

DUE DILIGENCE ABORIGINAL ARCHAEOLOGICAL ASSESSEMENT

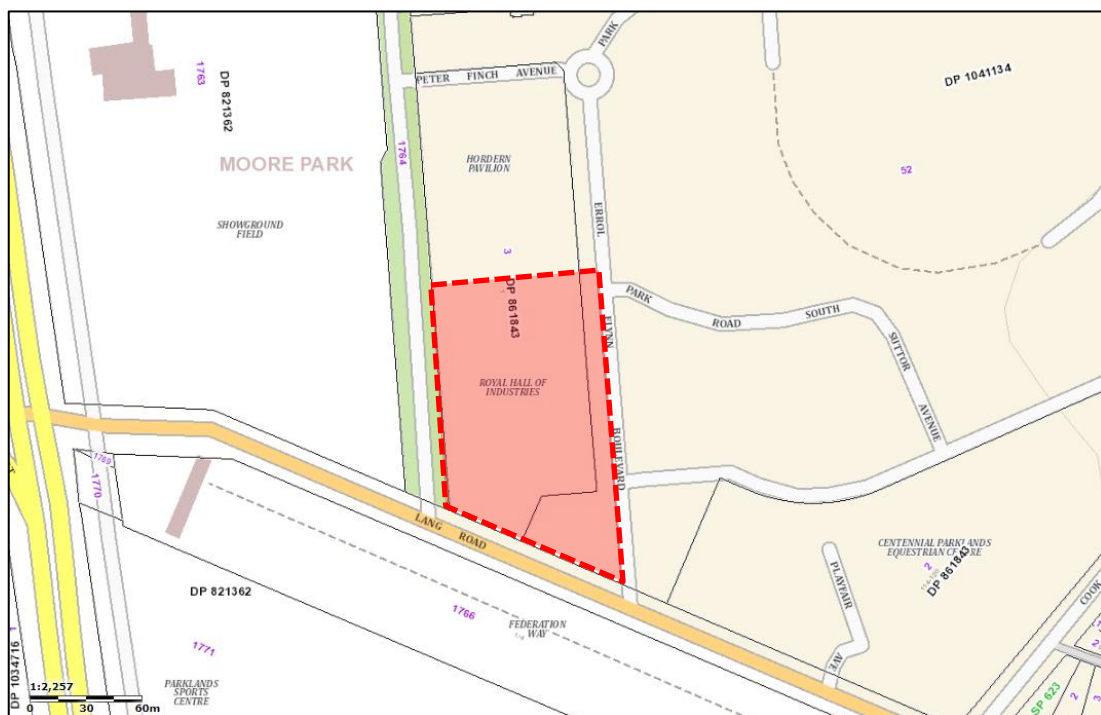
Lot 3 DP 861843 and Lot 52 DP 1041134

Royal Hall of Industries

1 Driver Avenue

Moore Park NSW

(City of Sydney LGA)



Archaeological



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Archaeological Management and Consulting Group
& Streat Archaeological Services Pty Ltd

**for
Sydney Swans Limited**

April 2019

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Cover Image

Aerial of Study Site.
Six Maps. LPI online (accessed 14/04/2019).

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EXECUTIVE SUMMARY

Background

Streat Archaeological Services Pty Ltd (SAS) in conjunction with Archaeological Management and Consulting Group (AMAC) was commissioned by Sydney Swans Limited in March 2019, to prepare a Due Diligence Aboriginal Archaeological Assessment at Lot 3 DP 861843 and Lot 52 DP 1041134, 1 Driver Avenue, Moore Park, New South Wales.

Aboriginal Consultation

Consultation for this report has not been undertaken in accordance with the Office of Environment and Heritage (OEH) and National Parks and Wildlife Act 1974: Part 6; National Parks and Wildlife Act (NPW Act), *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), as this is a desktop study and no Aboriginal Heritage Impact Permit (AHIP) is being applied for.

Recommendations

There are no confirmed Aboriginal archaeological site records located within the study area on the Aboriginal Heritage Information Management System (AHIMS) or from other sources of information of which the author of this report is aware of.

The landscape has been identified as being heavily disturbed with the site located in the sporting grounds of Moore Park. Prior to land modification works, the site would have been part of a sand dune system interspersed by a complex of wetlands.

The study area has a deep soil profile with the potential for *intact* natural soils below the layers of fill. Based on this information, sub-surface Aboriginal objects with potential conservation value may be present within these undisturbed parts of the study area, however as the proposed activity will be involving minor surface works including paving and the repurposing of the current building framework, these natural profiles are unlikely to be encountered. Therefore, the proposed development may proceed with caution.

If natural soils are encountered, appropriate mitigation will need to take place as outlined in the recommendations below.

The recommendations have been formulated after consultation with the proponent and the Office of Environment and Heritage (OEH);

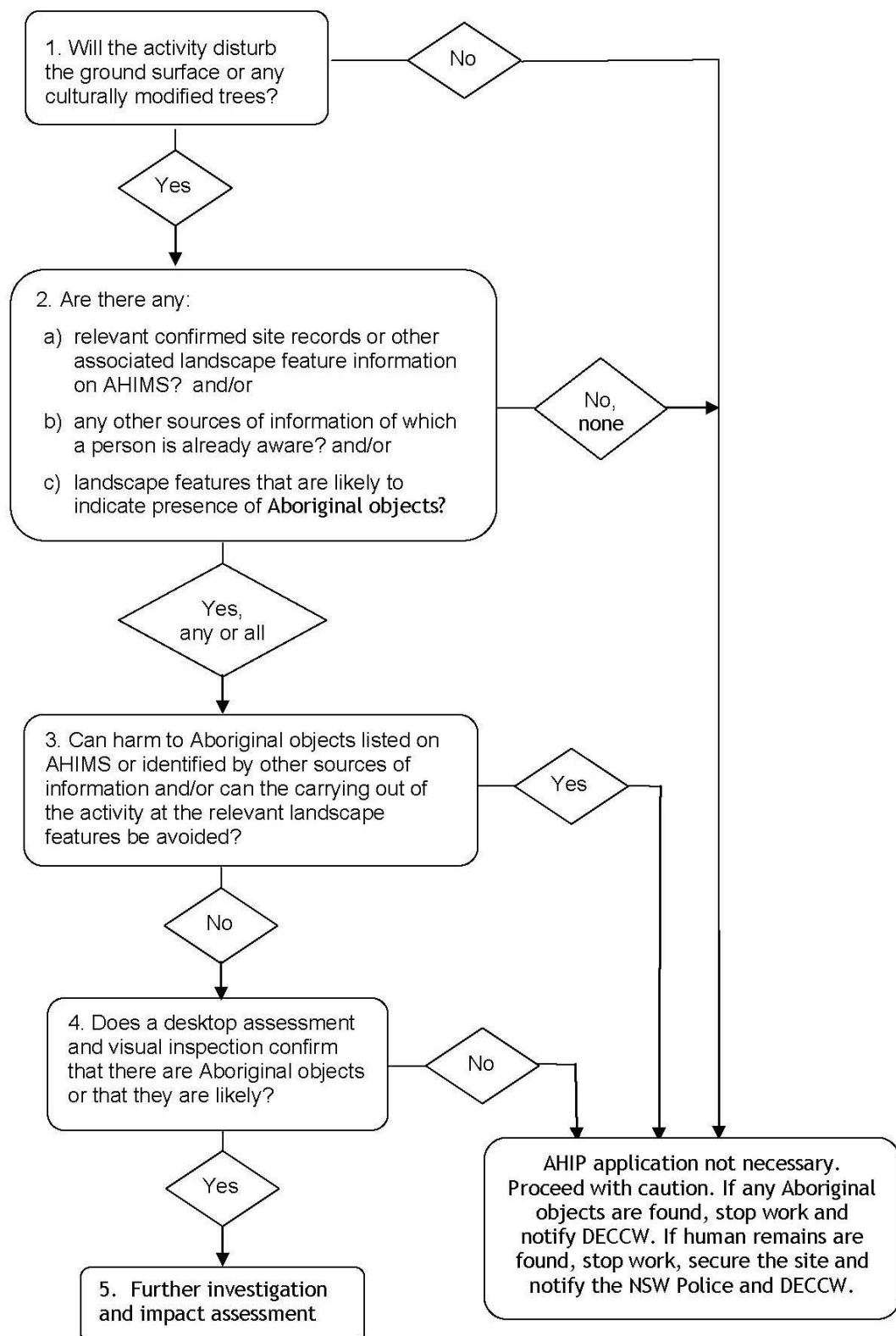
- If natural soils are encountered as outlined in section 3.0 of this document, the following should take place
 - Further assessment is required in the form of a full Aboriginal Cultural Heritage Assessment, including full Aboriginal community consultation in accordance with Part 6; National Parks and Wildlife Act, *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010);
 - Subsequent to this report and in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010)*, a program of systematic, sub surface archaeological test excavation in accordance with the *Code Of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 4 National Parks and Wildlife Act 1974 (DECCW*

2010), should be undertaken to establish the nature and extent of any archaeological objects and/or deposits that are/may be present.

- If archaeological test excavation in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010)* reveals no Aboriginal archaeological objects or deposits; The proposed activity as outlined in Figure 7.1 – 7.16, should be allowed to ‘proceed with caution’;
- If archaeological test excavation in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974 (DECCW 2010)* reveals Aboriginal archaeological objects or deposits; once the nature and extent of the archaeological site has been established through test excavation and this data has been analysed and synthesised into a test excavation report, an Aboriginal Heritage Impact Permit will need to be applied for and in place before the proposed activity can commence;
- Before any ground disturbance takes place all development staff, contractors and workers should be briefed prior to works commencing on site, as to the status of the area and their responsibilities in ensuring preservation of the said area. They should also be informed of their responsibilities regarding any Indigenous archaeological deposits and/or objects that may be located during the following development;

Should any human remains be located during the following development;

- all excavation in the immediate vicinity of any objects of deposits shall cease immediately and the area is to be secured so no further harm is to come to these remains;
- the NSW police and OEH's Environment Line 131 555 are to be informed as soon as possible including any available details of the remains and their location;
- once it has been established that the human remains are Aboriginal ancestral remains, authorisation is required by OEH in consultation with relevant Registered Aboriginal Parties identifying the appropriate course of action



Generic Due Diligence Process.

Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales DECCW (2010).

CONTACT DETAILS

The contact details for the following archaeologist, NSW Police, OEH and the Local Aboriginal Land Council are as follows:

Organisation	Contact	Contact Details
NSW Environment Line		131 555
NSW Sydney City Local Area Command		LAC Office: 192 Day Street Sydney NSW 2000 Ph: (02) 9265 6499 Fax: (02) 9265 6434
Archaeological Management & Consulting Group	Mr. Benjamin Streat or Mr. Martin Carney	122c-d Percival Road Stanmore NSW 2048 Ph:(02) 9568 6093 Fax:(02) 9568 6093 Mob: 0405 455 869 Mob: 0411 727 395 benjaminstreat@archaeological.com.au
Office of Environment & Heritage NSW Department of Planning and Environment	Archaeologist – Head Office	PO Box A290 Sydney South NSW 1232 Ph: (02) 9995 5000 info@environment.nsw.gov.au
Metropolitan Local Aboriginal Land Council (MLALC)	Cultural Heritage Officer	Po Box 1103 Strawberry Hills NSW 2012 (02) 8394 9666 culturalheritage@metrolalc.org.au
La Perouse Local Aboriginal Land Council (LPLALC)	Cultural Heritage Officer	1 Elaroo Ave. La Perouse NSW 2036 (02) 9311 4282 admin@laperouse.org.au

1.0 INTRODUCTION

1.1 BACKGROUND

Streat Archaeological Services Pty Ltd (SAS) in conjunction with Archaeological Management and Consulting Group (AMAC) was commissioned by Sydney Swans Limited in March 2019, to prepare a Due Diligence Aboriginal Archaeological Assessment at Lot 3 DP 861843 and Lot 52 DP 1041134, 1 Driver Avenue, Moore Park, New South Wales.

1.2 STUDY AREA

The study site is located at 1 Driver Avenue, Moore Park comprising Lot 3 of DP861843 and the corner of Lot 52 of DP1041134 in the Parish of Alexandria, County of Cumberland. The site boundaries can be seen in figure 1.1 and figure 1.2.

Lot	Deposited Plan
3	861843
52	1041134

1.3 SCOPE

The aims of this assessment are to assess the Aboriginal archaeological potential of the study area and to measure the impact of the proposed activity on any intact soil profiles with the potential to contain Aboriginal archaeological deposits and/or objects, as well as to develop mitigative strategies under the appropriate legislation in order to devise an appropriate strategy for the management of Aboriginal archaeological and cultural heritage values of the area.

1.4 ABORIGINAL CONSULTATION & PARTICIPATION SUMMARY

Consultation for this report has not been undertaken in accordance with the Office of Environment and Heritage (OEH) and National Parks and Wildlife Act 1974: Part 6; National Parks and Wildlife Act (NPW Act), *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), as this is a desktop study and no Aboriginal Heritage Impact Permit (AHIP) is being applied for.

1.5 AUTHOR IDENTIFICATION

The analysis of the archaeological background and the reporting were undertaken by Mr. Benjamin Streat (BA, Grad Dip Arch Her, Grad Dip App Sc), archaeologist and Director of Streat Archaeological Services Pty Ltd in association with Ms. Yolanda Pavincich (B. Arch., Grad Dip Cul Her.) and Steven J. Vasilakis (B. Arch. Hons.), under the guidance of Mr. Martin Carney archaeologist and Managing Director of AMAC Group.

1.6 ACKNOWLEDGEMENTS

The author would like to thank Eliza Scobie of Urbis Planning for advice and/or input into this assessment.

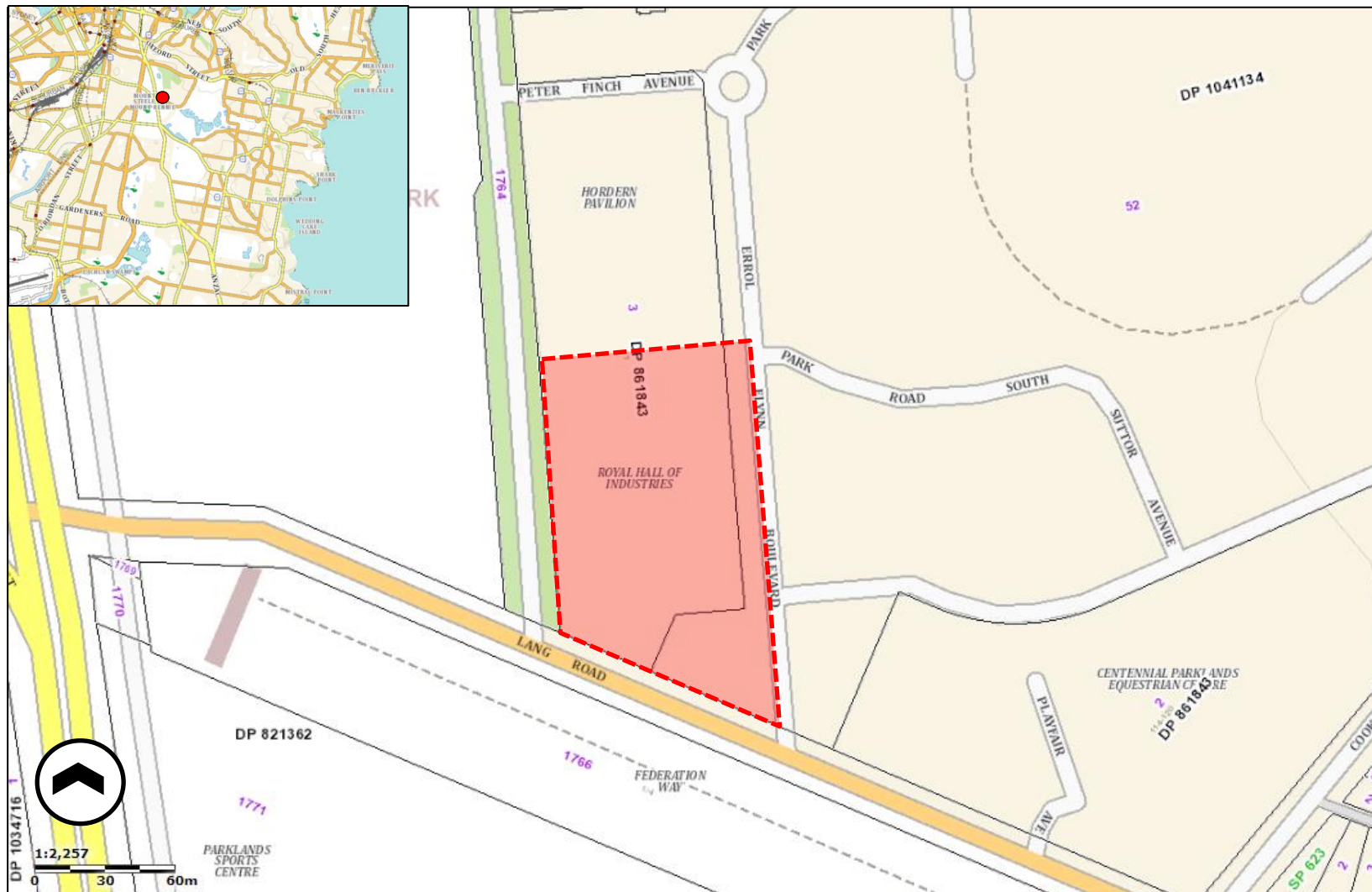


Figure 0-1 Study area location, indicated by the blue outline and orange fill.
Six Maps, LPI Online, (accessed 14/04/2019).

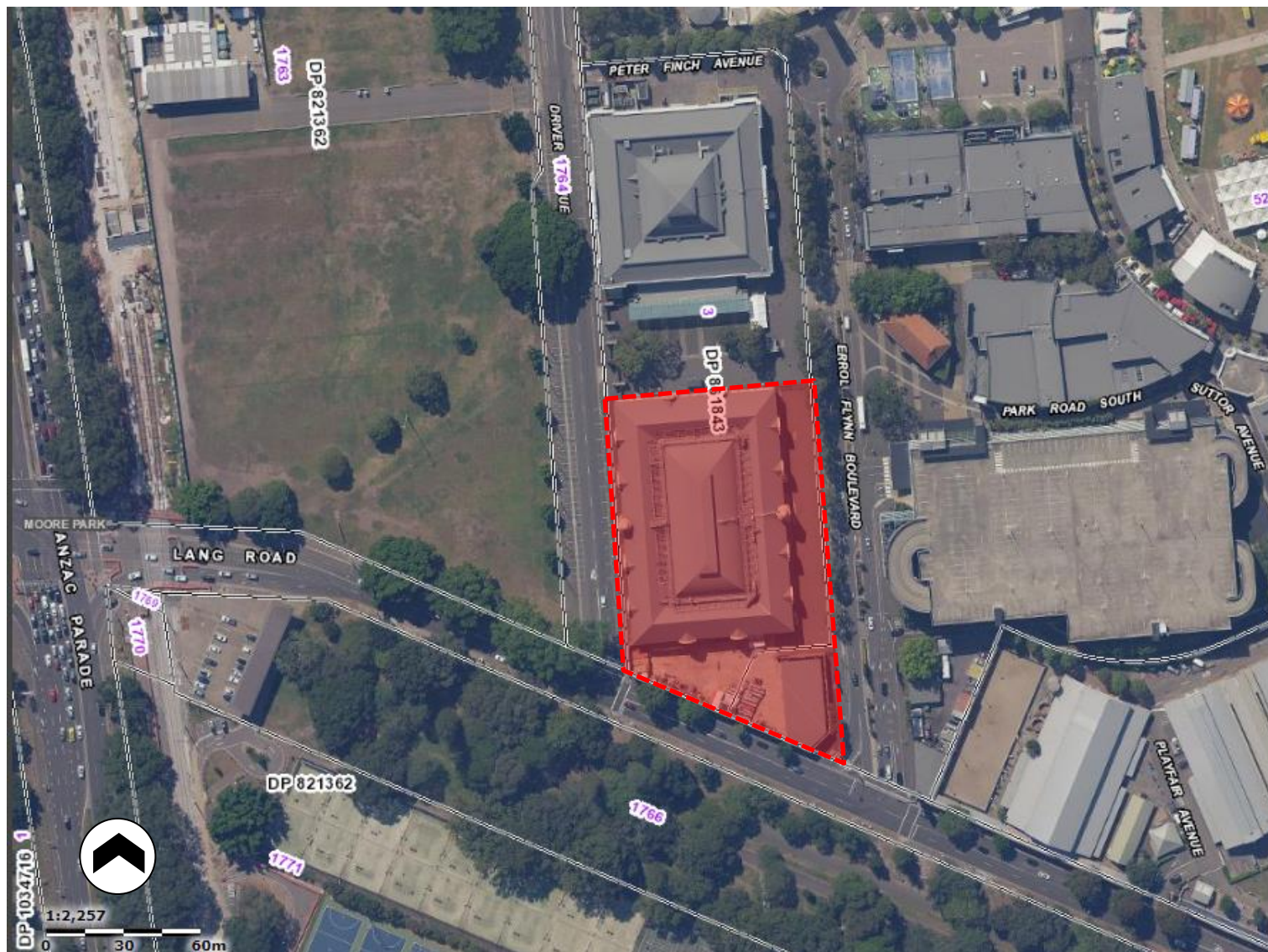


Figure 0-2 Aerial photograph showing the study site. Study site outlined in red. Six Maps, LPI Online, (accessed 14/04/2019).

2.0 LEGISLATIVE CONTEXT AND STATUTORY CONTROLS

This section of the report provides a brief outline of the relevant legislation and statutory instruments that protect Aboriginal archaeological and cultural heritage sites within the state of New South Wales. Some of the legislation and statutory instruments operate at a federal or local level and as such are applicable to Aboriginal archaeological and cultural heritage sites in New South Wales. This material is not legal advice and is based purely on the author's understanding of the legislation and statutory instruments. This document seeks to meet the requirements of the legislation and statutory instruments set out within this section of the report.

2.1 NEW SOUTH WALES STATE HERITAGE LEGISLATION AND LISTS

The state (NSW) based legislation that is of relevance to this assessment comes in the form of the acts which are outlined below.

2.1.1 National Parks and Wildlife Act 1974

The NSW National Parks and Wildlife Act 1974 (as amended) defines Aboriginal objects and provides protection to any and all material remains which may be evidence of the Aboriginal occupation of lands continued within the state of New South Wales. The relevant sections of the Act are sections 84, 86, 87 and 90.

An Aboriginal object, formerly known as a relic is defined as:

any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains" (NSW Government, 1974).

It is an offence to harm or desecrate an Aboriginal object or places under Part 6, Section 86 of the NPW Act:

Part 6, Division 1, Section 86: Harming or desecrating Aboriginal objects and Aboriginal places:

- (1) *A person must not harm or desecrate an object that the person knows is an Aboriginal object.*

Maximum penalty:

- (a) *in the case of an individual—2,500 penalty units or imprisonment for 1 year, or both, or (in circumstances of aggravation) 5,000 penalty units or imprisonment for 2 years, or both, or*
- (b) *in the case of a corporation—10,000 penalty units.*

- (2) *A person must not harm an Aboriginal object.*

Maximum penalty:

- (a) *in the case of an individual—500 penalty units or (in circumstances of aggravation) 1,000 penalty units, or*
- (b) *in the case of a corporation—2,000 penalty units.*

- (3) *For the purposes of this section, **circumstances of aggravation** are:*

- (a) *that the offence was committed in the course of carrying out a commercial activity, or*

- (b) *that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.*

This subsection does not apply unless the circumstances of aggravation were identified in the court attendance notice or summons for the offence.

- (4) *A person must not harm or desecrate an Aboriginal place.*

Maximum penalty:

- (a) *in the case of an individual—5,000 penalty units or imprisonment for 2 years, or both, or*
- (b) *in the case of a corporation—10,000 penalty units.*
- (5) *The offences under subsections (2) and (4) are offences of strict liability and the defence of honest and reasonable mistake of fact applies.*
- (6) *Subsections (1) and (2) do not apply with respect to an Aboriginal object that is dealt with in accordance with section 85A.*
- (7) *A single prosecution for an offence under subsection (1) or (2) may relate to a single Aboriginal object or a group of Aboriginal objects.*
- (8) *If, in proceedings for an offence under subsection (1), the court is satisfied that, at the time the accused harmed the Aboriginal object concerned, the accused did not know that the object was an Aboriginal object, the court may find an offence proved under subsection (2).*

2.1.2 Environmental Planning & Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act) states that environmental impacts of proposed developments must be considered in land use planning procedures. Four parts of this act relate to Aboriginal cultural heritage.

- Part 3, divisions 3, 4 and 4A refer to Regional Environmental Plans (REP) and Local Environmental Plans (LEP) which are environmental planning instruments and call for the assessment of Aboriginal heritage among other requirements.
- Part 4 determines what developments require consent and what developments do not require consent. Section 79C calls for the evaluation of

The likely impacts of that development, including environmental impacts on both the natural and built environments and the social and economic impacts in the locality (NSW Government 1979).

- Part 5 of this Act requires that impacts on a locality which may have an impact on the aesthetic, anthropological, architectural, cultural, historic, scientific, recreational or scenic value are considered as part of the development application process (NSW Government, 1979).

2.1.3 The Aboriginal Land Rights Act 1983

The NSW *Aboriginal Land Rights Act 1983* (ALR Act), administered by the NSW Department of Aboriginal Affairs, established the NSW Aboriginal Land Council (NSWALC) and Local Aboriginal Land Councils (LALCs). The ALR Act requires these bodies to:

- take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law;
- promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

These requirements recognise and acknowledge the statutory role and responsibilities of New South Wales Aboriginal Land Council and Local Aboriginal Land Councils. The ALR Act also establishes the Office of the Registrar whose functions include but are not limited to, maintaining the Register of Aboriginal Land Claims and the Register of Aboriginal Owners.

Under the ALR Act the Office of the Registrar is to give priority to the entry in the Register of the names of Aboriginal persons who have a cultural association with:

- lands listed in Schedule 14 to the NPW Act;
- lands to which section 36A of the ALR Act applies (NSW Government, 1974 & DECCW 2010).

2.1.4 The Native Title Act 1993

The *Native Title Act 1993* (NTA) provides the legislative framework to:

- recognise and protect native title;
- establish ways in which future dealings affecting native title may proceed, and to set standards for those dealings, including providing certain procedural rights for registered native title claimants and native title holders in relation to acts which affect native title;
- establish a mechanism for determining claims to native title;
- provide for, or permit, the validation of past acts invalidated because of the existence of native title.

The National Native Title Tribunal has a number of functions under the NTA including maintaining the Register of Native Title Claims, the National Native Title Register and the Register of Indigenous Land Use Agreements and mediating native title claims (NSW Government, 1974 & DECCW 2010).

2.1.5 New South Wales Heritage Register and Inventory 1999

The State Heritage Register is a list of places and objects of particular importance to the people of NSW. The register lists a diverse range of over 1,500 items, in both private and public ownership. Places can be nominated by any person to be considered to be listed on the Heritage register. To be placed an item must be significant for the whole of NSW. The State Heritage Inventory lists items that are listed in local council's local environmental plan (LEP) or in a regional environmental plan (REP) and are of local significance.

2.1.6 Register of Declared Aboriginal Places 1999

The NPW Act protects areas of land that have recognised values of significance to Aboriginal people. These areas may or may not contain Aboriginal objects (i.e. any physical evidence of Aboriginal occupation or use). Places can be nominated by any person to be considered for Aboriginal Place gazettal. Once nominated, a recommendation can be made to EPA/OEH for consideration by the Minister. The Minister declares an area to be an 'Aboriginal place' if the Minister believes that the place is or was of special significance to Aboriginal culture. An area can have spiritual, natural resource usage, historical, social, educational or other type of significance.

Under section 86 of the NPW Act it is an offence to harm or desecrate a declared Aboriginal place. Harm includes destroying, defacing or damaging an Aboriginal place. The potential impacts of the development on an Aboriginal place must be assessed if the development will be in the vicinity of an Aboriginal place (DECCW 2010).

2.2 COMMONWEALTH HERITAGE LEGISLATION AND LISTS

One piece of legislation and two statutory lists and one non-statutory list are maintained and were consulted as part of this report: the National Heritage List; the Commonwealth Heritage List and the Register of the National Estate.

2.2.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) offers provisions to protect matters of national environmental significance. This act establishes the National Heritage List and the Commonwealth Heritage List which can include natural, Indigenous and historic places of value to the nation. This Act helps ensure that the natural, Aboriginal and historic heritage values of places under Commonwealth ownership or control are identified, protected and managed (Australian Government 1999).

2.2.2 National Heritage List

The National Heritage List is a list which contains places, items and areas of outstanding heritage value to Australia; this can include places, items and areas overseas as well as items of Aboriginal significance and origin. These places are protected under the Australian Government's EPBC Act.

2.2.3 Commonwealth Heritage List

The Commonwealth Heritage List can include natural, Indigenous and historic places of value to the nation. Items on this list are under Commonwealth ownership or control and as such are identified, protected and managed by the Federal Government.

2.2.4 Register of the National Estate

The Register of the National Estate is a list of natural, Indigenous and heritage places throughout Australia. It was originally established under the *Australian Heritage Commission Act 1975(AHC Act)*. This has now been replaced by the Environment Protection and Biodiversity Conservation Act 1999. The register will continue to operate until February 2012 when it will be completely replaced by The Commonwealth Heritage List.

2.3 LOCAL PLANNING INSTRUMENTS

2.3.1 Sydney Local Environmental Plan 2012

The Sydney Local Environment Plan was endorsed in 2012. Heritage Conservation is discussed in Part 5; Clause 5.10. The following section highlights the archaeological considerations of a site in relation to developments:

5.10 Heritage conservation

(1) Objectives

The objectives of this clause are as follows:

- (a) to conserve the environmental heritage of the City of Sydney,*
- (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,*

- (c) *to conserve archaeological sites,*
- (d) *to conserve Aboriginal objects and Aboriginal places of heritage significance.*

(2) Requirement for consent

Development consent is required for any of the following:

- (a) *demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):*
 - (i) *a heritage item,*
 - (ii) *an Aboriginal object,*
 - (iii) *a building, work, relic or tree within a heritage conservation area,*
- (b) *altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,*
- (c) *disturbing or excavating an archaeological site while 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,*
- (d) *disturbing or excavating an Aboriginal place of heritage significance,*
- (e) *erecting a building on land:*
 - (i) *on which a heritage item is located or that is within a heritage conservation area, or*
 - (ii) *on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,*
- (f) *subdividing land:*
 - (i) *on which a heritage item is located or that is within a heritage conservation area, or*
 - (ii) *on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.*

(3) When consent not required

However, development consent under this clause is not required if:

- (a) *the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development:*
 - (i) *is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and*
 - (ii) *would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or*
- (b) *the development is in a cemetery or burial ground and the proposed development:*

- (i) is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and*
- (ii) would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or*
- (c) the development is limited to the removal of a tree or other vegetation that the Council is satisfied is a risk to human life or property, or*
- (d) the development is exempt development.*

(8) Aboriginal places of heritage significance

The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:

- (a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and*
- (b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent*

(10) Conservation incentives

The consent authority may grant consent to development for any purpose of a building that is a heritage item or of the land on which such a building is erected, or for any purpose on an Aboriginal place of heritage significance, even though development for that purpose would otherwise not be allowed by this Plan, if the consent authority is satisfied that:

- (a) the conservation of the heritage item or Aboriginal place of heritage significance is facilitated by the granting of consent, and*
- (b) the proposed development is in accordance with a heritage management document that has been approved by the consent authority, and*
- (c) the consent to the proposed development would require that all necessary conservation work identified in the heritage management document is carried out, and*
- (d) the proposed development would not adversely affect the heritage significance of the heritage item, including its setting, or the heritage significance of the Aboriginal place of heritage significance, and*
- (e) the proposed development would not have any significant adverse effect on the amenity of the surrounding area*

2.3.2 Sydney Development Control Plan 2012

The Sydney Local Environment Plan was endorsed by Council in 2012. Heritage Conservation is discussed in Part 3; Clause 9.1-6. The following section highlights the Aboriginal archaeological considerations of a site in relation to developments.

3.9. Objectives

- (a) *Ensure that heritage significance is considered for heritage items, development within heritage conservation areas, and development affecting archaeological sites and places of Aboriginal heritage significance.*
- (b) *Enhance the character and heritage significance of heritage items and heritage conservation areas and ensure that infill development is designed to respond positively to the heritage character of adjoining and nearby buildings and features of the public domain.*

3.9.3 Archaeological assessments

- (1) *An archaeological assessment is to be prepared by a suitably qualified archaeologist in accordance with the guidelines prepared by the NSW Office and Environment and Heritage.*
- (2) *For development proposals in Central Sydney, refer to the Central Sydney Archaeological Zoning Plan to determine whether the development site has archaeological potential.*
- (3) *An archaeological assessment is to be submitted as part of the Statement of Environmental Effects for development applications affecting an archaeological site or a place of Aboriginal heritage significance, or potential archaeological site that is likely to have heritage significance.*
- (4) *An archaeological assessment is to include:*
 - (a) *an assessment of the archaeological potential of the archaeological site or place of Aboriginal heritage significance;*
 - (b) *the heritage significance of the archaeological site or place of Aboriginal heritage significance;*
 - (c) *the probable impact of the proposed development on the heritage significance of the archaeological site or place of Aboriginal heritage significance;*
 - (d) *the compatibility of the development with conservation policies contained within an applicable conservation management plan or conservation management strategy; and*
 - (e) *a management strategy to conserve the heritage significance of the archaeological site or place of Aboriginal heritage significance.*
- (5) *If there is any likelihood that the development will have an impact on significant archaeological relics, development is to ensure that the impact is managed according to the assessed level of significance of those relics.*

2.4 DUE DILIGENCE CODE OF PRACTICE FOR THE PROTECTION OF ABORIGINAL OBJECTS IN NEW SOUTH WALES

This assessment conforms to the parameters set out in the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales states that if;

- a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely, then further archaeological investigation and impact assessment is necessary.

2.5 CODE OF PRACTICE FOR ARCHAEOLOGICAL INVESTIGATION OF ABORIGINAL OBJECTS IN NEW SOUTH WALES

Any further work resulting from recommendations should be carried out conforming to the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

2.6 GUIDELINES

This report has been carried out in consultation with the following documents which advocate best practice in New South Wales:

- Aboriginal Archaeological Survey, Guidelines for Archaeological Survey Reporting (NSW NPWS 1998);
- Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);
- Aboriginal Cultural Heritage Standards and Guidelines Kit (NPWS 1998);
- Australia ICOMOS 'Burra' Charter for the conservation of culturally significant places (Australia ICOMOS 1999);
- Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010);
- Protecting Local Heritage Places: A Guide for Communities (Australian Heritage Commission 1999).

3.0 ENVIRONMENTAL CONTEXT

To adequately understand and assess the potential Aboriginal archaeological resource that may be present within the study area it is vital to understand the environment in which the Aboriginal inhabitants of the study area carried out their activities. The environment that Aboriginal inhabitants lived in is a dominant factor in shaping their activity and therefore the archaeological evidence created by this activity. Not only will the resources available to the Aboriginal population have an influence on the evidence created but the survival of said evidence will also be influenced by the environment.

The study area is located at the Centennial Parklands, which is part of the Sydney Basin. The environmental setting of the study area is outlined below.

3.1 TOPOGRAPHY

The study area extends over one topographic zone, the Tuggerah (tg) Soil Landscape (Figure 3.1). This soil landscape is an extensive dune system often located in the Botany Lowlands around Randwick, Botany, and South Sydney. Coastal examples are located at Bondi, Narrabeen, Palm Beach, Coogee, Brighton-le-Sands, Collaroy, Kyeemagh, Dolls, Point, Ramsgate, Monterey, and Rose Bay. This is an erosional landscape subject to extreme wind erosion in exposed areas where ground cover is absent. Low slopes and areas with maintained ground cover tend to have no appreciable erosion.

The topography consists of a series of undulating plains and rolling rises of level to gently inclined, broad swales and dunes. The local relief is usually <20m but can rise to elevations of 40m in at the dune-fields located at the northern part of the Botany Lowlands. Slopes are generally gradual to moderate inclines of 1-10%, although can occasionally increase to steep slope rises of up to 35%. Outcrops of Hawkesbury Sandstone are usually associated with steep slopes where wind-blown sand has banked up along the base of the rises. The presence of coastal dunes frequently run parallel to the coast in a north-south direction. Drainage lines usually occur from water run-off which collects in a series of lagoons, depressions, and swamps.

3.2 GEOLOGY AND SOILS

The geology of the study area consists of Quaternary marine sands of fine to medium grained quartz sand. There is an absence of shell fragments and the sand differs from sands found on foredunes and on beaches as it appears to be a finer grain.

The soils are found to be deep (>200 cm) Podzols around the dunes and Podzols/Humus Podzol intergrades around the swales. These are part of the Moore Park Sand Sheets where the deeper sand layers associated with the coffee rock (tg5), are dated to the late Pleistocene, between 30,000 to 40,000 BP (Attenbrow 2002:9-10). Grey-brown loamy sands are associated with the surrounding dunes. The swales generally consist of bleached greyish yellow to dull yellow orange loose sands and are closely associated at the capillary fringe of the water-table. Swales that are poorly drained have dark-brown to black earths of organic rich topsoil materials.

Table 3.1 Description of dominant soil material

Dominant Soil Material	Soil Horizon	Description
tg1	A1 Horizon	Loose, speckled grey-brown loamy sand. Sand to loamy sandy with apedal structure and porous sandy fabric. Soil can range in colour from brownish-grey to brownish-black or black. Usually water repellent. Common is the presence of charcoal fragments and roots.
tg2	A2 Horizon	Bleached loose sand. Sand with apedal structure and porous sandy fabric. Soil can range in colour from greyish-yellow to dull yellow-orange. Stones and charcoal fragments are absent and roots are rare.
tg3	A2/B Horizon	Grey-brown mottled sand. Mottled sand or loamy sand with apedal structure and loose sand fabric. This subsoil occurs at areas of poor drainage. Soil can range in colour from brownish-grey to greyish-brown with faint grey mottles occurring more common with depth. Stones and charcoal fragments are absent and roots are rare.
tg4	B1 Horizon	Black soft sandy organic pan. Organic stained sand to loamy sand with apedal structure and sandy or earthy fabric. Soil can range in colour from black or brownish-black. Usually hard-setting on exposure. Charcoal, stones and roots are absent.
tg5	B Horizon	Brown soft sand iron pan. Iron stained sand to loamy sand with apedal structure and sandy or earthy fabric. This subsoil is generally known as coffee rock. Soil can range in colour from bright yellowish-brown to brown. Orange and dark brown mottles are common. Usually hard-setting on exposure. Stones and charcoal fragments are absent and roots are rare.
tg6	B/C Horizon	Yellow massive sand. Sand to clayey sand with apedal structure and sandy or earthy fabric. Soil can range in colour from light yellow to dull yellow-orange. Charcoal fragments, stones and roots are absent.

3.3 WATERCOURSES

The study area lies to the northwest of an extensive wetland system. This is a freshwater wetland system within Centennial Park, which includes the Lachlan Swamps where the run-off from drainage lines and dune swales would have accumulated. Before European settlement these wetland systems would have been a significant freshwater and resource area. A number of ponds with manmade dams and walls to contain them are dispersed across the Centennial Parklands, one of which Kippax Lake is ca. 550m north of the study site (Figure 3.3).

3.4 VEGETATION

There is no native vegetation in the study site. These lands were cleared soon after European settlement with much of the timber felled by the mid-1800s. The lands were later heavily modified during the establishment of the Centennial Parklands.

3.5 ABORIGINAL LAND USE

Originally part of the study site would have consisted of large sand hills that once covered the area interspersed with an extensive wetland system. These freshwater wetlands would have been an important resource zone for the Aboriginal people with a diverse range of freshwater fish, mussels, shellfish, eels and waterbirds. However, during the 20th century significant land modification in the form of top layer removal, introduction of fill with associated levelling and filling activities was undertaken for the establishment of the Centennial Parklands and sport fields. These historical land modifications have heavily disturbed the study area, altering the original landscape. Therefore, no Aboriginal archaeological land use patterns will be reflected in any soil profile present.



Figure 0-1 Study area on soil map
Study area indicated by purple circle and black arrow. Chapman *et al* (1989).

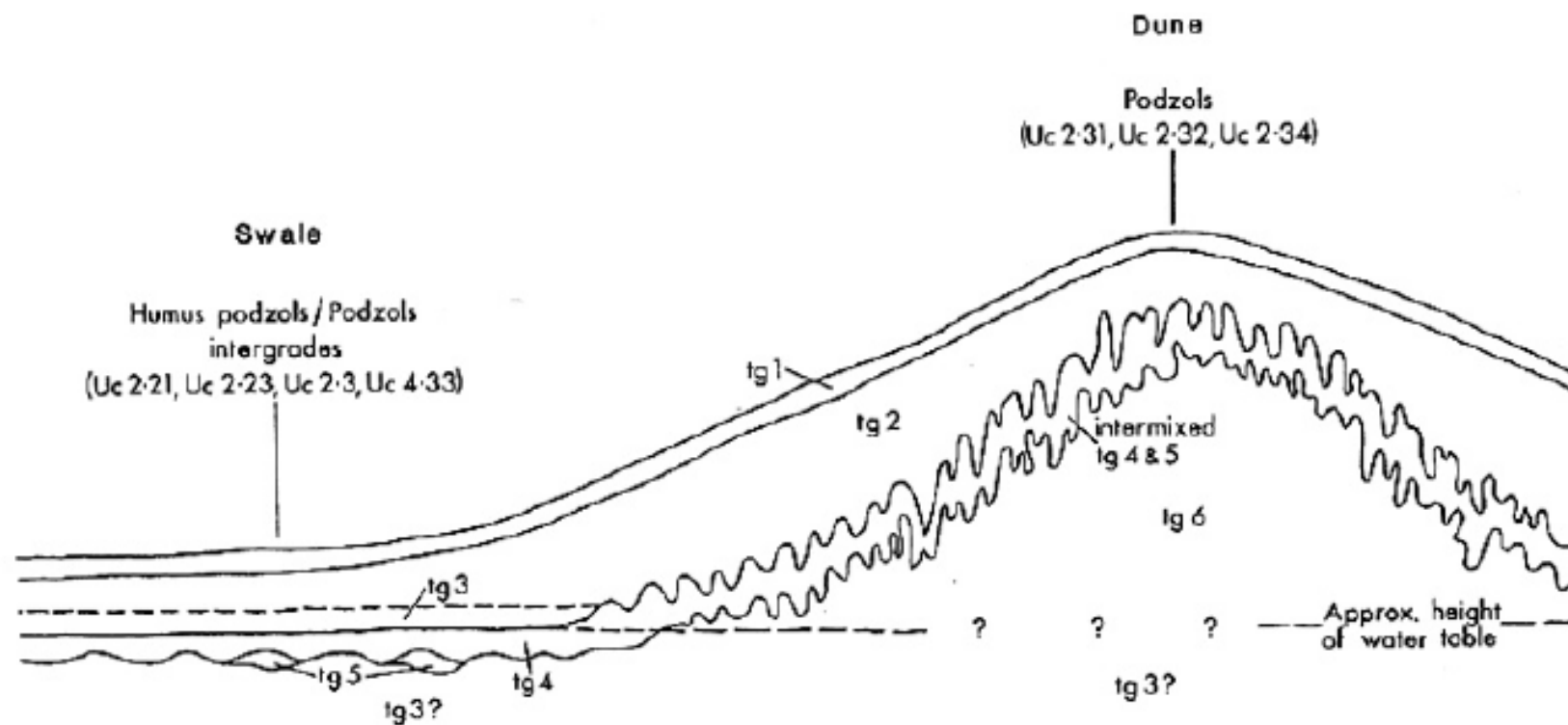


Figure 0-2 Schematic cross-section of Tuggerah soil landscape illustrating the occurrence and relationship of the dominant soil materials. Chapman *et al* (1989).

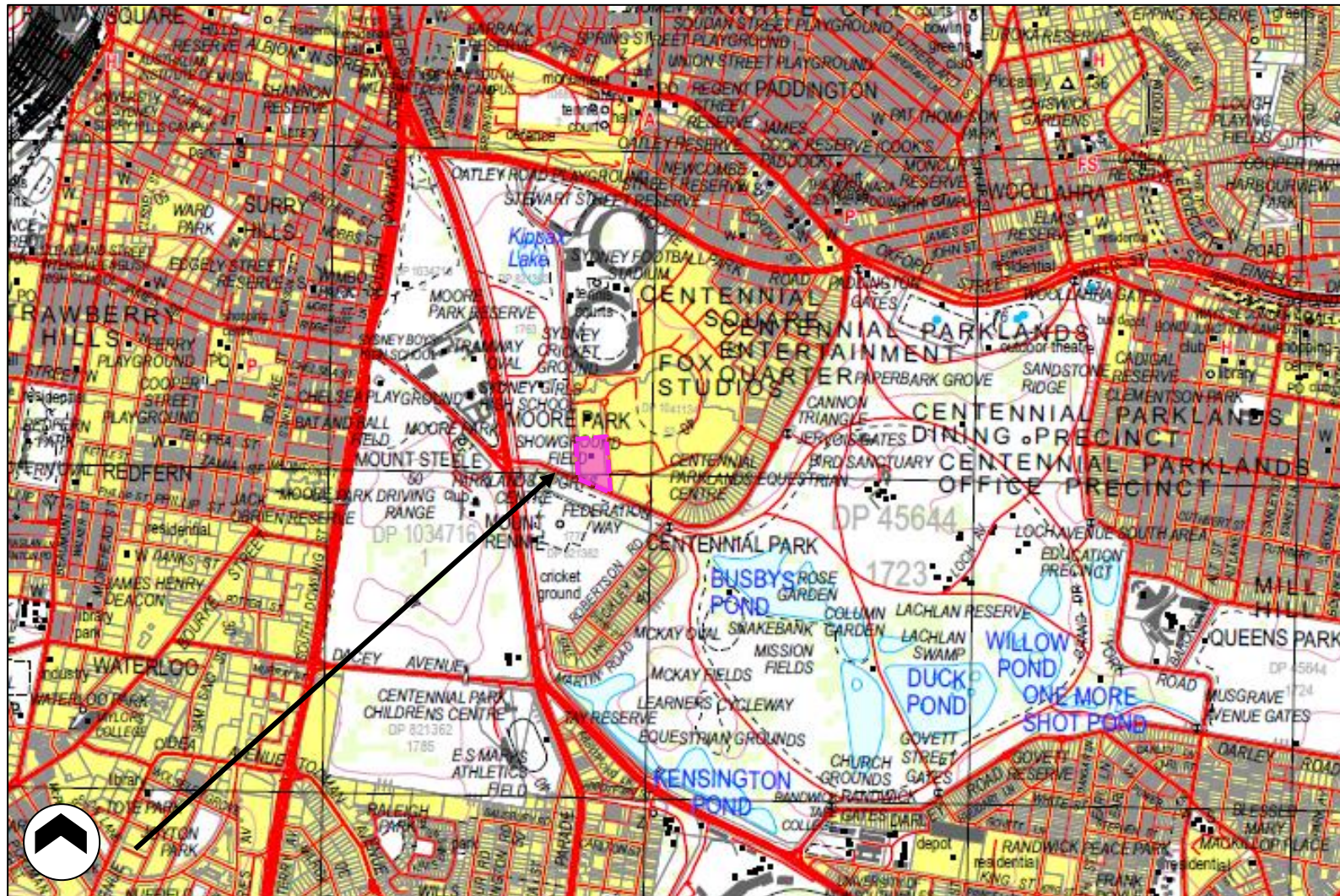


Figure 0-3 Topography Map indicating watercourses in blue.
Study site indicated in pink fill, Six Maps, LPI Online (2019).

4.0 BACKGROUND INFORMATION

Pre-field work research consisted of an analysis and synthesis of the background data to determine the nature of the potential archaeological and cultural heritage resource in the region.

Background research entailed a detailed review of sources of information on the history, oral history, ethno-history and archaeological background of the study area and surrounds and will include but not be limited to material from:

- OEH archaeological assessment and excavation reports and cultural heritage assessments;
- OEH Library;
- State Library of NSW including the Mitchell Library;
- Local libraries and historical associations;
- National Library of Australia.

A search of the OEH AHIMS was undertaken and the results examined. The site card for each site within 1000m in all directions from the centre of the study area was inspected (where available) and an assessment made of the likelihood of any of the sites being impacted by the proposed development. The OEH library of archaeological reports (Hurstville) was searched and all relevant reports were examined. Searches were undertaken on the relevant databases outlined in Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);

Further to this the following sources were examined:

- The National Heritage List;
- The Commonwealth Heritage List;
- The NSW State Heritage Inventory;
- The National Native Title Register;
- The Register of Declared Aboriginal Places;
- Prevailing local and regional environmental plans;
- Environmental background material for the study area.

4.1 ARCHAEOLOGICAL CONTEXT

It is generally accepted that Aboriginal occupation of Australia dates back at least 40,000 years (Attenbrow 2002 p.20 - 21 & Kohen et al 1983). The result of this extensive and continued occupation which includes the Sydney region has left a vast amount of accumulated depositional evidence and the Cumberland Lowlands is no exception. The oldest date generally considered to be reliable for the earliest occupation around the region comes from excavations at Parramatta which contain objects or features which have been dated to 30,735 ± 407 BP (McDonald et al 2005).

The majority of reliably dated archaeological sites within the region are less than 5,000 years old which places them in the mid to late Holocene period. A combination of reasons

has been suggested for this collection of relatively recent dates. There is an argument that an increase in population and ‘intensification’ of much of the continent took place around this time, leading to a great deal more evidence being deposited than was deposited as a result of the sparser prior occupation period. It is also the case that many archaeological sites along the past coastline may have been submerged as the seas rose approximately to their current level around 6,000 years ago. This would have had the effect of covering evidence of previous coastal occupation. In addition, it is also true that the acidic soils which are predominate around the Sydney region do not allow for longer-term survival of sites (Hiscock 2008 p. 106).

Different landscape units not only influence the preservation of sites but can determine where certain site types will be located. Across the whole of the Sydney Basin, the most common Aboriginal archaeological site type is occupation evidence within Rock Shelters. However, the most common Aboriginal archaeological site type in the Cumberland Lowlands is Open Artefact Scatters or Open Campsites, which are locations where two or more pieces of stone show evidence of human modification. These sites can sometimes be very large, with up to thousands of artefacts and include other habitation remains such as animal bone, shell or fireplaces [known as *hearths*] (Attenbrow 2002 p. 75 – 76).

4.2 PREVIOUS ARCHAEOLOGICAL STUDIES WITHIN THE STUDY AREA

As part of the research process of this report the library of archaeological assessments, test excavation and open area salvage excavation reports which is located at the offices of DECCW at Hurstville was consulted. Presented below are summaries of indigenous archaeological survey assessments which have been carried. This list is by no means exhaustive and is merely a representative sample of the most recent archaeological activity within the vicinity of the study area.

Archaeological Management & Consulting Group (AMAC) & Streat Archaeological Services (SAS), (2017) – Aboriginal Archaeological Assessment - 5-19 Bank St. Pyrmont

In 2017, AMAC Group and SAS prepared an Aboriginal Archaeological Assessment for Modification 3 of the proposed occupation of the Wharf/Marina and associated land-based works for the Bank Street Commercial Wharf Project. This assessment was in response to the Secretary’s Environment Assessment Requirements (SEARs) No. MP 11_0001 MoD 3, to which it fulfilled the requirement of key issue no.17 Heritage. The landscape was identified as being heavily disturbed with the site located on reclaimed land. Prior to reclamation works the site would have been intertidal flats. It was recommended that no further archaeological and cultural assessment in accordance with Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974 (DECCW, 2010) was necessary and the proposed development activity should be able to proceed with caution.

AMAC Group & SAS (2017) – Archaeological Survey Report – 210-220 George Street, Sydney

In November 2017 AMAC Group and SAS were commissioned by Urbis Pty Ltd on behalf of TSA Management to prepare an Archaeological Survey Report for the proposed commercial development at 210-220 George Street, Sydney. AMAC Group and SAS engaged with the Metropolitan Local Aboriginal Land Council (MLALC) for the preparation and review of this report. The background analysis and archaeological context of the site survey revealed that the landscape has been heavily disturbed with the site located on reclaimed land. Prior to reclamation works the site would have been an intertidal zone. Based on this information, the disturbed nature and significant land modifications made to

the site, indicated that there was no intact top soil (A horizon) – the layer of soil in which Aboriginal archaeological or cultural material would be located if present. It was recommended that no further archaeological and cultural assessment in accordance with Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974 (DECCW, 2010), is necessary and the proposed development activity should be able to proceed with caution.

Artefact Heritage (2014) – Aboriginal Heritage Management Assessment – CBD and South East Light Rail Project: Construction Heritage Management Plan for the Moore Park Works

In 2014, as part of the CBD and South East Light Rail Project (CSELR), Artefact Heritage carried out an Aboriginal Heritage Impact Assessment at Moore Park. The Tramway Oval and Tennis Centre formed part of the investigation of the Moore Park Works. Based on geotechnical investigations at the Tramway Oval Site, the following archaeological implication was concluded. Due to the removal of the upper sand layers that may have contained Aboriginal objects, it is likely that the site is culturally sterile and Aboriginal archaeological test excavation not warranted.

Godden Mackay Logan (2013) – Aboriginal Heritage Management Assessment – CBD and South East Light Rail Project – Environmental Impact Statement: Heritage Impact Assessment

In 2013, as part of the Heritage Impact Statement for the CBD and South East Light Rail Project (CSELR) Environmental Impact Statement, Godden Mackay Logan (GML) carried out an Aboriginal Archaeological Management Assessment along the CSELR route. The Tramway Oval was investigated as part of the Moore Park precinct. GML used Aboriginal Archaeological Management Zones (GML 2013:108-111) to identify archaeological sensitivity along the entire CSELR route with Zones 1, 2, and 3 being recommended to conduct Aboriginal archaeological investigation that may include testing/salvage excavations. Zone 4, however, recommends that no further assessment or physical investigation of Aboriginal archaeology is required due to the large-scale land modifications. GML investigations concluded that the Tramway Oval Site be assessed as Zone 4 archaeological sensitivity.

AMAC Group & SAS (2012) – Aboriginal Archaeological Assessment – 316-332 Burns Bay Road, Hunters Hill, Lane Cove

In January 2012 SAS in conjunction with AMAC Group conducted an Aboriginal Archaeological Assessment for Mosca Pserra Architects on behalf of Tuta Properties for the proposed residential development at 316-332 Burns Bay Road, Hunters Hill. There were no relevant confirmed site records or other undisturbed associated landscape feature information located within the study area or on the Aboriginal Heritage Information Management System (AHIMS). The background analysis of the environmental and archaeological context revealed that the study area was unlikely to contain Aboriginal deposits or objects due to significant disturbance throughout the study area and as such no further archaeological assessment was recommended.

Cultural Heritage Connections, (2007) – Indigenous Archaeological Investigation for Proposed Upgrade of Beare Park & Kings Cross Rotary Park, Elizabeth Bay

In May 2007, Cultural Heritage Connections were commissioned to conduct an Indigenous archaeological investigation of potential impacts from the proposed upgrade of the Beare Park & Kings Cross Rotary Park, Elizabeth Bay. The assessment identified that the study site was located within reclaimed land suggesting the highly disturbed context of the area and therefore concluded no impediment to the proposed development on Aboriginal archaeological grounds.

Dominic Steele Consulting Archaeology (2006) – Aboriginal Heritage Assessment – Randwick Racecourse, Randwick NSW

In 2006, Dominic Steele Consulting Archaeology was commissioned to prepare an Aboriginal heritage assessment as part of a conservation management plan for Randwick Racecourse. It is reported that the site has had widespread environmental and landscape modification and subsequently concluded that due to the high disturbance levels it was unlikely that any surface and/or subsurface Aboriginal archaeological evidence would be located across most of the site. However, it was advised that a large sand dune to the southeast of the racecourse with a height of over 20m may have archaeological evidence in deeper sand dune contexts, possibly as much as several thousand years old, and was identified as high Aboriginal archaeological sensitivity.

Jo McDonald Cultural Heritage Management (2005) – Archaeological Testing and Salvage Excavation – Discovery Point, NSW

In 2005, Jo McDonald Cultural Heritage Management conducted excavations at Discovery Point to the southwest area of Tempe House. The excavation was divided into three phases during the course of archaeological activities; 1) across the proposed carpark, backhoe testing to the water-table depth to establish whether intact cultural material present; 2) If stone artefacts identified during backhoe work, test pits to be hand excavated; and 3) to retrieve a sample of cultural materials for analysis, open area salvage excavations. A number of intact natural soil horizons were located consisting of black sand, a light grey sand layer, overlaying a mottled sand/coffee rock. Three hundred and eighty-nine artefacts were excavated the majority recovered from the light grey sand layer.

It was concluded that the site constituted an extensive, low density artefact scatter. The excavation of a charcoal feature that was subsequently radiocarbon dated was calibrated to ca. 10,7000 BP and classified as the earliest date of Aboriginal occupation along the Sydney Basin's eastern coastal strip. As a result, it was suggested that people have been repeatedly visiting Discovery Point, for thousands of years.

Australian Museum Business Services (2002) – Aboriginal Archaeological Assessment – Centennial Parklands Conservation Management Plan

In 2002, Australian Museum Business Services (AMBS) prepared an Aboriginal archaeological assessment as part of an investigation for Aboriginal land and resource use in Centennial, Moore and Queens Parks for the Centennial Parklands Conservation Management Plan. The assessment discussed previously identified Aboriginal sites, including a rock-shelter with 27 white human hand stencils at Queens Park, rock engravings (now destroyed) at Darvall Street and one artefact found at the Sydney Cricket Ground which is now stored at the Australian Museum collection.

AMBS indicated that it is likely that Aboriginal archaeological evidence may survive in areas beneath buildings, ponds, and landfill that are now present across the Centennial Parklands. The assessment also suggested that it is possible that additional rock engravings may have been exposed in areas of currently covered sandstone outcrops during periods in the past when these outcrops were exposed.

Godden Mackay Heritage Consultants (1997) – Aboriginal Archaeological Monitoring – Eastern Distributor, Moore Park NSW

In 1997, Godden Mackay conducted Aboriginal archaeological monitoring along the western boundary of Moore Park. The test pits were excavated to a depth of 2.2m and resulted in no evidence of Aboriginal habitation. The investigation indicated that this area

of Moore Park was highly disturbed with introduced fill between 40cm and 150cm present across the site.

In addition, the report included details from geotechnical investigations conducted during the construction of the Eastern Distributor in the Moore Park Precinct. The results of these investigations indicated that fill between 1m and 4.7m deep extended along some parts of Moore Parks' western end. South of the Moore Park Precinct (south of Charles St. Redfern), sand dunes between 15m to 20m thick were reported. Close to Charles Street, lake deposits and freshwater swamp peat was located in the A Horizon between 1m to 3m thick and 13m to 17m below the present ground level and increasing to 5m below ground level in the vicinity of Maddison Street.

Godden Mackay Pty Ltd and Austral Archaeology Pty Ltd (1995) – Aboriginal Archaeological Assessment – Prince of Wales Hospital Excavation, NSW Department of Health

In 1995, Godden Mackay (GM) and Austral Archaeology (AA) prepared an Aboriginal Archaeological Assessment as part of a historical archaeological excavation at the Prince of Wales Hospital. During the historical excavations three roughly circular shaped hearths with burnt sandstone manuports were identified. Carbon 14 dating and thermoluminescence were used to date one of the hearths (Feature 203) and dated to 7860 +/- 50 BP and 8400 +/- 800 BP respectively. In addition, residue analysis on one of the hearth stones from Feature 203 indicated high amounts of fatty acids probably belonging to a freshwater fish that had been cooked on this hearth.

Additional sandstone manuports were also identified though not clearly associated to a defined hearth. The report indicated that these sandstone manuports are evidence of local Aboriginal occupation based on the 'assumption that pieces of stone in an aeolian sand dune can have no method of transport other than human' (GM & AA 1995: 29). Ten flaked artefacts of white, banded indurated stone (unknown source) were also identified during the excavations, with the report noting the unusual absence of silcrete. The report suggested that the small number of flaked stone artefacts indicates that the site was probably a short-term settlement and subsistence type formed under conditions of high human mobility (GM & AA 1995: 40).

Crew, David (1991) – Aboriginal Archaeological Assessment – Archaeological Survey for Aboriginal Sites of the Botany Wetlands, Sydney NSW

In 1991, David Crew conducted an Aboriginal Archaeological Assessment within the Botany Wetlands. The report identified that the Lachlan Swamps System, which extends across much of the Centennial Parklands provided a significant freshwater resource area flanked by 25m sand dunes and in close proximity to the sheltered estuary at Botany Bay for Aboriginal occupation. It concluded that Aboriginal archaeological evidence such as occupation and burial sites have the potential to survive in areas which are less disturbed during historical settlement activities Crew also reports on the 1982 Aboriginal skeletal remains that were identified in the Botany Wetlands at Eastlakes Golf Course.

4.3 OEH AHIMS SEARCH RESULTS

The Archaeological Heritage and Information Management System Database (AHIMS) is located at the OEH Offices at Hurstville in New South Wales. This database comprises information about all the previously recorded Aboriginal archaeological sites registered with OEH. Further to the site card information that is present about each recorded site, the assessments and excavation reports that are associated with the location of many of these sites are present in a library of reports. The location of these sites shown (Figure

4.1) must be viewed as purely indicative as errors in the recording of the locations of sites often occurs due to the disparate nature of the recording process, the varying level of experience of those locating the sites and the errors that can occur when transferring data. If possible, sites that appear to be located near a study area should be relocated.

An AHIMS extensive search was conducted on the 26/03/19 (Client Service ID: 397773). This search resulted in 25 registered sites within 2000 m of the study area. The following table is comprised of the results listed from the extensive search.

Table 4.1 AHIMS Search Result

Site ID	Site Name	Site Status	Site Feature
45-6-2597	Wynyard St Midden	Valid	Shell, Artefact
45-6-0647	Centennial Park	Valid	Art (Pigment or Engraved)
45-6-2580	Junction Lane	Valid	Artefact
45-6-0675	Randwick Queen's Park Waverley	Valid	Art (Pigment or Engraved)
45-6-0898	Woollahra;	Valid	Art (Pigment or Engraved)
45-6-2637	George street 1	Valid	Artefact
45-6-2651	William St PAD	Valid	Potential Archaeological Deposit (PAD)
45-6-2652	Ultimo PAD 1	Valid	Potential Archaeological Deposit (PAD)
45-6-2666	Wattle Street PAD 1	Valid	Potential Archaeological Deposit (PAD)
45-6-2663	Mountain Street Ultimo	Valid	Artefact, Potential Archaeological Deposit (PAD)
45-6-2680	Broadway Picture Theatre PAD 1	Valid	Potential Archaeological Deposit (PAD)
45-6-2687	Crown Street PAD 1	Valid	Potential Archaeological Deposit (PAD)
45-6-2897	Queens Park PAD (duplicate see 45-6-2896)	Valid	Potential Archaeological Deposit (PAD)
45-6-2896	Queens Park PADs	Valid	Habitation Structure, Potential Archaeological Deposit (PAD)
45-6-2979	UTS PAD 1 14-28 Ultimo Rd Syd	Valid	Potential Archaeological Deposit (PAD)
45-6-3071	445-473 Wattle Street PAD	Valid	Potential Archaeological Deposit (PAD)
45-6-2987	Poultry Market 1	Valid	Artefact
45-6-3064	445-473 WATTLE ST PAD	Valid	Potential Archaeological Deposit (PAD)
45-6-3152	168-190 Day Street, Sydney PAD	Not a Site	Potential Archaeological Deposit (PAD)
45-6-3155	Moore Park AS1	Destroyed	Artefact
45-6-3217	Darling Central Midden	Valid	Aboriginal Ceremony and Dreaming, Artefact, Shell
45-6-3245	Doncaster Ave PAD	Valid	Potential Archaeological Deposit (PAD)
45-6-3246	RSY 1	Valid	Artefact
45-6-3645	SFS-PAD	Valid	Potential Archaeological Deposit (PAD)
45-6-3654	CRS AS 01 (Central Railway Station Artefact scatter 01)	Valid	Artefact : -

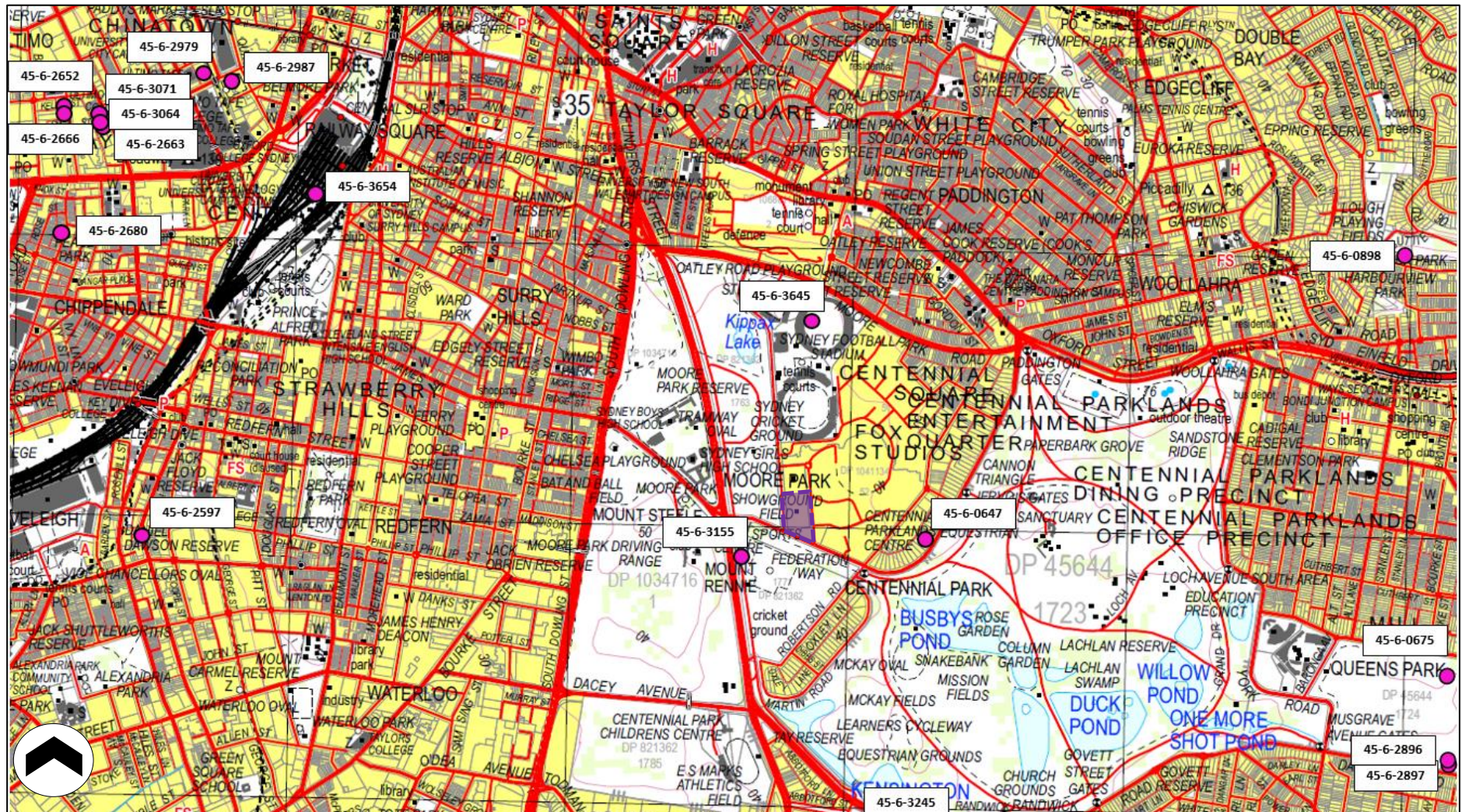


Figure 0-1 AHIMS Search Result
Study area indicated in purple and registered sites in pink. OEH AHIMS (2019). Six Maps, LPI Online (2019).

4.4 OTHER SEARCH RESULTS

Results for other statutory databases searched are given below;

Heritage Listings/ Register/ Other	Result
National Heritage List	Not listed
Commonwealth Heritage List	Not listed
NSW State Heritage Register	Not listed
Register of Declared Aboriginal Places	Not listed
National Native Title Register	Not listed

4.5 SUMMARY OF ARCHAEOLOGICAL PREDICTIVE MODEL FOR THE REGION

Predictive modelling is an adaptive process which relies on a framework formulated by a number of factors, including but not limited to the use of local land systems, the environmental context, archaeological work and any distinctive sets of constraints that would influence land use patterns. This is based on the concept that different landscape zones may offer different constraints, which is then reflected in the spatial distributions and forms of archaeological evidence within the region (Hall and Lomax 1996).

Early settlement models focused on seasonal mobility, with the exploitation of inland resources being sought once local ones become less abundant. These principles were adopted by Foley (1981) who developed a site distribution model for forager settlement patterns. This model identifies two distinctive types of hunter and gather settlements; 'residential base camps' and 'activities areas.' Residential base camps are predominately found located in close proximity to a reliable source of permanent water and shelter. From this point the surrounding landscape is explored and local resources gathered. This is reflected in the archaeological record, with high density artefact scatters being associated with camp bases, while low density and isolated artefacts are related to the travelling routes and activity areas (Foley 1981).

However, more recently, investigation into understanding the impacts of various episodes of occupation on the archaeological record has been explored, of which single or repeated events are being identified. This is often a complex process to establish, specifically within predictive models as land use and disturbance can often result in post depositional processes and the superimposition of archaeological materials by repeated episodes of occupation.

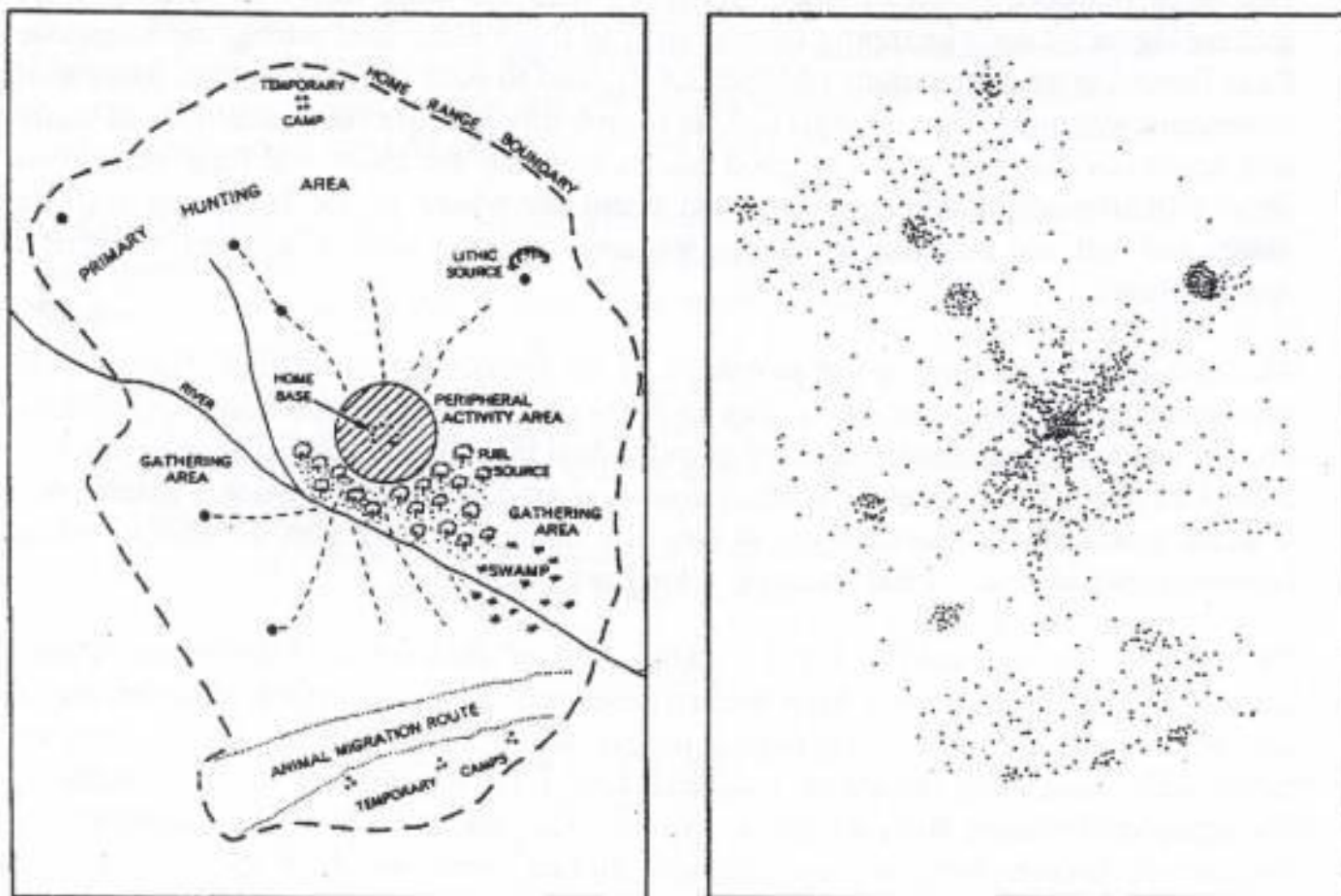


Figure 0-2 Examples of forager settlement patterns.
Foley (1981).

The principals behind this model have been incorporated into other predictive models such as that of McBryde (1976). McBryde's model is centred on the utilisation of food resources as a contributor to settlement patterns, specifically with reference to the predictability and reliability of food resources for Aboriginal people within the immediate coastal fringe and/or hinterland zone, with migratory behaviour being a possibility. Resources such as certain species of animals, particularly; small marsupials and reptiles, plant resources and nesting seabirds may have been exploited or only available on a seasonal or intermittent basis. As such, archaeological sites which represent these activities whilst not being representative of permanent occupation may be representative of brief, possibly repeated occupation.

Jo McDonald and Peter Mitchell have since contributed to this debate, with reference to Aboriginal archaeological sites and proximity to water using their Stream order model (1993). This model utilises Strahler's hierarchy of tributaries. This model correlates with the concept of proximity to permanent water and site locations and their relationship with topographical units. They identify that artefact densities are greatest on terraces and lower slopes within 100m of water.

Intermittent streams however, also have an impact on the archaeological record. It was discovered that artefacts were most likely within 50 – 100m of higher (4th) order streams, within 50m (2nd) order streams and that artefact distributions around (1st) order streams was not significantly affected by distance from the watercourse. Landscapes associated with higher order streams (2nd) order streams were found to have higher artefact densities and more continuous distribution than lower order streams.

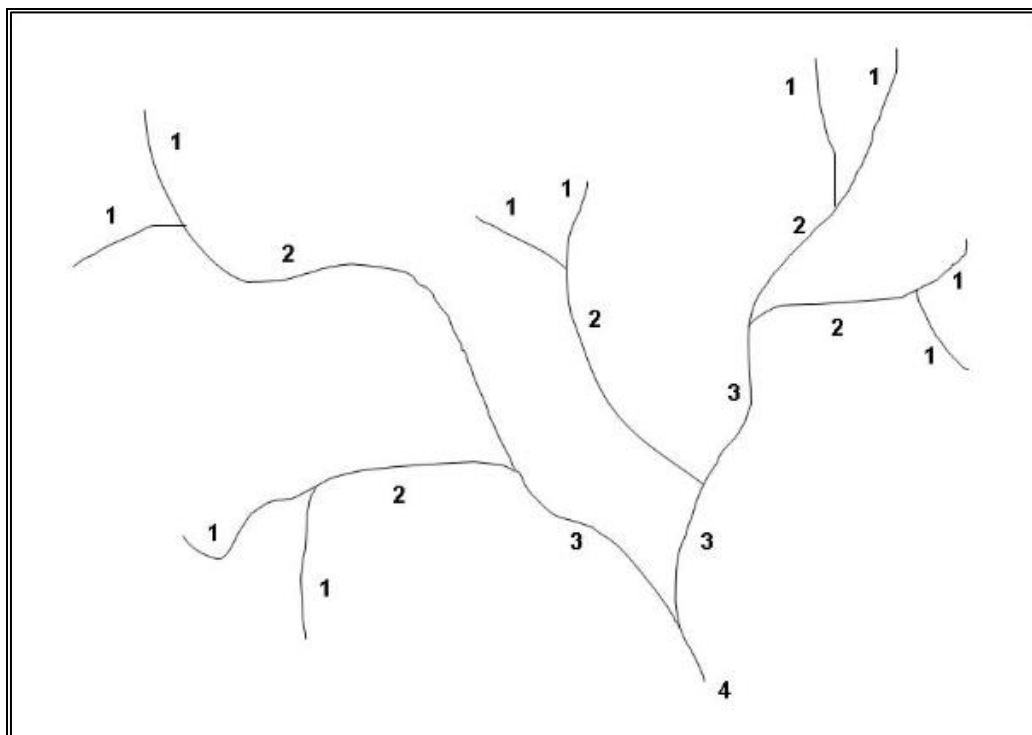


Figure 0-3

Strahler's hierarchy of tributaries.
Strahler (1957).

Table 0.2 Relationship between landscape unit and site distribution for region

Landscape Unit /Site types	Site Distribution and activity
1st order stream	Archaeological evidence will be sparse and reflect little more than a background scatter
Middle reaches of 2nd Order Stream	Archaeological evidence will be sparse but focus activity (one off camp locations, single episodes and knapping floor)
Upper reaches of 2nd order stream	Archaeological evidence will have a relatively sparse distribution and density. These sites contain evidence of localised one-off behaviour.
Lower reaches of 3rd order stream	Archaeological evidence for frequent occupation. This will include repeated occupation by small groups, knapping floors (used and unused material) and evidence of concentrated activities.
Major creeklines 4th order streams	Archaeological evidence for more permanent or repeated occupation. Sites will be complex and may be stratified with a high distribution and density.
Creek junctions	This landscape may provide foci for site activity, the size of the confluence in terms of stream rankings could be expected to influence the size of the site, with the expectation of there being higher artefact distribution and density.
Ridge top locations between drainage lines	Ridge Tops will usually contain limited archaeological evidence, although isolated knapping floors or other forms of one-off occupation may be in evidence in such a location.
Raw Materials near watersources	The most common raw materials are silcrete and chert in sites closer to coastal headlands, though some indurated mudstone/silicified tuff and quartz artefacts may also be found.
Grinding Grooves	Grinding Grooves may be found in the sandstone or shale/sandstone transition areas.
Scarred trees -	May occur in stands of remnant vegetation.
Ceremonial Sites	Consultation with relevant Aboriginal Stakeholder groups, individuals and review of ethnographic sources often reveal the presence of ceremonial or social sites.

This predictive model has been refined with focus on the dominant environment and landscape zones of the Cumberland Lowlands, such as the Wianamatta Group Shales, Hawksbury Sandstone, Quaternary alluvium, Quaternary Aeolian and Tertiary alluvium. Attenbrow (2002) discovered that the Quaternary alluvial deposits had a greater concentration of archaeological sites, which is likely the result of these deposits being located towards major creeklines and rivers, such as Eastern Creek, Second Ponds Creek etc. Areas of alluvial deposits were found by Kohen (1986) to contain artefact scatters of a large and complex nature the closer they were to permanent creeks.

Umwelt (2004) have identified similar environmental – archaeological relationships which contribute to the mapping and modelling of archaeological sites, such as;

- The pattern of watercourses and other landscape features such as ridge lines affected the ease with which people could move through the landscape;
- Certain landscape features such as crests or gently sloping, well-drained landforms influenced the location of camping places or vantage points that provided outlooks across the countryside;
- The morphology of different watercourses affected the persistence of water in dry periods and the diversity of aquatic resources and so influenced where, and for how long, people could camp or procure food;
- The distribution of rock outcrops affected the availability of raw materials for flakes and ground stone tools;
- The association of alluvial, colluvial and stable landforms affects the potential that sites will survive;
- European land-use practices affect the potential for site survival and/or the capacity for sites to retain enough information for us to interpret the types of activities that took place at a specific location.

The Aboriginal Cultural Heritage Data Audit (DOP, 2005) produced the following table as part of the NSW Comprehensive Coastal Assessment Toolkit (DOP, 2005) which made the following statements outlined in table 5.3 about the predictive location of Aboriginal sites in Coastal NSW. These statements support the conclusions drawn in the following predictive model established for the study area. The study makes one very important claim which is that Aboriginal Ceremonial or Dreaming Sites can only be identified by Aboriginal community knowledge.

All models state that the primary requirement of all repeated, concentrated or permanent occupation is reliable access to fresh water. Brief and possibly repeated occupation may be represented in areas that have unreliable access to ephemeral water sources, however these areas will not possess a high archaeological potential (Goodwin 1999).

Table 0.3 Aboriginal Cultural Heritage Data Audit, Predictive Modelling for Coastal Aboriginal Sites, NSW.

Site Type	Archaeological/ Predictive Modelling
Aboriginal Ceremony and Dreaming Sites	Can only be identified on the basis of Aboriginal community knowledge.
Aboriginal Resource and Gathering Sites	Can occur at any location where plant and animal target species are found at present or were available in the past.
Art Sites:	All rock paintings or drawings and some rock engravings will occur within rock shelters/overhangs, most commonly within sandstone cliff lines and in granite boulder fields. Rock engravings may occur wherever there are suitable rock-surface exposures.
Artefacts:	Will occur in all landscapes with varying densities. Artefacts of greatest scientific significance will occur in stratified open contexts (such as alluvial terraces, sand bodies) and rock shelter floors.
Burials:	Most likely (but not always) to be buried in, or eroding from, sandy soils. Can occur within rock shelters/overhangs, most commonly within sandstone cliff lines and in granite boulder fields.
Ceremonial Ring Sites:	Environmental factors may be of particular importance in site location including association with sources of water, ridges, unstructured soils and geological boundaries. Distance to adjacent ceremonial ring sites may influence site location.
Conflict Sites:	Can only be identified on the basis of historical records and community knowledge.
Grinding Grooves:	Most likely to occur on surface exposures of sandstone. Occasionally occur within sandstone rock shelters.
Modified Trees	Will only occur where target tree species survive and if these are of an age generally greater than 100 years old.
Non-Human Bone and Organic Material Sites:	Will occur in any surface or buried context where preservation conditions allow. Most commonly survive in open shell midden sites and in rock shelter floor deposits.
Ochre Quarry Sites:	Can occur at any location where suitable ochre sources are found, either as isolated nodules or as suitable sediments (clays).
Potential Archaeological Deposits:	Can occur in all landscape types. PADs of greatest scientific significance will occur in stratified open contexts (such as alluvial terraces, sand bodies) and rock shelter floors.
Shell Middens:	Will occur as extensive packed shell deposits to small shell scatters in all coastal zones along beaches, headlands and estuaries, both in open situations and in rock shelters. May occur along rivers and creeks where edible shellfish populations exist or existed in the past.
Stone Arrangements	Tend to be on high ground, often on the tops of ridges and peaks commanding views of the surrounding country. Often situated in relatively inaccessible places.
Stone Quarry Sites:	Can occur at any location where suitable raw materials outcrop, including pebble beds/beaches.
Waterholes	May occur within any river or creek. Rare examples may occur in open exposures of rock.

4.6 ARCHAEOLOGICAL PREDICTIVE MODEL FOR THE STUDY AREA

The following section gives an indication of the likelihood of certain site types being located within the study area. These indications are based on the research and results of assessments and excavations in the vicinity of the study area.

Site Type	Research	Likelihood
Open Artefact Scatters	Higher order streams are located within the vicinity of the study area. The dearth of known reliable raw material source within nearby landscape units, would suggest that the artefacts may be significant in number but smaller in size, on account to greater levels of stone tool reduction. Excavations in the vicinity of the study area indicate the presence of deposits that are suggestive of concentrated and repeated occupation.	Likely within undisturbed parts of the study area.
Isolated Artefacts	Higher order streams are located within the vicinity of the study area. The dearth of known reliable raw material source within nearby landscape units, would suggest that the artefacts may be significant in number but smaller in size, on account to greater levels of stone tool reduction. Excavations in the vicinity of the study area indicate the presence of deposits that are suggestive of concentrated and repeated occupation.	Likely within undisturbed parts of the study area.
Grinding Grooves	Boulders of sandstone or outcrops do not occur in the landscape units represented in the study area.	Unlikely
Stone Resource Sites	Rock outcrops of suitable flaking material are almost absent from the soil landscapes represented within the study area.	Unlikely
Scarred Trees	Trees of sufficient age onsite were inspected. No scarring/modified was present.	Unlikely
Sandstone Shelters	The soil landscapes of the study area do not contain sandstone overhangs	Unlikely
Burials	Undisturbed sandy loam deposits do not lie within the study area and the soil landscapes in which the study area is located are generally acidic. Skeletal remains tend to decompose very quickly in acidic soil profiles.	Unlikely
Ceremonial Sites	Consultation with relevant Aboriginal parties and individuals is taking place, however it is possible that such information may become available in the future as a result of further consultation	Possible that Ceremonial/Social sites will be present within the study area

4.7 DISTURBANCE FACTORS

This section of the report provides an assessment of the level of disturbance and the likely archaeological potential of the study area. The archaeological potential is based on the level of previous disturbance as well as the previously discussed predictive models for the region.

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010); defines disturbed lands as given below.

“Land is disturbed if it has been the subject of a human activity that has changed the land’s surface, these being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure and construction of earthworks).”

This definition is based on the types of disturbance as classified in The Australian Soil and Land Survey Field Handbook (CSIRO 2010). The following is a scale formulated by CSIRO (2010) of the levels of disturbances and their classification.

Minor Disturbance		Moderate Disturbance		Major Disturbance	
0	No effective disturbance; natural	3	Extensive clearing (e.g. poisoning and ringbarking)	6	Cultivation; grain fed
1	No effective disturbance other than grazing by hoofed animals	4	Complete clearing; pasture native or improved, but never cultivated	7	Cultivation; irrigated, past or present
2	Limited clearing (e.g. selected logging)	5	Complete clearing; pasture native or improved, cultivated at some stage	8	Highly disturbed (quarrying, road works, mining, landfill, urban)

The above scale is used in determining the level of disturbance of the study area and its impact on the potential archaeology which may be present.

It is important to note that the following assessments describe the *archaeological* potential of the study area. It is acknowledged if the study area has little or no archaeological potential the study area may still have cultural significance to the Aboriginal community.

4.7.1 Disturbance Summary

Background research indicates that past European land use has led to the clearing of the land in order to establish a recreation area of which the area remains today, with various upgrades having taken place. The current building on the study site has a basement which would have impacted on any *intact* soils – the proposed development activity looks to repurpose the basement without extending. These historical disturbances impacted the local landscape during the establishment of the sporting facilities.

In light of this and in the context of the information provided about the land use of the site, its proximity to the Centennial Parklands as well as some of the property being located

nearby former wetlands, this indicates that Aboriginal objects and/or deposits of archaeological and/or cultural heritage may be present within the deep profile of the area.

High disturbance to sections of the landscape: Sub-surface Aboriginal objects with potential conservation value have a **low** probability of being present within *intact* deposits located in the study area.



Figure 0-4 **Disturbance map of study area.**
Level of disturbance of the study site. Moderate disturbance indicated in orange.
NSW LPI Six Maps (accessed 07/09/18).

5.0 SITE SURVEY

No formal survey took place as the site lies wholly within a highly disturbed area, e.g. the Centennial Parklands, playing fields and associated bus roads and shelters at the Tramway Oval and in accordance with Section 2 of the Code, the approach and methodology chosen for the archaeological survey (in this instance, the absence of a survey) has utilised the information obtained from Requirements 1 to 4 of the Code instead. An archaeological survey was not expected to yield any information about the surface or subsurface deposits and therefore a survey sampling strategy was not developed.

6.0 SIGNIFICANCE ASSESSMENT

The processes of assessing significance for items of cultural heritage value are set out in *The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance: the Burra Charter* (amended 1999) formulated in 1979 and based largely on the Venice Charter of International Heritage established in 1966. Archaeological sites may be significant according to four criteria, including scientific or archaeological significance, cultural significance to Aboriginal people, representative significance which is the degree to which a site is representative of archaeological and/or cultural type, and value as an educational resource. In New South Wales the nature of significance relates to the scientific, cultural, representative or educational criteria and sites are also assessed on whether they exhibit historic or cultural connections.

6.1 ARCHAEOLOGICAL SIGNIFICANCE

6.1.1 Educational Significance

The educational value of any given location will depend on the importance of any archaeological material located, on its rarity, quality and the contribution this material can have on any educational process (Australia ICOMOS, 1999 p. 11).

No educational significance can be assigned to the study area at present.

6.1.2 Scientific Significance

The scientific value of any given location will depend on the importance of the data that can be obtained from any archaeological material located, on its rarity, quality and on the degree to which this may contribute further substantial information to a scientific research process. (Australia ICOMOS, 1999 p.11).

No scientific significance can be assigned to the study area at present.

6.1.3 Representative Significance

The representative value of any given location will depend on rarity and quality of any archaeological material located and on the degree to which this representativeness may contribute further substantial information to an educational or scientific research process. (Australia ICOMOS, 1999 p.11).

No representative significance can be assigned to the study area at present.

7.0 PROPOSED ACTIVITY

This section outlined the proposed activity including the staging and timeframes along with the potential harm of the proposed activity on Aboriginal objects and or declared Aboriginal places, assessing both the direct and indirect result of the activity on any cultural heritage values associated with the study area.

7.1 DESCRIPTION OF PROPOSED ACTIVITY AND IMPACTS

The proposed development involves the adaptive Royal Hall of Industries building and the southern service courtyard. (Figures 7.1 – 7.16). The development proposes to use the existing building framework with modifications/ replacement of fixtures and entryways. The external loading space and storage sheds within the southern courtyard will be demolished, to permit the construction of a 2-storey mixed-use building containing an indoor netball court, administration spaces, players facilities and a wet recovery area containing a 20m lap pool, hot and cold plunge pools and a sauna.

Landscaping works are proposed throughout the development, specifically along the eastern boundary and along a landscaped laneway between the two buildings.

The proposed activity is seen to involve minor impact with regards to the already heavily disturbed study site as the original layout and building framework including basement are being repurposed with no deep impacts proposed. If natural soils are encountered during excavation for the lift shaft and pools, work should cease and AMAC contacted as appropriate mitigation will need to take place as outlined in the recommendations below in Section 8.1.

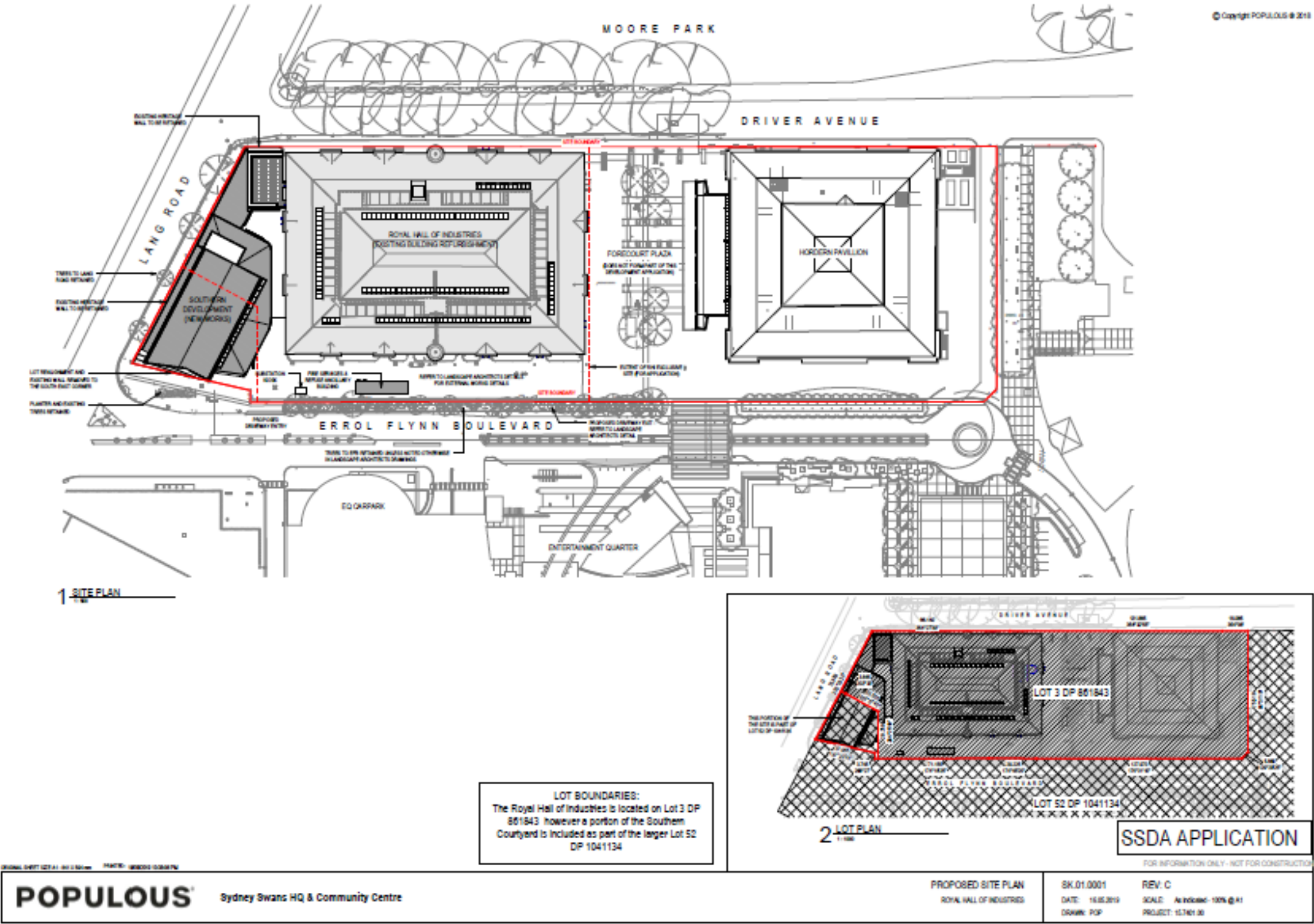


Figure 0-1 Proposed Site Plan.
Populous May 2019. Drawing No. SK.01.0001 Rev C.



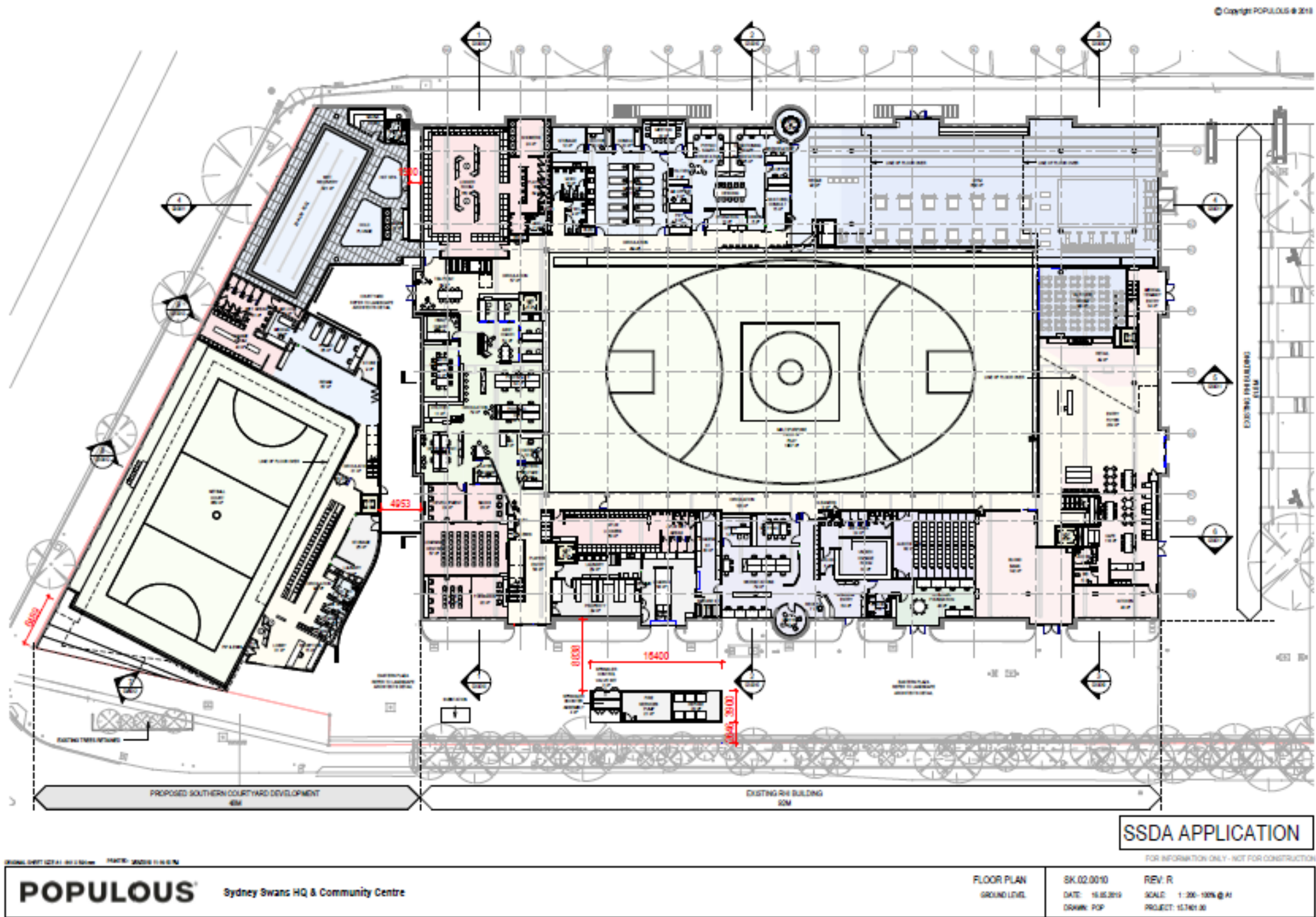


Figure 0-3 Proposed Floor Plan – Ground Level.
Populous May 2019. Drawing No. SK.02.0010 Rev R.

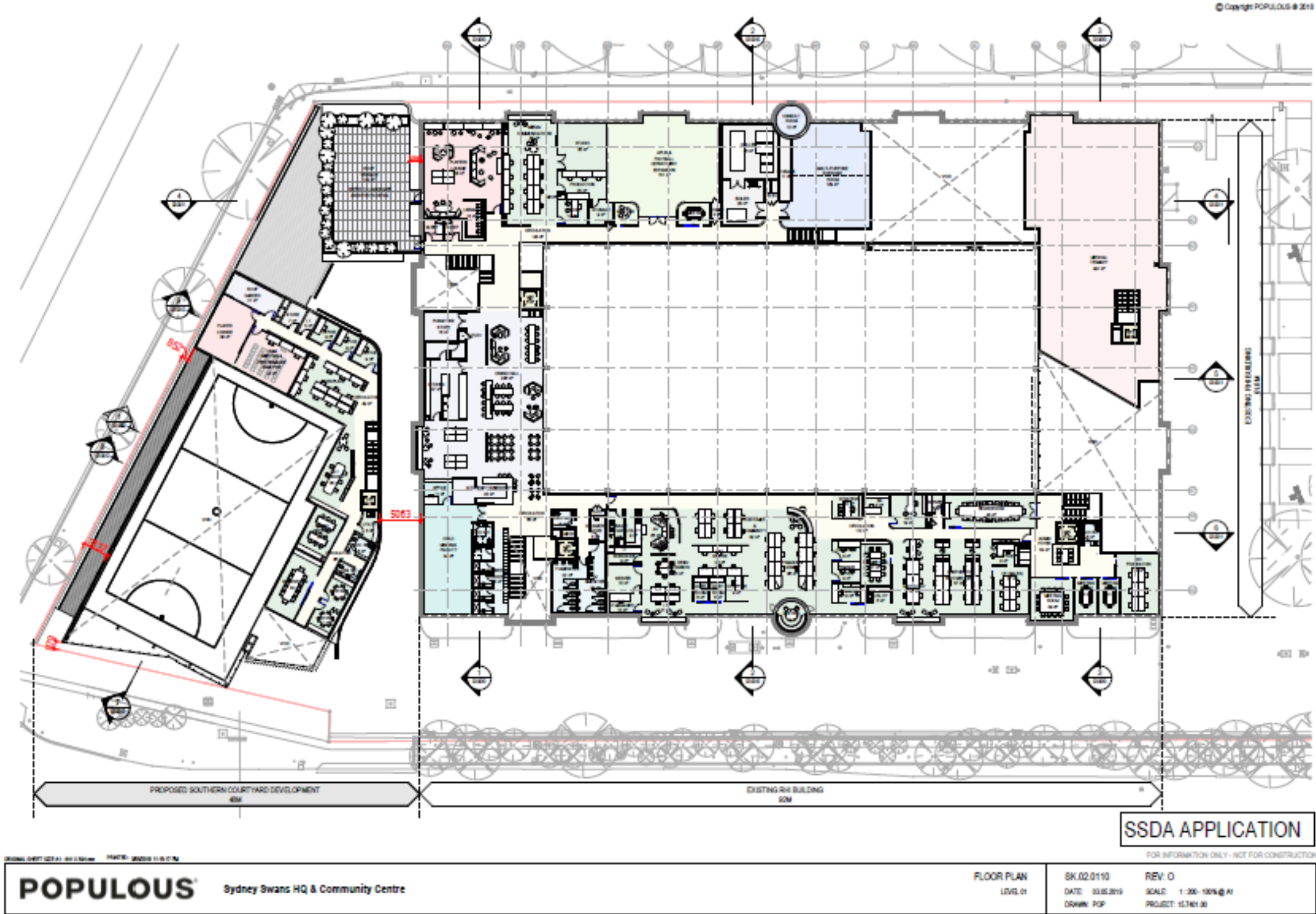


Figure 0-4 Proposed Floor Plan – Level 1
Populous May 2019. Drawing No. SK.02.0110 Rev 0.

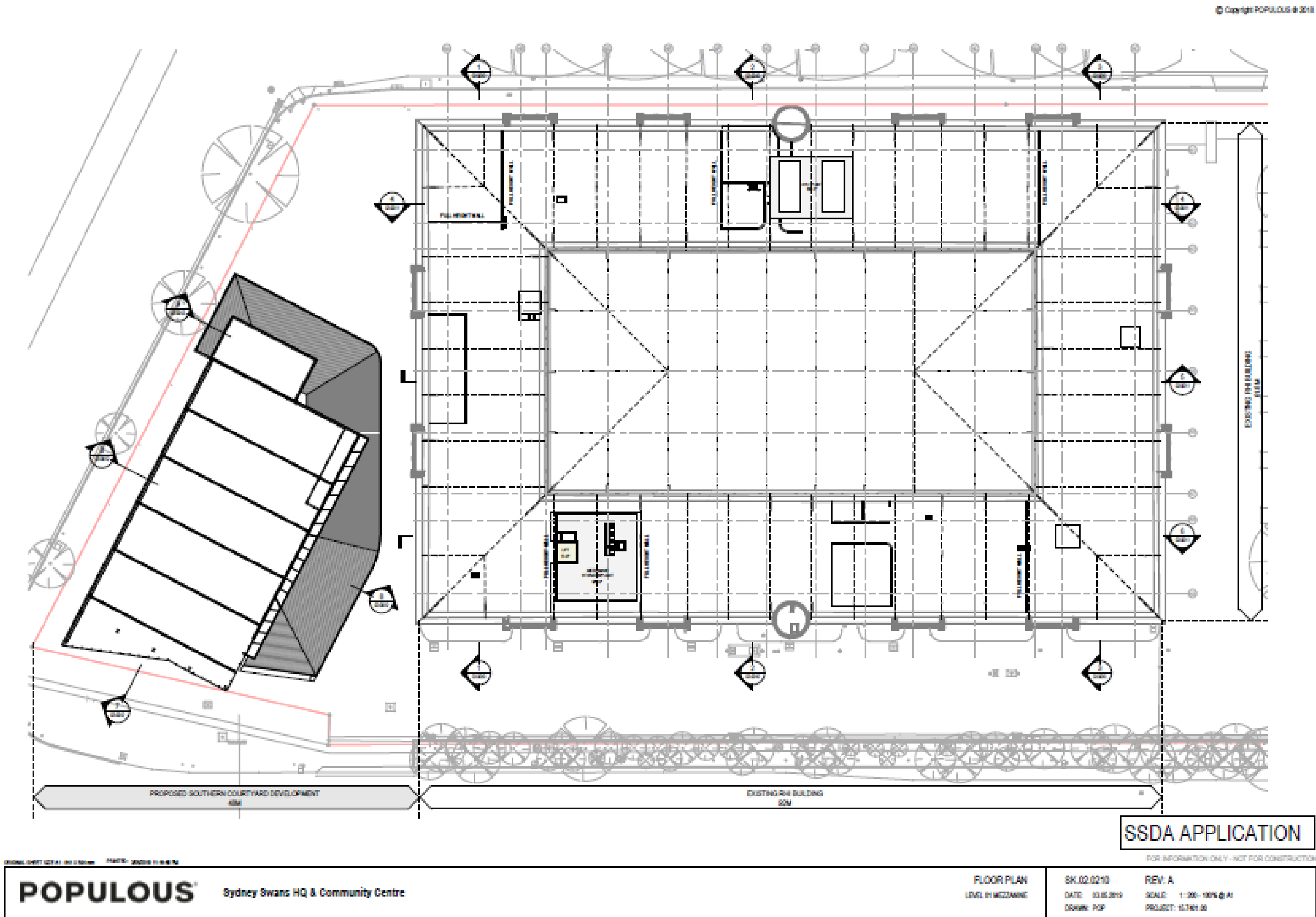


Figure 0-5 Proposed Floor Plan – Level 1 Mezzanine.
Populous May 2019. Drawing No. SK.02.0210 Rev A.

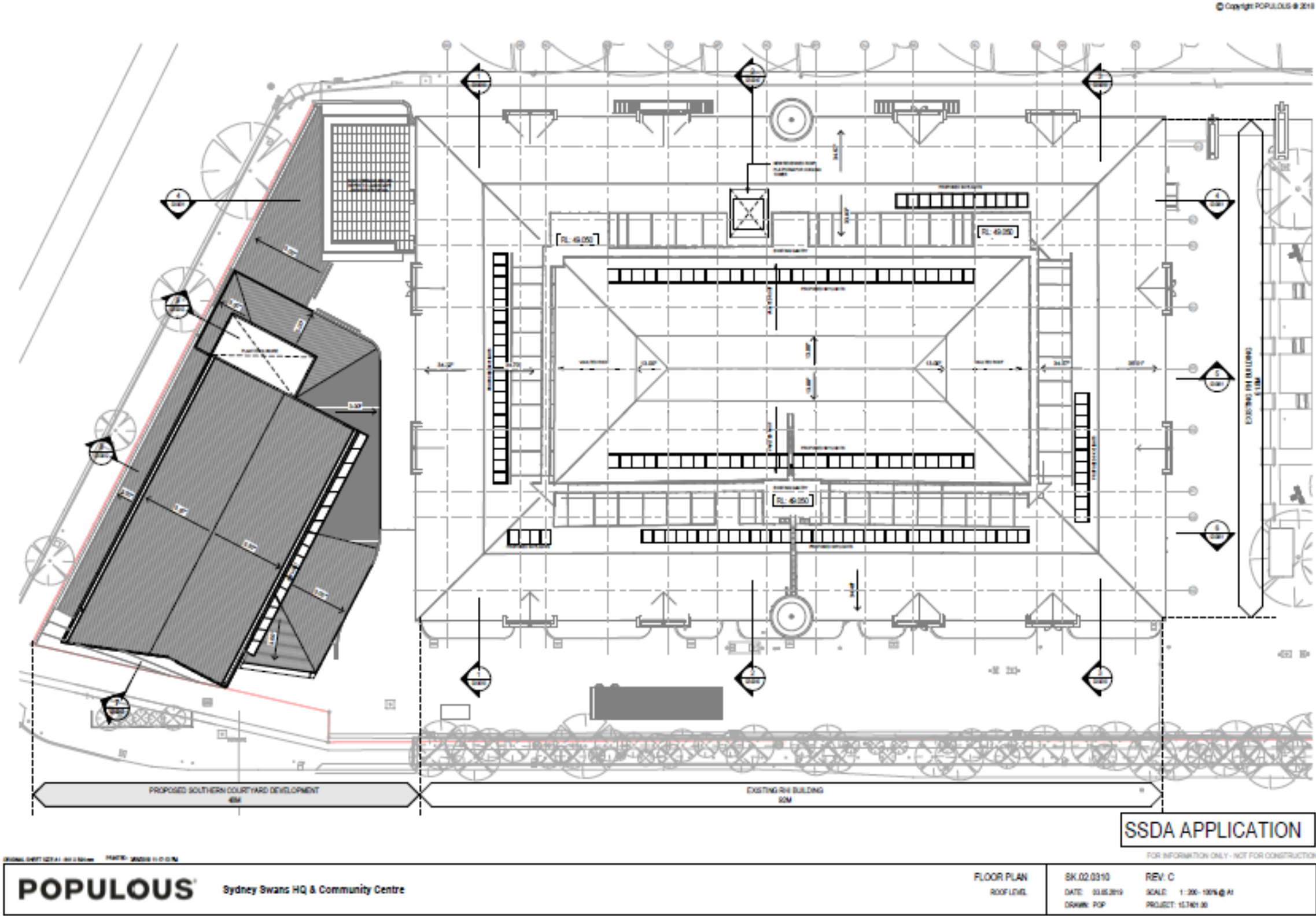


Figure 0-6 Floor Plan – Roof Level.
Populous May 2019. Drawing No. SK.02. 0310. Rev C.

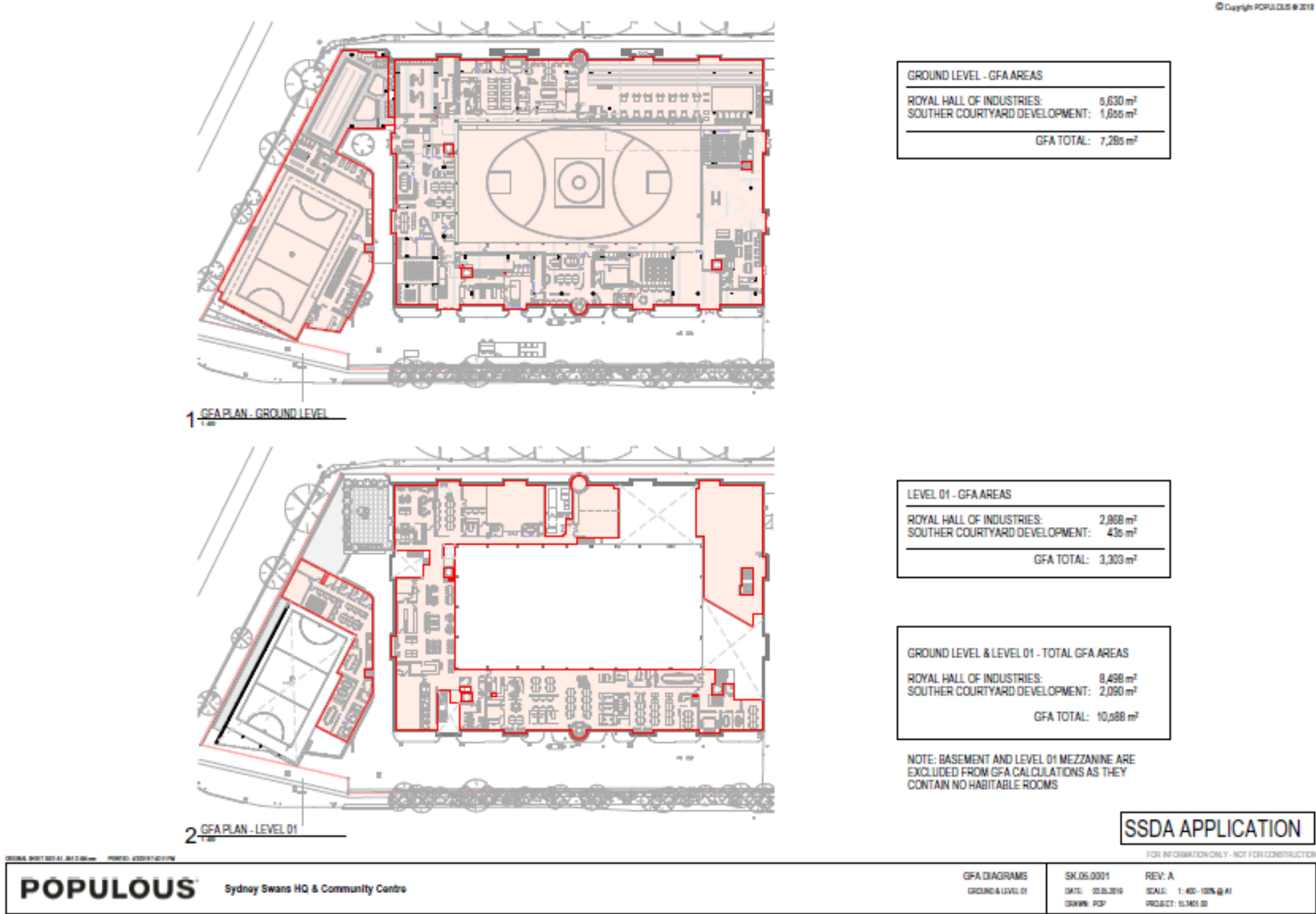


Figure 0-7 GFA Diagrams – Ground & Level 01.
Populous May 2019. Drawing No. SK.06. 0001. Rev A.

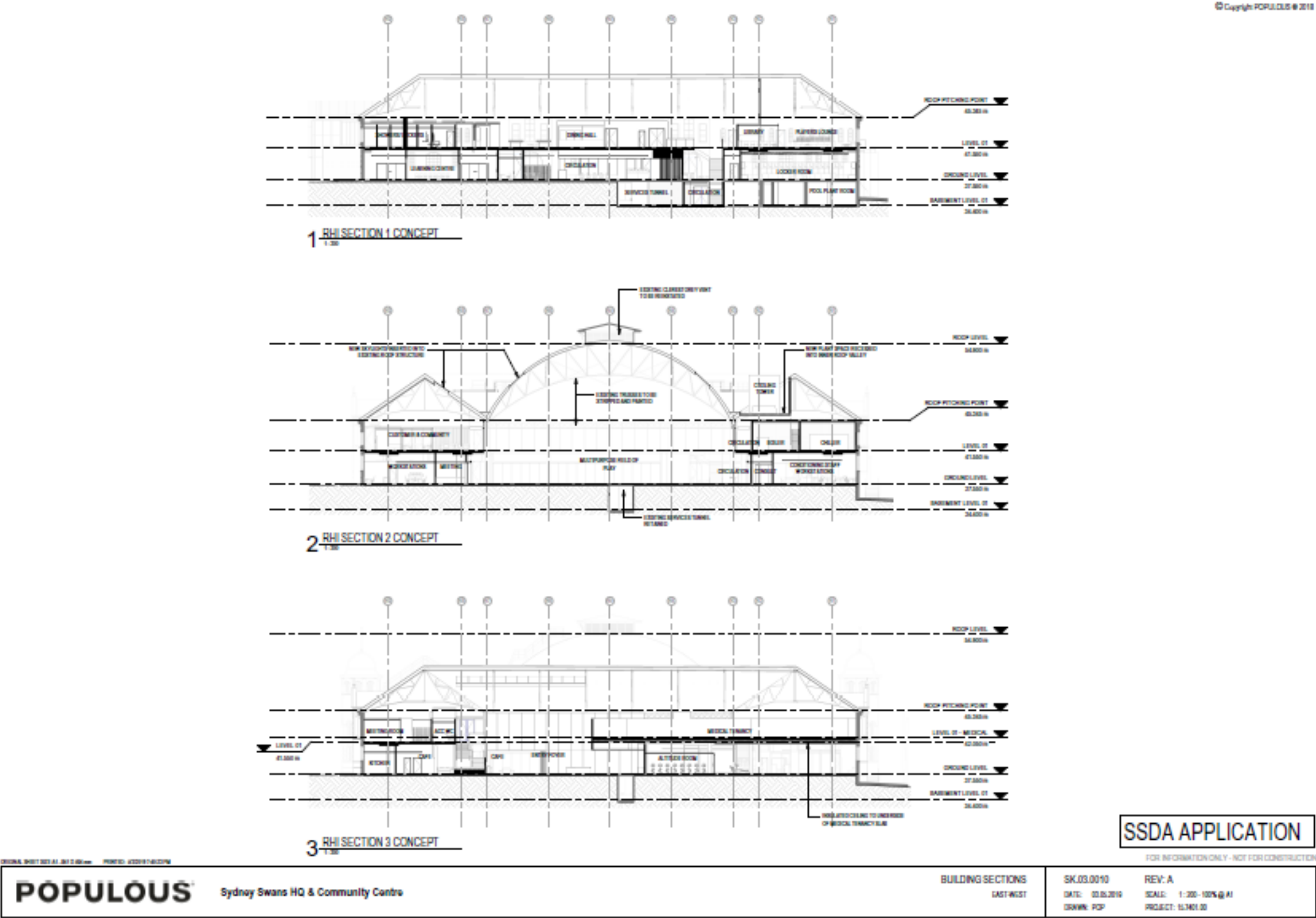


Figure 0-8 Building Sections – East - West.
Populous May 2019. Drawing No. SK.03. 0010. Rev A.

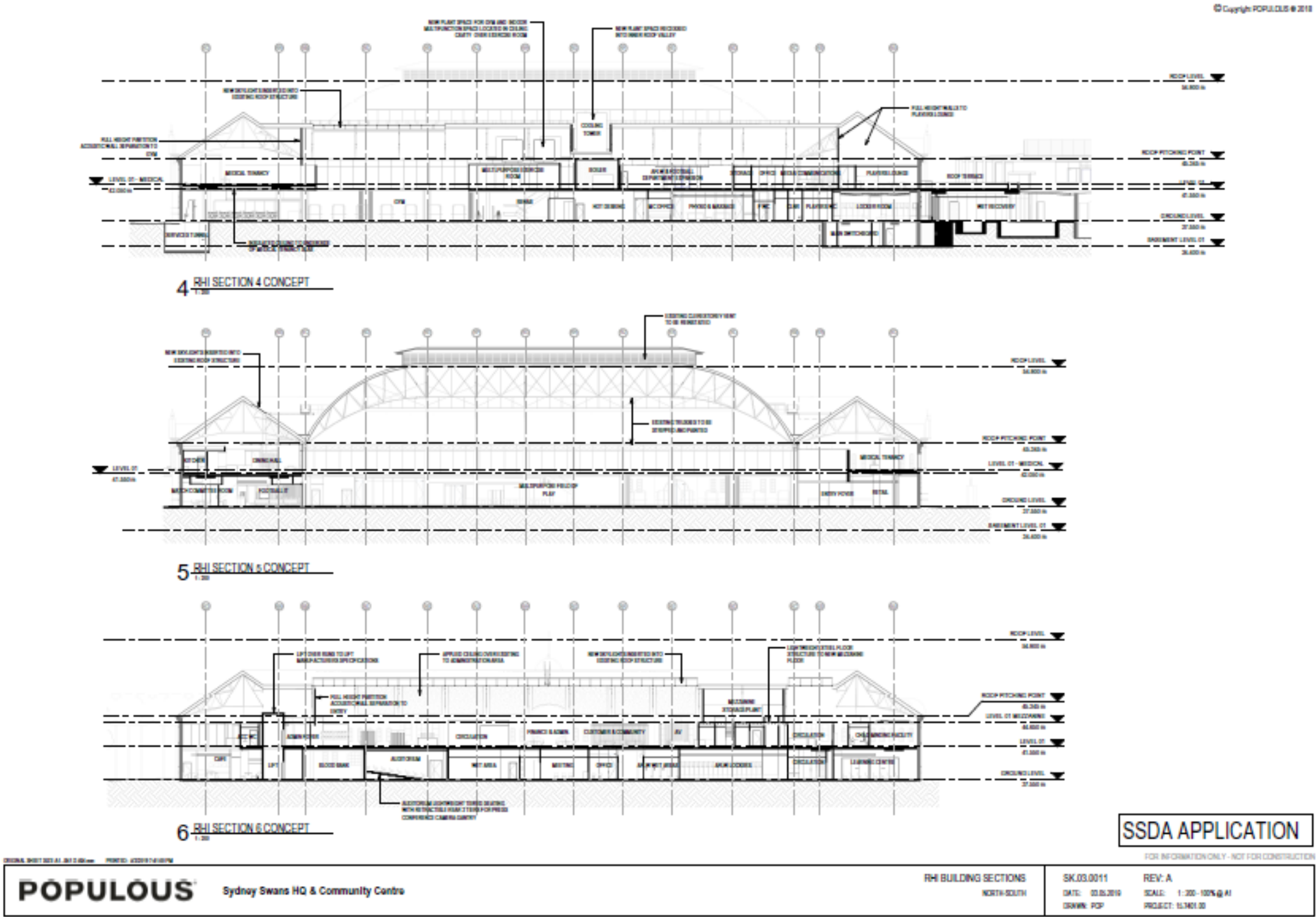


Figure 0-9 RHI Building Sections – North - South.
Populous May 2019. Drawing No. SK.03. 0011. Rev A.

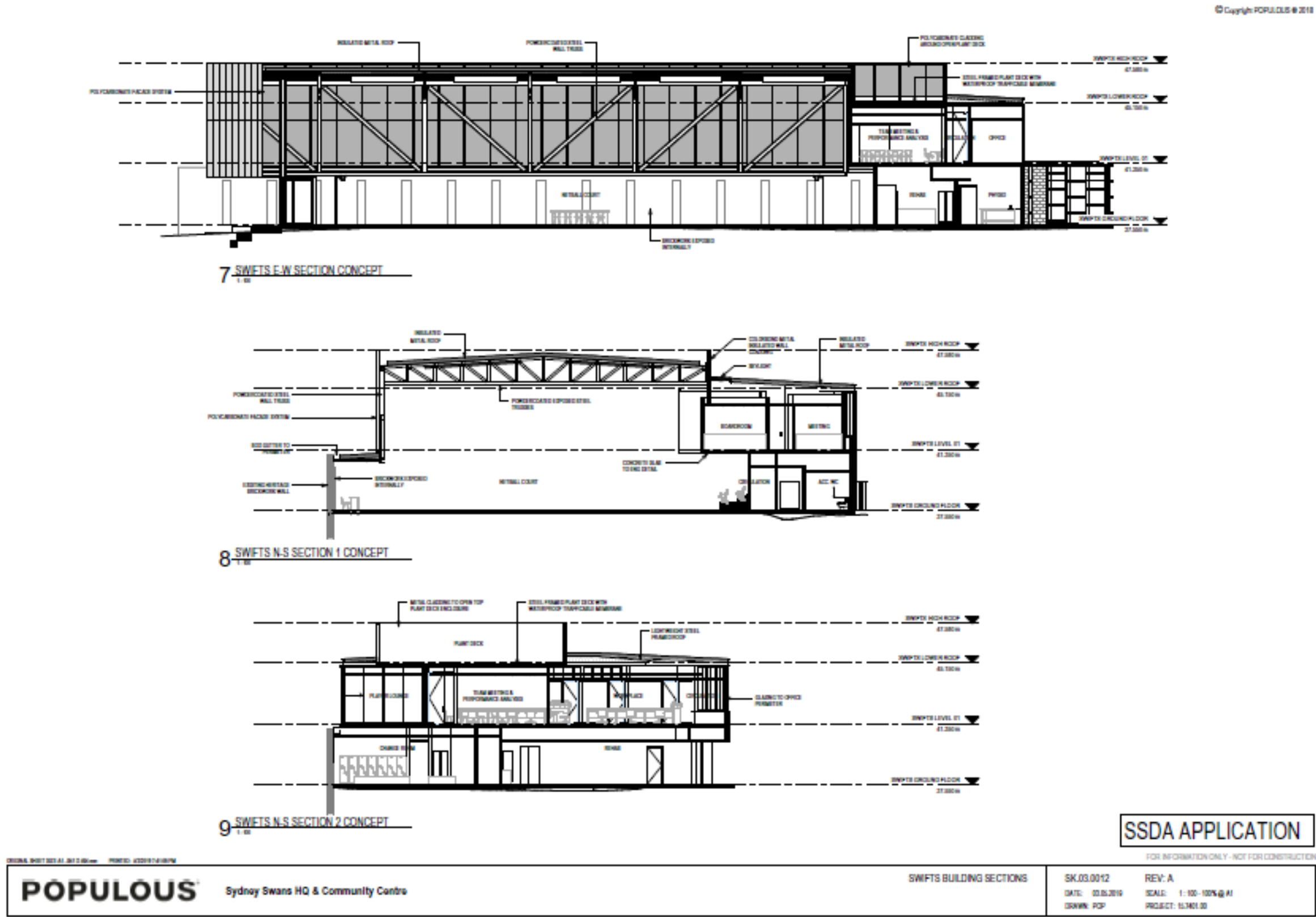


Figure 0-10 Swifts Building Sections.
Populous May 2019. Drawing No. SK.03. 0012. Rev A.

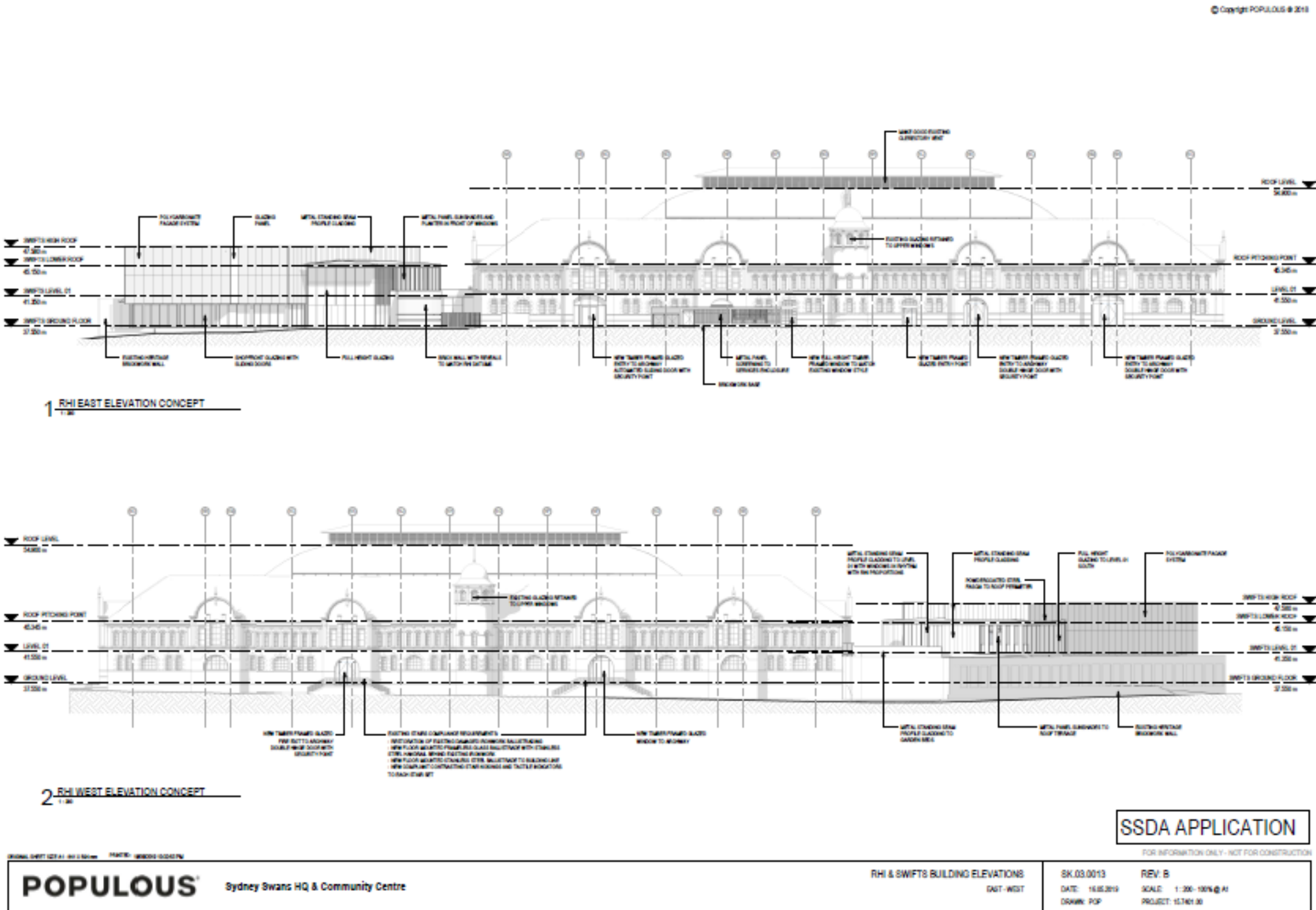


Figure 0-11 RHI & Swifts Building Elevations - East - West.
Populous May 2019. Drawing No. SK.03. 0013. Rev B.

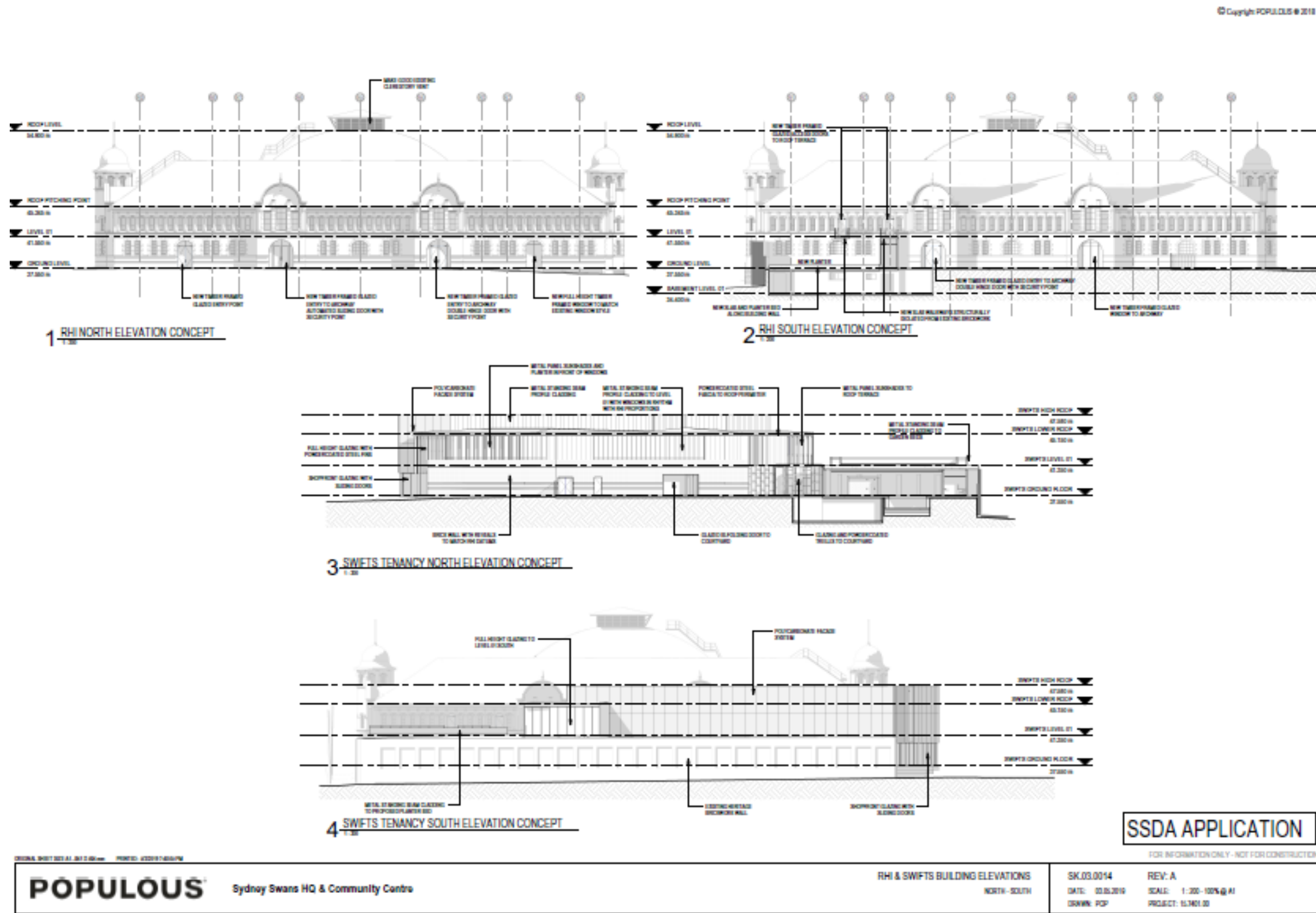


Figure 0-12 RHI & Swifts Building Elevations – North - South.
Populous May 2019. Drawing No. SK.03. 0014. Rev A.

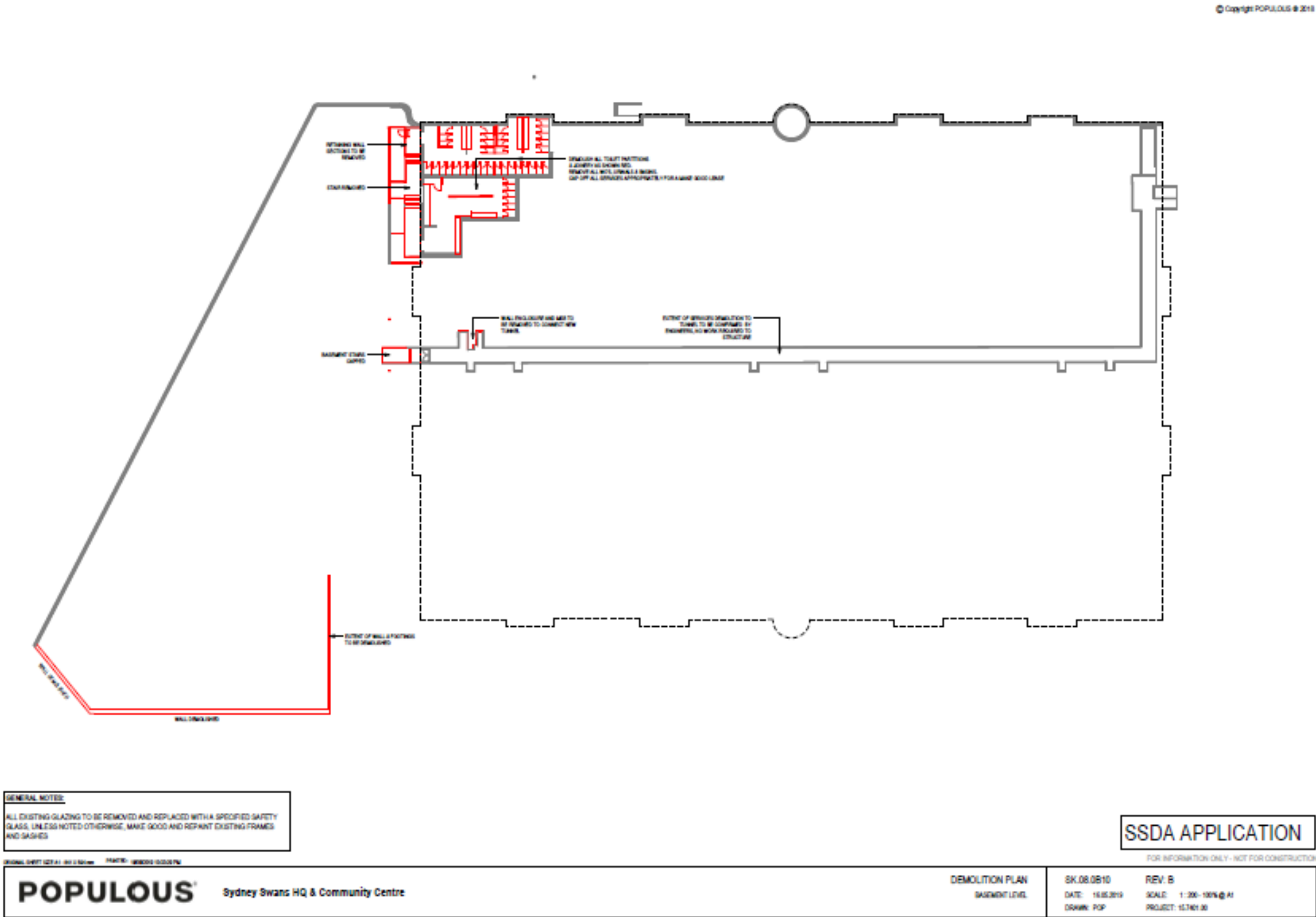


Figure 0-13 Demolition Plan – Basement Level.
Populous May 2019. Drawing No. SK.08. 0B10. Rev B.

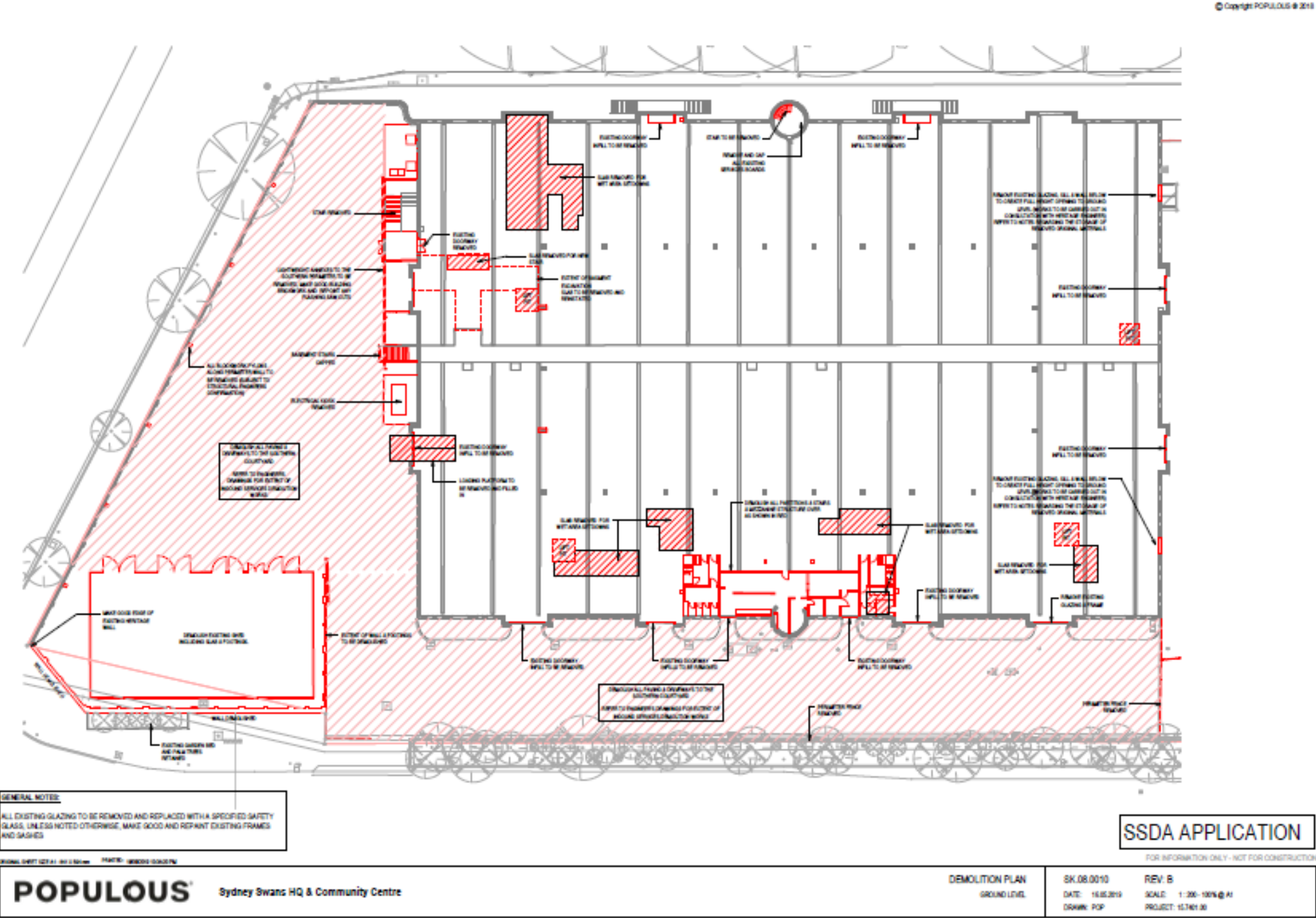
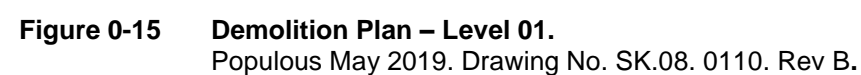
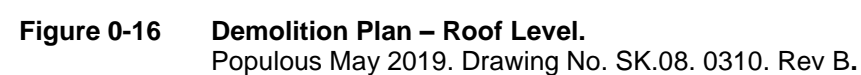


Figure 0-14 Demolition Plan – Ground Level.
Populous May 2019. Drawing No. SK.08. 0010. Rev B.





8.0 MANAGEMENT AND MITIGATION

The management recommendations presented in the following section of the report take into account the following:

- Legislation outlined in this report which protects Aboriginal cultural and archaeological objects and places in New South Wales;
- Research and assessment carried out by the author/s of this report;
- Results of previous archaeological assessment and excavation in the vicinity of the study area;
- The impact of the proposed development on any Aboriginal archaeological material that may be present;
- The requirements of the consent authority (Department of Planning and Environment).

8.1 RECOMMENDATIONS

There are no confirmed Aboriginal archaeological site records located within the study area on the Aboriginal Heritage Information Management System (AHIMS) or from other sources of information of which the author of this report is aware of.

The landscape has been identified as being heavily disturbed with the site located in the sporting grounds of Moore Park. Prior to land modification works, the site would have been part of a sand dune system interspersed by a complex of wetlands.

The study area has a deep soil profile with the potential for *intact* natural soils below the layers of fill. Based on this information, sub-surface Aboriginal objects with potential conservation value may be present within these undisturbed parts of the study area, however as the proposed activity will be involving minor surface works including paving and the repurposing of the current building framework, these natural profiles are unlikely to be encountered. Therefore, the proposed development may proceed with caution.

If natural soils are encountered, appropriate mitigation will need to take place as outlined in the recommendations below.

The recommendations have been formulated after consultation with the proponent and the Office of Environment and Heritage (OEH);

- If natural soils are encountered as outlined in section 3.0 of this document, the following should take place
 - Further assessment is required in the form of a full Aboriginal Cultural Heritage Assessment, including full Aboriginal community consultation in accordance with Part 6; National Parks and Wildlife Act, Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010);
 - Subsequent to this report and in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010)*, a program of systematic, sub surface archaeological test excavation in accordance with the *Code Of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 4 National Parks and Wildlife Act 1974 (DECCW 2010)*,

should be undertaken to establish the nature and extent of any archaeological objects and/or deposits that are/may be present.

- If archaeological test excavation in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010)* reveals no Aboriginal archaeological objects or deposits; The proposed activity as outlined in Figure 7.1 – 7.16, should be allowed to ‘proceed with caution’;
- If archaeological test excavation in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974 (DECCW 2010)* reveals Aboriginal archaeological objects or deposits; once the nature and extent of the archaeological site has been established through test excavation and this data has been analysed and synthesised into a test excavation report, an Aboriginal Heritage Impact Permit will need to be applied for and in place before the proposed activity can commence;
- Before any ground disturbance takes place all development staff, contractors and workers should be briefed prior to works commencing on site, as to the status of the area and their responsibilities in ensuring preservation of the said area. They should also be informed of their responsibilities regarding any Indigenous archaeological deposits and/or objects that may be located during the following development;

Should any human remains be located during the following development;

- all excavation in the immediate vicinity of any objects of deposits shall cease immediately and the area is to be secured so no further harm is to come to these remains;
- the NSW police and OEH’s Environment Line 131 555 are to be informed as soon as possible including any available details of the remains and their location;
- once it has been established that the human remains are Aboriginal ancestral remains, authorisation is required by OEH in consultation with relevant Registered Aboriginal Parties identifying the appropriate course of action

9.0 STAKEHOLDER CONSULTATION

9.1 ABORIGINAL CULTURAL HERITAGE MANGAMENT PLAN

The first stage of consultation for the Aboriginal Cultural Heritage Management Plan in accordance with Part 6; National Parks and Wildlife Act, Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010) was completed on the 13th May 2019 with the next stage to continue.

GLOSSARY

Term	Definition
Aboriginal/ Aborigine	These terms apply to indigenous Australians throughout time.
Aboriginal Object	A term now used (formerly 'relic') within the NSW <i>National Parks and Wildlife Act, 1974</i> to refer to "...any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains."
AHIP	Aboriginal Heritage Impact Permit, issued under Part 6 of the National Parks and Wildlife Act 1974, where harm to an Aboriginal object or Aboriginal place cannot be avoided.
Alluvial	Describes material deposited by, or in transit in flowing water.
AMAC	Archaeological Management and Consulting Group.
Artefact	Any object, usually portable, that has been made or shaped by human hand.
Assemblage	A collection of artefacts found in close proximity with one another often excavated together.
Axe grinding Grooves	Areas on a stone surface where other items such as stone tools, wood or bones have been sharpened.
Basalt	A dark coloured, basic volcanic rock.
Bioturbation	Reworking of sediments through the action of ground dwelling life forms. This can also include soil cracking and root activity.
Broken Flake	A flake fragment which displays only part of the diagnostic features of a complete flake.
BP	Before present (AD1950).
Burial	Sites containing the physical remains of deceased Aboriginal people.
Ceremonial Sites	Places or objects of ceremonial, religious or ritual significance to Aboriginal people.
DCP	Development Control Plan.
DoPE	Department of Planning and Environment
DP	Deposited Plan.
Erosion	Process where particles are detached from rock or soil and transported away principally via water, wind and ice.
Flake	A piece of stone, detached by striking a core with another stone.
Flaking/Knapping	The process of making stone tools by detaching flakes from a piece of stone.
Friable	Easily crumbled or cultivated.
Hard setting	Soil which is compact and hard. It appears to have a pedal structure when dried out.
Heritage Division	Formerly known as the Heritage Branch

Holocene	The period of time since the last retreat of the polar icecaps, commencing approximately 10,000 – 110,000
Intensification	Increased social and economic complexity.
Landscape Unit	An area of land where topography and soils have distinct characteristics, are recognisable, describable by concise statements and capable of being represented on a map.
Laminite	A thinly bedded, fine grained sedimentary rock.
LEP	Local Environment Plan.
LGA	Local Government Area.
Lithics	A term used to describe stone and stone artefacts.
Loam	A medium textured soil of approximate composition of 10-25% clay, 25-50% silt and 2% sand.
Loose	A soil which is not cohesive.
Matrix	Finer grained fraction, typically a cementing agent within soil or rock in which larger particles are embedded.
Midden	Aboriginal occupation site consisting chiefly of shells, which can also include bone, stone artefacts and other debris.
NPW Act	National Parks and Wildlife Act 1974
OEH	NSW Office of Environment and Heritage (formerly known as the DECCW)
Open Campsite	A surface accumulation of stone artefacts and/ or other artefacts exposed on the ground surface.
Potential Archaeological Deposit (PAD)	An area where no surface archaeological remains are visible but where it has been assessed that there is some potential for sub-surface archaeological remains to be present.
Ped	An individual, natural soil aggregate.
Pedal	Describes a soil in which some or all of the soil material occurs in the form of peds in a moist state.
Plastic	Describes soil material which is in a condition which allows it to undergo permanent deformation without appreciable volume change or elastic rebound and without rupture.
Pleistocene	The epoch of geological time starting 1.8 million years ago.
RAP	Registered Aboriginal Parties
Rock Painting	Encompassing drawing, paintings or stencils that have been placed on a rock surface usually within a rock shelter.
Rock Engraving	Pictures which have been carved, pecked or abraded into a rock surface, usually sandstone and predominantly open, flat surfaces.
Sandstone	A detrital sedimentary rock with predominantly sand sized particles.
Scarred/ Carved Tree	A tree from which bark has been deliberately removed.
Sclerophyll	Denoting the presence of hard stiff leaves, typically used to classify forest and indicative of drier conditions.
Sedimentation	Deposition of sediment typically by water.
Silcrete	A sedimentary rock comprising of quartz grains in a matrix of fine grained – amorphous silica.
Silt	Fine soil particles in size ranges of 0.02 – 0.002mm.

Slope	A landform element inclined from the horizontal at an angle measured in degrees or as a percentage.
SHI	State Heritage Inventory
SHR	State Heritage Register
Subsoil	Subsurface material comprising the B and C horizons of soils with distinct profiles.
Stone Resource Site	A geological feature in the landscape from which raw material for the manufacture of stone tools was obtained.
Texture	The coarseness or fineness of a soil as measured by the behaviour of a moist ball of soil when pressed between the thumb and forefinger.
Topsoil	A part of the soil profile, typically the A1 Horizon, containing material which is usually darker, more fertile and better structured than the underlying layers.
Weathering	The physical and chemical disintegration, alteration and decomposition of rocks and minerals at or near the earth's surface by atmospheric and biological agents.

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APPENDIX A: AHIMS EXTENSIVE SITE SEARCH RESULTS