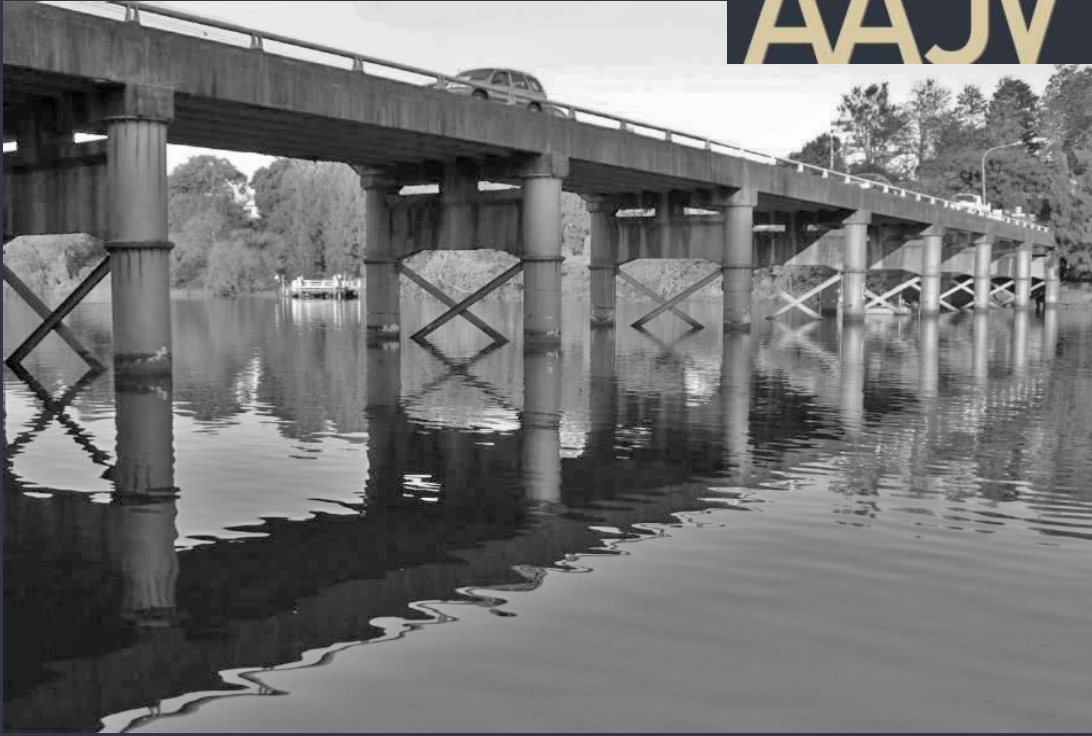




WINDSOR BRIDGE REPLACEMENT PROJECT

PROJECT NUMBER: 190508

Salvage Excavation Report - Area 1 – Historical Archaeology

AAJV

(an AUSTRAL & Extent Heritage Joint Venture)

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Project Name: Windsor Bridge Replacement Project

PROJECT NUMBER: 190508

31 January 2020

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Salvage Excavation Report – Historical Archaeology

Prepared by AAJV on behalf of NSW Roads and Maritime Services

Document Control Page

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PROJECT NAME: Windsor Bridge Replacement Project

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EXECUTIVE SUMMARY

Background and Context

The NSW Roads and Maritime Service (RMS) is currently undertaking the Windsor Bridge Replacement Project (WBRP) which involves replacement of the existing Windsor Bridge (Windsor, NSW) with a new structure and various modifications to the approaches and surrounds of the river crossing. The project has been assessed as State Significant Infrastructure under Part 5.1 of the *Environmental Planning and Assessment Act 1979*, and was approved in late 2013 (SSI_4951). Construction began on the project in mid-2018. RMS has engaged AAJV (a joint venture of Austral Archaeology and Extent Heritage [formerly AHMS]) to undertake archaeological investigation and provide heritage management services to RMS during the project.

The Minister's Conditions of Approval (MCoA) for the WBRP require a range of historical, maritime and Aboriginal archaeological investigations for the southern (Condition B3) and northern (Condition B4) banks of the Hawkesbury River. Initial investigations involving combined Aboriginal and historical archaeological test excavation were undertaken in 2016.^{1,2,3} Following these investigations, a component of Condition B3 required the development of a Detailed Salvage Strategy⁴ to outline further archaeological works required to avoid, minimise and/or mitigate impacts to the cultural resource. This document was developed in August 2017 and recommended the need for historical archaeological (salvage) excavations within the lower Thompson Square park in five separate areas (Areas 1-5) as well as Aboriginal archaeological (salvage) excavations, the results of which are documented in a separate assessment.

In fulfilment of MCoA Condition C5 this report has been developed to document the results of the historical salvage excavations undertaken in Area 1, carried out between the 30th of October 2017 and the 28th of March 2018. Subsequently in early 2019, due to engineering design changes, additional salvage excavations were undertaken to enlarge Area 1. These works, along with the results of historical archaeological investigations in areas 2-5, will be reported on separately in a supplemental report once all remaining salvage works are complete.

Key Findings

An area of approximately 1,300m² of lower Thompson Square was investigated to depths of between 1-5m below ground levels during the historical salvage excavation programme. Open area excavation confirmed a high level of past disturbance to the archaeological stratigraphy of the site.

Large-scale landform modifications have been a repeated feature of the site, commencing as early as 1814-1816 with works carried out at the request of Governor Macquarie during the re-structuring of the 'Green Hills' settlement into the township of Windsor. Key to these works was the construction of an extensive brick drainage system providing sub-surface drainage for the settlement centred on Thompson Square; an early example of the numerous drainage works commissioned and constructed during Macquarie's administration and a major undertaking for early Windsor.

¹ Austral Archaeology/Extent Heritage (AAJV) (2017a) Windsor Bridge Replacement Project – Test Excavation Report – Aboriginal Heritage. *Unpublished Report for NSW Roads and Maritime Services*.

² Austral Archaeology/Extent Heritage (AAJV) (2017b) Windsor Bridge Replacement Project – Test Excavation Report – Historical Archaeology. *Unpublished Report for NSW Roads and Maritime Services*.

³ Cosmos Archaeology Pty Ltd (2017) Windsor Bridge Replacement Project – Underwater Test Excavation and Surveys. *Unpublished Report for NSW Roads and Maritime Services*

⁴ AAJV (2017c) Windsor Bridge Replacement Project – Detailed Salvage Strategy for Aboriginal and Historical Archaeological Heritage. *Unpublished Report for NSW Roads and Maritime Services*.

As a result of the salvage excavations, extensive sections of this drainage system were confirmed to remain *in situ* beneath lower Thompson Square (archaeological Phase 2). The system comprised a central oviform drain on a north-south alignment running down to the river, fed by three bilateral ribs of box drain constructed at a higher level and connected to the oviform drain by rising sumps. In total, 48m of the oviform drain and 130m of adjoining box drains 1-3 were identified within the excavation zone.

This drain system is believed to have provided surface water drainage from George Street that reduced the effects of slope erosion, as well as waste water drainage from at least six separate locations: three in the government precinct to the east and three in the developing private frontages to the west. The full extent of the original and extant drainage system, including the uphill termination of the oviform sewer, has yet to be ascertained, however a damaged section of the eastern arc of an additional, fourth box drain was identified beneath Old Bridge Street during test excavations in 2016. The 1814-1816 construction of the drains and the associated fills, as well as artefacts recovered during salvage, form the basis of much of the significant historical archaeological evidence that is the subject of this report.

In addition, an area of undisturbed soil profile that formed the pre-1814 ground surface was identified and recorded (archaeological Phase 2). The salvage excavations demonstrated that the surviving extent of this historical soil profile was very limited (~18m²), largely as a result of damage from the Phase 3 drain construction and associated earthworks.

From the combined Phase 2 and Phase 3 archaeological deposits, a total of 1,784 early historical artefacts were salvaged, representing an estimated 650 individual items in use prior to 1814. A significant record of Aboriginal occupation of the site from the late Pleistocene was also investigated during the concurrent Aboriginal salvage excavation programme that is the subject of a separate report.

Ceramics formed the largest material class of the late 18th to early 19th century artefact assemblage including high proportions of fragmented lead-glazed earthenware produced locally in the colony and Chinese export porcelain wares imported from Britain, both of which are comparatively rare types of material. Materials that are ubiquitous on the majority of other historical archaeological sites of the 19th century such as whiteware ceramics and bottle glass are infrequent, a reflection of this site's early date.

The Phase 2 and Phase 3 assemblages provide a substantial collection of objects in use during the 'Green Hills' era of Windsor (1794-1814) that can inform future studies of the material culture in use locally and within the broader colony prior to 1820. The archaeological potential of this significant early period in Windsor is considerable. The Thompson Square assemblage provides a firmly dated range of material indicators for the identification of such sites that will in turn shed new light on the sociohistorical context of the Thompson Square assemblage.

In addition to domestic refuse, a quantity of construction-related materials were recovered that reflect the scattered structures present during the Green Hills period and the removal of these buildings at the request of Macquarie in 1814. Information on the diet and personal lives of the early colonists were also recovered. Items retrieved included 1799 'proclamation' coins, tobacco pipes, buttons, a pocket watch and firearms flints.

The construction of the Phase 3 drainage system marks the end of the direct occupation of the salvage area and commencement of its history as the public space of Thompson Square. The archaeological record reflects this, as no evidence of further activity relating to the mid-19th century history of Windsor (Phase 4) was identified during salvage. Evidence of extensive modifications to lower Thompson Square during the later 19th and into the 20th centuries (Phases 5 and 6) was methodically documented in order to confirm this and to determine the sequence and contexts of these various disturbance events and their influences on the early historical archaeological resource. Archaeological evidence dating from these later phases reflects the major events in the subsequent historical record of Thompson Square - the construction of Windsor Bridge, development of associated roads, tunnelling of a sewer main beneath the square in 1937, the construction of the Hawkesbury Motor Boat Club across much of the salvage area in 1949 and removal of this building c.1990.

As a result of these successive impacts, the fill stratigraphy across much of the site was found to be extensive (1-4m in depth), and to contain introduced and reworked material including a further 1,947 artefacts salvaged in the process of dating the stratigraphy. The various disturbance events and fills were found to have further contributed to the almost total removal of the early historical landform and to directly overlie the disturbed Phase 3 drainage system and truncated natural sands predating European occupation (Phase 1).

With the exception of the brief construction phase of the drainage system, no in situ and direct evidence of the occupation of lower Thompson Square was identified, such as the structural remains of stores, dwellings or associated features indicating sustained activity. Historical documentation suggests such structures once stood within the modern boundary of lower Thompson Square and the absence of archaeological evidence of these is a direct result of the substantial past disturbances that have taken place following the earliest and most significant use of the site through to 1814. Thompson Square was also subject to periodic inundation from the flooding of the Hawkesbury River to the north, and cyclic erosion and deposition of flood materials have also affected the integrity of the area and its historical archaeological deposits.

A significance assessment of the drainage system and associated artefacts shows that these relics are of State significance, representing the archaeological context and extant fabric of one of only a handful of examples of early oviform drains surviving from the period. This classification is in part the result of the contribution that the archaeological excavation provides to the historical record, which provides a written account of the contract for these works and their place within the early restructuring in the vicinity of Thompson Square, but which contains no physical description or plans of construction. Archaeological evidence of later phases of the site history are assessed to be of local significance.

Following the completion of the on-site works and post-excavation analysis for Area 1, key remaining tasks which are to be undertaken in accordance with the methodology outlined in the DSS are to:⁵

- Complete the recommended program of historical archaeological investigations required for areas 2-5 of the WBRP area.
- Prepare supplementary historical archaeological reports detailing the results of the archaeological works undertaken in areas 2-5.
- Prepare a supplementary historical archaeological report detailing the results of the supplemental historical archaeological works undertaken in the remainder of Area 1 following the amendment of the bridge construction design.
- Consolidate the findings of this report and all additional, supplementary reports into a single document which summarises all historical archaeological works undertaken as part of the WBRP.
- Provide input as required into the development of an Interpretation Plan for the Thompson Square area.

Development impacts and mitigation

Development impacts associated with the construction of the bridge have required the removal and salvage of the side feeder lines (i.e. the box drains). However, the RMS committed to altering the design of footings associated with the western abutment of the bridge to ensure that the entirety of the known section of the main oviform drain (measuring approximately 41m) has been conserved and protected below the foundations of the new bridge and retained *in situ*.

⁵ AAJV 2017d

Recommendations

Based on the findings of this report, the following recommendations are made:

- This report presents the results of archaeological excavation, analysis and findings of the historical salvage excavation measures required within Area 1 of the lower Thompson Square portion of the impact corridor (as recommended in the Detailed Salvage Strategy).⁶ The proponent needs to ensure that any remaining mitigation measures in the Detailed Salvage Strategy for Areas 2-5 are implemented when required.
- The mitigation measures documented in this report are based on the analysis of the potential impacts as presented in the Thompson Square brick drain heritage mitigation and options report.⁷ In the event that development or construction activities are required beyond those identified in this document and the Detailed Salvage Strategy⁸ for the impact corridor, development of appropriate historical heritage assessment, management and (where required) mitigation measures must be implemented prior to construction/development beginning/resuming.
- The findings of this report should be used to inform development of the WBRP Interpretation Plan to ensure representation of the significant historical archaeological evidence within the project area is appropriately expressed.
- The proponent is to determine a permanent repository for the artefacts recovered during the archaeological salvage excavations undertaken in Area 1. Ideally, this repository is to be located within close proximity to the location of Thompsons Square, or elsewhere within the Windsor township. Until a permanent repository is identified, artefactual material is to be securely stored in a location of the proponent's choice, with the storage location and assemblage to be assessed by a qualified conservator as required.
- Copies of this and all final reports detailing salvage works within the WBRP development zone are to be provided for lodgement with the Department of Planning and Infrastructure, Heritage Division, Office of Environment and Heritage (OEH) and the heritage section of Hawkesbury City Council's library.

⁶ AAJV 2017c

⁷ AAJV (2018) Thompson Square Brick Drain, Windsor NSW – Heritage Mitigation and Options Report. *Unpublished Report for NSW Roads and Maritime Services.*

⁸ AAJV 2017c

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1 INTRODUCTION

1.1 Background and Context

The NSW Roads and Maritime Service (RMS) is currently undertaking the Windsor Bridge Replacement Project (WBRP) which involves replacement of the existing Windsor Bridge (Windsor, NSW) with a new structure and various modifications to the approaches and surrounds of the river crossing. The project has been assessed as State Significant Infrastructure under Part 5.1 of the *Environmental Planning and Assessment Act 1979*, and was approved in late 2013 (SSI_4951). Construction began on the project in mid-2018. RMS has engaged AAJV (a joint venture of Austral Archaeology and Extent Heritage [formerly AHMS]) to undertake archaeological investigation and provide heritage management services to RMS during the project.

The Minister's Conditions of Approval (MCoA) for the WBRP require a range of historical, maritime and Aboriginal archaeological investigations for the southern (Condition B3) and northern (Condition B4) banks of the Hawkesbury River. Initial investigations involving combined Aboriginal and historical archaeological test excavation were undertaken in 2016.^{12,13,14} Following these investigations, a component of Condition B3 required the development of a Detailed Salvage Strategy¹⁵ [DSS] to outline further archaeological works required to avoid, minimise and/or mitigate impacts to the cultural resource. This document was developed in August 2017 and recommended the need for historical archaeological (salvage) excavations within the lower Thompson Square park in five separate areas (Areas 1-5) as well as Aboriginal archaeological (salvage) excavations, the results of which are documented in a separate assessment.

In response to the 2017 DSS's recommendations, AAJV has been engaged by RMS to undertake further historical archaeological (salvage) excavation in advance of the bridge replacement.

This document presents the findings of the archaeological salvage programme that was implemented to mitigate the development impact on the site's historical archaeological resource identified in the earlier investigative phases. The works included the careful recovery of all material evidence associated with the State significant early historical activity and excavation, detailed recording and partial conservation *in situ* of the 1814-1816 drainage system identified within the impact corridor, along with detailed analysis of these finds to provide information about the past use and occupation of the area. It further considers the degree of preservation of the early historical landscape and the significance of the archaeological resource within a broader context. Finally, it provides recommendations about the future documentation and management of the cultural material recovered.

The Aboriginal archaeological excavation findings outlined in this document is a companion document to the historical and maritime works also dictated in the DSS. Collectively, these works seek to provide an integrated and holistic approach to the identification, assessment and management of the cultural values within the WBRP project area.

¹² Austral Archaeology/Extent Heritage (AAJV) (2017a) Windsor Bridge Replacement Project – Test Excavation Report – Aboriginal Heritage. *Unpublished Report for NSW Roads and Maritime Services*.

¹³ Austral Archaeology/Extent Heritage (AAJV) (2017b) Windsor Bridge Replacement Project – Test Excavation Report – Historical Archaeology. *Unpublished Report for NSW Roads and Maritime Services*.

¹⁴ Cosmos Archaeology Pty Ltd (2017) Windsor Bridge Replacement Project – Underwater Test Excavation and Surveys. *Unpublished Report for NSW Roads and Maritime Services*

¹⁵ AAJV (2017c) Windsor Bridge Replacement Project – Detailed Salvage Strategy for Aboriginal and Historical Archaeological Heritage. *Unpublished Report for NSW Roads and Maritime Services*.

Table 1 Minister's Conditions of Approval for SSI_4951, and how this report addresses them

Condition	Location in this Report
B3. The results of the Archaeological Investigation Program are to be detailed in a Historic Archaeological Report and a Detailed Salvage Strategy comprising the non-Aboriginal and Aboriginal heritage findings. These are to be prepared in consultation with the OEH (Heritage Branch and Aboriginal heritage) and to the satisfaction of the Director-General, and shall include, but not necessarily be limited to: a) detailed recommendations for further archaeological work b) consideration of measures to avoid or minimise disturbance to archaeology sites, where archaeology of historical and Aboriginal heritage archaeological significance are found to be present c) where impacts cannot be avoided by construction of the SSI, recommend actions to salvage and interpret salvaged sites, conduct further research and archival recording of the historic heritage and Aboriginal heritage value of each site, and to enhance and preserve the archaeology of historical non-Aboriginal and Aboriginal heritage significance d) consideration of providing visual evidence of heritage sites within the final landscape design of the SSI to preserve and acknowledge the heritage value of the Thompson Square Conservation Area and the site e) management and mitigation measures to minimise impacts due to preconstruction and construction activities	This report provides the findings of the work stemming from the Detailed Salvage Strategy for historical archaeological heritage. No further works required. Addressed in Detailed Salvage Strategy Addressed in Detailed Salvage Strategy and results in this report. Results and artefacts from the archaeological investigations documented in this assessment are to be incorporated into a separate interpretation plan currently being prepared. Addressed in Detailed Salvage Strategy and results in this report.
C5. Within 12 months of completing the work required under conditions B3 and B4, the Applicant shall, in consultation with the NSW Heritage Council, the OEH (Aboriginal heritage) and to the satisfaction of the Director-General, prepare and submit a further report containing: a) an executive summary of the archaeological programme; b) the findings of the excavations, including detailed artefact analysis for non-Aboriginal and Aboriginal heritage; c) the identification of a final repository for finds of non-Aboriginal heritage significance; e) detailed information on the excavation including the aim, the context for the excavation, procedures, treatment of artefacts (cleaning, conserving, sorting, cataloguing, labelling, scale photographs and/or drawings, location of repository) and analysis of the information retrieved; f) nominated repository for the items, which has agreed to take the items;	This report addresses the historical archaeological components of this condition. Executive summary Sections 5 and 6 and Appendices Historical archaeological finds are currently securely stored by RMS pending negotiations on a final repository Section 4, Section 6 and Appendices In the short term, items will remain with RMS. In the longer term, artefacts should ideally be lodged with Hawkesbury City Council and/or the Windsor Museum.

1.2 Site Location and Identification

The subject area is located at Windsor, within the Hawkesbury City Council Local Government Area (LGA), approximately 57 kilometres north-west of Sydney. The town is situated on the southern bank of the Hawkesbury River, close to the foothills of the Blue Mountains (Figure 1.1).

As outlined in the DSS, the WBRP salvage excavation project area incorporates an area of some 4,024.71m². This report details the results of investigations within the 1,425.17m² of salvage Area 1 [lower Thompson Square] (Figure 1.2).

1.3 Previous Reports and Investigations

This report was prepared taking into consideration the principles and procedures established by

- *Historical Archaeological Excavations: Code of Practice* (Heritage Council of New South Wales 2006); and
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch 2009).

This report was prepared taking into consideration the following previous reports and investigations informing the subject area:

- *Strategic Conservation Management Plan – Thompson Square and Windsor Bridge Replacement Program Project Area, Windsor NSW*
- *Windsor Bridge Replacement Project Test Excavation Report – Historical Archaeology* (AAJV 2017);
- *Windsor Bridge Replacement Project Historical and Maritime Archaeological Research Design* (AAJV 2016);
- *Windsor Bridge Replacement, Windsor: Integrated Archaeological Research Design* (AAJV 2013);
- *Windsor Bridge Replacement Project: Independent Heritage Review* (Casey et al 2013);
- *Evaluation of Historical Images for Additional Archaeological Potential, Windsor Bridge Proposal* (AHMS 2013);
- *Windsor Bridge Replacement Project: Historical Heritage Assessment & Statement of Heritage Impact* (Biosis & CRM 2012).
- *Windsor Bridge Replacement Project: Aboriginal Cultural Heritage-Cultural Heritage Assessment Report* (KNC 2012).

These reports are also listed in the References section of this report.

1.4 Limitations

This report outlines the results of salvage excavations within a specific WBRP archaeological works area (salvage Area 1) of the broader salvage excavation programme. Full results of all archaeological mitigation works across the WBRP project area (areas 2-5) as recommended in the DSS will be presented in further reports when those works have been completed.

This report does not review the Indigenous or maritime cultural heritage values of the subject area.

1.5 Author Identification

This report was prepared by James McGuinness, Senior Archaeologist, with input and review by Anita Yousif, Historical Team Leader and Excavation Director, and David Marcus, Secondary Excavation Director. The artefact analysis was prepared by James McGuinness. The draft report was reviewed by Justin McCarthy, Director AAJV. The final report was reviewed by Dr. MacLaren North, Director AAJV.



Figure 1.1 Map of the WBRP project area.

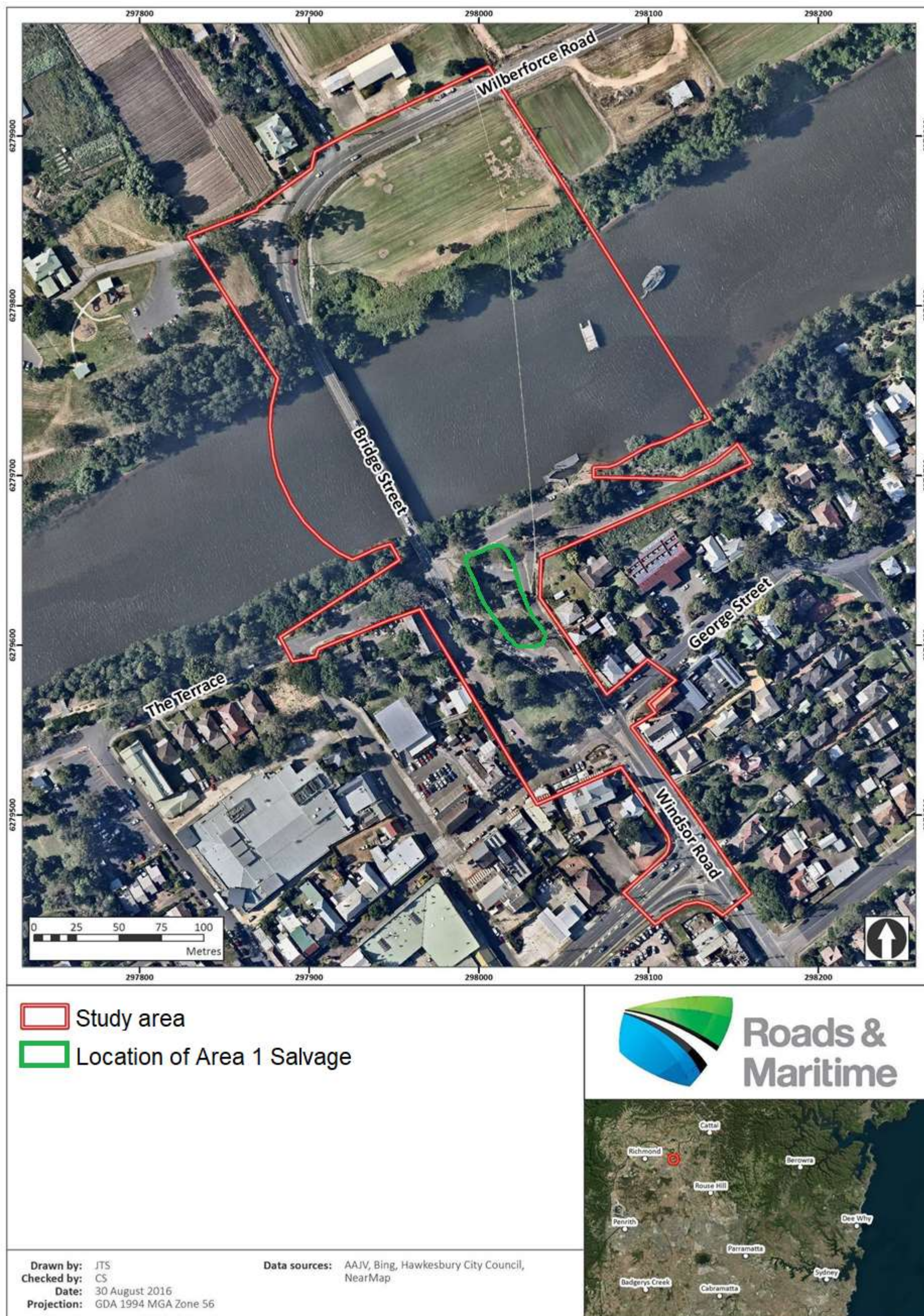


Figure 1.2 Aerial image of the WBRP project area and Area 1 salvage location.

2 HISTORICAL BACKGROUND

2.1 Introduction

This section is adapted from the Thompson Square Strategic Conservation Management Plan (SCMP)¹⁶ which is intended to act as the principal guiding document for the management and future use of Thompson Square. The following background provides an abridged overview of the environmental setting, occupation history and summary of previous archaeological investigations of the WBRP test excavation project area. Where most relevant, elements of the wider Thompson Square Conservation Area (SHR item #00126), the cultural landscape that informs the WBRP test excavation project area, have been included within the historical overview.

2.2 Landform and the Hawkesbury River Corridor

The Hawkesbury River, upon which the subject area is situated, is one of the most significant fluvial systems on the eastern coast of Australia. The area has a complex geomorphological history of fluvial and aeolian processes, resulting in the landscape evident today. Studies to the south at Cranebrook Terrace suggest that the banks and surrounds of the river are situated on Tertiary clays and gravels (>2.6million years old), and have formed over the last 100,000 years.¹⁷ Archaeological investigations at Pitt Town and the site of the Windsor Museum indicate that initial deposition of the extensive alluvial sand deposits within the soil profile at these sites began about 150,000 years ago.¹⁸

Within the study area, the northern portion (i.e. the left bank) is based on Quaternary alluvium, demonstrated elsewhere to be between 4m and 8m thick.¹⁹ These deposits may also extend to the immediate area of the banks on the south side of the river. Recent archaeological work²⁰ suggests that these deposits formed rapidly, and may be less than 15,000 years in age. To the south of the study area, the geological landscape is characterised by a natural ridge of Tertiary clay. Archaeological excavations in 2012²¹ indicated that this ridge is overlain by yellow-brown loamy sand up to 80cm deep. This sand is similar to the surface deposits at Pitt Town and the Windsor Museum and it was probably formed by a combination of low-energy flooding and aeolian re-working. The thickness and distribution of these deposits within the study area are likely to have been affected by numerous and extensive historical development episodes.

¹⁶ Austral Archaeology/Extent Heritage (AAJV) (2017e) Strategic Conservation Management Plan – Thompson Square and Windsor Bridge Replacement Program Project Area, Windsor NSW. *Unpublished report for NSW Roads and Maritime Services*.

¹⁷ Groundtruth Consulting Pty Ltd (2010) Geomorphology and soils in relation to archaeological investigations on the Cranebrook Terrace, Penrith Lakes, NSW. *Unpublished Report to Comber Consultants Pty Ltd*.

¹⁸ Austral Archaeology Pty Ltd (2010) Windsor Museum, NSW: Aboriginal archaeological and cultural salvage excavation. AHIP #2119. *Report to Hawkesbury City Council*; Williams, A.N., Mitchell, Wright, R.V.S., Toms, P. (2012) A Terminal Pleistocene open site on the Hawkesbury River, Pitt Town, NSW. *Australian Archaeology* 74, 85-97.

¹⁹ Groundtruth Consulting Pty Ltd 2010.

²⁰ AHMS Pty Ltd (2014) Aboriginal Cultural Heritage Assessment: Peach Tree Creek Stabilisation Works, Penrith, NSW (Penrith LGA). *Unpublished Report to Penrith City Council*.

²¹ KNC (2012) Windsor Bridge Replacement Project – Aboriginal Cultural Heritage-Cultural Heritage Assessment Report. *Unpublished Report to NSW Roads and Maritime Services*.

Low-lying parts of the study area are regularly inundated by river flooding; the erosive and depositional characteristics of which are the principal factors that shaped local topography over a very long period of time. The recorded flood history extends from 1799 through to the present day (with a 6m rise in river level recorded as recently as June 2016).²² Flooding and the impacts of flooding not only shaped Windsor's environmental history; the deposition of fertile flood-borne sediments and their agricultural potential was a major factor that influenced the choice of the place as an outlier township during the early historical period.

2.3 Historical Overview

2.3.1 INTRODUCTION

The following historical overview has been adapted from Volume 1 of the 2017 SCMP.²³ This historical overview focuses on historical developments of most relevance to the locations and results of the historical test excavation programme. A comprehensive historical overview of the broader WBRP study area is presented in the SCMP.

2.3.2 BEFORE 1788

Aboriginal people owned and occupied the study area beside the Hawkesbury River for millennia prior to European colonisation.²⁴ Aboriginal people fished from their canoes and hunted on both sides of the Hawkesbury River. On the lowlands, they set traps for birds and small animals and hunted larger prey like kangaroos, as well as gathering grubs, berries and, particularly in the vicinity of what we today call Thompson Square, wild yams which they harvested annually. The study area was part of the territory of the Boorooberongal people of the Darug language group.

The Hawkesbury-Nepean River corridor contains some of the earliest evidence of Aboriginal occupation in Australia. The recovery of five flaked pebbles from the base of the Cranebrook Terrace, dated to about 40,000 years Before Present (BP), represents the earliest evidence of past human activity in the locality.²⁵ More compelling evidence of Aboriginal use of the river is provided by excavations undertaken in advance of residential development at Pitt Town. These excavations, of a total area of 250 metres² located across a kilometre section of the ridgeline (PT-12) overlooking the Hawkesbury River, recovered over 10,000 stone artefacts from depths of up to 1.3m below the ground surface. They were dated to between 36,000 and 8,000 years ago.²⁶ Similar findings were made in advance of development at the Windsor Museum, where a 1.8m deep sand body recovered 12,000 stone artefacts dating to between 34,000 and 8,500 years ago.²⁷ Recent excavations on the banks of Peach Tree Creek (near Penrith CBD) recovered a handful of stone artefacts at a depth of 4m below the surface, dating to about 15,000 years ago.²⁸

²² Hawkesbury City Council (2012) Hawkesbury Flood Levels, 1799-1992.

²³ AAJV (2017e).

²⁴ E. Higginbotham (1993) Report on the Archaeological Excavation of the Site of the Extensions to the Hawkesbury Museum, 7 Thompson Square, Windsor, N.S.W. *Unpublished report to Hawkesbury City Council*; W. Thorp (2002) Hawkesbury Museum, Site of Proposed Extensions, Baker Street, Windsor: Archaeological Assessment. *Cultural Resources Management Plan for Hawkesbury City Council*.

²⁵ Nanson, G.C., Young, R.W., Stockton, E.D. (1987) Chronology and palaeo-environment of the Cranebrook Terrace, near Sydney, containing artefacts more than 40,000 years old. *Archaeology in Oceania* 22:72-78; Stockton, E.D., Holland, W. (1974) Cultural sites and their environment in the Blue Mountains. *Archaeology and Physical Anthropology in Oceania* 9(1):36-65.

²⁶ Williams et. al., *Australian Archaeology*.

²⁷ Austral Archaeology Pty Ltd. 2011.

²⁸ AHMS Pty Ltd., 2014.

2.3.3 GREEN HILLS (1794 - 1810)

In 1794, in response to recurrent shortages of food in the colony, acting Governor Francis Grose granted an initial 22 settlers' land along the upper Hawkesbury River, where the soils of the floodplain were superior to those already exploited around Sydney, Parramatta and Toongabbie. By the end of 1794, the new district, named Mulgrave Place, comprised 118 farming grants in a location distinct and distant from the other two main settlements at Sydney and Parramatta.

The majority of soldiers, ex-soldiers and ex-sailors amongst the grantees were slower to settle, and of the 85 farms established by a population of 400 persons, all but four were by ex-convict grantees.²⁹ All of these farms included water frontages to the Hawkesbury River and its tributary creeks, and by December 1796, stretched from today's North Richmond to Cattai downstream (Figure 2.1).

On the northern side of the river, on what would become the site of the Windsor Bridge and the northern portion of the study area, one of the 30-acre farms was taken up by Edward Whitton, a convicted highway robber who had arrived in New South Wales in 1788, and an Irish convict woman, Anne Slater. It was on the eastern side of portion 69 that George William Evans sat to prepare the first of his watercolours of Green Hills across the river in 1807 (Figure 2.2) though both Edward and Anne had died by this time and the property had passed to their daughter Mary Whitton in 1811.

Across the river, a ridge of higher and less fertile land between the farms of ex-convict Samuel Wilcox and government storekeeper William Baker had been left as vacant Crown land. This became the centre of the Mulgrave Place district, commonly known as "Green Hills" from around 1800, and the site for the location of the settlement's government facilities; where stores could be brought in by boat and wheat and maize taken back to Sydney. The civic square occupied a section of the western end of this 46-acre government precinct.³⁰ The water fronting aspect of the civic square and the fact that it sat inside a government precinct ensured it was never absorbed into the growing surrounding urban development like other similar public spaces.

The settlement was established with little in terms of infrastructure to manage the product of successful farming and to facilitate transferral to the Sydney Commissary Stores, from where government provisions were distributed to the settlers to alleviate food shortages. In January 1795, the first buildings required to house crops and government provisions were erected during the first stage of formal government building. These works took place under the supervision of the Commissary John Palmer,³¹ an indication of the growing importance of the new settlement as an agricultural district. This was an unusual beginning for the government presence, for in the two previous areas settled on the mainland of Australia, a military presence had accompanied the settlers and convicts from the beginning and facilities had been built for them immediately along with provision stores and granaries on various government sites.³²

²⁹ J. Barkley-Jack (2009) *Hawkesbury Settlement Revealed: a new Look at Australia's Third Mainland Settlement*, Rosenberg, Dural, p 55-70.

³⁰ Barkley-Jack 2009, 177.

³¹ Collins, *An Account of the English Colony*, vol.1, p338-340.

³² *Historical Records of Australia*, [HRA], series 1, vol. 1, p56, 97, 143.

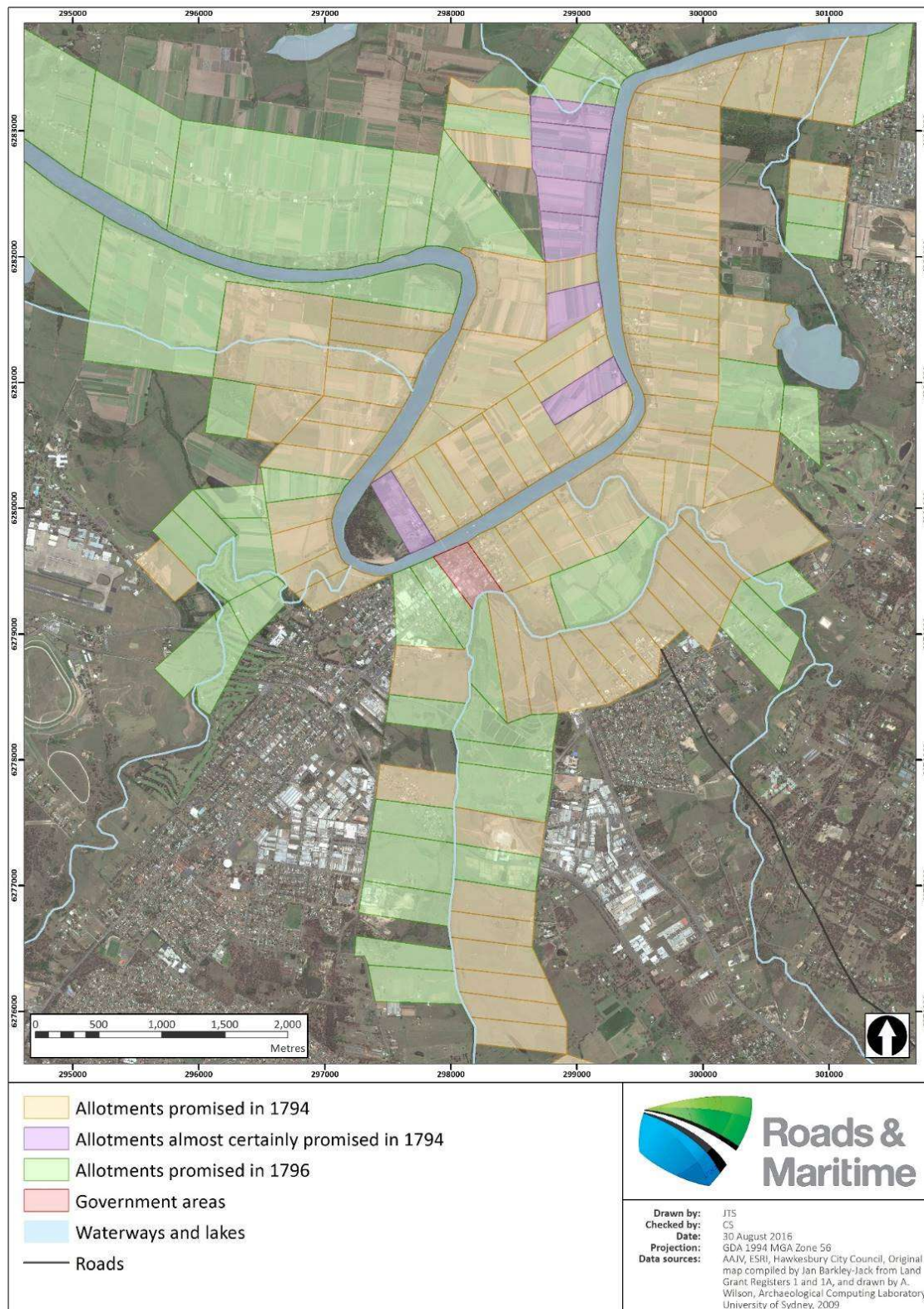


Figure 2.1 Grants promised at Mulgrave Place by December 1796 (Source: Map compiled by Tom Sapienza – content sourced from Jan Barkley-Jack from Land Grant Registers 1 and 1A, and drawn by A. Wilson, Archaeological Computing Laboratory, University of Sydney, 2009).

At Windsor, first a wharf was keyed into the sloping bank and then a storehouse was built nearby, enabling provisions for the settlers to be landed from government vessels and put under the protection of a small military guard.³³ It is almost certain that the first wharf and provision store were close to the water on the north-western side of Thompson Square. In 1799, a severe flood washed away both wharf and storehouse, and Governor Hunter acknowledged that the floods had '*proved a most distressing circumstance to the settlers... where we have in some seasons rais'd from fifteen to twenty thousand bushels of wheat*'.³⁴ Two new storehouses were built close to the same position in 1799 (Figure 2.2).

All the government buildings constructed before 1796 in the vicinity of Thompson Square were shoddily put together and quickly needed replacement. The soldiers had camped or were billeted until mid-1795, when a detachment of almost 100 men was stationed in the Hawkesbury area and the first dedicated soldiers' barracks was built. In 1796, Governor Hunter described the soldiers' barracks as a '*miserable building*' and, by 1800, had replaced the original barracks with a new building on the ridgeline to the south-west of today's Thompson Square,³⁵ probably close to the position of the earlier barracks (Figure 2.2). By 1807, the space was denuded of tress and various other buildings for the military and those in government employ had accumulated on the slope below the barracks, remaining there until 1812. The Evans paintings span this period and show that the area took on the look of a small village, with an informal public space at its centre.



Figure 2.2 Detail of G.W. Evans' 1809 view of the settlement, showing the informal cluster of government buildings within the western side of the Crown reserve during the early years of the 19th century. The provision stores, rebuilt in 1799, are likely to be the two small buildings with ventilated gables (red arrow). The second Military Barracks, built between 1796 and 1800, are likely to be the cluster of buildings on the ridge with a fenced paddock running down to the provision stores. (Source: G.W. Evans, 'The Settlement on the Green Hills', watercolour, 1809, Mitchell Library, State Library of NSW, PXD 388, vol.3 fo.7).

³³ Collins, *An Account of the English Colony*, vol.1, 340.

³⁴ Collins, *An Account of the English Colony*, vol.1, 340; vol.2, p143-144; *HRNSW*, vol.3, p80, 668; Hawkesbury City Council, *Hawkesbury Flood Levels*, Windsor, 2012.

³⁵ Barkley-Jack 2009, p.66, 292, 293-294; *HRNSW*, vol.3, 80; vol.4, 152.

A granary constructed in 1795 proved totally inadequate and in August 1796, Governor Hunter was forced to rebuild 'a large granary for the reception of wheat and maize' constructed in log and thatch.³⁶ Almost simultaneously, a well-built, commodious weatherboard dwelling was constructed for the commandant of the settlement, Edward Abbott, directly overlooking the river and the civic square from the north-eastern part of the government precinct. This cottage became the residence of governors when they were visiting the district.³⁷

By 1798, a second log granary had been built adjoining what would become Andrew Thompson's lease and both granaries were enclosed for added security within a paling fence with a guardhouse located close by. By the time G.W. Evans first painted Thompson Square in 1807, the earlier of the two granaries had been removed, but the other, likely to be the 1798 granary, is shown clearly on the north-eastern side of Thompson Square. Andrew Thompson's small cottage, where he lived until he built a new residence early in the 19th century, is shown in all the early paintings and etchings of Thompson Square to adjoin the paling fence between his lease and the 1798 granary (Figure 2.3).

Thompson, an ex-convict, was given the exceptional right to hold a lease within the government precinct in 1799 on land he had already occupied as the local constable since 1796. Once established, Thompson's lease formally delineated the north-eastern boundary of the civic square, effectively establishing Thompson Square as the only 18th century civic square remaining in Australia. He continued to hold this acre of land that extended from the ridgeline down to the riverbank for eleven years, a period of time in which he became the Hawkesbury's leading farmer and businessman and a key figure in the district's growth. Ultimately, through his deep involvement with land acquisition and trade, Thompson quickly became one of the largest grain growers and wealthiest settlers in the colony.³⁸

The civic square had long been frequented by the Hawkesbury's earliest settlers in the course of acquiring provisions, storing the grain they wished to sell to the government or seeking the help of the constables, the military or the magistrate. Many of the colony's elite visited Windsor to attend the annual musters, held initially in the vicinity of the Government House and Thompson Square, and used the square as a place to catch up on their dealings with each other or to hear the doings of the district.³⁹ Regular visitors included Judge Advocate David Collins, the Commissary John Palmer, John and Elizabeth Macarthur, the Reverend Samuel Marsden and Deputy Surveyor Charles Grimes. Some of the elite of the colony were later to recount the hospitality of their stay there as guests of Andrew Thompson.⁴⁰ The square was to remain the commercial and administrative focus of Windsor for another half century.

In 1803, under Governor King, the earlier stores and log and thatch granaries were replaced by a three-storey brick building on top of the ridge to the south-east of the square. At around this time Thompson, at the height of his prosperity, built his own three-storey store slightly to the west of this Government Granary and facing the square. To the east of the new granary there was added in 1804-1805 a two-storey Schoolhouse/Chapel and Schoolmaster's Residence, which also served as a courthouse. The Government Granary became associated with the end of the rebellion of Irish convicts that culminated in the Battle of Vinegar Hill in 1804 when the Irish leader, Phillip Cunningham, was '*to be publicly executed on the Stair Case of the Public Store [at Green Hills], which he had boasted in his march he was going to plunder*'.⁴¹ The vicinity of Thompson Square was the scene of another event linked to wider turmoil when, in January 1808, soldiers burned an effigy of Governor Bligh in the Military Barrack paddock on hearing their peers in Sydney had deposed the Governor.

³⁶ HRNSW, vol. 13, 80

³⁷ Macquarie, L. (1979) Journals of his Tours in New South Wales and Van Diemen's Land, 1810-1822, *Library of Australian History and Library Council of New South Wales*, Sydney.

³⁸ J.V. Byrnes (1967) Thompson, Andrew (1773-1810), *Australian Dictionary of Biography*

³⁹ HRNSW, vol. 3, 217.

⁴⁰ Elizabeth Macarthur in 1795, HRNSW, vol.2, 510.

⁴¹ *Sydney Gazette*, 11 March 1804, 2; Silver L.R. (2002) *Australia's Irish Rebellion: the Battle of Vinegar Hill, 1804*, rev. ed., Watermark Press, Sydney, 150.



Figure 2.3 Detail of G.W. Evans' 1809 painting showing the eastern side of the government precinct. From left to right, the 1798 Government Cottage, 1803 Schoolhouse & Church, 1803 Government Granary and Thompson's buildings and garden are seen bordering the open ground of what would become Thompson Square to the right. Thompson's small cottage (circled) that he occupied as constable is shown next to the obsolete 1798 granary and attached guardhouse. (Source. G.W. Evans, watercolour, 1809, 'Settlement on the Green Hills', State Library of NSW, Mitchell Library, PXD 388, vol. 3, fol. 7).

2.3.4 THE MACQUARIE ERA AND ITS AFTERMATH IN THOMPSON SQUARE (1810 – C.1850)

When Macquarie arrived in 1810 to restore normal government, he quickly found Thompson an invaluable adviser on Hawkesbury affairs. Governor Macquarie saw him as one of the founding fathers of Green Hills⁴² and, in keeping with his philosophy of benevolence to any ex-convict whose good behaviour had illustrated genuine reform, appointed Thompson as the colony's first ex-convict magistrate in 1810, shortly before Thompson's death.

In December 1810, Governor Macquarie held a dinner in the Government Cottage where he announced the creation of five new towns on high land along the Hawkesbury-Nepean River, namely the towns of Castlereagh, Pitt Town, Richmond, Wilberforce and Windsor. Early in 1811, on 12 January, Macquarie recorded that he:

...rode out...to survey...the ground marked out for the town and township of Windsor, which having finally fixed on...I walked over the whole of the present village on the Green Hills, forming the beginning or basis for the new town...⁴³

Windsor was unique among Macquarie's new towns as it required the incorporation of an existing village. He quickly gave the Deputy Surveyor-General, James Meehan, instructions to provide a detailed survey of the new town. New allotments were laid out, and Meehan's plans were to include several new streets; '*...the old ones to be enlarged and improved in various respects...*',⁴⁴ with the principal thoroughfare, George Street, running in a westerly direction from a gateway at the Government Cottage fence to the east (Figure 2.5).

⁴² Macquarie L. (1979) 4-6 December 1810, 12 January 1811, 43.

⁴³ *Ibid.* p. 31.

⁴⁴ *Ibid.*

The Development of Thompson Square: Government Works and Wharfage

Macquarie, in his journal entry in January 1811, refers to the pre-existing 'square' in the village of Green Hills,⁴⁵ recording that he named it '*...Thompson Square in honour of the memory of the good and worthy late Andrew Thompson*'.⁴⁶ Macquarie's administration ushered in the designation of such formal civic spaces in New South Wales town planning, which Macquarie termed 'squares' after those he had known in Edinburgh.

The informal layout of the village had been most apparent within the newly-named Thompson Square, with huts and fencing sprawling across the sloping ground (Figure 2.2). In late 1811, Macquarie set about making improvements to the now vacated public space, removing the last of these old structures between Thompson's lease and the new allotments to the west. The square had little in the way of organised routes to the waterfront, being limited in the Evans paintings to a broad undulating slope of bare ground with a winding track beside the Thompson lease and 1798 granary (Figure 2.2 and Figure 2.3). By the time Philip Slaeger's etching was made in 1811 or 1812, a secondary cart track appears to have been in place, descending from the western side of the square to the waterfront in the vicinity of today's bridge (Figure 2.4).

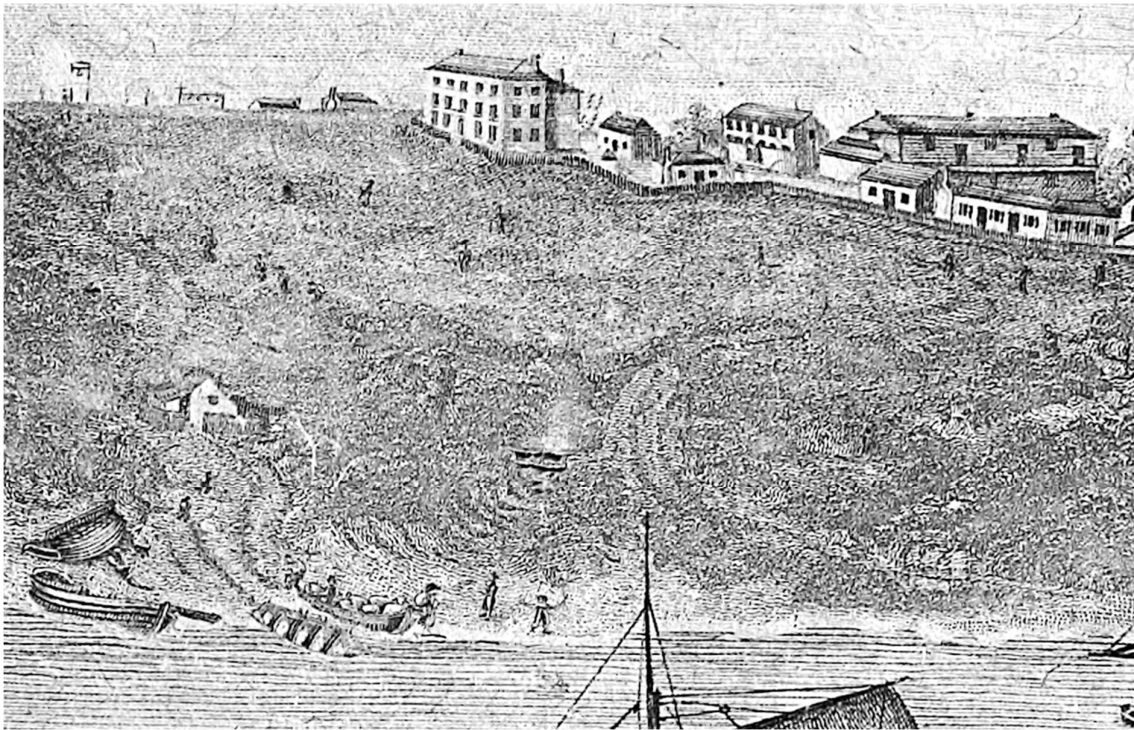


Figure 2.4 Detail of P. Slaeger's 'A View of Part of the Town of Windsor', showing the now bare ground of the newly-named Thompson Square, with Thompson's cottage seen at left above the beaching facilities for small boats. In addition to the track beside Thompson's former lease, a cart track is seen at right, winding down from the area of the military barracks, soon to be relocated. (Source: Published by West, Sydney, 1813).

⁴⁵ *Ibid.*

⁴⁶ *Ibid.*

No wharfage had been in place since the severe floods of the early years of settlement⁴⁷ and the only landing facility was the river verge, an arrangement suitable only for small boats (Figure 2.4). This deficiency was addressed in 1814 when Macquarie contracted the ever-ready John Howe and James McGrath to make improvements to Thompson Square,⁴⁸ including the construction of new wharfage. In 1814, at the outset of the protracted wharf construction, Howe also established a regular punt service across the Hawkesbury, the punt being located a short distance upstream from the wharf, near the location of the current Windsor Bridge. Part of the 1814 contract involved the cutting away of the riverbank in the vicinity of the new wharf, so that there was a turning place for carts and this adjustment to the bank would have assisted access to the new punt.

Both Mulgrave Place grantees, the educated free settler Howe and convicted highwayman McGrath, made an unlikely business pairing on paper, yet the partnership was a productive one and the pair held a virtual monopoly over government works contracts throughout the Windsor region during the Macquarie era. Andrew Thompson had demonstrated the astonishing wealth that could be accumulated through service to the government and the acquisition of land. Howe and McGrath now stepped into roles Thompson had filled for Macquarie, with Howe assuming many of Thompson's former appointments⁴⁹ and both men applying their ingenuity to necessary government works. In this way, they acquired large areas of land, including McGrath's purchase of 30 acres of Thompson's 'West-hill', or Red Hill farm, during the auction of Thompson's estate, for which Howe acted as executor.⁵⁰

The new wharf was to be 50 feet (15.25m) long, projecting 18 feet (5.5m) into the river and supported by piles '16 to 18 inches [0.4 to 0.45m] thick'.⁵¹ Part payment was made in November 1814 but a further contract was issued in April 1814 which commissioned a larger wharf, three feet (0.9m) higher than the one mostly completed and apparently built over it. This new wharf was largely destroyed by a high flood on the 2nd of June 1816. Early in July, a report to the governor concluded pessimistically that '*all the planking is carried away and there is no part of the wharf that can be built on again*'.⁵² In November 1816, Francis Greenway, the acting Colonial Architect, prepared plans for repairing and completing the wharf in a solid and durable manner. Howe and McGrath were given eight months to complete this work but there was another great flood in February 1817, followed by another in February 1819. The expensive wharf works, costing in all over £1,000, were not finalised until early in 1820.⁵³

As part of the initial works in 1814, the steepness of the slope down to the river shown in the Evans and Slaeger views was to be diminished by '*piling the Front of Thompson's Square for filling up the same and reducing it to a gradual slope from the Rise or Ridge on which His Majesty's Store stands*'.⁵⁴

Further alteration of the natural landscape was required in 1814 with a request that:

*the Bank to the westward of the New Wharf and adjoining to that part of the River [upstream] where the Punt and Ferry Boats land is to be cut away sufficiently wide to admit of Carts turning at the Landing Place.*⁵⁵

⁴⁷ Collins, *An Account of the English Colony*, vol.1, 348; J. Barkley and M. Nichols, *Hawkesbury 1794-1994: the First 200 Years of the Second Colonisation*, Hawkesbury City Council, Windsor, 1994, Appendix 17, 178.

⁴⁸ Howe Papers, State Library of NSW, Mitchell Library, ML MSS 106, no.s 37, 38.

⁴⁹ *Sydney Gazette and New South Wales Advertiser*, 23 May 1812, 2.

⁵⁰ *Sydney Gazette and New South Wales Advertiser*, 15 Dec 1810, 2.

⁵¹ Howe Papers, no. 37.

⁵² Report by Cox, Mileham and Fitzgerald, 4 July 1816, SRNSW, Reel 4045, 4/1735, 83; Bowd, *Macquarie Country*, 42.

⁵³ Col. Sec. Correspondence, SRNSW, Reel 6050, 4/1746, p209-211; State Library of NSW, Mitchell Library, A 773, 74; Barkley and Nichols, *Hawkesbury, 1794-1994*, 178.

⁵⁴ Howe Papers, no.37.

⁵⁵ Howe Papers, no.38.

The wharf contract of 1814 specified that Howe and McGrath were also to build either one 'sewer' in the middle of Thompson Square '*with Channels leading thereto*', or two sewers, '*one on each side of the Square*'.⁵⁶ The contractors are believed to have chosen to build a single central drain for which a large number of bricks, between 120,000 and 150,000, were made to complete the structure.

These changes within Thompson Square during the years 1810 to 1820 were the most significant in shaping the appearance of the open space and waterfront until the bridge construction period from the 1870's. The built environment, however, which developed on three sides of the square, underwent considerable change from Macquarie's administration onwards.

East of Thompson Square: The Government Precinct

East of the civic space, the lease held by Thompson had reverted to the Crown after his death but was still shown on Meehan's map of 1812 as Thompson's 'premises'. Thompson had planted fruit trees on the lower part of his leasehold land, sketched by Evans, and this established orchard was absorbed into the Government Domain garden.

The government buildings shown to the south and identified by Meehan in 1812 (Figure 2.5) are the Schoolhouse/Church of 1803-1804 (1), the Granary and Store of 1803 (2) and the Government House of 1796 (3). Thompson's buildings are not shown. At the highest point of the colonial square there was a significant landmark, a bell mounted on a high post that initially served to notify the times of convict labour and summon the settlers in times of peril,⁵⁷ but which later became a focal point and familiar meeting-place.⁵⁸ The bell-post is shown in all the early watercolours and etchings of the Green Hills, often in association with a pillory or stocks for public punishment.⁵⁹

Early roads in this area included the original road to South Creek, seen on Meehan's map of 1812 (Figure 2.5). This road was essentially a continuation of George Street, running eastward of the 1803 Granary and Store and down to Thompson's bridge over South Creek. A drive extended northward from this road to the Government Cottage, commencing just to the east of the 1803 Schoolhouse/Church. Macquarie changed this configuration in 1814, again contracting Howe and McGrath to form a new route for which payment was made to '*Mr. John Howe, for a Street and Road constructed by him and James McGrath, between the Town of Windsor, and the New Bridge over the South Creek*'.⁶⁰ The resulting road, Bridge Street, commenced from the south-eastern corner of Thompson Square, linking with George Street on an alignment that conformed to Meehan's town plan and forming the eastern boundary of Macquarie's formalised Government Domain, enclosed within a boundary wall built in brick, with sections of timber paling. The new bridge became known as Howe's Bridge and Bridge Street became the main road out of Windsor to Parramatta.

⁵⁶ Howe Papers, no.s 37, 38.

⁵⁷ Ridley Smith & partners Architects (1986) Windsor Streetscape Study: Volume 1 and 2. *Unpublished Report for Hawkesbury Shire Council*.

⁵⁸ D.G. Bowd (1986) Hawkesbury Journey, *Library of Australian History*, North Sydney, 83.

⁵⁹ J. Steele (1077) Early Days of Windsor, Tyrrells, Sydney, 139.

⁶⁰ *Sydney Gazette and New South Wales Advertiser*, 30 Apr 1814:2

By 1827, George Street no longer extended beyond Bridge Street at the corner of Thompson Square, terminating instead at this Domain boundary where a new gateway separated a newer, more direct drive connecting the Government Cottage and the town. The sandstock brick wall bonded with shell lime mortar, which partially survives below the house at 4 Bridge Street (built in 1955), is likely to be part of this Domain boundary, here denoting the edge of the government garden, originally Thompson's garden. This was constructed during the Macquarie administration between 1813 and early 1816, as evinced by a remarkable panorama, drawn in June 1816 during the 14-metre flood that destroyed Howe and McGrath's second wharf, that depicts and identifies it as '*Wall, Govt. House Garden*'.⁶¹ Further lengths of wall were gradually constructed along Bridge Street that separated key government buildings from the public thoroughfare.

In 1817 to 1818, a new Military Barracks (Figure 2.6 'a') was built along the southern extent of the Domain boundary wall just above the corner of Bridge Street and Court Street, replacing the old site which had been privatised in 1811. The new Military Barracks was enlarged in the 1830s and a separate guardhouse, Ordnance Store and Stables first appear on a plan in 1835.

Abbott's plan of 1831 shows this clearly and accentuates the boundary by colouring government buildings red and private buildings blue. This plan shows the government buildings above the garden to include Thompson's former store, now a Prisoner's Barracks ('f'); the Police Barracks ('g') and the Government Stables ('e'), referred to in this report as the Government Stables to distinguish it from the Police Stables on the Military Barracks site to the south on Bridge Street. Across George Street, the old Government Granary ('c') now served as the Commissariat Store. The old Schoolhouse/Church of 1804-1805 ('b') was also still standing just east of the Commissariat Stores and a newer, small Watch-House ('d') had been built on Bridge Street close to the Commissariat Store.

The Police Barracks and Government Stables, as shown in Abbott's plan, do not appear on two plans of 1827 suggesting they were constructed after this date. However, a small, unidentified building is shown in the general area of the Police Barracks in 1827 (Figure 2.8), which is possibly also the building depicted in the location of the Police Barracks, directly behind the Domain wall, in a sketch of Thompson's Store made around 1820. This raises the possibility that an earlier building erected by Thompson, possibly that shown to the north of Thompson's Store in Evans' paintings (Figure 2.2 and Figure 2.3), may have been converted into the Police Barracks. The auction notice of Thompson's estate in 1810 lists his Windsor property, as distinct from his other farms including that on South Creek, as including '*...a good Dwelling House, Stores, Granaries, Cellars, Stabling, and other convenient and spacious Warehouses*'.⁶² It is therefore probable that buildings additional to Thompson's Store survived on the site of the barracks and stables into the Macquarie era, and likely that elements of them were incorporated into the new structures.

By 1835 (Figure 2.7), the Police Barracks were apparently demolished, as the building was replaced by an extension of the garden. Thompson's former store, condemned by the Government Architect in 1820,⁶³ but apparently serving as the Prisoner's Barracks after 1823 (the year the former barracks in Macquarie Street became the hospital), had finally been replaced by a smaller structure associated with the stables.

⁶¹ SLNSW, graphic materials, Call no. PX*D 264

⁶² HRA, Vol. 10, p 690-691

⁶³ Mitchell Library, MSS.106, article 37, 8 August 1814.

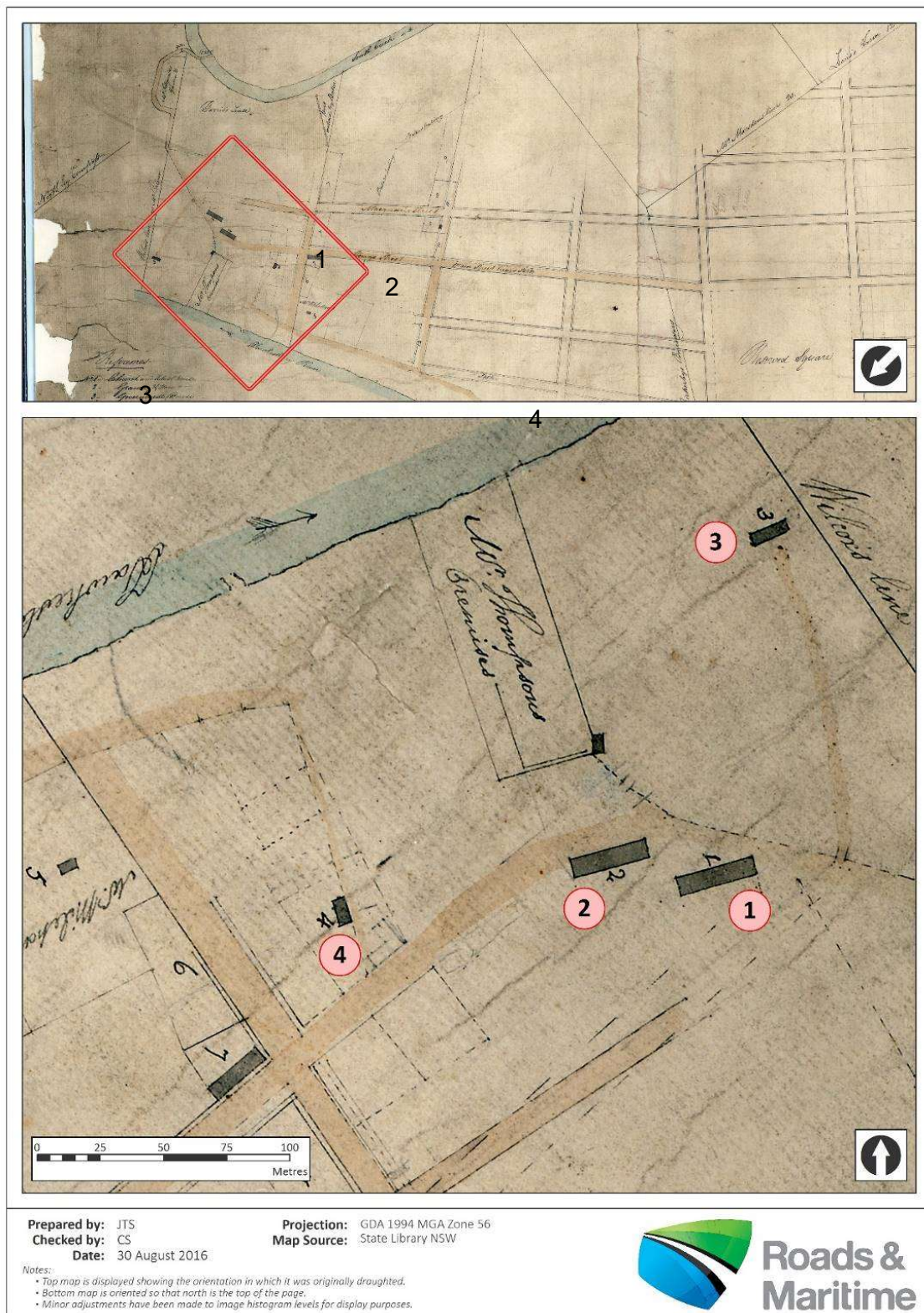


Figure 2.5 Government buildings surrounding Thompson Square in 1811-1812 . Private buildings, including those of the late Andrew Thompson are not shown. (Source: J. Meehan, plan of Windsor, 1812, SRNSW, Map SZ 529).

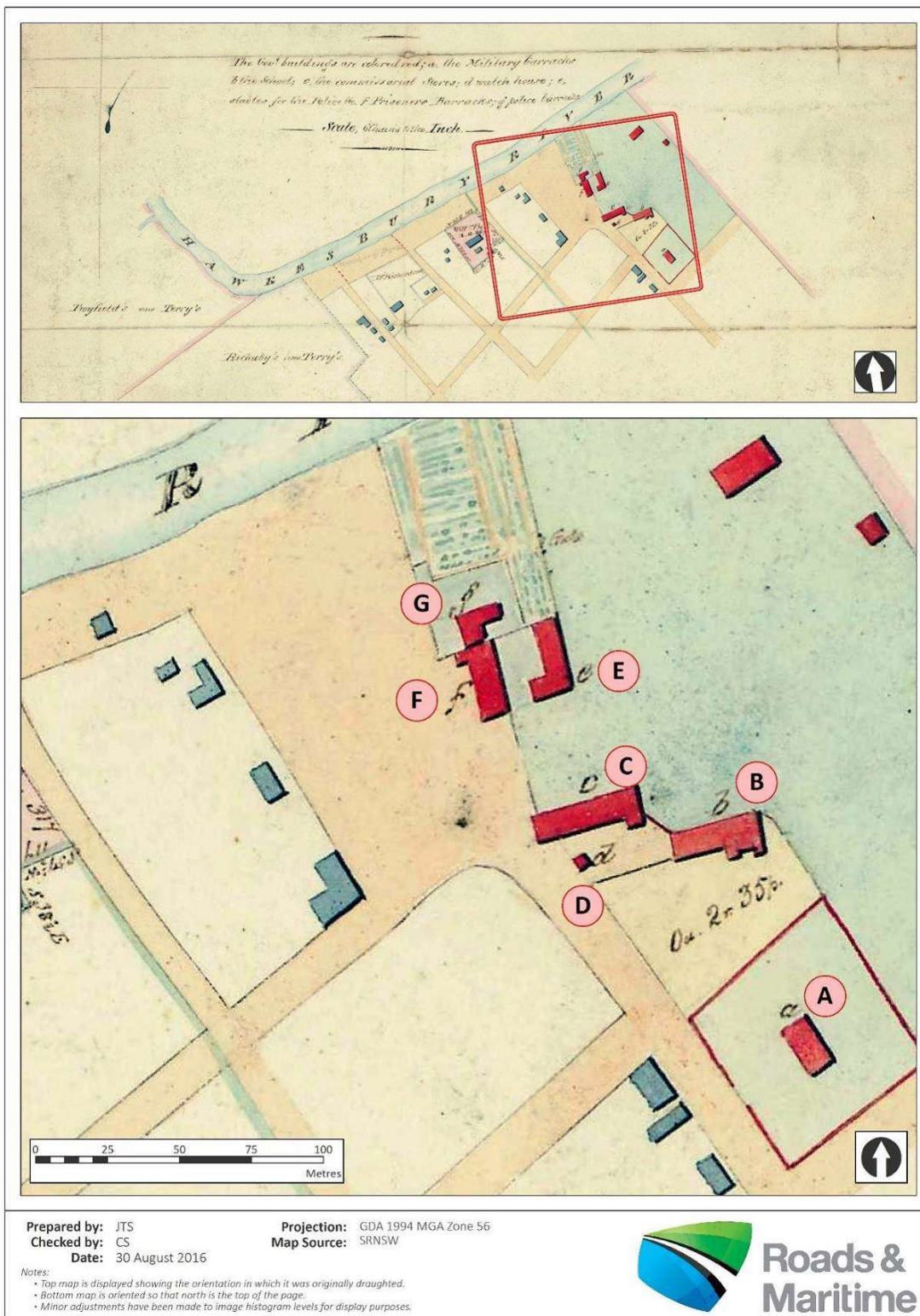


Figure 2.6 The development of the Government Domain and Thompson Square at Windsor by 1831 (Source: Detail of plan of school land by surveyor John Abbott, 1831, SRNSW, Map 1816).

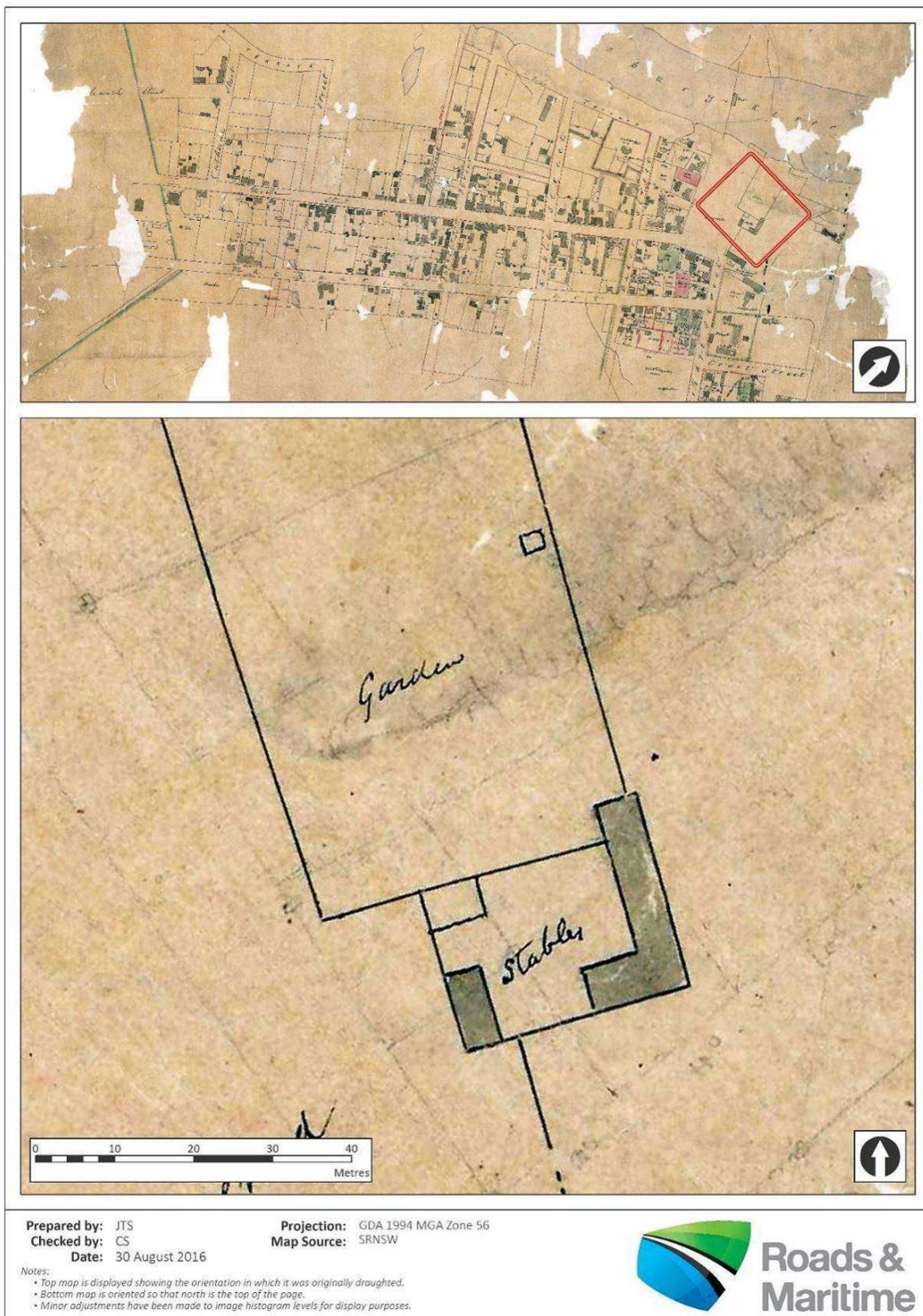


Figure 2.7 Detail of an 1835 plan showing the changed configuration of buildings surrounding the police stables on Thompson's former lease, close to the later, north-eastern corner of Bridge Street and George Street. The remaining section of the Prisoners' Barracks (Thompson's Store) has been incorporated into the stable enclosure. (Source: G.B. White, plan of Windsor, 1835, SRNSW, Map 5968).

The government presence declined into the Victorian period; the former government garden was abandoned in 1852 to make way for a Presbyterian manse and an attractive 1860s cottage, 6 Bridge Street, was built over part of the former stables and Police Barracks. All remaining buildings, including the stables, were demolished when the grand two-storey house called Lilburn Hall (10 Bridge Street), an important element in Thompson Square, was built in 1856 by Dr Dowe.

The military withdrew from Windsor in the 1840s and the area of Macquarie's Domain was gradually privatised. The remaining Military Barracks became associated with the police precinct, officially after 1860, and the Government Cottage was at times occupied by the Police Magistrate. The cottage survived, in increasing disrepair, until 1921 when it was finally pulled down despite public protest. The barracks buildings, excepting the surviving stables, were also demolished in 1929 to make way for the new Police Station.

West of Thompson Square: The Aristocratic Quarter

Following the clearing out of huts from the square from 1811, Macquarie set about changing the south-west side of the civic space from military and store use to four promised town grants that lie just outside the present study area. The initial survey of these intended grants is shown by Meehan in dotted lines extending north from George Street. Meehan also shows the earlier Military Barracks (no.4, Figure 2.5) on the south-west hinterland of Thompson Square. However, the military were soon to move down to Bridge Street.

All four offers were taken up but the largest allotment of land, on the corner with George Street, was officially granted to Richard Fitzgerald on the premise that he build '*...a handsome commodious inn of brick or stone and to be at least two stories high...*'.⁶⁴ This was the largest of the four grants, around one acre. Fitzgerald's new inn was begun in 1812 and appears to have been enthusiastically rendered, prior to its completion, as a three-storey building by Philip Slaeger in his view of Windsor of the following year (Figure 2.4). The Inn was opened for business as the Macquarie Arms (still extant) by the eponymous governor in 1814.⁶⁵ A wall was built around the Inn in 1817 and it later functioned as a Military Mess House.

Further residential buildings were soon erected on the three remaining lots and are shown on surveyors' plans by 1827, and this new residential area constituted '*the aristocratic quarter of old Windsor town*' in the later words of the newspaper editor, G.C. Johnson,⁶⁶ and the streetscape has retained remarkable integrity for over 150 years. Of the present buildings, John Howe's House, part of the Windsor Regional Museum, seems to have supplemented and then replaced an earlier large house on the allotment closer to Baker Street in the 1830s. The cottage on Loader's grant next door was probably built in the 1850s.⁶⁷ On the grant closest to the river, James Doyle built an inn, the Lord Nelson. Following Doyle's death this was demolished by his widowed sister, who built the current spacious duplex with two storeys, attic and large cellars in 1844. Since medical men have occupied one or both parts of the building since the 1870s until very recently, it has become known as the Doctors' House.⁶⁸

⁶⁴ Macquarie, *Journals, 1810-1822*, p.42.

⁶⁵ Macquarie, *Journals*, 42; Land and Property Information, Grants Register 2 fo.131; Slaeger, 'A View of Part of the Town of Windsor', etching published by Absalom West, Sydney, 1813.

⁶⁶ G.C.J., 'A Town with a History: Windsor'; *Windsor and Richmond Gazette*, 21 April 1900, 1. For the identification of G.C.J., see Steele, *Early Days of Windsor*, 213. Thompson Square had already been called 'that aristocratic quarter' in 1881 (*Australian*, 28 May 1881, 2)

⁶⁷ Bowd, D.G. (1986) *Hawkesbury Journey: Up the Windsor Road from Baulkham Hills. Library of Australian History*, Sydney, 88.

⁶⁸ Jack, R.I. (1990) *Exploring the Hawkesbury, Kangaroo Press, Kenthurst, 2nd ed, p110, 112.*

The plans of the 1820s and 1830s reveal that there was still no formal road system within Thompson Square. The first map which clearly shows a cart-road leading down to the river through Thompson Square is a private sub-division plan of 1842,⁶⁹ which shows a road turning off George Street in front of the Macquarie Arms (then the Military Mess House) and curving north across Thompson Square before descending to the west onto the riverbank where the punt docked. This road is, however, likely to have existed in some form since the wharf, punt and associated works were established between 1814 and 1820, as indicated by the track rendered by Slaeger in 1812 to 1813 (Figure 2.4). A reference in 1855 to “*moneys expended for making a road to the Windsor Wharf – contractor for cutting, carting and macadamizing- £25*”⁷⁰ is likely to refer not to Old Bridge Street, which was not in place until after 1879, but to improvements to part of the existing curved road, and possibly the first formal cutting of an adjoining road on the western side of the square down toward the Punt House.

A small cottage for the punt master was built on Crown land on the north-western side of Thompson Square, between the river and the newly-built Lord Nelson Inn run by James Doyle. This structure was in place by the time of Thompson’s 1827 map (Figure 2.8) and was still referred to as the ‘Punt House’ by 1894 (Figure 2.13). By 1835, the Punt House was enclosed by a small fence and yard on the high ground above the riverbank, known by that time as ‘The Terrace’ (Figure 2.9).



Figure 2.8 The Punt House in 1827 (circled in red). Thompson Square is indicated by the number 10 (Source: Thompson 1827, NSW SRNSW. Map SZ526).

⁶⁹ J. Armstrong, ‘CXXIII Building & Cultivation Allotments comprising the Peninsular Farm adjoining the town of Windsor, to be sold at Auction on 5th Feb 1842 by Mr Laban White at Windsor’, Baker’s Lithography, King Street, Sydney 1842, privately owned).

⁷⁰ *Sydney Morning Herald* 29 December 1855; 3.

North of the Hawkesbury River

Although the Punt House was on the Windsor side of the river, there was a recurrent relationship between the Punt Master and the Inn known as the Squatters Arms on the opposing bank and, for a while, the lessee of the Squatters Arms and its 15-acre farm was also the Punt Master.⁷¹ This Inn was built on the western half of Mary Whitton's farm, which Mary's husband Richard Barnes had divided into two equal, 15 acre parts in 1816.⁷² The eastern half of Whitton's Farm had been acquired by an absentee owner, John Eggleton, or Eccleston, of Adelong, whose family retained it into the 20th century. The western half of the property was advertised for sale in 1822 as '*Whitten's Farm, at Wilberforce, opposite the Punt, Windsor, comprising 15 acres, all cleared, and in cultivation, with dwelling-house, out-houses, &c...*'.⁷³ This land was purchased by Robert Smith, who developed the cottage as a public house. In 1839, Smith was obliged to sell his half of Whitton's Farm to Thomas Chapman, who in 1841 sold the 15 acres to Michael McQuade. The Inn built by Smith was apparently allowed to fall down and, in 1846, McQuade leased the 15-acre farm to John Cunningham and his son for five years, with the stipulation they should build and license another inn on the property.

The Cunninghams opened their Squatters Arms within a few months of taking up the lease.⁷⁴ From the 1860s until 1913, both allotments were leased to one conscientious farmer, Johnny Ryan. Ryan's brother Tom held the licence to the Squatters Arms. The pub was a long rectangular building with six or seven rooms, until the flood of 1867 closed its doors permanently.⁷⁵ The Squatter's Arms lay on the section bought by McQuade, right on the western corner of the junction of Freemans Reach Road and Wilberforce Road. After 1867, the building was used as a stable for Ryan's stock. A Crown plan of 1878 shows the old 'house' in relation to the adjacent road reserves (Figure 2.10). By 1915, the old Inn had become ruinous and was demolished. After the McQuade family sold the land to Robert Judd, yet another Windsor publican, it was replaced by the present Federation cottage called 'Bridgeview', which lies a short distance to the north-west of the pub site.

⁷¹ Fitzgerald J C.L. (1923) *Those Were the Days: More Hawkesbury History*, NSW Bookstall Co, Sydney, 85.

⁷² Biographical Database of Australia online; B. Hall (2009) *The Irish Vanguard: the convicts of the Queen, Ireland to Botany Bay, 1791*, Sydney, p178-181; SRNSW, 'Old Register One to Nine', register 5 149 (available on CD).

⁷³ *Sydney Gazette and New South Wales Advertiser*, 17 May 1822, 2.

⁷⁴ Primary Application packet, SRNSW, 17513/2/181/15136, item 12; Steele, *Early Days of Windsor*, 151.

⁷⁵ Primary Application packet, SRNSW, 17513/2/181/15136, item 8; 17513/5/101/18115, item 8.

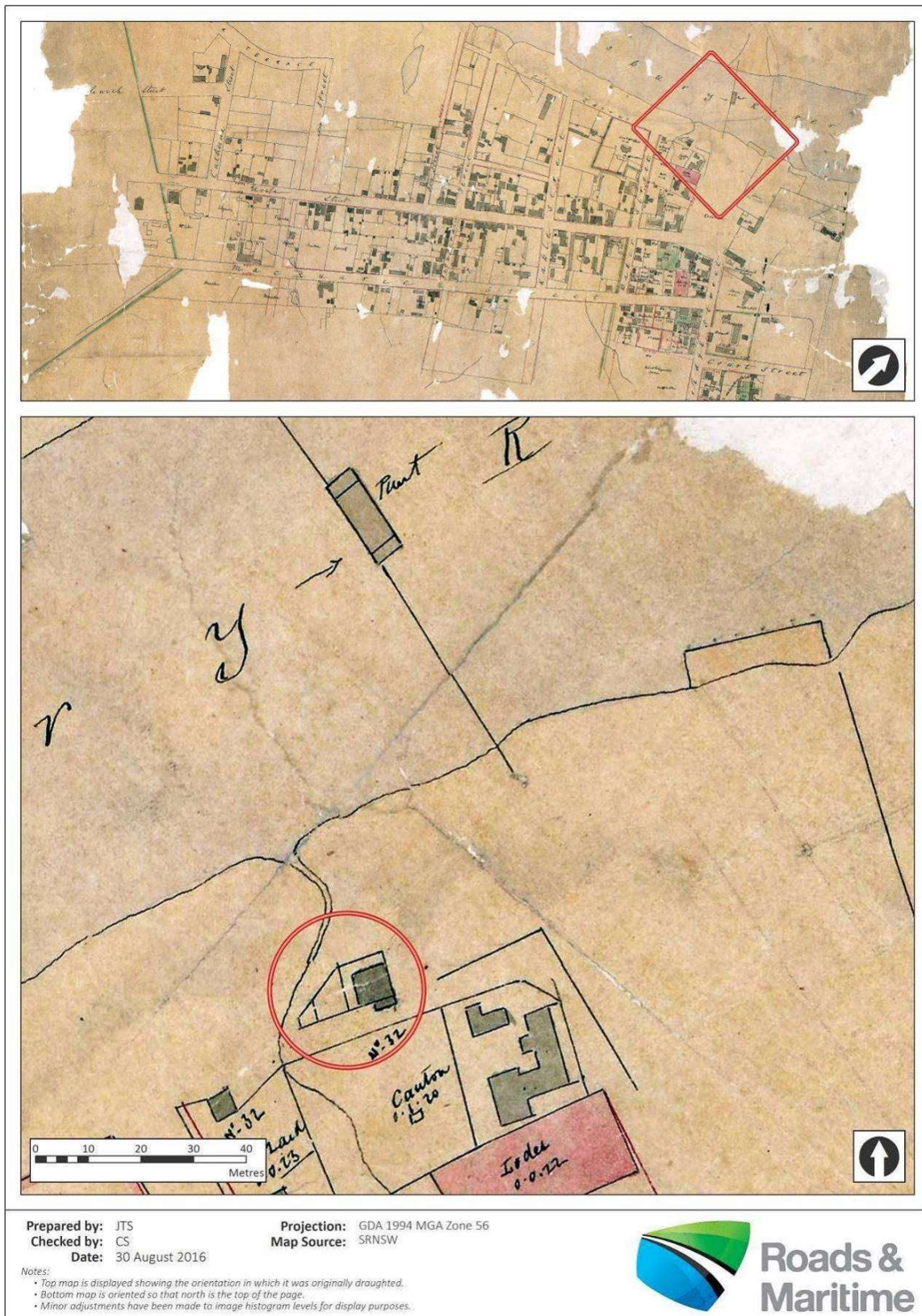


Figure 2.9 The Punt House after its apparent extension (Source: G.B. White, plan of Windsor, 1835, SRNSW, Map 5968).

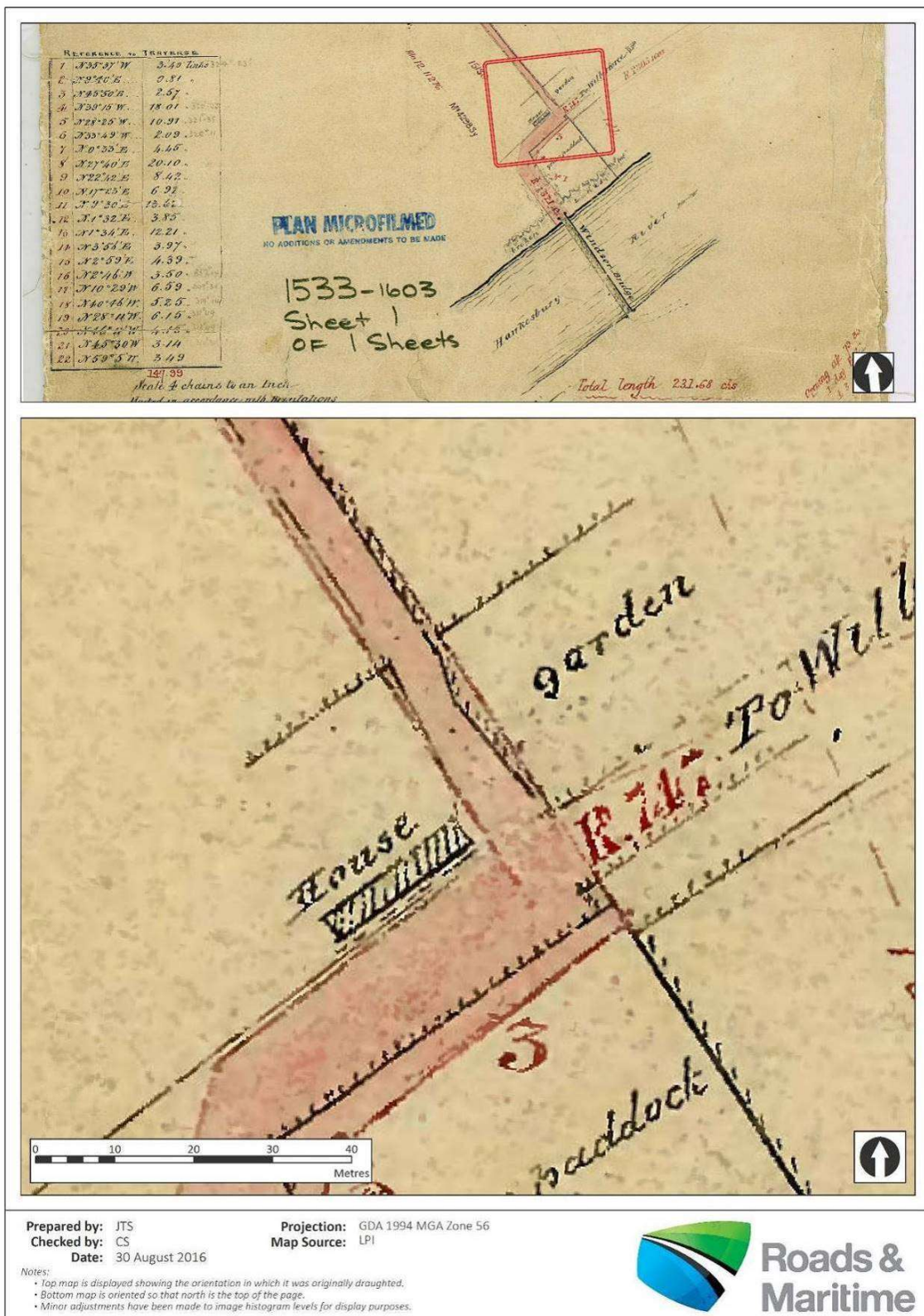


Figure 2.10 The disused Squatters Arms on Whitton's Farm, shown, as 'house' in this 1878 plan, in the right-angle between Wilberforce Road and Freemans Reach Road (Source: G. Matcham Pitt, 1878, LPI, Crown Plan R 1533.1603).

2.3.5 WINDSOR BRIDGE AND THOMPSON SQUARE (1870-1900)

Plans for a road bridge were put forward by Hon. William Walker after the opening of the railway in 1864. It was discussed at length in Parliament for the next few years, with those involved concerned about whether it should be a high level or low-level bridge. A design was settled on in 1872, with the bridge planned at 14.5 feet (4.4m) above the tidal level. Windsor Bridge was opened on the 20th of August 1874. The bridge was 480 feet (146.3m) long and cost £10,280. The opening consisted of a great procession through the town and, in the evening, a dinner in Thompson Square.

The provision of a bridge across the Hawkesbury at Windsor greatly improved the position of those who lived on the farms around Wilberforce and Ebenezer, giving ready access to Windsor railway station and its direct links to Parramatta and Sydney. It also joined the Windsor road system to the Putty Road, leading to the Hunter, where many Hawkesbury families had settled since the early 19th century and which was developing industrial importance through the coal industry.

The construction of the bridge abutment below Thompson Square required a large area of the riverbank to be cut away between the wharf and the steep bank below the Punt House, as illustrated in C. Scrivener's plan of 1894 (Figure 2.13). These works are also likely to have included the construction of timber retaining on Thompson Square Road below the Doctor's House; a feature that is present in a photograph of 1879 (Figure 2.11). The formal extension of Thompson Square Road around to The Terrace, passing between the Doctor's House and the Punt House, may also have taken place at this time, as this road appears to have terminated beside the Doctor's House prior to the bridge construction.⁷⁶ This extension may also have taken place in 1885 when sections of Thompson Square Road were cut down by over 3 feet (0.9m) to reduce the steepness of the adjusted grade.⁷⁷

The lower section of the adjoining road that wound down through Thompson Square to the wharf continued to serve the Windsor Bridge on a slightly tighter curve that commenced lower down Thompson Square Road. This new alignment effectively divided the open space of Thompson Square into two separate parts. In the absence of any views of the punt road comparable to those following the completion of the bridge, it is difficult to determine the degree to which the bridge works altered the road and surrounds. Later views (Figure 2.11 and Figure 2.12) and plans (Figure 2.13) suggest the existing punt road was widened, cutting into the existing slope, and filled along the length of the approach to the bridge abutment. In conjunction with these changes, an extension of Bridge Street was made on the eastern side of the square from George Street to the road to the wharf and punt between 1879 and 1888 (Figure 2.11 and Figure 2.12).⁷⁸ This road is now known as Old Bridge Street. However, the road quality remained poor and by 1892 locals reported 'a regular gorge' having been washed out of the road 'near the old sewer'.⁷⁹ The reference to the 'old sewer' may be discussing the earlier drainage system.

Following the completion of the bridge, an ongoing pattern of minor modifications to Thompson Square and surrounds commenced, including the installation of post and rail fencing to both portions in 1881 with the lower portion to be used as a grazing paddock. This was followed by the addition of a pavilion to the upper reserve and in 1897 the '*small reserve below Thompson Square*' was '*levelled*' and re-landscaped⁸⁰ with the stock fencing upgraded to match the large, white fence in the upper portion of the square. The square was repeatedly referred to as unsightly, or in disrepair, over the succeeding years and the best purposes for its future use were debated within the community.

⁷⁶ Biosis & CRM, Windsor Bridge HA & SOHI, 2012:93.

⁷⁷ *Hawkesbury Chronicle and Farmers Advocate*, 6 Jun 1885:2.

⁷⁸ *Sydney Morning Herald* 29 December 1855; 3.

⁷⁹ *Windsor and Richmond Gazette*, 26 March 1892:3

⁸⁰ *Windsor and Richmond Gazette* 27 February 1897:3.



Figure 2.11 Thompson Square and surrounds c. 1879, following the completion of the low-level bridge. The extension to Bridge Street had not yet been made, however the realignment of the curving approach to the bridge has already taken place. (Source: State Library of NSW, GPO 1-06263).



Figure 2.12 The same view in 1888, showing the new extension of Bridge Street at top left and fencing within the square. By this time Thompson Square Road has been re-graded and trees have been planted in the square. (Source: State Library of NSW, digital order number d1_06274).

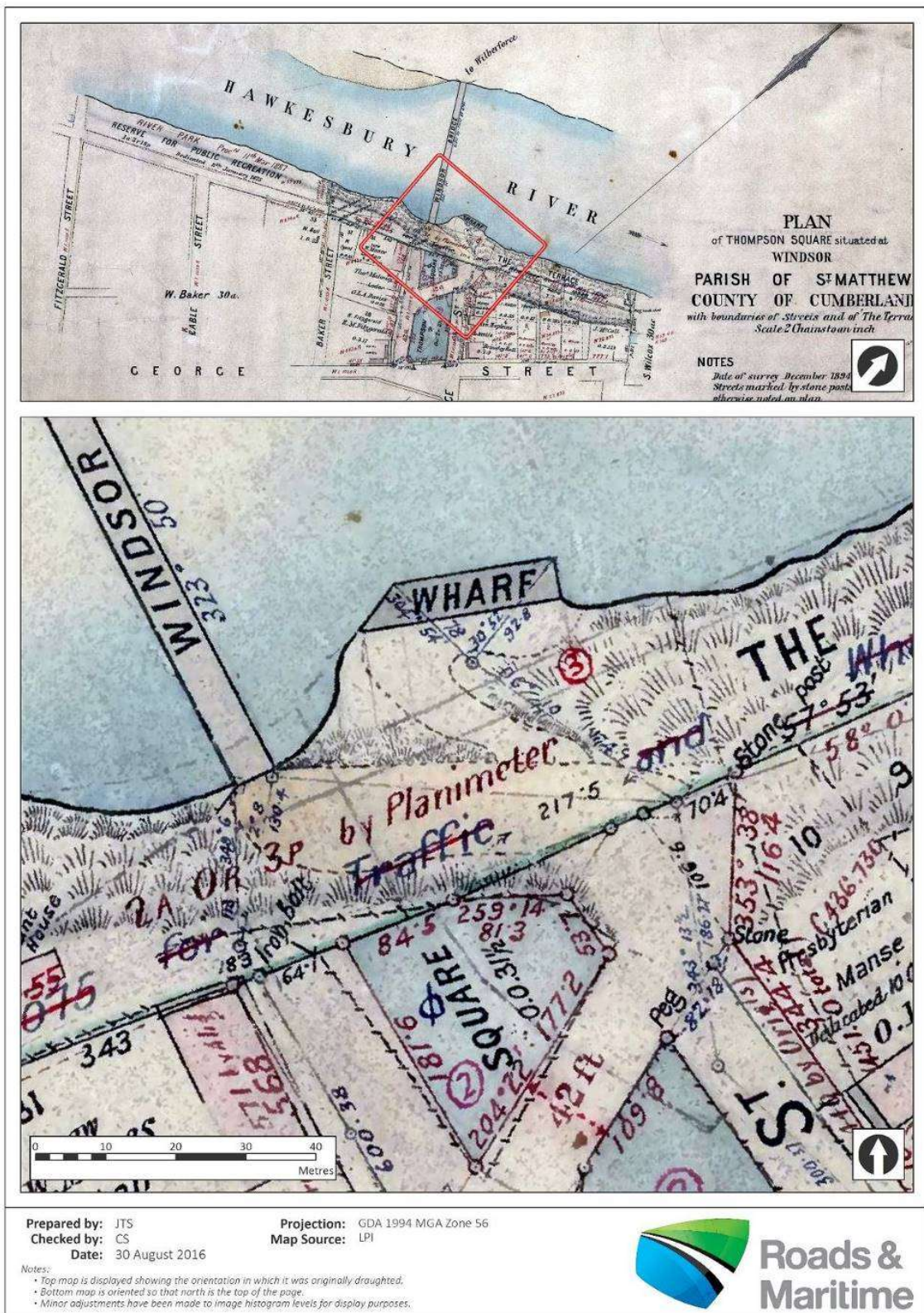


Figure 2.13 Plan showing the footprint of the new road and bridge construction in 1894.
(Source: C. Scrivener, plan of Thompson Square, 1894, LPI, Road Plan R 1009.3000).

Between 1896 and 1897, the deck level of the bridge was raised to reduce the number of occasions that it was impassable due to flooding. The alteration was made by placing new cylinders on top of the old piers and by constructing a new pair of piers at the Wilberforce end. The original timber decking was replaced with concrete and kerbing was also added around 1920. The abutment margins and approach road also needed to be raised by the necessary 8 feet (2.44m), requiring hundreds of loads of soil to be carted from the lowland near Mileham and Brabyn streets to fill in the river bank to the higher level.⁸¹ Following these adjustments, the higher-level bridge was opened in April 1897, at a cost of £4,000.

Following the works, Thompson Square became an unsightly repository for left over materials,⁸² prompting further discussion over the need for improvements and the best ways to utilise the space, while a need was identified for an improved approach to the bridge, as access down 'punt hill' was both degraded and steep for horse and cart.⁸³ The Council were advised that the new road:

*would require four feet of filling, just at the turn off to the wharf approach. This would cut off the approach to the wharf, and another road would have to be made along the side just below Mrs. Hopkins'. They could procure stone at a reasonable price from Miss Dick, and this, with the bricks from the old punt-house – which unsightly structure would be demolished.*⁸⁴

This solution appears to have been finally addressed and, as noted in the newspaper article, the Punt House was demolished and a new route cut from the bridge along The Terrace, allowing traffic to move through town via Kable Street.⁸⁵

The 1890s saw the formal creation of three reserves between George Street and the river. In conjunction with the raising of the bridge, Reserve 24075 was proclaimed in May 1896, forming a long narrow strip along the riverbank on both sides of the bridge. This reserve was primarily for 'traffic and wharfage' but also developed a recreational aspect as the 'River Reserve'. In 1899, the two areas of Thompson Square divided by the roadway were also declared public recreation reserves: Reserve 29900 was the southern area up to George Street and Reserve 29901 was the smaller northern section opposite the Doctors' House. The contrasting characters of the three reserves are vividly shown in an aerial photograph taken in 1929 (Figure 2.14).

⁸¹ J. Steele, *Early Days of Windsor*, Tyrrells, Sydney, 1916, reprinted Library of Australian History, North Sydney, 1977:184.

⁸² *AWRH Advertiser* 28 May 1881: 2.

⁸³ *Windsor and Richmond Gazette* 26 September 1903;4.

⁸⁴ *Windsor and Richmond Gazette* 2 April 1904;1.

⁸⁵ *Windsor and Richmond Gazette* 27 February 1904; 3.

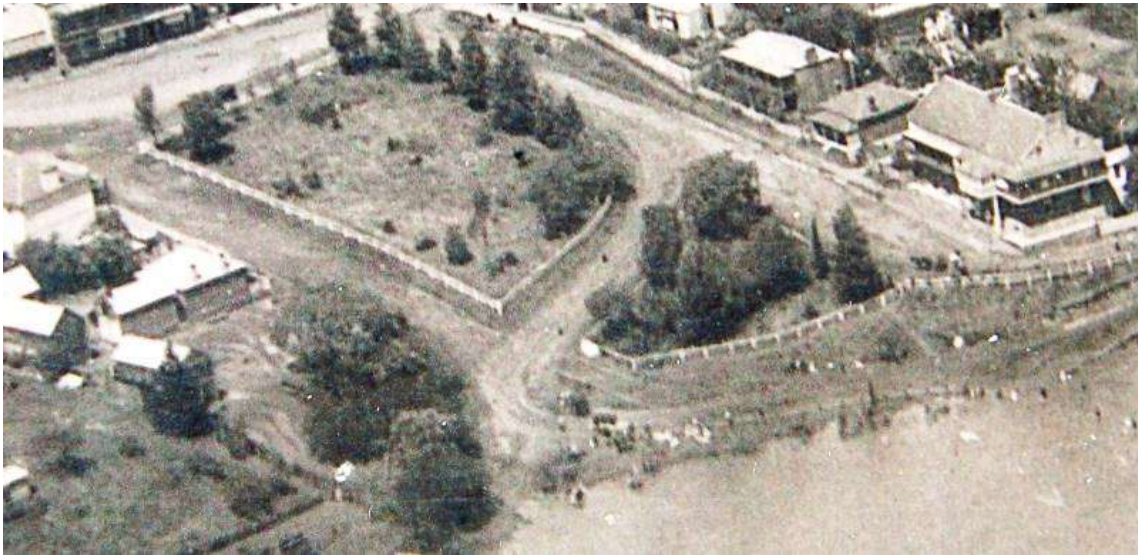


Figure 2.14 Thompson Square in 1929, during the October flood, from the north, showing some plantings in the two reserves, 29900 (upper) and 29901 (lower). It also shows part of the wharf reserve, along the riverbank (Source: Aerial photograph, courtesy of Carol Roberts, from the collection of her mother, the late Iris Cammack. Photographer, Frederick Halpin Wilson, RAAF, 1929).

2.3.6 MODERN DEVELOPMENT (1900-2017)

Despite the improvements to the bridge and its approaches, public requests for funds to be allocated toward the ‘beautification’ of the square itself persisted into the 20th century.⁸⁶ In 1930, the open space within the upper reserve was leased as a mini golf-course. The mayor opened the course, which had the grandiose name of Riverview Golf Links, however, the venture was not a success and closed in May 1932.

In 1934, a new approach road to the bridge was commenced from George Street, creating the present deep cutting aligned north-west to south-east through Thompson Square. Retaining was employed at various places within this new extension to Bridge Street and large concrete retaining walls were constructed at the intersection of Bridge Street and The Terrace, where it replaced the timber pile retaining of the 19th century. The new road cutting intersected the Victorian roadway which lay on the opposing diagonal. The parts of the earlier diagonal roadway which were closed and added to the reserves 29900 and 29901 are coloured blue in the plan surveyed in 1946 (Figure 2.15). This roadway was subsequently buried within the upper portion of the newly-shaped upper Thompson Square, set aside as Reserve 74215 in 1951.

In 1949, the Upper Hawkesbury Boat Club built a club room in the lower reserve. This building, raised on brick piers, was demolished in the 1990s. By the mid-20th century, the 1820 wharf had fallen into disuse and ruin and was subsequently buried beneath filling and recently constructed gabion retaining along the riverbank. Much of the current appearance of both Thompson Square and buildings within the conservation area was achieved during improvements made during Bicentennial restoration works up to and during 1988,⁸⁷ with tree plantings and changes to the configuration of surrounding roads implemented since that time.

⁸⁶ *Windsor and Richmond Gazette*, 7 May 1920:4; *Windsor and Richmond Gazette*, 4 Jun 1920:1.

⁸⁷ *Hawkesbury Gazette* 30 May 1988:3.

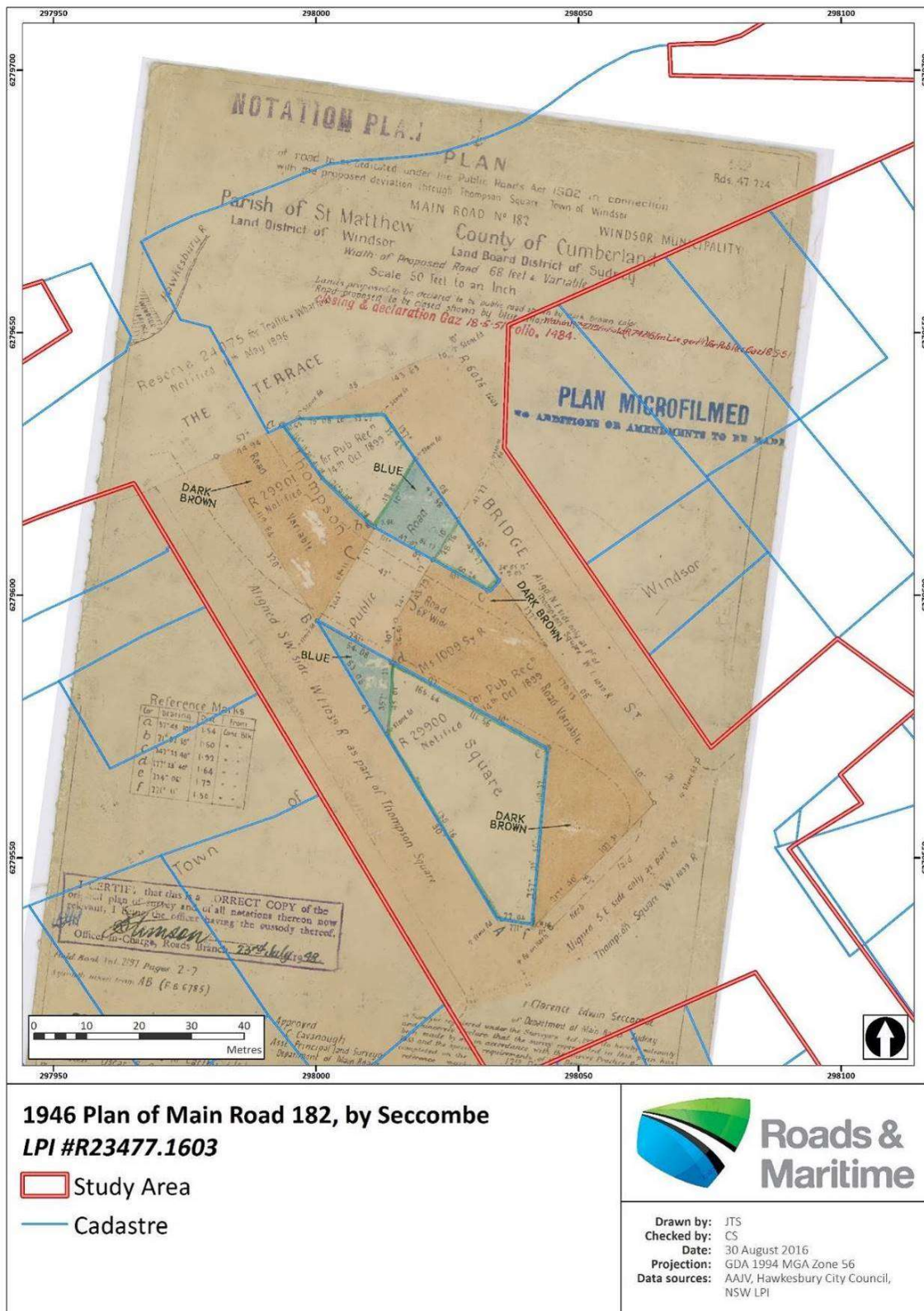


Figure 2.15 The present road alignment within Thompson Square, showing in blue the previous diagonal going south-west to north-east (Source: C. Seccombe, plan of Main Road 182, 1946, LPI, road plan, R.23477.1603).

3 THE 2016 TEST EXCAVATIONS

3.1 Key Findings

- Of 60 test pits and trenches excavated north and south of the Hawkesbury River within the WBRP area, 24 were found to contain historical archaeological remains, 22 of which were considered of local significance.
- Test pits excavated within George Street (SA 25) and Old Bridge Street (SA 26 and SH 6) were found to contain relics considered to be of State significance that were likely to date from the early establishment of the township of Windsor between 1810 and c.1820. Significantly, structural remains of a brick box drain were identified in SA 26, suggesting further traces of a well-documented and extensive drainage system constructed between 1814 and 1816 could remain within lower Thompson Square and towards the Hawkesbury River.
- A high level of late 19th and 20th century disturbance and infilling was identified within both upper and lower Thompson Square. Despite this, the testing programme results indicated that potentially State significant archaeological remains may have remained extant in either portion of Thompson Square, particularly in the lower park where evidence of early activity was identified in test pits SA 9, SA 10 and SA 29.
- In addition to the structural remains, the test excavation yielded a historical archaeological artefact assemblage comprising 3,147 artefacts. These were predominantly associated with archaeological contexts of local significance, however a number of archaeological deposits were identified within SA 3, SA 9, SA 10 and SA 29, with artefact assemblages predating c.1830 and typical of the earliest phases of colonial sites within Australia.

3.2 Summary of Historical Archaeological Evidence

During the investigative phase of the project in 2016, 60 machine- and manually dug test pits and trenches (investigating both historical and Aboriginal archaeology) were carried out within the WBRP areas north and south of the Hawkesbury River. Test pits were excavated in discrete 5cm, 10cm or 20cm spits or by historical archaeological context. The sediment from archaeological strata was wet-sieved through a 3mm or 5mm mesh to recover cultural materials from each context. The aim of the investigative phase was to identify any evidence of past historical activity, recover cultural materials necessary to date each stratigraphic unit and inform interpretation of the archaeological profile.

Excavations conducted north of the river on an alluvial terrace originally occupied as farmland contained no historical archaeology of significance.

Test excavations south of the Hawkesbury River were characterized by substantial later 19th and 20th century activity and disturbance to the archaeological profiles. Despite this, State significant relics dating from the early formation of Windsor were recovered and recorded *in situ*. These included remains associated with early 19th century structures – a brick footing likely to be associated with the entry gate or stables of the government compound (SA 25, Figure 3.1); a brick and stone surface associated with the former Government Stables (SH 6) and a brick box drain possibly connecting the former Government Stables building complex with the documented vaulted drain running through Thompson Square (SA 26, Figure 3.2).

Within lower Thompson Square itself no evidence of this drainage system was identified, although two of the test pits passed within 1m of identifying box drain 1 and box drain 3. Despite this, the stratigraphic evidence recorded within a number of test pits, particularly SA 9 (Figure 3.3), indicated that limited areas of historical soil profile dating to the early 19th century remained beneath later fill deposits of between 1m and 2m depth (Figure 3.3). This suggested that early occupation levels within the park had not been entirely removed by later activity and that significant historical archaeology, including the vaulted drain, could be present within lower Thompson Square.

Elsewhere within the broader southern project area, a number of locally significant archaeological strata informing the history of Windsor were recorded, including a yard deposit associated with the post-1820's punt house (SA 3); 19th century artefacts and modified historical soils within the north portion of Thompson Square, and early 20th century Telford road surfacing beneath Bridge and George streets.



Figure 3.1 Early 19th century brick footing identified beneath George Street (test pit SA 25).



Figure 3.2 Early 19th century box drain identified beneath Old Bridge Street (SA 26).



Figure 3.3 Disturbed historical soil profile within SA 9 in lower Thompson Square (dark undulating band halfway down the profile).

Table 2 Summary of key findings from the archaeological testing programme.

Test Pit	Testing Results
SH 1	- No definite historical archaeological features, structure or artefacts identified. - Presence of burnt tree roots may denote historic land clearance from the late 18th century onwards.
SH 2	- Bitumen road surface crossing Thompson Square, potentially mid- to late 19th century. - Disturbed historical deposit with artefacts dating from early to mid-19th century.
SH 3	Disturbed historic topsoil and subsoil deposits.
SH 4	No historical archaeological features, structure or artefacts identified.
SH 5	No historical archaeological features, structure or artefacts identified.
SH 6	- No historical archaeological features, structure or artefacts identified in test pits 1, 5, 6 and 7. - The heavily disturbed brick feature in Test Pit 2 may be demolition of an early 19th century structure or may relate to the brick drain seen in SA 26. - The brick feature in Test Pit 3 is likely to be remnant paving from the 1850s. - The stratigraphy of Test Pit 4 is likely to contain an <i>in situ</i> but disturbed historic ground surface which may date back to the early 19th century. - In summary, the overall area of SH 6 has been heavily disturbed, however pockets of undisturbed areas can still provide information.
SH 7	No historical archaeological features, structure or artefacts identified.
SH 8	Historical archaeological features were limited to a thin fill or rubbish deposit dating to the latter half of the 19th century.
SH 9	Historical archaeological features were limited to a fenceline, likely to be a late 19th or early 20th century feature.
SH 10A	No historical archaeological features, structure or artefacts identified. However, excavation ceased at a depth of 12.39m Australian Height Datum (AHD) due to the unstable nature of the surrounding soil.
SA 3	Identification of inter-bedded mid- to late 19th century road surfaces and historic fill deposits overlying <i>in situ</i> demolition and yard deposits relating to the 1820s punt house.
SA 4	Indication of 1m of road and fill deposits overlying a truncated and disturbed natural profile containing historical artefacts dating to between 1820 and 1864.
SA 8	A modified historical topsoil with a date range of 1830 – 1869, providing strong evidence that archaeology relating to the early settlement period of Windsor is likely to be preserved within lower Thompson Square, below later fill deposits.
SA 9	Deeper historic deposits consistent with SA 8, providing strong evidence that archaeology relating to the early settlement period of Windsor is preserved within lower Thompson Square.
SA 10	Evidence of further modified historic topsoil and subsoil dating to the first half of the 19th century and consistent with the results of SA 8 and SA9.
SA 16	A Telford sandstone road constructed in the mid-19th century.
SA 17	A continuation of the Telford sandstone road constructed in the mid-19th century and identified in SA 16.
SA 18	A continuation of the Telford sandstone road constructed in the mid-19th century, identified in SA 16 and SA 17.
SA 24	A hard-packed deposit potentially denoting a road or ground surface from the first half of the 19th century.
SA 25	- Early 19th century wall footing and associated deposit. - Possible mid-19th century road or ground surface.
SA 26	Early 19th century brick box drain.
SA 28	Early 19th century historical deposits consistent with those from other Aboriginal test pits in lower Thompson Square.
SA 29	Modified topsoil containing potential postholes from the early 19th century, comparable to the other test pits in lower Thompson Square.

Test Pit	Testing Results
SA 30	A thin stony layer corresponding with the pre-1897 level of the approach road to the bridge.
SA 32	Cobbled surface likely to date from the late 19th century.
NH 1	No historical archaeological features, structure or artefacts identified.
NH 2	- No historical archaeological features or structure identified. - Single fragment from a Dewar's whiskey bottle may relate to the Squatters Arm Inn which operated from the 1830s to 1913.
NH 3	- No historical archaeological features or structure identified. - Two artefacts dating to between 1820 and 1840 was recovered from the upper 10cm of the test pit.
NH 4	- No historical archaeological features or structure identified. - A single artefact dating to between 1820 and 1830 was recovered from the upper 10cm of the test pit.
NH 5	- Presence of burnt tree roots in a rectangular cut may demonstrate late 19th or early 20th century market garden or orchards. - Two artefacts dating to between 1835 and 1829 identified from the upper 10cm of the test pit.

4 SALVAGE RATIONALE

4.1 Objectives and Aims

The project objectives were defined in the DSS and are reproduced here. The aims of the DSS was to record and, where appropriate, preserve identified historical archaeology that would be impacted by the WBRP and answer/resolve the research questions outlined in the Archaeological Research Design (ARD) and test excavation report and supplemented in the DSS (Section below). The DSS proposed to appropriately mitigate (through salvage excavation) the cultural materials that would be impacted through the proposed development. The proposed mitigation of the project impacts to historical archaeological heritage was focussed on the recovery of information from the State significant period of Governor Macquarie's reforms to the area of lower Thompson Square (c.1814-1816) and the 'Green Hills' period of direct occupation of the area prior to this time. To reach the depth of the anticipated archaeological record of these periods, stratigraphy above would also be investigated for historical heritage of local significance, including a focus on the development history of lower Thompson Square.

The objectives of the historical salvage works as set out in the DSS were to:

- Further investigate the ephemeral historical archaeological remains within the area of lower Thompson Square, prior to the commencement of the Aboriginal salvage program.
- Investigate and record the historical structural remains of high significance located during the test excavation program, particularly the drainage structure identified to the east of the new bridge alignment and the footings identified within George Street to the east of the roundabout.
- Archaeologically monitor other areas of the site which were considered of low archaeological sensitivity as indicated below.
- To ensure that the development can proceed with a minimised risk of unknown or unexpected significant historical objects/features being harmed during construction.
- To inform future interpretation proposed for the project area.

In addition to the above objectives, upon identification of the intact barrel drain during the salvage excavation, the RMS undertook a voluntary commitment to preserve the core of the barrel drain intact. This required a redesign of the southern end of the bridge abutment and the movement of footings and piers on the western wall of the bridge to ensure the barrel drain could remain *in situ*.

This report presents the results of the excavations and their application to the research questions in order to further inform the project design, the SCMP for the project and the ongoing development of the Interpretation Plan. In addition to the over-arching aims outlined above, the study has also been developed to integrate with the other studies required under Conditions B3 and B4, namely the Aboriginal salvage and geomorphological (sand body) investigations within the study area. Excavation was carried out according to established best archaeological practice standards as set out in the AAJV ARD (2016) and the methodology proposed in the AAJV test excavation report and DSS. Temporary fenced compounds were established surrounding the work area and appropriate traffic, pedestrian and environmental controls were implemented. Existing service plans for the site were reviewed prior to excavation and identified service locations and depths were marked on the ground by a service locator prior to excavation.

4.2 Research Questions

The following sections serve to outline the general research questions which the archaeological test and salvage programmes were designed to answer. A detailed response to these questions is included in Section 8 of this document.

4.2.1 BROAD RESEARCH QUESTIONS

The ARD was formulated to answer general questions about any deposits or features exposed during excavation work at any given site. These general questions were designed to focus upon smaller scale questions related to specific site development. However, the ability to answer even these questions is critical to developing information related to broader research objectives. These general questions that are typically asked about a site are:

- What features or deposits are present on the site?
- What is the nature and extent of these features and deposits?
- How intact are they?
- What is their significance?
- What are their depths below the current surface?
- What date or occupation phase can be assigned to them? and,
- How does this information compare to available historical information relating to the site?

4.2.2 SITE SPECIFIC QUESTIONS

The following site-specific questions were to be asked of the archaeological remains of the Windsor site. They have been set out below based on the chronology identified in the archaeological assessment for the site. Note that questions relating solely to the riverine environment or maritime archaeological processes have not been included in this document.

Where the ARD proposed thematically based research questions which were aimed to help direct the wider archaeological investigation of Thompson Square and the Windsor area, this assessment has not sought to answer these wider research questions at this time. Instead, any such questions will be answered at the completion of all historical archaeological investigations associated with all five management areas of the WBRP.

4.2.2.1 LANDSCAPE

- Is there evidence for flooding or other erosional effects from the site's proximity to the river?
- Can historically attested floods be discerned?
- What palynological evidence is there for the changes to the local flora from pre- to post-colonisation?
- Is the first clearance of the site evident and what effects did it have on the site?
- Was the area of the square stabilised, cut, filled or otherwise altered to serve its purpose as a landing place and then public space?

4.2.2.2 CONTACT ARCHAEOLOGY (1791-1820S)

- Is there evidence for the initial period of contact between the local Aboriginal people and Europeans?

4.2.2.3 EUROPEAN OCCUPATION

- What is the earliest evidence for the European presence on the site?
- Is it related to the river or other activities?
- Is there any evidence of the first settlers of Green Hills/Mulgrave Place?
- What evidence is there for Baker's and Thompson's occupations on the south side of the river?
- Is there any remaining evidence of the government buildings, which occupied the western portion of the site?
- What materials were they constructed from?
- Is there any evidence for early paths and tracks to access areas on both the north and south sides of the river?
- Is there evidence for an early alignment (pre-1810) of George Street?
- Is there evidence for Howe's brick barrel drain(s) in the square?
- Is there evidence for the heavy military presence at Windsor on the south side of the river?
- Are any other structures or occupation evidence remaining at the intersection of the Wilberforce and Freemans Reach Roads?
- What evidence is there for modifications and development to Thompson Square and adjacent areas?
- What is the evidence of the late nineteenth/early century modifications across the site? How have these later modifications affected the survivability of the historical archaeological resource?
- What did vacant space mean in the context of Windsor over 200 years and how is this manifested at Thompson Square? Was it a place to dump refuse or was it treated as a civic space?

4.2.3 ADDITIONAL RESEARCH QUESTIONS

While the 2016 test excavation provided answers to some research questions, the retrieved data could not be considered exhaustive. Therefore, the site's research potential was not realised in full at that time and the majority of the research questions contained in the ARD were still considered relevant for providing general contexts for further historical and archaeological research. In light of the results of the 2016 test excavations the following more specific research questions were raised:

- Can the retrieved archaeological evidence provide additional information to that already contained in the written and pictorial resources?
- Do deeper subsurface features (e.g. wells and cesspits) dating from the late 18th and early 19th centuries exist within the boundaries of the site? If not, how can their absence be explained?
- Can the full extent and nature of the brick footing associated with the entry gate of the Government Cottage compound be determined? How accurately do the historical resources compare with the actual location and fabric of the former gate?

- Can the artefact assemblage provide any insight into the lives of the first settlers of Green Hills/Mulgrave Place?
- Can the artefact assemblage provide any more specific information about the military presence and activities at the site?
- Can the archaeological resource provide any additional information about the site not available from other resources?

5 SALVAGE EXCAVATION RESULTS

5.1 General

The historical salvage excavation results presented in this section outline the site formation processes and archaeological findings, particularly those associated with State significant relics dating from the early colonial settlement of Windsor. The historical excavations under discussion were restricted to the lower Thompson Square portion of archaeological salvage works Area 1, part of the wider historical archaeological management program developed for the WBRP.⁸⁸ Final reporting for the Area 1 supplemental salvage excavation and broader archaeological management of historical archaeological Areas 2 to 5 will be prepared following completion of all stages of work. Aboriginal and maritime archaeological excavations are the subject of separate investigations to the historical programme.

The site was excavated through open area, stratigraphic reduction by mechanical excavator (7-tonne) under the supervision of Anita Yousif and Dr Matthew Kelly (Primary Excavation Directors), and David Marcus (Secondary Excavation Director). Where historical features or deposits were encountered, these were then cleaned up by hand and recorded through photography, archaeological site plans and context recording sheets.

The initial clearance of the site involved the removal of topsoils and 20th century demolition materials and fills, including the controlled removal of hazardous fill materials containing bonded asbestos under the safety procedures and direction of the project occupational hygienist. Subsequent excavation involved the further reduction of 20th and late 19th century levelling fills and archaeological features reflecting the known development history of the site. Where specific fill materials were identified, such as the backfill of former road cuttings, these fills were excavated independently as features. This served to record the formation processes that have acted on the site and to identify stratigraphic boundaries that form the basis of archaeological reduction, phasing and interpretation.

Targeted trench excavations were conducted by hand and mechanical excavation to provide control points for the ongoing reduction of the site. This included sondages 1-6, excavated along the line of the oviform drain identified within the early stages of excavation. Excavation continued until the extent of archaeological remains had been identified and the full record of historical activity had been established.

The vertical and horizontal positions of all structural elements were recorded by the project surveyor. Where required for archaeological site plans, spatial information was also recorded by dumpy level with reference to a permanent site datum. All significant elements were photographed with a scale bar and north arrow where possible. Digital media were used for general photographic recording.

A permanent grid was established with the assistance of the project surveyor that corresponded to both the orientation of lower Thompson Square and the western edge of excavation. The resulting grid for the site was utilised by both the AAJV Aboriginal and historical excavation teams. For historical excavation purposes, a site datum point numbered 0 was established at the centre of the grid baseline. Metric grid intervals to the north, south and east of this point were coded with a prefix of N, S, or E respectively to allow the expansion of the grid in any direction necessary. The site grid together with spatial recording in Australian Geodetic Datum coordinates (AGD) and AHD elevation formed the basis of archaeological plans and section drawings that illustrate the spatial relationships and stratigraphy of the site. In addition to the figures included here, additional site plans for each archaeological phase (discussed below) and sections throughout the site are provided for reference in Appendix 1.

⁸⁸ AAJV (2017c), 199.

Where required, individual site features are identified within this report by their position within this grid (e.g. grid square S22/E4). For the purposes of historical recording and reporting, the site was divided into two halves, grid areas 1 and 2, sited south and north of the '0' grid line respectively (Figure 5.12 and Figure 5.13).

The Aboriginal salvage excavations were conducted following the removal of all overlying historical deposits and agreement between the Aboriginal and historical excavation directors that the surface of the sand body had been exposed. The Aboriginal salvage excavations also occurred concurrently with the historical salvage excavations. Any historical cuts or features identified within Aboriginal excavation squares were recorded by an historical archaeologist and the site planner. Historical artefacts identified during sieving of combined Aboriginal and historic sand body strata were recovered and recorded according to historical context number and spatial x, y, z coordinates within the grid.

Context numbers with a prefix numeral of 1 for salvage Area 1 (e.g. 1001) were allocated to all stratigraphic and archaeological elements and are referenced throughout this report. Due to the presence of extensive fill events of variable materials which were recorded across different parts of the site at different points in the excavation, several deposits were allocated superfluous contexts numbers during the course of the excavations. As identified, these occurrences were periodically consolidated under the first, governing context number and the context register was updated to note that additional occurrences were the same as the original context number. Key context numbers for each grid area are presented in Table 4 and site plans in Section 5.5.2.

Historical artefacts found within the salvage excavation area were recorded, collected, cleaned and catalogued in accordance with the methodology outlined in the ARD⁸⁹ and best archaeological practice. Early historical deposits were sampled for small finds by both wet and dry screen-sieving and any macro-organic materials recovered were retained. Archaeological deposits identified during the salvage excavation were frequently identified as fill materials sourced from unknown locations, however soil samples for future archaeobotanical or palynological examination were taken where this was deemed appropriate.

Discussion of the artefact assemblages in this section is limited to context date ranges, number of individual specimens (NISP), minimum number of individual items (MNV) and notable finds. Date ranges have been determined by the use of the standard archaeological parameters of the date after which objects are known to have come into production (*Terminus Post Quem* [TPQ]) and the limit (date) that objects are known to have remained in production to (*Terminus Ante Quem* [TAQ]). Where more than one item is represented, the earliest TPQ and latest TAQ of that assemblage are provided. Where 1794 is given as the TPQ, this denotes that the object was in production before the advent of settlement at Windsor, which occurred in that year. It should be noted that for historical archaeological sites within Australia, the TAQ is of limited application as a dating tool due to the acknowledged use of items beyond their date of production. Where a more concise TAQ can be provided by the known date of an overlying event (e.g. completion of the oviform drain system in 1814), that date is adopted as the TAQ.

State significant historical archaeological features were investigated, recorded and retained *in situ* wherever possible. Where this was not possible due to the major constraints of the development design, all significant historical deposits, structures and features were subjected to salvage excavation and recorded in full.

⁸⁹ Austral Archaeology/Extent Heritage (AAJV) (2016) Windsor Bridge Replacement Project – Historical and Maritime Archaeological Research Design and Excavation Methodology. *Unpublished Report for NSW Roads and Maritime Services*.

5.2 Archaeological Phases

The historical archaeological investigation of the lower Thompson Square portion of Area 1 confirmed six phases of historical development, summarised in Table 3 and outlined in detail in Table 4.

Table 3 Summary of the historical archaeological phases of development for Area 1.

Historical Phase	Date Range
Phase 1: The Natural landscape	Up to 1794
Phase 2: The Green Hills settlement	1794 – 1814
Phase 3: The Howe and McGrath drainage system	1814 – 1816
Phase 4: The mid-19 th century	1816 – 1874
Phase 5: Windsor Bridge and associated roads	1874 – 1934
Phase 6: The modern era	1934 – 2018

The excavation results are presented according to each of these phases in chronological order, commencing with the natural landscape (Phase 1) and concluding with the modern era (Phase 6). Each phase represents a segment of the continuous history of the site and the phasing is largely analogous with the historical outline presented in Section 2. As such, the phasing reflects dated archaeological evidence of the known historical events of the site. Discussion of the relative contributions of the evidence for each phase is provided in Section 6.

5.3 Phase 1: The Natural Landscape

Geomorphological analysis of the natural strata of the landform encountered by the European colonists from 1794 has been detailed as part of the Aboriginal investigations for the study area.⁹⁰ The outline presented here is summarised from the findings of those investigations.

The study area landform encountered at the time of European settlement of the study area has been demonstrated to have once comprised a stabilised aeolian sand body, formed discontinuously from 15ka (thousand years ago), through the Last Glacial-Interglacial Transition (LGIT), and into the Holocene. Where still present as an entire unit, this wind-blown, light yellowish brown (10YR 6/4) fine sand and silt (unit iv) was identified to extend to 0.8m-1m in thickness and is likely to have been extensive at the time of European settlement, forming the primary subsurface material encountered across the mid- and upper slopes of the Thompson Square area. In a limited area of minimal disturbance, this unit was found to include a developed A1 topsoil; a very dark greyish (10YR 3/2) loamy fine sand and silt (unit v) of up to 0.4 metres in thickness that Optically Stimulated Luminescence (OSL) ages indicate formed from around 500 years ago. This topsoil unit is considered highly likely to represent a remnant area of the land surface present at the time of European settlement and occupation of Thompson Square.

Unit iv generally overlay a light yellowish brown (10YR 6/4) fine sand and silt with frequent sub-rounded gravels (unit iii) that is considered to reflect the initial parent material of the overlying wind-blown deposits and represents an alluvial deposit. This deposit dates to the LGM (between ~17ka and 26ka), is thin (<30cm), and is considered to have been deposited through intermittent relatively low energy flooding, rather than more sustained submergence of the study area.

⁹⁰ AAJV (2017a), 53-55

Below unit iii was a coarse/medium, strong brown (5YR 5/6) gravelly sand fluvial deposit (unit ii), likely deposited by the Hawkesbury-Nepean River as a levee or terrace extended across much of the excavation area. This 1m-1.5 metre deposit was commonly found abutting the underlying Londonderry Clay (unit i), an indication that it represents a basal alluvium deposited within the cracks and undulations naturally created by this heavy clay unit. Within this unit were reddish-yellow thin bands of heavy, transported Londonderry clay spaced ~10cm apart down the profile, becoming increasingly indurated near the base. The OSL ages obtained from unit ii range from 82.4 ± 30 ka to 43.7 ± 8.3 ka and suggest a gradual accumulation of the deposit from the end of the last Interglacial, when sea-level was higher resulting in a higher river level and the submergence of the study area.

5.3.1 EXCAVATION GRID AREA 1

The southern half of the salvage excavation (Grid Area 1) was found to have been largely truncated to Pleistocene unit ii fluvial sands, resulting in the removal of almost all of the land surface of the earliest period of European occupation (Phase 2).

At the southern end of the site (grid line S30), unit ii (historical archaeological context 1103) was encountered directly below historical stratigraphy at ~15.4m AHD, 0.5m below the surface. A higher contribution of clay was noted within unit ii on this upper slope; an indication of the thinness of this coarse sand at this elevation and the proximity of underlying Londonderry clay, observed directly below Old Bridge Street during testing in 2016. Disturbance to the natural profile throughout this southern third of the site is typified by the vicinity of grid square S21/E6, where Phase 3 drain construction fills (1147, 1340 & 1349) had been dumped directly onto weathered unit ii sands (1364) (Figure 5.1). This pre-1814 topsoil and subsoil loss is consistent with the combined effects of vegetation removal evident from Figure 2.2 and Figure 2.4, slopewash erosion, and the movement of people, carts and livestock throughout this area. This erosion was evidently not absolute as minimal areas of truncated unit iv aeolian sand (1074) remained above unit ii at ~14.2m AHD (1.5m below the surface) in the vicinity of S22/E10 and S19/E4.

Throughout the rest of the northern half of grid area 1, disturbances had stripped the profile well into unit ii (Figure 5.3 and Figure 5.4). Significant disturbance is associated with the broad and deep Phase 5 road cutting that passes through the centre of grid area 1, however removal of the natural soils and any associated early archaeological features commenced with the Phase 3 drainage works of 1814-1816 if not earlier. Minimal truncated unit iv remained at the interface with unit ii in an approximately 6m² area in the vicinity of N0/E10 at ~11.7m AHD, 1.2m below the modern surface. The preservation of this patch of aeolian sand was due to its position outside both the Phase 3 drain system trench and the Phase 5 road cutting. Overall, these findings illustrated that the entirety of topsoil unit v and almost all of aeolian unit iv had been lost across grid area 1, removing the former surface terrain together with any archaeology that may have existed within these soil units while they remained in place.



Figure 5.1 West-facing view of the lower stratigraphy identified in the vicinity of grid square S21/E6. Numbered areas are: 1) indurated clay-rich unit ii (1103); 2) weathered unit ii with historical artefacts on the surface (1364); 3) disturbed unit ii/iv interface; and 4) historical fill deposits. Box drain 1 [1143] is beneath the black plastic in the background. Scales are 1m.



Figure 5.2 View south across the vicinity of N0/E10 showing: 1) truncated aeolian sand unit iv (1074); 2) Phase 3 drain trench fills, contexts 1111 and 1118; and 3) Phase 5 road fills (1006) and [1034]. The black dashed line indicates the eastern edge of the oviform drain trench and box drain 2 (1047) is covered in the background. Scale is 2m.

5.3.1 EXCAVATION GRID AREA 2

Cumulative Phase 3, 5 and 6 impacts were found to have resulted in further widespread disturbance throughout grid area 2. Despite this, an approximately 18m² area of relatively undisturbed natural soil horizons (historical contexts 1067 and 1074/1103) remained beside the western edge of the oviform drain trench in an area encompassed by grid lines S1-N7/E2-E7. This soil profile included a 0.3m-0.4m deep A-horizon topsoil (unit v/context 1067), identified approximately 0.8m below the modern surface and sloping gently north-east between 12.5 m-11.9m AHD. Context 1067 graded into 0.8m-1m of wind-blown sand (unit iv/context 1074) and indurated basal sands (1103) extending a further 1.5-1.8m in depth (units ii and iii/context 1103). The consistency between the subsoil strata here and in grid area 1 confirmed the test excavation conclusions that a Pleistocene sand body soil landscape is likely to have existed throughout the entire salvage area at the time of European settlement.

Outside of the intact area, the natural profile was limited to silty alluvium, identified in sondages 4 and 5, and approximately 168m² of truncated context 1103 across the remainder of grid area 2. From comparison of the levels of these truncated sands with the complete profile to the west, it is evident that upwards of 1m of natural deposit was reworked or entirely removed from over 88% of grid area 2 during the past and that the natural/early historical ground surface would once have occupied elevations at least 1m higher than the re-exposed, truncated context 1103 sands seen below in Figure 5.3 and Figure 5.4.



Figure 5.3 View north-west across the centre of the site from the centre of grid area 1 during mid-excavation showing the truncated and remnant natural sand units present. Numbered areas are: 1) truncated units ii/iii (1103) identified directly below later fill materials; and 2) the area of un-truncated, early historical soil profile (1067/1074). All other areas visible contain historical archaeology and fills dating to phases 3 and 5.

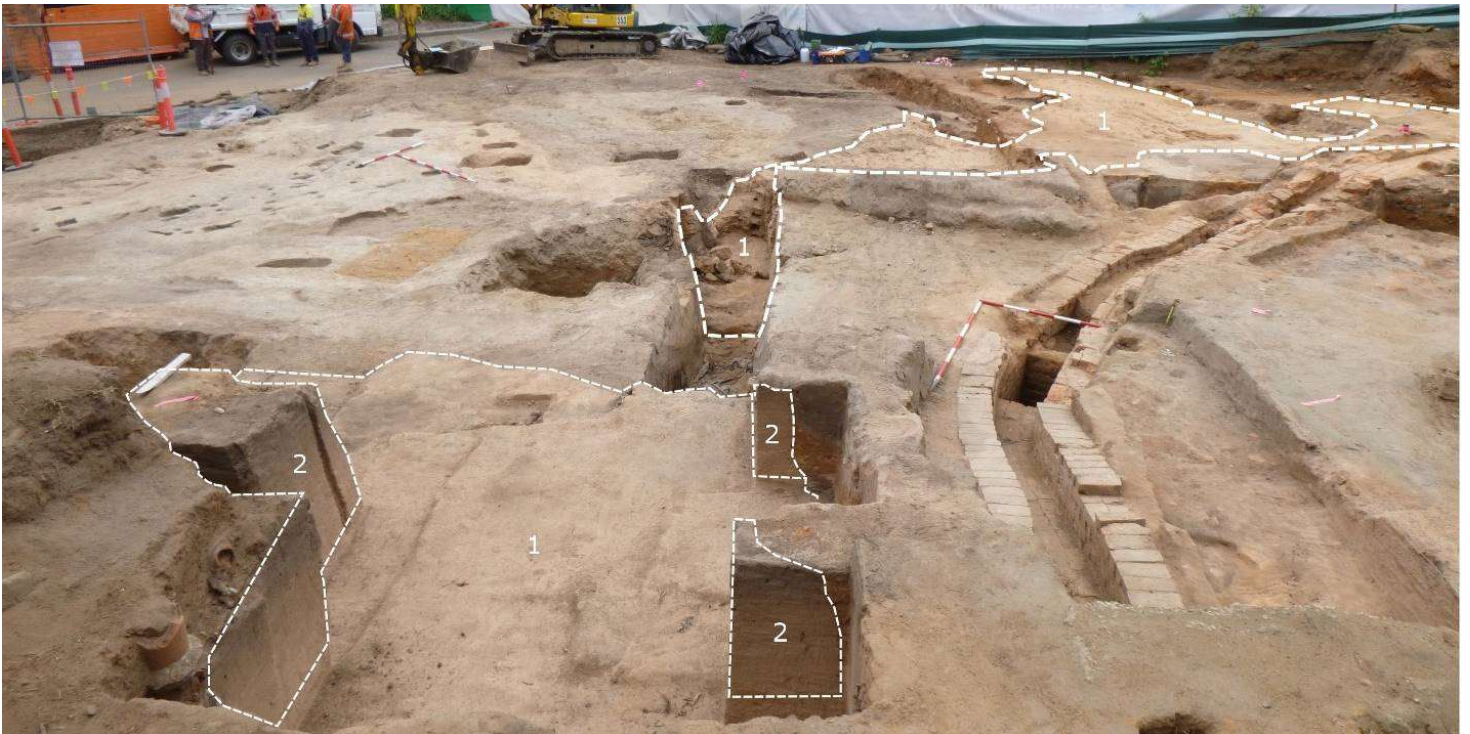


Figure 5.4 View north-east across grid area 2 during mid-excavation showing the truncated and remnant sand units present. Numbered are: 1) context 1103 at the base of test square excavations (foreground), at the base of the oviform drain trench (centre) and at the base of the Phase 5 road cutting (background); 2) intact soil profile of contexts 1067/1074 yet to be excavated. All other areas visible contain historical archaeological features and fills dating to phases 3 and 5. The sump joining box drain 2 to the oviform drain below is seen framed by the 1m scales.

5.4 Phase 2: The Green Hills Settlement (1794 - 1814)

5.4.1 GRID AREA 1

No direct evidence of occupation or activity dating from the period prior to Governor Macquarie's restructuring of the Green Hills/Mulgrave Place settlement was identified in grid area 1. It is possible that the undulating and apparently weathered surface of unit ii/iii (1364) represents a pre-1814 ground surface, however direct archaeological evidence of occupation and activity in this area commences with Phase 3.

5.4.2 GRID AREA 2

As discussed in Section 5.3.1, a remnant area of soil profile pre-dating the 1814-1816 period of Phase 3 was identified within the south-western part of grid area 2. This conclusion was reached on the basis of stratigraphic relationships, the clear gradational development of topsoil and subsoils as well as OSL dating and dating of the artefact assemblage. In terms of stratigraphic evidence, the pre-1814 date of this soil profile was evident from its relationship to the oviform drain trench (1106) and construction trench for box drain 2 (1047), both of which cut into this developed soil profile (Figure 5.5) which was subsequently buried by the uppermost backfill of the drainage works (1014) (Figure 5.6). The long-term development of this profile has been outlined in detail in the Aboriginal salvage excavation report.⁹¹ OSL ages derived from the profile confirm chronological continuity from the LGM (18ka) at the base of unit iv (1074) through to the Holocene and colonial era at the top of unit v (1067).⁹² In combination, these factors confirm the profile itself holds a high degree of stratigraphic integrity and represents part of the land surface present during Phase 2. The extent of the Phase 2 area is presented in Figure 5.8.

Following removal of the overlying fill deposits, historical artefacts dating to the early colonial period were evident on the surface of context 1067 including locally made (colonial) earthenware and Chinese export porcelain (Figure 5.7). Once identified as an element of Phase 2 and a key culturally bearing deposit of the Aboriginal programme, topsoil 1067 and subsoil 1074 were systematically excavated using 50cm salvage squares based on the site grid. This allowed the team to record in detail any individual historical features and recover 100% of historical artefacts within the excavated deposit. No historical archaeological features such as structural remains or refuse pits were identified within contexts 1067 and 1074 that would suggest direct occupation of the immediate or adjacent area. All recovered artefacts were distributed fairly evenly across the area with no notable concentrations present that might indicate a discrete discard event or localised activity (Figure 5.8).

Variation to the uniform and gradational deposit was limited to a vertical tree root channel near the western limit of excavation in grid square N5/E5. Paleoenvironmental analysis conducted as part of the salvage excavations⁹³ suggests that the Holocene environment at the time of European settlement was a mixture of eucalypt forest and mixed grassy/shrubby groundcover. It is likely that the minimal evidence of vegetation is a combination of sparse tree cover in the immediate vicinity of the location and loss of the upper portion of the natural topsoil during initial land clearance during the last decade of the 18th century.

⁹¹ AAJV WBRP Salvage – Aboriginal Heritage, 2019:53, 65.

⁹² Ibid, 60-63

⁹³ Ibid, 77-78 and appendices



Figure 5.5 View south-east showing Phase 3 cut and fill disturbance to the Phase 2, context 1067 and 1074 profile. Left of the vertical scale is the north-south oriented trench for the oviform drain (1106) and right of the scale is the more vertical east-west cut (1082) of box drain 2, seen covered in the background.



Figure 5.6 Detail of the natural/early historical topsoil context 1067 (unit v) and the paler, underlying aeolian sand context 1074 (unit iv). Above both and distinguishable from the developed soil profile is 20cm of Phase 3-4 fill deposit context 1014.



Figure 5.7 Detail of the profile and surface of topsoil context 1067 with a fragment of colonial ware visible on the surface.

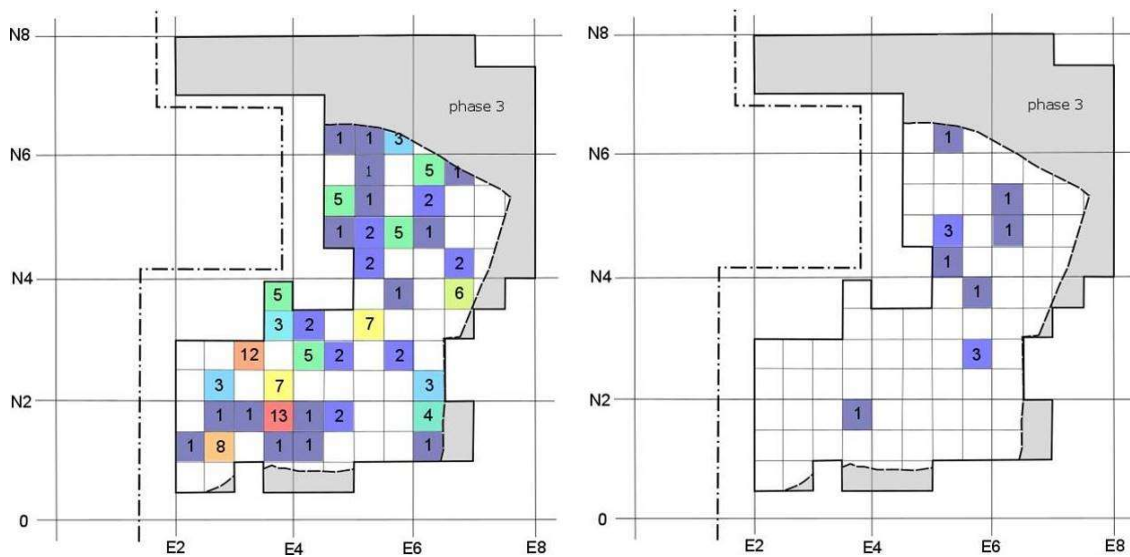


Figure 5.8 Number and distribution of historical artefacts recovered from the 25cm grid square excavation of Phase 2 contexts 1067 (left) and 1074 (right).



Figure 5.10 Pattern-moulded table glass base fragment with distorted diamond-impressed pattern. Scale is in centimetres.

Of the fragments of 6 'white' fine earthenware vessels represented, pearlware is the only form clearly identifiable, as all sherds have non-white pastes and blue-toned, pooled glaze, together with Chinoiserie geometric border and floral pattern transfer-prints in typically flat-toned, blurred blue transfer, a feature of early transfer-printed wares of the late 18th and early 19th centuries.⁹⁶

Outside of the 18m² area of contexts 1067/1074, later phase impacts to the stratigraphy of the site were found to have entirely removed all Phase 2-related strata except for a potential area of aeolian sand unit iv equivalent to context 1074 at the edge of excavation in the far north-west of the site in the vicinity of grid square N18/E6.

⁹⁶ Samford, P. (1997) Response to a Market: Dating English Underglaze Transfer-Printed Wares. *Historical Archaeology*, Vol. 31, No. 2:8

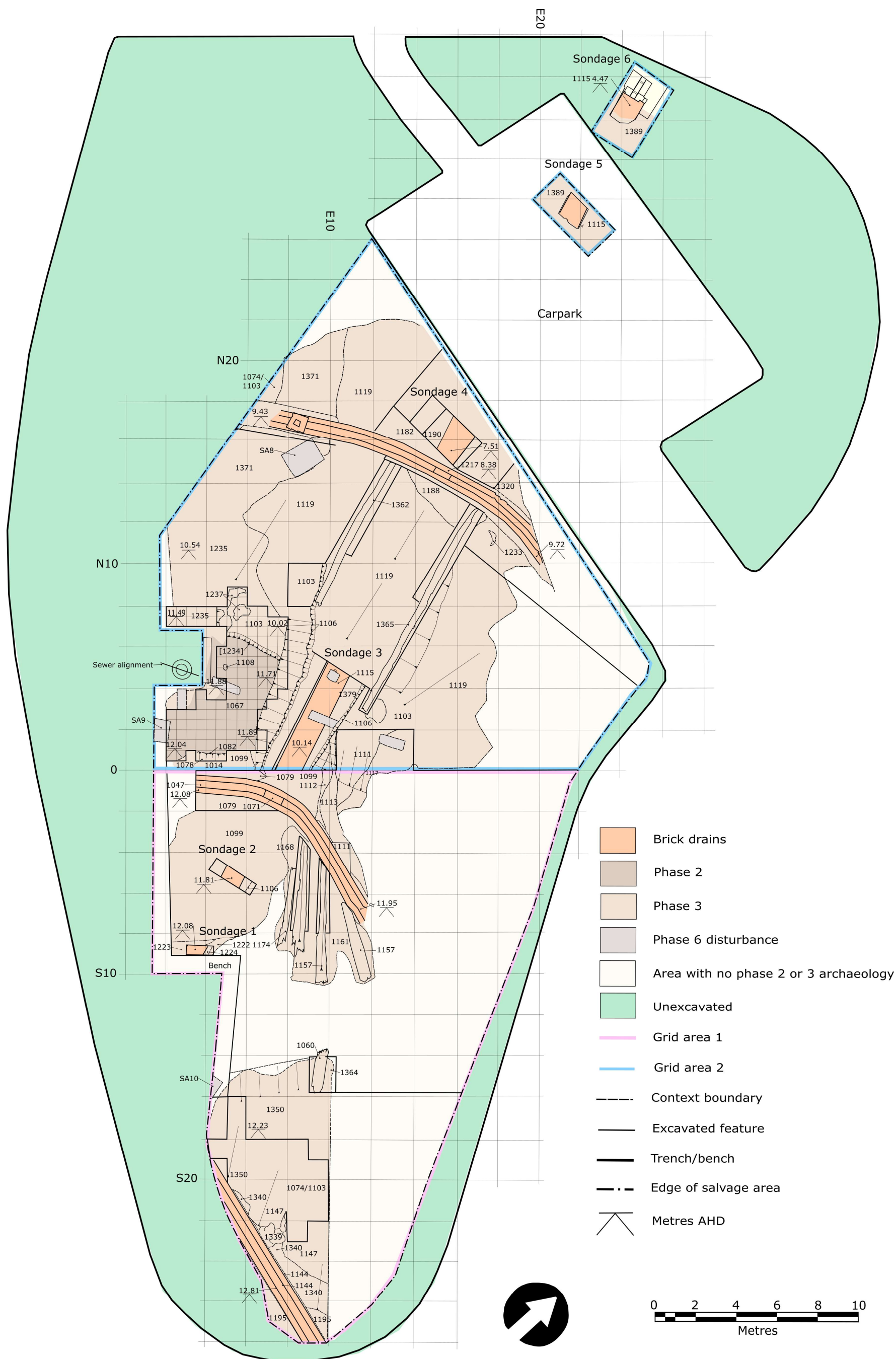


Figure 5.11 Site excavation plan (oriented to grid north) showing the extent of significant relics and associated deposits identified during the salvage excavations.

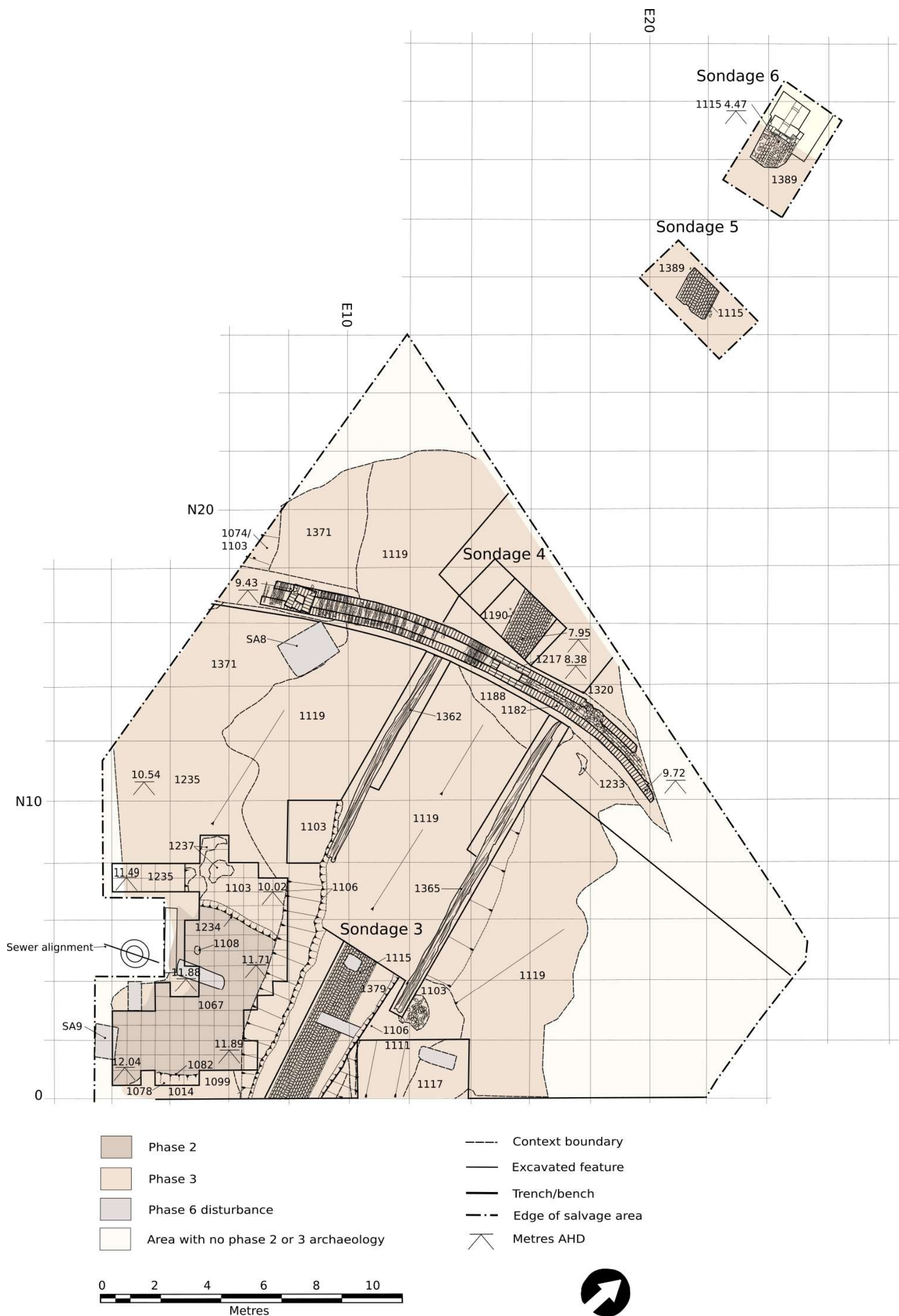


Figure 5.12 Detailed excavation plan of the extent of Phase 2 and Phase 3 archaeology identified within grid area 2 of lower Thompson Square during the salvage programme.

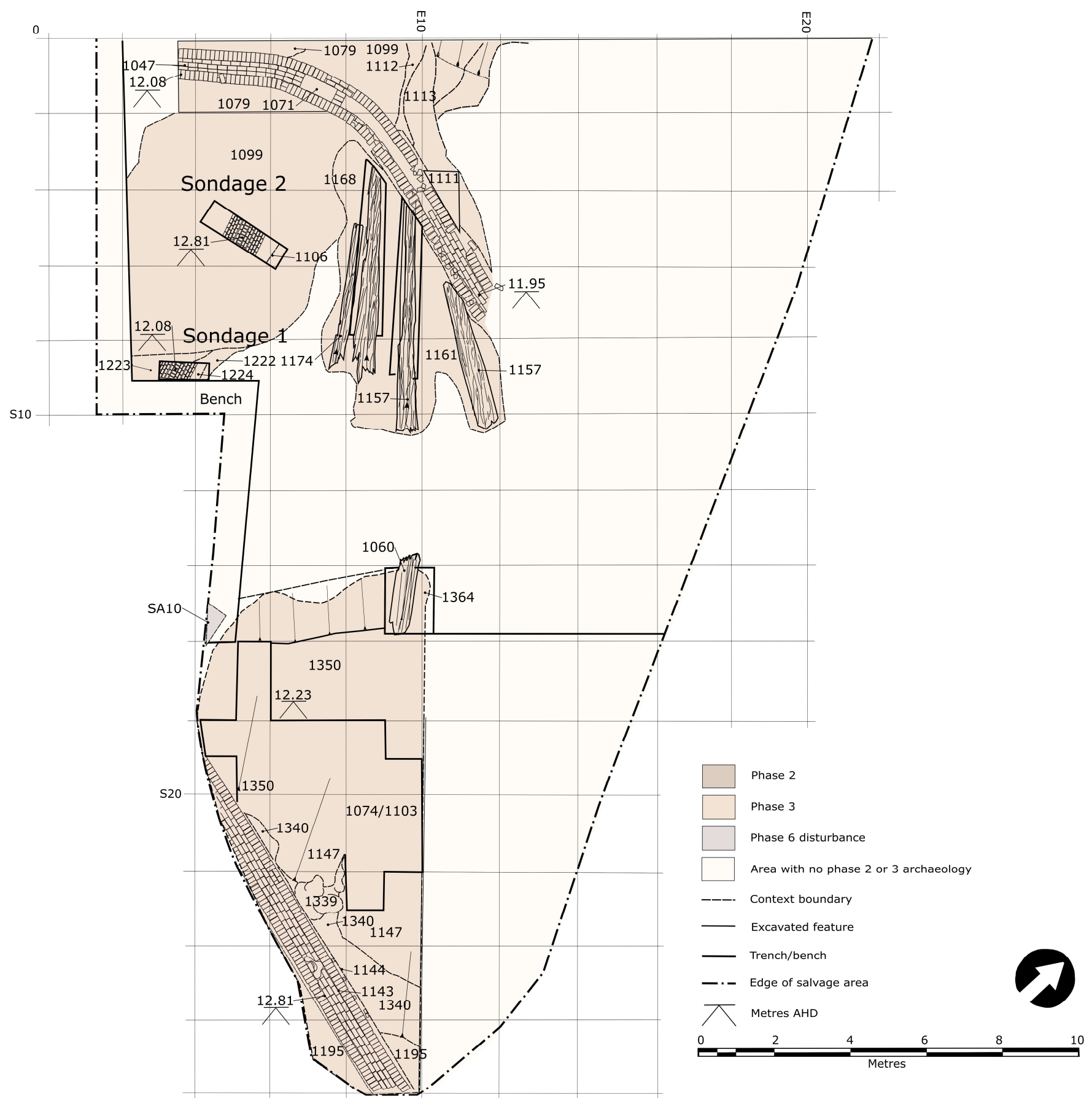


Figure 5.13 Detailed excavation plan of the extent of Phase 2 and Phase 3 archaeology identified within grid area 1 of lower Thompson Square during the salvage programme.

5.5 Phase 3: The Howe and McGrath Drainage System (1814 – 1816)

5.5.1 GRID AREA 1

At the southern end of grid area 1 and the salvage area, Phase 3 archaeology was identified along the western margin of the site from 13.25m AHD (1.2m below the modern surface). Following the removal of later phase fills and of two large trees, two overlapping deposits were exposed containing occasional early historical material; a yellow brown sandy clay (1195) to the south and a pale pinkish grey-brown sand (1147) to the north. Gradual reduction of these deposits identified them as redeposited fill materials derived from units ii and iv, both of which were laid down during the construction and burial of a sandstock brick box drain at 13.70m AHD (1.75m below the modern surface). The identification of this drain, numbered box drain 1 (1143), indicated that sections of the extensive drainage system constructed in 1814-1816 were likely to remain *in situ* below later disturbances in lower Thompson Square.

Ten metres of box drain 1 (1143) were subsequently exposed on an east-west alignment against the western edge of excavation between grid northings S19 and S28 (Figure 5.14 and Figure 5.15). The 80cm wide box drain 1 was constructed in English bond using sandstock bricks measuring 10cm by 23cm by 6.5cm in 6 courses, with the sixth stretcher course forming the base of the interior. Bonding was provided by shell lime/sand to mud mortar and traces of a covering of timber boards (1323) remained in place across this sub-surface drain, a feature that was later found to be better preserved over box drain 3, located further north. It was unclear if the timber boards were utilised to prevent the drain becoming a fall hazard if it was constructed on the contemporary ground surface, or if they were to cover the drain before burial. If the latter reason is correct then the use of timber rather than stone slabs for this function may have been to reduce construction costs, as buried timber would be expected to rot and cause the overlying ground to subside. The full extent of the exposed section of box drain 1 and all Phase 3 archaeology present in grid area 1 is presented in Figure 5.13.



Figure 5.14 View west along box drain 1 (1143). Levelling fill deposits 1195 and 1147 are seen at left and right respectively.

Deposits 1195 and 1147 were found to extend both around and over this structure, serving as both levelling and burying fill with only a minimal cut being present. No early historical soil or deposit consistent with a ground surface was identified above or below the level of box drain 1, an indication that the drain was constructed in large part across cut-down or weathered natural ground at the level of subsoil sand units iii (1103) in the south and iv (1074) to the north and subsequently buried by a wider filling event. Below context 1195 and level with the box drain, a thin, mottled disturbance deposit (1340) was recorded that is likely to be the working construction level.

A concentrated deposit of shattered colonial ware vessels (1339) (Figure 5.15 and Figure 5.16) was recovered from the interface between context 1340 and the weathered natural context 1364 discussed in Section 5.3.1. Locally made earthenware forms an important element of early colonial material culture studies in Australia. This concentration of six separate vessels comprised the most complete group recovered, from the only secured artefact deposit identified across the entire salvage excavation. This is an indication of the scale of disturbance present, in large part a result of the construction of the Phase 3 drain system itself. This accumulation may differ from the prevailing secondary or even tertiary deposition pattern across the site, as fragments comprising of 20-80% of each vessel were present. This suggests vessels accidentally broken nearby at the time of construction of the drain, or possibly goods in transit between locations were dumped on this spot prior to filling. From the line of grid easting E10 westwards, all Phase 3 deposits were found to have been removed by later Phase 4, 5 and 6 activity, including a service trench and grading and gravel bedding probably associated with Phase 5 road construction.

To the north, a further redeposited sand fill (1350) was identified beneath these construction fills and overlying disturbed natural sand that was devoid of historical artefacts. This general fill extended north before being truncated by the southern edge of the Phase 5 road cut. At the interface with this cut, a further truncated log partially embedded within context 1350 was exposed that is most likely a feature of Phase 5 activity.

Overall very few Phase 3 artefacts (NISP 67, MNV 16) were recovered from the southern part of grid area 1 surrounding box drain 1 (1143), and 58 of these artefacts were fragments of the six colonial ware vessels in context 1339. This supports the suggestion that this area of frequent movement of people and nearby domestic occupation was cut-down as part of the construction and land-forming works conducted during Phase 3. Of the remaining individual items, three of the six were construction-related, including a wrought nail, a crown window glass fragment and a piece of wall plaster. A thin, brazed copper alloy button pre-dating c.1830 was also recovered.⁹⁷

⁹⁷ Aultman, J. & Grillo, K. (2003) DAACS Cataloguing Manual: Buttons, updated June 2012:8



Figure 5.15 View north across box drain 1 (1143) showing mottled construction-related deposit 1340 and redeposited sand context 1147 (at left). The top of colonial ware feature (1339), consisting of grey sediment, is seen near the right-angled scales at the junction of these two deposits. Disturbed natural unit iii sand (1103) is seen within Aboriginal archaeological salvage squares at top left.



Figure 5.16 Lead-glazed colonial ware crock, one of six vessels recovered from feature 1339 in grid area 1.

During excavation of a number of refuse-filled pits related to the Phase 6 demolition of the Hawkesbury Motor Boat Club a second sandstock brick drain, box drain 2 (1047) was identified at a depth of nearly 2m below the modern surface. Concurrent with the excavation of box drain 2, a number of layered fill deposits (1099, 1122, 1123 and 1124) containing early 19th century historical artefacts were identified extending to the south-west (Figure 5.1). A targeted 1.5m by 0.5m test trench, Sondage 1, was excavated by hand into these deposits within grid squares S2/E3-E4, exposing the crown of the central oviform drain (1115) at 12.08m AHD, 2.3m below the modern surface. This location at the western edge of the excavation and approximately 10m east of Bridge Street remained the southernmost extent of oviform drain 1115 exposed during the main salvage excavation programme. As elsewhere along its length, the crown of the drain was sealed with a lime mortar topping (Figure 5.18). Sondage 1 illustrated that the construction trench and extensive fill deposits associated with the drain had been truncated to within 1m of the drain itself by a later road cut (Phase 5). Part of the lower portion of the construction trench cut (1106) was exposed in section within Sondage 1 in grid square E5 (Figure 5.19).

Artefacts recovered from the fill contexts within this sondage were limited to a single glazed and slipped colonial ware fragment and a cow metatarsal bone. By association with the drainage system, these fill contexts have a collective date range of TPQ 1814-TAQ 1816. This date range applies to all Phase 3 contexts as a result of the precisely dated construction event. It should be noted however that individual artefacts within the assemblages offer broader chronological information that is discussed in this section and in further detail in Section 6.

A second 2m by 0.8m trench, Sondage 2, was then excavated 1.7m north of Sondage 1 within grid square S6/E4, confirming the continuation of the oviform drain to the north.



Figure 5.17 View north through the centre of the salvage excavation showing linear fill deposits running below box drain 2 (1047). The sump connecting the box drain with the oviform drain below is adjacent to the 1m metre scale at centre.



Figure 5.18 View west showing the crown of the c.1814 oviform drain (1115) exposed within Sondage 2.

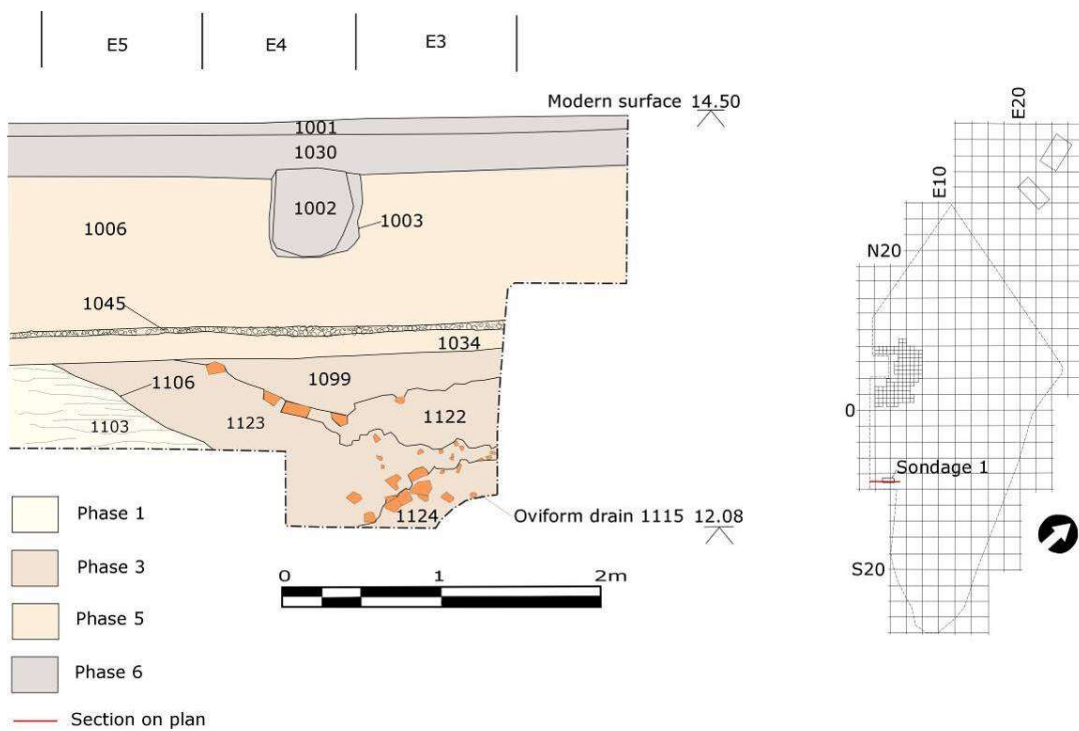


Figure 5.19 North-facing section of Sondage 1 showing the truncated Phase 3 construction trench (1106) and backfill of oviform drain 1115 by later Phase 4-6 disturbances.

Exposure of the full extent of box drain 2 within the salvage area confirmed that 10.8m of the structure remained *in situ*, rising from a central point of 11.45m AHD in grid square S2/E6 to 11.95m AHD in S6/E10 to the east, and 12.17m AHD in S1/E3 to the west. This elevation pattern confirmed that two separate lengths of box drain were present forming a bow-shaped whole, each draining from separate locations east and west to a central point over the oviform drain below, to which it was connected via a rectangular brick shaft (1071). The shaft and terminal length of box drain 2 had been constructed directly within the underlying fill deposit 1115 during backfilling of construction trench 1106. Shaft 1071 had been constructed as an extension of the vertical side walls of the oviform drain below, forming an uncrowned 38cm wide slot in the drain. The 66cm wide returns were constructed over the end sections of the crown, boxing in the whole structure.

The eastern section of box drain 2, heavily damaged by later activity, was set within a shallow construction trench, however further excavation revealed that this had been made into additional filling beyond that of the main oviform trench 1106, laid down prior to construction taking place. This suggests the Phase 3 terrain was undulating, if not gullied by erosion, requiring infilling to achieve the necessary grade of the drain. It is therefore likely that widespread filling took place around the area of box drain 2 as part of the broader contracted works. This could not be investigated further however, as immediately east of this area box drain 2 (1074) and all Phase 3 archaeology had been entirely removed by Phase 5 road construction.

Artefacts within these sandy fills (contexts 1155, 1158, 1161) were limited to three fragments, one each of pearlware, creamware and colonial ware.

In addition to the drains, five substantial split logs, the longest being over 6m in length and measuring 0.5m wide, were identified buried within these fills at varying angles. The timber logs ran north-south and appeared to follow the natural slope, with one of the long timbers passing beneath box drain 2 at a depth of 1m below the drain. The precise purpose and function of these logs are unclear; the logs were of varied lengths and modified by being stripped of branches and possibly split in half, although the level of preservation of the timbers made this difficult to determine. However, it was clear that these logs were not just fallen trees which were placed in the fill below the box drain. Historical records indicate that timber planks were used in the construction of Thompson Square and the first wharf, as well as in the subsequent replacement of the wharf after it had been damaged by the floods of the Hawkesbury, and timber piles were used for retaining along the foreshore area.⁹⁸ These timber logs may have been remnants of the construction material used to meet the various construction contracts awarded to Howe and McGrath which were surplus to requirements, or alternatively these logs may have been split logs which formed part of an earlier drainage system through the study area prior to construction of the oviform drain. Where the original landform of lower Thompson Square is considered to have contained erosional gullies leading downslope, these timbers may have been utilised as an informal causeway allowing carts and pedestrians access down to the wharf, or as a means of bridging the gully during construction of the box drain.

⁹⁸ Howe and Magrath, (First) *Contract 8 August 1814 SLNSW Howe Papers ML MSS 106*, Item 37; Col. Sec. March, *1816 Report of committee of survey re new Government wharf at Windsor* (Reel 6046; 4/1736 pp.61-3); L. Macquarie Journal, 14 November 1816, SLNSW ML A773, p.64.

West of the shaft, a 500cm deep and approximately 2m wide dished construction trench (1082) had been excavated into Phase 2 soils 1067 and 1074 to achieve the required grade toward the west (Figure 5.21). This had been backfilled in conjunction with the main oviform fill deposits (1077, 1078 and 1079) and included a low-density total assemblage of 17 finds from these three separate fill layers. This was largely made up of ceramics (64.7%) with nine separate vessels being represented. As with Phase 2 deposits, Canton decorated Chinese export porcelain (36.4% of MNV) and creamware (27.3% of MNV) were common. Notable finds included an iron cold chisel (from 1079), believed to have been utilised during construction as a brick bolster, and an early gun spall form of gun flint (from 1077), in common usage to the early years of the 19th century before this type was superseded by superior English blade flints.⁹⁹

A further unusual find (WBRHS18313) was recovered from the interface between contexts 1077 and 1078 (Figure 5.22 and Figure 5.23). This appears to be almost half of an exploded artillery projectile, specifically a fuze mortar casing of a type in use during the Napoleonic and American Revolutionary wars of the period. The circumstances under which a relic of this nature could have been discarded in fill during construction of the drain system can only be wondered at, however comparison with the specifications of 11 ½ pound mortar shells produced in Britain between 1801-1813 shows an almost exact match in diameter, tapering fuse hole diameter, proportional weight and shell thickness (Table 13).¹⁰⁰



Figure 5.20 View north-west showing one of timber logs buried within Phase 3 fill deposits laid down for the construction of box drain 2, seen near the figures.

⁹⁹ Ballin, T. B. (2012) 'State of the art' of British gunflint research, with special focus on the early gunflint workshop at Dun Eistean, Lewis', *Post-Medieval Archaeology* 46/1: 116–142.

¹⁰⁰ McConnell, D. (1988) *British Smooth-Bore Artillery: A Technological Study to Support Identification, Acquisition, Restoration, Reproduction, and Interpretation of Artillery at National Historic Parks in Canada*, Parks Canada publication, Ottawa; Manucy, A. (1956) *Artillery through the Ages: A Short History of the Cannon*, National Park Service Interpretive Series, History No. 3, U.S. Department of the Interior, Washington.



Figure 5.21 Box drain 2 (1047) with the central shaft framed by the 1m scales. The areas of disturbance to the structure are the result of Phase 5 road construction (top right) and Phase 6 demolition of the Hawkesbury Motor Boat Club (centre surrounding the shaft). The wide trench cut and associated fills of 1047 are seen in the adjacent test excavation squares at lower right.



Figure 5.22 Early 19th century mortar shell fragment exposed during excavation of the south-west quadrant of grid square N0/E3.



Figure 5.23 Mortar shell fragment WBRHS18313 with the split fuse hole visible above the 20cm scale.

5.5.2 GRID AREA 2

Once the relationship between box drain 2 and the oviform drain below had been established, a third 5m by 1m trench, Sondage 3, was excavated immediately north of box drain 2 along grid northing 1 from E7 to E12. The crown of drain 1115 was found to lie at significantly greater depth than previous encountered, being 3.48 metres below the modern surface (10.14m AHD) below the uppermost construction deposits, an indication of the greater degree of preservation of the associated trench (1106) and fill deposits together with the Phase 2 soil profile immediately to the west.

Sondage 3 was excavated by hand and detailed recording carried out for approximately 15m³ of 16 layered fill deposits to the base of oviform trench 1106, and the north-facing section recorded (Figure 5.24 and Appendix 1). This provided a sample study of the nature and contents of these fills in order to consider whether material may have been introduced from elsewhere in Windsor, or whether the material was entirely local in origin. Results of this analysis are presented in Section 6. It was evident from the sample that the majority of these fills were composed of redeposited material consistent with the natural units and historical topsoil found at the site. Exceptions to this pattern may exist in a number of fill contexts contained clods of highly organic loamy sand, particularly contexts 1111, 1118 and 1129. These organic clods are consistent with humic material often seen in refuse accumulations such as cess pits. However, as 88% of the Phase 2 historical surface had already been entirely removed or reworked by this time, it is entirely possible that all of this material was obtained from humic soils within the immediate area. A significant quantity of broken brick was also contained within these fills. Most of these are considered to be construction waste, as they were generally accumulated near the basal fills over the drain, together with cobbles removed from the basal clay. Some bricks however had mortar adhering and suggest that these originated from a source other than the drain system construction. This is likely to be from the demolition of the Punt House, as noted in the 1904 newspaper article.¹⁰¹

¹⁰¹ *Windsor and Richmond Gazette* 2 April 1904;1

The artefacts recovered from the sampled fills within Sondage 3 were consistent in range, quantity and date with those excavated from Phase 2 contexts 1067 and 1074. A low-density scatter of 156 historical artefacts was recovered from the sondage comprising fragments of 61 original items. As with the Phase 2 contexts, this minimum number of items was largely made up of highly fragmentary ceramic sherds representing an MNV of 22 vessels, followed by mortar-related shell (MNV 18), glass (MNV 12), of which five were beer/wine bottles, four were crown window panes and three were table glass vessels, bone (MNV 7) and unmarked clay pipe fragments (2).

The ceramics assemblage of 42 artefacts included a high proportion by NISP of both locally produced earthenware (18%) and Chinese export porcelain (16.4%) relative to ceramics imported from Britain (creamware 24.5%, pearlware 9.8%). A single whiteware sherd was recovered from one of the fill layers, bearing an early, flat-toned Chinoiserie border print. The capping fill deposit, 1099, had a slightly later overall date range of 1834-1897 due to likely inclusion of four whiteware sherds from the overlying Phase 4 context 1014 that postdate the construction of the drain system. Of the entire Phase 3 ceramics recovered, only nine fragments (MNV 8) of whiteware were identified, five of which are likely to be the result of disturbance at the interface between the uppermost fill layer 1099 with Phase 4 context 1014 and postdate the construction of the drain system.

Analysis of the Phases 3 and 4 artefacts suggests an overall date range of 1834-1897 for 1099, despite this deposit being clearly associated with the backfilling of the Phase 3 drainage system. However, the Phase 3 assemblage may provide evidence that transitional, heavier, clear-glazed and whiter earthenwares were present at this time, though in very limited quantities. This transition is discussed further in Section 6.3.

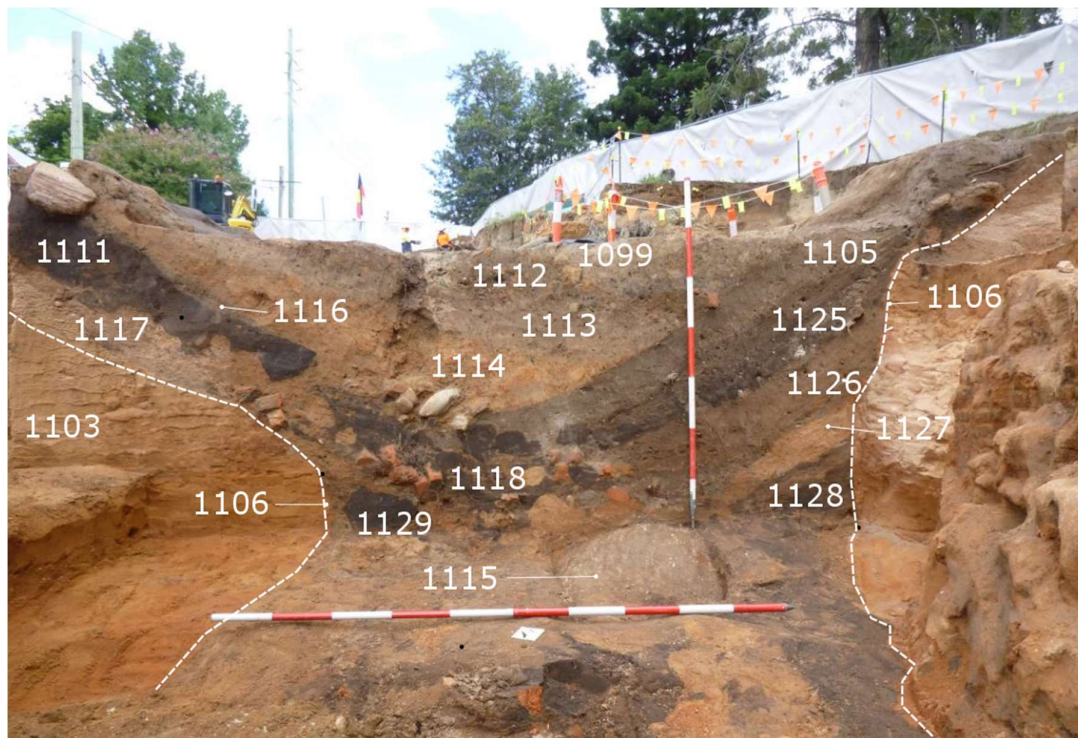


Figure 5.24 View of the north-facing section of grid northing N1 in the expanded area of Sondage 3 and associated contexts. The upper and most extensive fill 1099 has largely been removed. The oviform drain is just visible between the two 2m scales.

The area of Sondage 3 was ultimately opened out into a broader 3m by 5m excavation that exposed 3m of the oviform drain to near base level and 5m of the western trench cut (Figure 5.25). The crown arch of the oviform drain was found to be constructed with 8 header courses locked by a single soldier course at the apex of the crown. The arch rested on three stretched courses providing springing for the arch and this in turn rested on 10 courses of near vertical English bond side walls above the inverted base (Figure 7.1 and Figure 7.3). Two separate Phase 6 cuts into the drain were recorded within Sondage 3 (Figure 5.25) that are discussed in Section 0. The larger of these afforded a section view through half of the drain that aided in establishing the full dimensions and construction method including the invert, which was constructed in a mixture of stretcher coursing and *ad-hoc* lining of the flow channel with broken bricks. The construction technique employed is discussed further in Section 7.1.3 within the broader context of drain construction techniques utilised in Sydney during the early colonial period. The drain has an internal height of 1.3m, an invert width of 70cm, a height from invert to the spring line of 80cm and a width at the spring line of 97cm. The drain has a maximum external width of 1.5m, and height of 1.8m. The full profile of grid northing 1 and the oviform drain is presented in Appendix 1, and a detail of the oviform drain section is provided in Figure 7.1.



Figure 5.25 View west showing the oviform drain within the expanded area of Sondage 3. The Phase 6 disturbance cut into the drain is seen at centre by the 2m scale and tertiary clay at base.

Concurrent with the excavation of Sondage 2 and 3, a third box drain (1183) was exposed during excavation of Sondage 4, a 2m by 80cm sondage between grid squares N15-N17 and E15-E17 at the northern edge of lower Thompson Square (Figure 5.28). Identical in construction to box drain 2, box drain 3 retained much of the decomposed timber board covering (1187) also identified in patches over box drain 1. Preservation of the fabric was generally better than the southern feeder drains, excepting an area immediately east of the sump (1217) where the walls and base over a 1m section had been heavily damaged in the past. Bricks were missing from this area and it is likely that this section had been exposed at some point in the past. During construction, box drain 3 had approached the shaft at too high an elevation and this was corrected via a plunge in the gradient over the final 3m within the oviform drain cut. Of note is that the sump was at a slightly higher level than the approach of the box drains to either side. As it appears that the box drains were constructed on the sandy material originally excavated prior to construction of the oviform drain which was used as levelling, it appears that the drain slumped or subsided in this area while the stable brick walls of the sump remained at the original height. Furthermore, while bricks in the base of the box drain to the east of the sump appeared waterworn, no such erosion was visible in the base of the western half of the box drain. This is interpreted as meaning that only the eastern side of the drain had been in operation, possibly with the western side of the drain being constructed but never actively commissioned.

The shaft, identified at 8.38m AHD, was emptied to within the cavity the oviform drain by vacuum truck and the internal structure confirmed to be the same as that of box drain 2. Throughout the length of the drain, fill material containing large cobbles of the type seen in the tertiary clay at the site was found to block the structure. This would appear to be the result of a deliberate effort to fill the structure and may relate to the section of oviform drain identified and discussed in greater the archaeological assessment relating to the supplemental Area 1 excavations. In summary, the drain appeared to have been heavily damaged during construction of the later 19th century road which bisected Thompson Square and filled with large round cobbles. It is likely that those recovered from the shaft had rolled down the drain as part of the backfill attempt.

From the highest eastern point (9.72m AHD) at grid square N10/E20, box drain 3 had been entirely removed by Phase 5 activity, most likely associated with road construction. Of the remaining 15.2m identified, the majority was constructed entirely within fill deposits associated with the oviform drain trench and reduction of the slope to the river. Artefacts associated with construction and recovered from fill deposit 1366, a redeposited pinkish grey sand, included two further cold chisels likely to have been utilised as brick bolsters (Figure 5.26).

At this western end of context 1183 (9.43m AHD), an additional feature was recorded that distinguishes box drain 3 from the other two. In grid square N17/E8, a brick square (1322) measuring 85cm by 85cm was placed over, but not keyed into, the box drain, apparently providing yet another inlet to the main drain from this point or another drain at a higher level. The inlet (1322) had been truncated, once again, by Phase 5 activity which had reduced it to just two courses of *ad-hoc* brickwork. As the pattern of box drain construction indicates that they were generally sunk less than 1m below the remediated surface, this inlet is likely to have originated at the surface and may be the base of one of a number of gully traps added to catch surface runoff and direct it into the main oviform drain.



Figure 5.26 Cold chisels recovered from the interface between fill context 1366 and box drain 3.



Figure 5.27 South-east facing view of truncated brick structure 1322 resting on the western end of box drain 3 with timber board covering *in situ*.

Box drain 3 was exposed in plan within a bench of Sondage 4 and excavation continued a further 1.5m down to the crown of the oviform drain from 7.51m AHD. The fill stratigraphy differed to that of the central area of the drain in Sondage 3, being predominantly a bulk, redeposited natural sand (1182) derived largely from aeolian sand unit iv, context 1074, over thinner humic sandy loam fills (1190, 1191) directly over the crown of the drain.



Figure 5.28 View north-west of box drain 3 (1183) from the truncated eastern end. The two cold chisels seen in Figure 5.26 were recovered from the area next to the 1m scale.

Of the material that was excavated by hand from Sondage 4, a smaller artefact assemblage was recovered (NISP 39) than most other drain fill contexts due to the bulk of the excavated fill being redeposited natural sand deposit 1074. This is in contrast with the number of Aboriginal artefacts recovered from these fills.¹⁰² The assemblage was almost entirely ceramic (NISP 36, MNV 13), an indication of the prevalence of food service/preparation material across the Phase 3 archaeology as a whole. Of these ceramics, creamware was most prevalent (NISP 28, MNV 9), including fragments of individual scalloped, industrial slip, and painted rim vessels. A single *Anadara trapezia* shell was also recovered, an indication that context 1182 was obtained from outside of the construction mortar preparation area. The two remaining finds were a 1799 farthing (Figure 5.32), the fourth recovered from Area 1, and a fragment of free-blown wine bottle glass.



Figure 5.29 Shaft 1217 of box drain 3 with the oviform drain seen below in Sondage 4. Note the slumping of the drain either side of the shaft. The vertical scales are 1m (horizontal) and 2m (vertical).

¹⁰² AAJV (2019) Salvage Excavation Report – Aboriginal Archaeology, *Unpublished Report for NSW Roads and Maritime Services*.



Figure 5.30 Interior of emptied shaft 1217 with crown arch of the oviform drain visible at base.



Figure 5.31 South-facing view of the oviform drain in Sondage 4.



Figure 5.32 Reverse face of 1799 farthing recovered from Sondage 4 fill deposit 1182, one of four found during the salvage excavations.

Following this detailed excavation, the remainder of the oviform drain backfill identified during the salvage excavations was removed in bulk and all Aboriginal and historical artefacts recovered. This included the mechanical excavation of approximately 300m³ (equivalent to ~720 tonnes) of the area's upper fills within trench cut 1106 between sondages 3 and 4. This bulk excavation yielded the majority of Phase 3 artefacts and delineated the outline of trench 1106 between sondages 3 and 4, exposing in the process two further split timber logs that had been set against the upper margins of the construction trench (Figure 5.33). These logs were of substantial length, the western (1362) being 7.65m in length and the eastern (1365) 11.10m in length, extending almost the full length between Sondages 3 and 4, and averaging 40cm in width. As with the timbers associated with box drain 2, these deliberately placed logs may have been associated with the construction of the drainage system. Whilst the actual function of these logs has not been determined at this stage of research it would be possible to consider that they facilitated movement of the building material or provided some kind of stabilisation or support to the structural elements or substantial fills. Furthermore, the timbers may have been used to define the edge of the construction trench for the oviform drain. As additional timbers were also identified to the north of the principle Area 1 excavation, in the supplemental excavation area located to the north of grid area 2, there is a suggestion that these timbers may have pre-dated the construction of the oviform drain and served as wooden pipes for the drainage of surface water. It is anticipated that the results of further examination of timbers taken for conservation during the supplemental excavation works will be discussed in greater depth in the archaeological assessment being prepared to cover the remainder of the WBRP.

A small pile of broken bricks (1368) discarded during construction was identified just below the southern end of 1065 within truncated natural 1103 sand.



Figure 5.33 View south-west from box drain 3 along the length of oviform trench 1106, the margins of which are delineated by timber logs 1362 (at right) and 1365 (at left).

Almost the entire area east of sondages 3 and 4, was found to have been truncated during phases 3 and 5, removing all trace of any c.1814 ground surface that may have existed prior to construction of the drain system. This truncation began immediately east of Sondage 3, cutting through a small area of overspill of drain system fills 1111 and 1117 centred on S1-N1/E10. Enough of this remnant patch of contexts 1111 and 1117 remained to determine that these fills had been deposited onto a relatively steep 20-25% slope toward the north (**Figure 5.34**). Subsequent excavation to the north-east determined that preservation of the overspill (1119) was more widespread along the north-eastern margin of the drain trench. The continuation of fill material from the trench out onto this area indicates that the overspill remains *in situ*, however no further extent of the above-mentioned slope or historical features remained below this fill, which rested directly on level, truncated and disturbed sandy subsoil 1103, present at the time of construction. This stratigraphy was itself further truncated by extensive Phase 5 disturbance and filling from grid easting E18 to the eastern limit of excavation by Old Bridge Street.

The absence of developed ground below deposit 1119 here is at odds with the western side of the oviform trench, where a section of deep, developed soil profile was recorded. Here too though, the Phase 2 soil profile had been sharply truncated to the indurated sands 1103, 1.5m below the level of topsoil 1067. This cut (1234) was backfilled with redeposited aeolian sand (1235) during the works associated with the oviform drain, but does not appear to be associated directly with construction of the drain system. Slumped unit v organic sand (context 1237) and artefacts were identified below deposit 1235, including six fragments of a Chinese 'Kitchen Qing' porcelain vessel with a conjoining fragment found in the adjacent area of context 1067 (**Figure 6.15**). It is considered likely that this cut through the Phase 2 soil profile denotes the point at which ground was cut away to aid access to the deepening trench and provide material for filling downslope. Alternatively, it may denote a collapse of the stabilised aeolian landform during works, as the cut appears to have been immediately refilled as part of the backfilling.



Figure 5.34 View south-east toward the small strip of brown drain fill 1111/1117 deposited onto a sharp break of slope to the north. The area is pedestalled due to surrounding excavation of the underlying sand units by the Aboriginal team. Widespread disturbance immediately to the east (left) of this strip occurred during Phase 5.

The final areas investigated that are grouped here with grid area 2 were sondages 5 and 6, excavated within the carpark and embankment below lower Thompson Square as shored sounding pits to inform the extent of the oviform drain to the north. Sondage 5 confirmed that the drain, found at depth (5.10m AHD) below redeposited alluvium fill and later fills, had survived extensive Phase 5 cutting and filling associated with the approach road to the Windsor Bridge.

In Sondage 6, 4m to the north, the drain was again identified, however this sondage revealed that the drain had been accessed here at least once before during its operational life. At some stage after its initial construction, the drain had collapsed at this point and had thus become blocked. This collapse was apparent from the slumping of some of the arch headers and soldier bricks towards the north. Part of the western lower wall of the drain had also collapsed in that location. The collapse and consequent blockage had necessitated the excavation and repair of the drain at this point along its course. This repair consisted of the removal of the collapsed bricks, the insertion of a large, 27cm diameter ceramic drain pipe into the mouth of the drain and the construction of a new stabilising headwall to seal the collapse (Figure 5.36). Interestingly, the drain in this location does not form a complete oval, as the lower courses rest on compact tertiary clay at base. A removed section of the inserted pipe confirmed it is of a non-vitreous earthenware fabric more commonly utilised during the mid-19th century. However, the dark yellowish patent cement mortar used in the headwall is consistent with a late 19th or early 20th century date. Given the history of severe flooding in this area, it is likely that the discharge (northern) end of the drain was of necessity rebuilt on more than one occasion due to flood damage.



Figure 5.35 Oviform drain 1115 as seen in Sondage 6 from ground level. The inserted earthenware pipe and headwall are visible at the terminal point. The scale spanning the drain is 1.2 metres in length.



Figure 5.36 View to the south-east of the stabilising headwall and large earthenware pipe inserted into the base of the oviform drain, constructed here with compact tertiary clay forming the base.

5.6 Phase 4: The Mid-19th Century (1816 – 1874)

5.6.1 GRID AREA 1

Phase 4 spans a prolonged period of relative inactivity in Thompson Square and this is reflected in the archaeological record. No archaeological deposits or features dating from this period were identified within the southern, elevated part of grid area 1, including no evidence relating to the mid-19th century roadway known to have passed through the vicinity of this area from at least 1842 until 1874. From the stratigraphic profile (illustrated in Appendix 1), it is apparent that the upper portion of Phase 3 fills that would have formed the 19th century ground surface was truncated by later phase activity.

North-west of the Phase 5 road cutting, a widespread, grey-brown silty sand fill deposit (1014) was identified that sealed the Phase 3 stratigraphy. This redeposited alluvial fill returned an overall date range of 1862-1897, however the range of individual items spanned the full length of the 19th century. Of more utility as dating evidence was the layering of deposit 1014 directly over the Phase 2 historical topsoil at the junction of grid areas 1 and 2. This fill was therefore laid down during Phase 3, levelling the area above context 1067 and the drainage system. Full exposure and recording of deposit 1014 determined that it was largely analogous with the Phase 3 fill deposit 1099. Over the course of the 19th century, this deposit accumulated scattered refuse that combined with the earlier debris within it. Within the north-western section of grid area 1, deposit 1014 had been heavily disturbed by Phase 5 and particularly Phase 6 activity.

5.6.2 GRID AREA 2

From 1816 until the construction of Windsor Bridge from 1874, fill 1014 formed the ground surface or near ground surface over at least the area recorded (45m²). Over the course of the excavation it was established that deposit 1014 and the upper Phase 3 fill deposits associated with either end of box drain 3 had been truncated during Phase 5 and that further erosion and removal of the deposit had occurred around the site, particularly throughout the eastern half of grid area 2. Numerous cuts and features within deposit 1014 were identified, however few of these contained artefacts of any dating utility and all are considered likely to have been made during Phase 5 on the basis of the site history. Of the 115 artefacts recovered (NISP), the increased presence of printed and semi-vitrified whiteware and bottle glass distinguish this deposit from subsurface Phase 3 deposit 1099 and the assemblages of Phases 2 and 3.



Figure 5.37 View north showing the initial exposure of the lighter grey-brown Phase 4 fill deposit 1014 that denoted the level of 19th century lower Thompson Square.



Figure 5.38 View west showing the initial removal of Phase 4 deposit 1014, seen below the thin line of black foundry waste at right. Phase 2 historical topsoil 1067 is just showing through at left.

5.7 Phase 5: Windsor Bridge and Associated Roads (1874 – 1934)

5.7.1 GRID AREA 1

The majority of impacts to the drainage system and historical archaeology occurred during this phase, foremost of which was the cutting of an 11.5m wide roadway through the centre of the study area, realigning the 'punt hill' road from the Terrace to the west to what would become Old Bridge Street. This road (1035) was exposed and recorded including an intermittent hard-packed, stony surface (1045) over up to 80cm of reddish-brown loamy clay sand bedding (1034) [Figure 5.40]. The overall grade of the curved and cambered road surface was found to be 6%, falling from 12.73m AHD in the west to 11.94m in the east. Beneath road deposit 1034, an earlier thin, hard-packed, crushed sandstone surface was identified in limited areas to the east, over the cutting surface of indurated natural sand (1046). The latter contained scoured depression (Figure 5.41) that were backfilled with loamy fill and late 19th century refuse (1202, 1215) or deposit 1034. There is potential for these shallow depressions to be wheel ruts running over saturated ground, suggesting this compact natural unit was utilised as the original road surface for a period of time prior to being resealed. On the southern road margin, three shaped sandstone blocks (1152) of varying sizes formed part of a trench lining for a vitreous ceramic drain pipe (1153) (Figure 5.39).



Figure 5.39 South facing view of sandstone kerbstones or trench lining blocks 1152 for vitreous ceramic pipe 1153.

As with Phase 4, no historical archaeological features dating to Phase 5 were identified in the upper southern end of grid area 1, as Phase 6 activity had truncated the stratigraphy down to within Phase 3 deposits.

North of the road cutting, fill layer 1022 extended out and over almost the entire site as a broader fill deposit up to 60cm in thickness. Fill 1022 had been laid down concurrently with sandy loam 1023 and an intermittent layer of foundry waste (1028), with these deposits forming bulk levelling fills across the site. The late 19th century date ranges of these fills and road surface 1045/1034 suggest they were laid down during the works associated with raising the bridge, the approach road and the general level of lower Thompson Square to near their current levels in 1898. This work sealed Phase 4 deposit 1014; the ground surface up until this point was indicated by postholes in the north-western part of grid area 1 (Figure 5.42). Based on the location of these postholes being immediately adjacent to the road combined with the wooden timber identified in relation to the original road level, these are believed to be evidence of the rail fencing seen in historical photographs (Figure 2.12). Beside the easternmost of these (1197), a small roughly shaped sandstone block (1200), possibly a reused road marker, was identified just before the eastward truncation of context 1014.



Figure 5.40 View north over road surface 1045/1034 during excavation.



Figure 5.41 View north of one of several possible scoured out ruts within the lower eastern end of road surface 1046. Fill material is visible to the north in the background



Figure 5.42 Fenceline postholes 1018 and 1020 and a possible timber fence rail against the northern edge of road cutting 1035 in grid square S2/E4. These features were buried by fill deposit 1006 (right) c. 1934.

5.7.2 GRID AREA 2

Further non-structural features were identified across deposit 1014 in grid area 2, including shallow cuts filled with debris such as rusty metal, glass and wire, and scattered postholes with occasional late 19th century artefacts. East of the line, features identified to the north of this road included frequent tree root channels, recorded in detail over the oviform drain, small cuts with occasional cultural material, wire and metal debris (e.g. 1203) and scattered postholes (e.g. 1090, 1290). Where the latter contained post residue, they were generally round and of dimensions and alignments consistent with stockyard fencing; one of the only utilisations of this part of Thompson Square following the construction of the oviform drain in 1816. A patchwork of irregular features across the interfaces of the various silty Phase 5 deposits (1014, 1029, 1133) denoted tree root disturbance, reflecting the scrubby 'eyesore' nature of the area as discussed in the *Windsor and Richmond Gazette* at the turn of the century.

Of more relevance to the preservation of the early fabric of the site were Phase 5 disturbances to the north-west of grid area 2, where the suspected gully trap for box drain 1183 had been truncated and the area refilled with a grey-brown alluvial silt (1133) and a refuse dump (1245) during Phase 5, and the north-east of grid area 2, where widespread removal of box drain 3 and associated deposits had occurred to significant depth. This disturbance comprised an eastward sloping cut from grid square N0/E19 at the edge of road cutting 1035. This was filled with humic, rubbish-filled loam (1229,1351) and included re-disbursed shell mortar, a section of timber log (1328) consistent with those from Phase 3 and sandstock brick rubble (1338) likely to derive from either box drain 2 or 3 (Figure 5.44). The artefact assemblage from deposit 1351 had a date range of 1898-c.1920, with the TPQ provided by a Stower's brand pickle jar (made in Bendigo) produced from this context.



Figure 5.43 View east over the impacts of Phase 5 in grid area 2. From left are: scattered postholes, shallow cuts and tree roots by the scales; at centre right of the excavator is dark humic bulk material filling the eroded margin of the converging roads; and at right the orange-tan base of road cutting 1035 and truncated box drain 2. From the oviform drain trench edge seen beside box drain 2 it can again be seen that the original terrain was sited at a higher elevation.



Figure 5.44 View south-west across Phase 5 disturbance deposits 1229, 1351, 1328 and 1338. This entire area was found to contain late 19th century cultural refuse to the truncated natural sand below, including vitrified whiteware and imported stoneware seen framed by the scales.

5.8 Phase 6: The Modern Era (1934 – 2018)

5.8.1 GRID AREA 1

Following the construction of the current Bridge Street alignment, the entire area of the road cut 1035 and verges was filled with bulk, pale orange-tan clay sand up to 1.7m thick (1006), probably excavated directly from the adjacent Bridge Street cutting. Photographs of these works¹⁰³ show considerable disturbance to the elevated southern part of grid area 1 and this is seen archaeologically in fill deposits 1130, an upper layer of this Bridge Street material, and deposit 1131, blue metal gravel dispersed across the margins of Bridge and Old Bridge streets.

¹⁰³ AAJV 2017b, pg. 106

5.8.2 GRID AREA 2

Shortly after the filling of the road cutting through the site, an east-west aligned sewer main was tunnelled beneath Thompson Square as part of the broader Windsor sewerage scheme using boring plant hired by council from the Department of Works. These works are discussed further in Section 7.1.3. In the more recent past, a series of at least 3 very narrow rectangular pits measuring generally 1.7m by 70cm and over 4m in depth were sunk to this sewer main, one of which (1242) cut a clean half section through the oviform drain in grid square N2/E8 (Figure 5.25). Directly north of context 1242, a fourth pit had also been excavated to the top of the drain, some damage caused, and the area carefully resealed with concrete (1264). The purpose of these neat shaft pits is not clear, but may relate to the combined effects of works associated with the Hawkesbury Motor Boat Club and relining the original sewer main. They appear to date from the time of the demolition of the Hawkesbury Motor Boat Club as they originated near the modern surface level and contained modern refuse, including asbestos sheeting fragments and both 2 and 1 cent coins minted between 1981 and 1987.

The footings and a number of drain pipe cuts of the motor boat club itself were identified across a large part of the project area. These were constructed as stepped strip footings that caused minimal impacts to the ground surface. During demolition of this building, at least two deep pits were excavated (1024/1072), partially to dispose of refuse and partially, it appears, as exploratory trenches looking for the drainage system. One or more of the various Phase 6 pits identified probably relate to information provided by consultant archaeologist Ted Higginbotham, who in 1986 commented briefly on 'several reports of [the drain's] exposure' in the middle of Thompson Square.¹⁰⁴

Following the demolition of the boat club c.1990 the general demolition layer was buried by brown loam fill 1001.

¹⁰⁴ Higginbotham, E. (1986) *Historical and Archaeological Investigation of Thompson Square, Windsor, NSW for the Hawkesbury Shire Council Windsor*, NSW.



Figure 5.45 View west showing the impacts of modern Phase 6 pits 1242 and 1264 to the oviform drain. The subsurface line of the 1937 sewer main is seen to be directly below 1242 at left. The third of these pits is seen at top left, with no trench cut visible in the intervening natural sand.

Table 4 Overview of historical archaeological phases identified during salvage.

Historical Phase	Grid Area	Known Historical Activity	Archaeological Evidence Identified	Key Contexts Identified
Phase 1: The Natural landscape	1	Green Hills settlement established on aeolian/ alluvial landform	Natural/early historical profile lost/truncated to subsoil sand 1103 and patchy aeolian sand 1074 during phases 3 and 5	1103,1074, 1350,1047
	2		Natural/early historical profile lost/truncated to indurated subsoil and aeolian sand during phases 3 and 5. Small surviving area of complete Pleistocene/Holocene profile in south-west. Truncated alluvium present from Sondage 5 north	1103, 1074 1074, 1067
Phase 2: The Green Hills settlement (1794 – 1814)	1	General thoroughfare between government buildings. Scattered Green Hills era cottages within the vicinity of this part of lower Thompson Square	None None	None None
	2	General thoroughfare between government buildings. Scattered Green Hills era cottages within the vicinity of this part of lower Thompson Square	Small surviving area of the natural/early historical ground surface with scattered artefacts None	1067, 1074 None
Phase 3: The Howe and McGrath drainage system	1	Construction of drainage system Associated filling and levelling	Drainage system, construction trenches and backfill material identified Bulk fill material identified at northern, central and southern end of site	1104, 1143 1144, 1147, 1157, 1159, 1168, 1174, 1104, 1047, 1071, 1077, 1078, 1079, 1082, 1099, 1323, 1339 1147, 1340, 1350, 1155, 1158, 1161, 1371

Historical Phase	Grid Area	Known Historical Activity	Archaeological Evidence Identified	Key Contexts Identified
(1814 – 1816)	2	Construction of oviform drain Filling and levelling of lower grid area 2	1814-1816 drainage system and associated cuts and fill Bulk fill material identified in north-west of site	1105, 1106, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1125, 1126, 1127, 1128, 1129, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1217, 1237, 1312, 1313, 1322, 1362, 1365, 1367, 1379, 1368 1235, 1371
Phase 4: The mid-19 th century	1	'Punt hill' road to waterline passes through this area	No evidence of this roadway or other Phase 4 activity	None
(1816 – 1874)	2	Uppermost Phase 3 fill deposit formed Phase 4 ground surface	Artefacts recovered but no Phase 4 features identified within remnant 1014	None
Phase 5: Windsor Bridge and associated roads (1874 – 1934)	1	Windsor Bridge constructed and punt hill road realigned to cutting to the north in 1874	Realigned road cutting, basic surfacing, refuse pits and post and rail fencing identified Layered fill deposits extending over site and road cutting.	1034, 1047, 1223, 1018, 1020, 1038, 1202, 1215, 1102 1022, 1023, 1028, 1035
	2	Lower Thompson Square noted as a repository of leftover construction materials Livestock grazing in lower Thompson Square during latter 19 th century Uneven ground, erosion and slumping evident on road margins of lower Thompson Square Levelling of Thompson Square during raising of bridge to current level in 1898 Trees and scrub present from 1880s	Various rusty metal and 19 th century refuse-filled cuts and features Scattered postholes with late 19 th century artefacts identified Widespread removal of earlier material and addition of fills identified Layered fill deposits extending over site and road cutting Root channels and amorphous features identified	1014, 1290, 1090, 1092, 1094, 1338, 1355, 1357 1225, 1287, 1345, 1290, 1090, 1092, 1094, 1133, 1227, 1228, 1229, 1351, 1023, 1024, 1328 1022, 1023, 1028, 1035 e.g. 1246, 1248, 1250, 1252, 1254

Historical Phase	Grid Area	Known Historical Activity	Archaeological Evidence Identified	Key Contexts Identified
Phase 6: The modern era (1934 – 2018)	1	Road through Thompson Square backfilled following formation of Bridge Street Hawkesbury Motor Boat Club constructed across lower Thompson Square	Bulk fill identified in road cutting Footings, services and demolition layers and pits identified	1002, 1011, 1012, 1024, 1072 1006
	2	Hawkesbury Motor Boat Club constructed across lower Thompson Square Sewer main under-bored through lower Thompson Square	Footings, services and demolition layers and pits identified Subsurface sewer tunnel and associated pit cuts identified 4m below modern surface	1002, 1011, 1012, 1242, 1264, 1285, 1331

6 ARTEFACT ANALYSIS

6.1 Methodology

The artefacts and faunal material recovered were catalogued by inputting a range of attributes, including date ranges where possible, into an Excel spreadsheet with each catalogue entry having its own unique catalogue number prefixed with the code WBRHS18, representing the site and year (e.g. artefact ID WBRHS18001). The attributes recorded correspond generally to those set out in the European Archaeology of the Modern City's Archaeology Database established by La Trobe University as a tool for the systematic recording of material culture assemblages.¹⁰⁵ These attributes are described in detail and an abridged catalogue provided in Appendix 6. All of the artefacts have been catalogued in detail, with particular emphasis on those recovered from Phase 2 and Phase 3 deposits and features.

All Phase 2 and 3 artefacts with distinct attributes such as decoration were recorded individually in order to capture the maximum amount of information in order to contribute to the research questions which guide the archaeological investigation. As many of the excavated contexts for phases 5 and 6 were introduced fills of unknown origin and limited historical relevance beyond dating the deposit, these were more frequently catalogued in groups per context. Where artefacts lacked such characteristics, such as miscellaneous small fragments of undecorated creamware, these were grouped under a single catalogue entry as cataloguing each artefact individually would not contribute more to the data set. Minimum numbers of individual objects represented by the number of identified specimens (fragments) (NISP) recovered were calculated on the basis of attributes present (e.g. sub-function, portion and surface decoration). The estimated minimum number of ceramic and glass vessels represented by the individual artefacts are expressed as MNV. The remaining material classes present were expressed as minimum number of individual items (MNI).

Type series were developed for the range of Chinese export porcelain patterns present. This serves to provide a measure of inter-site comparative analysis for this element of early colonial ceramic assemblages.

Once entered into the catalogue, artefacts were bagged in suitable polyethylene bags. Bags and Tyvek labels were annotated with relevant provenance information (site name, date excavated and context number) and catalogue ID number using permanent ink pens. At the conclusion of the archaeological investigations, they will be handed over to the client for retention and/or lodgement in an appropriate storage facility.

6.2 Results

A total of 3,892 artefacts were recovered during the salvage programme. These 3,892 artefacts represent an estimated minimum number of 2,308 individual items and are divided amongst 61 individual contexts. Table 5 shows the number of artefacts of each of the six general artefact classes recovered by NISP and MNV/MNI. This section focuses on the assemblages of the more significant early historical periods of phases 2 and 3. Discussion of the results for the modern Phase 6 and particularly the late 19th – early 20th century Phase 5, which is made up of introduced fill material of unknown origin, is less detailed due to the limited archaeological relevance of these fills to the development of Thompson Square beyond dating the relevant fill contexts.

¹⁰⁵ Crook, P. & T. Murray (2006) Guide to the EAMC Archaeology Database. *Archaeology of the Modern City Series, Vol. 10*. NSW: Historic Houses Trust of New South Wales.

Table 5 Breakdown of all artefacts recovered during salvage by artefact class.

	Ceramic	Glass	Clay Pipes	Metal Fasteners & Pins	Synthetic	Metal and Miscellaneous	Bone	Shell	Total
NISP	1383	519	202	259	1	320	309	899	3,892
MNV/MNI	716	221	99	241	1	226	98	706	2,308

6.2.1 DATED CONTEXTS

Date ranges were obtained for 61 of the total 344 archaeological contexts (those containing cultural material). The dates assigned to each of these datable contexts and the artefacts recovered from them are presented in Appendix 6.

Date ranges for each artefact/vessel have been determined by the use of the standard archaeological parameters of the date after which objects are known to have come into production (TPQ) and the limit (date) objects are known to have remained in production until (TAQ). Where more than one item is represented, the latest TPQ and latest TAQ of that assemblage are provided. Where 1794 is given as the TPQ, this denotes that the object was in production before the advent of settlement at Windsor, which occurred in that year. The date range of each individual context is therefore derived from the earliest TPQ/ latest TAQ present within the context assemblage. The TPQ dates can be considered firm and represent the date after which that particular context or spit could have been deposited based upon the invention or introduction of particular artefact types. It should be noted that for historical archaeological sites within Australia, the TAQ is of limited application as a dating tool due to the short span of time involved and acknowledged use of items beyond their date of production. Where a more concise TAQ can be provided by the known date of an overlying event (e.g. commencement of the oviform drain system in 1814), that date is adopted as the TAQ.

6.3 Ceramics

6.3.1 GENERAL

The 1,383 ceramic artefacts formed the largest component of the total salvage assemblage (35.5%), representing an MNV of 716 individual vessels. The 52.6% of the ceramic artefacts that were recovered from Phase 2 and 3 contexts were generally highly fragmented. This had the effect of making some diagnostic attributes, particularly sub-function, difficult to determine in most cases. This was also the case for many Phase 4, 5 and 6 transferware vessels, many of which had no identifiable marks or patterns and were given broader date ranges than that assigned to the relevant context by other means. An overview of the relative proportions of ceramics recovered from all phases of the site is presented below.

Table 6 Overview of the ceramics recovered from all phases of the site history during salvage.

	NISP	Percentage of Total NISP	MNV	Percentage of Total MNV	Average % of Vessel Portion Remaining
Phase 2	71	5.1%	38	5.3%	5.3%
Phase 3	657	47.5%	231	32.2%	9.2%
Phase 4	51	3.7%	21	3.0%	11.4%
Phase 5	565	40.9%	406	56.7%	23.8%
Phase 6	39	2.8%	20	2.8%	8%

6.3.1 PHASE 2 (1794 – 1814)

The Phase 2 assemblage was recovered from ~18m² of soil profile from contexts 1067 and 1074, located west of the oviform drain trench in the south-west of grid area 2, through a combination of *in situ* recovery and wet sieving. A relatively low-density surface scatter of 138 artefacts was the result, with 91.3% recovered from topsoil 1067 and 8.7% from the initial 20cm of subsoil 1074.

Ceramics formed the largest material class of this phase overall (51.4%); the 71 fragments recovered representing a relatively high MNV of 38 individual vessels across 6 ware types (Table 7). In contrast to later phases of the site and other 19th century sites in general, less than half (44.7%) of vessels were of British/European origin. Creamware and pearlware make up the majority of imported vessels, with notable exceptions being an undecorated fragment of tin-glaze fine earthenware and a shoulder portion of an English Brown Stoneware vessel. All imported wares were in production prior to the 19th century and most were no longer produced by 1830, if not earlier. Whiteware, ubiquitous on later 19th century sites, was not present. Of the fragments of six 'white' fine earthenware vessels represented, pearlware is the only form clearly identifiable, as all sherds have non-white pastes and blue-toned, pooled glaze together with Chinoiserie geometric border and floral pattern transfer-prints in typically flat-toned, blurred blue transfer; a feature of early transfer-printed wares of the late 18th and early 19th centuries.¹⁰⁶ Although transfer printed decoration was not common (13.1% of Phase 2 vessels), five of the six small pearlware vessel fragments were decorated with blue transfer prints.

The non-European portion of the assemblage was made up of Chinese export wares (11.4%) and a high number of locally made colonial earthenware (48.5%) both of which form important elements of early colonial material culture studies in Australia.

Colonial ware, also known as lead-glazed earthenware due to the distinctive, often thick, lead-based glaze applied, refers to unrefined earthenware vessels produced locally in NSW from c.1801, first by Thomas Ball and soon after by other early private and government potters.¹⁰⁷ Few of these early potters have been identified archaeologically, however a number of comprehensive studies have been conducted on Ball's pottery and early colonial ware,¹⁰⁸ highlighting the generally coarse, utilitarian nature of these vessels and their simple decorative elements derived from British traditions. These are functional ceramics generally associated with food preparation and this is evident from the range of wares recovered during salvage.

A total of 35 fragments of this ware type were identified from Phase 2, representing 18 separate vessels established from analysis of variations in fabric colour, body thickness, diameter, rim shape and decoration type. None exhibited hand-painted decoration of the type common to Ball's pottery. Body decoration was limited to slip (a thin, watery clay dip or paint) and glaze variations, the commonest being unslipped, clear glazed vessels (MNV 44.4%) and slip and glaze combinations (22.2%), a technique noted as being of probable benefit to glaze adherence.¹⁰⁹ A small number of the larger vessels were slipped and unglazed (MNV 2, Figure 6.2). Three vessels were simply undecorated and unglazed.

¹⁰⁶ Samford, P. (1997) Response to a Market: Dating English Underglaze Transfer-Printed Wares. *Historical Archaeology*, Vol. 31, No. 2:8.

¹⁰⁷ Casey, M. (1999) Local Pottery and Dairying at the DMR Site, Brickfields, Sydney, New South Wales. *Australasian Historical Archaeology*, 17, 1999:3-37; Ford G. (1995) Australian Pottery: The First 100 Years. *Saltglaze Press, Wodonga*.

¹⁰⁸ Casey 1999; Casey & Lowe (2011) 710-722 George Street, Haymarket, Sydney - Archaeological Investigation - Volume 1, Section 4.

¹⁰⁹ Casey & Lowe 2011.

Vessel forms and sub-functions were not able to be identified with certainty due to the degree of fragmentation, however the available base fragments indicated that 2 flat-based utilitarian vessels, consistent with a crock/jar and a pan/bowl, were present. Rim fragments were recovered of what are likely to be an unglazed waived jar, an unglazed straight-sided container, an everted bowl, a shouldered dish and a small fine-bodied bowl or egg cup with a rim diameter of approximately 4cm (Figure 6.1). These forms are consistent with commonly found food preparation and food service vessels identified from other archaeological sites, with emphasis weighted towards the preparation and storage of food. With the exception of the dish and possible egg cup, the majority of vessels are considered to be associated with food preparation and storage rather than food service. In terms of quality, 9 vessels were of medium (6-10mm) and six of utilitarian (>10mm) body thickness, with just two fine (<6mm) vessels identified.

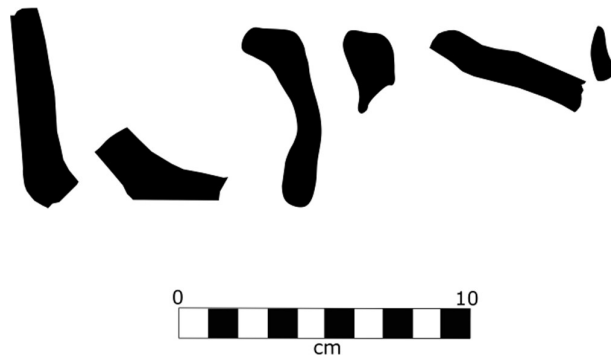


Figure 6.1 Vessel base and rim fragment profiles recovered from Phase 2 contexts 1067 and 1074. From left are likely to be (base) crock/jar, angled pan/bowl, (rim) unglazed waived jar, unglazed straight-sided container, slipped and interior glaze everted bowl, glazed shouldered dish and unglazed small fine-bodied bowl or egg cup.



Figure 6.2 Unglazed, red-bodied utilitarian crock/jar base fragment decorated with an interior pale yellow slip.

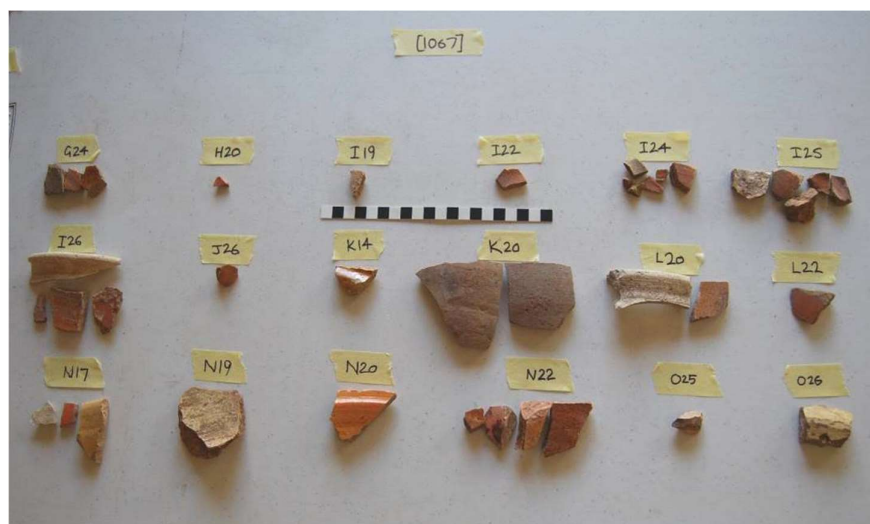


Figure 6.3 The context 1067 portion of colonial ware recovered during initial sorting on site (shown here according to Grid codes used by the Aboriginal salvage team).

Of the five Chinese vessels identified (NISP 17), four were of the most commonly produced and most affordable type of export porcelain produced during the period – ‘Canton’ tableware hand-painted in underglaze blue. Canton porcelain forms the latter mass-produced, hurriedly decorated stage of the pavilion landscape tradition (1710-c.1850) of the later Qing period,¹¹⁰ and was produced for the mass market as opposed to the finely crafted vessels for the discerning buyer. Blue and white porcelain occupies a central position in the turbulent history of trade between China and Europe. By the reign of Emperor Qianlong (1735-1796), Canton (Guangzhou) was the centre of restricted trade with the west and the point of contact between eastern and western traders. The porcelain synonymous with this port and recovered during salvage was produced at Ching-Te-Chen to the north where thousands of kilns were in operation.¹¹¹ This mass-production fed large European and increasingly American markets eager for these exotically decorated and, more importantly, superior quality vessels with their vitrified, white petuntse paste and fused, non-lead glazes. Linked to the evolution of British Chinoiserie transfer prints, the ‘Canton’ pattern design has itself been suggested to be a Chinese contrivance for the British market based on a Staffordshire China glaze pattern,¹¹² involving variations on concentric border themes surrounding the central landscape elements of pavilion/tea house, bridge, trees, boats and mountains.

In Britain, the market for ‘china’ remained strong throughout the 18th century despite increasing competition from locally produced porcelain and fine earthenwares. Finally, governmental pressures on importation of Chinese porcelain, including protective import duties raised to 150% in 1790, all but removed Chinese wares from the tableware markets of Britain.¹¹³ The trade in and use of Chinese porcelain in British colonies after this date therefore presents something of a post-script to the 18th century mania for these table, tea, toiletry and decorative wares.

¹¹⁰ Madsen, A.D. & White, C.L. (2011) *Chinese Export Porcelains*. Left Coast Press, Walnut Creek, California, p.77.

¹¹¹ Herbert, P. & Schiffer, N. (1975) *Chinese Export Porcelain: Standard Patterns And Forms, 1780 to 1880*. Schiffer Publishing Ltd., Pennsylvania p.12.

¹¹² Miller, G.L. and Hunter, R. (2001). How Creamware Got the Blues: The Origins of China Glaze and Pearlware. In Hunter, R. (ed). *Ceramics in America*. Chipstone Foundation, Milwaukee.

¹¹³ Macintosh, D. (1994) *Chinese Blue and White Porcelain*. 3rd Ed. Suffolk: Antique Collectors’ Club Ltd., 1994.

In the literature there is much disagreement on the dating of Canton porcelain, as summarized by Ward.¹¹⁴ Frequently associated with the 19th century alone, Canton has been shown to date from as early as 1775,¹¹⁵ and Madsen & White bracket the dates of its production and consumption by the American market between 1775 and c.1850.¹¹⁶ Herbert & Schiffer note that Canton decoration falls into two general time periods; a later 19th century form based around a straight line border and the earlier, generally more carefully executed form based around the 'cloud and rain' border.¹¹⁷ The latter is the form seen in the Thompson Square assemblages from both Phase 2 (Figure 6.4) and Phase 3. The study area provides a further archaeological setting where the cloud and rain border element is confirmed as an earlier form of Canton decoration, corroborating the research of Herbert & Schiffer and Corcoran and Ward.¹¹⁸ It is therefore apparent that the division between these two border patterns may be as useful in dating early colonial sites as the distinction between pearlware and whiteware. All Chinese porcelain decoration variants recovered during salvage are listed in the decoration type series in Appendix 4.

One of the Phase 2 Canton vessels was decorated with a variant pattern incorporating the debased spearhead and dumbbell motif most commonly seen in the more elaborate, higher quality Nanking tradition (Figure 6.5). Ward notes the presence of a similar pattern in Canton vessels and suggests this is a less-frequently occurring motif, an idea that is supported by the Thompson Square assemblages.

The fifth Chinese vessel was an underfired, semi-vitreous porcelain vessel decorated with a hand-painted repeating design in a poor quality, manganese-corrupted cobalt blue. The decoration and quality of this vessel places it among a group of utilitarian Kitchen Qing vessels of various fabrics ranging from porcelain to earthenware identified among the Phase 2 and 3 assemblages. These are discussed further in Section 6.3.2.

As with all other ware types, the degree of fragmentation was too great to clearly identify vessel forms from the myriad possible tea and table-wares, although consistent with results from other sites and export porcelain in general, tableware is dominant including two separate plate rims. The Kitchen Qing vessel appears to be the rim of a small bowl, possibly originally intended for tea.

Overall, the Phase 2 ceramics assemblage is consistent with an early 19th century date for contexts 1067 and 1074 as inferred from the other evidence listed in Section 5.4.

¹¹⁴ Ward, R. (2006) Ceramics Report, 109-113 *George Street, Parramatta, Archaeological Investigation*, pp.54-55, published Report for Casey & Lowe Pty Ltd.

¹¹⁵ Miller, G.L. and Hunter, R. (2001).

¹¹⁶ Madsen, A.D. & White, C.L. (2011) Chinese Export Porcelains, p.56.

¹¹⁷ Herbert, H. & Schiffer N. (1974) Chinese Export Porcelain: p.20.

¹¹⁸ Corcoran, A.M. (1993) Chinese Export Porcelain in Australia. *Unpublished long essay submitted for Masters Degree in Historical Archaeology, Department of Prehistory and Historical Archaeology, University of Sydney*; Ward, R. 2006 Ceramics Report p.56



Figure 6.4 Shattered Canton border small plate or saucer with typical 'rain and cloud' band at centre.



Figure 6.5 Conjoining tea cup or small bowl fragments incorporating crude debased spearhead and dumbbell decoration derived from Nanking decorative patterns.

Table 7 Overview of the Phase 2 ceramics assemblage.

Ware Type	Material	Body/Surface Decoration	1067		1074		TPQ	TAQ
			NISP	MNI	NISP	MNI		
Colonial ware	Fine vessel	Uncoloured glaze	3	2	-	-	1801	c.1840
Colonial ware	Medium vessel	Undecorated-unglazed	4	1	-	-	1801	c.1840
Colonial ware	Medium vessel	Single incised line/band-unglazed	1	1	-	-	1801	c.1840
Colonial ware	Medium vessel	Slip-glaze combination	2	2	-	-	1801	c.1840
Colonial ware	Medium vessel	Uncoloured glaze	15	4	2	1	1801	c.1840
Colonial ware	Utilitarian vessel	Undecorated-unglazed	2	1	-	-	1801	c.1840
Colonial ware	Utilitarian vessel	Single incised line/band-unglazed	1	1	-	-	1801	c.1840
Colonial ware	Utilitarian vessel	Slipped-unglazed	1	1	-	-	1801	c.1840
Colonial ware	Utilitarian vessel	Slipped-glazed	2	2	-	-	1801	c.1840
Colonial ware	Utilitarian vessel	Coloured glaze	1	1	-	-	1801	c.1840
Colonial ware	Unidentified	Indeterminate	1	-	-	-	1801	c.1840
Porcelain	Chinese export porcelain	Hand-painted underglaze- Canton variant	17	4	-	-	1794	c.1840
Porcelain	Kitchen Qing	Stamped underglaze - repeating design	1	1	-	-	1794	c.1840
Fine Earthenware	Creamware	Undecorated	7	5	2	2	1794	c.1830
Fine Earthenware	Creamware	Green rilled	1	1	-	-	1794	c.1830
Fine earthenware	Pearlware	Transfer-printed Chinoiserie border	2	1	-	-	1794	c.1830
Fine earthenware	Pearlware	Transfer-printed/floral	2	1	-	-	1794	c.1830
Fine earthenware	Pearlware	Indeterminate	1	1	-	-	1794	c.1830
Fine earthenware	Pearlware	Transfer-printed/indeterminate	3	3	-	-	1794	c.1830
Fine Earthenware	Tin-glazed	Indeterminate	-	-	1	1	1794	c.1810
Stoneware	English brown stoneware	Indeterminate	-	-	1	1	1794	c.1880

6.3.2 PHASE 3 (1814 – 1816)

Phase 3 ceramics comprised material recovered from 28 separate contexts relating to the 1814-1816 drainage system, including over 300m³ of oviform drain fill 1119 and the area subject to detailed sampling in Sondage 3 (Section 0). Given this volume of material, the Phase 3 ceramics assemblage is also low in density, with a total NISP of 657 (MNV 231), or less than 2 artefacts per m³. For the sampled area of Sondage 3, the range and frequency of wares represented was evenly distributed across the nine contexts in which they were present, with no evidence of concentrations by quantity or type (Table 8). This suggests the assemblage is derived from material formerly spread across the surface, rather than artefact rich accumulations introduced from cesspits and refuse areas elsewhere.

As with the Phase 2 ceramics, the Phase 3 MNV was relatively high, with over one third (231) of the recovered fragments considered to represent an individual vessel. As for Phase 2, over half of the Phase 3 vessels were of non-British origin. However, from an overview of Phase 2 and Phase 3 MNV by ware type it can be seen that the Phase 2 emphasis of overseas material is mitigated to some extent with a higher proportion of both creamware (MNV 50) and pearlware (MNV 38) present and a drop in the frequency of colonial ware (Figure 6.6). However, it is clear that colonial ware formed a dominant component of the early historical ceramics present in the Green Hills settlement, with some 239 fragments of colonial ware representing 69 separate vessels – 28% of all Phase 3 vessels. The frequency of Chinese wares is higher than in the limited Phase 2 assemblage within Sondage 3 and across Phase 3 as a whole, suggesting export porcelain was as common as any British ware on dining tables of the Green Hills settlement.

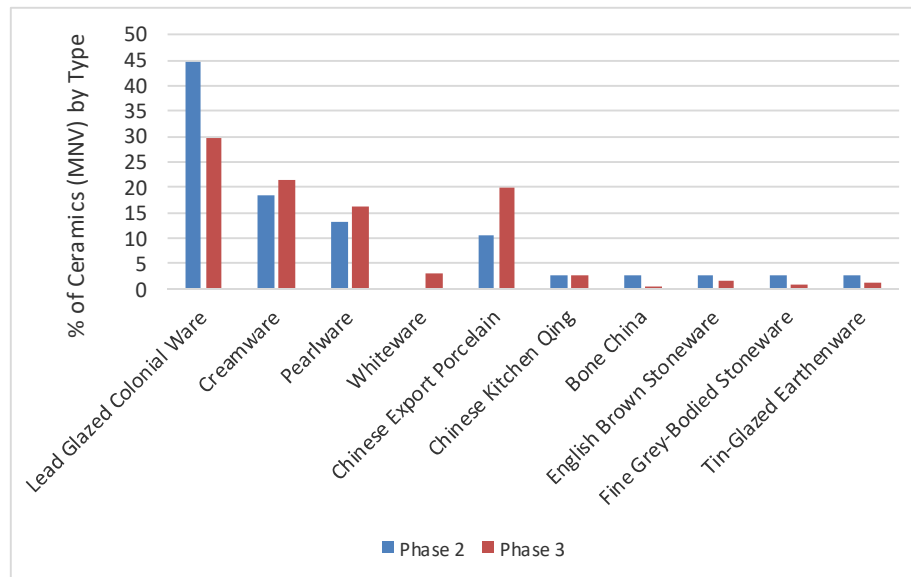


Figure 6.6 Comparative summary of Phase 2 and Phase 3 ceramics by ware type.

Table 8 Overview (NISP) of the range of low-density ceramics recovered from the hand-excavated area of oviform trench fill contexts 1099-1125 in Sondage 3.

Ware	Type	Decoration	1099	1100	1105	1111	1112	1117	1118	1122	1125	Context Date Range
Colonial Ware	Fine vessel	Slip-glaze combination	-	-	-	-	1	-	-	-	-	1801 - c.1840
Colonial Ware	Fine vessel	Uncoloured glaze	1	-	-	-	-	-	-	-	-	1801 - c.1840
Colonial Ware	Medium vessel	Slip-glaze combination	-	-	-	-	-	-	-	1	-	1801 - c.1840
Colonial Ware	Medium vessel	Uncoloured glaze	1	-	-	-	-	-	-	-	-	1801 - c.1840
Colonial Ware	Utilitarian vessel	Undecorated, unglazed	-	-	-	-	1	-	-	-	-	1801 - c.1840
Colonial' Ware	Utilitarian vessel	Uncoloured glaze	1	-	-	1	-	-	-	-	-	1801 - c.1840
Colonial Ware	Utilitarian vessel	Coloured glaze	1	-	-	-	-	-	-	-	-	1801 - c.1840
Colonial Ware	Unidentified	Indeterminate	-	-	-	1	-	-	-	-	1	1801 - c.1840
Porcelain	Chinese export porcelain	Painted underglaze - Canton	1	2	2	-	2	-	2	-	1	1794 - c.1840
Porcelain	Chinese export porcelain	Painted underglaze - Nanking	-	-	-	-	-	-	-	-	-	1794 - c.1820
Porcelain	Chinese export porcelain	Polychrome overglaze enamel	-	-	1	1	-	-	-	-	-	1794 - c.1810
Fine Earthenware	Creamware	Undecorated	2	-	-	-	1	1	1	-	3	1794 - c.1830
Fine Earthenware	Creamware	Scalloped rim	-	-	3	-	-	-	-	-	1	1794 - c.1830
Fine Earthenware	Creamware	Scalloped, shell edge	-	-	-	-	-	-	-	-	-	1794 - c.1830
Fine Earthenware	Creamware	Green rilled	-	-	-	-	-	-	-	-	1	1794 - c.1830
Fine Earthenware	Pearlware	China glaze	-	-	-	-	-	-	-	-	1	1794 - c.1814
Fine Earthenware	Pearlware	Painted underglaze - other	-	1	-	-	-	-	-	-	-	1794 - c.1814
Fine earthenware	Pearlware	Transfer-printed/floral	-	-	-	-	1	-	-	-	-	1794 - c.1830
Fine earthenware	Pearlware	Indeterminate	-	-	-	-	-	1	-	-	1	1794 - c.1830
Fine Earthenware	Whiteware	Transfer-printed - other	2	-	-	-	-	-	-	-	-	c.1820 - 20 th c.
Fine Earthenware	Whiteware	Transfer-printed - Chinoiserie	2	-	1	-	-	-	-	-	-	c.1820 - 20 th c.

Many of the colonial wares were recovered from feature 1339 within levelling fill deposit 1340 in grid area 1 (NISP 58, MNV 6). This feature provided the most complete colonial ware vessels recovered during salvage (Figure 6.7) including a clear-glazed handled crock (Figure 5.16), an unhandled, straight-sided crock or basin, two glazed, shallow pans/basins (Figure 6.7 and Figure 6.8) and an unglazed shallow pan/basin. Although showing signs of having been made by a skilled potter/s, these vessels are entirely functional in nature; glazed on the interior only with no further decoration or features, apart from spillover of the glaze to the exterior and unintentional greening of areas of glaze reacting with surface chemicals or oxides in the clay.

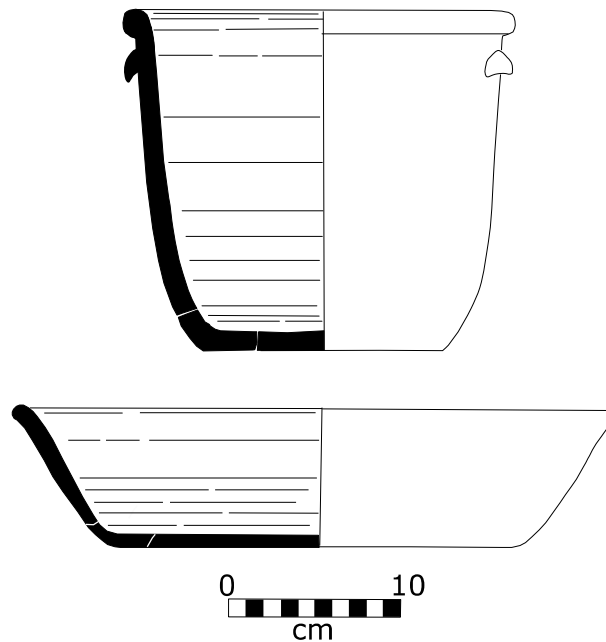


Figure 6.7 Handled colonial ware crock and shallow pan/basin recovered from feature 1339 within levelling deposit 1340 in grid area 1.



Figure 6.8 Glazed shallow pan or basin recovered from Phase 3 feature 1339 in grid area 1.

Across the broader Phase 3 collection, colonial ware assemblage decoration was varied (Figure 6.9), though limited to the application of slip (a thin, watery clay dip or paint) and coloured glazes. The commonest form were unslipped, clear-glazed vessels (42%), but slip and glaze/coloured glaze combinations were also common (36.2%), a technique noted as being of probable benefit to glaze adherence (Figure 6.11). Entirely unglazed vessels were relatively common (17.4%), with slipped, unglazed vessels, which included the use of grey to black interior slips (Figure 6.9 and Figure 6.10) being the least common (4.4%). Of the coloured glazes, red-brown to manganese brown were most frequent (40%), followed by vessels glazed in mustard to pale yellows (24%) mulberry (24%) and pink and orange glazes (12%).



Figure 6.9 Colonial ware from Phase 3 oviform drain fill context 1119 during initial sorting.



Figure 6.10 Black interior slip on unglazed, red fabric utilitarian colonial ware.



Figure 6.11 Mulberry glazed base of a utilitarian food preparation vessel. A red slip or stain associated with the glazing process is visible between glaze and fabric of the vessel.

In terms of functional analysis, the Phase 3 colonial ware was also too highly fragmented to provide a meaningful set of results for vessel sub-function forms. Overall, 31 vessels were considered associated with food preparation (i.e. pans, bowls, crocks), largely on the basis of medium to utilitarian body thickness with internal glazes. A total of 20 vessel fragments lacking evidence of glaze but representing individual vessels were restricted to a functional class of 'Household'; 11 glazed vessels were considered likely to comprise items of food service, largely tableware dishes; and seven were associated with food storage (unglazed jars, containers). Within the latter group was the fragmented, unglazed lid of a jar (Figure 6.12). Of all 69 colonial ware vessels identified, none exhibited hand-painted decoration of the type common to Thomas Ball's pottery.



Figure 6.12 Conjoining fragments of one side of the lid of an unglazed jar or similar storage vessel.

As stated above, Chinese wares were again frequent, confirming the widespread use of export porcelain tableware in the Green Hills settlement and reinforcing the importance of this ware type in early colonial sites in general. The range of wares was also greater than Phase 2 deposits, including in addition to 38 Canton vessels, fragments of five polychrome overglaze enamel vessels decorated with Neo-classical borders and oriental decorative elements (Figure 6.13), six Nanking influenced Canton vessels, and three Nanking vessels with floral, butterfly and diaper with fish scale elements typically produced prior to 1805 (Figure 6.14).¹¹⁹

Several provincial 'Kitchen Qing' vessels that are likely to have been produced in Guangdong province were also identified (Figure 6.15). In Australia these wares are more typically associated with 19th century Chinese occupation but they were mass-produced and extensively traded throughout Asia prior to the advent of Chinese migration to the colonies. It is likely that at least one of the fragments one seen in Figure 6.15 is a debased version of the 'Om' pattern, which is a late Qing export ware with a stylised Buddhist prayer script drawn around the edge of the plate so that the turning of the vessel would be similar to turning a prayer wheel during religious observations.

¹¹⁹ Madsen, A.D. & White, C.L. (2011) Chinese Export Porcelains, p.56.



Figure 6.13 Polychrome overglaze enamel Chinese porcelain fragments from context 1119.

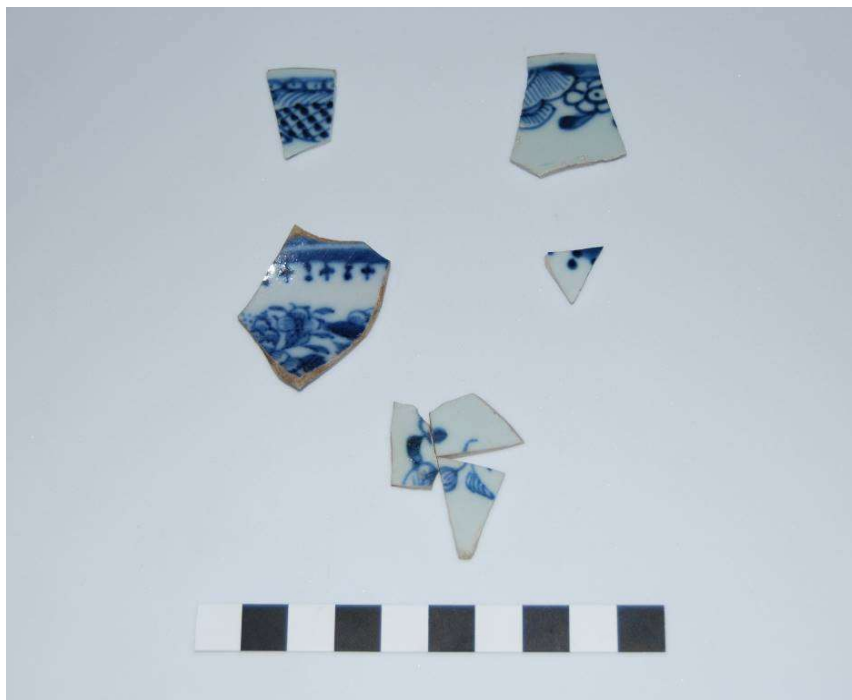


Figure 6.14 Poorly executed Nanking decorative elements among the Canton patterns present within the Phase 3 assemblage.



Figure 6.15 Kitchen Qing stoneware utilitarian bowl (left) and porcelain recovered from Phase 3 contexts 1119 and 1235/1237.

Almost from the beginning of large porcelain production in England in the mid-18th century, British potters imitated Chinese blue and white ware and its designs, and this spilled over into the decoration of pearlware at the end of the century. ‘China glaze’, featuring a Chinese scene on hand-painted underglaze pearlware, experienced a brief period of mass-production between the cessation of Chinese porcelain importation and the explosion of transfer-printing. Thirteen vessels of this type produced to c.1814¹²⁰ were identified (Figure 6.16). Contemporary with China glaze were early transfer-printed sheet patterns based on Chinese porcelain borders. Several examples of Chinoiserie borders typified by flat-toned, blurred monochrome blues were recovered that denote the earlier stages of both Chinoiserie and transfer printing as a whole were recovered (Figure 6.17). During the period defined by phases 2 and 3, this rapidly evolved into a far superior quality of transfer print more representative of the 19th century (Figure 6.18).

In contrast to Oriental decorative themes, a small number (MNV 6) of hand-painted warm polychrome pearlware teacups decorated in neo-classical geometric and floral bands were recovered. A small number of further British imports were present in the form of fragments of three English brown stoneware and two fine grey stoneware vessels (Figure 6.19).

Creamware made up 21.5% of vessels present (MNV 50). In keeping with proportions of creamware elsewhere, the majority of vessels were undecorated, however a number of scalloped (MNV 3), shell edge (MNV 4) and green-rilled vessels (MNV 6) were present together with three industrial slip vessels and one hand-painted underglaze. Functional analysis was once again highly limited by the degree of fragmentation, however tea and tablewares appear to have been well-represented.

¹²⁰ Samford, P. 2014 *Colonial and Post-Colonial Ceramics*, Jefferson Patterson Park and Museum Publication, Maryland, P.32



Figure 6.16 China glaze hand-painted pearlware fragments from context 1119.



Figure 6.17 Early Chinoiserie transfer-printed pearlware fragment.



Figure 6.18 Willow pattern pearlware plate from Phase 3 levelling fill context 1371 near box drain 3.



Figure 6.19 English brown and fine grey stoneware fragments from context 1119.

6.3.3 PHASE 4 (1816 – 1874)

Phase 4 represents the most recent phase during which artefacts are likely to have accumulated gradually over the surface of lower Thompson Square as opposed to bulk filling events from Phase 5 onwards. This period of relative inactivity comprises a single ground-surface/topsoil context from which 51 fragments of ceramic were recovered representing 21 vessels, just 3% of the total number of vessels identified during salvage. The long timespan of this phase, commencing with the cessation of documented historical occupation within lower Thompson Square, is reflected in the diversity of ware types present in terms of date ranges. The overall context TPQ of 1862 reflects the latest made ceramic vessel, a patent ironstone plate produced by E.C. Challinor, Fenton from that date. Whiteware, including these vitrified wares, made up 67% of identified vessels, with a small number of hard-paste porcelain, a majolica teapot handle and a small number of creamware fragments also present, reflecting the admixture of Phase 3 artefacts with later surface scatter materials.

6.3.4 PHASE 5 (1874 – 1934)

Phase 5 represents the most widespread disturbance and introduction of foreign fills to the site, so much so that the ceramics and indeed the entire artefact assemblage is of little direct relevance to lower Thompson Square beyond serving as a dating framework for these various disturbances.

The ceramics component of the various fill deposits discussed in Section 0 included 599 fragments of 421 vessels. The TPQs of these vessels largely mirrored those of Phase 4, with the vast majority of vessels being transfer-printed whiteware and vitrified 'ironstone' whiteware. Bone china, Rockingham teaware, white granite and stoneware vessels were also present as low vessel counts.

Of most relevance to the earlier archaeological remains was the presence of a significant quantity of earlier material in a number of fill contexts. These included sporadic patches early material in the widespread levelling fills 1022 and 1023, including a base and body fragment of a large, straight-sided colonial ware crock or container recovered from fill 1022 (Figure 6.20). This admixture of Phase 3 material with later, introduced fill refuse was most marked in the north-east of grid area 1 (1227, 1228 and 1229) including finds of industrial slip creamware, Canton porcelain and colonial ware among bulk whiteware, vitrified whiteware, machine-made bottle glass and imported late 19th century ceramics (Figure 6.21). These admixtures indicate areas where Phase 3 deposits are likely to have been truncated, moved and redeposited during Phase 5 in association with the formation and repair of the surrounding roads and verges from 1874 onwards. Among the imported ceramics were a number of Scottish buff-bodied stoneware stout bottles produced by the Port Dundas (1866-1923)¹²¹ and H. Kennedy (1866-1929)¹²² potteries of Glasgow, Scotland.

¹²¹ <https://collections.museumvictoria.com.au/items/1615732>.

¹²² Ward, R. (2001) Ceramics report *p.4*



Figure 6.20 Large colonial ware vessel fragment recovered from Phase 5 fill deposit 1022.



Figure 6.21 Mixed ceramics recovered from context 1229 including early industrial slip and Chinese porcelain at top and latter 19th century vitreous whiteware and 'Cable' pattern transfer-printed whiteware (post-1860).¹²³

¹²³ Ward, R. (2001) Ceramics Report, p.3

6.3.5 PHASE 6 (1934 – 2018)

The five vessel fragments recovered from Phase 6 were ultimately of little relevance to the overall date range established for the various 20th century contexts. Further admixture of 20th century refuse with material from earlier phases was evident particularly in the case of road fill deposit 1006, which contained a fragment of Phase 3 pearlware, probably removed from the current Bridge Street road cutting and redeposited in grid area 1, and also in the refuse-filled pit associated with the demolition of the Motor Boat Club, where a large fragment of a stamped, flanged, over-edge earthenware lid of an Australian-made bread pan or crock of a type popularised by Doulton and widely used during the mid-late 19th century was recovered (Figure 6.22).



Figure 6.22 Australian-made earthenware bread pan lid fragment with stamped border from Phase 6 refuse pit 1024.

6.4 Glass Vessels

6.4.1 OVERVIEW OF THE GLASS RESULTS

The 519 glass vessels recovered across all phases formed the second largest material class (excepting shell) of the total salvage assemblage (14%), representing an MNV of 221 individual bottles and table glass vessels. Significantly, just 26 vessels dated from phases 2 and 3, with the majority deriving from bottle glass refuse deposited during later phases. Among the earlier phases, decoloured table glass formed a significant portion of the glass vessels recovered (12%), the majority of which are considered to be soda glass, with a smaller number of probable leaded glass vessels. An overview of the relative proportions of glass vessels recovered from all phases of the site is presented below.

Table 9 Overview of the glass artefacts recovered from all phases of the site history during salvage.

	NISP	Percentage of Total NISP	MNV	Percentage of Total MNV	Average % of Vessel Portion Remaining
Phase 2	7	1.3%	7	3.2%	5.7%
Phase 3	157	30.2%	36	16.2%	18.4%
Phase 4	32	6.2%	16	7.2%	14.7%
Phase 5	300	57.8%	148	67.0%	8.8%
Phase 6	23	4.4%	14	6.3%	28.1%

6.4.2 PHASE 2 (1794-1814)

The 3.2% of all glass vessels that were recovered from Phase 2 contexts represented just seven items; two tableware vessels and three olive-green, undiagnostic bottle glass fragments. Decoloured table glass made up 28.5% of Phase 2 glass and included the base of a soda glass, pattern-moulded and pontil finished tumbler or decanter with diamond patterning recovered from salvage square N5E6/NE at 5-10cm. Vessels of this type were produced during the 18th century by free blowing glass into 'a part-sized mould made of metal, which not only forms the approximate shape of the vessel but also impresses a pattern, usually ribs or diamonds, onto the parison...'.¹²⁴ The expansion of the glass during this process leads to a distinctive distortion of the pattern to both sight and touch, as well as the diffusion of any mould seams and these characteristics are present in the Phase 2 vessel (Figure 5.10 and Figure 6.23). Pattern-moulding was largely replaced by other forms of moulding by the early decades of the 19th century.¹²⁵

The second fragment was an unusual foot-shaped object of solid soda glass that may have formed part of the finial or shank of a decanter stopper. Boow¹²⁶ discusses the prevalence of table glass among the well-heeled military and free settlers up to 1840, an indication of the importance of alcohol in determining the range of valuable property brought out to the colonies. Attempts were made by Simeon Lord (a key monopolist and entrepreneur of the period, and also signatory of the Howe and McGrath drain construction contract as Commissioner on behalf of the Governor) and John Hutchinson to produce table glass in the colony but these were not successful.¹²⁷

¹²⁴ McNally, P. (1982) p.14.

¹²⁵ *Ibid.*

¹²⁶ Boow, J. (1991) Early Australian Commercial Glass: Manufacturing Processes, *Heritage Council of NSW Publication*, 1991 p.12

¹²⁷ *Ibid.*

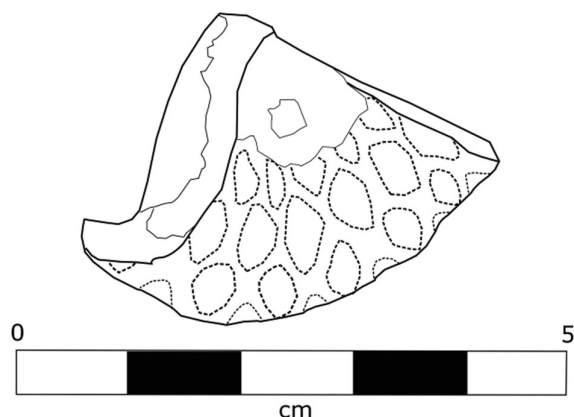


Figure 6.23 Drawing of the base fragment of a pattern-moulded soda glass vessel fragment recovered from Phase 2 context 1067.

6.4.3 PHASE 3 (1814-1816)

Phase 3 glass comprised 157 fragments of 36 separate vessels, just 4.5% of all items/vessels recovered from Phase 3 contexts. Among the bottle glass were 12 beer/wine bottles, seven of which were free blown bottles with pontil scars and sagging bases typical of entirely off-hand manufacture (Figure 6.24). A range of finishes were found illustrating progression from simple laid-on-ring finish to simply-tooled, applied finishes prevalent by c.1820¹²⁸ (Figure 6.25). The only other identified bottle type present was provided by the shoulder and neck of a tapered case gin bottle with bubbled glass. Fragments of seven table glass vessels were recovered, two of which are likely to be stemmed glasses. All of these decolourised glass vessels displayed varying characteristics in keeping with early off-hand or pattern-moulded manufacture, including evidence of empontilling, striations, ripples, asymmetry in the glass and no mould seams. Unfortunately, all fragments were too limited to obtain definitive information regarding vessel form.

Overall the number of glass vessels, particularly bottles, is low for a 19th century historical archaeological assemblage. This is a further reflection of the early date range of Phase 2, as together with whiteware ceramics, bottles glass was not mass-produced and exported in any great quantities until the industrial era reached its stride after 1820.

¹²⁸ Harris, J. 2008 Identification of Artefacts Commonly Found in Historical Archaeological Sites- Glass Identification, *Papers Presented at the AACAI Historical Artefact ID Workshop 2008*, AACAI, Sydney.



Figure 6.24 Free blown beer/wine bottle base fragment from context 1119.



Figure 6.25 Range of simple early 19th century beer/wine bottle finishes from Phase 3 contexts, illustrating progression toward tooled, applied finishes after c.1820.



Figure 6.26 Base fragments of an early 19th century empontilled table glass vessel.

6.4.4 PHASE 4 (1816 – 1874)

The expansion of glass bottle production mentioned above is evident from the greater range and functions of bottle glass recovered from Phase 4 deposit 1014. In addition to at least two mould-blown, snap-cased, beer/wine bottles, this assemblage of 14 bottles and one table glass vessel fragment included two mass-produced aromatic Schnapps bottles, a perfume bottle and the first chronological evidence of the proliferation in 'pharmaceutical' elixirs and tonics of the mid-19th century in a panelled and embossed 'Dr. Townsend's Aromatic Holland Tonic' bottle in amber glass. The remaining eight bottle glass fragments could not be identified and were distinguished on the basis of the greater range of colour and finishes present as a result of increased refinement of the bottle production process during the mid-19th century.

The table glass item was a Victorian cut glass stemware vessel fragment with an asymmetrical central bladed knop on the stem. This glass is likely to date from an earlier phase but on the basis of the remaining portion has a date range of between 1794 and c.1840.

6.4.5 PHASES 5 & 6 (1874 – 2018)

Phase 5 provided the greatest range of glass recovered during salvage with some 300 glass artefacts recovered representing 148 glass vessels, all introduced to the site as fill material between 1874 and 1934. Fragments of two latter 19th century lamp chimneys were also recovered, however the vast majority of glass derived from 141 bottles, with the primary functional class of these being food storage and 35% were alcohol storage bottles. As with Phase 4, the pharmaceutical functional category was also well-represented by 12 identified bottles reflecting the array of elixirs and tonics marketed to the public during the 19th and early 20th centuries.

Bottle types of category ran the full range of manufacturing techniques from redeposited free blown, Phase 2 era bottles to machine-made, colourless soft drink bottles dating between 1890 and 1910. The number and range of bottles reflects the transition from diverse mould-blowing techniques developed from the mid-19th century into fully automated production from the beginning of the 20th.

Throughout the 19th century and well into the 20th century, imported goods, particularly those manufactured in Great Britain, formed the greater part of material objects of daily life. This is reflected in the origins of production for glass vessels recovered from Phase 5 contexts (Table 10). Locally-made products were beginning take up a share of the market however, examples of this identified at the site include a Bonnington & Co. bottle of 'pectoral oxymel of carasheen or Irish moss', a product developed in New Zealand during the 1870s by George Bonnington and introduced to the Australian market by 1893.¹²⁹ The latest made artefact for Phase 5 (context 1351) was provided by a post-1896 machine-made jar produced by H.M Leggo & Co. of Bendigo under the Stower's brand of 'purest pickles' and other condiments.¹³⁰ This vessel forms part of a broader, decoratively embossed pickle jar industry originating in Britain and features the Stower's logo of an 'S' surrounding a castle tower (Figure 6.27).

By Phase 6, from 1934 onwards, the balance of production was shifting toward Australian made glass bottles, with three of the four identified bottles present made in Australia; one complete (context 1029) and one fragmentary (context 1202) embossed bottle produced for local Windsor business 'Noon's cordials', who were in operation from 1913 until the trademark was deregistered in 1983. The embossed form of the company bottle (Figure 6.28) is the earlier form pre-dating 1923, several of which are kept in the Hawkesbury Regional Museum.¹³¹

Table 10 Identified origins of production for Phase 5 bottle glass.

Object Sub function	MNV	Brand	Maker	TPQ	TAQ	Origin
Food Storage (preserves)	1	Stower's brand purest pickles	H.M. Leggo Co.	1896	20 th c.	Bendigo. Australia
Pharmaceutical (cough syrup)	1	Bonnington & Co.	Unidentified	1891	20 th c.	Australia
Food Storage	1	Unidentified	Melbourne Glass Bottle Works Company Pty Ltd.	1900	1915	Melbourne, Australia
Food Storage (condiment)	1	George Whybrow, London	Unidentified	1845	1899	Great Britain
Food Storage (alcohol)	3	Udolpho Wolfe's aromatic schnapps	Udolpho Wolfe	1848	1885	Unidentified
Pharmaceutical	1	Unidentified	Davey & Moore, Ltd.	1860	20 th c.	Middlesex, England
Clerical (double gum adhesive)	1	Daniel Judson & sons, London	Unidentified	1860	20 th c.	Great Britain

¹²⁹ <https://oxtva.files.wordpress.com/2012/10/bonningtons-irish-moss.pdf>

¹³⁰ <https://poisonsnmore.webs.com/bottle-of-the-month>

¹³¹ <https://www.hawkesbury.org/name/noons-cordials-windsor.html>

Object Sub function	MNV	Brand	Maker	TPQ	TAQ	Origin
Domestic (infant bottle)	1	Mather's London and Manchester	Unidentified	1890	1920	France
Food Storage (condiment)	1	Lee & Perrins	Aire and Calder Glass bottle Company	1870	20 th c.	Castleford, Yorkshire

Table 11 Identified origins of production for Phase 6 bottles.

Object Sub function	MNV	Brand	Maker	TPQ	TAQ	Origin
Food Storage (cordial)	2	Noon's Cordials Windsor	Australian Glass Manufacturing Company	1913	1923	NSW Australia
Food Storage (alcohol)	2	Unidentified	NSW Bottle Co.	1948	1950	NSW Australia
Food Storage (lemonade)	1	Hume & Pegrum Co.	Hume & Pegrum Co.	1876	1898	Sydney, Australia
Pharmaceutical	1	A.J. White patent medicines	Unidentified	1884	20 th c.	Great Britain



Figure 6.27 Stower's brand pickle jar produced by H.M. Leggo of Bendigo after 1896, recovered from fill context 1351.



Figure 6.28 Local business Noon's cordials bottle embossed with 'M. Noon Windsor' recovered from Phase 6 context 1029.

6.5 Clay Smoking Pipes

6.5.1 PHASES 2 AND 3 (1794 – 1816)

Clay pipe fragments formed the second largest material class by quantity present in the Phase 2 (MNI 13) and Phase 3 assemblages (MNI 65), a reflection of the prevalence of tobacco use from the outset of colonial settlement. As summarised by Wilson, clay pipes were:

*...present in 1788, and thus have the potential to form part of the archaeological record for the whole of the colonial period in New South Wales. Contemporary reports for the early nineteenth century indicate that smoking was extremely common. In 1819, it was estimated that every second adult male was addicted to tobacco, whilst in 1827, Peter Cunningham observed that "all" of the lower classes were determined smokers.'*¹³²

Pipe smoking has been associated with people of low socio-economic status,¹³³ and this would include a broad cross-section of the settler, convict and soldier population frequenting the vicinity of the site throughout the early years of settlement, particularly the latter group who from the outset were noted by military officers as being "much distress'd for tobacco".¹³⁴ To remedy the want, Gojak and Stuart¹³⁵ note that tobacco was both grown and imported from the early years of settlement and that while clay pipes initially had to be imported, they were being made in Sydney by William Cluer by 1804.¹³⁶ From research conducted by Wilson,¹³⁷ it appears that Cluer remains the only documented pipe maker in the colony until 1821, however it is unlikely that his successful niche did not include other small producers. No marked Cluer pipes have been identified and it is unlikely Cluer's, or any other early maker's wares, were marked or decorated. This would seem to be confirmed by the evidence from the site, as none of the total 160 stem and four bowl/spur fragments recovered from Phase 2 and Phase 3 contexts were marked or decorated.

Nonetheless, the proportion of pipes at the site that were manufactured locally, if any, cannot be known. Evidence from comparatively early sites such as Phase 1 of First Government House suggests that clay pipes during the early colonial period to c.1820 were generally unmarked regardless of provenance, despite the fact that pipes manufactured in Bristol, Liverpool and other locations in England bore maker's marks during this period.¹³⁸

¹³² Wilson, G. & Kelly, A. (1987) Preliminary Analysis of Clay Tobacco Pipes: First Government House, Sydney. *Published Report to Heritage and Conservation Branch, Department of Planning New South Wales Government, Canberra.*

¹³³ Walker, R. (1984) Under fire: A history of tobacco smoking in Australia, *Melbourne University Press, Melbourne.*

¹³⁴ Historic Records of New South Wales, 2: 414. *Ross To Secretary Stephens, 10/7/1788.*

¹³⁵ Gojak, D. & Stuart, I. (1999) The Potential for the Archaeological Study of Clay Tobacco Pipes from Australian Sites, in *Australasian Historical Archaeology*, 17,:38-49.

¹³⁶ Higginbotham, E. (1987) The Excavation of Buildings in the Early Township of Parramatta, New South Wales, 1790-1820s, *Australian Historical Archaeology*, 5,1987. p.16. Gojak D. & Stuart, I. (1999) p.44.

¹³⁷ Wilson, G.C. (1988) Preliminary list of Sydney clay tobacco pipe makers and distributors, unpublished manuscript, quoted in Gojak D. & Stuart, I. (1999) p.44-45.

¹³⁸ Walker, I.C. (1970) Nineteenth-Century Clay Tobacco Pipes In Canada. *Ontario Archaeology* No.16:19-35.

The only variation to unmarked white kaolin pipes was a single, crudely-made red earthenware pipe stem. Gojak and Stuart note that coloured earthenware pipes were produced in Europe as well as white, and red earthenware appears more commonly associated with manufacture prior to the 19th century.¹³⁹ The form and quality of the stem is inconsistent with mass-produced, moulded smoking pipes, having a rough texture and a mass in the centre of the stem, possibly a grip or repair made during manufacture, as the irregular form strongly suggests a pipe fashioned by hand without the aid of a mould. It is highly likely that this pipe, if that is what the object represents, is of local manufacture prior to 1814. (Figure 6.29).



Figure 6.29 Crudely-made red earthenware pipe stem recovered from Phase 3 context 1340 in Grid Area 1, probably associated with the construction of box drain 1.

6.5.2 PHASES 4 AND 5 (1816 – 1934)

A smaller number of smoking pipe fragments were recovered from Phase 4 (MNI 4) and Phase 5 (MNI 19) deposits. Among the latter were a number of marked pipes that denote the shift in British pipe manufacture away from England and towards Scottish producers, particularly from Glasgow. These included examples from context 1338 made by MacDougall (Glasgow 1860-1910), context 1302 by Thomas Davidson (Glasgow 1862-1911) and context 1222 by William Murray (Glasgow 1830-1861).¹⁴⁰ A single example was recovered that was made by/for an Australian seller - Hugh Dixon, tobacco merchant (Sydney 1833-1903).

¹³⁹ Mark, R.F. (1966) Clay Smoking Pipes Recovered from the Sunken City of Port Royal. *Published Report to the Jamaican National Trust Commission, Kingston.*

¹⁴⁰ Walker (1970); Wilson, G.C. & Kelly, A. (1987).



Figure 6.30 Phase 5 pipe stem recovered from context 1222 bearing the mark of Hugh Dixson, tobacco merchant, Sydney (1833-1903).



Figure 6.31 Phase 5 pipe decorated with ship and sailor on the reverse, made by William Murray of Glasgow (1830-1861).

6.6 Personal & Miscellaneous Artefacts

6.6.1 PHASES 2 & 3 (1794 – 1816)

A total of four personal and miscellaneous items were recovered from Phase 2 contexts, each representing different functional category. These included a hand-made, slip-formed and unfired earthenware marble (Figure 6.32), a small brass buckle frame consistent with horse tack, an iron chain link and a section of cooper's hoop iron. This range of objects is entirely consistent with the manufacturing industries of the period, being restricted to the trades of blacksmith, buckle maker and potter.



Figure 6.32 Unfired earthenware marble recovered from Phase 2 context 1067.

The number and range of this artefact category was proportionately larger for the Phase 3 assemblage (MNI 52) and contained artefacts representing 11 activity classes including an 'unidentified' category (MNI 24), largely comprising fragmented metal objects that could not be firmly identified to a specific activity class.

The next most frequent category, clothing, was made up of eight buttons (Table 12) and one iron boot heel-plate with two hobnails in place (Figure 6.34). Of the buttons, six were one-piece copper alloy buttons representing various forms of die-cut and stamped manufacture common to the 18th and early 19th centuries (Figure 6.35).¹⁴¹ These lacked decoration of any kind and were fixed to clothing via separate wire shanks attached via a flux to the back of the flat, pressed or domed button. At least four buttons were gilded, a form of decoration that in America is associated with the 'golden' age of buttons after 1820 but which had been perfected in Britain during the late 18th century.¹⁴² A single back-plated, gilded and decorated example was recovered with a stamped back plate inscription referencing the gilding and a front face relief depicting nested birds supported by the branch of a tree (Figure 6.36). This style of button, depicting wildfowl or animals in general, was common to hunting or livery jackets during the Georgian period.¹⁴³ In addition to these metal buttons, a wooden button mould, formed by turning on a lathe, was recovered from context 1105 that would have originally been faced with bone, mother of pearl or simply used 'as is' (Figure 6.37).

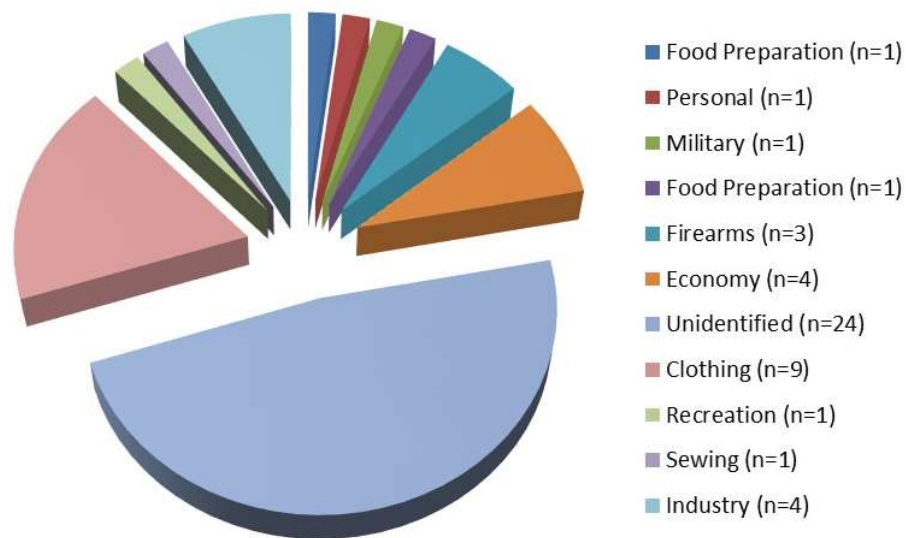


Figure 6.33 Proportions of personal and miscellaneous artefacts from Phase 3 contexts by MNI per activity class.

¹⁴¹ Marcel, S. E. 1994 *Buttoning Down the Past: A Look at Buttons as Indicators of Chronology and Material Culture*, Published Honours Thesis, University of Tennessee, Knoxville.; Aultman, J. Grillo, K. 2012 DAACS *Cataloguing Manual: Buttons*.

¹⁴² *Ibid.* p.6; The Buttonmonger, 2011, Vol. 1 Issue 7.

¹⁴³ www.finds.org.uk ID: 1B6E94; Marcel, S. E. 1994 *Buttoning Down the Past*, p.6.

Table 12 Summary of buttons recovered from Phase 3 contexts.

Context	Material	Button type	Shank Type	Manufacture Method	TPQ	TAQ	Decoration
1099	Copper alloy	One piece	Indeterminate wire brazed	Die-cut and stamped.	1794	c.1820	None
1099	Wood	Two-hole sew through mould	NA	Turned on lathe and drilled with brace and bit.	1794	c.1820	None, likely faced with bone or shell
1105	Copper alloy	livery button	Indeterminate brazed	Cast or die-stamped	1810	c.1850	Nested bird on front, TREBLE STAND. EXTRA RICH on back
1119	Copper alloy	one-piece domed	Wire brazed shank (missing)	Pressed	1794	c.1830	None
1119	Copper alloy	Flat disc button	Embedded wire shank (missing)	Cut	c.1800	c.1830	None
1119	Copper alloy	Flat disc button	Indeterminate embedded wire shank	Cut	c.1800	c.1830	None
1119	Copper alloy	Flat disc button.	Indeterminate embedded wire shank	Cut	c.1800	c.1830	Gilded
1182	Copper alloy	Thin, one-piece collar button	Brazed, square-bodied shank	pressed	1794	c.1820	None



Figure 6.34 Iron boot heel plate with hobnails recovered from Phase 3 context 1119.



Figure 6.35 Examples of copper alloy one-piece buttons recovered from Phase 3 contexts 1099, 1119 and 1340.



Figure 6.36 Face of 'treble gilt' livery button from context 1105.



Figure 6.37 Weathered wood button mould with central lathe hole and visible sew-through holes, from context 1099.

The next most prevalent activity classes were economy (MNI 4), industry (MNI 3) and firearms (MNI 3). The first of these was made up of three 1799 farthings, two of which were recovered from context 1119 and one from context 1182 (Figure 5.32 and Figure 6.39). During the early years of settlement, coinage for circulation in the colony was limited and of '...a riotous variety of specie brought privately in pockets and purses...'.¹⁴⁴ Attempts to regulate this chaotic colonial currency and address the trade in rum and stolen goods lead Governor Philip Gidley King to commence the deliberate importation of copper coinage and issue a proclamation introducing fixed rates for ten coins in circulation from 1800. Values were set at twice their usual worth under the proclamation, including for the farthing, raised from 1/4d to 1/2d. The recovered coins are likely to have formed part of the tons of coins minted from 1788 and imported by King after 1800 and are therefore among the earliest 'proclamation coins' found on an archaeological site in Australia.

The Industry activity class included a mass of what is likely to be smithing hearth bottom (the bowled concretion of slag formed at the base of a blacksmith's forge hearth) with characteristic charcoal inclusions, hammerscale and convex base (Figure 6.38). Tools in this class included three hand-wrought cold chisels, one recovered from box drain 2 fill context 1079 and two from box drain 3 fill context 1366. The latter two (Figure 5.26) appear to have been produced from the same length of bar iron, both having matching width and thickness. The example from box drain 2 is slightly thinner and has a bullnose shank. The disposal or loss of these tools near two separate box drains suggests they were utilized in the construction of the Phase 3 drains as bolsters to cut and shape bricks.



Figure 6.38 Smithing hearth bottom sample from Phase 3 context 1118.

¹⁴⁴ Karskens, G. 2009 *The Colony*, Allen & Unwin, Crows Nest NSW p.172

The firearms activity class is made up of three gun flints, reflecting the evolution of British flints of the late 18th-early 19th centuries. This included two examples of the less efficient gun spall form, having opposing ventral faces and a single leading edge (Figure 6.40), and from context 1119 a square 'English' blade gunflint with two dorsal arrises (Figure 6.41). The former type is typically associated with the 18th century and by c.1810 was largely replaced by the superior, longer-lasting English flint formed from a knapped blade.¹⁴⁵

At the interface between contexts 1077 and 1078, a large fragment of an apparently spherical cast iron ball was recovered (artefact WBRHS18313). Only soft metals were being cast in the early decades of European settlement and industrial iron casting is believed to have not been established until Richard Dawson established his Sydney Cove foundry in 1833. This Phase 3 artefact is therefore an imported object that had shattered prior to being discarded. The line of this break also passed through the centre of a small hole cast into the side of the object. Cast iron is extremely resistant to external pressure and fragmentation of this kind is almost exclusively the result of explosive force.

The original form and function of this object cannot be definitively stated on the available evidence, however it is considered most likely to be just under half of an exploded artillery projectile, specifically a fuzed mortar casing of a type in use during the Napoleonic and American revolutionary wars of the period. The circumstances under which a relic of this nature could have been discarded in fill during construction of the drain system can only be wondered at, however comparison with the specifications of 11 ½ pound mortar shells produced in Britain between 1801-1813 shows an exact match, allowing for the effects of corrosion, in diameter, tapering fuse hole diameter, proportional weight and shell thickness (Table 13).¹⁴⁶

The remainder of the Phase 3 component of personal and miscellaneous finds were largely recovered from context 1119 and comprised a fragmented and highly corroded cooking pot, a highly corroded key-wind pocket watch missing its face and cover (Figure 6.42) and the copper alloy bobbin weight of a sewing spool (1794-c.1850).

Table 13 Comparison of the specifications of a c. 1800 11½ pound mortar shell (after McConnell, 1988:295) and artefact WBRHS18313.

Object	Weight (g)	Diameter		Diameter of Outside Fuse Hole		Diameter of Inside Fuse Hole		Thickness of Shell	
		in.	cm	in.	cm	in.	cm	in.	cm
1 qr. 11-1/2 lb. mortar shell (17.91kg)	17,910	8 ¾	22.2	1.219	3.09	1.127	2.86	1.20	3.04
Artefact WBRHS18313	8014	8 ¾	21.5-22.5	1.22	3.09	1.15	2.92	1.16-1.25	2.94-3.17

¹⁴⁵ Ballin, T.B. (2012) 'State of the art', 116–142.

¹⁴⁶ McConnell, D. (1988) *British Smooth-Bore Artillery*; Manucy, A. (1956) *Artillery through the Ages*.



Figure 6.39 Obverse of 1799 farthing recovered from context 1182.



Figure 6.40 Gun spall flint recovered from Phase 3 context 1077.



Figure 6.41 English blade gun flint recovered from Phase 3 context 1119.



Figure 6.42 Broken key-wind pocket watch from Phase 3 fill deposit 1119.

6.6.2 PHASES 4, 5 & 6 (1816 – 2018)

No personal and miscellaneous items were recovered from the various fill deposits from later phases of the site that contribute meaningfully to the archaeological discussion and site history. The few items found within this category do not influence the dating of these fill deposits and their provenance is unknown.

6.7 Construction Materials

6.7.1 PHASES 2 & 3 (1794 – 1816)

Construction materials formed a significant proportion of the finds recovered from phases 2 and 3. Of the total 91 MNV/MNI from Phase 2, 22 were of this class, being iron nails (MNI 18), crown window glass pane fragments (MNI 2) and sandstock brick pieces (MNI 1). Minimum estimated numbers of window glass were arrived at through separation of NISP by colour and thickness. Of the nails, seven were common nails, with clenched nails (MNI 3) being the next most common type. A single flooring brad was present, as well as a large spike, two smaller spikes and three indeterminate nail types. All were hand-wrought and the majority rose-headed (Figure 6.43).



Figure 6.43 Hand-wrought rose-head nail recovered from Phase 2 context 1067.

For Phase 3, construction materials comprised 16.2% of all MNV/MNI. Crown window glass fragments (NISP 70) were common and the most frequent of all glass types, representing an estimated number of 17 individual windowpanes. The high Phase 2 and 3 frequency of window glass, a valued commodity in the early decades of settlement, suggests that dispersed structural remains and associated occupation refuse form a significant component of these assemblages. This is reinforced by the number of metal fixings recovered (MNI 136), representing 17.2% of the entire Phase 3 assemblage. Of these, there were 54 common construction nails, 39 indeterminate corroded nails, 10 spikes used for heavy framing, five clench and four clout nails, two fine carpentry clasp nails, four lath nails and two flooring brads. Of interest is the presence of the small number of clench and clout nails, including four of copper, as well as a number of pieces of copper sheeting off cuts. These items would be consistent with boat-building or repairs, activities known to have been conducted within the general vicinity of the salvage area.

No examined bricks utilised in the construction of the drainage system or found within the fills had frogs, government Broad Arrows nor other identifying marks. Bricks sampled from displaced examples near the headwall in Sondage 6 displayed evident strikes and hack marks along the sides. A brick with dimensions of L22.5cm x W11cm x H6cm had been trimmed down at one end, post firing, to a width of only 7cm. This trimming was uneven with one face trimmed from approximately halfway along the brick's length while the opposite face was trimmed at a sharper angle for only a quarter of its length. There is what appears to be a remnant scribed line in one surface of the brick possibly as a guide for the trimming.

The face opposite the strike exhibits considerable "cratering" from possible expansion of water/gas vesicles in the clay during the firing. The cratering and trimming revealed some larger ironstone (5cm) inclusions in the clay body of the brick. Trimmed bricks and wedge offcuts were occasionally identified. These shaped bricks were evidently for use in the arch section of the drain, specifically the soldier course at the crown. The trimming would have been designed to allow this brick to form the critical wedge shaped "keystone" of the arch structure. The unevenness of the trimming demonstrates knowledge of the required shape for this brick course but a lack of care in the workmanship.

Within Phase 3 fill deposits, a small number of bricks fragments were identified with adhered mortar, suggesting demolition of prior structures, and brick differing in composition to the drainage system fabric was identified, notably in the case of artefact WBRHS18447 recovered from context 1118; an overfired, yellow-brown brick, distorted from extraction from the mould, with a coarse sand exterior (Figure 6.45). A lump of sandstone was also identified within Sondage 3 fill deposit 1099. This had no evidence of working or shaping but was nonetheless introduced to the site and may have once formed part of a vernacular structure.

Overall both phases 2 and 3 provided consistent evidence of structural materials that are likely to derive from the demolition of Green Hills buildings leading up to and during the remodelling works overseen by John Howe and James McGrath in 1814. This includes fragments of wall plaster recovered from context 1147 as well as the remains of hand-wrought door fixings including a large strap hinge and probable thumb latch iron bar and plate.



Figure 6.44 Wall plaster recovered from Phase 3 context 1147.



Figure 6.45 Sandstock brick WBRHS18447 from Phase 3 context 1118.

6.7.2 PHASES 4, 5 & 6 (1816 – 2018)

No structural items were recovered from the various fill deposits from later phases of the site that contribute meaningfully to the archaeological discussion and site history. The few items found within this category do not influence the dating of these fill deposits and their provenance is unknown, the exception being Phase 6 contexts 1024 and 1029, containing modern concrete blocks, brick masonry and bonded asbestos sheeting debris associated with the demolition of the Hawkesbury Motor Boat Club c.1990.

6.8 Faunal Material & Organic Remains

6.8.1 PHASES 2 & 3 (1794 – 1816)

Faunal remains recovered from Phase 2 deposits were limited in number and diversity, being restricted to eight bones deriving from an estimated three domesticated species, including one pig (p4 premolar), one sheep/goat (multiple bones including articulated radius and ulna) and one bird of the *Phasianidae* family (fowls etc) (keel portion of sternum).

Shell was limited to three small Sydney cockle (*Anadara trapezia*) valves, almost certainly associated with mortar preparation for the Phase 3 drains.

A total of 118 bones and bone fragments were recovered from Phase 3 contexts, representing an estimated 48 animals, generally from a small number of identified bones. These 118 animal bones were restricted to the same species seen for Phase 2, with the exception of the addition of *Bos taurus* (cow) to the number. Proportionately, sheep/goats were the most common animal present (MNI 17), followed by indeterminate medium sized mammals (MNI 12, probably also sheep/goats), cows (MNI 10) chickens (5) and pigs (4). The relatively small number of bones still provide evidence of butchery, consumption of meat and disposal of carcasses, including disarticulation cuts at long bone epiphyses (Figure 6.46), hacksaw and cleaver cut marks through common beef and mutton/lamb cuts such as blade to wedge loin (Figure 6.47), ribs, shoulder, leg and chops. Occasional articulated (conjoining) long bones denoted disposal of carcasses and unwanted portions of animals (Figure 6.48)

Shell recovered from Phase 3 construction deposits is once again considered to be entirely related to mortar production. It is likely the shell was burned on site as needed from stockpiled reserves of the sheltered mud flat and rocky shore species *Saccostrea commercialis* (Sydney rock oyster), *Anadara trapezia* (Sydney cockle) and *Ostrea angasi* (Mud oyster). This scattered shell was often found to be burnt or calcined, highly fragmented and of a wide range of sizes inconsistent with subsistence. This is in contrast to scattered Phase 5 concentrations of large *Crassostrea Gigas* (Pacific oyster) shells representing direct consumption.

A significant quantity of scattered chunks of shell lime mortar was identified within the basal layers of drain fill 1119 in the north-east part of grid area 2. This dispersed material may denote the remains of an area of mortar preparation. Mortar chunks were also found against the upper margins of the construction trenches that probably denote excess material related to the application of the lime topping over the crown of the oviform drain (Figure 5.5).

A single macro-organic seed, half of an apricot kernel (Figure 6.49), was recovered during the salvage programme. This would appear to be evidence of one of the many orchards established during the 1790s, including to the east within the government precinct and on Andrew Thompson's land.



Figure 6.46 Knife cut marks (right) on a sheep bone recovered from context 1119.



Figure 6.47 Hacksaw marks on beef wedge and blade cut bones from context 1119.



Figure 6.48 Articulated (carcass) radius and ulna recovered from context 1119.



Figure 6.49 Apricot kernel fragment recovered from context 1119.

7 DISCUSSION OF RESULTS

7.1.1 SUMMARY OF THE ARCHAEOLOGICAL LANDSCAPE OF THE GREEN HILLS SETTLEMENT TO 1814

The stratigraphic evidence indicates that the Phase 2 assemblage represents scattered refuse deposited on the surface prior to the construction of the Phase 3 drainage system. Whether this material built up over a period of years as a result of nearby occupation or was scattered in one or more single events was not possible to ascertain from the limited evidence available. The quantity of crown glass and wrought nails suggest however that the former is more likely and the assemblage represents refuse dispersal combined with material scattered during the removal of remaining buildings during Macquarie's laying out of Thompson Square in 1811 (Section 2.3.4).

It is apparent from the extensive land modification that by the beginning of the 20th century, only 18m² of material representing the earliest period of European settlement remained *in situ* within lower Thompson Square. In this regard, lower Thompson Square contained a very poor record of this period in comparison with sites that undoubtedly exist throughout the surrounding areas of Windsor.

Much of this disturbance took place during the construction of Windsor Bridge and the associated approach roads from 1874, however the construction of the Howe and McGrath drainage system also removed or disturbed at least 50% of existing ground present in 1814. This percentage is conservative when associated levelling activity that also formed part of the contract of works is taken into account. Direct evidence of the piling associated with this work was not identified, however the stratigraphic evidence suggests the northern half of grid area 2 underwent significant disturbance that is suggested to be related to the commencement of levelling the slope to the river and new wharf. This is also evident from the nature of filling associated with the oviform drain trench between sondages 3 and 4, as laminated humic fills in Sondage 3 gave way to bulk redeposited aeolian sand over humic basal fills in Sondage 4. This change suggests that in the area surrounding Sondage 4, excavated material from the oviform drain trench was not stockpiled for reburial but pushed downslope as levelling fill. The drain trench was then subsequently filled from either side, reducing the surrounding ground level in the process as part of this reshaping of the slope as required by the contract.

Also adding to the degree of disturbance visible in the lower Thompson Square was damage caused by scouring and deposition of material following the numerous floods which affected the Hawkesbury River throughout the 19th and 20th centuries. Damage from the floods was most evident from grid area 2, which contained various lenses of alluvial sediment visible in the stratigraphy of sondages 4 and 5, while scouring along the riverfront was shown to have damaged the terminus of the oviform drain as identified in Sondage 6. Additional scouring caused by the wash of water downslope was evident across grid area 1 and is likely to have resulted in historical artefacts being washed away from their original depositional contexts.

As a result of the above impacts, the archaeological resource has been demonstrated to comprise redeposited artefactual material associated with this early settlement period and the extensive and ambitious drainage system that marks the replacement of the ramshackle settlement with the formalised 'Macquarie town' of Windsor. The significance and archaeological contributions of these two elements of the salvage excavation results are considered separately below.

7.1.2 THE CULTURAL MATERIAL

At the time of colonisation, the cultural attachment to Chinese porcelain was ingrained despite the concurrent decline in its actual consumption in Britain. The fascination with Chinese porcelain was such that decorative patterns and techniques were appropriated by British manufacturers producing 'China glaze' blue and polychrome painted wares. This appropriation found its Industrial Age niche with the development of Chinoiserie transfer print sheet patterns, embodied by the most prevalent decorative trend in history – the willow pattern and its variants. This process evolved over the same few decades as the Green Hills settlement and is readable within the salvage assemblage.

The East India Company (EIC) ceased importation of Chinese porcelain into Britain entirely in 1791, reducing the export market for Chinese producers. Historical archaeological investigations in Australia and elsewhere have demonstrated that trade in Chinese porcelain throughout the British colonies continued as a post-script to the decline in Britain itself. Despite the official trade monopoly of the region held by the EIC, the need for goods to not only make life comfortable, but possible, saw speculative trade between private traders and the ports of British India begin almost immediately.¹⁴⁷ Corcoran, summarizing Hainsworth, points out that '[t]hose men with 'an eye of vision' such as Macarthur, Blaxcell and Campbell could see the great future in establishing a regular trade with Canton or Calcutta'.¹⁴⁸

The archaeological exemplar of such material cargoes is provided by the *Sydney Cove*, the speculative merchant ship of John Campbell's Calcutta business partnership of Campbell, Clarke & Co. The *Sydney Cove* was wrecked among the Furneaux group of islands in the Bass Strait in February 1797. Salvage excavations conducted between 1977 and 1993 recovered a quantity of intact Chinese porcelain toiletry, tea and tableware, richly decorated in variations on 'Fitzhugh' and 'Nanking' patterns.¹⁴⁹

Much emphasis has been placed on the association between expense, particularly with regard to the decorative quality of overglaze enamel, Fitzhugh and Nanking wares and high social status. The often-cited example of the material affirmation and display of status through Chinese porcelain is seen in the 1797 sale at auction of three chests of porcelain recovered from the *Sydney Cove* that sold with '...the most enormous prices being paid for every article'.¹⁵⁰ As pointed out by Corcoran, interest in Britain in for Chinese porcelain had declined since the 1870s, with cups and saucers comparable to that mentioned above going unsold for a decade before selling for less than 2 pence each.¹⁵¹ The *Sydney Cove* auction is entirely a reflection of context; the need for the familiar and desire to establish and display status within the alien setting of the colony,¹⁵² and also perhaps, of the real want for functional tea and tableware.

Increased trade may also blur the simple association between export porcelain and social class at certain times and in certain locations. As noted by Corcoran:

*'Trade in Sydney was dominated by the laws of supply and demand. Scarcity would be succeeded by surplus while the price structure would be largely determined by the scarcity or glut of the goods a settler wished to purchase.'*¹⁵³

¹⁴⁷ Hainsworth, D.R. (1981) *The Sydney Traders*. Melbourne University Press, Carlton, p.64

¹⁴⁸ Corcoran, A.M. (1993) p.11

¹⁴⁹ Staniforth, M. & Nash M. (1998) *Chinese Export porcelain from the Wreck of the Sydney Cove (1797)*. Australian institute for Maritime Archaeology Publication, Brolga Press, S.A.

¹⁵⁰ Collins, D. 1802 *An Account of the English Colony in New South Wales* Vol. 2

¹⁵¹ Corcoran, A. M.(1993) p. 13.

¹⁵² Staniforth, M. & Nash, M (1998), p.41

¹⁵³ Corcoran, A. M. (1993), p.12

The assumption that Chinese porcelain was unavailable to the lower classes or less wealthy groups of people¹⁵⁴ may therefore be too broad a generalisation, depending on context. Staniforth and Nash highlight the problems with inferring elevated social status directly from the presence of Chinese porcelain, citing the occurrence of comparable Chinese porcelain toiletry items in assemblages from both First Government House and the property of a former convict.¹⁵⁵ As pointed out by Corcoran, by 1808 there was no need to bid over odds and ends recovered from wrecked ships when Mr. Blaxcell advertised for sale at his Sydney premises "60 dozen blue and white china plates, 100 dishes of different sizes, 14 soup tureens with stands, 2 dozen butter boats, 14 sauce do., and 2 dozen salad bowls". This assortment may have formed part of the 550-package porcelain shipment aboard the recently arrived ship *Favourite* – a single consignment that could find its way into the homes of a large proportion of the free population then in the colony.¹⁵⁶

From the salvage excavation it is apparent that Chinese porcelain formed a predominant component of tableware used by the population surrounding Thompson Square, as occurred elsewhere in early colonial sites with comparable date ranges (Table 14).¹⁵⁷ This emphasizes the significance of speculative trade with British India in comparison to shipments of ceramics from Britain. With the exception of First Government House and Cadman's Cottage where British wares predominate, it is clear from Table 14 that between 1790 and c.1814 tableware was frequently provided by trading vessels travelling between India and the colonies.

The high number of Chinese porcelain at the Thompson Square site highlights early Windsor as a further location relevant to research into the trade and consumption of these wares. Chinese porcelain was as well-represented in the outpost of Mulgrave Place/Green Hills and the remote Norfolk Island agricultural settlement as it was in Parramatta or in Sydney Cove. Comparison of the assemblage from salvage Area 1 with a number of these assemblages may identify matching vessels reflecting the division of particular speculative trade consignments. Corcoran notes that Chinese porcelain was identified at the site of Andrew Thompson's house in Macquarie Place, excavated by Edward Higginbotham in 1988.¹⁵⁸ This material would be of particular relevance to a closer analysis of the Windsor assemblage.

Table 14 Percentages of Chinese export porcelain recovered during salvage compared with those present in early colonial sites of NSW and Norfolk Island (After Corcoran 1993:53-70).

Site	Earthenware	Stoneware	Porcelain	Chinese Porcelain
Lower Thompson Square, Windsor (1794-1816)	76.13	1.2	0.1	22.5
Lilyvale, The Rocks, Sydney (1788-1821)	56.4	2.3	3.1	38.2
First Government House, Sydney (1788-1846)	60.7	15.7	21.1	2.1
George Street, Parramatta (1790-1821)	74.0	0	0	26.0
Norfolk Island- First Settlement (1788-1814)	63.9	0	0	36.0
Cadman's Cottage, The Rocks (1816-1846)	62.0	32.0	4.0	2.0

¹⁵⁴ Higginbotham, E. (1987), p.14

¹⁵⁵ Ibid, p.42; Karskens, G. (1994) The Cumberland Street/Gloucester Street site, The Rocks. *Unpublished Report for Godden MacKay and the Sydney Cove Authority, Sydney.*

¹⁵⁶ Corcoran, A. M. (1993), p.14

¹⁵⁷ Crook, P. & Murray, T. (2006) The Historical Archaeology of the First Government House site, Sydney. Historic Houses Trust of New South Wales, Sydney, pp 45-46.

¹⁵⁸ Corcoran, A.M. (1993), pp.71-72

The even higher frequency of glazed colonial ware suggests that this ware type was readily available in what was essentially the frontier of the colony from its earliest known period of production, when pottery in Sydney was meeting a ready market.¹⁵⁹ It is possible that the lead-glazed wares recovered from lower Thompson Square during salvage, and also test trench SA3 during the testing phase, were being locally-produced in the Green Hills settlement prior to 1814 based on the high numbers of incidences identified.

In 1796, over 75% of Hawkesbury settlers (454 people) were sustained by the public stores due to failed crops and a tendency toward drunkenness and resulting impoverishment. Although the agricultural potential of Mulgrave Place was regularly realised, successive floods ensured any boom was followed almost seasonally by bust and the numbers of dependents on the commissariat remained high.¹⁶⁰ This ensured the settlers were always closely linked to the government stores, either for rations to sustain them or in response to calls for grain surplus to sustain the colony. In the latter scenario they were paid with what was available and what was required; livestock, goods, clothing and, particularly during the Rum Corp years, cheap spirits. Colonial ware may have formed part of the range of goods issued by the government stores to dependent settlers.

Research into colonial pottery has tended to focus on the private potter, their shops and advertisements and the role these wares played in the development of early commerce.¹⁶¹ However, pottery production and brick-making were, by virtue of suitable clay sources, closely linked and many early potters were associated with the Brickfield Hill area of today's central Sydney. Together with the production of government bricks, this area was home to potters supplying earthenware to the government and commissariat from the government pottery which Casey suggests was under the control of the Colonial Engineer, Major Druitt, during the 1820s.¹⁶² These potters had little need to advertise and are therefore, together with numerous other barely-recorded potters that produced wares sporadically from the 1790s,¹⁶³ less historically visible.

When John Howe and James McGrath were commissioned to construct the drainage system, they were permitted to make '...from one hundred and twenty to one hundred and fifty thousand of Bricks on the Brick Ground now making at Windsor for Government...'.¹⁶⁴ It is not inconceivable that individuals at the government brick-making location were also producing plain, functional pottery from the same clay and using the same kilns to supply the district.

Chemical analysis has been conducted for Thomas Ball and Irrawang pottery fabric and glaze compositions using X-ray fluorescence spectroscopy (XRF) and Raman microspectroscopy respectively. This would also be of benefit in establishing the groundwork for provenancing the Windsor colonial ware and ascertaining whether the large sample provided by the salvage excavations corresponds to any existing assemblages recovered in Sydney or Parramatta to date.

¹⁵⁹ Casey, M. (1999) Local Pottery and Dairying at the DMR Site, Brickfields, Sydney, New South Wales. *Australasian Historical Archaeology* 17:3-37; Higginbotham, E. (1987).

¹⁶⁰ Gill, J.C.H. 1969 The Hawkesbury River Floods Of 1801, 1806 And 1809 Their Effect on the Economy of the Colony of New South Wales, p.714-718

¹⁶¹ Casey, M. 1999 Local Pottery and Dairying.

¹⁶² *Ibid.*, p.8

¹⁶³ Higginbotham, E. 1987 Buildings Early Parramatta, p.16.

¹⁶⁴ Howe Papers, State Library of NSW, Mitchell Library, ML MSS 106.

In their discussion of Chinese export porcelain, Staniforth¹⁶⁵ and Staniforth and Nash assert that it is important to go beyond simple descriptive and functional analyses and establish information regarding the 'acquisition, retention and loss of ceramic material and...the processes of consumption'.¹⁶⁶ The information available from this site can contribute to future research into early Windsor and wider patterns of material goods consumption throughout the colony, however exploration of the specific context of the artefacts and the people who used them is not possible due to the restrictions imposed by the site, primarily the extensive disturbance present and the secondary nature of deposition. These limitations prevent meaningful exploration of questions of class, gender, occupation and individual identities.

In the absence of *in situ* structural remains, it is impossible to confirm whether the Phase 3 artefacts recovered derive from the immediate area, one or more sources within the wider Green Hills settlement or a combination of the two. Nonetheless it is considered likely that the vast majority of Phase 3 material recovered from within the drainage system trenches was redeposited from equivalent surface scatter refuse present prior to construction. Material introduced from elsewhere is also likely to be present, however the relative proportions of each cannot be ascertained.

Despite the limitations, the site offers more than a record of early drainage engineering works and unrelated Georgian refuse. The broad cross-section of material culture recovered provides a concisely dated reference collection for European settlement to 1814, a period for which few such sites have been identified that are not compromised by longer-term occupation and admixture of artefacts. The surface of the archaeological record for early Windsor has barely been scratched; future archaeological sites in Windsor may be compared with this assemblage to distinguish Green Hills era occupation from later activity. The socio-historical contexts of such sites will in turn inform the likely source/s of the various materials present within the Thompson Square assemblage.

7.1.3 THE HOWE & MCGRATH DRAINAGE SYSTEM

Underground drainage and sewer works do not figure prominently in the documented history of the early Colony. Underground drainage systems were constructed for Government House, Sydney from 1788.¹⁶⁷ These drains were primarily brick or stone box drains. Sewerage and drainage did not become significant elements in public works until the governorship of Lachlan Macquarie commencing in 1810. An example that may have influenced the design of the Thompson Square drain was the construction of the double arch brick culvert carrying Mrs Macquarie's Road over a small stream in the Royal Botanic Gardens, Sydney. Construction took place between 1813 and 1816 using brick in a similar configuration as that used in the Thompson Square drain. The culvert was investigated by Higginbotham in 1992 and in terms of construction technique the following was observed:

¹⁶⁵ Staniforth, M. (1996) Tracing artefact trajectories—following Chinese export porcelain, *Bulletin of the Australian Institute for Maritime Archaeology* 20.1 pp.13–18

¹⁶⁶ Staniforth, M. & Nash, M. (1998) p.41-42

¹⁶⁷ Proudfoot, H (et al), Australia's First Government House, New South Wales. *Department of Planning, Sydney*.

The northern face of the culvert is showing distinct signs of imminent collapse. The brickwork over the arches on the northern face has lost a proportion of its bonding material, and has also detached itself from the brickwork forming the remaining length of the arched culverts. This is not surprising given the header bond predominantly used in the arches, which may have contributed to some longitudinal weaknesses in the overall structure. Other examples of similar construction are predominantly stretcher bond in two skins of brickwork, thereby overcoming this problem. The poor awareness of bonding suggested by the original brickwork may indicate the nature of labour in the early Colony, between 1813 and 1816, when only bricklayers with limited skill may have been available. The system was later complemented between 1795 and 1800 with underground sewers by which time the privies were connected to a brick barrel drain that discharged off site.¹⁶⁸

The first completed major public drainage program appears to be that constructed by Rowland Hassall at Parramatta at almost the same time as the Thompson Square drainage system. The drain extended from George Street to the Parramatta River. The contract was for a drain and tunnel thus:

GOVERNMENT AND GENERAL ORDERS. Head Quarters, Sydney, Saturday, 22 April, 1814

Mr. Rowland Hassall Amount of his Contract for making a Drain and Tunnel from George Street to the River at Parramatta £147.13.0.¹⁶⁹

This was an example of public works being undertaken by private contractors, a system that was favoured by Governor Macquarie, although the construction of this drain was not the first, or only example of this occurring.

The brick barrel drain at Parramatta is one of the best-known and most thoroughly investigated early brick drains in New South Wales. This has been extensively described by Higginbotham who identified two phases of construction, 1820-27 for the brick barrel section and the 1840s for the sandstone box section.¹⁷⁰ The presence of bricks marked with a broad-arrow in the drain's construction may not preclude it being work conducted by a private contractor. In 1831 for example, calls for tenders were made for the installation of a brick barrel drain at Liverpool and the notice remarks that the Government will supply the bricks and the successful tenderer the labour and time for the work.¹⁷¹ While the offer of bricks was later withdrawn, it opens the possibility that government-produced materials may have been supplied to private contractors to complete jobs for government sites. Along these lines, although the bricks used in the construction of the Thompson Square drains were unmarked, the contract of works stipulated that Howe and McGrath were permitted to make the required bricks '...on the Brick Ground now making at Windsor for Government...'.¹⁷²

¹⁶⁸ Higginbotham (1992): p. 4

¹⁶⁹ *Sydney Gazette and New South Wales Advertiser* 22 Apr 1815 p.2

¹⁷⁰ Higginbotham (1983), p.37.

¹⁷¹ *Sydney Gazette and New South Wales Advertiser*, 10 September 1831. While the offer of bricks was later withdrawn it does open the possibility that Government produced materials may have been supplied to private contractors to complete jobs for Government sites.

¹⁷² Howe Papers, State Library of NSW, Mitchell Library, ML MSS 106.

By the late 1830s, brick barrel drains were a common feature of major public works programs. The style of construction remained a standard until the 1850s after which time civil sewerage and drainage programs employed larger drains with a range of geometries, primarily oviform and elliptical drains. In this regard the principle of the Thompson Square drain is ahead of its time, however the mid-century examples (such as the Tank Stream Channel, Sydney) were generally built in the standard of double skins of stretcher-laid brick and bonded with a strong mortar and provided with an internal sealing layer of patent cement (Figure 7.2).

Howe and McGrath's Thompson Square drainage system was preceded by Hassall's Parramatta drain, which was completed while the Thompson Square drain was still under construction in 1815. On the 8th of August 1814, Howe and Magrath had signed an agreement with the Government for an integrated program of works at Thompson Square that included the construction of a wharf, the reduction of the gradient in Thompson Square from the river to George Street and the construction of a sewer. Construction was to be completed within twelve calendar months and was to include a system of channels that fed the drain. The cost of the work was £350 and 350 gallons of Bengal Rum (or other spirits).

This first contract was followed by a second contract dated the 24th of April 1814. This was essentially a variation on the first contract providing greater details on how the wharf should be constructed – the cost of this additional work was £600. Part payments for the work were as follows:

Quarter ending 10 September 1814	£100
Quarter ending 31 December 1814	£75
Quarter ending 30 June 1815	£100
Quarter ending 30 September 1815	£200
Quarter ending 31 December 1816	£150

The works were well in hand in early 1816 when the standard of Howe and Magrath's work at Windsor became a concern. In a letter from March 1816 the Colonial Secretary J T Campbell, wrote to James Mileham JP and Richard Fitzgerald Esq of Windsor:

"It having been lately represented to the Governor that a very inferior and bad description of timber and other materials having been latterly used in the construction of the Government wharf at Windsor, by Messrs Howe and Magrath the contractors for that works and the square leading thereto, in the town of Windsor and it being further stated that the workmanship is very slight and insufficient, contrary to the true intent of the contracts,"

"H.E is herein pleased to herein order and direct that you shall constitute yourselves into a committee of Survey on the said Public Works, calling to your assistance any well qualified respectable carpenter in your neighbourhood and that you proceed with such assistance with Survey and inspect the materials and workmanship thereof at whatever time or times you may deem expedient, reporting thereon in writing to His Exc, And in the event of your discovering any deficiency in either in the materials or workmanship you are to require the Contractors to replace such insufficient work or materials at their peril and to replace it or them with such other as you may consider conformable to the terms of the contract itself."¹⁷³

¹⁷³ Howe Papers, State Library of NSW, Mitchell Library, ML MSS 106.

Mileham and Fitzgerald responded with the view that the labourers had been left largely unsupervised and that significant elements should have been supervised by the employers. Some of the materials themselves were also deemed to be unfit for purpose and needing replacement. It may be suggested that the same situation may have existed with the drain – badly supervised work utilising materials not designed for the job, particularly in the case of the timber boarding lids for the box drains. However, by the time the committee was formed to investigate the work, the drain was presumably buried. There is no indication that any further works or repairs were undertaken on the drain, or whether it had been affected by the flood. The contractors were paid £150 for works undertaken up to the 31st of December 1816 but the final payment of £316.10.- was not made until the quarter ending the 31st of March 1820.

As mentioned above, although commonly referred to as a barrel drain, the oviform/ellipsoid shape of the main arterial drain beneath Thompson Square has more in keeping with later designs. The main drain structure consists of a shallow inverted segmental arch forming the base (invert). The walls are straight battered (receding slope) and topped by a low, segmental arch in the south and a full arch in the north. The invert was constructed as a single skin of brick laid in stretcher bond. The walls were laid as two skins constructed using English bond. The arch is two skins thick with three courses laid in stretcher bond rising from the spring line with the remainder of the arch carried out in header bond. The single crown course is laid as a soldier course. The drain has an internal height of 1.3m, an invert width of 70cm, a height from invert to the spring line of 80cm and a width at the spring line of 97cm.

In barrel and oviform drain construction, all courses are usually laid in stretcher bond, with the width of the drain and depth of invert determined by the expected carrying capacity in both dry-weather flow (daily discharge of effluvia without the addition of surface water) and stormwater flow. The invert of the Thompson Square drain is essentially a dish-drain that would not have operated efficiently as a sewer in dry-weather. The use of five different brick segments (stretcher invert, stretcher batter walls, stretcher arch segment from spring-line, header arch and soldier crown course) (Figure 7.1 and Figure 7.3) is a reasonable indication that the structural principles of drain construction were not well understood by the designer. The drain appears to be an attempt to construct an ovoid/ellipsoid drain without the knowledge of the geometry that provided drains of this type with strength and the ability to cope with variable flow regimes. The use of header courses for the vault is more typical of low-arched window and door heads rather than long vaults. The decision to use this form may have been driven by the designer's (in)experience or by an inability to create long sections of formwork that would allow stretcher courses to be constructed. The exemplar for this type of construction appears to be the Lady Macquarie's Road culvert constructed between 1813 and 1816.

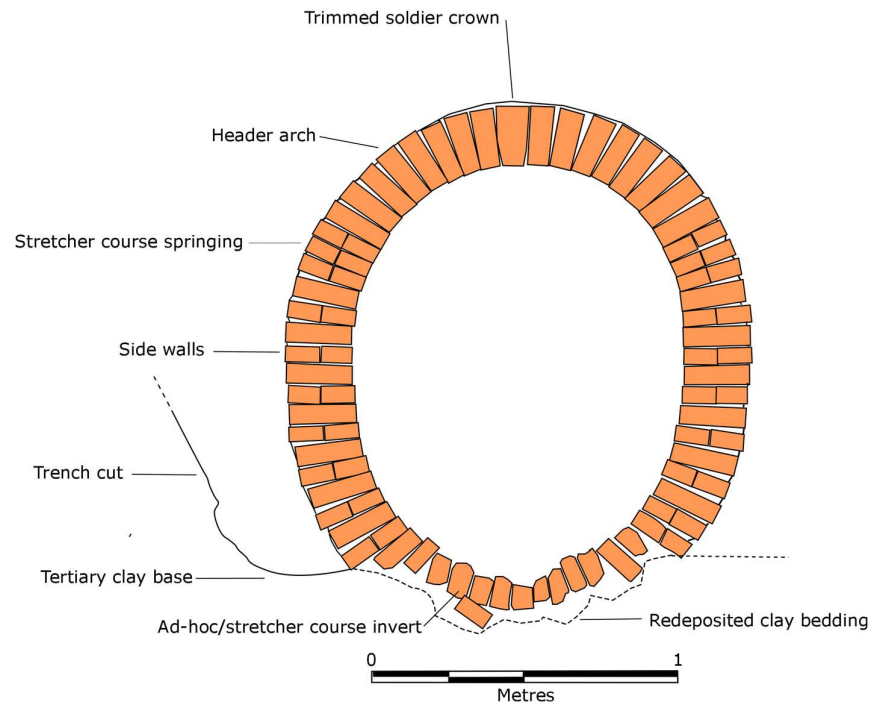


Figure 7.1 Section through the oviform drain inferred from the excavation of Sondage 3.



Figure 7.2 Section of the Tank Stream oviform drain on display in the Sydney GPO.



Figure 7.3 View of the Thompson Square oviform drain showing varied coursing used.

In the sections of the drain exposed to date, all feeder lines discharged through the top of the vault rather than through the walls. Gully traps may have been installed at intervals along the feeder lines to intercept surface water, however only the brick base of one possible gully trap was identified and the depths of columns and surface presentation remain unknown. It is unclear if a system of surface drains, such as those installed in the streets of Sydney during this period¹⁷⁴ were also installed along George Street or other roadways.

It is not known whether construction quality, flooding or works associated with the Windsor Bridge in the latter 19th century were responsible for the collapse, blockage and refitting of an earthenware pipe to the northern end section of the oviform drain. Collapse had evidently occurred as evident from the slumping of some of the arch headers and soldier bricks near the point of the refit. Part of the western lower wall of the drain had also collapsed in that location. It is also unclear how long the overall drainage system remained functional.

The subsequent history and the origin of the drain have been the subject of much speculation, including stories identifying the drain as a 'smuggler's tunnel'. The first identified instance of this story appearing in print dates to 1924. George Reeve in the *Windsor and Richmond Gazette* on the 18th of January 1924 linked the structure to the smuggling of illicitly-distilled alcohol:

*the large bricked 8 x 10 conduit or tunnel leading from where Thompson's store site was to the river, parts of which can still be seen by an observant eye was constructed specially to draw up the barrels containing the rum which was illicitly manufactured on a wholesale scale.*¹⁷⁵

The same spurious anecdote was re-told two years later in the same publication:

*It is not generally known that in Windsor there is a secret underground tunnel. It commences at the corner of the upper park in Thompson Square, and apparently runs for some distance towards George-street. Though the inlet can now hardly be detected it conveys the impression that an ordinary person could comfortably walk into the tunnel. It is certainly a relic of the past— the good old days' when considerable quantities of liquor were smuggled into the Hawkesbury district. It is close to the Windsor Wharf, and who knows whether a secret still is not hidden there? An investigation would no doubt prove interesting.*¹⁷⁶

The story was resurrected in 1976 by R. S. Arndell using the above newspaper reports as the basis for the supposed 'smuggler's tunnel'. This may have also been the source of the story linking the Macquarie Arms, immediately south-west of the square, with the 'tunnel', since Arndell describes a similar tunnel at the former Macquarie Arms Inn, Pitt Town. Similar stories were told regarding hotels in The Rocks and, doubtless, other places where alcohol, commerce and shipping mixed.

¹⁷⁴ *Sydney Gazette and NSW Advertiser* 22 September 1810 pg. 1

¹⁷⁵ *Windsor and Richmond Gazette* 18 January 1924 pg. 1

¹⁷⁶ *Windsor and Richmond Gazette* 15 October 1926 pg. 4

By 1980, the story had such currency that the then Windsor Council attempted to sponsor an investigation of the 'smuggler's tunnel' under a National Estate Program grant. Historian Douglas Bowd, however, intervened and gave a cogent explanation of the structure's true purpose. Curiosity regarding the drain does not seem to have abated, as during the demolition of the Hawkesbury Motor Boat Club, two deep pits appear to have been excavated onto box drain 2 and backfilled with demolition refuse in 1986. Coincidentally, at the same time that these pits were dug, Edward Higginbotham was in the process of preparing an investigation of Thompson Square's heritage values for the then Hawkesbury Shire Council in 1986, and Higginbotham was invited to inspect the finished excavation. Higginbotham noted the presence of brickwork consistent with a drain in the base of the hole, while admonishing the excavators for not having obtained any heritage permits prior to undertaking the excavation.¹⁷⁷ Higginbotham's survey also identified the outlet of the oviform drain adjacent to the wharf, but the location was not mapped.

As discussed in Section 5.5.2, the drain was bored through during the construction of a sewer main for the Windsor Sewerage Scheme works in 1937. These works provide an early example of the utilisation of tunnelling in urban drainage in New South Wales, remarked upon in the lead up to the scheme in January 1937:

*It is interesting to note that the greatest depth embodied in the plans is approximately 35 feet, and in such cases, tunnelling will be resorted to in laying the pipes.*¹⁷⁸

In October an engineer's report stated that:

*The Department of Works and Local Government advised that one of its boring plants was available for hire by council for preliminary tests in connection with the sewerage...An overseer, to be paid by council, would accompany the plant, and if desired two chainmen could also be supplied.*¹⁷⁹

The exact nature of this undertaking is unclear, however it predates the development of directional drilling and is likely to have utilised a mechanised helical augur and an early form of pipe jacking.

The exact purpose of the rectangular pits sunk to the line of this sewer main, including one that also cuts through the oviform drain, is unclear however the inclusion of modern refuse in their fills, including 1980s coins, confirms that they are of recent date and probably associated with the demolition of the boat club or relining of the sewer main.

¹⁷⁷ Higginbotham, E. (1986).

¹⁷⁸ *Windsor and Richmond Gazette* 8 October 1937 pg.4

¹⁷⁹ *Windsor and Richmond Gazette* 15 January 1937, pg.1

8 RESPONSE TO RESEARCH QUESTIONS

This section of the report provides a summary response to the broad and site-specific research questions within the limits of the available data. The abridged information against each research question is presented in the table below. This report does not address any of the site-specific thematic research questions.

	Research Question	Answered: Yes/No/Partly	Response
Broad	What features or deposits are present on the site?	Yes	The program of salvage excavation of Area 1 exposed archaeological remains from all six phases of historical development of the site. They include: • Phase 1 (pre-1794): Natural aeolian and windblown soil deposits predominantly comprised of sand. • Phase 2 (1794-1814): A small surviving area of early colonial topsoil comprised of a sand-based deposit with a limited artefacts content. Located in the south-west portion of grid area 2 (Figure 5.32) • Phase 3 (1814-1816): a drainage system consisting of the main oviform drain and three smaller box drains feeding into it; associated cuts and fills; a number of timber logs used for construction of the drainage system that could also be remnants of the earlier construction phase at the site associated with establishment of Thompson square and construction of the first wharf; and artefacts. • Phase 4 (1816-1874): artefact bearing deposits. • Phase 5 (1874-1934): cutting and road fabric associated with the 1874 realignment of the punt hill road; postholes and timber railing likely to be associated with the fencing of the Thompson Square public recreation reserve; refuse pits and other features with late 19th century artefacts; root activities associated with the plantings of the lower Thompson Square public reserve and random postholes surrounding the roots; various fills of uneven ground, erosion and slumping evident on road margins of lower Thompson Square; levelling fills associated with the raising of the bridge in 1898. • Phase 6 (1934-2018): Bulk fill associated with backfilling of the 1874 road; footings, services and demolition layers of Hawkesbury Motor Boat Club constructed over lower Thompson Square; extant manhole and sewer main under-bored through lower Thompson Square.
	What is the nature and extent of these	Yes	The excavated features and deposits predominantly represent structural and depositional elements associated with:

	features and deposits?		• the Howe and McGrath drainage system dated to 1814-1816. • the 1874 road dividing the Thompson Square public recreation reserve in two halves. • subsurface remains of Hawkesbury Motor Boat Club constructed over lower Thompson Square. • the flooding, as evident in accumulated alluvial soils and its management via backfilling, which is identified in the area's stratigraphy. • food consumption and refuse discard demonstrated by a number of artefacts retrieved from fills and two sealed deposits: a rubbish dump (1229 and 1351) and deposit (1339) containing fragments of a lead -glazed jar and pane vessel. The extent of the exposed archaeological features varies from scattered and sporadic artefacts, a short section of the 1874 road, and basal remains of the former Hawkesbury Motor Boat Club to the more extensive evidence of the 1814-1816 drainage system.
	How intact are they?	Yes	Whilst the artefact assemblage predominantly comprised fragments and fragmented objects, the preserved sections of the drainage system, particularly the main oviform drain, were found to be in fairly good condition. The remains of the convict built, oviform drain were considered to be best preserved, and as such warranted <i>in situ</i> conservation. Where the drain passes under the footings of the new bridge, over a distance of approximately 40m, following advice received from a conservator, the oviform drain has been protected by geotechnical fabric and shaped Styrofoam placed directly over the brickwork and covered with a deposit of clean sand before being encased in concrete. The remains of the 1874 road were fragmentary, having been reduced to its road base and cut. Only a short length of the sandstone kerbing survived, as well as a few postholes and possibly a timber posts and rail of the fence surrounding the sections of the Thompson Square public recreational reserve.
	What is their significance?	Yes	The archaeological salvage program of Area 1 identified historical archaeological features and deposits assessed to be of both State and local significance. Of particular significance are the structural elements of the drainage system. These archaeological remains, of which the exposed section of the oviform drain has been protected and retained <i>in situ</i>, as well as the associated artefact assemblage retrieved from contemporaneous or earlier fills provide tangible evidence of the early Colonial establishment which exploited convicts to build a new nation, and as such is considered to be significant at a State level. The artefact assemblage, while comprised of the variety of examples retrieved from by and large disturbed deposits and fills, has some research value. Namely, further study of the examples of colonial glazed ceramics and Chinese imports have the potential to provide further information on the

			production of the local ceramic and the trends in distribution and utilisation of imported Chinese ceramic. Archaeological evidence of the original landscape has been significantly compromised by vegetation clearing, flooding and remediation; and substantial cutting and filling associated with the introduction of town infrastructure such as the 1814-1816 drainage system, the bridge and the associated roadway. This evidence contributes to an understanding of the continuous settlement impact on the natural environment of Windsor, and as such is considered to be significant at a local level. Archaeological evidence such as the 1874 road base, fence lines and other infrastructure elements from the later 19th and early 20th century development phases would be significant at a local level.
	What are their depths below the current surface?	Yes	The exposed historical archaeological remains in salvage Area 1 are located at a depth varying between 1m in the south and 5m in the north of the excavated area.
	What date or occupation phase can be assigned to them?	Yes	The archaeological remains identified in Area 1 cover a broad date range: from the early days of the establishment of Green Hills (c1794), construction of the drainage system in 1814-1816, the development of the 1874 road surface, the 1949 Hawkesbury Motor Boat Club construction within lower Thompson Square and its subsequent demolition in the 1980s.
	How does this information compare to available historical information relating to the site?	Yes	The archaeological evidence obtained from the archaeological excavation by and large supports the historical information. Various construction techniques and material identified show some structural elements such as the type of brick and/or bonding mortar utilised in the drainage system. Furthermore, OSL dating techniques were applied to sediments associated with the oviform drain. While opportunistic, the application proved highly successful, and reliably reproduced the known age of construction, namely 1814-1816. Minimum age and finite mixture models of the OSL sample recovered from the trench fill immediately above the oviform drain returned a median age of 1826 CE, 10 years after the documented period of its construction, with an error margin of ± 20 years. When incorporating the standard errors, the age range encompasses the construction period. The central age model (CAM) for the sample showed a slightly older age of 1766 CE (1736-1796 CE; 0.25 ± 0.03 ka). The discrepancy in CAM likely reflects a small number of older quartz grains influencing the sample, with 91% of the grain population encompassed in the FMM age, as well as the original Pleistocene origins of the aeolian sand unit, the potential for partial bleaching of some grains; and/or the mixed nature of the deposit increasing the probability of micro-dosimetry effects.

Site Specific Questions – Landscape	Is there evidence for flooding or other erosional effects from the site's proximity to the river?	Yes	Yes, there is abundant evidence of colluvial soils and remedial fills identified in both vertical and horizontal stratigraphy of Thompson Square north.
	Can historically attested floods be discerned?	Partly	Further research is required to provide answer to this question.
	What palynological evidence is there for the changes to the local flora from pre- to post-colonisation?	No	Analysis of soil samples potentially containing evidence of species introduced during the colonial period is yet to be undertaken. Pollen analysis undertaken on pre-colonial soil samples suggests that the Holocene environment was a eucalypt forest with a mixed grassy/shrubby understory, probably not much different from the landscape that the early settlers found ~230 years ago in the region. In addition, the top samples collected from Aboriginal test pits provided evidence of the sharp rise in <i>Sporormiella</i> , which may be associated with pastoral activities, thus further confirming the chronological models in showing that parts of the site retain early colonial layers.
	Is the first clearance of the site evident and what effects did it have on the site?	Partly	Sporadic evidence of clearance by burning is suggested by the presence of burnt clay in sediments exposed in the southern portion of grid area 1, and by the presence of charcoal suggestive of burning out of the root systems of large trees. Owing to the high level of disturbance by the construction of the 1814-1816 drainage system and subsequent modifications of Thompson Square, such as the construction of the 1874 road and bridge, most of the evidence relating to early land clearance is likely to have been lost.
	Was the area of the square stabilised, cut, filled or otherwise altered to serve its purpose as a landing place and then public space?	Yes	The archaeological excavation of the portion of Thompson Square located within salvage Area 1 provided evidence of significant disturbance by the construction of the drainage system, followed by cutting required for the construction of the 1874 realignment of the punt hill road and subsequent backfilling.
Site Specific Questions – Contact Archaeology	Is there evidence for the initial period of contact between the local Aboriginal	No	Unlike the discovery of flaked European glass objects found in several test pits of the 2016 test excavations, salvage excavation of Area 1 did not provide any evidence of contact archaeology.

	people and Europeans?		
Site Specific Questions – European Occupation	What is the earliest evidence for the European presence on the site?	Yes	The earliest evidence for the European presence in salvage Area 1 is contained in a small artefact collection retrieved from deposits assigned to Phase 2 of the historical development of the site, which generally predates the construction of the drainage system in 1814-1816.
	Is it related to the river or other activities?	Partly	The small artefact collection retrieved from deposits assigned to Phase 2 is related to the land use (primarily 'settlement') rather than river transport.
	Is there any evidence of the first settlers of Green Hills/Mulgrave Place?	No	The Phase 2 (1794-1814) assemblage was recovered from ~18m ² of two soil deposits (1067 and 1074) located west of the oviform drain cut, in the south-west of grid area 2. The Phase 2 assemblage represents scattered refuse deposited prior to the construction of the Phase 3 drainage system. The extensive land modification reduced the evidence of the earliest period of European settlement to this small area within lower Thompson Square. The retrieved artefactual evidence of Phase 2 of the site occupation is a very poor record of this early settlement period, and therefore is unable to provide more detailed information about the lives and practices of the first settlers of Green Hills/Mulgrave Place.
	What evidence is there for Baker's and Thompson's occupations on the south side of the river?	No	No tangible evidence was found.
	What materials were they constructed from?	Partly	Construction materials formed a significant proportion of the finds recovered from Phases 2 and 3. They included iron nails, with a single flooring brad, crown glass windowpane fragments, sandstock brick pieces and white-washed plaster. The types of construction materials are consistent with those identified on other early colonial sites and would appear to confirm the historical records about these buildings being made of brick and timber.
	Is there any evidence for early paths and	No	No tangible evidence was found.

tracks to access areas on both the north and south sides of the river?		
Is there evidence for an early alignment (pre-1810) of George Street?	No	Outside of salvage Area 1 boundary.
Is there evidence for Howe's brick barrel drain(s) in the square?	Yes	Extensive sections of the Howe's and McGrath's drainage system (1814-1816) were confirmed to remain <i>in situ</i> beneath lower Thompson Square. The drains comprised a central oviform drain on a north-south alignment to the river, fed by three bilateral ribs of box drain constructed at a higher level and connected to the oviform drain by rising sumps. In total, 48m of the oviform drain and 130m of adjoining box drains 1-3 were identified within the excavation zone. This drain system is believed to have provided surface water drainage from George Street that reduced the effects of slope erosion, as well as waste water drainage from at least six separate locations; three in the government precinct to the east and three in the developing private frontages to the west. The full extent of the original and extant drainage system, including the uphill termination of the oviform sewer, has yet to be ascertained. Whilst the removal and salvage of the side feeder lines (i.e. the box drains) was necessary, a substantial length of the main oviform drain (approximately 41m) has been conserve and protected below the foundations of the new bridge and retained <i>in situ</i>.
Is there evidence for the heavy military presence at Windsor on the south side of the river?	Partly	Area 1 yielded a metal Georgian livery button; three gun flints reflecting the evolution of British flints of the late 18th – early 19th centuries and almost half of an exploded artillery projectile (WBRHS18313) recovered from the interface between deposits 1077/1078. Whilst these finds confirm the military presence, the degree to which they demonstrate the level of military presence at Windsor is debatable.
Are any other structures or occupation evidence remaining at the intersection of the	No	Outside of salvage Area 1 boundary.

	Wilberforce and Freemans Reach Roads?		
	What evidence is there for modifications and development to Thompson Square and adjacent areas?	Yes	Large-scale landform modifications have been a repeated feature of Thompson Square, commencing as early as 1814-1816 with landscaping and drainage installation works carried out at the request of Governor Macquarie during the re-structuring of the 'Green Hills' settlement into the township of Windsor. These major works were then followed by construction of the new realigned punt hill road in 1874 that wound down through Thompson Square to the wharf; it continued to serve the Windsor Bridge on a slightly tighter curve that commenced lower down Thompson Square Road. This new alignment effectively divided the open space of Thompson Square into two separate parts. In 1934, a new approach road to the bridge was commenced from George Street, creating the present deep cutting aligned north-west to south-east through Thompson Square. The new road cutting intersected the Victorian roadway which lay on the opposing diagonal. This roadway was subsequently buried within the upper portion of the newly-shaped upper Thompson Square. In 1949, the Upper Hawkesbury Boat Club built a club room in the lower reserve. This building, raised on brick piers, was demolished in the 1990s. All of the above modifications left an archaeological signature in the form of various cuts and fills and evidence of structural remains, as identified in these salvage excavation of Area 1.
	What is the evidence of the late 19 th /early 20 th century modifications across the site? How have these later modifications affected the survivability of the historical archaeological resource?	Yes	Evidence consists of substantial fills for the construction of the 1874 bridge and associated access road, a sewer line installed in 1937 and structural elements associated with the 1949 Boat Club that was located in Thompson Square north. Although destructive, these modifications had limited impact on to the 1814-1816 drainage system, the majority of which was left intact with evidence of sporadic localised disturbance to the peripheral parts of the box drains.
	What did vacant space mean in the context of Windsor over 200 years and how is this manifested at Thompson Square? Was it a	Partly	The scarce information obtained from the salvage program confirms that the vacant space at Thompson Square was used for accessing the riverfront and dumping refuse.

	place to dump refuse or was it treated as a civic space?		
Additional Research Questions	Can the retrieved archaeological evidence provide additional information to that already contained in the written and pictorial resources?	Yes	While the existence of the Howe and McGrath drainage system was known from documentary sources, the actual location and form of the drainage system was not previously known despite numerous attempts to locate it through both archaeological and non-intrusive geophysical means. The salvage excavations have been able to provide additional information relating to how the central oviform drain was constructed, and has provided insight into the scale and vision of the drainage system, having identified numerous box drains which feed into the central drain. While historical documents refer to concerns over the quality of work being undertaken by Howe and McGrath, principally in regards to the wharf construction, it is notable that the archaeological investigation also identified similar issues with the construction of the drain. These included sections of the box drains slumping, presumably after the redeposited fill which they were set it settled, and the questionable use of timber to cap the box drains. The oviform drain itself shows many construction elements which a seasoned engineer would have altered, such as the use of only one skin of bricks rather than two, and the inaccurate geometry of the drain which meant sewage would not flow through it in dry weather.
	Do deeper subsurface features (e.g. wells and cesspits) dating from the late 18 th and early 19 th centuries exist within the boundaries of the site? If not, how can their absence be explained?	Yes	With the exception of the drainage system, no other evidence of deeper features such as wells or cesspits from the late 18 th or early 19 th century were identified within Area 1. Their absence is explained by several different factors. In the first instance, no evidence was identified relating to occupation of the square prior to the construction of the drain. As such, there was no requirement to construct deep features such as cesspits. With occupation focused on the ridgeline, still in proximity to the river, if wells were sunk then it is likely that they too were constructed outside of the area of salvage excavations. The second factor to consider is the widespread impact to the area caused by the construction of the drainage system, which required excavation of a trench several metres wide and also several metres deep. This action would have greatly impacted on any deeply excavated features present in the salvage area which pre-dated the drains. Finally, once the drains were completed, it is unlikely that any thought would be made of sinking wells or cesspits in the vicinity of the structure in at least the first few decades following its completion.
	Can the full extent and nature of the brick footing associated with the entry gate of the Government Cottage compound be determined? How	No	Outside of salvage Area 1 boundary.

	accurately do the historical resources compare with the actual location and fabric of the former gate?		
	Can the artefact assemblage provide any insight into the lives of the first settlers of Green Hill/Mulgrave Place?	Yes	The artefact assemblage represents a broad cross-section of material culture during the early years of the 19 th century, in a context which has not been affected by subsequent occupation and admixture of artefacts. While many aspects of the artefact assemblage were typical of other contemporary sites, the overall assemblage has shown that the first settlers in Green Hills/Mulgrave Place placed a preference towards Chinese export wares and higher quality, glazed colonial pottery. The use of colonial pottery has been suggested as being a result of a dependence on the provision of goods from the government store following several floods and failed harvests; events which were not duplicated elsewhere in the colony.
	Can the artefact assemblage provide any more specific information about the military presence and activities at the site?	Partly	With the exception of artefacts which are manufactured purely for the purpose of use by the military, there is an inherent difficulty in determining whether artefacts were intended for use by soldiers or by settlers. This is the problem with much of the utilitarian, early colonial lead-glazed pottery which may have been purchased by settlers or used by the military in barracks or mess-halls. Even objects directly related to weaponry such as the gun flints may have either been used in guns either owned by the military or issued to settlers for the purposes of protection or hunting. While the gun flints are assumed to be military, the only overtly military objects identified was a single livery button and the likely fragment of exploded artillery projectile. These objects are more generally indicative of the presence of the military at Windsor rather than being able to provide specific details regarding a military presence at the site.
	Can the archaeological resource provide any additional information about the site not available from other resources?	No	In many aspects, the archaeological resource has merely confirmed the documented history of the lower Thompson Square park, in that the park has been subject to high degrees of historical disturbance which removed almost all evidence relating to the pre-20th century occupation of the square. While the excavation works provided much additional information relating to the construction and implementation of a drainage system across the lower slope, this feature was previously known from documentary sources.

9 REVISED SIGNIFICANCE ASSESSMENT

9.1 Existing Statement of Significance

The following statement of significance has been reproduced from the 2012 Biosis report:

The historical analysis, archaeological assessment and evidence from testing and past works demonstrate that there is likely to be a complex and chronologically deep archaeological profile within Thompson Square and to a lesser degree on the northern river bank. It is impossible to isolate the resource that could exist within the subject area and assess its significance. It must be assumed that the evidence contained within the subject area will have the same values and significance as the rest of Thompson Square even if specific elements within both may vary from each other. The significance of the archaeological resource within the subject area is the same as that for the resource across all of Thompson Square and this cultural significance must be assessed on several levels.

Windsor is the third settlement in Australia after Sydney and Parramatta. These are the places that made long-term European settlement possible and their histories inform us of the circumstances, the pressures and visions that would shape our history and the way we live. Apart from its importance as one of our first permanent settlements, Windsor also has added status as a Macquarie town, one of only five places in the Hawkesbury that were specifically selected and influenced by arguably our most important Governor, Lachlan Macquarie. A number of the improvements and designs for Thompson Square are a direct result of Macquarie's involvement. Thompson Square has direct associations with outstanding people in the development of the town and region particularly Andrew Thompson, who lived and worked here. The archaeological resource could provide tangible links or associations with significant historical figures by revealing works or improvements that have been created for, on behalf of, or by these figures.

Thompson Square is the single place that links the earliest settlement on the Hawkesbury with the Macquarie-era town. This site was used as a civic precinct to service the first farms established on the river from 1794. It evolved into a small village in its own right that also provided the services and administration for the region. It is the seminal place of the town's evolution. It was this village that was incorporated into the Macquarie planned town of Windsor; it was the only town to incorporate this earlier layer of settlement. It is unique. If Windsor and Thompson Square are important then archaeological evidence that can better document or reveal the history of use and development that is unique to this place and provide evidence of its associations is also significant. The below ground resources are likely to provide evidence of the earliest years of settlement, pre-dating the fabric that survives above ground. Archaeological evidence is also likely to provide evidence of events and processes that were specific to Thompson Square but are representative of the development of this town.

The principal value of the potential archaeological profile in Thompson Square is its cumulative value. It has the potential to document events, processes, improvements and places that span the full history of European development in this place from 1794 to the present day. It is likely to be the only place in Windsor or its environs that can do so. The archaeological profile of the subject area on the south bank is completely unique to it. Because of the potential chronological depth of the profile it may include sites that are rare beyond the specific history of this place.

Apart from the potential to document and demonstrate the changing town and the place of Thompson Square in it over a long period of time the archaeological profile of Thompson Square can be evaluated for different levels of significance that are largely relevant to their rarity either through age or singular uses. In particular, evidence that relates to the founding settlement of 1794 up to and inclusive of Macquarie-era works is assessed to be of exceptional significance for its importance within the town, its rarity and its contribution to documenting the growth of the colony in its formative years. For the earliest years of settlement this resource would be the only fabric that survives in the town; there is no evidence above ground that predates 1811. It is comparable to only a very small number of other places in New South Wales that have the same depth of development such as Sydney or Parramatta.

As well as works from the first decades of the town's growth the subject area is also likely to encompass important improvements from the middle and later years of the 19th century that reflect the changing status and role of the town and Thompson Square. These include the development of the bridge across the river to link the two communities. Many of these processes are not evident in above ground resources. These are resources that can make a substantial addition to the evidence that survives above ground; they have value for the town.

Evidence that derives from the early to middle years of the twentieth century is less significant. These processes are still evident in other forms and they have impacted on earlier and very rare resources. Evidence from the later years of the twentieth century onwards which is still largely intact above ground and has acted to remove or disturb older or very rare elements is considered to have little individual significance but is recognised as an integral component in the complex profile.

The northern area of the subject area across the river also has a history of settlement that dates back to 1794 with a farm established here by the ex-convict, Edward Whitton, in that year. Apart from his pioneer status Whitton's contribution is representative of the thousands of people who worked to develop the region.

Archaeology in the northern part of the subject area is unlikely to have the same complexity of resources as Thompson Square because of the nature of settlement here; largely pastoralism and agriculture. It has value as a comparison to the complex history of Thompson Square but its individual components are likely to be less significant; the exception would be the site of a long-standing landmark inn although its precise location cannot be determined. The resource in the northern part of the subject area, with few exceptions, is likely to be more representative of the agricultural/pastoral development that characterised this side of the river.

The archaeological resource is likely to provide a depth of historical layering and sense of place to the acknowledged visual qualities of Thompson Square. These are qualities and resources that can be valued by the community. It has the ability to provide unique, rare and representative components for this place and for New South Wales. The cumulative profile recording evidence of works and change over two centuries is unique. Within that adjusted profile evidence of the Green Hills period of development and Macquarie-era works would be of State significance; evidence contained within it, above and below ground that can be determined to have a direct association with the Green Hills Settlement or the period of expansion under the direction of Governor Lachlan Macquarie would potentially be of National significance. The remainder of the archaeological profile has local significance.¹⁸⁰

¹⁸⁰ Biosis (2012) pg. 229-230

9.2 Revised Statement of Significance

The following discussion focuses solely on the significance of the archaeological evidence revealed during the Area 1 archaeological salvage programme. A more complete revision of the archaeological significance values will be prepared as part of the final excavation report following the completion of the remaining areas of archaeological investigation.

9.2.1 ASSESSMENT CRITERIA

In general, the level of archaeological significance defines the degree of impact or tolerance for change that the archaeological resource can be subjected to, and determines the level of investigation and recording that is required. While archaeological resources form an integral component of the adjusted significance of a place, their significance is assessed independently from above-ground and other heritage elements. This is because the extent and nature of archaeological features and deposits is often unknown. The following significance reassessment of the subject site's archaeological resource considers criteria expressed in the publication 'Assessing Significance for Historical Archaeological Sites and 'Relics', prepared by the Heritage Branch, Department of Planning (NSW) (now the Heritage Division, OEH) in December 2009.

The four NSW Heritage Criteria for Assessing Significance related to Archaeological Sites and relics are:

- Archaeological research potential (current NSW Criterion E).
- Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B and D).
- Aesthetic or technical significance (NSW Heritage Criterion C).
- Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).

The above assessment criteria for historical archaeological sites are supplemented by the established assessment framework that has been developed by Anne Bickford and Sharon Sullivan in 1984. It comprises three key questions generally used as a guide for assessing the significance of an archaeological site.

9.2.2 SIGNIFICANCE ASSESSMENT

The results of the historical archaeological salvage excavations in Area 1 indicated that disturbance from various site formation processes had a larger effect on the predicted survival of archaeological material than was expected based on the results of the 2016 archaeological testing program. With the exception of the oviform drain, which is discussed below as well as in a separate report, significance is primarily encapsulated in the artefact assemblage recovered from Area 1, which includes rare examples of imported or locally made objects, and relates to the earliest years of the Green Hills/Mulgrave Place settlement. The research potential of this artefact assemblage is of State significance.

The significance of the oviform drain is assessed as follows:

The drain is located within the SHR listed Thompson Square Conservation Area (SHR Item 00126)...The listing does make reference to Macquarie's planning scheme but does not refer to the drain as a contributory element. Since the townscape values were in part determined by Macquarie's initial vision the drain was an essential part of an integrated development that saw the creation of the square through the modification of ground levels, the provision of a wharf, better access to the river from George Street and the provision of a sewer/drainage line that would serve buildings that may have been constructed around the Square at some future date.

*In regard to the significance of the drain in terms of its place in the history of sanitary engineering in Australia, this item has importance as one of the earliest examples of the integration of underground services in the planning of a precinct. Its place in the evolution of drainage systems is less clear. The general concept, demonstrated for the first time at Windsor, would be adopted as standard during the second half of the nineteenth century. The Thompson Square drain however, suffered from the use of materials and a geometry that were unsuited to the function for which it was intended. The construction program also resulted in a number of flaws that included the collapse of feeder lines and later collapse of at least one section of the drain itself. The drain was ahead of its time in concept but was not repeated in the systems installed in the following years in Sydney, Parramatta and elsewhere in the Colony. The simple barrel drain became the norm in the first half of the 19th century until patent cements were more widely available in New South Wales. In this respect the drain is unique, and its importance lies in its failure. The drain has direct associations with Governor Macquarie as a town planner and with local men John Howe and James Magrath as constructors. The drain was also the source of a number of local myths dating from the early twentieth century - and still current - regarding the use of the drain as a 'smuggler's tunnel'. The myth is by no means unique and variations can be found in many nineteenth century ports around the world. The myth however, is firmly rooted in the local psyche. The drain should be regarded as a State significant item.*¹⁸²

¹⁸² AAJV 2018, pg. 60

10 CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE MANAGEMENT

In fulfilment of MCoA Condition C5 this report documents the results of the historical salvage excavations undertaken in Area 1, carried out between the 30th of October 2017 and the 28th of March 2018. Subsequently in early 2019, due to engineering design changes, additional salvage excavations were undertaken to enlarge Area 1. These works, along with the results of historical archaeological investigations in areas 2-5, will be reported on separately in a supplemental report once all remaining salvage works are complete.

The Area 1 salvage works encompassed an area of approximately 1,300m² of lower Thompson Square which was investigated to depths of between 1-5m below ground levels and which confirmed a high level of past disturbance to the archaeological stratigraphy of the site.

Large-scale landform modifications have been a repeated feature of the site, commencing as early as 1814-1816 with works carried out at the request of Governor Macquarie during the re-structuring of the 'Green Hills' settlement into the township of Windsor. Key to these works was the construction of an extensive brick drainage system providing sub-surface drainage for the settlement centred on Thompson Square; an early example of the numerous drainage works commissioned and constructed during Macquarie's administration and a major undertaking for early Windsor.

As a result of the salvage excavations, extensive sections of this drainage system were confirmed to remain *in situ* beneath lower Thompson Square (archaeological Phase 2). The system comprised of a central oviform drain on a north-south alignment running down to the river, fed by three bilateral ribs of box drain constructed at a higher level and connected to the oviform drain by rising sumps. In total, 48m of the oviform drain and 130m of adjoining box drains 1-3 were identified within the excavation zone.

This drain system is believed to have provided surface water drainage from George Street that reduced the effects of slope erosion, as well as waste water drainage from at least six separate locations; three in the government precinct to the east and three in the developing private frontages to the west. The full extent of the original and extant drainage system, including the uphill termination of the oviform sewer, has yet to be ascertained, however a damaged section of the eastern arc of an additional, fourth box drain was identified beneath Old Bridge Street during test excavations in 2016. The 1814-1816 construction of the drains and the associated fills, as well as artefacts recovered during salvage, form the basis of much of the significant historical archaeological evidence that is the subject of this report.

In addition, an area of undisturbed soil profile that formed the pre-1814 ground surface was identified and recorded (archaeological Phase 2). The salvage excavations demonstrated that the surviving extent of this historical soil profile was very limited (~18m²), largely as a result of damage from the Phase 3 drain construction and associated earthworks.

From the combined Phase 2 and Phase 3 archaeological deposits, a total of 1,784 early historical artefacts were salvaged, representing an estimated 650 individual items in use prior to 1814. A significant record of Aboriginal occupation of the site from the late Pleistocene was also investigated during the concurrent Aboriginal salvage excavation programme that is the subject of a separate report.

Ceramics formed the largest material class of the late 18th to early 19th century artefact assemblage including high proportions of fragmented lead-glazed earthenware produced locally in the colony and Chinese export porcelain wares imported from Britain, both of which are comparatively rare types of material. Materials that are ubiquitous on the majority of other historical archaeological sites of the 19th century such as whiteware ceramics and bottle glass are infrequent, a reflection of this site's early date.

The Phase 2 and Phase 3 assemblages provide a substantial collection of objects in use during the 'Green Hills' era of Windsor (1794-1814) that can inform future studies of the material culture in use locally and within the broader colony prior to 1820. The archaeological potential of this significant early period in Windsor is considerable. The Thompson Square assemblage provides a firmly dated range of material indicators for the identification of such sites that will in turn shed new light on the sociohistorical context of the Thompson Square assemblage.

In addition to domestic refuse, a quantity of construction-related materials were recovered that reflect the scattered structures present during the Green Hills period and the removal of these buildings at the request of Macquarie in 1814. Information on the diet and personal lives of the early colonists were also recovered. Items retrieved included 1799 'proclamation' coins, tobacco pipes, buttons, a pocket watch and firearms flints.

The construction of the Phase 3 drainage system marks the end of the direct occupation of the salvage area and commencement of its history as the public space of Thompson Square. The archaeological record reflects this, as no evidence of further activity relating to the mid-19th century history of Windsor (Phase 4) was identified during salvage. Evidence of extensive modifications to lower Thompson Square during the later 19th and into the 20th centuries (Phases 5 and 6) was methodically documented in order to confirm this and to determine the sequence and contexts of these various disturbance events and their influences on the early historical archaeological resource. Archaeological evidence dating from these later phases reflects the major events in the subsequent historical record of Thompson Square - the construction of Windsor Bridge, development of associated roads, tunnelling of a sewer main beneath the square in 1937, the construction of the Hawkesbury Motor Boat Club across much of the salvage area in 1949 and removal of this building c.1990.

As a result of these successive impacts, the fill stratigraphy across much of the site was found to be extensive (1-4m in depth), and to contain introduced and reworked material including a further 1,947 artefacts salvaged in the process of dating the stratigraphy. The various disturbance events and fills were found to have further contributed to the almost total removal of the early historical landform and to directly overlie the disturbed Phase 3 drainage system and truncated natural sands predating European occupation (Phase 1).

With the exception of the brief construction phase of the drainage system, no *in situ* and direct evidence of the occupation of lower Thompson Square was identified, such as the structural remains of stores, dwellings or associated features indicating sustained activity. Historical documentation suggests such structures once stood within the modern boundary of lower Thompson Square and the absence of archaeological evidence of these is a direct result of the substantial past disturbances that have taken place following the earliest and most significant use of the site through to 1814.

Development impacts associated with the construction of the bridge have required the removal and salvage of the side feeder lines (i.e. the box drains). However, the RMS committed to altering the design of footings associated with the western abutment of the bridge to ensure that the entirety of the known section of the main oviform drain (measuring approximately 41m) has been conserved and protected below the foundations of the new bridge and retained *in situ*.

Recommendations

Based on the findings of this report, the following recommendations are made:

- This report presents the results of archaeological excavation, analysis and findings of the historical salvage excavation measures required within Area 1 of the lower Thompson Square portion of the impact corridor (as recommended in the Detailed Salvage Strategy).¹⁸³ The proponent needs to ensure that any remaining mitigation measures in the Detailed Salvage Strategy for Areas 2-5 are implemented when required.
- The mitigation measures documented in this report are based on the analysis of the potential impacts as presented in the Thompson Square brick drain heritage mitigation and options report.¹⁸⁴ In the event that development or construction activities are required beyond those identified in this document and the Detailed Salvage Strategy¹⁸⁵ for the impact corridor, development of appropriate historical heritage assessment, management and (where required) mitigation measures must be implemented prior to construction/development beginning/resuming.
- The findings of this report should be used to inform development of the WBRP Interpretation Plan to ensure representation of the significant historical archaeological evidence within the project area is appropriately expressed.
- The proponent is to determine a permanent repository for the artefacts recovered during the archaeological salvage excavations undertaken in Area 1. Ideally, this repository is to be located within close proximity to the location of Thompsons Square, or elsewhere within the Windsor township. Until a permanent repository is identified, artefactual material is to be stored in a location of the proponent's choice, with the storage location and assemblage to be assessed by a qualified conservator as required.
- Copies of this and all final reports detailing salvage works within the WBRP development zone are to be provided for lodgement with the Department of Planning and Infrastructure, Heritage Division, Office of Environment and Heritage (OEH) and the heritage section of Hawkesbury City Council's library.

¹⁸³ AAJV 2017c

¹⁸⁴ AAJV (2018) Thompson Square Brick Drain, Windsor NSW – Heritage Mitigation and Options Report. *Unpublished Report for NSW Roads and Maritime Services.*

¹⁸⁵ AAJV 2017c

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