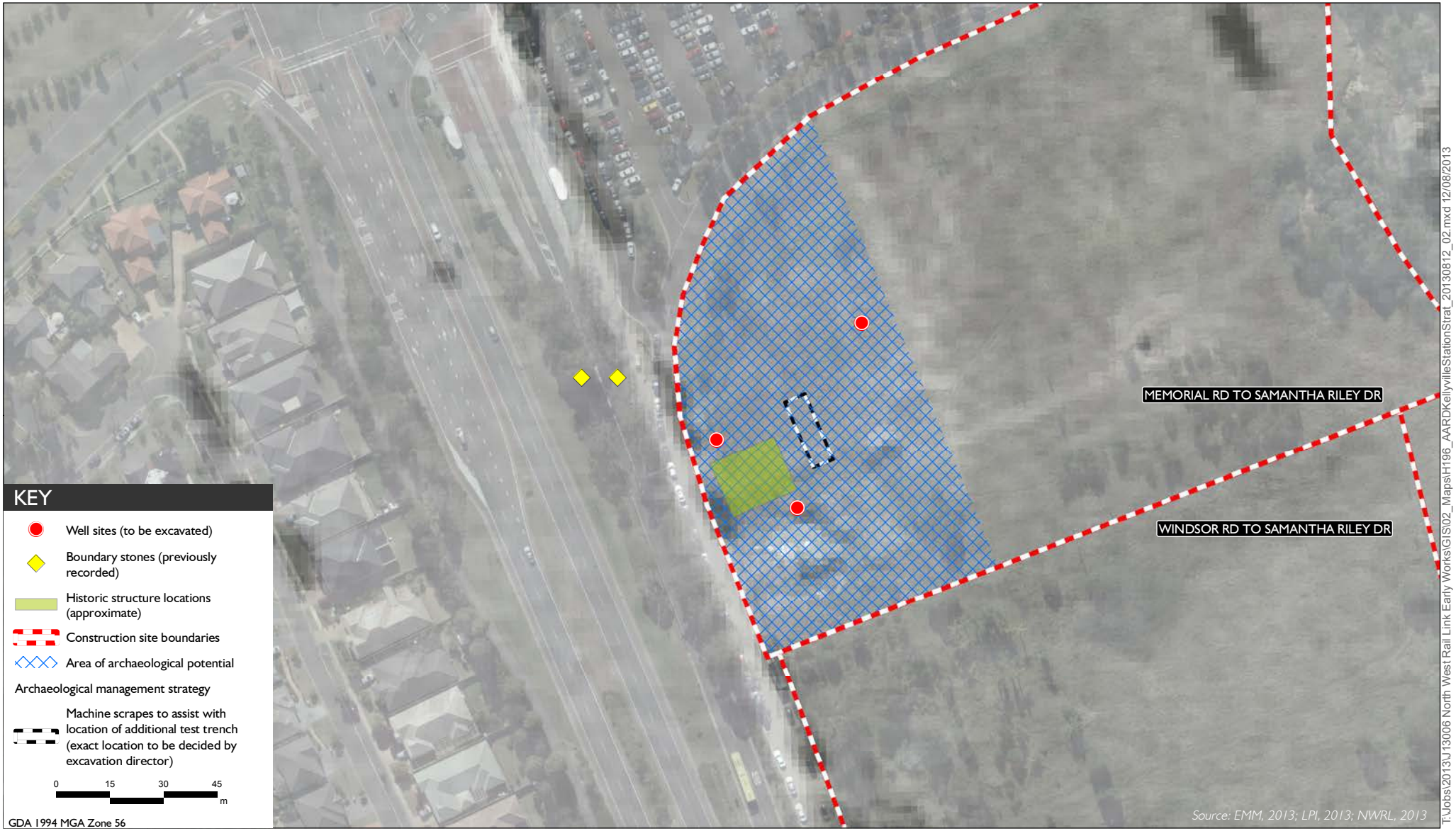
- the establishment of an appropriate site grid;
- use of surveying techniques for location of remains;
- detailed archaeological scale plans;
- the use of context recording forms and context numbers to record all archaeological information;
- use of Harris matrix as part of the recording program;
- all structural remains, post holes and features will be planned using an established survey point;
- detailed photographic recording;
- collection, labelling, safe storage, washing, sorting and boxing of artefacts.

A.4.3 Artefact methodology

Any artefacts recovered from the site will be the subject of a detailed cataloguing and analysis program, including:

- all artefacts will be catalogued by specialist cataloguers using a system that identifies and allows easy retrieval of the item;
- the specialists' cataloguers will produce reports on the artefacts outlining issues of importance;
- important artefacts will be the subject of materials conservation which would include the gluing of pottery or the conservation of important metal or leather materials; and
- artefacts which are the subject of materials conservation may be used in artefact displays in interpretation of the stations.

The excavation report will contain an analysis of artefacts and their deposits and contexts. This analyses will be illustrated using tables in the final report.



EMM
EMGA Mitchell McLennan

Potential remains of significance and the appropriate archaeological management strategy

North West Rail Link Early Works

Archaeological Assessment and Research Design - Kellyville Station

Figure A.1

A.4.4 Excavation Report

A detailed excavation report will be produced describing the results of the archaeological program. The report will include the artefact analysis and response to research questions.

A.5 Public interpretation of the archaeological program

The information and artefacts from the excavation may be used in interpretation of the site and in displays as part of the new station complex.

The following are suggested ways in which information about the site can be disseminated to be public:

- public information leaflets;
- regular updates on the archaeological program on the NWRL webpage; and
- media releases.

A.6 Aboriginal archaeology

No Aboriginal heritage constraints were identified for this site in GML 2012c. No further Aboriginal heritage investigation has occurred at this site. Should Aboriginal heritage items be identified during historic heritage excavation, works work will cease in the vicinity of the finds until an assessment of significance can be made in consultation with the registered Aboriginal parties for the project.

A.7 Public interpretation in the completed Kellyville Station site

Interpretation could utilise a range of archaeological material including:

- archaeological drawings, plans and images; and
- artefacts.

A.8 Personnel

As the North West Rail Link (NWRL) project is on critical path and archaeological issues are likely to occur on all sites, of which this is one of five, we are submitting to have two nominated excavation directors to direct the archaeological program; Jillian Comber and Tory Stening. Additionally there may be a need to run two archaeological programs concurrently; if this is the case, each site will have a fully qualified Excavation Director supervising all work, 100% of the time. Jillian Comber and Tory Stening are being put forward as primary excavation directors for all the archaeological sites which require additional assessment under Condition E10, with the available excavation director taking the lead and remaining as excavation director throughout.

EMM has also elected to have an excavation co-director assisting the excavation directors (Pamela Kottaras of EMM). The excavation co-director would be working closely with one of the primary excavation directors and will not be directing the archaeological excavation without one of the primary excavation directors on site. While it is not a common occurrence, we believe that it is the most practical arrangement to ensure that archaeological work is not held up, while remaining in compliance with the legislative framework underpinning the project.

As such the excavation program for this site will be directed by Jillian Comber with Pamela Kottaras is the nominated excavation co-director. In the event that Jillian Comber is not available to start the project and continue for its duration, the primary excavation director will be Tory Stening. This archaeological site will be seen through to the reporting stage by the Excavation Director active on that site.

The following staff will also assist as site supervisors:

- Ryan Desic; and
- Rebecca Newell.

As the major constraint is time, it is intended to have a team of 6 archaeologists on call to complete the excavation.

We are intending to use a number of assistants and other staff where required. CV's and references for key personnel listed above are contained in Appendix B.

Appendix B

Curricular Vitae

Curriculum vitae


Pamela Kottaras

Associate Archaeologist

Pamela has over 13 years experience as a heritage consultant and leads EMM's heritage service.

Her strengths include project direction and management of complex historic period assessments and heritage impact statements and Aboriginal heritage assessments, site analysis, archival recording, heritage statutory planning and policy review, and major excavation and survey planning and supervision.

Pamela's exceptional communication and interpersonal skills are demonstrated by her strong working relationships with historic and Aboriginal heritage communities, government agencies and clients.

She has undertaken heritage assessments for multiple sectors including: energy, infrastructure and utility providers; and property and construction.

Qualifications and memberships

- Bachelor of Arts (Hons) Prehistoric and Historical Archaeology, University of Sydney, 1997
- Laboratory Technician Certificate, Sydney Technical Collage, 1987
- Australian Society for Historical Archaeology
- Australasian Archaeological Association
- Australia ICOMOS Inc

Career

- EMGA Mitchell McLennan, 2013–present
- Team Leader Cultural heritage, Biosis Pty Ltd, 2009–2013
- Consultant, Austral Archaeology, 2004–2009
- Manager, Austral Archaeology, 2007–2009
- Heritage Consultant, City Plan Heritage, 2003–2004
- Research Assistant, Otto Cserhalmi & Partners Architects, 2001–2003
- Research assistant, Heritech Consulting, 1998–2001

Representative experience

- Windsor Bridge Replacement Project, historical heritage statement of heritage impacts, Sydney NSW for RMS (Biosis Pty Ltd with CRM)
- Grafton Bridge Duplication Project, non-Aboriginal heritage constraints reports and options report, Grafton NSW for Arup on behalf of RMS (Biosis Pty Ltd)
- Pipehead and Potts Hill Reservoirs 330 kV underground cable: statement of heritage impacts, Sydney NSW for Perram and Partners on behalf of Transgrid (Biosis Pty Ltd)
- Hume Highway Bypass at Tarcutta, archival record of Hambledon Homestead, Humula, Tarcutta Cemetery, Regional NSW for Leighton Contractors on behalf of RTA (Biosis Pty Ltd)

Curriculum vitae


Pamela Kottaras

- Hume Highway Bypass at Tarcutta Unexpected Finds Reports: Tarcutta stock camp and buried bridge, Regional NSW for Leighton Contractors on behalf of RTA (Biosis Pty Ltd)
- Tallawarra Lands Redevelopment, Historical Heritage Assessment, Wollongong NSW for TruEnergy (Biosis Pty Ltd)
- Nundah Bank Third Track, historical heritage assessment and statement of heritage for KMH on behalf of ARTC (Biosis Pty Ltd)
- Erskine Park Archaeological Salvage Excavation, Sydney NSW for RTA (Biosis Pty Ltd)
- Spring Farm Trunk Main, Aboriginal test excavation in accordance with the code of practice, Sydney NSW for Networks Alliance (Biosis Pty Ltd)
- North-West Growth Centre, heritage assessment, Sydney NSW for Sydney Water Corporation (Biosis Pty Ltd)
- Windsor Bridge Options Study: Assessment of Historical Heritage Constraints, Sydney NSW for the RTA (Austral Archaeology Pty Ltd)
- Edmondson Park Wastewater Planning Study, Aboriginal and historical risk assessment, Sydney NSW for SKM on behalf of Sydney Water (Austral Archaeology Pty Ltd)
- Proposed Holroyd Substation: Aboriginal archaeological and cultural assessment, Sydney NSW for SKM on behalf of Transgrid (Austral Archaeology Pty Ltd)
- Stevens Weir Deniliquin: proposal to install a vertical slot fishway statement of heritage impact, Regional NSW for the Department of Water and Energy on behalf of State Water (Austral Archaeology Pty Ltd)
- Great Western Highway Upgrade, Lawson: heritage construction management plan, heritage management report, Regional NSW (RTA with Austral Archaeology Pty Ltd)
- Wollondibby Project, Alpine Way, Jindabyne NSW Preliminary Heritage Advice, Snowy River Shire for Jay Harrison (Austral Archaeology Pty Ltd with City Plan Heritage Pty Ltd)
- Goat Island, conservation management plan. archaeological assessment, site analysis, archaeological policies & recommendations, Port Jackson NSW with Paul Davies Pty Ltd & Geoffrey Britton Environment Design for the National Parks & Wildlife Service (Austral Archaeology Pty Ltd)
- Bonnyrigg House, conservation management plan. archaeological assessment, site analysis and policies, Sydney NSW with Paul Davies Pty Ltd & Geoffrey Britton Environment Design for TSP Consulting on behalf of the Department of Planning (Austral Archaeology Pty Ltd)
- Proposed Subdivision of Bonnyrigg Male Orphan School Site Bonnyrigg, statement of heritage impact, Sydney NSW with Paul Davies Pty Ltd & Geoffrey Britton Environment Design for TSP Consulting on behalf of the Department of Planning (Austral Archaeology Pty Ltd)

Curriculum vitae


Pamela Kottaras

- Holy Trinity (Garrison) Church at Millers Point, archaeological assessment and exemption notification, Sydney NSW (under standard exemption 4) (Anglican Properties Trust with Austral Archaeology Pty Ltd)
- Gogeldrie Weir and Yanco Old Weir, statement of heritage impact & exemption notification, for NSW State Water, Leeton Branch (Austral Archaeology Pty Ltd)
- Australian Technology Park, temporary car parking innovation plaza upper, middle and lower car parks, Sydney NSW for The Australian Technology Park Management Pty Ltd (Austral Archaeology Pty Ltd)
- Australian Technology Park, Bays 3, 4 and 5 north internal fitout: statement of heritage impact and Section 60 application, Sydney NSW for The Australian Technology Park Management Pty Ltd (Austral Archaeology Pty Ltd)
- Australian Technology Park, Bays 6 and 7 north internal fitout: statement of heritage impact and Section 60 application for APP Corporation Pty Ltd on behalf of Fuji Xerox Australia (Austral Archaeology Pty Ltd)
- North West Transitway Project, Sydney NSW for Leighton Contractors (Austral Archaeology Pty Ltd)
- North West Transitway, archaeological assessments and research designs, for Leighton Contractors (Austral Archaeology Pty Ltd)
- 330–348 George Street, Sydney, archaeological assessment & research design, Sydney NSW for Hemmes Pty Ltd (Austral Archaeology Pty Ltd)
- Boggo Road Gaol: Excavation of Former One Division, Dutton Park, Brisbane Qld for Allom Lovell Architects on behalf of QLD govt (Austral Archaeology)
- 299–305 Sussex Street, Sydney, archaeological assessment & research design, Sydney NSW (City Plan Heritage Pty Ltd)
- University of Sydney School of Information Technologies, archaeological assessments & research design, Sydney NSW (City Plan Heritage Pty Ltd)
- RTA Heritage and Conservation Register Update, analysis & history, Warringah sub-region, NSW for the RTA with City Plan Heritage Pty Ltd)
- Spit Bridge, heritage impact statement review, Sydney NSW (City Plan Heritage Pty Ltd)
- Review Fort Scratchley Historic Site, Newcastle Conservation Management Plan, Newcastle NSW for the Heritage Office, Department of Planning (City Plan Heritage Pty Ltd)
- Review Wallarah and Moonee Collieries Conservation Management Plan, Central Coast NSW for the Heritage Office, Department of Planning (City Plan Heritage Pty Ltd)
- Review Dyke Point Conservation Management Plan, Newcastle NSW for the NSW Heritage Office (City Plan Heritage Pty Ltd)

Curriculum vitae


Pamela Kottaras

- Review Tracks into History Conservation Management Plan for the NSW Heritage Office (City Plan Heritage Pty Ltd)
- Review Sewage Pumping Station SP0038, Conservation Management Plan, Sydney Water for the NSW Heritage Office (City Plan Heritage Pty Ltd)
- Review Sewage Pumping Station SP0271, Conservation Management Plan, Sydney NSW for the NSW Heritage Office (City Plan Heritage Pty Ltd)
- Review White Bay Power Station, Conservation Management Plan, Sydney NSW for the NSW Heritage Office (City Plan Heritage Pty Ltd)

Curriculum vitae

Ryan Desic

Archaeologist

Ryan is an archaeologist with consulting and field experience in NSW. He has worked in both historic and Aboriginal and heritage.

He has worked on a number of major Aboriginal and historic archaeological investigations including the Hume Highway Duplication Project and the Barangaroo redevelopment project.

Ryan's key skills are in archaeological excavation and recording, and Aboriginal and historic artefact identification and analysis. His work has involved providing site supervision, field assistance, technical expertise and report writing.

Qualifications

- Bachelor of Arts (Hons) in Prehistoric and Historical Archaeology, University of Sydney, 2009
- Nationally recognised OH&S construction induction White Card

Career

- EMGA Mitchell McLennan, 2012–present
- Archaeologist, subcontractor to multiple Sydney-based heritage companies, 2010–2012

Representative experience

Environmental impact assessments

- Cobbora Coal Project, Cobbora NSW (Cobbora Holding Company)
- Newcastle LNG Gas Storage Facility and Pipeline Project Modification, Tomago NSW (AGL)
- Camden Gas Project Modifications, Sydney NSW (AGL)

Reviews of environmental factors

- Gloucester Gas Project Exploration, Wards River pilot testing, Wards River NSW (AGL)
- Cobbora Coal Project, geotechnical investigations, Cobbora NSW (Cobbora Holding Company)

Heritage management plans

- Gloucester Gloucester Gas Project Exploration, aboriginal cultural heritage management plan, Gloucester NSW (AGL Energy)

Archaeological excavations

- Barangaroo Development, historic excavation and on site artefact management, Sydney CBD NSW (Casey and Lowe in association with Bovis Lend Lease)
- Cobbora Coal Project, Aboriginal cultural heritage test excavation, Cobbora NSW (Cobbora Holding Company)
- Hume Highway Duplication Project, Aboriginal excavation Tarcutta–Woomargama NSW (Kelleher Nightingale in association with Roads and Traffic Authority)
- Penrith Lakes Scheme, Aboriginal excavation, Sydney NSW (Penrith Lakes Development Corporation)
- Darling Walk Development, historic excavation, Sydney CBD NSW (Casey and Lowe in association with Bovis Lend Lease)

Curriculum vitae


Ryan Desic

Archaeological excavation reports

- Cobbora Coal Project: Aboriginal cultural heritage test excavation report, Cobbora NSW (Cobbora Holding Company)
- Australand Eastern Creek, Aboriginal cultural heritage test excavation report (Kelleher Nightingale Consulting)

Aboriginal opportunities and constraints

- Hume Coal, opportunities and constraints study, Southern Highlands NSW (Cockatoo Coal)

Curriculum vitae

Rebecca Newell

Archaeologist

Rebecca is an archaeologist with consulting and field experience in NSW and Tasmania. She has worked with industry leaders in both historic (European) and Aboriginal archaeology and heritage.

Her skills are in excavation and field survey techniques, artefact management, public communication and community engagement.

Rebecca has worked on a number of historic and Aboriginal archaeological excavations and surveys. This work has involved providing field assistance, site supervision and providing technical expertise.

Qualifications

- Bachelor of Arts (Hons Class 1) in Archaeology and Heritage Studies, University of Sydney, 2010
- Senior first aid certificate
- Nationally recognised OH&S construction induction certificate White Card

Career

- EMGA Mitchell McLennan, 2011–present

Representative experience

Environmental impact assessments

- Cobbora Coal Project, historic and Aboriginal heritage, Cobbora NSW (Cobbora Holding Company)
- Mount Penny coal mine, historic heritage, Mt Penny NSW (Mt Penny Coal)
- Peppertree Quarry, historic and Aboriginal heritage, Marulan South NSW (Boral Property Group)

Reviews of environmental factors

- Cobbora Coal Project geotechnical investigations, Cobbora NSW (Cobbora Holding Company)
- Hunter Gas Project, pilot testing, Windermere and Monkey Place, Hunter Valley NSW (AGL)

Archaeological excavations

- Cobbora Coal Project, Aboriginal heritage test excavation, Cobbora NSW (Cobbora Holding Company)
- Penrith Lakes Scheme, Aboriginal heritage excavation, Sydney NSW (Penrith Lakes)
- Oatlands Gaol and Mill, historic heritage excavation, Oatlands TAS (Southern Midlands Council)
- Cumberland and Gloucester Streets, historic excavation and artefact processing, Sydney CBD NSW (Godden Mackay Logan)
- Rouse Hill House, historic school house excavation, Sydney NSW (Historic Houses Trust)

Aboriginal heritage impact permit (AHIP) applications and due diligence assessments

- Aboriginal heritage due diligence report Peppertree Quarry, Marulan South (Boral Property Group)
- Muswellbrook Sewer AHIP report, Hunter Valley NSW (NSW Public Works)
- Badgally Road, Camden Aboriginal Heritage due diligence report, Sydney NSW (Dart West Developments)

Curriculum vitae


Rebecca Newell

Heritage management plans and strategies

- Sydney Bennelong Stormwater Channel Heritage Management Strategy, Sydney NSW (Kembla Watertech)
- North West Rail Link Early Works Heritage Management Plan, Sydney NSW (Baulderstone)

COMBER CONSULTANTS

ARCHAEOLOGY - HERITAGE - MEDIATION - ARBITRATION

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DAVID NUTLEY

ASSOCIATE DIRECTOR, PROJECTS
TORY STENING

Jillian Comber, B.A., Litt.B., P.C.Arb, M.AACAI., M.ICOMOS, J.P.

Archaeologist/ Heritage Consultant
Mediator/Arbitrator
Adjunct Research Fellow, Flinders University
Guest Lecturer University of Sydney and Flinders University

Skills:

- Historical & Aboriginal Archaeology
- Cultural Heritage Management
- Heritage Advisor
- Alternative Dispute Resolution
- Grade 1 Arbitrator
- Graded Mediator
- Expert advice

Affiliations:

- Australian Association of Consulting Archaeologists, Full Member
- Australian Archaeological Association
- Australasian Society of Historical Archaeology
- International Council on Monuments and Sites, Full Member
- Australasian Institute of Maritime Archaeology
- Institute of Arbitrators & Mediators Australia
- NSW Justices Association

Relevant Expertise:

- Aboriginal and non-Aboriginal site and place management including an understanding of relevant legislation
- Implementation of Heritage Council procedures outlined in the *Heritage Manual*
- Facilitation of OEH's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
- Implementation of OEH's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* and C*ode of Practice for Archaeological Investigation of Aboriginal Objects in NSW*.
- Heritage Conservation advice.
- Provision of Aboriginal and non-Aboriginal Heritage Management advice for planning and conservation documents.
- Site survey and excavation including background research and AHIMS searches.
- Impact assessment and mitigation.
- Significance assessment & provision of management recommendations.
- Site inductions and site management.
- Land Management Mediation and Arbitration
- Native Title Mediation.
- Provision of expert advice.
- Expert Witness.
- Preparation and delivery of cultural heritage education.

Qualifications:

- B.A (Archaeology/Anthropology)
- Litt.B (Aboriginal & Historical Archaeology)
- PhD Candidate, Sydney University
- Practitioners Certificate in Mediation and Conciliation
- Professional Certificate in Arbitration

Summary

Jillian Comber, the Director of Comber Consultants has over 25 years experience in Aboriginal and non-Aboriginal archaeology and cultural heritage management. She is experienced at survey, assessment, monitoring, testing and excavation. She has extensive skills in significance assessment and report writing and can provide the cultural heritage component for conservation management plans, REF's and other planning documents. She has a sound understanding of NSW's planning legislation, policies and procedures.

Jillian has a particular expertise in cultural landscape and open area management. As the Director of the Parramatta Park Trust for five years, Jillian led a team of natural and cultural heritage specialists in the management and conservation of Parramatta Park. Parramatta Park is of national significance and has been inscribed on the World Heritage List. In this role Jillian had full delegated powers from the Heritage Council of NSW.

In addition, Jillian has extensive experience in the management of historical archaeological sites and places. She can provide advice on appropriate management strategies all formulated within best practice management and in accordance with Heritage Council requirements. Jillian undertakes assessments, monitoring and excavation of a broad range of historical archaeologial site types and has held s140 and s60 permits from the NSW Heritage Council, including those listed below. To obtain permits she prepares the research design and permit application and liaises with the Heritage Branch. Her detailed Curriculum Vitae has previously been submitted to the New South Wales Heritage Branch, Department of Planning and is held on their files. Following is an example of permits from the Heritage Council held by Jillian:

Delegated Powers

Delegated powers from the Heritage Council to Jillian Comber in her role as Director of the State heritage listed and World Heritage inscribed Parramatta Park. In this role Jillian supervised conservation works and archaeological monitoring and excavation at the Dairy Precinct, the second oldest extant building in Australia; at the Macquarie Street Gatehouse and other ongoing projects related to landscaping and park maintenance.

s60 permits (Sites listed on the State Heritage Register)

- Permit to undertake archaeological monitoring at Kenmore Hospital site (current) on behalf of Goulburn-Mulwaree Council.
- Permit to undertake archaeological monitoring and excavation at Googong (current) on behalf of CIC Australia
- Monitoring, excavation and conservation of *Puckeys Saltworks* for Wollongong City Council.
- Permit to undertake archaeological excavations at Newtown Railway Station, on behalf of RailCorp.
- Permit to undertake archaeological monitoring at the Marsden Street Weir and Parramatta Park Weir on behalf of Parramatta City Council .
- Permit to undertake archaeological monitoring and excavation at Mulawa Women's Correctional Facility on behalf of the Department of Commerce.
- Permit to undertake archaeological excavation at Belmore Basin, Wollongong.

s140 permits

- Permit to undertake archaeological monitoring and testing at Belmore Basin for Wollongong City Council.
- Permit to undertake archaeological monitoring at the Captain Cook Hotel, Botany Bay on behalf of Gale Street Pty Limited.
- Permit to undertake archaeological monitoring at Leura Mall.

Jillian can provide advice on which permit is required and whether an Exception would be more suitable.

All of the above projects have been undertaken according to best practice management and in consideration of critical path delivery.

Tenures:

Jillian has held or continues to hold the following tenures:

- Member, Waverley City Council's Heritage Review Panel.
- Part-time Lecturer Sydney University and Flinders University in Aboriginal Cultural Heritage Management
- Former Heritage Advisor to Bourke, Cobar, Parkes, Lachlan and Cowra Shire Councils and Wollongong City Council.
- Past member of Marrickville City Council's Heritage Promotions Committee.
- Previous Lecturer in Aboriginal Cultural Heritage Management at Canberra University.
- Member of the Heritage Office's Experts Workshop in respect of the review of the *Heritage Act 1977*

Previous Positions:

Jillian has held the following positions

- 1997-2001: Director, Parramatta Park Trust, NSW
- 1994-1997: Regional Manager, Cultural Heritage, Department of Environment & Heritage, Far North Queensland.
- 1992-1994: Cultural Heritage Coordinator, NSW National Parks & Wildlife Service
- 1988-1993: Consultant Archaeologist, NSW

Integrated Management System

Comber Consultants has a certified integrated management system to the requirements of ISO 9001:2008 (quality), ISO 14001:2004 (environmental), OHSAS 18001:2007 (health and safety) and AS/NZS 4801:2001 (health and safety). This is your assurance that Comber Consultants is committed to excellence, quality and best practice and are regularly subjected to rigorous, independent assessments to ensure that we comply with stringent Management System Standard/s.

In all projects, Jillian is supported by the dedicated Comber Consultants team of archaeologists, anthropologists, historian, specialist photographer and administration staff to ensure best practice heritage management. The Comber Consultants team is committed to providing outstanding customer service and is able to work within tight timeframes and budget commitments.

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DAVID NUTLEY

ASSOCIATE DIRECTOR, PROJECTS
TORY STENING

Tory Stening, BA, MA, JP
Associate Director, Projects
Senior Archaeologist

Skills:

- Aboriginal and non-Aboriginal Archaeology
- Cultural Heritage Management
- Aboriginal Community Consultation

Relevant Expertise:

- Historical archaeological survey, assessment, monitoring and excavation.
- Identification of impacts and provision of mitigation strategies in respect of historical archaeological sites and places.
- Implementation of historical archaeological procedures and strategies in accordance with best practice management and the NSW Heritage Manual.
- Aboriginal place management including an understanding of relevant legislation.
- Aboriginal community consultation.
- Facilitation of OEH's *Aboriginal Consultation Requirements for Proponents 2010.*
- Preparation of reports in accordance with OEH's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW and Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW.*
- Aboriginal site survey and excavation including background research and AHIMS searches.
- Documentation, mapping and predictive modelling.
- Significance assessment & provision of management recommendations.
- Site inductions and site management.
- Delivery of Cultural Heritage Training.
- Critical path delivery of projects;
- Justice of the Peace for New South Wales since 2010;
- Expertise in stone tool identification and analysis.

Qualifications:

- Bachelor of Arts (Archaeology);
- Master of Arts (Archaeology).

Affiliations:

- Australian Archaeological Association (AAA);
- Australasian Society of Historical Archaeology (ASHA);
- International Council on Monuments and Sites, Full Member (M.ICOMOS);
- Australasian Institute of Maritime Archaeology (AIMA);
- World Archaeological Congress (WAC).

Sample of Relevant Projects:

- Historical archaeological monitoring and excavation of Denmark Cottage, Ashfield for Blue Eagle Construction.
- Historical archaeological excavations at Brighton Lawn Reserve, Belmore Basin, Wollongong for Wollongong City Council (State significance).
- Historical archaeological excavations in respect of the "small miserable hut" at Belgenny Farm, Camden Park Estate, Camden for the Belgenny Farm Trust for Ted Higginbotham (State significance).
- Historical archaeological excavations at the corner of Marsden and Macquarie Streets, Parramatta for Ted Higginbotham.
- Identification and assessment of potential impacts on historic archaeology in respect of the Camden Zone Substation for Endeavour Energy.
- Historical archaeological monitoring and excavation at Lawson Town Centre for Blue Mountains City Council.
- Historical archaeological assessment for the upgrade of Kunama Dam, Tumut for Tumut Shire Council.
- Historical archaeological assessment for the extension of St Mary's Church, North Sydney for David Scobie Architects.
- Historical archaeological monitoring and archival recording of the Marsden Street Weir for Parramatta City Council (State significance).

Tory Stening, the Associate Director, Projects, of Comber Consultants has over 7 years experience in both Aboriginal and non-Aboriginal archaeology and cultural heritage management. She is experienced in both Aboriginal and non-Aboriginal archaeological survey, assessment, excavation and recording.

Tory has experience in supervising and undertaking historic surveys, assessments, provision of management recommendations, testing and excavations. She is experienced in the cleaning and cataloguing of historical archaeological artefacts using Comber Consultants easily retrievable archaeological cataloguing program.

She has extensive skills in significance assessment and report writing and can provide the cultural heritage component for conservation management plans, REF's and other planning documents. She has a sound understanding of NSW's planning legislation, policies and procedures.

Tory has specialist knowledge and experience in the assessment and management of historic buildings. She has undertaken training in the Conservation of Traditional Buildings and works closely with property owners to ensure best practice conservation management. Tory prepares Statements of Heritage Impact and Conservation Management Plans.

Tory also has an expertise in Aboriginal stone tool analysis with a detailed understanding of the process of stone tool manufacture and is experienced in the cataloguing and analyses of Aboriginal stone tools. She has a Master of Arts (Archaeology) from the University of New England. Her Master's Thesis was an analyses of stone tools excavated at Cowra.

In all projects, Tory is supported by the dedicated Comber Consultants team of archaeologists, anthropologists, historian, specialist photographer and administration staff to ensure best practice heritage management. The Comber Consultants team is committed to providing outstanding customer service and is able to work within tight timeframes and budget commitments.

Comber Consultants has a certified integrated management system to the requirements of ISO 9001:2008 (quality), ISO 14001:2004 (environmental), OHSAS 18001:2007 (health and safety) and AS/NZS 4801:2001 (health and safety). This is your assurance that Comber Consultants is committed to excellence, quality and best practice and are regularly subjected to rigorous, independent assessments to ensure that we comply with stringent Management System Standard/s.

EMM
EMGA Mitchell McLennan

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