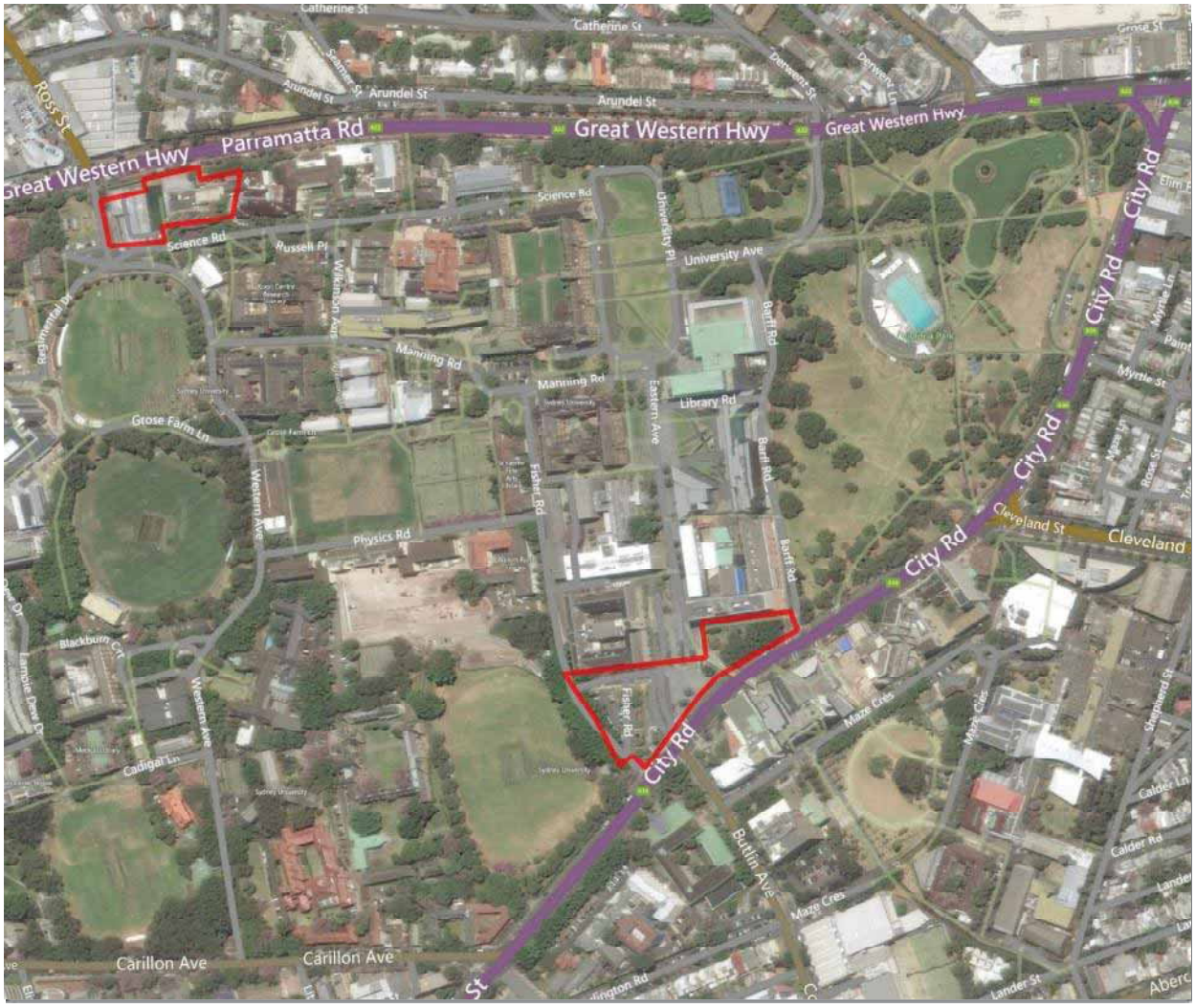
GML HERITAGE

University of Sydney Buildings, City of Sydney LGA

Aboriginal Heritage Due Diligence Report

Report prepared for The University of Sydney

September 2015



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Report Register

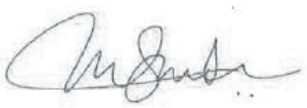
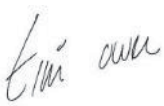
The following report register documents the development and issue of the report entitled University of Sydney Buildings—Aboriginal Due Diligence Report, undertaken by GML Heritage Pty Ltd in accordance with its quality management system.

Job No.	Issue No.	Notes/Description	Issue Date
15-0344	1	Draft Report—for client review	16 July 2015
15-0344	2	Draft Report—for Aboriginal community review	29 July 2015
15-0344	3	Draft Report—for Aboriginal community review	31 July 2015
15-0344	4	Final Report—finalised for the Aboriginal community	1 September 2015

Quality Assurance

GML Heritage Pty Ltd operates under a quality management system which has been certified as complying with the Australian/New Zealand Standard for quality management systems AS/NZS ISO 9001:2008.

The report has been reviewed and approved for issue in accordance with the GML quality assurance policy and procedures.

Project Manager:	Shezani Nasoordeen	**Project Director & Reviewer:**	Tim Owen
Issue No.	4	**Issue No.**	4
Signature		**Signature**	
Position:	Consultant	**Position:**	Senior Associate
Date:	1 September 2015	**Date:**	1 September 2015

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1.0 Introduction

1.1 Description of the Study Area and Context

GML Heritage Pty Ltd (GML) has been engaged by the University of Sydney to prepare a Due Diligence Aboriginal Heritage Report for the proposed Faculty of Arts and Sciences Building or FASS (A02), Administration Building (F23), and Carslaw Extension (F07) at the University of Sydney Camperdown Campus (the study area) (Figures 1.1 to 1.3).

The report has been prepared for three State Significant Development (SSD) applications (SSD7081, SSD7054 and SSD7055) which will be assessed by the Director General of Planning under Part 4 of the *Environmental Planning and Assessment Act 1979.* The purpose of this report is to identify whether the study area possesses or has the potential to possess Aboriginal heritage sites, places, objects and/or values, in accordance with the Office of Environment and Heritage (OEH) guidelines for due diligence. In addition to Aboriginal due diligence, this report also records the process of Aboriginal community consultation required by the Director-General State Environmental Assessment Requirements (DGEARs). As such, this due diligence report will be provided to the Aboriginal community consultation to comply with Stage 2 of the OEH guidelines and to comply with the DGEARs.

The assessment groups the three SSD projects as two distinct sites: SSD7081—the Life Science Precinct, Faculty of Arts and Sciences Building; and SSD7054 and SSD7055—the Eastern Avenue Precinct, Administration Building and Carslaw Extension (Figure 1.1).

The recommendations and management for the Eastern Avenue Precinct apply to both SSD7054 and SSD7055 applications, due to the similarity in the nature of impacts due to their proximity. Instances where local impacts or future management recommendations apply to a specific SSD project are specified.

Table 1.1 List of SSD Applications for the Study Area.

State Significant Development number	Building Name	Building Code	Grouping of SSD sites in this report
SSD7081	Faculty of Arts and Sciences	A02	FASS
SSD7054	Carslaw Extension LEES1	F07	Eastern Avenue Precinct
SSD7055	Administration Building	F23	Eastern Avenue Precinct

This report does not provide a significance assessment of any Aboriginal sites, places and/or values. Recommendations are provided as to whether further Aboriginal heritage assessment and management will be necessary.

This report was prepared by Shezani Nasoordeen, GML Consultant, and Dr Nadia Iacono, GML Consultant, with input and review by Dr Tim Owen, GML Senior Specialist Aboriginal Heritage.

1.2 NSW Legislation Relevant to Aboriginal Heritage

In NSW Aboriginal heritage is principally protected under two Acts:

- the *National Parks and Wildlife Act 1974* (NPW Act 1974); and

- the *Environmental Planning and Assessment Act 1979* (EPA Act 1979).

1.2.1 National Parks and Wildlife Act 1974

All Aboriginal cultural material receives statutory protection under the NPW Act. If Aboriginal cultural material is found, the OEH must be informed under Section 89A of the Act.

New offences relating to the harm to, or desecration of, an Aboriginal object or declared Aboriginal Place were introduced with the NPW Amendment (Aboriginal Objects and Places) Regulation 2010 on 1 October 2010. The definition of 'harm' now includes to destroy, deface, damage or move an Aboriginal object or declared Aboriginal Place. The OEH has stated:

> *The most significant change is the introduction of tiered offences and penalties. Offences committed with knowledge, in aggravating circumstances or in relation to an Aboriginal Place will attract higher penalties than previously. There is a new strict liability offence of harming Aboriginal objects and of harming or desecrating Aboriginal Places.*[1]

The strict liability offence of harming Aboriginal objects has a number of defences. The defence relevant to this project is the statutory defence of due diligence through:

- compliance with an adopted industry code of practice(see due diligence below); or
- compliance with the conditions of an Aboriginal Heritage Impact Permit (AHIP).

1.2.2 Environmental Planning and Assessment Act 1979

The EPA Act provides a statutory framework for the determination of development proposals. It provides for the identification, protection and management of heritage items through inclusion in schedules to planning instruments such as State Environmental Planning Policy (SEPP) and the *Environment and Assessment Regulation Act 2000*. The schedules sometimes require that appropriate measures are taken for the management of any potential archaeological resource by means consistent with practices and standards adopted to meet the requirements of the NPW Act.

Part 4 Division 4.1 of the EPA Act outlines the instrument of planning surrounding SSD. State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) declares certain development to be SSD. Schedules 1 and 2 of the SRD SEPP list general classes of SSD and identified SSD sites which are subject to the SSD provisions of the Act, unless the development is permitted without development consent.

The proposed Faculty of Arts and Sciences (A02), Administration Building (F23) and Carslaw Extension (F07) have been declared SSD under this SEPP and are subject to development approval under Section 78A (8A) of the EPA and Schedule 2 of the Environmental Planning and Assessment Regulation 2000. That is:

- The application is to be accompanied by an environmental impact statement (EIS) prepared by or on behalf of the applicant in the form prescribed by the regulations.
- Before preparing an EIS the responsible person must make a written application to the Director-General for the environmental assessment requirements (3.1).
- The responsible person must ensure that an EIS complies with any environmental assessment requirements that have been provided in writing to the person in accordance with this clause. (Part 3 Clause 8)

The DGEARs for SSD7054, SSD7055 and SSD7081 are as follows:

10. Aboriginal Heritage

- *All Aboriginal cultural heritage values that exist within the development site shall be identified, described and documented. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting Aboriginal Cultural Heritage in NSW (DECCW [sic OEH], 2011) and in consultation with OEH officers.*
- *Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented.*
- *Where relevant, impacts on Aboriginal cultural heritage values are to be assessed and documented. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.* [2]

As such, SSD approval has confirmed that the provisions of the NPW Act, including the need for a Section 90 AHIP, do not apply to the current work.

In order to provide the University of Sydney with the best practice standard for NSW Aboriginal heritage works, this due diligence report provides an assessment of Aboriginal archaeological (scientific) sites connected to the study area. As the project DGEARs require an understanding of potential social values, the report has been provided to the registered Aboriginal parties (RAPs) for review and comment. The RAPs have been asked to identify whether the project location is associated with any possible tangible or intangible Aboriginal heritage values.

The project has adhered to the OEH Aboriginal community consultation requirements for proponents[3] and the OEH's *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* [4] (the Code) as a base methodology. It is also in line with those guidelines recommended by the DGEARs. As such, all Aboriginal community consultation documented in this report follows Stages 1 through 3 of the OEH Aboriginal Community Consultation process[5].

1.3 Approach to Aboriginal Heritage Management

In order to administer the NPW Act and EPA Act, the OEH has issued a series of best practice guidelines and policies. The applicability of these depends upon the approval mechanism for a project. The current project will be assessed and granted approval under Part 4 of the EPA Act. Therefore the approach to the preparation of this document was based on the following current best practice guidelines:

- Department of Planning (DoP) Director General's Requirements (DGR's) (SSD7081 SSD7054 and SSD7055);
- DECC 2009, *Operational Policy: Protecting Aboriginal Cultural Heritage*;
- DECCW 2010, *Aboriginal cultural heritage consultation requirements for proponents 2010. Part 6 National Parks and Wildlife Act 1974* (Aboriginal Cultural Heritage Consultation Requirements);
- DECCW 2010, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Due Diligence Code of Practice);

- the Code*; and*
- the *Australia ICOMOS Burra Charter, 2013* (the Burra Charter).

1.4 Due Diligence Approach

The Due Diligence Code of Practice is designed to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects, and/or Aboriginal places, and to determine whether they should apply for consent. As the project is an SSD, the mechanism of requiring an AHIP does not apply. However, the project must comply with the DGEARs.

The Due Diligence Code of Practice sets out the reasonable and practicable steps which individuals and organisations need to take in order to:

- identify whether or not Aboriginal objects are, or are likely to be, present in an area;
- determine whether or not their activities are likely to harm Aboriginal objects (if present); and
- determine whether further investigation under Part 4 of the EPA Act is required to assess the environmental impact, avoidance or mitigative strategies for impact to Aboriginal cultural heritage values.

The OEH has defined due diligence thus:

> *Due diligence is a legal concept describing a standard of care. Exercising due diligence means turning your mind to the likely risks of your proposed course of action. It is not enough to perform activities carefully. Due diligence requires consideration of your obligations under, in this case, the NPW Act, and the consideration and adoption of a course of action that is directed towards preventing a breach of the Act.*
>
> *In the context of protecting Aboriginal cultural heritage, due diligence involves taking reasonable and practicable measures to determine whether your actions will harm an Aboriginal object and if so avoiding that harm.*[6]

The steps that are required to follow the due diligence process are:

- a search of the Aboriginal Heritage Information Management System (AHIMS);
- a check for landscape features which may indicate the presence of Aboriginal objects;
- development of strategies to avoid harming Aboriginal objects; and
- a desktop assessment and visual inspection to confirm the presence of Aboriginal objects.[7]

In preparing this report, GML complied with the guidelines set out in the Due Diligence Code of Practice. The extent of land covered by the due diligence process is described as the study area, see below. In addition to this, Aboriginal community consultation is to be undertaken to identify the intangible Aboriginal cultural heritage values to satisfy the DGEARs.

In preparing this report, GML complied with the guidelines set out in the Due Diligence Code of Practice and the Aboriginal Cultural Heritage Consultation Requirements.

1.5 Description of the Study Area and Context

The land subject to this due diligence assessment is located within two separate precincts on the University of Sydney campus (Figure 1.1).

The first is located at the southern end of Eastern Avenue, adjacent to the City Road entrance, on the University of Sydney's Camperdown Campus (Figure 1.2). The proposed City Road Administrative Building (F23) and Carslaw Extension (F07) are located within the City of Sydney Local Government Area (LGA). F07 is proposed to have one level below Eastern Avenue. This level will open onto Barff Road (which borders Victoria Park), and is similar to the existing Carslaw Building. The site currently occupies a driveway and open space area. F23 is likely to have two below-ground floors, requiring excavation up to 8m deep.

The second area of land subject to this due diligence assessment, the proposed FASS site, is located within the eastern portion of the Life Sciences Precinct facing north onto Parramatta Road (Figure 1.3).

1.6 Due Diligence Process

In accordance with Step 1 of the Due Diligence Code of Practice it is identified that the proposed activity will disturb the ground surface of the study area. Therefore the following due diligence steps are presented in this report:

Step 2a—AHIMS database search;

Step 2b—the identification of landscape features that indicate the presence of Aboriginal objects;

Step 3—discussion with respect to the extent of the development footprint;

Step 4—desktop assessment and visual inspection; and

Step 5—further investigation and impact assessment.

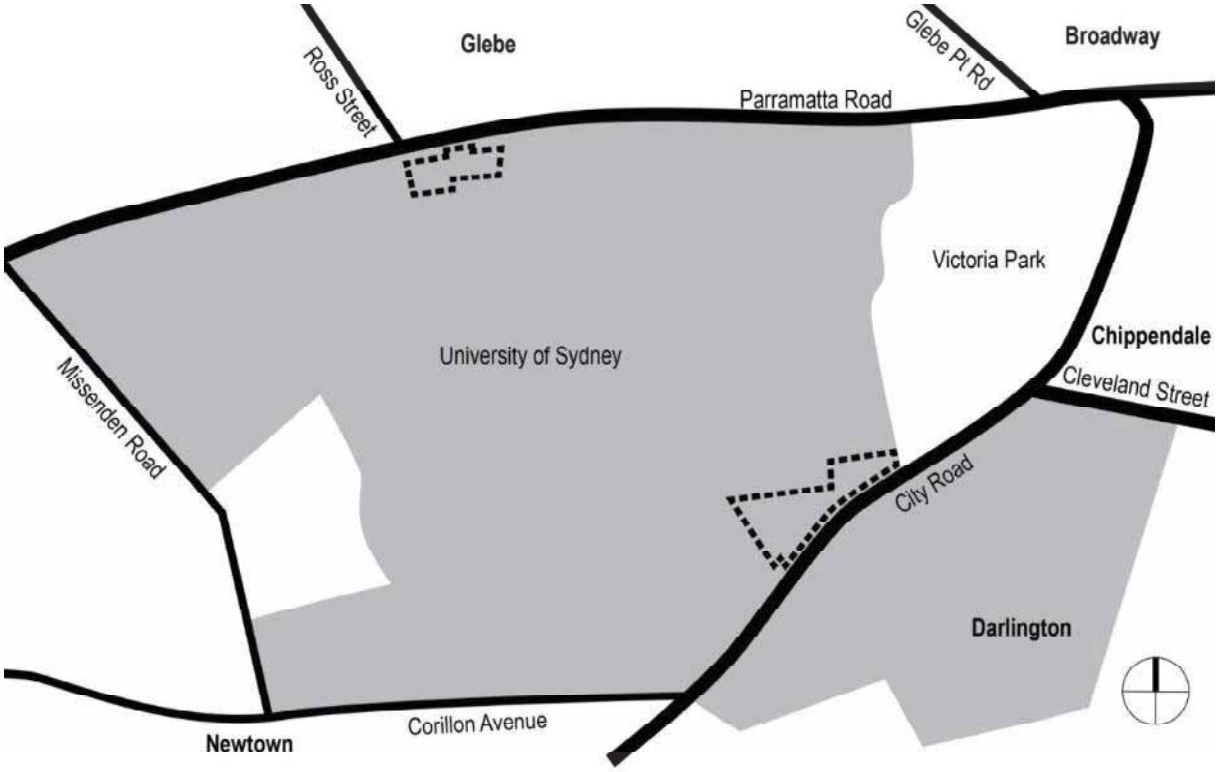

Figure 1.1 Location of study area, showing the two precincts subject to assessment. (Source: GML 2015)

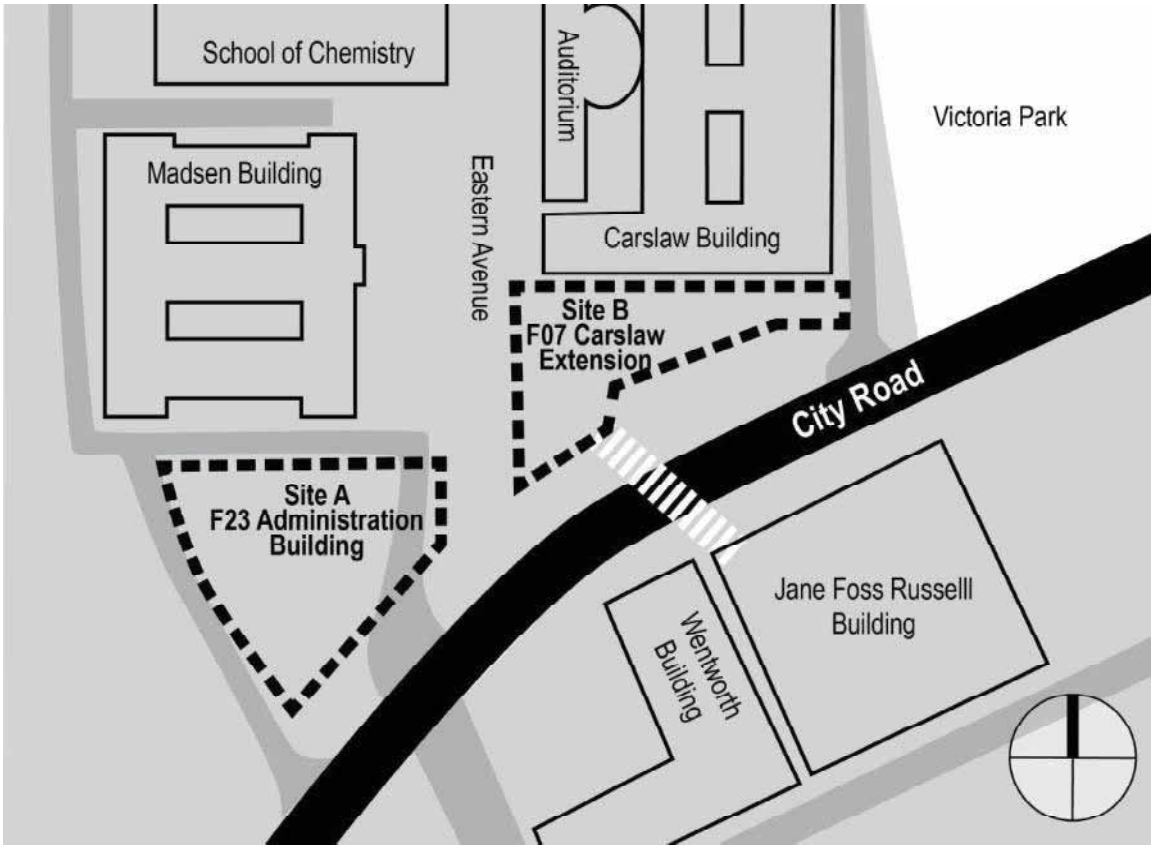

Figure 1.2 Proposed Administration Building (F23) and Carslaw Extension (F07). (Source: GML 2015)

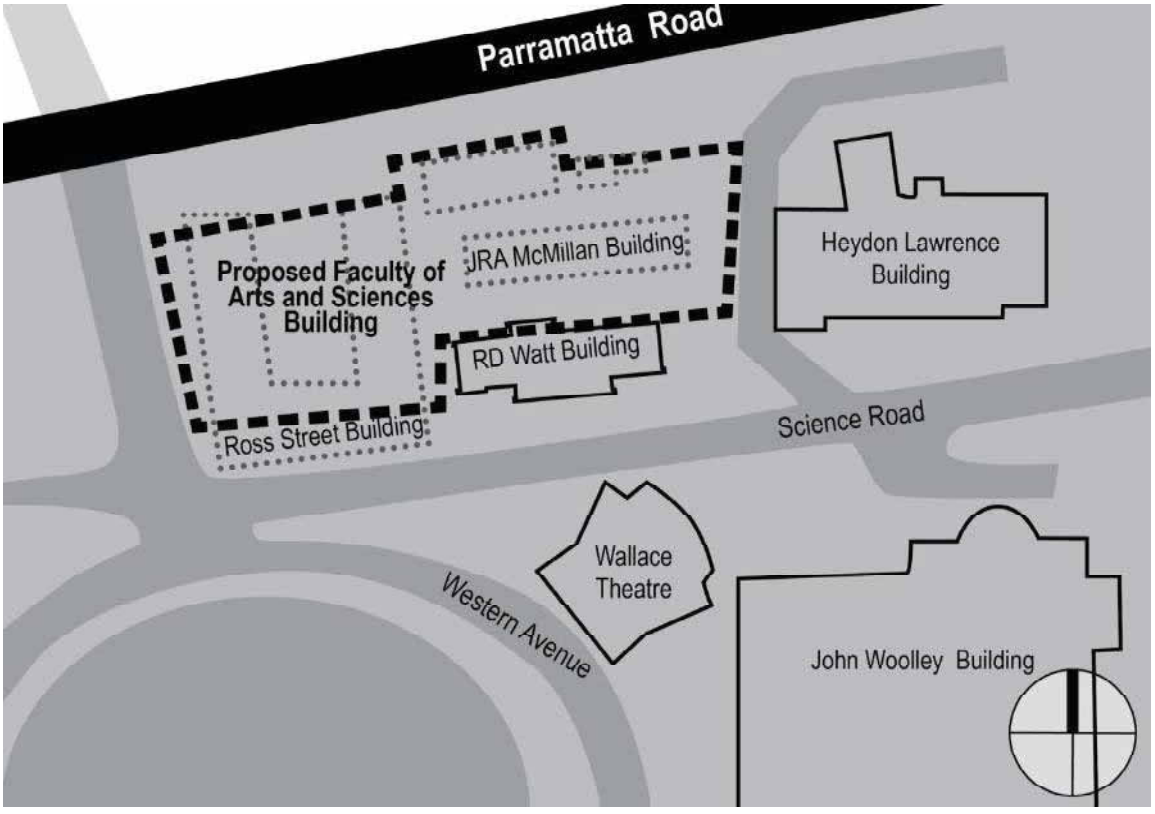

Figure 1.3 Proposed Faculty of Arts and Sciences development (A02). (Source: GML 2015)

2.0 AHIMS and Environment Context

2.1 AHIMS Search

A search of the OEH AHIMS database for an area between Latitudes -33.8965, 151.1726 to -33.8768, 151.2039 with a buffer of 50m surrounding the study area was undertaken on 19 June 2015. This search covered the University of Sydney and the surrounding area, including the footprint of all three of the SSD application areas. The results of the search are shown in Table 2.1.

The search identified 13 recorded Aboriginal sites comprising: one Aboriginal Resource and Gathering Place (the Tent Embassy #45-6-2767 which is not an archaeological site but recognises that this location outside of the study area is of cultural significance to Aboriginal people), one rock shelter and art site, three stone artefact scatters, one midden with artefacts and seven Potential Archaeological Deposits (PADs), one PAD contained a single identified artefact (Figure 2.1). Sites #45-6-3071 and #45-6-3064 were found to be duplication in AHIMS of the same site in 2014.[8] Thus in total there are six PADs.

There were no registered Aboriginal sites inside or immediately adjacent to the study areas.

Table 2.1 Results of AHIMS Search.

Site Feature	Frequency
Aboriginal Resource and Gathering	1
Rock shelter with Art (Pigment or Engraved)	1
Stone Artefacts (Open Camp Sites)	3
Midden + Artefact	1
Potential Archaeological Deposit (PAD)	7 (including one PAD + Artefact Site)

The most commonly recorded sites are PADs, followed by stone artefact scatters with some representation of shell midden in the area. In particular, sites 45-6-2629 and 45-6-2676 both identify the presence of shell midden in the site card details.[9] The frequency of sites in general in this area is low, most likely owing to the intensive nature of development and historical modification in the area.

The general patterning of Aboriginal sites in the local area shows a strong association with the Gymea soils in areas where terrain is already intensively disturbed by development. The general patterning of Aboriginal sites in the local vicinity shows a strong association with the line of the former Blackwattle Creek and Swamp, and in general with lower elevations associated with waterways. The localised impact to the area will be analysed in greater detail in this section.

2.2 The Local Landscape Context

The purpose of this section is to provide environmental contextual information for use in developing a predictive model of Aboriginal site locations associated with the study area.[10] Interactions between people and their surroundings are of integral importance in both the initial formation and the subsequent preservation of the archaeological record. The nature and availability of resources including water, flora and fauna and suitable raw materials for the manufacture of stone tools and other

items had (and continues to have) a significant influence over the way in which people utilise the landscape.

Alterations to the natural environment also impact upon the preservation and integrity of any cultural materials that may have been deposited whilst current vegetation and erosional regimes affect the visibility and detectability of Aboriginal sites and objects. For these reasons, it is essential to consider the environmental context as a component of any heritage assessment.

2.2.1 Geology

The study area is located on the Wianamatta Group Geology Unit consisting of Ashfield and Bringelly Shales, and is occasionally underlain by Hawkesbury Sandstone.[11] Outcrops of Hawkesbury Sandstone have been identified in the northeast corner of Victoria Park.[12] The University Grounds lie on a thin capping of Wianamatta Shales.

As no sandstone outcrops have been identified within the study areas, this precludes the possibility for them to contain Aboriginal cultural features such as rock shelters with engravings and/or paintings or grinding grooves.[13]

Silcrete outcrops have been identified in Newtown, to the south of the university and may form part of a tertiary palaeochannel.[14] Other stone raw materials documented in the region have yielded a range of stone raw material including tuff, chert, quartz, quartzite and basalt.[15]

2.2.2 Landforms and Landscape Features

The study area is located on a large ridgeline, which runs along City Road and through the university grounds, under the quadrangle building, and toward Blackwattle Bay. The ridgeline is generally low, approximately 30m in elevations, and 50m at its highest.

The general area around the University of Sydney consists of gently undulating rises of low relief with rounded hills of between 10–30m. The current study area is located on a rise in the natural topography, known as Petersham Hill, which slopes southeast towards the first-order tributaries of the Blackwattle Creek catchment. The former Blackwattle Creek once originated in a swampy area (which is now the site of the Old Darlington School) and flowed towards Victoria Park, through Ultimo and emptied into Blackwattle Bay (see Figure 2.2). These first and second-order tributaries have since been covered over by development across the study area. GML 2013[16] identifies that the major landforms adjacent to the current study areas include:

- the rise at 50m above sea level located north of building locations F23 and F07 where the quadrangle currently sits;
- the ridgeline which follows the alignment of City Road—also at a 50m elevation; and
- the former infilled and low lying areas surrounding the former creek lines, now modified.

These three landforms would have influenced Aboriginal occupation and use of the immediate area of the university grounds—they are a part of a major ridgeline which runs along King Street that is likely to have been Aboriginal traveling route[17], and may have continued along City Road down towards Blackwattle Bay. The Quadrant midden site (AHIMS #45-6-2629—located approximately a kilometre northeast of the site) is known to have contained species which would have been available from Blackwattle and Rozelle Bays.

2.2.3 Soils

The study area is located on the Blacktown soil landscape which is characterised by a friable brownish black to reddish brown loamy topsoil overlying hard setting clays, and is generally less than 1m deep. The Blacktown soil landscape is part of the Wianamatta Group consisting of Ashfield and Bringelly Shales, and is occasionally underlain by Hawkesbury Sandstone (Figure 2.3). The soils are characterised as poorly drained, and part of the wider residual landforms of the Blacktown soils. Residual soils often have well-developed soil profiles and are stable.

Previous excavations within the current study area have demonstrated that a remnant Blacktown A soil horizon has been preserved under fill relating to the European settlement of Sydney.[18] However, this A soil horizon was shown to be highly disturbed by historical land use.[19] Geotechnical reports have provided the following geotechnical model for the area of the FASS building.[20]

Table 2.2 FASS Geotechnical Site Assessment Model. (Source: Coffey Geotechnics Pty Ltd, 2015)

Geotechnical Unit	Description	Indicative Thickness
1a. Fill-Pavements	Fill pavements/foundations/retaining wall structures associated with the existing development, includes asphalt, concrete and brick[2]	Up to 0.2 m
1b. Fill	Fill associated with the existing development and stockpiled[2]	Up to 1.5 m
2. Residual Soil	Clay, high plasticity, very stiff to friable consistency	0.3 m to 2 m
3a and 3b. Bedrock - Class V and IV Shale[1]	Shale, extremely weathered grading to highly weathered and very low to low strength with some medium strength.	3 m to 5 m
3c. Bedrock - Class III or better Shale[1]	Shale, slightly weathered to fresh, medium to high strength.	-

Notes on Table 1:

1 Rock classified as sandstone in accordance with Pells et al (1998) "Foundations on Sandstone and Shale in the Sydney Region" Aust. Geomech. Jnl, Dec 1998.

2 The fill may not be one uniform layer, but possibly at discrete locations with different thicknesses. Fill is expected to be deeper behind the retaining walls. Fill is likely to be equal to or slightly greater than the height of the existing retaining walls.

Current known sites identified in the AHIMS search have predominately been found within the neighbouring Gymea soil landscape associated with the former Blackwattle Creek corridor. Deep alluvial sediments have been located along the former line of Blackwattle Creek; consequently, several locations are identified within AHIMS as sites of PAD.[21] The Gymea soil landscape is characterised by coarse sandy loam overlying clayey sands underlain by the Hawkesbury Sandstone formation. The single midden site identified approximately 700m to the southeast of the study area was located on the Tuggerah soil landscape, which is a Quaternary coastal dune system of fine to medium-grained sand.

2.2.4 Hydrology

The surrounds of the study area would have contained a number of freshwater swamps and creeks, perhaps with permanent water that would have facilitated Aboriginal occupation of this area. The main harbour, particularly Darling Harbour, Blackwattle Bay and Rozelle Bay, lie within a few kilometres of the university grounds and would have provided marine resources as well as estuarine resources at the mouth of permanent freshwater creeks in the area[22], such as Johnston's Creek, which is approximately 2km from the current study area (Figures 2.4 and 2.5).

The former Blackwattle Creek, a tidal watercourse, the source of which is in the vicinity of Erskineville Railway Station, followed the northern boundary of Eveleigh Carriage Works, along Edwards Lane, Smithers Street and Blackwattle Lane and flowed towards Victoria Park, through Ultimo and emptied into Blackwattle Bay.[23]

The Orphan School Creek is also noted in historical documents as once crossing through the northwest corner of the study area (Figure 2.4).[24] These first and second-order tributaries have since been covered over by development across the study area.

2.2.5 Fauna and Flora

Prior to clearing in the early nineteenth century, the study area would have been covered in tall open forest and woodland dominated by Sydney blue gum (*Eucalyptus saligna*) and blackbutt (*Eucalyptus pilularis*), ironbark eucalypts (eg *Eucalytpus crebra*) and grey box (*Eucalyptus moluccana*) with shrubbery including *Acacia*, *Dononea* and *Kennedia* species.

The terrestrial fauna of Sydney, exploited by Aboriginal people at the time of European settlement, is well documented and includes many species which are still present on the Cumberland Plain today. These include kangaroo and wallaby, wombat, echidna, possums, flying fox, emus and quolls. Historically, the area now occupied by the University of Sydney was called the 'Kanguroo Grounds', suggesting that this species was frequently available in the area.

The presence of the Blackwattle Creek and Swamp System within and around the current study area would have also provided a valuable economic resource for Aboriginal inhabitants of the area. A range of economic aquatic plants such as sedges from the *Epacridaceae* and *Cyperaceae* families, as well as bulrushes (*Typha*) which were exploited for their starchy and fibrous roots, were likely to have been found and used in this area.

The study area is located within 1km of Blackwattle Bay. However, this distance would have been even less prior to land reclamation, which has obscured potentially economically important mudflats in the bay. The bay and associated mudflats would have provided Aboriginal people with access to marine and estuarine resources such as fish, shellfish and other crustaceans.

Results of historical excavations from the nearby Quadrant Site (45-6-2629) indicate that several varieties of fish and shellfish were exploited by Aboriginal people. These included wrasses, leatherjackets, flathead, snapper, bream, Australian salmon, trevally, sharks, skates and rays, sea mullets, mulloway, rock cod and sea perch.[25] The Quadrant excavations resulted in the recovery of an unusually large sample of marine shells for an Australian historical site. Over 185 archaeological contexts produced approximately 19,000 fragments of shell weighing over 68kg and representing over 60 biological taxa.[26] The majority of these contexts date from the mid to late-nineteenth century.

2.2.6 Geomorphology

Current geomorphological activity within the study area is minimal due to the low relief as well as the degree of coverage by concrete, bitumen and/or turf. Prior to this, the modification and infilling of many of the creeks to flow out to Blackwattle Bay underground has caused channel erosion including sheet wash and colluvial movement of soil downslopes, particularly after forest clearing in the early-nineteenth century.

2.2.7 Land Use and Disturbance

The area occupied by the University of Sydney has undergone extensive clearing and development since European settlement (Figure 2.5). The following timeline presents a summary history of the land use and associated impacts across the current study area since 1788.

- 1790s—previously known at the 'Kanguroo Grounds', the study area was originally set aside as Crown Reserve before being subdivided into four lots.[27] Leases were granted to Lieutenant Governor Francis Grose, Captain Foveaux and Quartermaster Laycock; with the remaining land to the east preserved as Crown Reserve. During this time, the land was cleared for farming and grazing, with roads and a timber yard constructed (resulting in topsoil stripping and some erosion).

- 1800 to 1850s—over the next 50 years, the study area continued to be used for cultivation and grazing with a number of structures including convict stockades, farm buildings, gardens and dams being constructed. Johnston's Creek was channelised and the Johnston's Creek Stormwater Channel (SWC) was run through the northwest corner of the university grounds.[28]

- 1850s to 1900—during this period several university and school buildings, botanical gardens and recreation ovals were constructed across the site. On a Crown Plan dated 25 November 1886 the Carslaw Building and Administration study area is labelled 'University Paddock' (Figure 2.6). Residential housing and industry was developed in neighbouring Darlington with the construction of terrace housing and the Eveleigh railway workshops in the 1880s. Development at the university involved further disturbance of topsoil sediments due to landscaping, the demolition of existing structures and the insertion of footings and foundations of new buildings.

- 1900 to 1950s—Orphan School Creek flats in the northwest corner of the university were covered with 3–5m of fill using spoil from the construction of the city railway during the 1920s.[29] In 1910 Parramatta Road was widened, the university having given over a strip of land between Ross and Derwent Streets. At this time the Ross Street entrance and formal gates were constructed. The Federation style RD Watt building was completed in 1916 and has been in continuous use by the School of Agricultural since that date. During World War II, a number of air raid shelters were constructed across the open areas of the university grounds and Victoria Park, including one in the paddock beside the School of Agriculture (Figures 2.8 and 2.9). Approval was then given in 1946 for construction of the Ross Street Building, a two-storey U-shaped fibro building in that area—the veterinary physiology and biochemistry department (demolished in the 2010). Another 1945 aerial shows the City Road study area being used as open landscaped parkland (Figure 2.10).

- 1960 to present—the University of Sydney has continued to grow and much of the once open ground within the current study area has now been developed and redeveloped. A v-shaped building is visible in a 1969 aerial image on the proposed Administration Building site (Figure 2.11). (Further information about this building was unavailable at the time of reporting).

- The Life Sciences Precinct facing Parramatta Road currently includes a demountable village erected between 2012 and 2013 on the site of the earlier Ross Street building. In the 1950s members of the Botany Department planted a 20-40ft-wide strip of trees along the edge of Victoria Park near Eastern Avenue to provide specimens for botany classes. This was bulldozed in the 1960s to make way for the Carslaw Building and the only surviving remnant of those

plantings is a single Honey Myrtle. The Carslaw Building (F07) was constructed between 1960 and 1965 for the mathematics and science departments. The Carslaw Extension was completed in 1993.

Due to the long history of land use and development across the study area, it is clear that the majority of the natural ground surface has been subject to extensive disturbance due to cutting and filling activities associated with the ongoing development and redevelopment of the university and its grounds. As such, any Aboriginal sites within the study area are likely to have been affected in some way. Following JMcDCHM 2004[30], three general categories of land disturbance are used in this report:

- ***Heavily Disturbed***—*areas with constructed landforms, buildings and constructed surfaces, in particular areas which include late twentieth-century buildings and roads which generally involve significant earthmoving during construction; as well as grading, levelling, introduction of road base and installation of services such as water, power and sewerage. Archaeological evidence such as artefacts may be present here but it would not be possible to determine their origin or context. Many artefacts occurring in this zone may have been destroyed by these processes. This zone includes areas subject to construction, erosion and landscaping works, dams, drainage basins and graded tracks.*
- ***Moderately Disturbed***—*areas with natural landforms but with disturbed soils. Archaeological evidence such as artefacts may be present but may have been moved from their original locations. This zone includes areas which have been cultivated continuously and unformed vehicle tracks.*
- ***Lightly Disturbed***—*areas with natural landforms, which appear from current aerial photographs to be original land surfaces. Archaeological deposits may be present in fairly undisturbed physical condition. This zone includes areas that may have been cleared of timber, grazed or ploughed minimally.*

More specifically in the two locations where development is proposed, the history of past land use indicates that these areas have all three areas have been heavily disturbed. Section 3.2 provides a discussion of past archaeological investigations that further informs this conclusion.

2.3 Synopsis of the AHIMS Search and Landscape Context

This section summarises the results of the AHIMS search and desktop review of the landscape context, and provides an assessment of the likelihood for the presence of Aboriginal objects and/ or places for the footprint of all three SSD applications and the wider study area.

Based upon the AHIMS search, the current study area[31] does not contain recorded Aboriginal sites.

The assessment of the environmental context in which the study area is located suggests that Aboriginal sites and/or places were likely to have been located within the university campuses. Given the proximity of the general area to permanent freshwater resources at the former Blackwattle Creek and Swamp, the former Orphan School Creek, marine resources at Blackwattle Bay and silcrete outcrops in nearby Newtown, it is highly likely that Aboriginal inhabitants of the Sydney area regularly visited the general area that now comprises the University of Sydney campus. This area would have provided a wide range of valuable faunal, floral and lithic resources which are likely to have been exploited by Aboriginal people in the past.

However, extensive earth disturbing land use including farming, grazing, landscaping, filling, residential housing and multi-storey building development over the last 200 years (with reference to the specific areas that comprise this due diligence study) has significantly reduced any archaeological potential for the preservation of surface sites and/or subsurface archaeological deposits within the relatively shallow Blacktown soil landscape.

Overall, it may be stated that the study area does not contain previously recorded Aboriginal sites. While it is possible that some remnant soil profiles with the potential to contain Aboriginal objects could be preserved in small pockets across the study area, it is more likely that the historical land use has removed or redeposited and damaged most, if not all Aboriginal sites and/or objects from their original contexts, thereby reducing the research potential of such sites.

Therefore, the environment and historical context of the university indicates that all three study areas have low to no potential for the preservation of Aboriginal objects and/or undisturbed archaeological deposits below the current surface level.

2.3.1 Summary of Impacts to the Proposed Faculty of Arts and Sciences Study Area

This area is assessed to have no to low Aboriginal archaeological potential as a result of:

- early European farming, grazing and cultivation which has resulted in erosion and stripping of already shallow top soils;
- construction of Parramatta Road and its subsequent widening in 1910;
- ground disturbance for excavation of World War II air raid shelter trenches;
- terracing which has significantly modified the natural sloping landform[32];
- construction and demolition of various buildings on the site over time including the RD Watt Building (1916), the Ross Street Building (1946–2010) and the demountable village (built 2012–2013), the McMillan Building (1960-2012) and adjacent outbuildings (demolished 2012); and
- electrical substation building and a network of subsurface service lines.

2.3.2 Summary of Impacts to Proposed Carslaw Extension and Administration Building Area

This area is assessed to have no to low Aboriginal archaeological potential as a result of:

- early European farming, grazing and cultivation which has resulted in erosion and stripping of already shallow top soils; and
- clearance, construction and demolition of various buildings and ground surfaces on and around the site over time including the Carslaw Building (1965) and Extension (1993), the City Road footbridge, various phases of landscaping and pathway construction.

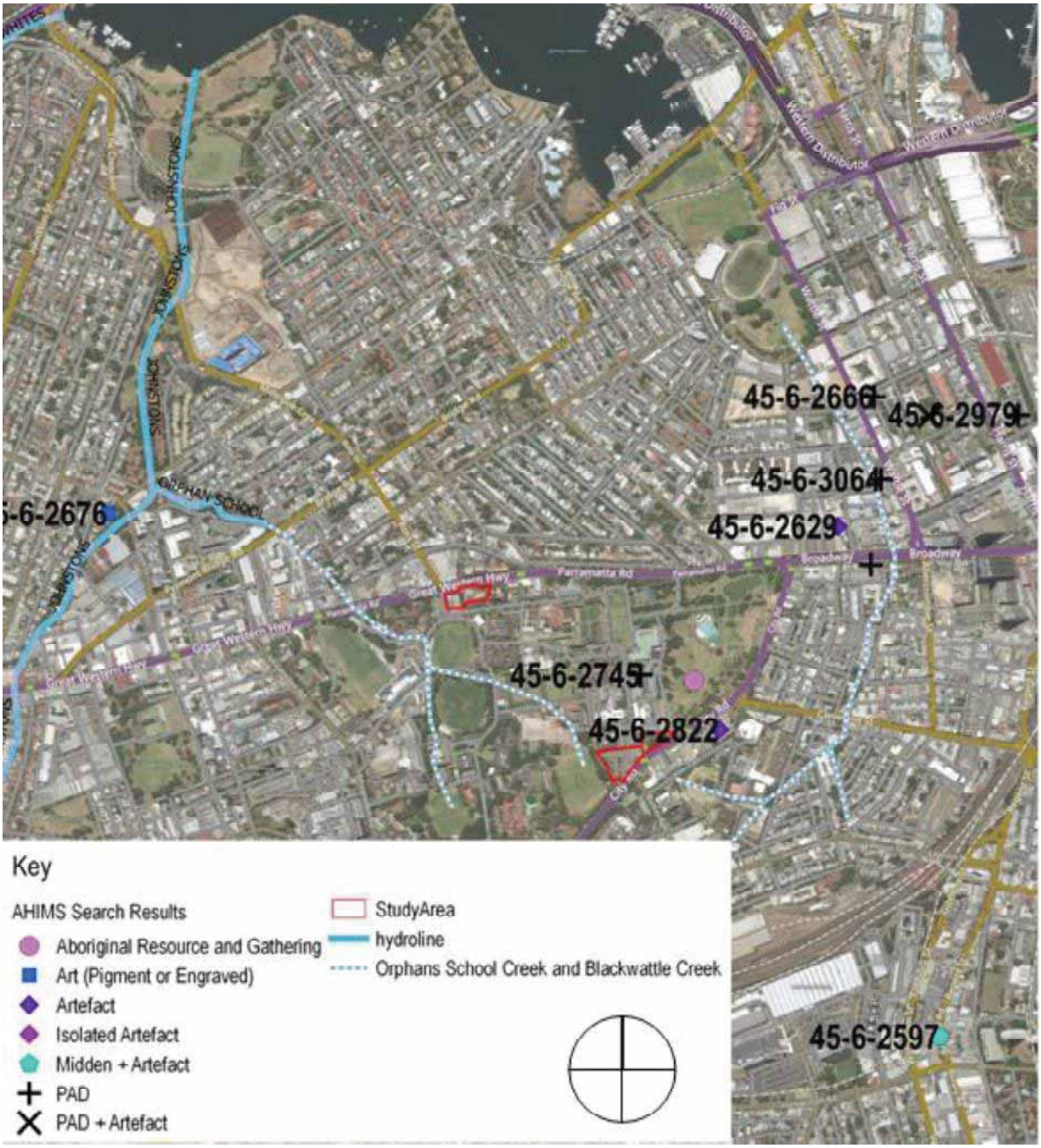

Figure 2.1 AHIMS Extensive Search Results. (Source GoogleMaps with GML Additions 2015)

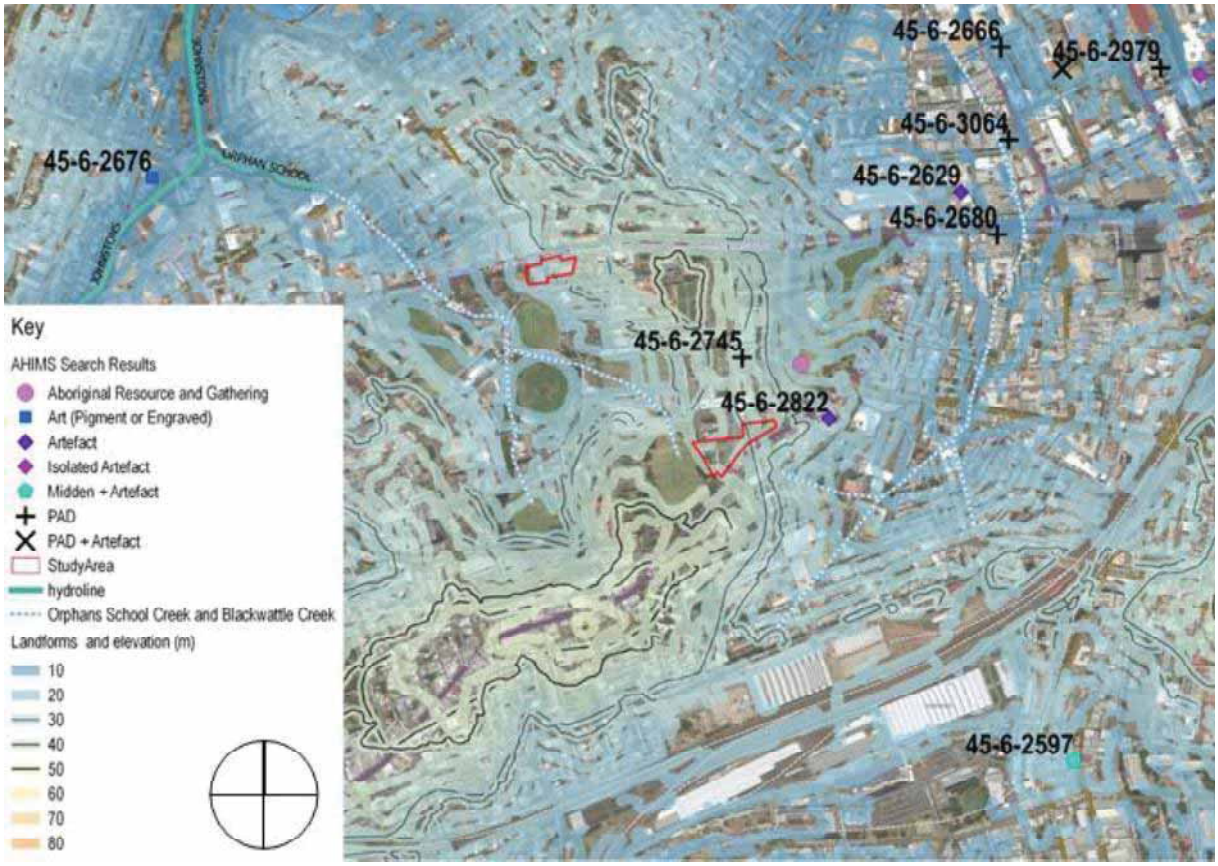

Figure 2.2 Topography and landform features. (Source Google maps with GML Additions 2015)

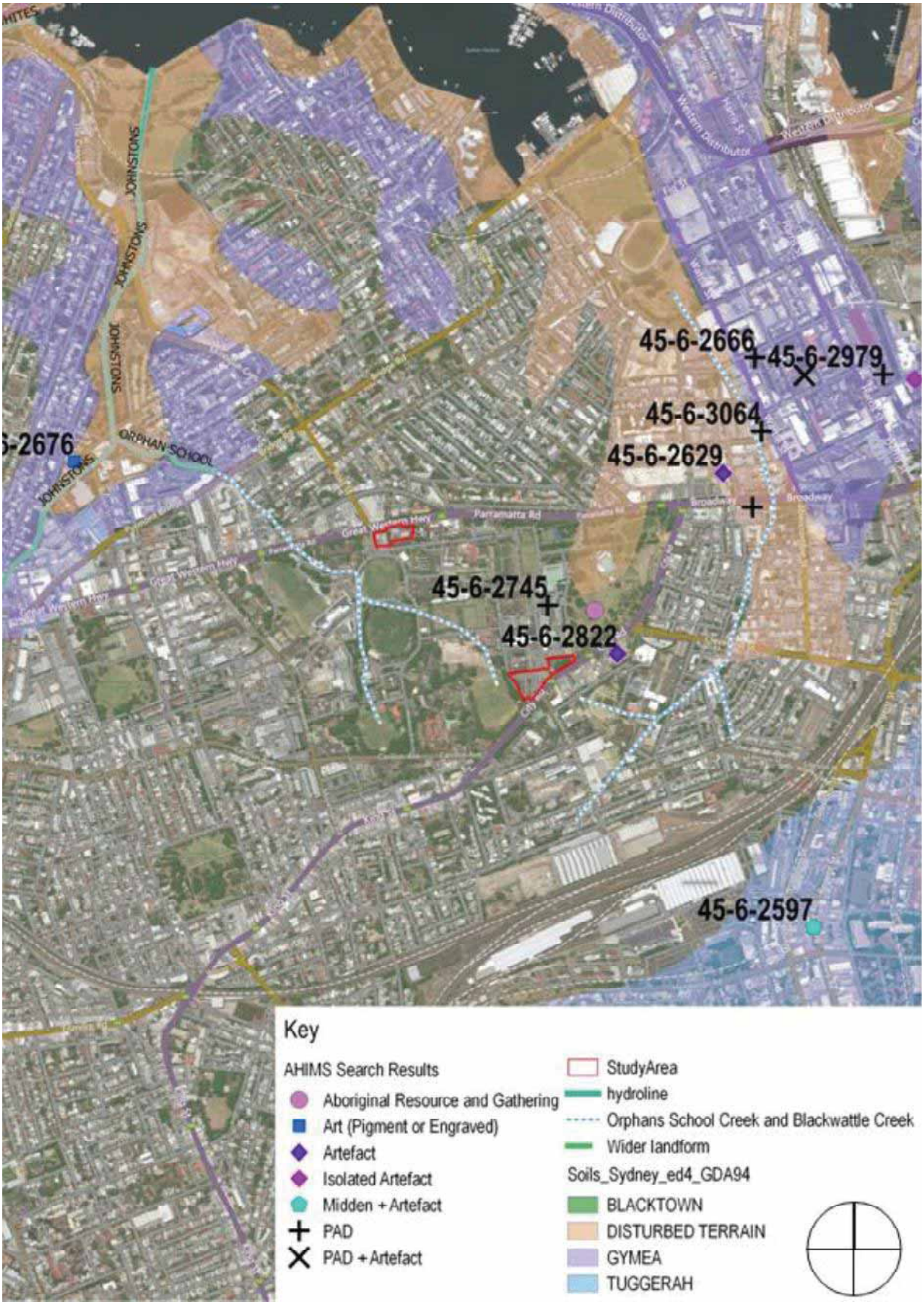

Figure 2.3 Soil Landscapes near the study area. (Source: GoogleMaps with GML Additions 2015)

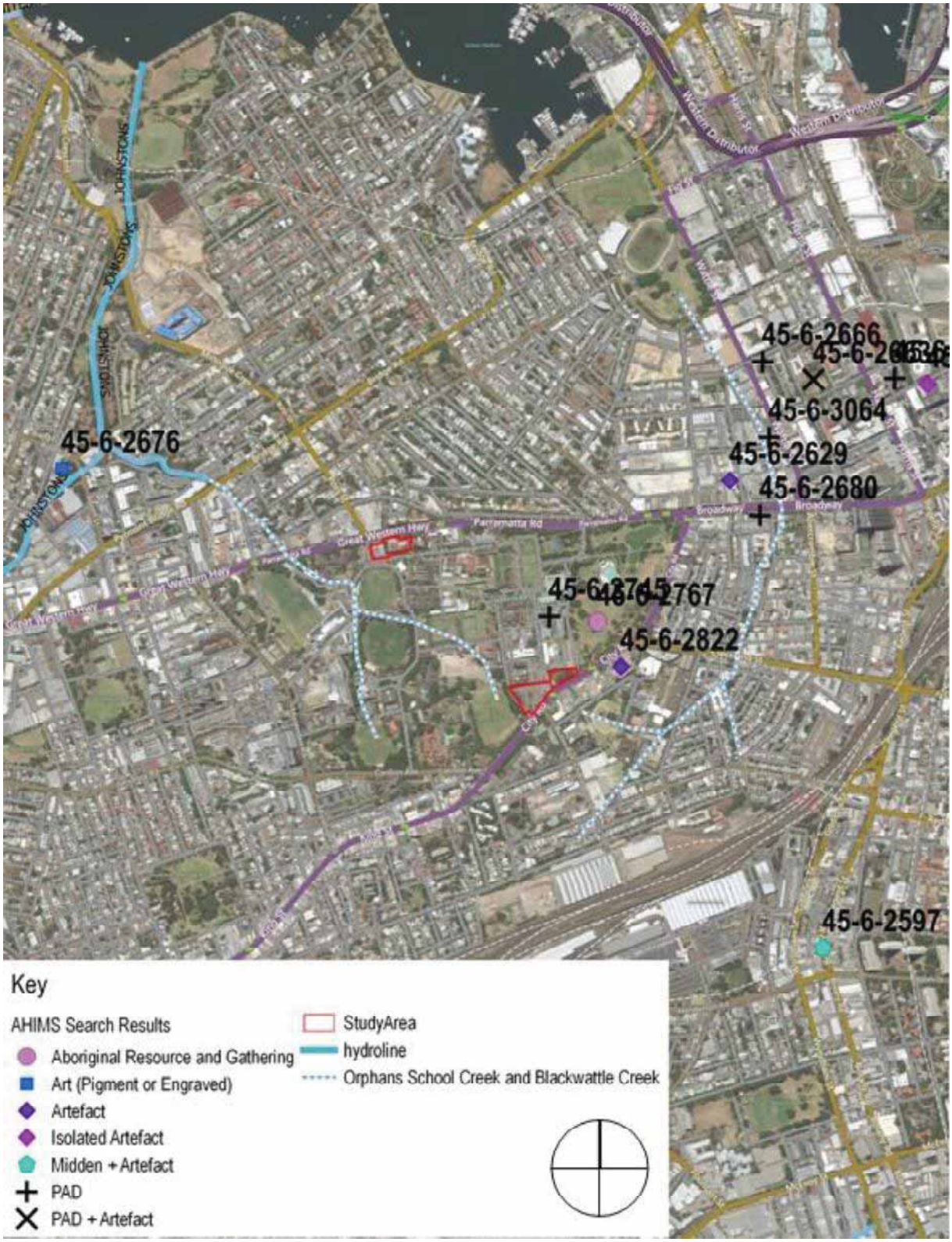

Figure 2.4 Hydrology of the study area. (Source: Google Maps with GML Additions 2015)

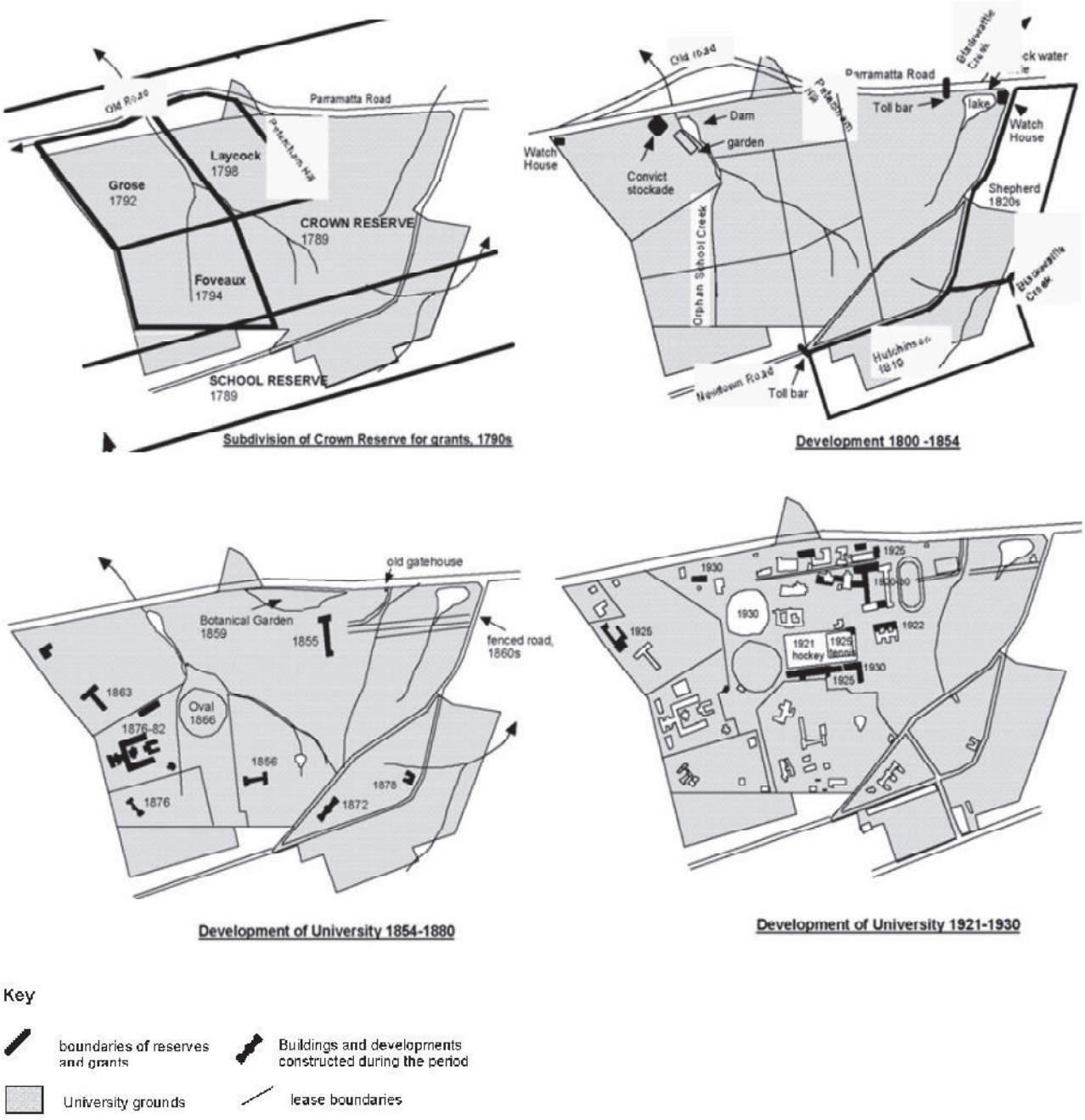

Figure 2.5 Plans showing development of the university grounds from the 1790s through to 1930, including original reserve and land grants. (Source: University of Sydney Grounds Conservation Plan—Chapter 2).

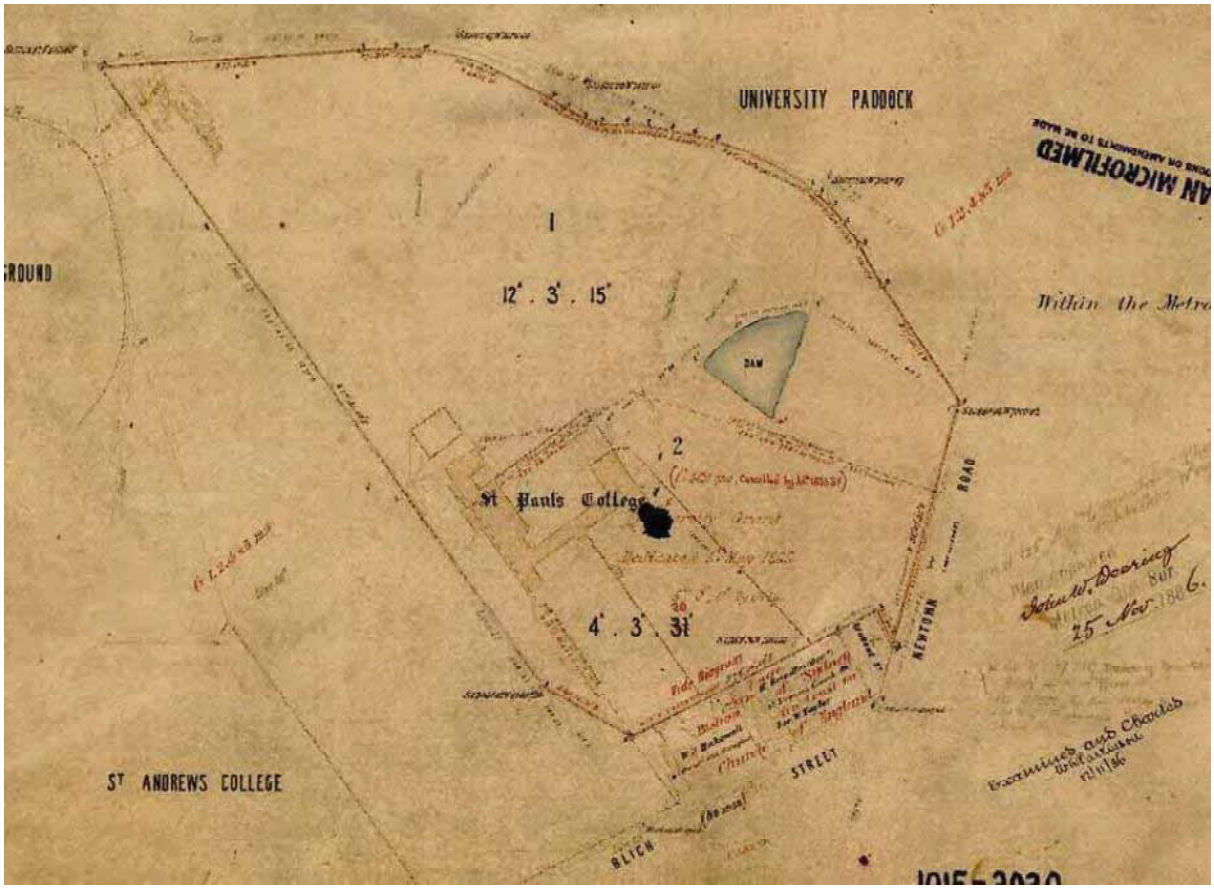

Figure 2.6 Crown Plan extract showing the 'University Paddock' on the study site, dated 25 November 1886. (CP1051-2030LPI).

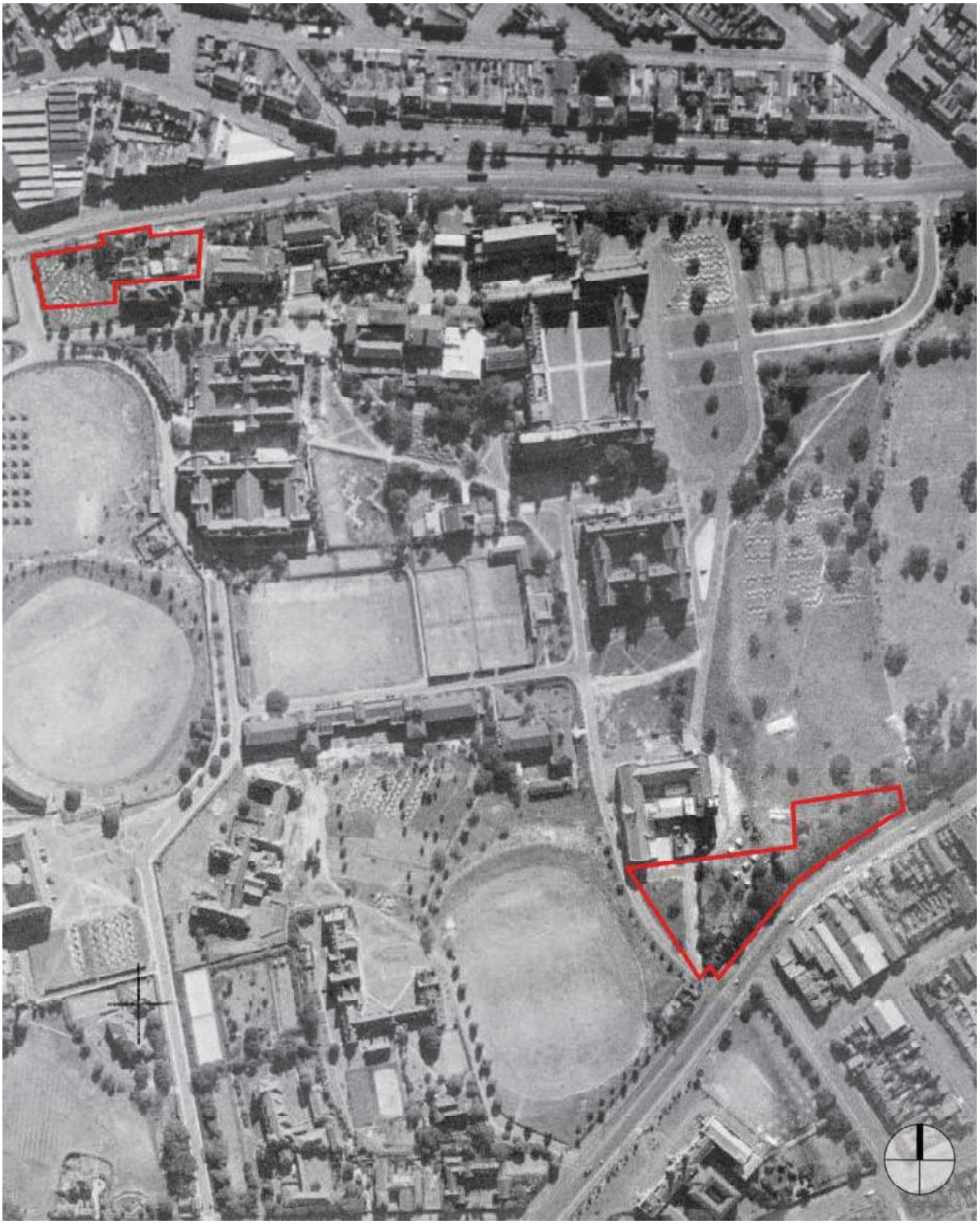

Figure 2.7 1943 aerial photograph of the study area showing the location of air raid shelters that line the open ground (zigzag trenches) including one in the eastern portion of Precinct 5, the proposed Faculty of Arts and Sciences development site. (Source: Six Maps with GML additions).

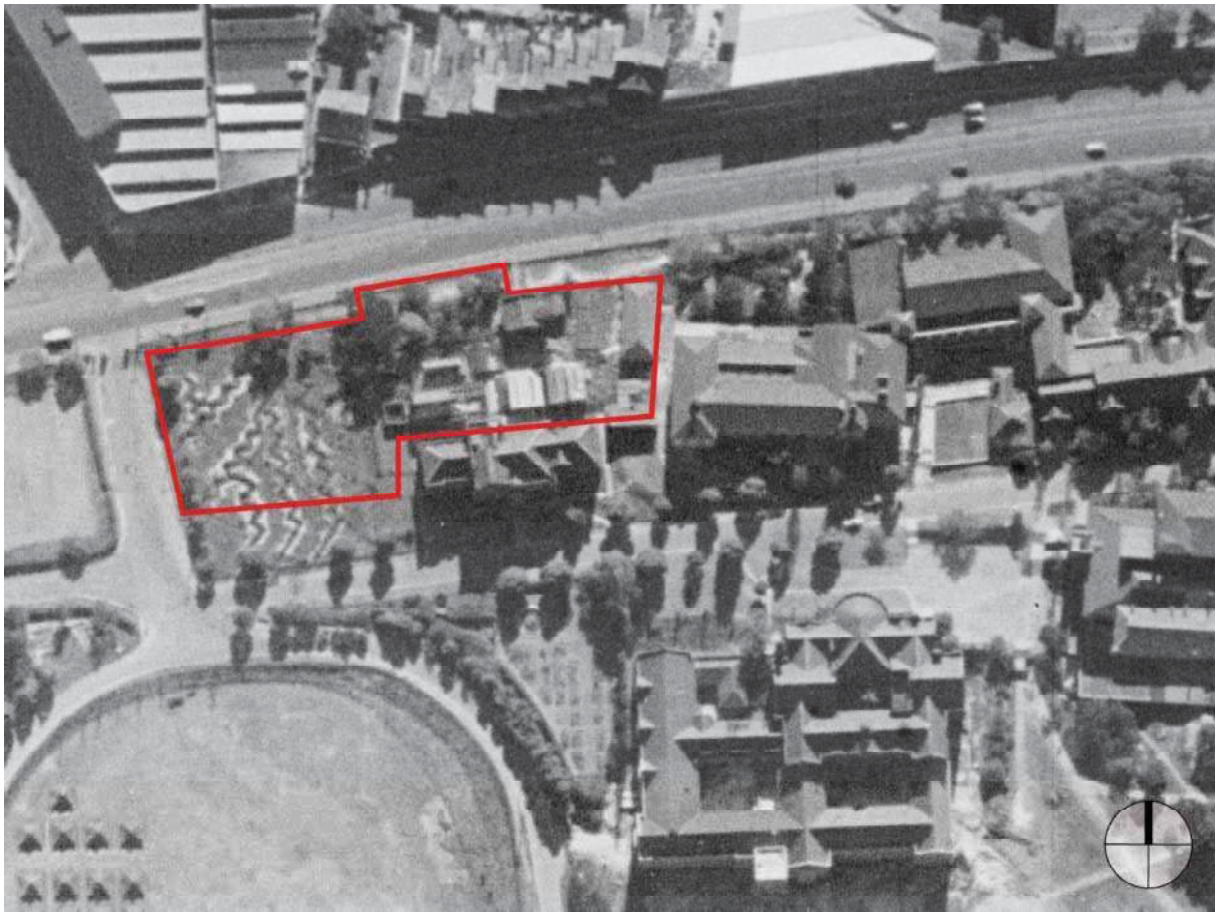

Figure 2.8 Detail from Figure 2.7 showing zigzag trenches at the proposed Faculty of Arts and Sciences development site. (Source: Six Maps with GML additions).

Figure 2.9 Detail of 1943 aerial image with proposed Administration Building (F23) and Carslaw Extension (F07) buildings transposed (Source: Six Maps with GML additions).

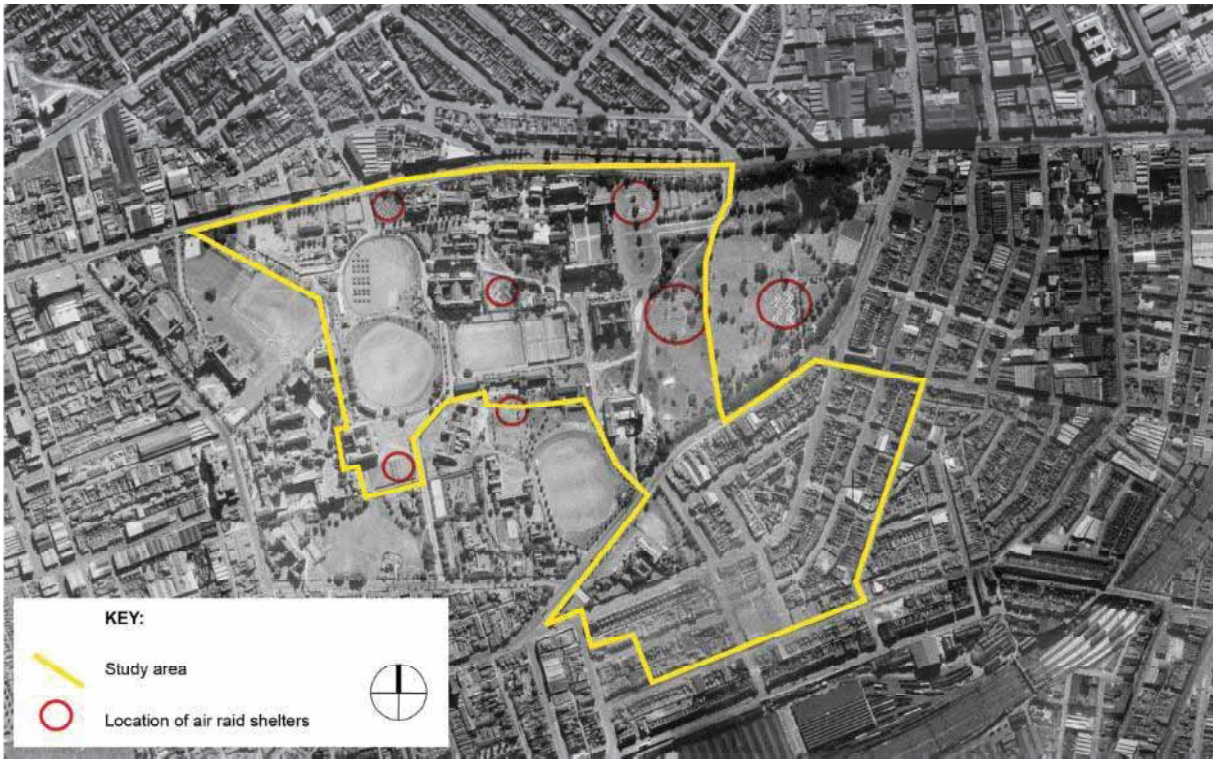

Figure 2.10 1943 aerial photograph of the study area showing the location of air raid shelters including one on the proposed Faculty of Arts and Sciences development site. (Source: Six Maps with GML additions)

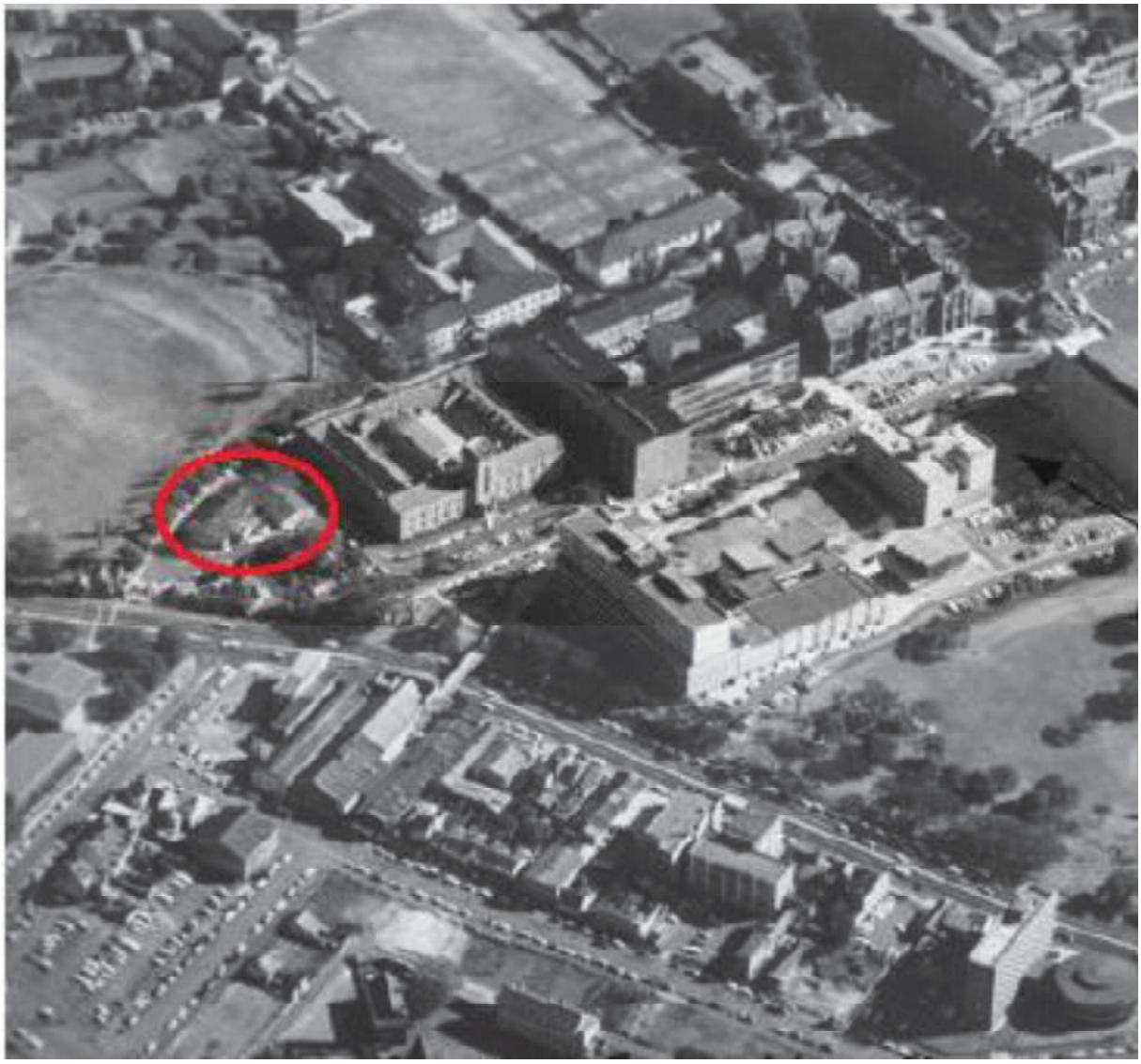

Figure 2.11 1969 orthographic aerial showing a v-shaped building in the proposed Administration Building area north west of City Road and open ground where the Carslaw Building currently stands. (Source: JoMcD 2005 with GML additions 2015[33])