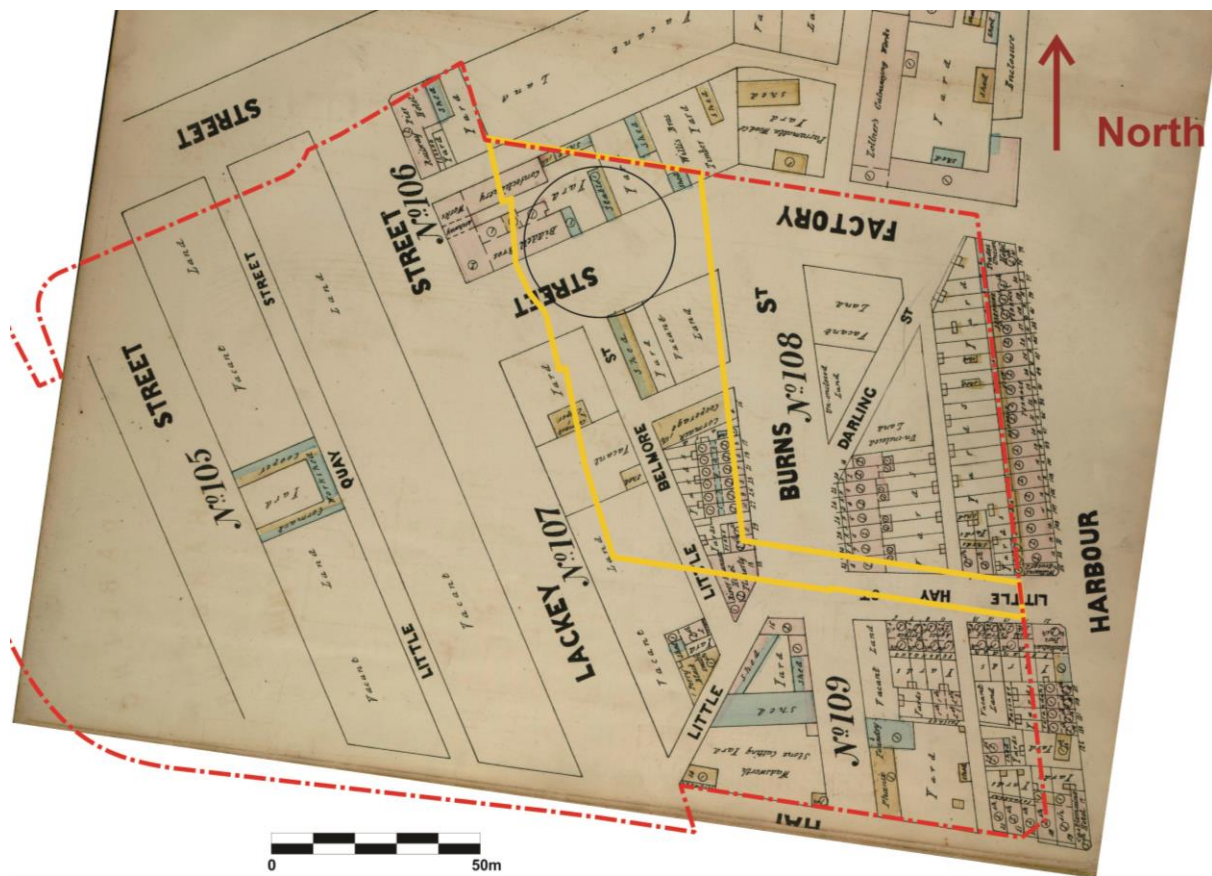


Archaeological Impact Statement

North Plot & The Square, Darling Square, Sydney SSDA 10



Study area on Dove's 1880 plan of the City of Sydney, Historical Atlas of Sydney, City of Sydney Archives

Report to Lend Lease

February 2016

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ARCHAEOLOGY & HERITAGE

EXECUTIVE SUMMARY

The study area is the North Plot and The Square within Darling Square (previously known as The Haymarket), within the Sydney International Convention Exhibition & Entertainment Precinct (SICEEP) site. The Sydney Entertainment Centre (SEC) currently occupies part of the North Plot and The Square. This report assesses a DA design and impacts will need to be reviewed at detail design stage.

RESULTS

ARCHAEOLOGY OF LOCAL AND STATE SIGNIFICANCE

- The general study area was associated with the very beginnings of steam technology in Australia with the introduction of Dickson's 1815 steam mill and the construction of a c.1815 dam wall for his mill pond at the head of Cockle Bay.
- Reclamation and subdivision of Dickson's Mill Estate, to the east of the dam wall, between 1855 and 1857 saw the initial residential and commercial development of the study area.
- Most of the current study area is to the west of the dam wall and is within the land reclaimed by c.1865 and which by 1880 included houses and the River Shannon hotel.
- Throughout the late 1880s/1890s, a variety of industrial manufactories and workshops were active throughout the area, including three locations associated with a cooperage.

IMPACTS ON STATE SIGNIFICANCE

- The proposed design includes services crossing the c.1815 dam wall but these will not have any impact below RL 2.0m and therefore will not impact on the State significant dam wall.

IMPACTS ON LOCAL SIGNIFICANCE

- The majority of development impacts are above RL 2.0m and therefore are unlikely to have an impact on archaeology of local significance.
- Areas with impacts below RL 2.0m or locations of concentrated impacts are on 1870s/1880s/1890s businesses and manufactories :
 - Biddell Bros Confectionery Factory and stables
 - Willis Bros Timber Yard
 - Cooperage site (three locations either side of Little Belmore Street)
 - River Shannon Hotel
 - Rowlands Aerated Waterworks and stables.

MITIGATION

STATE SIGNIFICANCE

The current design within the study area does not impact on the c.1815 dam wall and therefore no mitigation is required. This should be reviewed at detailed design stage and impacts reassessed. During detail design stage, the impacts of the services in relation to the dam wall may be reduced but cannot be increased.

LOCAL SIGNIFICANCE

The main mitigation strategy to manage impacts on significant archaeological remains is to undertake archaeological excavation and recording prior to any proposed substantial impacts which will remove the resource or make it difficult to record in the future. The focus of archaeological mitigation is proposed to be where there are concentrations of impacts on potential remains or where there are extensive services below RL 2.0m:

- Archaeological excavation and recording of the northern section of the services core where it falls within areas of local significance.
- Archaeological recording of archaeology within stormwater and sewerage lines.
- Archaeological recording in accordance with best practice standards.

ABORIGINAL ARCHAEOLOGY

The study area is completely within reclaimed land within former Darling Harbour and therefore has no potential for Aboriginal archaeology. All testing and salvage for Aboriginal archaeology within Darling Square has been completed. The Aboriginal Archaeological Assessment by Comber Consultants identifies that this area contains no potential for Aboriginal objects.

RECOMMENDATIONS

1. The identified mitigation strategies should be incorporated into the Archaeological Research Design & Management Strategy required to guide any archaeological fieldwork, after appropriate consultation with the SHFA and Heritage Division archaeologists.
2. No further impacts should be proposed to the c.1815 dam wall than those already identified.
3. Review all impacts at detail design stage and reassess impacts.
4. Where there are potentially significant impacts to archaeological remain, either local or State, archaeological salvage and recording will need to be undertaken in accordance with Heritage Council and Heritage Division guidelines and best practice methodologies.
5. No further Aboriginal archaeology is required to be undertaken within Darling Square (formerly The Haymarket). The only remnant original foreshore within the project area is within the western parts of the development. All Aboriginal archaeological testing/salvage proposed for Darling Square has been completed.
6. Write an Archaeological Research Design & Management Strategy to refine assessment of impacts, identify appropriate archaeological strategies and methodologies, and research questions to guide the archaeological program. This is to be informed by the detailed design.
7. SHFA will need to provide a repository for artefacts following the completion of the archaeological program.
8. Public interpretation of archaeology of State and local significance should be undertaken within the proposed redevelopment. This may include a mixture of opportunities for:
 - Exposure of surviving archaeology within the redevelopment and acknowledging the environmental constraints of such projects.
 - Interpretation of artefacts through site display.
 - Interpretation of the results of the archaeology program throughout the precinct.
 - Interpretation of the buried archaeological landscape underneath Darling Square which will remain subsequent to the development. This should include: Dickson's dam wall, mill pond and steam mill, Biddell Bros factory, the cooperage, reclamation of Darling Harbour and residential housing which includes workers and families in adjoining factories and the large population of Chinese residents and businesses.
9. Where archaeological recording is undertaken within the North Plot and Darling Square the results of this will need to be included within an excavation report. It will be necessary to write an excavation report in accordance with Heritage Council guidelines and standard conditions of consent following the completion of archaeological investigations. This is to include:
 - detailed trench or area reports
 - overall excavation report
 - catalogue of artefacts and artefact reports
 - conservation of important artefacts
 - response to research questions

- photo archive.
10. Undertake consultation with SHFA and Heritage Division archaeologists about the site's archaeological issues, approaches to *in situ* retention of the State-significant archaeology, and the Archaeological Research Design and Management Strategy.

Contents

EXECUTIVE SUMMARY	I
1.0 INTRODUCTION	1
1.1 Introduction.....	1
1.2 Overview of Proposed Development	1
1.3 Background.....	2
1.4 Site Description	3
1.5 Planning Approvals Strategy	5
1.6 Previous Archaeological Reports.....	5
1.7 Statutory Context and Constraints.....	6
1.8 Authorship.....	9
1.9 Acknowledgements	9
1.10 Limitations.....	9
1.11 Glossary	10
1.12 Abbreviations	11
2.0 ABORIGINAL ARCHAEOLOGY	12
2.1 Archaeological Assessment	12
2.2 Prediction of Aboriginal Archaeology.....	12
2.3 Status of the Aboriginal Archaeological program	12
3.0 HISTORICAL BACKGROUND & ARCHAEOLOGICAL POTENTIAL	14
3.1 Historical Background	14
4.0 HERITAGE SIGNIFICANCE	19
4.1 Heritage Significance	19
4.2 Statement of Heritage Significance for Darling Square.....	19
4.3 Significant Archaeology within the North Plot and Darling Square	20
5.0 ARCHAEOLOGICAL TESTING IN THE NORTH PLOT & DARLING SQUARE.....	22
5.1 Archaeological Testing	22
6.0 PROPOSED IMPACTS IN NORTH PLOT AND DARLING SQUARE.....	28
6.1 Description of Proposed Impacts	28
6.2 Impacts outlined in the Concept Approval Reporting - Archaeological Assessment.....	44
6.3 Analysis of Impacts on Potential Archaeological Remains.....	45
7.0 MITIGATION OF IMPACTS.....	51
7.1 Mitigation of impacts on the c.1815 Dam Wall	51
7.2 Mitigation of impacts of mid to late 19th-century archaeology of local significance	51
7.3 Archaeological Excavation and Monitoring.....	51
7.4 Public Interpretation	52
8.0 RESULTS, MITIGATION AND RECOMMENDATIONS.....	53
8.1 Results	53
8.2 Mitigation	53
8.3 Aboriginal Archaeology	54
8.4 Recommendations	54
9.0 BIBLIOGRAPHY	56
9.1 Secondary Sources	56

Appendices

Appendix 1: *SICEEP Concept Plan, The Haymarket – SSDA2, Non-Indigenous Archaeological Assessment and Impact Statement (March 2013)*

Appendix 2: *SICEEP, Aboriginal Archaeological Assessment (August 2013)*

Document Status

Name	Date	Purpose	Author	Reviewed
Draft 1	25/5/2015	Client review	Rhian Jones, Mary Casey	Mary Casey Tony Lowe
Draft 2	1/6/2015	Update figures	Mary Casey	Tony Lowe
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Archaeological Impact Statement **SSDA 10, North Plot & Darling Square, Darling Square**

1.0 Introduction

1.1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Application (referred to as SSDA 10) follows the approval of a staged SSD DA (SSDA 2) in December 2013. SSDA 2 sets out a Concept Proposal for a new mixed use neighbourhood at Haymarket, now called Darling Square. Darling Square forms part of the Sydney International Convention, Exhibition and Entertainment precinct (SICEEP).

More specifically, this subsequent DA seeks approval for the construction and use of a mixed use development within the North development plot of Darling Square and public domain works for the new 'Square'.

Casey & Lowe have been engaged by Lend Lease to provide an Archaeological Impact Statement for SSDA 10 for the North Plot & Darling Square, Darling Square. This current report sits as a detailed site impact assessment following the overall Archaeological Assessment completed for the Concept Approval (SSDA 2) and also required to be submitted for SSDA 10: *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) Concept Plan, The Haymarket – SSDA2: Non-Indigenous Archaeological Assessment and Impact Statement*, report to Lend Lease Development Pty Ltd, March 2013. The approach taken to the assessment of impacts in this report is based on the results of archaeological testing completed in October 2014: *Non-Indigenous Archaeological Testing, Darling Square East & Boulevard*, report for Lend Lease Development. Copies of this report have been submitted to the Heritage Division, Office of Environment & Heritage and to the Sydney Harbour Foreshore Authority (SHFA) and were undertaken under a S139(4) approval. If SSDA 10 is approved Casey & Lowe will need to write an Historical Archaeological Research Design and Management Strategy to manage the specifics of impacts from the detailed design and to provide a methodology for managing the archaeological issues.

1.2 Overview of Proposed Development

The proposal relates to a detailed ('Stage 2') DA for a mixed use development in the North Plot of Darling Square together with Public Domain works for the new Square. The Darling Square Site more broadly is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and public space. The North Plot is one of six development plots identified within the approved Concept Proposal.

Under the Concept Proposal, the North Plot is planned to accommodate a small-scale mixed use building. More specifically, this SSD DA seeks approval for the following components of the development:

- Construction and use of a mixed use building including retail, commercial, food and beverage offerings and community uses;
- Darling Square and landscaping improvements comprising the creation of a new Square which links with new pedestrian connections, including laneways and the Boulevard; and
- Extension and augmentation of physical infrastructure / utilities as required.

1.3 Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

In December 2012, following an extensive and rigorous Expressions of Interest and Request for Proposals process, Darling Harbour Live (a consortium comprising Lend Lease, Hostplus, Capella Capital, AEG Ogden and Spotless) were announced by the NSW Government as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
 - Up to 40,000m² exhibition space;
 - Over 8,000m² of meeting rooms space, across 40 rooms;
 - Overall convention space capacity for more than 12,000 people;
 - A ballroom capable of accommodating 2,000 people; and
 - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants.
- Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and
- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network (now The Goods Line), drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pymont and the City.

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the (now) Department of Planning and Environment. The key components of these proposals are outlined below.

1.3.1 Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades. SSDA1 was approved on 22 August 2013.

1.3.2 Concept Proposal (SSD 13_5878)

The Concept Proposal SSD DA (SSDA2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
 - A maximum total gross floor area (non-residential and residential GFA)
 - Above ground car parking including public car parking;

- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

The Concept Proposal was modified on 26 November 2015 to increase the amount of non-residential GFA. This minor increase in GFA was allocated to the approved North-West Plot building to meet tenant requirements. In addition to the approval of SSDA1 and SSDA2, the following approvals have been granted for various stages of Darling Square site:

- Darling Drive (part) development plot (SSDA3) for the construction and use of a residential building (student accommodation) and the provision of associated public domain works approved on 7 May 2014.
- North-West development plot (SSDA4) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014.
- South-East development plot (SSDA5) – construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014.
- North-East development plot (SSDA7) – construction and use of a mixed use residential development and associated public domain works approved on 16 April 2014.

Approval was also granted on 15 June 2014 for SSDA6 which includes the construction and use of the International Convention Centre (ICC) Hotel and provision of public domain works. Approval was also granted for SSDA8 on 16 October 2015 which comprised the ICC Hotel fitout, external lighting and subdivision.

This report has been prepared to support a detailed Stage 2 SSD DA for mixed use development and associated public domain works within Darling Square (SSDA 10), consistent with the approved Concept Proposal (SSDA2).

1.4 Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the light rail line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (Figure 1.1). The Darling Square Site is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;
- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 37,700m².

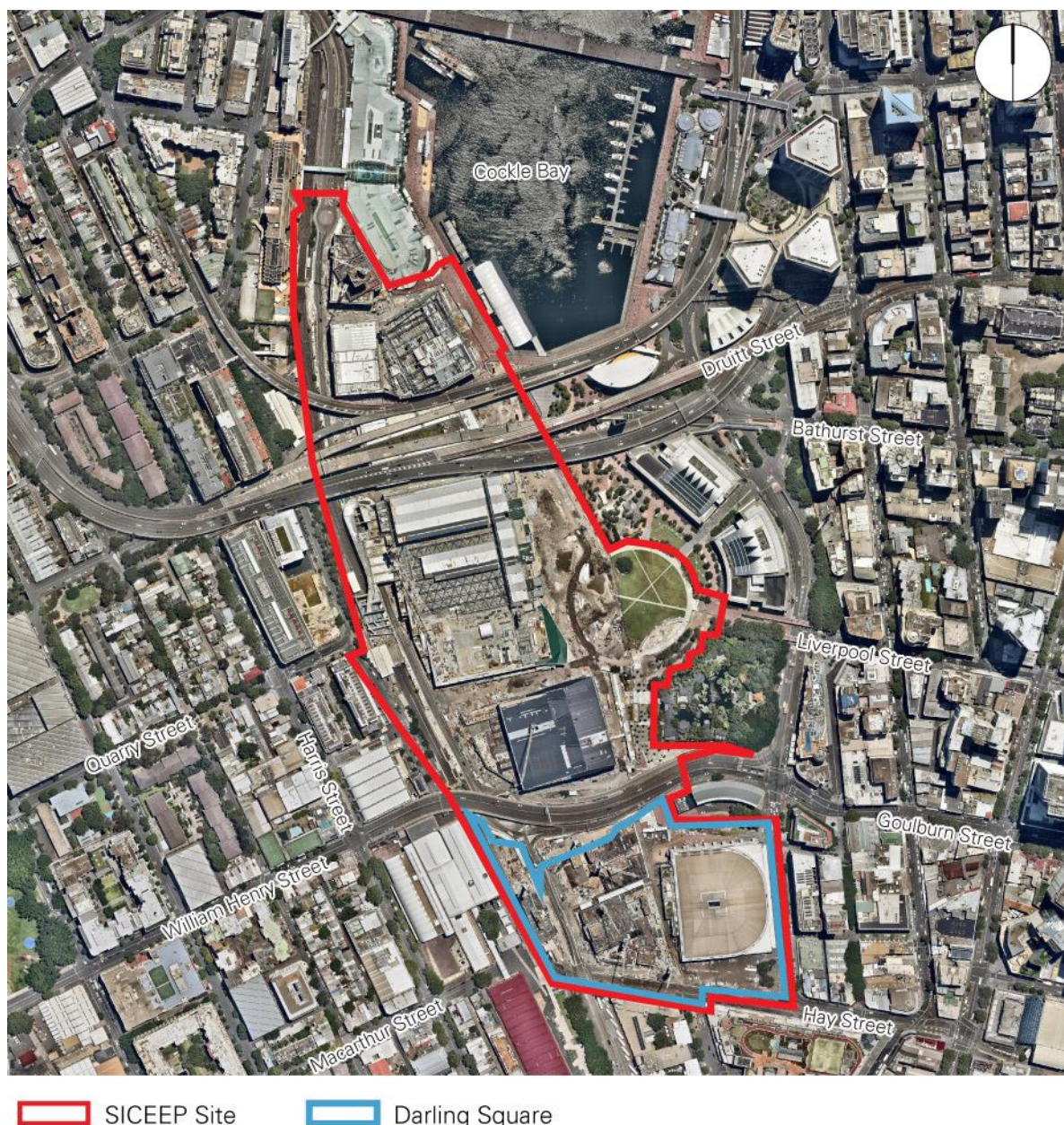


Figure 1.1: Aerial photograph of the SICEEP Site.

The Concept Proposal DA provides for six (6) separate development plots across the Darling Square Site (refer to Figure 1.2):

1. North Plot
2. North East Plot
3. South East Plot
4. South West Plot
5. North West Plot
6. Western Plot (Darling Drive).

The Application Site area relates to the North Plot & Darling Square and surrounds as detailed within the architectural and landscape plans submitted in support of the DA (Figure 1.2).

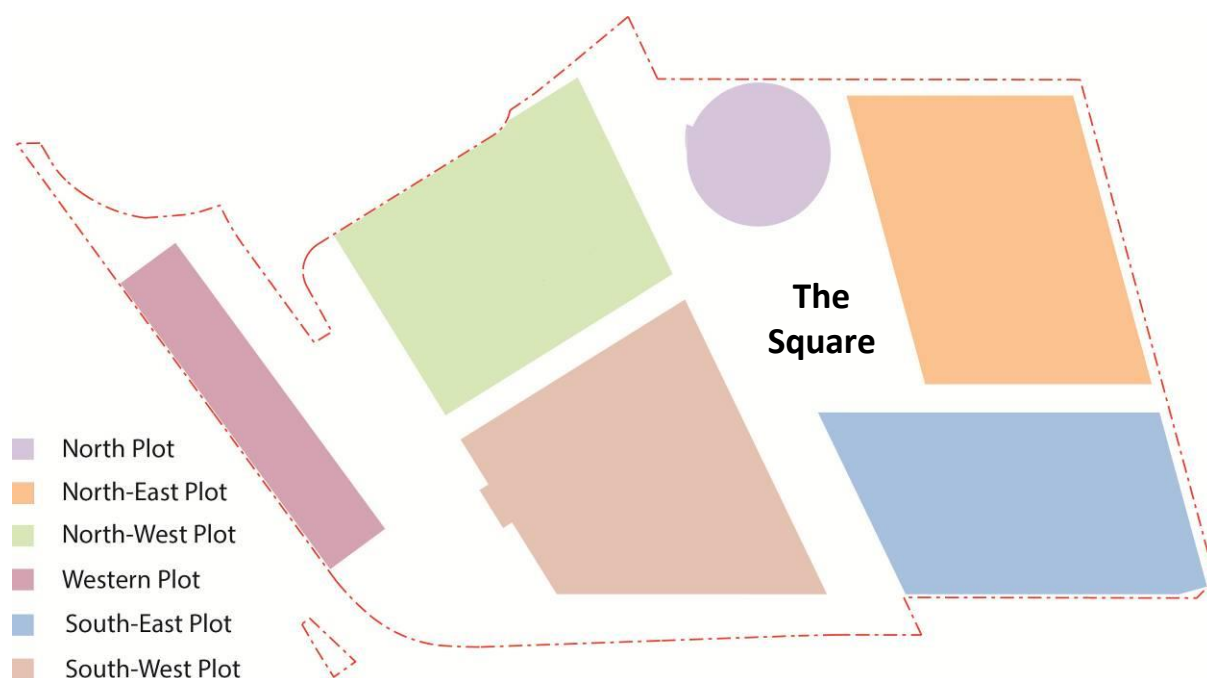


Figure 1.2: Concept proposal development plots. The current study area includes the North Plot (purple) and The Square/Darling Square (white).

1.5 Planning Approvals Strategy

The SICEEP Project has resulted in the lodgement of numerous SSD DAs for the various components of the redevelopment project. Future applications will continue to be lodged in accordance with the Concept Proposal SSD DA for the remaining development plots of Darling Square Site.

1.6 Previous Archaeological Reports

The following archaeological reports have been written by Casey & Lowe for this project and are relevant to the current study area:

Historical or Non-Aboriginal Archaeology

- *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP), Concept Plan, The Haymarket - SSDA2, Non-Indigenous Archaeological Assessment & Impact Statement, for Lend Lease Development Pty Ltd* (March 2013).
- *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP), Non-Indigenous Archaeological Assessment & Impact Statement for SSDA 6 – ICC Hotel, for Lend Lease Development Pty Ltd* (March 2013).
- *Darling Harbour Live – The Haymarket East & Boulevard, Non-Indigenous Archaeology, Research Design for testing, S139(4) Exception Application* (June 2014).
- *Darling Harbour Live – The Haymarket West, (South West Plots, North West Plot & Student Accommodation), Non-Indigenous Archaeological Management Strategy & Research Design, report to Lend Lease Development Pty Ltd* (June 2014).
- *Non-Indigenous Archaeological Testing, Darling Square East & Boulevard, for Lend Lease, (October 2014).*
- *Archaeological Impact Statement, North East Plot, Darling Square, SSDA 7, report to Lend Lease* (October 2014).
- *Archaeological Investigation, ICC Hotel, Darling Harbour Live, Darling Harbour, report to Lend Lease* (April 2015).

- *Archaeological Impact Statement, South East Plot, Darling Square, SSDA 9*, report to Lend Lease (May 2015).

Aboriginal Archaeology

Comber Consultants' report on the Aboriginal Archaeology for the SICEEP project was updated in August 2013.

- *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP), Aboriginal Archaeological Assessment* (August 2013, version 1.2013).

Comber Consultants undertook testing for Aboriginal archaeology in the Student Housing and South West Plots in the vicinity of the western foreshore. No significant Aboriginal archaeology was found in this location:

- *Student Housing, Darling Harbour Live, Darling Harbour SSD 6010, Aboriginal Archaeological Excavation Report* (July 2014).
- *South West Plot, Darling Harbour Live, Darling Harbour SSD 6011, Aboriginal Archaeological Excavation Report* (September 2014).

No further Aboriginal archaeology is proposed to be undertaken within Darling Square (former Haymarket) as the only remnant original foreshore within the project area is within the western parts of the development. All Aboriginal archaeological testing/salvage proposed for Darling Square has been completed.

1.7 Statutory Context and Constraints

1.7.1 Environmental Planning & Assessment Act Part 4, Division 4.1

The current project is being undertaken as a State Significant Development under Part 4, Division 4.1 of the *Environmental Planning & Assessment Act, 1979*.

1.7.1.1 Stage 1 Concept Proposal Approval for The Haymarket (now Darling Square) (SSD 5878)

The relevant conditions of consent for the Stage 1 Concept Proposal Approval are:

- B23** Future development applications shall include baseline Aboriginal and non-Aboriginal archaeological assessment identifying the areas of the site which may contain significant archaeology and how impacts will be mitigated. Any recommendation of the assessment shall be adopted as part of future Development Applications.

1.7.1.2 Secretary of Environment's Assessment Requirements (SEARs) for the SSDA 10

The SEARs identified the following key issue:

Key Issue: Heritage

The EIS shall:

- Provide an archaeological assessment which includes consideration of Aboriginal and non-Aboriginal and maritime heritage and shall include appropriate mitigation strategies;
- Address if the proposal will have an impact on any archaeology protected under the Heritage Act 1977;
- Provide a Heritage Impact Statement (HIS) that address the impacts of the proposal:
 - on the heritage significance of the site and adjacent area including any built and landscape heritage items, views and setting;
 - on places, items or relics of significance to Aboriginal people;
 - against any endorsed Conservation Management Plans for heritage items in the vicinity of the site; and

- Include an outline of a heritage interpretation plan which addresses opportunities/avenues for appropriate and innovative public understanding and appreciation of heritage as part of the completed development.

Casey & Lowe's March 2013 *Non-Indigenous Archaeological Assessment and Impact Statement* for the project fulfils the guidelines of the NSW Heritage Council and addresses *Assessing the Significance of Archaeological Sites and Relics* guidelines (2009). Comber Consultants' separate report addresses the significance of the place to Aboriginal people. This current report is a site-specific assessment of impacts within the SE Plot on the potential Aboriginal and non-indigenous archaeological remains and addresses the SEARs outlined above.

1.7.1.3 89J Approvals etc - legislation that does not apply

As stated in 89J:

1. The following authorisations are not required for State significant development that is authorised by a development consent granted after the commencement of this Division (and accordingly the provisions of any Act that prohibit an activity without such an authority do not apply):
 - (c) an approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977*,
 - (d) an Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*.
2. Division 8 of Part 6 of the *Heritage Act 1977* does not apply to prevent or interfere with the carrying out of State significant development that is authorised by a development consent granted after the commencement of this Division.

In effect, the Department of Planning and Environment provides consent to impact on relics under 89J. Therefore no approvals are required under S139 or S57 of the *Heritage Act 1977* or S90 of the *National Parks and Wildlife Act 1974*. The Department of Planning and Environment will of course consult with the Office of Environment and Heritage, both the Heritage Division and the Aboriginal Heritage Section, and the proposed work needs to conform to Heritage Division and Aboriginal Heritage Branch guidelines. This section does not exempt requirements under S170 of the Heritage Act.

1.7.2 Relics Provisions, NSW Heritage Act, 1977

1.7.2.1 Division 9: Section 139, 140–146 – Relics Provisions – Excavation Permit

When a site is not being assessed under the EP&A Act, Part 4.1 the main legislative constraint on archaeological remains are the relics provisions of the *Heritage Act 1977*. Provisions relating to S139 of the *Heritage Act 1977* are suspended by Part 4.1, Division 4.1, S89J.

According to Section 139:

- (1) A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.
- (2) A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.
- (3) This section does not apply to a relic that is subject to an interim heritage order made by the Minister or a listing on the State Heritage Register.
- (4) The Heritage Council may by order published in the Gazette create exceptions to this section, either unconditionally or subject to conditions, in respect of any of the following:

- a. any relic of a specified kind or description,
- b. any disturbance or excavation of a specified kind or description,
- c. any disturbance or excavation of land in a specified location or having specified features or attributes,
- d. any disturbance or excavation of land in respect of which an archaeological assessment approved by the Heritage Council indicates that there is little likelihood of there being any relics in the land.

A 'relic' is an item of 'environmental heritage' defined by the *Heritage Act 1977* (amended) as:

- those places, buildings, works, relics, moveable objects, and precincts of State or local heritage significance.

It was more recently further defined as:

- Relevant case law and the general principles of statutory interpretation strongly indicate that a 'relic' is properly regarded as an object or chattel. A relic can, in some circumstances, become part of the land and be regarded as a fixture (a chattel that becomes permanently affixed to land).¹

A relic as further defined by the Act is:

*...any deposit, object or material evidence –
(b) which relates to the settlement of the area that comprises New South Wales,
not being Aboriginal settlement; and
(b) is of State or local heritage significance.*

1.7.3 Heritage Lists – S170 Register

We have also reviewed the SHFA S170 register and the State Heritage Inventory (SHI) (Table 1.1) for the entire SICEEP area. It is noted that the SHFA S170 register items have point data only and have not provided a mapped curtilage for its various precincts. While general descriptions have been provided, our understanding of the location of these precincts is based on our best guess. The requirements of a statutory authority under S170 of the *Heritage Act* are:

- (3) A government instrumentality shall establish and keep a register entitled the 'Heritage and Conservation Register'.
- (4) A government instrumentality shall enter in the register details of each item of the environmental heritage which is subject to an interim heritage order or listing on the State Heritage Register; or is listed in an environmental planning instrument under the *Environmental Planning and Assessment Act 1979* as an item of environmental heritage, or could, in accordance with guidelines issued from time to time by the Heritage Council, be subject to an interim heritage order or listing on the State Heritage Register; and which in the case of a statutory body, is owned or occupied by the statutory body; or in the case of a Department head, is vested in or owned or occupied by, or subject to the control of, the appropriate minister or the Department.

Table 1.1: List of S170 register items within North Plot and Darling Square.

Site/Structure	S170	SHR	Significance	Location
Pier Street Precinct Archaeological Remains (Bounded By Hay, Harbour, Pier Streets and Merino Boulevard (Darling Drive))	SHFA		State	Darling Square

¹ *Assessing Significance for Archaeological Sites and 'Relics'*, Heritage Branch, Department of Planning, 2009:7.

1.7.4 Statutory and Non-statutory Guidelines

The management of heritage sites in New South Wales should conform to the requirements of the *Burra Charter* of Australia ICOMOS. Many of the following guidelines provide for best practice conservation approaches and can be used to inform all the management of the archaeological remains. There are a range of archaeological guidelines which inform the management of the place:

- *Archaeological Assessment Guidelines*, NSW Heritage Office, Department of Urban Affairs & Planning, 1996. A new draft of this has been prepared but not yet published.
- *Assessing Significance for Archaeological Sites and 'Relics'*, Heritage Branch, Department of Planning, 2009.
- *NSW Heritage Manual*, NSW Heritage Office, Department of Urban Affairs & Planning, 1996.
- *Historical Archaeological Investigations: A Code of Practice*, NSW Department of Planning, 2006.
- *Historical Archaeological Sites, Investigation and Conservation Guidelines*, Department of Planning and NSW Heritage Council, 1993.
- *Excavation Director's Assessment Criteria*, NSW Heritage Office.
- *ICHAM Charter, The ICOMOS Charter for the Protection and Management of Archaeological Heritage*, ICOMOS International, 1990.
- *Practice Note – The Burra Charter and Archaeological Practice*, Australia ICOMOS 2013.
- *Recommendation on International Principles Applicable to Archaeological Excavations*, UNESCO, 1956.
- *Heritage Interpretation Policy and Guidelines*, Heritage Information Series, NSW Heritage Office, August 2005.
- *Photographic Recording of Heritage Items*, Heritage Information Series, NSW Heritage Office, 2006.

1.8 Authorship

This report was prepared by Rhian Jones, Senior Archaeologist, Casey & Lowe, and Dr Mary Casey, Director, Casey & Lowe with reference to previous assessments of the study area by Casey & Lowe. The report was reviewed by Dr Mary Casey and Tony Lowe, Directors, Casey & Lowe Pty Ltd.

1.9 Acknowledgements

Lauren Nissen, Aspect
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 Ugo Marchiori, Lend Lease
 Andrew Ridge, Lend Lease
 James Hammill, Lend Lease

1.10 Limitations

Sufficient time and funding was available to adequately identify the potential archaeological resource within the study area and its significance. This report is based on conceptual design as the detail design will not be available for some time. We have sought certainty from Lend Lease on all proposed impacts on the dam wall. This has been provided. Impacts on archaeology of local significance will be adjusted to some extent once the nature of possible impacts has been determined in the detail design phase.

1.11 Glossary

The following terms are used in this report:

Historical Archaeology (Non-Indigenous/European)

Historical Archaeology (in NSW) is the study of the physical remains of the past, in association with historical documents, since the British occupation of New South Wales in 1788. As well as identifying these remains the study of this material can help elucidate the processes, historical and otherwise, which have created our present surroundings. Historical archaeology includes an examination of how the late eighteenth and nineteenth-century arrivals lived and coped with a new and alien environment, what they ate, where and how they lived, the consumer items they used and their trade relations, and how gender and cultural groups interacted. The material remains studied include:

- Archaeological Sites:
 - below ground: these contains relics which include building foundations, occupation deposits, rubbish pits, cesspits, wells, other features, and artefacts.
 - above ground: buildings, works, industrial structures and relics that are intact or ruined.
- cultural landscapes: major foreshore reclamation
- maritime sites: infrastructure and shipbuilding
- shipwrecks
- structures associated with maritime activities.

Archaeological Potential

Archaeological potential is here used and defined as a site's potential to contain archaeological relics which fall under the provisions of the *Heritage Act 1977* (amended). This potential is identified through historical research and by judging whether current building or other activities have removed all evidence of known previous land use.

Archaeological Site

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

Archaeological Investigation or Excavation

The manual excavation of an archaeological site. This type of excavation on historic sites usually involves the stratigraphic excavation of open areas.

Archaeological Monitoring

Archaeological monitoring is recommended for those areas where the impact of the works is not considered to mean the destruction of significant archaeological fabric. Nevertheless the disturbance of features both suspected and unsuspected is possible. In order to provide for the proper assessment and recording of these features an archaeologist should inspect the works site at intervals they consider to be adequate and to be 'at call' in case the contractor uncovers remains that should be assessed by the archaeologist. Monitoring is a regular archaeological practice used on many building and development sites.

Research Design

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

Research Potential

The ability of archaeological evidence, through analysis and interpretation, to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site and its 'relics'.²

Relic

Means any deposit, artefact, object or material evidence that:

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

(NSW *Heritage Act 1977*, Definitions, Part 1.4)

1.12 Abbreviations

AA&IS	Archaeological Assessment & Impact Statement (March 2013)
AHD	Australian Height Datum
NSW BDM	NSW (Registry of) Births, Deaths & Marriages
c.	circa
DA	Development Application
DP	Deposited Plan
Ha	Hectare
HRA	<i>Historical Records of Australia</i>
LEP	Local Environment Plan
LPI	Land and Property Information (NSW)
ML	Mitchell Library (in the State Library of NSW)
n.d.	not dated
NLA	National Library of NSW
NSCA	City of Sydney Archives
RL	Reduced level (in metres according to Australian Height Datum)
SICEEP	Sydney International Convention Exhibition & Entertainment Precinct
SLNSW	State Library of NSW
SHR	State Heritage Register
SRNSW	State Records of NSW

² NSW Heritage Branch 2009:11.

2.0 Aboriginal Archaeology

2.1 Archaeological Assessment

Comber Consultants' report on the Aboriginal Archaeology for the SICEEP project was updated in August 2013.

- *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP), Aboriginal Archaeological Assessment* (August 2013, version 1.2013).

A copy of this report is included as an appendix to this report.

2.2 Prediction of Aboriginal Archaeology

The Aboriginal Archaeological Assessment (2013:27) identified the following in The Haymarket (now Darling Square):

Impact for The Haymarket (now Darling Square)

The current design includes demolition of existing buildings, ground slab, capping beams and inground services with retention of existing piles. New buildings will be constructed on new piles. It is possible that piling on the western side of The Haymarket could impact on Aboriginal archaeological deposits within the original foreshore area.

Mitigation for The Haymarket (now Darling Square)

Archaeological testing, recording and salvage should occur in areas where piling or any other ground disturbance that will penetrate the fill is to be undertaken, within the western side within or near the area of the original foreshore.

The area of mitigation on the western foreshore is illustrated in Figure 2.1 (green colour) and is outside the North Plot and Darling Square study area. There are no requirements for Aboriginal Archaeology within the North Plot and Darling Square.

2.3 Status of the Aboriginal Archaeological program

Comber Consultants undertook testing for Aboriginal archaeology in the Student Housing and South West Plots in the vicinity of the original foreshore. No significant Aboriginal archaeology was found in these locations as outlined in the reports on this testing:

- *Student Housing, Darling Harbour Live, Darling Harbour SSD 6010, Aboriginal Archaeological Excavation Report* (July 2014).
- *South West Plot, Darling Harbour Live, Darling Harbour SSD 6011, Aboriginal Archaeological Excavation Report* (September 2014).

No further Aboriginal archaeology is proposed to be undertaken within Darling Square as the only remnant original foreshore within the project area is within the western parts of the development. All Aboriginal archaeological testing/salvage proposed for Darling Square has been completed.

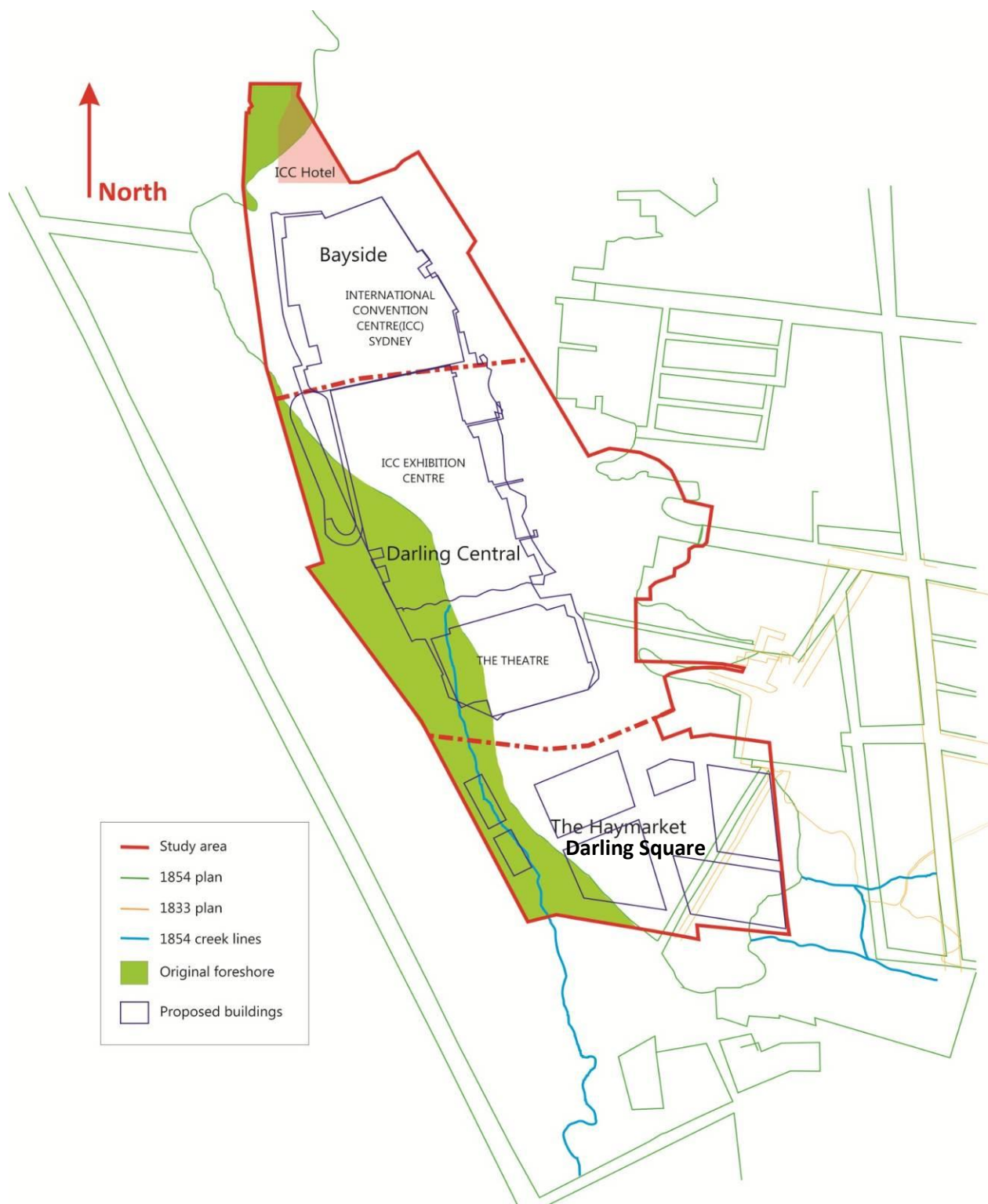


Figure 2.1: Plan showing the predicted areas of original foreshore and the areas of testing for Aboriginal Archaeology are highlighted in green.

3.0 Historical Background & Archaeological Potential

3.1 Historical Background

For a detailed history for the SICEEP project see *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP), Concept Plan, The Haymarket - SSDA2, Non-Indigenous Archaeological Assessment & Impact Statement*, for Lend Lease Development Pty Ltd (AA&IS March 2013).

Below is summary table relevant to the North Plot and Darling Square which is taken from the March 2013 Assessment Table 3.2 (Figure 3.1, Figure 3.2, Figure 3.4):

Table 3.1: Summary table of Non-Aboriginal archaeological remains within the North Plot and Darling Square.

Archaeological Phases	Darling Square North Plot & Darling Square
Phase 1: 1788-1813	Study area completely underwater, no known uses.
	1813-1850s
Phase 2: Dickson's mill and mill pond, 1813-1850s	Dickson's dam wall and mill pond (1815-1850s).
	1850s-1880s
Resumptions, 1850s-1880s Housing subdivision Sewers Industrial	- Reclamation of southern part of Darling Harbour (1850s-c.1863). - Not subdivided until after 1870. - Drain dating to c.1865. - Subdivision sees development of a mixture of semi-industrial complexes and residential housing: 8 houses on Burns Street, 1 house on corner of Burns and Little Hay Streets. - Small-scale industries and hotel by 1880. - Biddell Bros Confectionery Factory - Willis Bros Timber Yard - Cooperage site, two locations either side of Little Belmore Street - River Shannon Hotel - Considerable vacant land as well as roadways.
	1880s-1920s
	- Continued occupation and expansion of the above buildings and houses. - Construction of Rowlands Aerated Water works and stables c.1887-1888.
	1930s-1980s
	- Council establishes markets in the eastern half of this area (1937) and widens Harbour Street. Demolishes all housing and other surviving buildings to south of Little Pier Street. - The streetscape was removed at this time.
	1980s – Darling Harbour Redevelopment
	- Entertainment Centre built, 1982. - Stormwater culverts crisscrossing the area. - Other large services laid throughout the site.

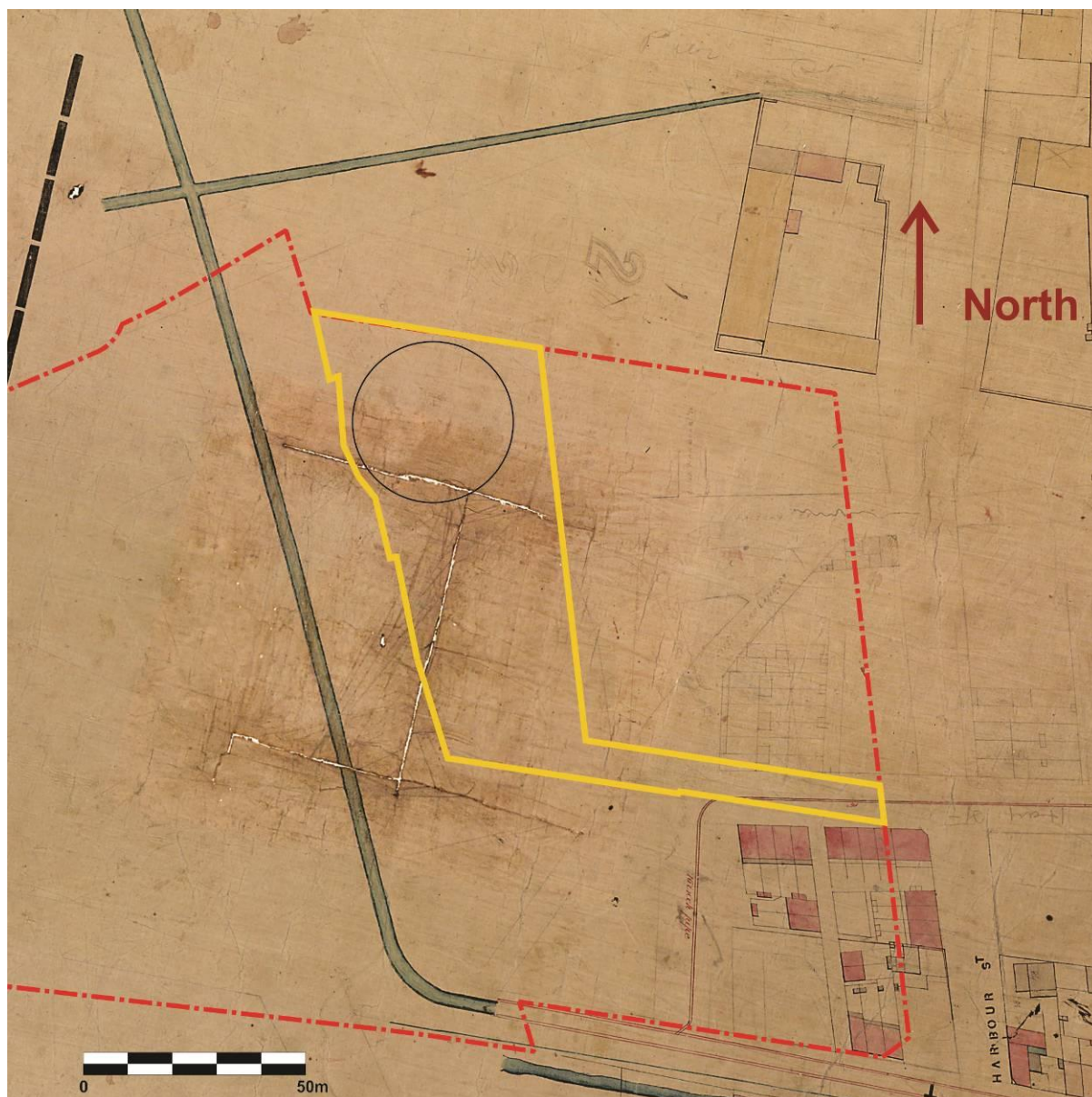


Figure 3.1: Survey of 1865 with the footprint of the North Plot (black circle) and Darling Square (outlined in yellow). There are no houses in the North Plot and Darling Square study area built after the 1850s reclamation and prior to 1865 . This indicates that all of the housing within the study area dates after the 1865 survey. There is a section of drain running east-west in the eastern end of the Darling Square, annotated as '16 inch pipe'. Trig Survey, Section T, 1865, Historical Atlas of Sydney, City of Sydney Archives.

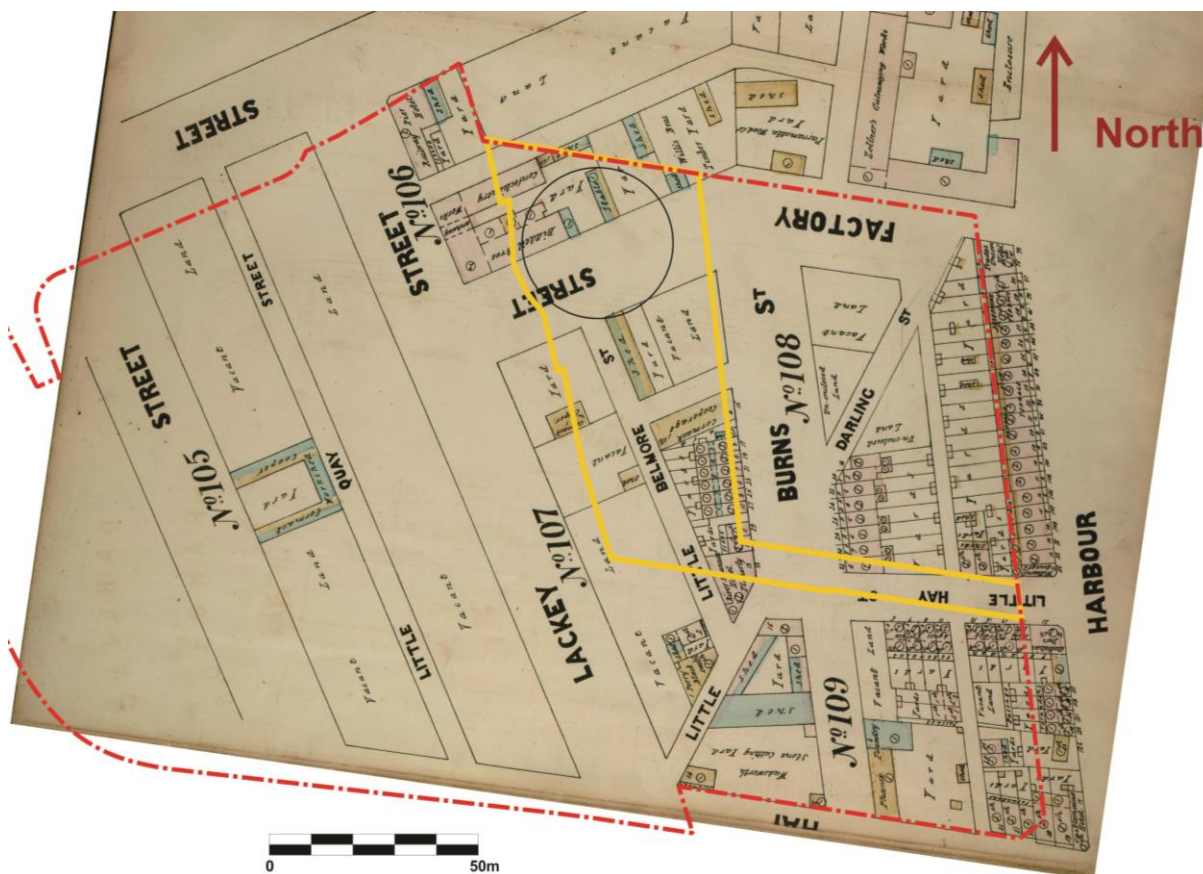


Figure 3.2: There was development to the west of Little Darling Street prior to 1880. The North Plot (black circle) includes part of the Biddell Brothers Confectionery Company factory. The Darling Square study area (outlined in yellow) includes a small section of the Biddell Bros Confectionery Works and Willis Brothers Timber Yard. Developments to the south include Cormack Cooperage, a group of houses fronting Burns Street and the River Shannon Hotel. There is a house on the corner of Burns and Little Hay Street that falls within the Darling Square study area. Dove's plan of 1880, Historical Atlas of Sydney, City of Sydney Archives.

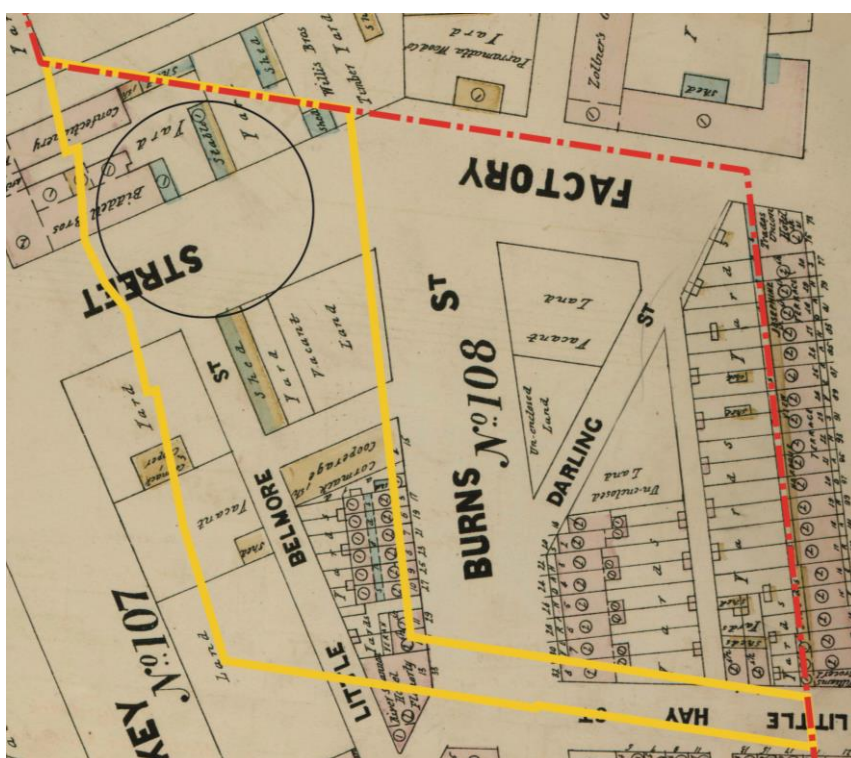


Figure 3.3: Detail from Dove's plan of 1880 (above).

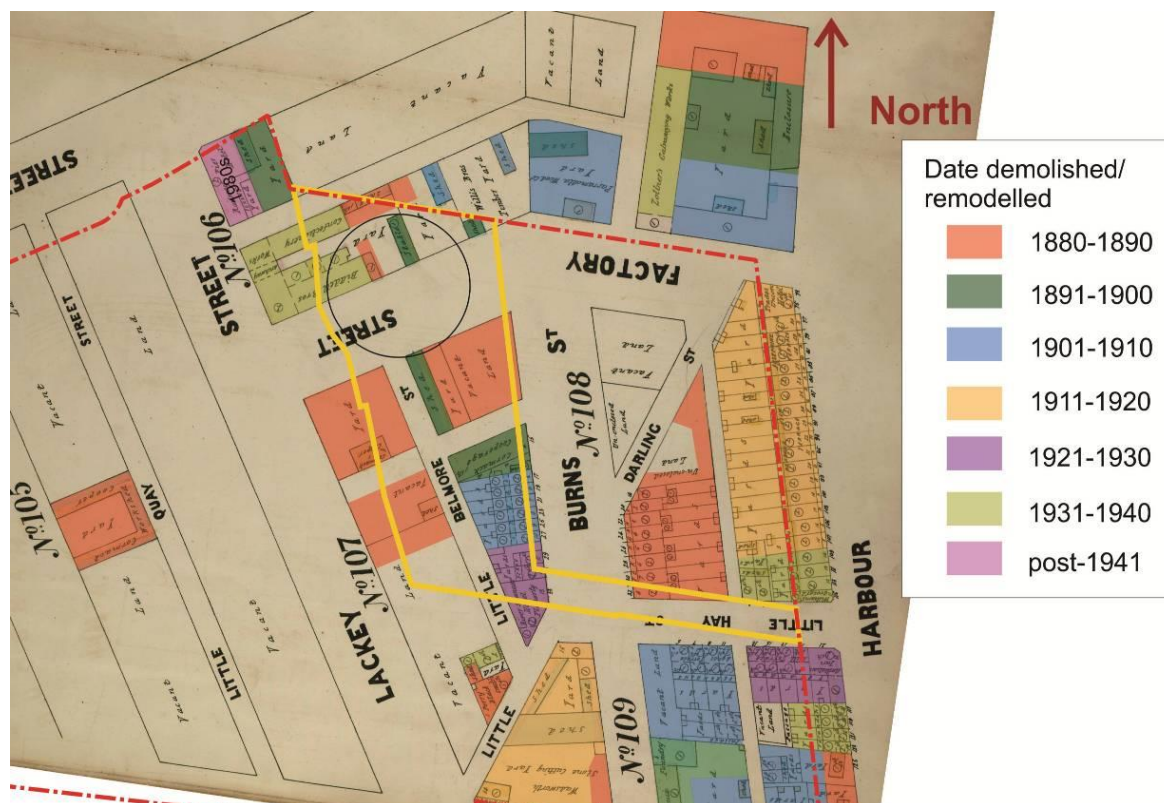


Figure 3.4: Dove's 1880 plan illustrating the extent of housing and commercial enterprises erected between 1857 and 1880. The various colours indicate the decade in which structures were demolished. The North Plot (black circle), the Darling Square is outlined in yellow, while the red line indicates the entire extent of the Darling Square Precinct.

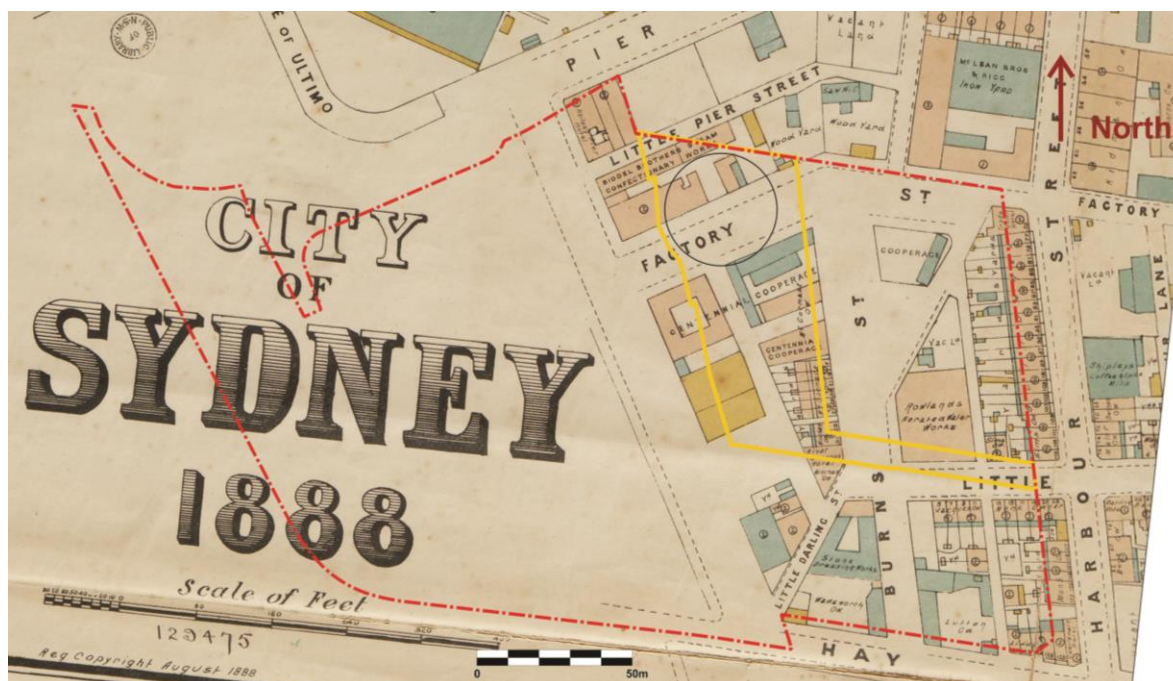


Figure 3.5: Plan showing the new semi-industrial workshops established by 1888, including several sections of land occupied by the Centennial Cooperage and the Rowlands Aerated Water Works. The North Plot (black circle), the Darling Square is outlined in yellow, while the red line indicates the entire extent of the Darling Square Precinct. See detail below. Collection of Subdivision plans for City of Sydney, 1888-1889. F981.11/C ML, SLNSW.

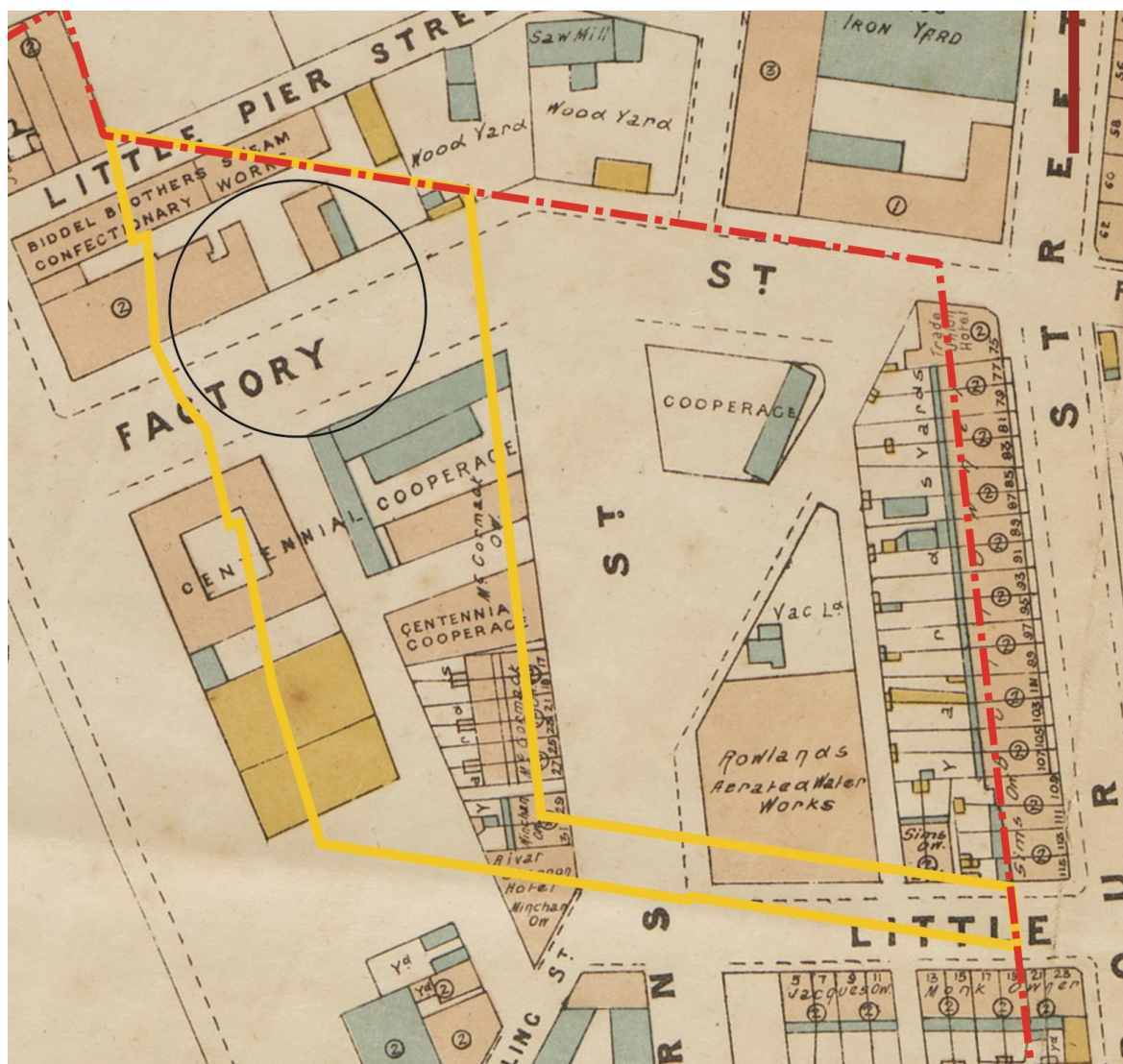


Figure 3.6 Detail from the 1888 plan (above).

4.0 Heritage Significance

4.1 Heritage Significance

A detailed discussion and assessment of significance was undertaken within the March 2013 AA&IS. The following Statement of Significance for the whole of the Darling Square is taken from that report. An updated Statement of Significance will be provided in the Historical Archaeological Research Design and Management Strategy for the North Plot & Darling Square.

4.2 Statement of Heritage Significance for Darling Square

The Darling Square study area has the ability to contain potential archaeological remains which demonstrate the development, reclamation and expansion of Darling Harbour throughout the 19th century, when it was a centre for steam industry manufacturing at the intersection of maritime and railway trade in NSW. Remains from the study area have the ability to represent the changing nature of Darling Harbour's occupation and activities throughout the 19th century. Among the important potential buried remains within Darling Square are:

- Edge of western foreshore.
- Dickson's c.1815 dam wall and 1830s mill.
- 1855–1857 reclamation of Dickson's mill pond and subdivision as the head of Darling Harbour silted up and became unnavigable.
- Remains of 15 houses built and occupied prior to 1865.
- Development of early manufactories and industries between 1865 and 1880:
 - Biddell Bros Confectionery factory
 - Phoenix Foundry
 - Blacksmith
 - Wadsworth Steam Stone Dressing Works
 - Cooperage, at three locations
- Further subdivision and construction of new housing between 1865 and 1880, the yards and cesspits of five houses along Harbour Street.
- River Shannon Hotel c.1870s.
- Occupation of houses and shops by Chinese people from the 1880s into the 1920s. This would have been a residential part of Chinatown prior to its demolition in the 1930s.

These potential remains are associated with significant persons such as John Dickson who introduced the first steam mill to Australia and built the c.1815 dam to create a millpond to collect fresh water. Darling Harbour was a focal hub for maritime and railway infrastructure and trade since the 1810s and the layers of industrial and maritime remains across the study area represent this social and economic significance. These layers of significance are valued by various members of the community. These layers of archaeological remains have the ability to yield new information about this industrial and residential past, and possibly that of the development of Sydney's Chinatown. Some of the remains are considered to be rare, as they are early examples of their kind, while other elements are considered to be representative of other remains which may survive in other buried and reclaimed landscapes.

Archaeological remains considered to be of State significance.

- Dickson's c.1815 dam wall
- Dickson's 1830 mill buildings

Archaeological remains considered to be of local significance:

- Residential housing throughout the eastern half of the study area: remains of 27 houses and yards established prior to 1880, including later Chinese residents; also includes 15

houses and Australian Inn hotel built by 1865, and the rear yards and cesspits of 19 houses which are beneath Harbour Street.

- 1870s/1880s manufactories
 - Cormack Cooperage, later Centennial Cooperage
 - Biddell Bros confectionery factory
 - Rowlands Aerated and Mineral Water works
 - Wadsworth's Steam Stone Dressing works
- Four pub sites.
- Some small shops operated where the tenant lived as well as worked, including Chinese shops and store keepers and warehouses.
- Workshop associated with the Sydney Hydraulic Pumping Station.
- 1850 and 1860s reclamation of the millpond and Darling Harbour.
- Possible remains of 1860s ditch running near the alignment of Lackey Street and illustrated on the 1865 plan.

Archaeological remains which may cross the local significance threshold if they contained artefact deposits:

- Chinese store on the northwest corner of Hay and Lackey Street.

Archaeological remains which are considered not to reach the local significance threshold:

- Majority of the study area to the west of Lackey Street, except for the Cormack Cooperage and one of the Chinese stores.
- The western strip of buildings is quite damaged by the 1980s culverts and is considered to have no research potential.
- The stores and warehouses between Lackey Street and Hay Street West are also considered to have no research potential.

4.3 Significant Archaeology within the North Plot and Darling Square

Significant archaeology within the North Plot & Darling Square includes:

State Significance

- Dickson's c.1815 dam wall.

Local Significance

- Reclamation fills and harbour sediments containing environmental information.
- Nine houses fronting Burns Street, one house on corner of Burns and Little Hay Streets.
- 1880s/90s manufactories:
 - Biddell Bros Confectionery Works, yard and stables (eastern part).
 - Willis Bros Timber Yard (part).
 - Yard associated with either Biddell Bros or Willis Bros facilities.
 - Cormack/Centennial Cooperage, three locations either side of Little Belmore Street.
 - River Shannon Hotel (part)
 - Rowlands Aerated Water Works (narrow strip only).

5.0 Archaeological Testing in the North Plot & Darling Square

5.1 Archaeological Testing

A separate report presenting the results of the archaeological testing was completed in October 2014 *Non-Indigenous Archaeological Testing, Darling Square East & Boulevard*. The purpose of this testing was to provide solid information to inform the approach to managing the remains of Dickson's Dam Wall and to understand the RLs on the 19th-century archaeology across Darling Square East and the Boulevard to allow us to more accurately assess likely design impacts.

Subsequent to the SSDA 10 approval we will need to write an Historical Archaeological Research Design and Management Strategy outlining the full impacts of the current proposal of the North Plot & Darling Square. This needs to be based on detailed design.

5.1.1 Results of Archaeological Testing

The results of the archaeological testing for the RLs of the State significant dam wall (Trench 3) and any 19th-century archaeological remains of local significance (Trenches 6B and 7A, 7B, 7C) are discussed below and illustrated in Figure 5.1.

Trench 3 – Dam Wall

The archaeological testing within Trench 3A focused on defining the location of the dam wall. This trench found an extensively disturbed area with many services, some of which were 20th century and possibly live even though they had not been identified by detailed service analysis. Further impacts included those from the 1930s market buildings, and surfaces of former streets.

The dam wall was represented by a series of clay fills sloping to the east which were covered with surfacing deposits. The western edge of this structure was not able to be investigated due to disturbance from the 1930s market footings at that end of the trench (Figure 5.2). The top of the structure was at RL 1.77m. The eastern edge of the structure was at 333756.75E, 6249803.75N (GDA94-MGA56). There appeared to be water-borne deposits on the eastern slope of the embankment that may have accumulated during the lifetime of the dam.

The bulk of the dam was represented by clay and sand fills laid atop the harbour sands (Figure 5.3). The layered fills were exposed in TP 3AW (Figure 5.4). The eastern sloping edge of the fills was exposed in TP 3AE. The top of the clay was also exposed at a location between the two test pits. The combined evidence showed that the clay sloped to the east, dropping around 700mm across 4m. The clays were highly plastic, tightly compacted and the interfaces between each layer showed no sign of prolonged exposure, suggesting that the layers were laid as part of a single event.

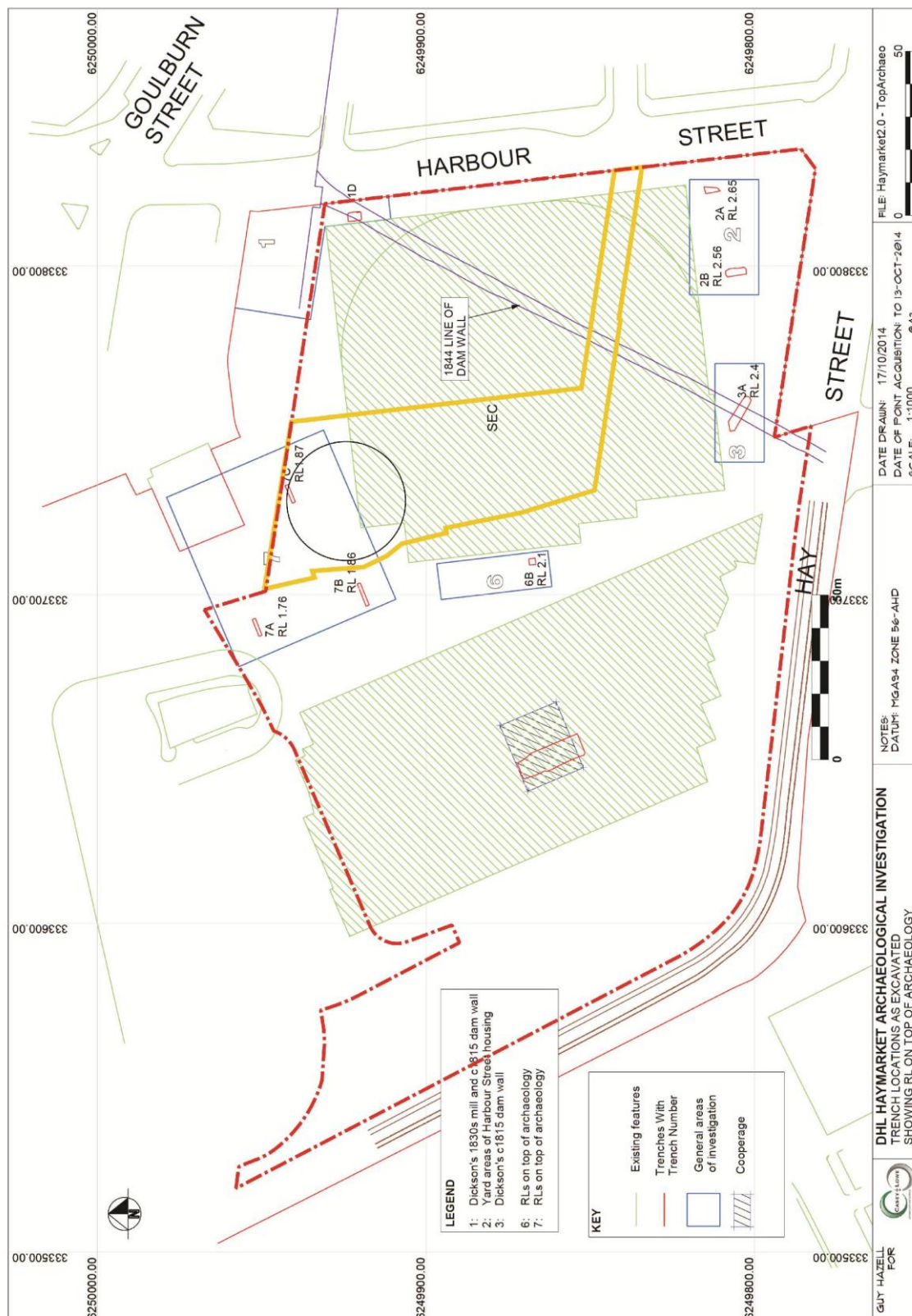


Figure 5.1: Location of test trenches around the Sydney Entertainment Centre (SEC) with RLs of the top level at which archaeology was encountered. Trenches 6B, 7A, 7B and 7C are particularly relevant to the North Plot (black circle), while Trench 3A gives an RL for the dam wall where it crosses the Darling Square study area (outlined in yellow). Plan by Guy Hazel.



Figure 5.2: The surface of the dam on the eastern slope (context 14677) is shown in the vicinity of the scale with the surface 14675 shown beyond the stormwater pipe. View to the west. Scale 1m.



Figure 5.3: Clay and sand fills which form the materials from which the c.1815 dam wall was built exposed in the east-facing section of TP 3AW. Dark grey harbour sands can be seen at the base. Numbers on the scale are in 100mm increments, depth of section 1m.

The upper surface of the dam was represented by two very similar contexts (14675 and 14677). Context 14675 was located at the high point of the dam in trench 3A. It was a 260mm-deep homogenous accumulation of fine-grained sands and fine clay particles. It was dark grey

throughout and contained charcoal and iron but no other visible inclusions. Its surface was coloured and encrusted with iron oxide. It is possible that this was the result of iron leaching through the deposits above and collecting at the interface of the finer-grained deposit 14675 (which would have drained poorly and would have been difficult for anything less than very fine-grained particles of iron to pass through).

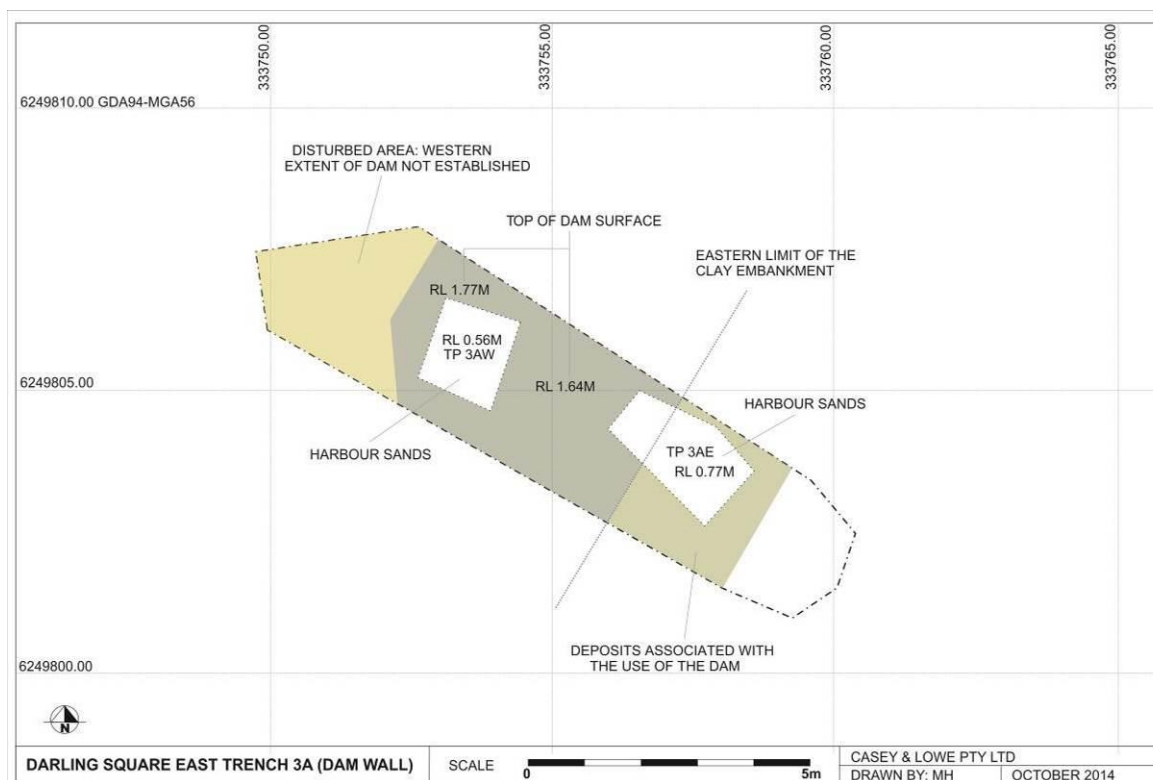


Figure 5.4: Schematic plan showing the location of the test trenches within Trench 3A.

Trench 6B

The excavation of Trench 6B to the west of the current Sydney Entertainment Centre indicates the RL for the former Lackey Street surface is at RL 2.10. This gives a general indication of the level at which remains associated with the Cooperage buildings and yards, as well as the surrounding streets and adjacent vacant land in 1880 may survive in the western part of the study area, dependent on impacts from the current SEC structure.

Trenches 7A, 7B & 7C

Trench 7A was excavated to the northwest of the North Plot and The Square study area. It was designed to test for the survival of remains of the Railway Pier Hotel (constructed 1879). The trench revealed that remains are present below RL 1.76m in this area but that there are substantial impacts from modern services (Figure 5.5).



Figure 5.5: Photo showing the sequence of fills in the south-facing section in the eastern half of T7A. The top of the two surfaces is dashed in white (RL 1.76). The artefact-rich yard deposit (RL 1.53) and the grey clay with shale-like inclusions is seen in the base of the trench. Photo is taken looking north, 1m scale.

Trench 7B was located within the Biddell Brothers Confectionery Factory. Several large sandstone blocks and a circular area of brick paving were uncovered in this trench (Figure 5.6), between RL 1.86 and RL 1.15m. The paving was associated with a deeper archaeological feature probably cut into the likely floor of the factory or yard. Archaeology should be encountered at higher levels in this area.



Figure 5.6: Circular brick paving 14701 with interior raised ring in base of trench. The bricks were pressed into grey clay. Photo taken looking north, 1m scale.

The excavation of Trench 7C within the yard to the west of the Willis Bros Timber Yard indicates that archaeological remains including surfaces and timber-rich material (possibly waste material from the timber yard) is present below RL 1.92m - RL 1.87m (Figure 5.1, Figure 5.7).

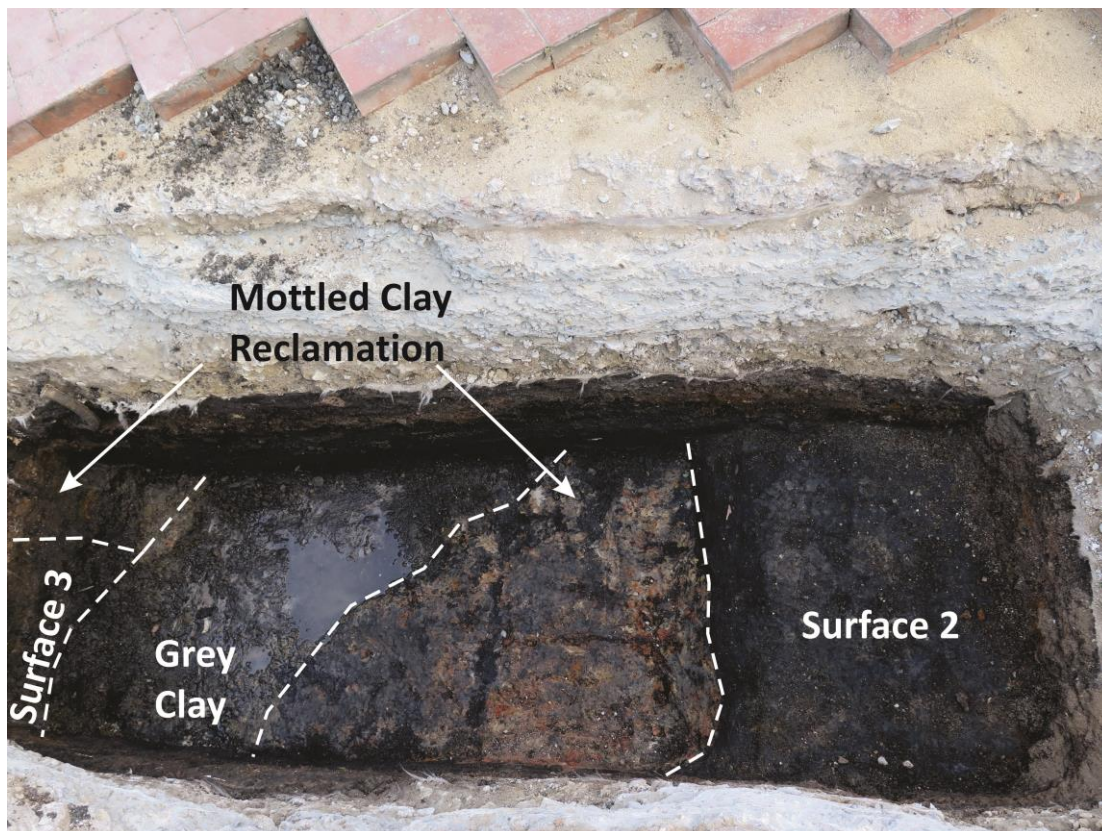


Figure 5.7: Photo of the east half of T7C, showing Surface 2 (right) over mottled clay reclamation and grey clay (centre). Photo taken looking north, no scale.

In general, the slab of the 1930s Market building has protected the earlier 19th-century archaeological remains, except in areas where the Market building's own footings have impacted upon earlier remains. The top of the archaeology is considered to be RL 2.65m in the southeast of the study area, sloping down to RL 1.76m in the northwest (Figure 5.1). This is consistent with the expected fall of the reclaimed land down towards the water of Darling Harbour. The top of the State-significant dam wall was recorded at RL 1.77m to the southwest (T3A) and RL 1.77-1.85m to the northeast (T1D). See the *Non-Indigenous Archaeological Testing, Darling Square East & Boulevard*, October 2014 for more detailed discussion.

6.0 Proposed Impacts in North Plot and Darling Square

6.1 Description of Proposed Impacts

The proposal relates to a Stage 2 DA for a mixed use development in the North Plot of Darling Square together with The Square works for the new Square. The Darling Square site more broadly is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and public space. The North Plot is one of six development plots identified within the approved Concept Proposal.

6.1.1 North Plot

Under this proposal, the North Plot is planned to accommodate a small-scale mixed-use building (Figure 6.1). More specifically, SSDA 10 seeks approval for the following components of the development:

- Construction and use of a mixed use building including retail, food and beverage offerings and community uses;
- Darling Square and landscaping improvements comprising the creation of a new Square which links with new pedestrian connections, including laneways and the Boulevard; and
- Extension and augmentation of physical infrastructure / utilities as required.

Specific impacts in the North Plot are:

- A circular piled ground slab consisting a beam and slab arrangement of 450mm and 250mm respectively.
- The general piled ground slab will included 14 piles with 1200mm diameter (P1) and 12 piles with 600mm diameter (P2) (Figure 6.2).
- A piled core area is proposed in the northeast quadrant of the piled raft, covering an area of between approximately 15.5m and 24.5m in length, with a width of 6.9m. It is difficult to ascertain the precise length of the area that adjusts for the curved nature of the piled raft. This area will accommodate the lift and stair pits, and fire pump room (Figure 6.3)
- The core area will have a greater concentration of piles and deeper excavations for the lift and stair pits, including 18 piles with 900mm diameter (P3). The concentrated disturbance from the piles in this area will have a greater impact on any archaeological remains.
- The piled core area will have a 900mm thick raft slab, starting from RL 3.6m
- The lift and stair pits will be excavated approximately 2m below the raft slab (ie. down to RL 1.4m)
- There may be no pile caps required for P1-P3 piles. If pile caps are included at detailed design stage, they will likely be no larger than 2m x 2m x 1.5m deep (RL 1.8m).
- A grease arrestor is proposed to be located on the eastern side of the North Plot. At present, the dimensions of this structure are 8m x 4m x 2.5 deep.



Figure 6.1: Current and Proposed Parameter Plan, Lend Lease.

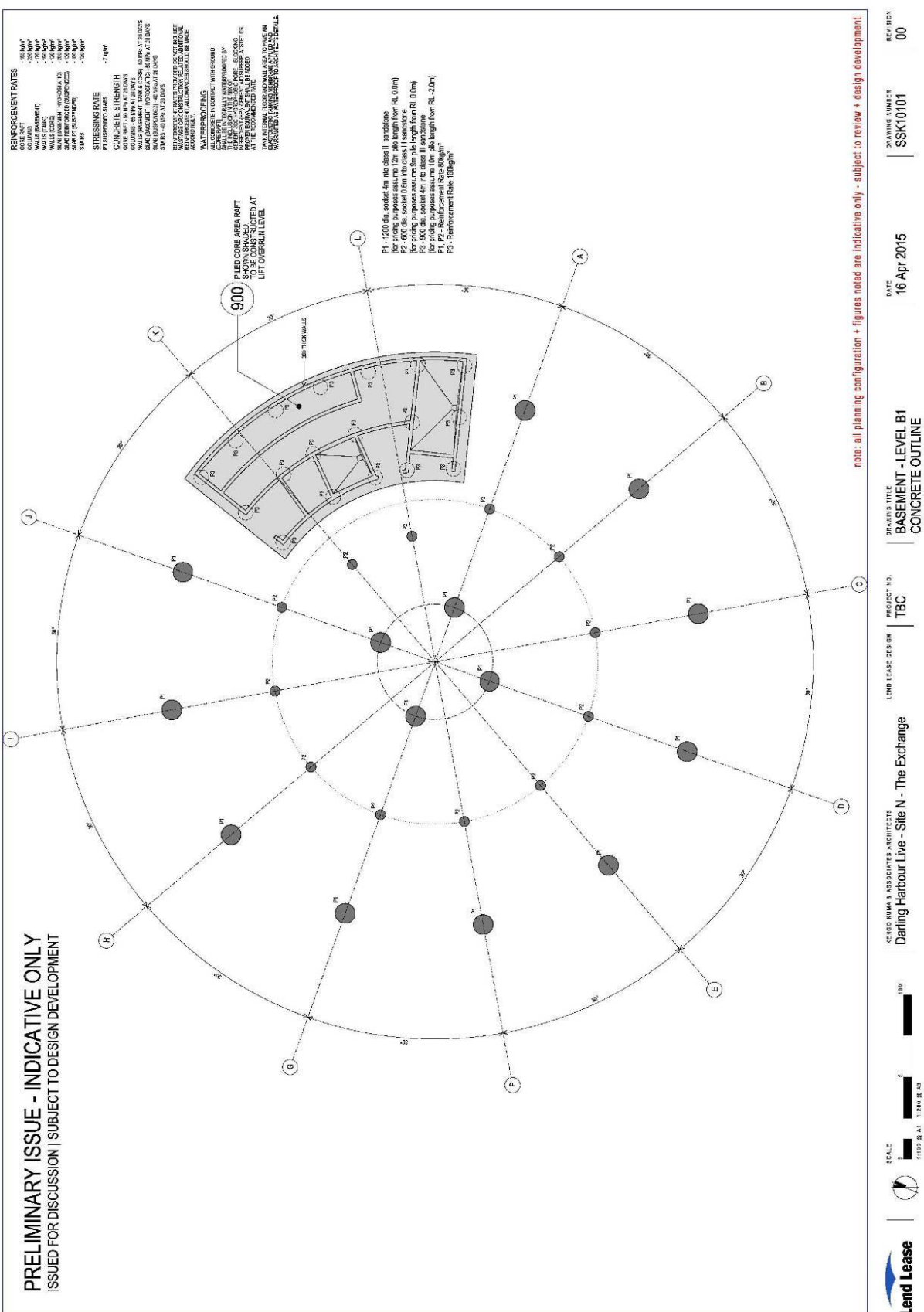


Figure 6.2: Basement Level B1 location of proposed piles, lift pits and service core, Lend Lease, 16/04/2015.

Figure 6.3: Draft GF Retail Market/Food Hall. Note the potential location of the Grease Arrestor on the east side of the piled raft. Dimensions and RLs in red and purple are provided by Lend Lease. Dimensions in green are added by Casey & Lowe.

6.1.2 Darling Square

The proposed design components of Darling Square areas include (Figure 6.4, Figure 6.5, Figure 6.6, Figure 6.7, Figure 6.9):

- The Square and Little Hay Street are set at a datum of RL 3.6m, which responds to the level of the ground floor retail on the NE and SE plots.
- Little Hay Street drops to RL 3.16m to the east.
- Little Hay Street has no planting or trees at the ground level, and will be stone paved. The thickness of pavement through Little Hay St will be about 200mm, to allow for both a 50mm-60mm stone finish and sub grade.
- The Square is primarily stone paved, with a pavement thickness of around 200mm to allow for 50-60mm stone finish and sub grade.
- Turf within the Square is raised to 100mm above the general Square level (RL 3.6m Square, RL3.7m turf). Turf requires around 500mm depth - 300mm soil, 200mm drainage material and subgrade.
- There are to be 20 trees in The Square, flush with the finished pavement (RL3.6m) which will require nominally 1100mm depth for install. This includes paving finishes zone (around 150-200mm), 800mm depth of structural strata cell, and subgrade preparation. The impacts from these plantings will be down to approximately RL 2.5m.
- At the current concept stage there are no known locations and depths for items including stormwater pits, deeper tree plantings, light poles and other infrastructure (Figure 6.11). The location of these items should be reviewed at detail design stage.
- Rainwater tank, dimensions may between 5m x 5m or 10m x 10m. The base of this will be at approximately RL 0.6m (Figure 6.11).

Analysis of most of these impacts and detailed discussions with Aspect regarding this design indicates that generally there are few predicted impacts below RL 2.0m where archaeology would be encountered. The rainwater tank is the main impact on the archaeology, down to RL 0.6m.



Figure 6.4: Darling Square, Aspect Studios.



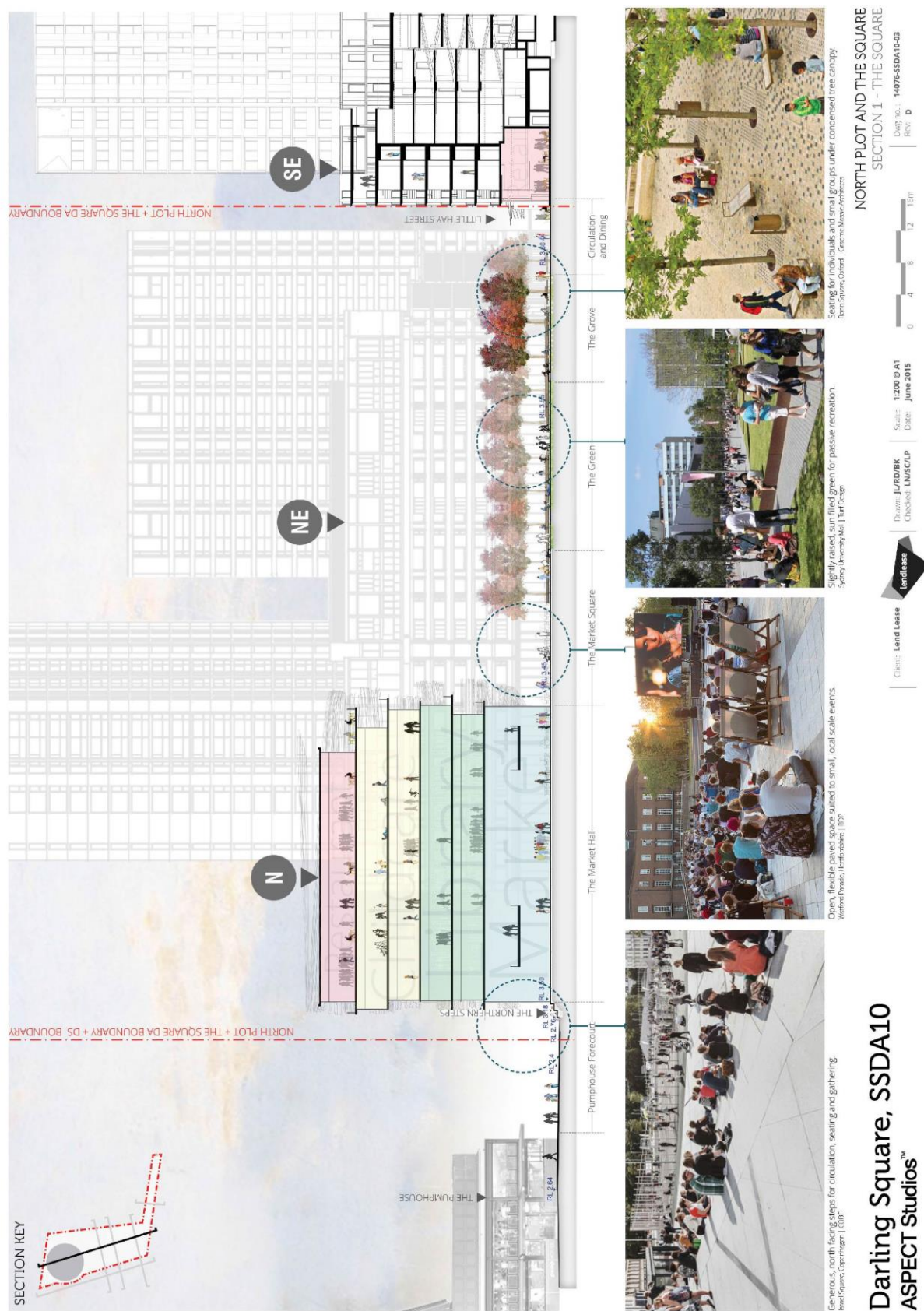


Figure 6.6: Section 1, north-south, showing the drop in proposed pavement RLs through Darling Square, from the North Plot to down to Little Hay Street, Aspect Studios.



Figure 6.7: Section 3, east-west from the Boulevard through the Market Square, showing the drop in proposed pavement RLs through Darling Square, Aspect Studios.



Figure 6.8: Section 6 through Little Hay Street which crosses over the line of the c.1815 dam wall. Little Hay Street surface is at RL 3.60.

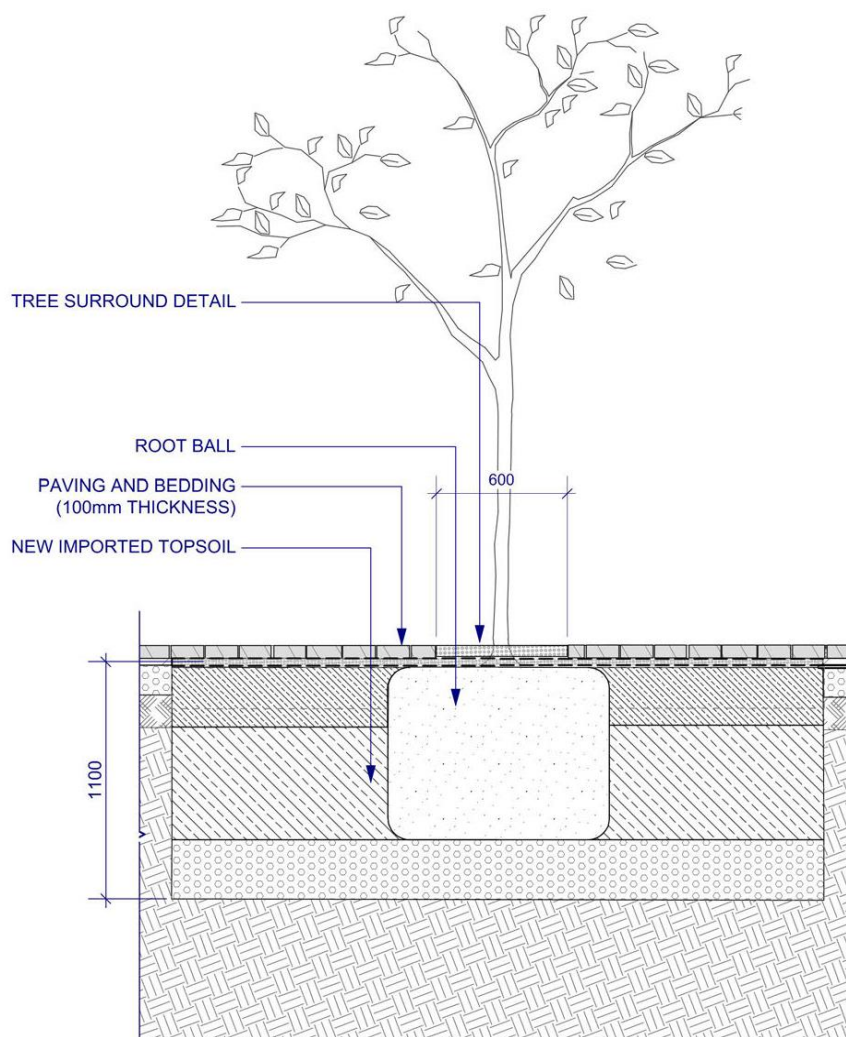
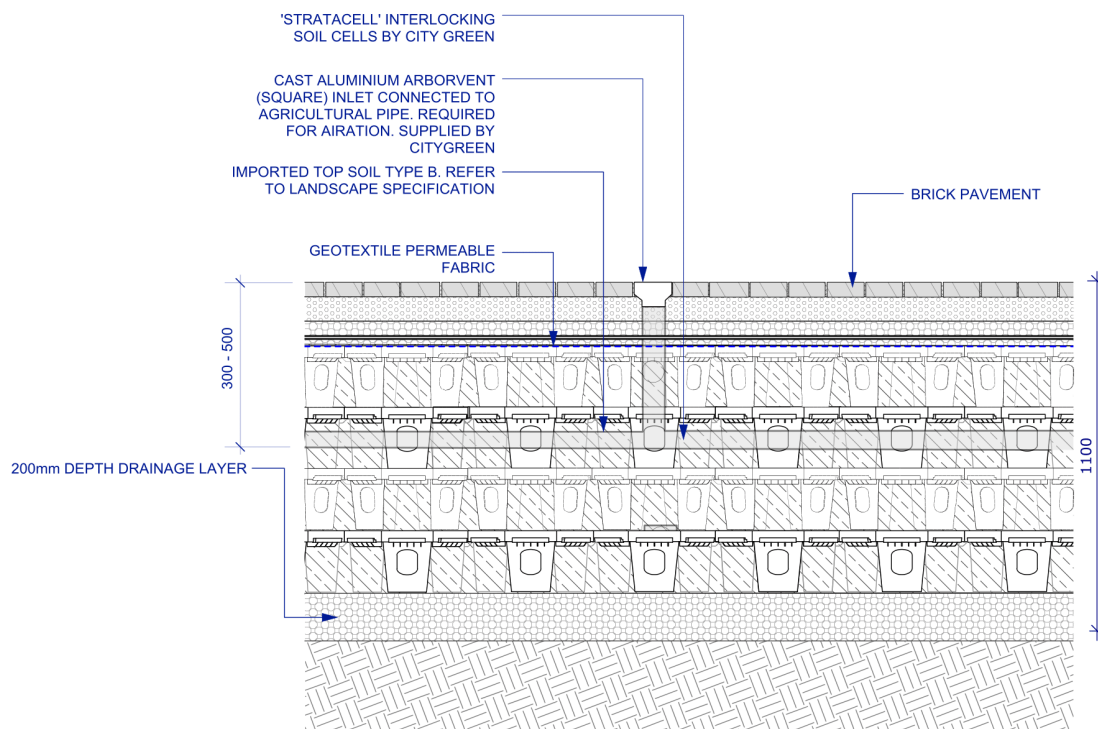


Figure 6.9: Details of the proposed Strata Cell and Tree Pits for Darling Square Precinct, Aspect Studios.

6.1.3 Services

A series of service trenches are proposed to be excavated across the study area ((Figure 6.10, Figure 6.11, Figure 6.12, Figure 6.13). The widths and depths of these services will be in accordance with the relevant authority requirements and general practice for services installation noting that there are several proposed services located in Little Hay Street that will cross the State-significant dam wall. These services include:

- Proposed Power conduits (including lighting).
- Proposed CCTV communications conduits.
- Proposed temporary electrical culvert.
- Proposed stormwater drainage pipe.

General services installation cover in a non-trafficable area (such as Little Hay Street) requires minimum 0.45m cover, however this depth will vary for gravity services such as sewer and stormwater. Where the services cross above the dam wall the depths will be between RL 3.6m and RL 2.1m above the top of the c.1815 dam wall (Figure 6.13). There is also a proposed sewer line running east-west across the northern edge of the study area and a rainwater tank in Darling Square. These services will not impact below RL 2.0m in the vicinity of the dam wall and based on the current design will not impact on the dam wall.

Design to date on the stormwater and sewer shown on Figure 6.12 and Figure 6.13 indicates that they will be 1m wide and excavated to a depth of approximately RL 1.5m, which will impact on archaeology which is found from RL 2m.

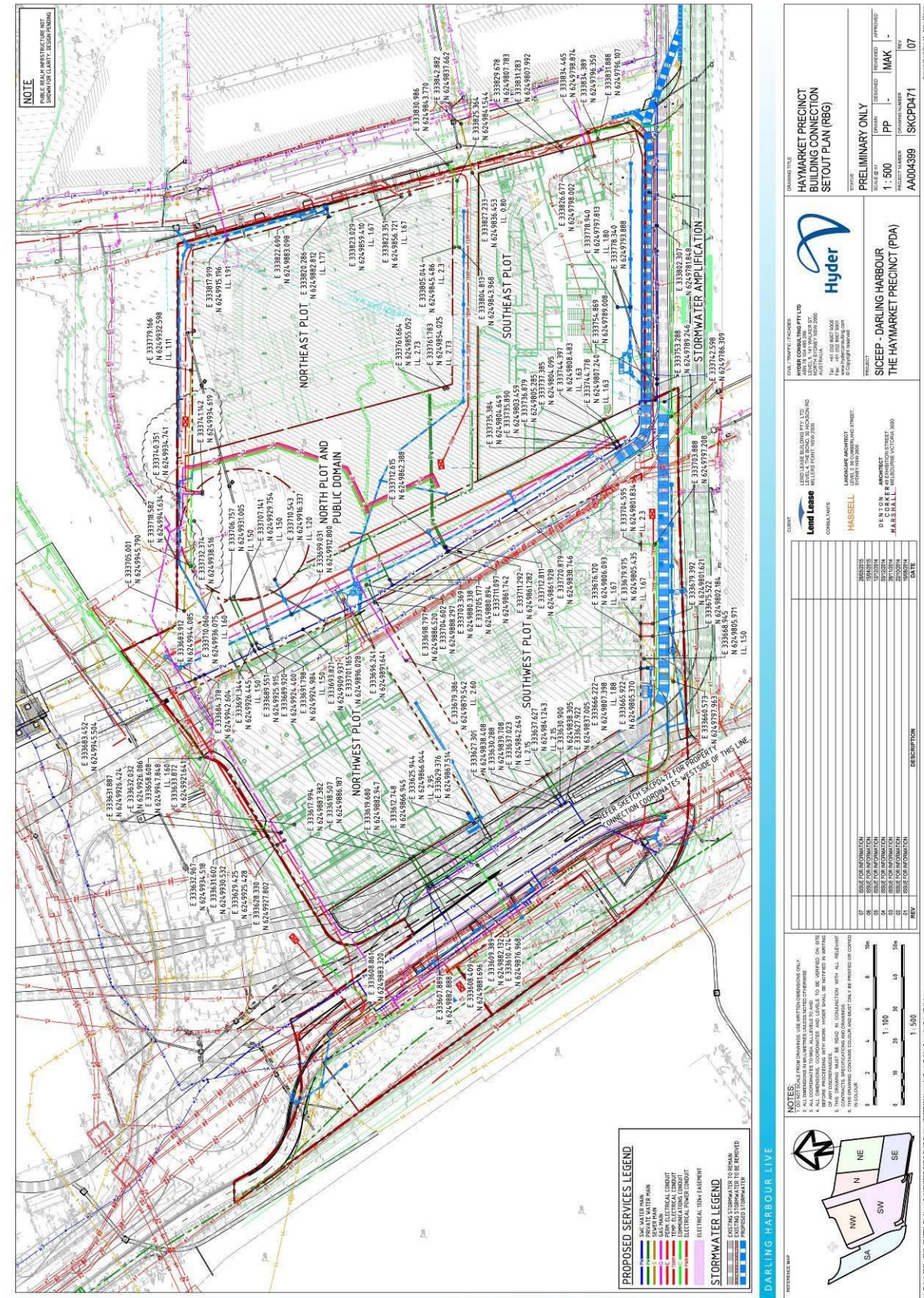


Figure 6.10: Preliminary Building Connection Set out Plan, Hyder/Lend Lease, North Plot and Darling Square.



Figure 6.12: Plan/Section showing utilities crossing dam wall and the location of the rain water tank with two differently sized options. Section 2 (Darling Square) is reproduced in detail below. Hyder, SKCPD661/P3

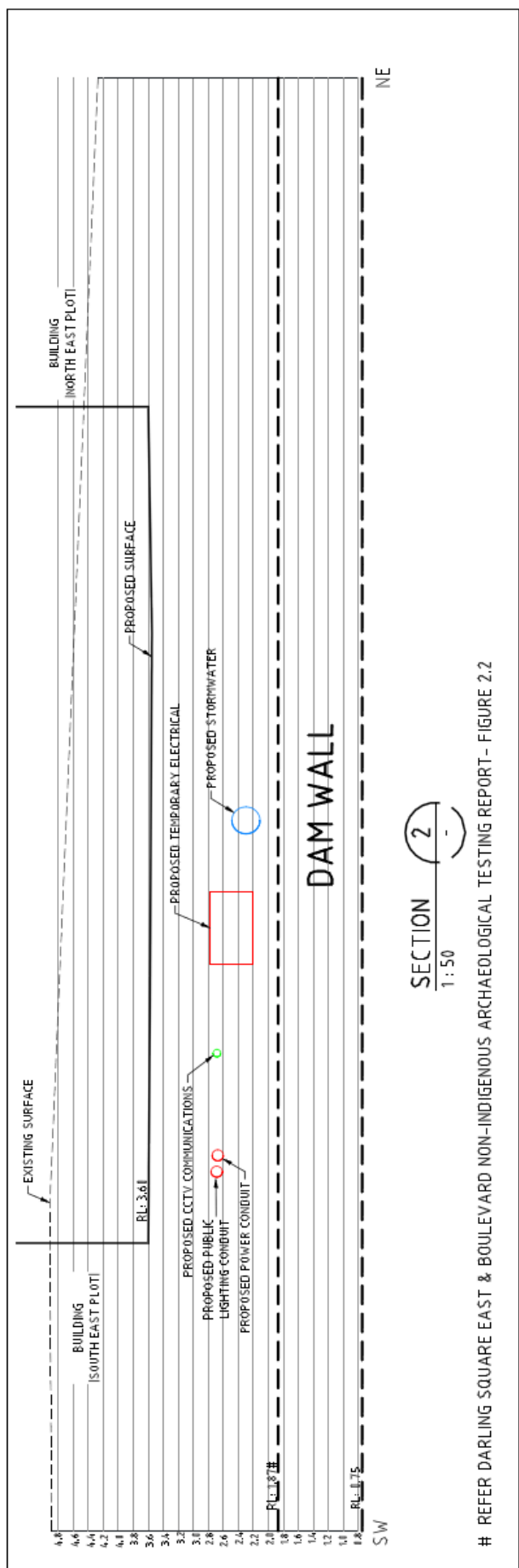


Figure 6.13: Detail showing the proposed services crossing the dam wall within Darling Square. These trenches are all above RL 2.0m and will not impact on the dam wall. Hyder, SKCPD661/P3

6.2 Impacts outlined in the Concept Approval Reporting - Archaeological Assessment

The 2013 Archaeological Assessment, to which this report is attached, identified the following impacts:

6.2.1 Demolition

The proposed design involves demolition of existing buildings and other improvements including ground slabs, pavements, capping beams, pile caps and in-ground services (where required to facilitate the proposed development scheme) but retention of existing services, piles and other former remnant below ground structures where the development scheme permits. The current RL on the slab for the Sydney Entertainment Centre is RL 3.4m. The removal of the ground slab will reduce this RL.

There is some potential for impacts during the demolition stage, principally through impacts on the upper levels of archaeology, ground vibration and other disturbances. These disturbances need to be carefully managed to limit impacts on archaeological resources. It is considered that establishment of appropriate protocols, such a vibration monitoring, can mitigate some impacts to within acceptable levels (Refer PSM 2013).

6.2.2 Flood Mitigation of Darling Square

In the areas surrounding the new buildings there is a requirement for regrading for flood mitigation purposes. It is expected that RLs on the archaeology will vary across this area between RL 2.3m to RL 2.6m in the eastern and central areas and will rise again towards the west, meaning that the likely RLs on the upper levels of the potential archaeology across the area may fall between RL 2m and RL 2.4m. Therefore there is some potential for impacts on the State-significant archaeology of Dickson's Mill. There is also potential for impacts within the proposed Boulevard on the locally-significant archaeology of Biddell Bros confectionery factory and some of the later stores buildings. Some works may require excavation to greater than 3m in depth in specific locations commensurate with infrastructure services works.

6.2.3 Landscaping of Darling Square

While initially it was proposed to heavily landscape the northern part of the site, in the vicinity of Dickson's Mill, this is now no longer part of the proposed development scheme. The excavation of holes for trees, however, can impact on the potential archaeology. Generally, planting within The Boulevard is expected within the former Lackey Street. Where the Boulevard is aligned to the former Lackey Street there are no issues, other than impacts on 1860s reclamation. There is some potential for impacts for post-1880 buildings on the eastern side of former Lackey Street.

6.2.4 Darling Square (formerly Haymarket)

There is likely to be some impacts on the potential archaeological resource which is of local significance within this area from the proposed Haymarket/Darling Square. These impacts are from reduced RLs and landscaping or planting that requires ground penetrations. Any proposed impacts on potential archaeology may require a mixture of archaeological testing, monitoring or open-area excavation.

6.2.5 North Building

There is likely to be some impacts by the proposed development on the potential archaeological resource of the Biddell Bros confectionery factory which is predicted to be of local significance. Any proposed impacts on the potential archaeology may require a mixture of archaeological testing, monitoring or open-area excavation.

6.3 Analysis of Impacts on Potential Archaeological Remains

The following section outlines the current proposed impacts and these are similar to those addressed in the 2013 assessment. It is acknowledged that this Impact Statement is addressing a more detailed design than in 2013 but that there will be a further detailed design for the subject area at a subsequent stage. There is certainty in relation to the location of impacts in relation to the State significant c.1815 dam wall. In relation to impacts on the archaeology of local significance there may be some minor shift in location of piles but there is unlikely to be a substantial shift in the location of the lifts and stairs.

6.3.1 Approach to Analysis of Proposed Impacts on Heritage Significance

Individual piles are not considered to be a major issue as they have an isolated impact on archaeology. The main issues are where there are a concentration of proposed impacts such as the areas of lifts where there are pits, deeper slabs, piles and rain water tank. As the proposed impacts are mostly single piles located in historic roadways or yards, the archaeology of the site will survive into the future. Where the proposed impacts are concentrated, then the archaeology in these locations will be destroyed and/or not be accessible into the future. The overall approach to this project, as outlined in the Archaeological Assessment, is that most of the archaeology of this site will be retained *in situ* beneath the developments into the future and therefore the proposed development of greater Darling Square has a significant conservation outcome. Also, many of the proposed individual piles are within historic roadways which have little archaeological potential and no heritage significance (Figure 6.14, Figure 6.16).

6.3.2 Impacts of the Proposed Works

Demolition of the SEC building is not expected to have an impact on the surviving archaeology of the site. Construction of the piled raft will require piling across the North Plot and Darling Square, with extensive piling and deeper excavation for lift and stairwells, which have the potential to impact on archaeological remains (Figure 6.2, Figure 6.3, Figure 6.10, Figure 6.12, Figure 6.14, Figure 6.15). The specifics of these impacts are:

- The general piled ground slab will included 14 piles with 1200mm diameter (P1) and 12 piles with 600mm diameter (P2) (Figure 6.2).
- Total of 18 piles with a diameter of 900mm (P3).
- Two lift pits with dimensions of 5.5 x 3m and underside RL of 1.4m.
- One lift pit with dimensions of 2.2 x 2.2m and underside RL of 1.4m.
- The fire pump room and the rest of the core will have an underside RL of 2.0m.
- Several new service trenches which cross the line of the dam wall to be installed between RL 3.7m to RL 2.0m.
- Possible grease arrestor, on the east side of the North Plot: approximate dimensions of 8m x 4m and 2.5m deep.
- Rainwater tank: may between 5m x 5m or 10m x 10m. The base of this will be at approximately RL 0.6m.and therefore it will impact on any underlying archaeology.
- Stormwater pits: no accurate dimensions or locations for these items is currently available.

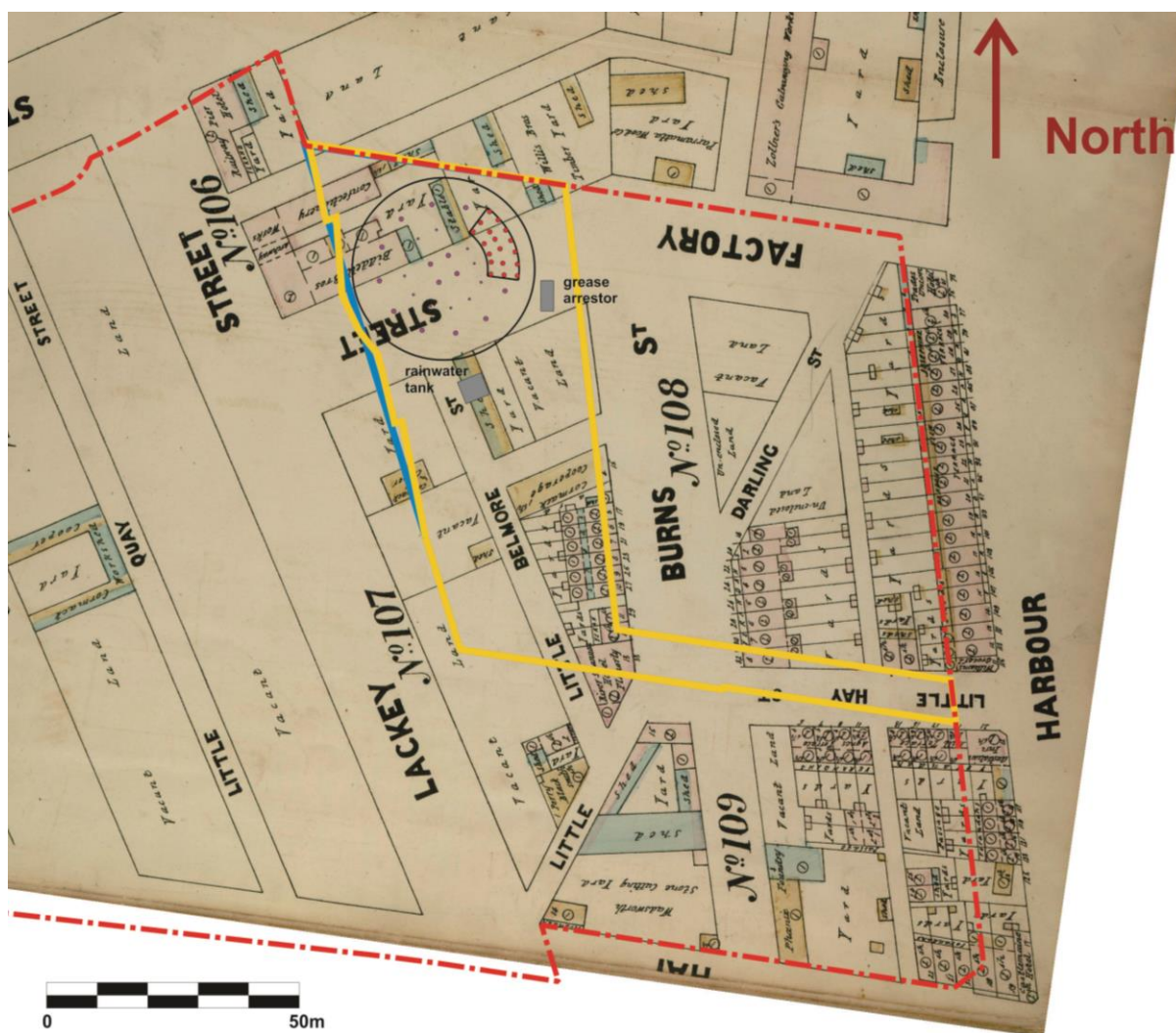


Figure 6.14: Overlay of the location of piles and deeper excavation in the North Plot and Darling Square (outlined in yellow) in relation to the potential archaeology shown on Dove's 1880 plan. The piles of the piled ground slab are shown in pink. The lift pits, stair wells and concentration of piles in the piled core are in red piled area. The grease arrestor and possible water tank are shown in grey; the grease arrestor is to the east of the north plot and the possible water tank is to the south within Darling Square.

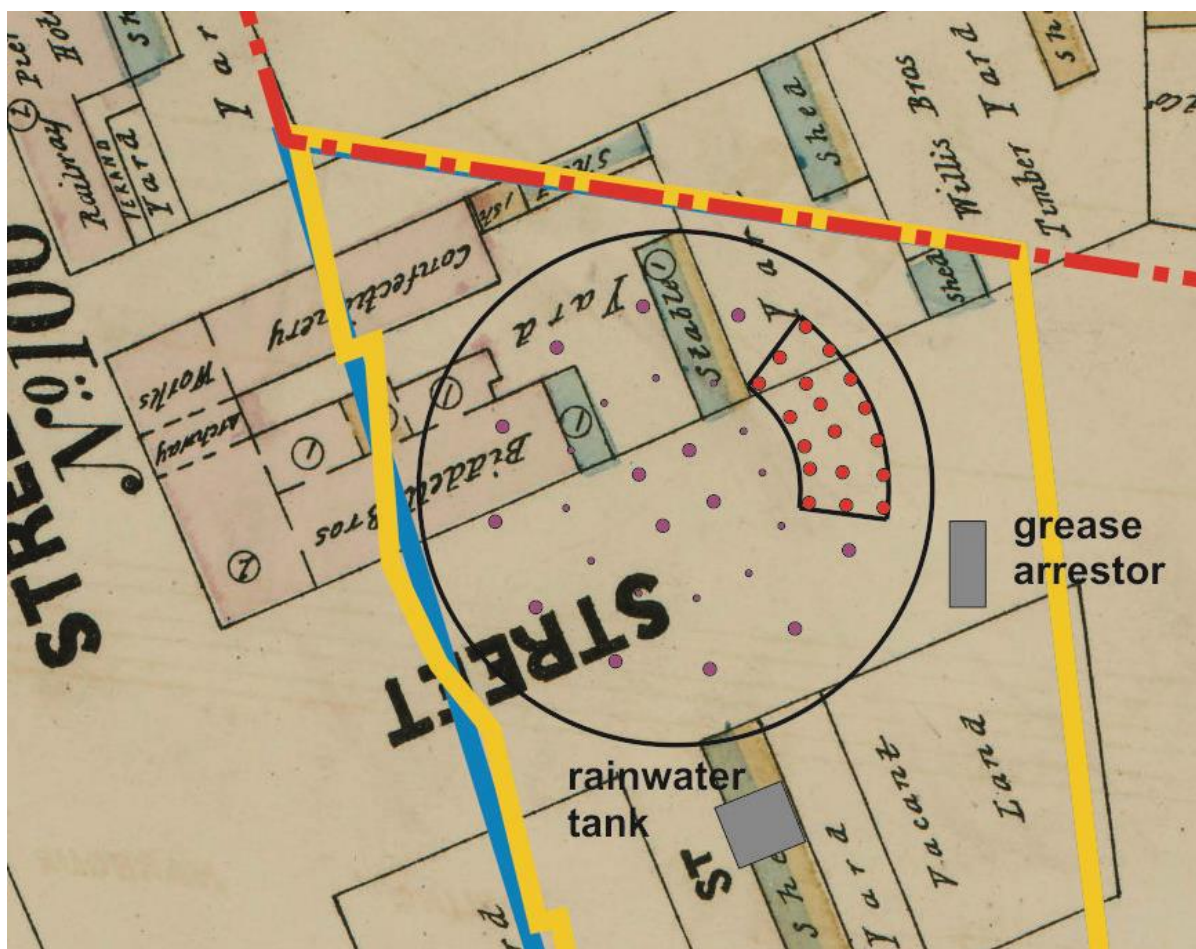


Figure 6.15: Detail showing the impacts from the North Plot piles (P1, P2) in pink. The piled lift core has red piles. The base plan is Dove 1880, showing the Biddell Bros Confectionery Works. Most of the impacts are within the historic roadway.

6.3.3 Impacts on Heritage Significance

The March 2013 *Non-Indigenous Archaeological Assessment and Impact Statement*³ for the site identified the following archaeological items within the footprint of the proposed works to be of State significance:

- Dickson's c.1815 dam wall

It is estimated that a section of Dickson's dam wall approximately 153.9m long lies within the Darling Square project area. It extended roughly from the junction of Quay Street and Hay Street to the junction of Harbour Street and Factory Street. Only a narrow strip of Darling Square crosses above the predicted line of the c.1815 dam wall (Figure 6.12, Figure 6.16). The potential remains of the dam extend beyond the boundaries of the North Plot and The Square (SSDA 10). The dam wall also crosses beneath the North East and South East plots which are the subject of separate DAs.

The following archaeological items within the footprint of the proposed works were assessed as being of local significance (Figure 6.16):

³ Casey & Lowe, *Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) Concept Plan, The Haymarket – SSDA2: Non-Indigenous Archaeological Assessment and Impact Statement*, Report to Lend Lease Development Pty Ltd, March 2013.

Table 6.1: Impacts on Heritage Significance, see Figure 6.14, Figure 6.15, Figure 6.16.

Proposed Impact	Impact on State Significance	Impact on Local Significance	Little impact on Significance	Impact on Heritage Significance	Mitigation
North Plot piles (P1, P2)	None	4 (P1) piles and 4 (P2) piles will impact the Biddell Bros Confectionery works building, yard and stables, and the yard.	Majority of impacts in this area are within the historic roadway which has little significance.	Minor in terms of the size of the site and the predicted survival of archaeology within Darling Square following completion of the redevelopment. More than half of the proposed piles are within former Factory Street which has no significant archaeology.	Impacts to be reviewed at Detail Design stage. If there are design changes then reassess impacts. To be included within the Archaeological Research Design & Management Strategy (ARD&MS).
Piled Core area and lift pits (P3)	None	The northern part of the piled core area (4 and possibly 5 piles and deeper excavation) will impact on yard areas associated with the Biddell Bros factory yard.	Concentration of piles (900mm) and slab at reduced levels (RL 1.4m) and disturbance in this area will likely remove archaeological remains. Most of the core is within the former Factory Street roadway which is not considered to be of local significance.	Minor in terms of the size of the site and the predicted survival of archaeology within Darling Square following completion of the redevelopment.	Archaeological stratigraphic recording of items of local significance as well as the reclamation within the footprint of this impact. Impacts to be reviewed at Detail Design stage. To be included within ARD&MS.
Possible Grease Arrestor	None	None (impact confined to Factory Street).		None	No mitigation required unless there is a design change and/or shift in location of the grease arrestor.
Planting & Landscaping, Darling Square	None	No current impact identified based on current design.	No or minor impacts from the proposed Darling Square works.	No or minor impacts.	Location of any deeper tree plantings, light poles etc (below RL 2.0m) should be reviewed at detailed design stage as may require localised mitigation.
Services	None	Some impacts from deeper service trenches likely, notably in the western area of one of the Cooperage sites. Northern sewer may		No impact to State significant dam wall.	Monitoring or recording of any new or existing service trenches below RL 2.0m. Impacts to be reviewed at Detail Design stage. To be included within the ARD&MS.

Proposed Impact	Impact on State Significance	Impact on Local Significance	Little impact on Significance	Impact on Heritage Significance	Mitigation
		impact on the Biddell Bros yards and buildings			
Rainwater Tank	None	Localised impact in eastern Cooperage site, down to 0.6m.		Minor	Impacts to be reviewed at Detail Design stage. To be included within the ARD&MS as impacts are below RL 2.0m, down to RL 0.6m.

7.0 Mitigation of Impacts

7.1 Mitigation of impacts on the c.1815 Dam Wall

Required mitigation is outlined in Table 6.1. There are currently no proposed impacts on the c.1815 dam wall from this proposal. This should be reviewed at the detailed design stage and during the writing of the Archaeological Research Design & Management Strategy. The suggested mitigation strategy is likely to include:

- No services are currently predicted to impact on the dam wall. The design of services should avoid impacts on the dam wall.
- Review the design of the impacts of any deeper plantings or landscaping (below RL 2.0m) in relation to the dam wall during detail design stage.
- Interpretation of the dam wall within the public domain.

7.2 Mitigation of impacts of mid to late 19th-century archaeology of local significance

The locations of piles are largely restricted to the historic roadways, with some limited impacts on buildings and yards (Table 6.1, Figure 6.15, Figure 6.16). It is noted that the current design will be refined and elements outside of service core, lift pits and stairs may shift during detail design stage. The suggested mitigation strategy includes:

- Review all piles at detail design stage and reassess predicted impacts, particularly the location of any deeper plantings or installations in the Darling Square.
- Review services design and identify further archaeological requirements.
- Write an Archaeological Research Design & Mitigation Strategy which includes:
 - Identification of areas where archaeological mitigation is required, to include Archaeological excavation and recording of the northern section of the services core where it falls within an area of local significance.
 - Identify an archaeological methodology and research questions in accordance with Heritage Council guidelines.
 - Record where necessary the archaeology of the stormwater and sewerage lines which may be impacted by the works.
 - Archaeological recording in accordance with best practice standards.
- Interpretation of the Biddell Bros Confectionery and cooperage within the public domain and interpretation of archaeology of the Darling Square generally.

7.3 Archaeological Excavation and Monitoring

The standard mitigation strategies for impacts on significant potential archaeological remains are to undertake archaeological recording and interpretation of the archaeological remains. The focus of archaeological recording is on larger areas of concentrated impacts such as the service core, the piled wall where it is adjacent to deeper impacts, and deeper services. The majority of the piles and southern two-thirds of the perimeter wall will have a minor impact on historic roadways and will not require further archaeological work.

At detail design stage, an Historical Archaeological Research Design and Management Strategy will need to be written outlining the archaeological recording strategy within the North Plot and Darling Square. This will address managing impacts on potential archaeology of State and local significance. This is the main mitigation strategy for the proposed impacts in this area.

7.4 Public Interpretation

As part of the Conditions of Consent for this project Lend Lease is required to include interpretation of the archaeology within its Heritage Interpretation Strategy. Public interpretation should provide opportunities for opportunities to express the mixed history of the site, with early steam technology, land forming, residential and commercial occupants living side by side and the changes to residents with an influx of Chinese residents in the late 19th century. The TKD Heritage Interpretation Strategy has outlined a process for developing an Interpretation Plan for Darling Square. While there is no surviving Aboriginal archaeology within Darling Square Aboriginal archaeological has been found along the foreshore of Darling Harbour and relates to Aboriginal peoples use of shell fish resources. It should be included within the Interpretation Plan.

8.0 Results, Mitigation and Recommendations

8.1 Results

8.1.1 Archaeology of Local and State Significance

- The general study area was associated with the very beginnings of steam technology in Australia with the introduction of Dickson's 1815 steam mill and the construction of a c.1815 dam wall for his mill pond at the head of Cockle Bay.
- Reclamation and subdivision of Dickson's Mill Estate, to the east of the dam wall, between 1855 and 1857, saw the initial residential and commercial development of the study area.
- Most of the current study area is to the west of the dam wall and is within the land reclaimed by c.1865 and which by 1880 included houses and the River Shannon hotel.
- Throughout the late 1880s/1890s, a variety of industrial manufactories and workshops were active throughout the area, including three locations associated with a cooperage.

8.1.2 Impacts on State Significance

- The proposed design includes services crossing the c.1815 dam wall but these will not have any impact below RL 2.0m and therefore will not impact on the State significant dam wall.

8.1.3 Impacts on Local Significance

- Majority of impacts are above RL 2.0m and therefore are unlikely to have an impact on archaeology of local significance.
- Areas with impacts below RL 2.0m or locations of concentrated impacts are on 1870s/1880s/1890s businesses and manufactories:
 - Biddell Bros Confectionery Factory and stables
 - Willis Bros Timber Yard
 - Cooperage site (three locations either side of Little Belmore Street)
 - River Shannon Hotel
 - Rowlands Aerated Waterworks and stables.

8.2 Mitigation

8.2.1 State Significance

The current design within the study area does not impact on the c.1815 dam wall and therefore no mitigation is required. This should be reviewed at detailed design stage and impacts reassessed. During detail design stage, the impacts of the services in relation to the dam wall may be reduced but cannot be increased.

8.2.2 Local Significance

The main mitigation strategy to manage impacts on significant archaeological remains is to undertake archaeological excavation and recording prior to any proposed substantial impacts which will remove the resource or make it difficult to record in the future. The focus of archaeological mitigation is proposed to be where there are concentrations of impacts on potential remains or where there are extensive services below RL 2.0m:

- Archaeological excavation and recording of the northern section of the services core where it falls within areas of local significance.
- Archaeological recording of archaeology within stormwater and sewerage lines.
- Archaeological recording in accordance with best practice standards.

8.2.3 Public Interpretation

Undertake interpretation of the archaeology within Darling Square as part of the overall Interpretation Strategy for this precinct. Key items to include the Dickson's dam wall and steam

mill, the Biddell Bros factory, the cooperage, reclamation of Darling Harbour and residential housing and the people who lived here, including Chinese residents.

8.3 Aboriginal Archaeology

The study area is completely within reclaimed land within former Darling Harbour and therefore has no potential for Aboriginal archaeology. All testing and salvage for Aboriginal archaeology within Darling Square has been completed. The Aboriginal Archaeological Assessment by Comber Consultants identifies that this area contains no potential for Aboriginal objects.

8.4 Recommendations

1. The identified mitigation strategies should be incorporated into the Archaeological Research Design & Management Strategy required to guide any archaeological fieldwork, after appropriate consultation with the SHFA and Heritage Division archaeologists.
2. No further impacts should be proposed to the c.1815 dam wall than those already identified.
3. Review all impacts at detail design stage and reassess impacts.
4. Where there are potentially significant impacts to archaeological remain, either local or State, archaeological salvage and recording will need to be undertaken in accordance with Heritage Council and Heritage Division guidelines and best practice methodologies.
5. No further Aboriginal archaeology is required to be undertaken within Darling Square (formerly The Haymarket). The only remnant original foreshore within the project area is within the western parts of the development. All Aboriginal archaeological testing/salvage proposed for Darling Square has been completed.
6. Write an Archaeological Research Design & Management Strategy to refine assessment of impacts, identify appropriate archaeological strategies and methodologies, and research questions to guide the archaeological program. This is to be informed by the detailed design.
7. SHFA will need to provide a repository for artefacts following the completion of the archaeological program.
8. Public interpretation of archaeology of State and local significance should be undertaken within the proposed redevelopment. This may include a mixture of opportunities for:
 - Exposure of surviving archaeology within the redevelopment and acknowledging the environmental constraints of such projects.
 - Interpretation of artefacts through site display.
 - Interpretation of the results of the archaeology program throughout the precinct.
 - Interpretation of the buried archaeological landscape underneath Darling Square which will remain subsequent to the development. This should include: Dickson's dam wall, mill pond and steam mill, Biddell Bros factory, the cooperage, reclamation of Darling Harbour and residential housing which includes workers and families in adjoining factories and the large population of Chinese residents and businesses.
9. Where archaeological recording is undertaken within the North Plot and Darling Square the results of this will need to be included within an excavation report. It will be necessary to write an excavation report in accordance with Heritage Council guidelines and standard conditions of consent following the completion of archaeological investigations. This is to include:
 - detailed trench or area reports
 - overall excavation report
 - catalogue of artefacts and artefact reports
 - conservation of important artefacts
 - response to research questions

- photo archive.
10. Undertake consultation with SHFA and Heritage Division archaeologists about the site's archaeological issues, approaches to *in situ* retention of the State-significant archaeology, and the Archaeological Research Design and Management Strategy.

9.0 Bibliography

9.1 Secondary Sources

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