Site type	Site description	Potential
Aboriginal places	Aboriginal places may not contain any 'archaeological' indicators of a site, but are nonetheless important to Aboriginal people. They may be places of cultural, spiritual or historic significance. Often they are places tied to community history and may include natural features (such as swimming and fishing holes), places where Aboriginal political events commenced or particular buildings.	Low: There are currently no recorded Aboriginal historical associations for the study area.
Rock shelters with art and / or deposit	Rock shelter sites include rock overhangs, shelters or caves, and generally occur on, or next to, moderate to steeply sloping ground characterised by cliff lines and escarpments. These naturally formed features may contain rock art, stone artefacts or midden deposits and may also be associated with grinding grooves.	Nil: The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist.

4 Archaeological survey

In addition to the archaeological survey undertaken in February 2018 for a due diligence assessment, an archaeological and cultural survey of the study area was undertaken on 22 February 2019 by Charlotte Allen (Archaeologist, Biosis), and Kevin Telford (Cultural Heritage Officer, Metropolitan LALC). The field survey sampling strategy, methodology and a discussion of results are provided below.

4.1 Archaeological survey objectives

The objectives of the survey were to:

- Provide representatives of the registered aboriginal parties (RAPs) an opportunity to view the study area and to discuss previously identified Aboriginal object(s) and/or place(s) in or within close proximity to the study area.
- Undertake a systematic survey of the study area targeting areas with the potential for Aboriginal heritage.
- Identify and record any areas of Aboriginal archaeological and cultural sensitivity.

4.2 Archaeological survey methodology

The survey methods were intended to assess and understand the landforms and to determine whether any archaeological material from Aboriginal occupation or land use exists within the study area.

4.2.1 Survey sampling strategy

The survey effort targeted those portions of the study area that will be impacted by the proposed works. The purpose of this strategy was to allow for the Metropolitan LALC to view these locations and provide any additional cultural information which may contribute to the assessment of the study area.

4.2.2 Survey methods

The archaeological survey was conducted on foot with a field team of two members. Recording during the survey followed the archaeological survey requirements of the Code and industry best practice methodology. Information that recorded during the survey included:

- Aboriginal objects or sites present in the study area during the survey.
- Survey coverage.
- Any resources that may have potentially have been exploited by Aboriginal people.
- Landform.
- Photographs of the site indicating landform.
- Evidence of disturbance.
- Aboriginal artefacts, culturally modified trees or any other Aboriginal sites.

Where possible, identification of natural soil deposits within the study area was undertaken. Photographs and recording techniques were incorporated into the survey including representative photographs of survey units, landform, vegetation coverage, GSV and the recording of soil information for each survey unit were possible. Any potential Aboriginal objects observed during the survey were documented and photographed.

The location of Aboriginal cultural heritage and points marking the boundary of the landform elements were recorded using a hand-held Global Positioning System and the Map Grid of Australia (94) coordinate system.

4.3 Archaeological survey results

A series of meandering transects were walked across slope and crest landforms by the two team members (Figure 10). No Aboriginal sites or PADs were identified within the study area during the survey. The results from the field survey have been summarised below.

The study area is located across two landform units; a crest, and an upper slope which falls in a south-easterly direction towards Tarban Creek, Tarban Bay and the Parramatta River (Plate 15, Plate 16). The areas of proposed works are situated on both landforms: the south-eastern corner is situated on the lowest part of the upper slope within the study area (Plate 17); the north-eastern corner is positioned on the upper slope at a slightly higher elevation (Plate 18); and the north-western corner is on the edge of the crest landform (Plate 19).

Plate 15 **View south from the southern part of the upper slope landform towards Gladesville Road**

Plate 16 **Western view of the crest landform**

Plate 17 View of south-eastern portion of the study area, facing north-west

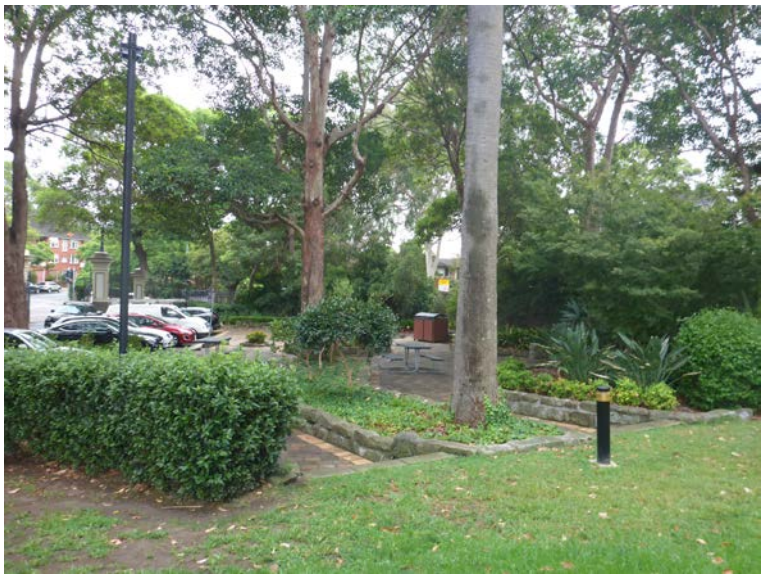


Plate 18 View towards area of proposed works in the north-eastern portion of the study area, facing north-east

Plate 19 View of area of proposed works in north-western corner of the study area, facing west

There has been a significant amount of disturbance throughout the study area. These disturbances include levelling fills, which in parts of the south-eastern corner extend deeper than 1.7 metres in the basketball court area, construction of multi-storey buildings, roads, footpaths, carparks, landscaping sports facilities such as swimming pools and sports courts, and associated sub-surface infrastructure. The area of proposed works in the south-eastern corner consists of terraced sports courts, an access driveway and parking, facilities buildings and storage/stockpiling areas (Plate 17, Plate 20, Plate 21). The north-eastern corner contains landscaped garden beds, road access and parking facilities, with some existing infrastructure present (Plate 18). The north-western corner largely features landscaped lawns and garden beds, a statue and footpaths (Plate 19, Plate 22, Plate 23).

Plate 20 **View of terracing for the sports courts in the south-eastern portion of the study area, facing south**

Plate 21 **View of facilities buildings, paved road and path areas and storage space in the south-eastern portion of the study area, facing west**

Plate 22 **Landscaped lawns and garden areas in the north-western portion of the study area, facing south-west**

Plate 23 **View of lawn and garden area in the north-western portion of the study area, facing north**

A comment was made by Kevin Telford of the Metropolitan LALC regarding the possibility of remnant grinding groove or rock engraving sites present on the sandstone bedrock underlying the levelling fills. While the AHIMS search undertaken for this assessment showed some instances of these site types within the search area, these were all located on lower ground and in closer proximity to water. Additional research was undertaken as a result of this comment to investigate the likelihood of these site features being located on the landforms within the study area (see Section 3.2.3).

4.3.1 Discussion of archaeological survey results

The archaeological survey was conducted in one day with a field team of two members, which consisted of Charlotte Allen (Biosis) and Kevin Telford (Metropolitan LALC). Generally, the survey was hampered by poor ground surface visibility (approximately 10%) throughout the majority of the areas to be impacted by proposed works. This was due to vegetation, grass cover, and disturbance caused by standing structures, and paved areas such as roads, footpaths and carparks. Despite the known presence of introduced fill material within the study area, particularly in the south-eastern portion, locations featuring exposed ground surface were inspected for the presence of any artefacts which may be present within the fill material (Plate 20, Plate 24, Plate 25). Within the north-western portion of the study area, exposures contained shell fragments, but

also European artefactual material such as ceramic, glass and brick fragments, suggesting that the area has also been subject to levelling with introduced fill (Plate 26). No Aboriginal objects were identified during the survey. The study area has been subjected to extensive clearing and no mature trees were identified within the area of proposed works, limiting the potential for scarred trees to be located within the study area. No sandstone rock outcroppings were located within the study area capable of supporting art sites or grinding grooves, and no midden or shell remains consistent with Aboriginal resource exploitation were visible within the study area at the time of survey.

The survey confirmed that Aboriginal heritage sites are unlikely to occur within the study area. This conforms broadly with the predictive statements in Section 3.3.1, where Aboriginal sites are more likely to occur in areas adjacent to permanent fresh water sources and other resource gathering sites. The presence of middens and other sites within 500 metres of the study area suggest that Aboriginal people most likely frequented the area due to its proximity to the resource-rich, estuarine foreshores of the Parramatta River. However, given the likelihood of soil erosion due to the surrounding topography and the extensive disturbance to, and modification of, the original soil profiles, there is limited opportunity for sub-surface archaeological deposits to have survived.

Plate 24 **Area of exposure in the south-eastern portion of the study area, facing west**

Plate 25 **Area of exposure in the north-western portion of the study area, facing north**

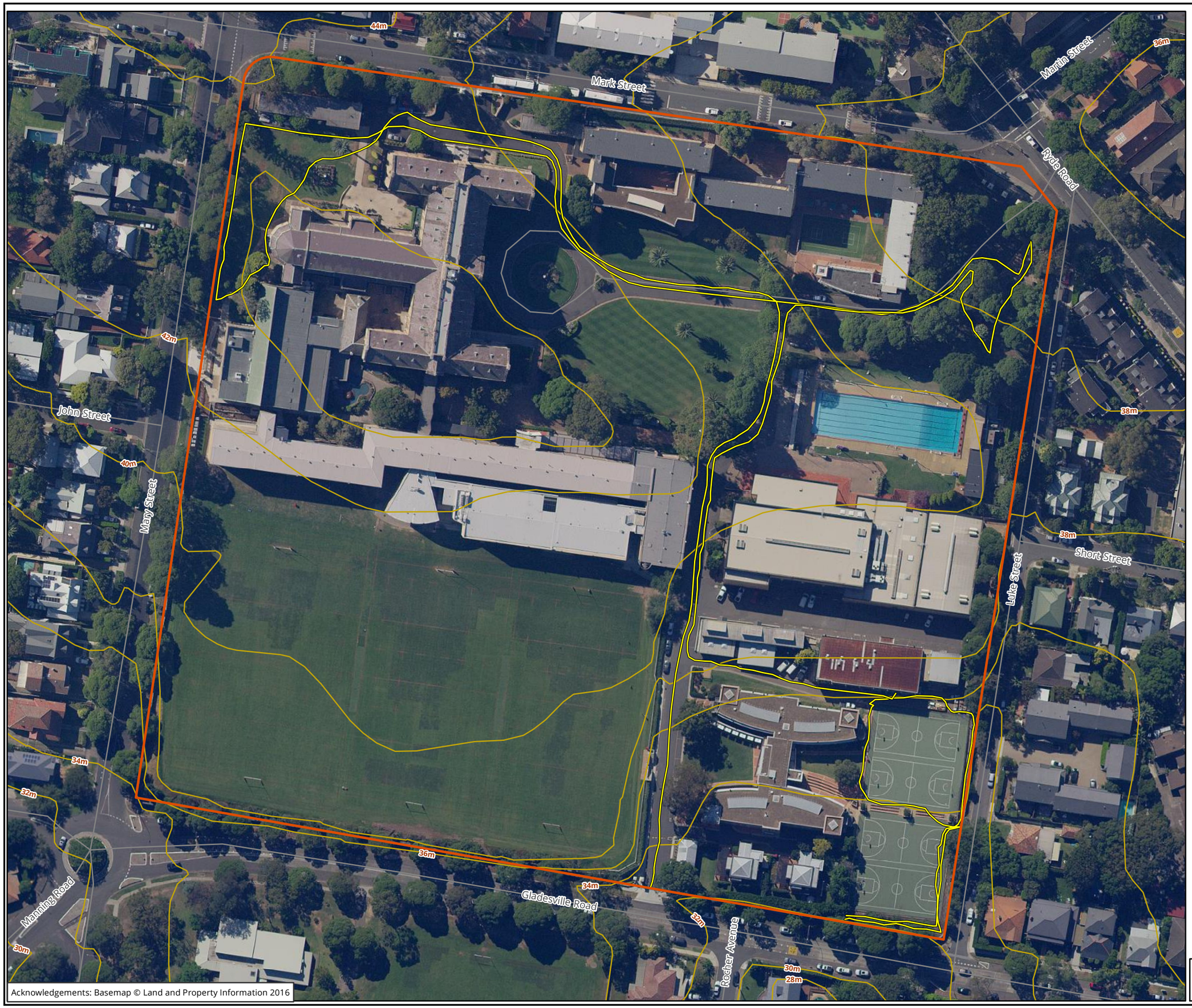
Plate 26 **Detail of shell, brick and other inclusions in an exposure in proximity to area of proposed works in the north-western portion of the study area**

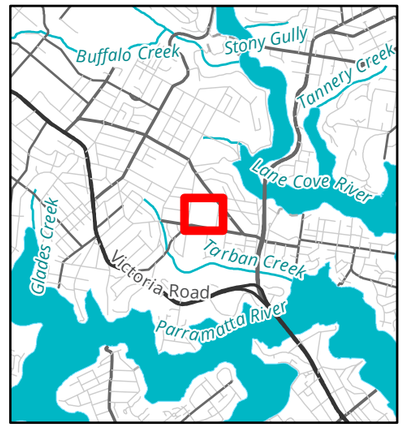
Table 5 Survey coverage

Survey unit	Landform	Survey unit area (m²)	Visibility (%)	Exposure (%)	Effective coverage area (m²)	Effective coverage (%)
Survey unit 1	Crest and upper slope	7,3000	75	10	1,0950	7.5

Table 6 Landform summary

Landform	Landform area (m²)	Area effectively surveyed (m²)	Landform effectively surveyed (%)	No. of Aboriginal sites	No. of artefacts or features
Crest	53830.07	1464.66	3	Nil	Nil
Upper slope	19097.56	3386.46	18	Nil	Nil





Legend

- Study area
- Survey tracks

Figure 10 Survey coverage

0 10 20 30 40 50

Metres

Scale: 1:1,200 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

Biosis Pty Ltd

Albury, Ballarat, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 29211
Date: 08 July 2019,
Checked by: CLA, Drawn by: AEDM, Last edited by: amurray
Location:P:\29200s\29211\Mapping
29211_AR_F10_SurveyCoverage

Acknowledgements: Basemap © Land and Property Information 2016

5 Test excavation

Following the results of the field survey, a test excavation program was undertaken within the north-western and north-eastern areas of proposed works within the study area. These areas were assessed as having low archaeological potential as part of the field investigation due to the high levels of previous disturbance identified, and lack of landscape features which would indicate Aboriginal people utilised the area for occupational purposes. The purpose of the test excavation program was to determine if Aboriginal objects exist within the study area in order to confirm the assessment of low potential.

The south-eastern area of proposed works was not subjected to testing due to the considerable levels of disturbance identified in the archaeological survey and geotechnical testing. The results of the landscape context research also indicates the topography and erosional soil landscape present within the study area would not be conducive to the preservation of intact sub-surface cultural deposits.

The test excavations program was undertaken by Biosis archaeologists Ashley Bridge and Ashleigh Keevers-Eastman. Fieldwork was attended by Nick DeZwart of Amanda Hickey Cultural Services. Test excavations were conducted in accordance with requirement 16a of the Code. The sampling strategy, methodology and results of the test excavation program are discussed below.

5.1 Test excavation objectives

The objectives of the sub-surface investigation are to characterise the extent, nature and archaeological (scientific) value of cultural heritage within the north-western and north-eastern areas of the study area which will be impacted by the proposed works.

5.2 Test excavation methodology

Test excavations were conducted in accordance with the Code and conformed to the below methodology:

- Test excavations will be conducted in 50 x 50 centimetre units.
- The test excavation units will be excavated by hand (inclusive of trowels, spades and other hand tools) along transects at intervals of between 10 – 20 metres or other justifiable and regular spacing (being no smaller than five metres).
- The first test pit within a site or PAD area will be excavated in five centimetre spits; the subsequent test pits conducted within the site or PAD area can then be excavated in either 10 centimetre spits or stratigraphic units (whichever is smaller) to the base of Aboriginal object-bearing units being the removal of the A-horizon soil deposit down to the sterile clay or bedrock layer (B-horizon).
- If the depth of deposit prevents reaching sterile deposits within the 50 x 50 centimetre test pit, additional 50 x 50 centimetre test pits may be excavated adjacent to the original test pit (for example expanding the test pit to 50 x 100 centimetres) to reach the sterile deposits.
- Test pits may be combined and excavated as necessary in 50 x 50 centimetre units for the purposes of further understanding site characteristics. Note that under the Code, the maximum area that can be excavated in any one continuous area is three metres squared (3 m^2).
- The Code dictates that the maximum surface area of all test excavation units must be no greater than 0.5% of the PAD or area being investigated.

- All excavated soil will be sieved in 5mm sieves. Dry sieving will be attempted in the first instance, however wet sieving may be used if deposits cannot be dry sieved.
- All cultural material will be collected, bagged and clearly labelled. They will be temporarily stored in the Biosis office for analysis (at Unit 14, 17-27 Power Avenue, Alexandria).
- The following documentation will be taken for the test pit:
  - Unique test pit identification number.
  - GPS coordinate.
  - Munsell soil colour, texture and pH.
  - Amount and location of cultural material within the deposit.
  - Nature of disturbance where present.
  - Stratigraphy.
  - Archaeological features (if present).
  - Photographic records.
  - Spit records.
- The test excavation unit must be backfilled as soon as practicable due to safety issues.
- An AHIMS Site Impact Recording form will be completed and submitted to the AHIMS Registrar for any sites impacted during test excavations.
- In the event that suspected human remains are identified works will immediately cease and the NSW Police and DPIE (formerly OEH) will be notified.
- Test excavations will cease when enough information* has been recovered to adequately characterise the objects present with regard to their nature and significance.

**Enough information is defined by DPIE (formerly OEH) as meaning "the sample of excavated material clearly and self-evidently demonstrates the deposit's nature and significance. This may include things like locally or regionally high object density: presence of rare or representative objects: presence of archaeological features: or locally or regionally significant deposits stratified or not." (DECCW 2010c).*

5.3 Test excavation results

A total of 5 test pits were excavated across the north-western and north-eastern areas of proposed works within the study area. Individual test pit and soil analysis results are provided Appendix 3. Results by area of proposed works are shown in Table 8 and Figure 11, and a detailed discussion of results is provided below.

Table 7 Test excavation results by area of proposed works

Location	Landform	Site area (m^2)	Area tested (m^2)	Site effectively tested (%)	No. of test pits	No. of artefacts
North western area of proposed works	Crest	53830.07	0.75	0.00139	3	0

Location	Landform	Site area (m^2)	Area tested (m^2)	Site effectively tested (%)	No. of test pits	No. of artefacts
North eastern area of proposed works	Slope	19097.56	0.50	0.00261	2	0

5.3.1 North-western area of proposed works (Transect 1)

A total of 3 test pits were excavated at 10 metre intervals, in order to determine the extent and nature of any sub-surface deposits that may be present in the area. No stone artefacts were identified during testing, with all test pits displaying high levels of disturbance and fill in the upper strata, overlying compacted clayey soils.

Plate 27 Section of T1 TP1, showing soil profile in the crest landform, facing west

Soil composition varied across the extent of the area. Transect 1 was located on the side of a crest landform, with the area containing high levels of fill deposit above the natural soil profiles. These soil profiles contained three to five stratigraphic contexts, generally consisting of a dark brown to black silty and silty sandy loam of low compaction, overlaying either a low to moderately compacted gravelly deposit with elevated levels of inclusions and increasing clay context with depth, or a very dark brown loamy clay with elevated levels of

inclusions (Plate 27, Plate 28 and Plate 29). These fill deposits were above the natural clay deposits, which comprised of moderate to highly compacted reddish brown clay (gn3) (Plate 27).

Plate 28 Section of T1 TP2, showing soil profile in the crest landform, facing north

Plate 29 Section of T1 TP3, showing soil profile in the crest landform, facing west

TP1 had minimal fill deposits present in comparison to the other two test pits, with 200 millimetres of very dark brown silty clay loam above 100 millimetres of moderately compacted loamy clay. These fill deposits were visible over highly compacted natural reddish brown clay deposits (gn3) (Plate 27). The amount of fill present could be a result of the location of TP1 in relation to its associated landform, with TP1 located on the side of a crest that is closer to the top of the crest.

The fill deposits in TP2 extended further down, supporting the previous assumption of test pit location on the crest landform. TP2 had four stratigraphic fill contexts consisting of silty sandy loam to loamy clay soils, visible until 700 millimetres, where natural, B-horizon clay was encountered. B-horizon soils comprised of highly compacted natural reddish brown clay, which extended to the base of the test pit at 800 millimetres, where the soils were confirmed as archaeologically sterile (Plate 28).

TP3 could not be excavated to B-horizon soils as the fill deposits extended down to the water table at 810 millimetres (Plate 29). The fill deposits found throughout TP3 differed to those found in TP1 and TP2, with lowly compacted, very dark brown, silty sandy loam present in the first 200 millimetres, overlying lowly compacted, brown sand, found throughout the extent of the test pit. This sand context contained high levels of gravel and plastic inclusions, ranging between 30 to 40%. A small root system extended through the north-eastern corner of the test pit, with natural reddish brown clays mixed in under this system to base. The pH levels in TP3 were more alkaline (8) than soils found in TP1 and TP2 (6 to 6.5), which could be due to the type of deposited fill, in addition to the proximity to the water table.

No natural loamy soils were encountered throughout the north-western area of proposed works, with the only natural soil profiles found being high compacted clay (gn3). This clay deposit is largely indicative of the gn3 deposit found throughout the Glenorie soil landscape (Table 2), suggesting that any natural loam deposits found above these clay deposits were removed prior to the fill being laid down.

5.3.2 North-eastern area of proposed works (Transect 2)

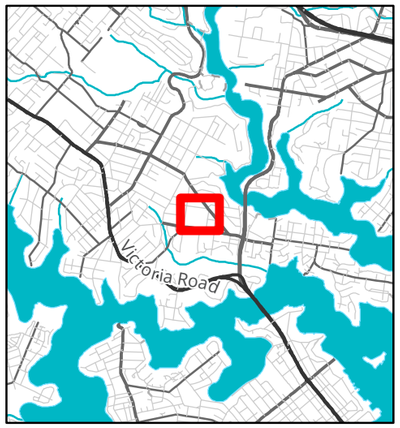
A total of 2 test pits were excavated in the north-eastern area of proposed works within the study area, in order to determine the extent and nature of any sub-surface deposits that may be present in the area. Due to the size of the low potential area, one test pit was originally excavated (TP1), however the presence of large sub surface root systems and extensive fill deposits in TP1 prompted the establishment of a secondary test pit (TP1A) directly adjacent to TP1. No stone artefacts were identified during testing in either of the test pits, with all pits displaying high levels of disturbance and fill in the upper strata, overlying compacted clayey soils. Transect 2 was present on an upper slope landform and comprised of a range of fill deposits, consisting of loosely compacted silty loams to clayey loams, atop a reddish-brown clay deposit (gn3).

TP1 comprised three stratigraphic levels of fill deposit, with 150 millimetres of lowly compacted, dark brown silty loam, above 350 millimetres of very dark brown silty clay loam. This was followed by a further 400 millimetres of lowly compacted, dark yellowish brown silty clay loam. These layers of fill contained large amounts of plastic, food wrappers, charcoal flecks, ceramic, glass and iron and clay stone throughout. In the north-eastern side of the dark yellowish brown deposit, a largely intact ceramic tea cup and layer of faunal remains (most likely macropod or bovine in origin) was uncovered. No cut was identified, suggesting that these remains were mixed in with the fill context at the time of redeposition. The dark yellowish brown deposit also appears to closely resemble the natural soil profile gn2, however due to the fill inclusions seen throughout the context, it is likely that the natural context was removed from another portion of the study and redeposited in the north-eastern side as fill. A large root system, appearing at 500 millimetres depth, caused difficulties with excavation throughout the test pit. At 900 millimetres it was decided that excavation could not continue due to this root system, with TP1A being placed directly adjacent to TP1.

Plate 30 Section of T2 TP1, showing soil profile in the slope landform, facing east

TP1A contained three stratigraphic layers of fill contexts atop a natural clay deposit, and comprised of identical fill deposits to that of TP1. The inclusions found throughout TP1 were also identified in similar quantities, with the north-west portion of the test pit containing the same, redeposited dark yellowish brown soil visible from 550 millimetres to 900 millimetres, comprising of ceramic, faunal remains (most likely macropod or bovine in origin) and clay stone. This fill layer was laid directly onto natural B-horizon clay, with a moderately compacted, yellowish red clay present until 1100 millimetres, when the soils were confirmed as archaeologically sterile.

Plate 31 Section of T2 TP1A, showing soil profile in the slope landform, facing south



Legend

Study area

Archaeological potential

Low potential

Test pits

No artefacts

Figure 12 Test pit locations and results

0 10 20 30 40 50

Metres

Scale: 1:1,500 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

biosis

Biosis Pty Ltd

Albury, Ballarat, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 29211
Date: 11 July 2019,
Checked by: CLA, Drawn by: AEDM, Last edited by: amurray
Location:P:\29200s\29211\Mapping
29211_AR_F11_TestPits

Acknowledgements: Basemap © Land and Property Information 2016

6 Analysis and discussion

An AHIMS search encompassing a 4 by 4 kilometre radius centred on the study area returned a result of 108 previously recorded Aboriginal sites. None of these sites were located within the study area. The predominant site types in the search area comprised of rock shelters with middens, followed by middens. The majority of sites are located in close proximity to water, with many on the shoreline of the Parramatta River and its bays and tributaries, such as the Lane Cove River. The closest previously recorded AHIMS sites includes a rock shelter with archaeological deposit (AHIMS# 45-6-2506) located approximately 278 metres to the south-west, and a rock shelter with a midden (AHIMS# 45-6-1945) approximately 312 metres to the north-east. The nearest rock engraving site (AHIMS# 45-6-1048) is approximately 628 metres to the north-east. Each site is in close proximity to or adjacent to water sources, including Tarban Creek or the Lane Cove River.

Previous assessments in the local area and wider region indicate that habitation or occupational sites such as middens or shelters with PAD are generally located close to fresh water sources, while rock engravings have occasionally been identified in areas unlikely to have been inhabited by Aboriginal people, such as ridge lines and hill slopes located away from water sources (Attenbrow 1988, V. Attenbrow 1990, Val Attenbrow 1990, Negerevich 1978, Conyers 1990, Ross & Attenbrow 1990, HLA-Envirosciences 2003, Aboriginal Heritage Office 2011, Dominic Steele Consulting Archaeology 2015, Hawthorne (1982, cited in Attenbrow 1988). Additional research undertaken on rock engravings and grinding grooves following the archaeological survey found that of 64 sites identified, less than a third (32.8%, n=21) were located on higher ground on landform units including crests and upper slopes.

The results of the archaeological field survey did not identify any Aboriginal sites/objects or areas of PAD or archaeological sensitivity. Kevin Telford from the Metropolitan LALC attended the field survey and commented that, while the surrounding area would have traditionally been an important place for food and resources, any cultural material was more likely to be located further down the slope, within proximity to the foreshore. The possibility of rock engravings or grinding grooves occurring on the underlying sandstone beneath the introduced fill materials was also raised. The results of archaeological test excavations, the geotechnical results and a review of historical documentation of the study area following the archaeological survey, concluded that there was a low likelihood of these site types to be present.

The results of the archaeological investigation remain consistent with the predictive statements made in Section 3.3.1 of this report. Historic, ethnographic and archaeological evidence suggests that the foreshores of the Parramatta River and Lane Cove River were resource-rich at the time of European settlement, and were inhabited by Aboriginal people. However, the long term European development of Hunters Hill and the study area from the 1840s onwards, in particular the modification of ground surface and soil profiles from the mid-20th century and construction of sports facilities, buildings, infrastructure and landscaping, were taken into account when formulating the predictive statements for Aboriginal sites within the study area.

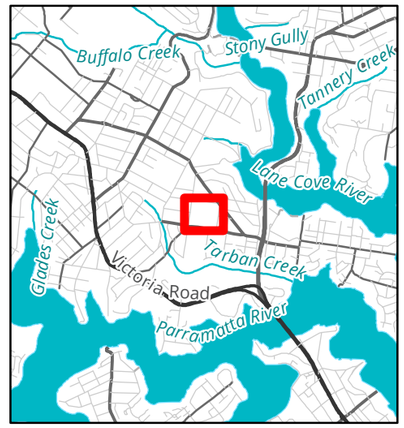
Geotechnical investigations within the study area (WSP Australia Pty Ltd 2018) revealed that the underlying soil profiles in the south-eastern portion of the study area consisted of largely disturbed fill, overlying either sandy clays, clays and/or extremely weathered sandstone. While rock engraving and grinding groove site types do occur upon the landform units present within the study area, it is unlikely that areas of sandstone bedrock have been exposed for this to occur. The presence of extremely weathered sandstone implies that moisture from overlying soils has been leaching into the sandstone and degrading its structural integrity over time. Furthermore, historical photographs dating back to the 1880s do not show any rock platforms or exposures; trees are also present, implying that the soils needed to be sufficiently deep to support this vegetation. This suggests that rock engravings and grinding grooves are unlikely to occur within the study area.

The study area is located across a high ridgeline sloping towards Tarban Bay and Tarban Creek, the nearest source of fresh water. While Tarban Creek is approximately 273 metres to the south-east, the steep topography may have discouraged Aboriginal people from long-term or regular occupation of the study area, instead preferring areas of accessible lower ground closer to resources, fresh water and shelter, with previous archaeological investigations across the Sydney region and Cumberland Plain highlighting the role of freshwater sources in predicting areas of higher Aboriginal use and occupation. This is corroborated in the test excavation results, with no Aboriginal artefacts recovered in any of the test pits. The location of the study area being away from the foreshore, on crest and upper slope landform units, reduces the likelihood of shell middens being present, which typically occur in closer proximity to water and marine resources. The study area did not contain any rock platforms or shelters which could contain archaeological deposits, middens, art or engravings.

The results of the test excavations were consistent with the results provided by the geotechnical investigations undertaken, with no sub-surface archaeological deposits encountered in any of the test pits. Transects placed in the north-eastern and north-western areas of proposed works within the study area illustrate that the soil deposits consist almost entirely of fill and were very disturbed, with modern plastic, ceramic and brick fragments, faunal remains, iron and clay stone contained throughout all fill contexts. Transect 1, located in the north-western portion of the study area, consisted of historical fill soil deposits directly overlying natural clay, which matched both the soil description of the Glenorie soil landscape (gn3) and the geotechnical investigations in the southern portion of the study area. This suggests that upper natural soil deposits had been removed during the original and subsequent construction periods, with historic fill deposited on top of the clay. Due to the varying levels of fill visible throughout transect 1, it is likely that TP1 was located on the top of the crest landform, with the proceeding test pits (TP2 and TP3) located on the side of the crest. No intact, non-clay, natural soil profiles were identified throughout the north-western area of proposed works.

Transect 2 contained several different historical fill layers, including what appears to be redeposited natural loamy soil (consistent with the soil descriptions in the Glenorie soil landscape), containing some historical artefactual material (animal bones, metal, ceramic), directly overlying natural clay. This natural clay also matched the Glenorie soil landscape soil description and geotechnical investigations in the southern portion of the study area. It is likely that the dark yellowish brown deposit directly above the natural clay deposit was removed from another portion of the study area and redeposited in the north-eastern area of proposed works as fill.

In conclusion, no Aboriginal objects or sites were identified during the archaeological survey or test excavations. The results of the test excavations in the north-eastern and north-western areas contained highly disturbed, historic fill materials, with no in-situ, natural, non-clay soils present within either of the transects. These results strongly support the argument for an assessment of low archaeological potential in these two areas of the proposed works (Figure 12). Similarly, the combination of an erosional soil landscape, topography and high level of disturbance as shown by the geotechnical investigations (in some areas extending up to 1.7 metres of fill material) also support an assessment of low archaeological potential in the south-eastern area of proposed works.



Legend

Study area

Archaeological potential

Low potential

Figure 12 Archaeological assessment

0 10 20 30 40 50

Metres

Scale: 1:1,200 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

Biosis Pty Ltd

Albury, Ballarat, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

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Date: 11 July 2019,
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Location:P:\29200s\29211\Mapping
29211_AR_F12_ArchAssessment

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7 Scientific values and significance assessment

The two main values addressed when assessing the significance of Aboriginal sites are cultural values to the Aboriginal community and archaeological (scientific) values. This report will assess scientific values while the ACHA report will detail the cultural values of Aboriginal sites in the study area.

7.1 Introduction to the assessment process

Heritage assessment criteria in NSW fall broadly within the significance values outlined in the Australia International Council on Monuments and Sites (ICOMOS) Burra Charter (Australia ICOMOS 2013). This approach to heritage has been adopted by cultural heritage managers and government agencies as the set of guidelines for best practice heritage management in Australia. These values are provided as background and include:

- **Historical significance** (evolution and association) refers to historic values and encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.
- **Aesthetic significance** (Scenic/architectural qualities, creative accomplishment) refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, and the smell and sounds associated with the place and its use.
- **Social significance** (contemporary community esteem) refers to the spiritual, traditional, historical or contemporary associations and attachment that the place or area has for the present-day community. Places of social significance have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods or events. Communities can experience a sense of loss should a place of social significance be damaged or destroyed. These aspects of heritage significance can only be determined through consultative processes with local communities.
- **Scientific significance** (Archaeological, industrial, educational, research potential and scientific significance values) refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information.

The cultural and archaeological significance of Aboriginal and historic sites and places are assessed on the basis of the significance values outlined above. As well as the ICOMOS Burra Charter significance values guidelines, various government agencies have developed formal criteria and guidelines that have application when assessing the significance of heritage places within NSW. Of primary interest are guidelines prepared by the Commonwealth Department of the Environment and Energy, DPIE (formerly OEH), NSW Department of Planning and Environment. The relevant sections of these guidelines are presented below.

These guidelines state that an area may contain evidence and associations which demonstrate one or any combination of the ICOMOS Burra Charter significance values outlined above in reference to Aboriginal heritage. Reference to each of the values should be made when evaluating archaeological and cultural significance for Aboriginal sites and places.

In addition to the previously outlined heritage values, the OEH Guidelines (OEH 2011) also specify the importance of considering cultural landscapes when determining and assessing Aboriginal heritage values. The principle behind a cultural landscape is that 'the significance of individual features is derived from their inter-relatedness within the cultural landscape'. This means that sites or places cannot be 'assessed in isolation' but must be considered as parts of the wider cultural landscape. Hence the site or place will possibly have values derived from its association with other sites and places. By investigating the associations between sites, places, and (for example) natural resources in the cultural landscape the stories behind the features can be told. The context of the cultural landscape can unlock 'better understanding of the cultural meaning and importance' of sites and places.

Although other values may be considered – such as educational or tourism values – the two principal values that are likely to be addressed in a consideration of Aboriginal sites and places are the cultural/social significance to Aboriginal people and their archaeological or scientific significance to archaeologists. The determinations of archaeological and cultural significance for sites and places should then be expressed as statements of significance that preface a concise discussion of the contributing factors to Aboriginal cultural heritage significance.

7.2 Archaeological (scientific significance) values

Archaeological significance (also called scientific significance, as per the ICOMOS Burra Charter) refers to the value of archaeological objects or sites as they relate to research questions that are of importance to the archaeological community, including indigenous communities, heritage managers and academic archaeologists. Generally the value of this type of significance is determined on the basis of the potential for sites and objects to provide information regarding the past life-ways of people (Burke & Smith 2004, p.249, NPWS 1997).

Research potential

Research potential is assessed by examining site content and site condition. Site content refers to all cultural materials and organic remains associated with human activity at a site. Site content also refers to the site structure – the size of the site, the patterning of cultural materials within the site, the presence of any stratified deposits and the rarity of particular artefact types. As the site contents criterion is not applicable to scarred trees, the assessment of scarred trees is outlined separately below. Site condition refers to the degree of disturbance to the contents of a site at the time it was recorded. Table 8 and Table 9 outline the site content and site condition ratings used.

Table 8 Site contents ratings used for archaeological sites.

Rating	Description
0	No cultural material remaining.
1	Site contains a small number (e.g. 0–10 artefacts) or limited range of cultural materials with no evident stratification.
2	Site contains a larger number, but limited range of cultural materials; and/or some intact stratified deposit remains; and/or are or unusual example(s) of a particular artefact type.

Rating	Description
3	Site contains a large number and diverse range of cultural materials; and/or largely intact stratified deposit; and/or surface spatial patterning of cultural materials that still reflect the way in which the cultural materials were deposited.

Table 9 Site condition ratings used for archaeological sites

Rating	Description
0	Site destroyed.
1	Site in a deteriorated condition with a high degree of disturbance; lack of stratified deposits; some cultural materials remaining.
2	Site in a fair to good condition, but with some disturbance.
3	Site in an excellent condition with little or no disturbance. For surface artefact scatters this may mean that the spatial patterning of cultural materials still reflects the way in which the cultural materials were laid down.

Pearson and Sullivan (1995, p.149) note that Aboriginal archaeological sites are generally of high research potential because 'they are the major source of information about Aboriginal prehistory'. Indeed, the often great time depth of Aboriginal archaeological sites gives them research value from a global perspective, as they are an important record of humanity's history. Research potential can also refer to specific local circumstances in space and time – a site may have particular characteristics (well preserved samples for absolute dating, or a series of refitting artefacts, for example) that mean it can provide information about certain aspects of Aboriginal life in the past that other less or alternatively valuable sites may not (Burke & Smith 2004, pp.247–8). When determining research potential value particular emphasis has been placed on the potential for absolute dating of sites.

Representativeness

Representativeness refers to the regional distribution of a particular site type. Representativeness is assessed by whether the site is common, occasional, or rare in a given region. Assessments of representativeness are subjectively biased by current knowledge of the distribution and number of archaeological sites in a region. This varies from place to place depending on the extent of archaeological research. Consequently, a site that is assigned low significance values for contents and condition, but a high significance value for representativeness, can only be regarded as significant in terms of knowledge of the regional archaeology. Any such site should be subject to re-assessment as more archaeological research is undertaken.

Assessment of representativeness also takes into account the contents and condition of a site. For example, in any region there may only be a limited number of sites of any type that have suffered minimal disturbance. Such sites would therefore be given a high significance rating for representativeness, although they may occur commonly within the region. Table 10 outlines the site representativeness ratings used.

Table 10 Site representativeness ratings used for archaeological sites

Rating	Description
1	Common occurrence.
2	Occasional occurrence.

Rating	Description
3	Rare occurrence.

Overall scientific significance ratings for sites, based on a cumulative score for site contents, site integrity and representativeness are provided in Table 11.

Table 11 Scientific significance ratings used for archaeological sites

Rating	Description
1-3	Low scientific significance.
4-6	Moderate scientific significance.
7-9	High scientific significance.

Each site is given a score on the basis of these criteria – the overall scientific significance is determined by the cumulative score. No Aboriginal sites or objects were identified during the archaeological survey or test excavations undertaken as part of this assessment, therefore the scientific and cultural significance of the study area is assessed as low.

7.2.1 Statement of archaeological significance

No Aboriginal sites or PADs were identified within the areas of proposed works within St Joseph's College, and no previously recorded sites are located within, or in close proximity to the study area. The archaeological potential of the study area has been assessed as low. There is a low likelihood of Aboriginal cultural heritage with archaeological (scientific) value occurring within the study area. Test excavations did not identify any subsurface archaeological deposits within the study area. The scientific significance of the study area is therefore assessed as low.

8 Impact assessment

As previously outlined, the project proposes the following works:

- Demolition of the following buildings (which are not heritage significant) near the intersection of Luke Street and Gladesville Road:
  - College Shop
  - Healy Gym and Maintenance Workshop
  - Outdoor Sports Courts
  - Workshop/Storage and Shed
- Construction of the Physical Education and Sports Precinct Project (PESPP) comprising the following facilities:
  - Lower Ground Floor: New car parking, maintenance workshops, storage, offices, amenities etc. A net increase of 54 car parking spaces is proposed (85 new spaces to be provided in the SCP basement less 30 at grade spaces to be removed).
  - Ground floor: Three indoor sports courts, amenities, kitchen and entry lobbies.
  - First Floor: Void over sports courts, bench seating (180 seats), staff facilities, two general learning areas and foyer.
  - Driveway entry to the PESPP (no new vehicular cross overs).
  - Landscaping and tree removal/replacement.
- Construction of a new single storey building to accommodate the relocated Healy Gym in the north-western corner of the site near the intersection of Mary Street and Mark Street.
- New kiosk substation and landscaping in the north-eastern corner of the site
- Use of the completed works as an educational establishment.
- Staging which would facilitate completion of the PESPP in up to two stages (noting that the entire project may be completed in one stage).

The proposed works will be located in the south-eastern, north-eastern and north-western portions of the study area.

8.1 Predicted physical impacts

The proposed works will be located in the south-eastern, north-eastern and north-western portions of the study area. No Aboriginal sites or PADs were identified within the study area and no previously recorded sites are located within, or in close proximity to the study area. This assessment has concluded that the archaeological potential of the study area has been assessed as low. The proposed works will not impact on Aboriginal archaeological sites or objects.

8.2 Management and mitigation measures

Ideally, heritage management involves conservation of sites through the preservation and conservation of fabric and context within a framework of 'doing as much as necessary, as little as possible' (Marquis-Kyle & Walker 1994, p.13). In cases where conservation is not practical, several options for management are available. For sites, management often involves the salvage of features or artefacts, retrieval of information through excavation or collection (especially where impact cannot be avoided) and interpretation.

Avoidance of impact to archaeological and cultural heritage sites through design of the development is the primary mitigation and management strategy, and should be implemented where practicable.

This assessment has determined that the proposed works will not impact on any Aboriginal sites or objects. It is recommended that the proposed works may proceed with caution. An unexpected finds protocol has been recommended as part of this assessment.

9 Recommendations

Strategies have been developed based on the archaeological significance of cultural heritage relevant to the study area and influenced by:

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
  - The ethos of the Australia ICOMOS Burra Charter
  - The Code.

Prior to any impacts occurring within the study area, the following is recommended:

Recommendation 1: Works may proceed with caution in areas of low archaeological potential

No Aboriginal objects, sites, or areas of sensitivity were identified within the study area. The areas of proposed works have been assessed as holding low archaeological potential. No further archaeological works are required. The proposed works may proceed with caution; refer to Recommendation 2 and 3 below for unexpected finds procedures to be adhered to.

Recommendation 2: Discovery of Unanticipated Aboriginal Objects

All Aboriginal objects and Places are protected under the NPW Act. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object and further material or in situ deposit could be present the archaeologist will provide further recommendations and an appropriate management strategy should be prepared. This can include conservation in situ or salvage excavation if warranted. The management strategy must be designed in consultation with the Registered Aboriginal Parties. If the item is found to not be an Aboriginal object, works may continue.

Note: Aboriginal objects are only likely to be identified during works associated with the proposal if a qualified or trained person is present to identify the Aboriginal objects.

Recommendation 3: Discovery of Aboriginal Ancestral Remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity at the site:

1. All work must immediately cease that location, the site secured and the remains are not to be further moved or disturbed.
2. The NSW Police and the NSW Coroner's Office must be notified as soon as practicable.
3. DPIE (formerly OEH) and the Local Aboriginal Land Council must be notified if the remains are found to be Aboriginal, to assist in determining appropriate management
4. Work must not recommence at that location unless authorised in writing by DPIE (formerly OEH).

Recommendation 4: Continued consultation with the registered Aboriginal stakeholders

As per the consultation requirements it is recommended that the proponent provides a copy of this final report to the Aboriginal stakeholders.

Recommendation 5: Lodgment of Final Report

A copy of the final report will be sent to:

- Registered Aboriginal Parties.
- The AHIMS database.

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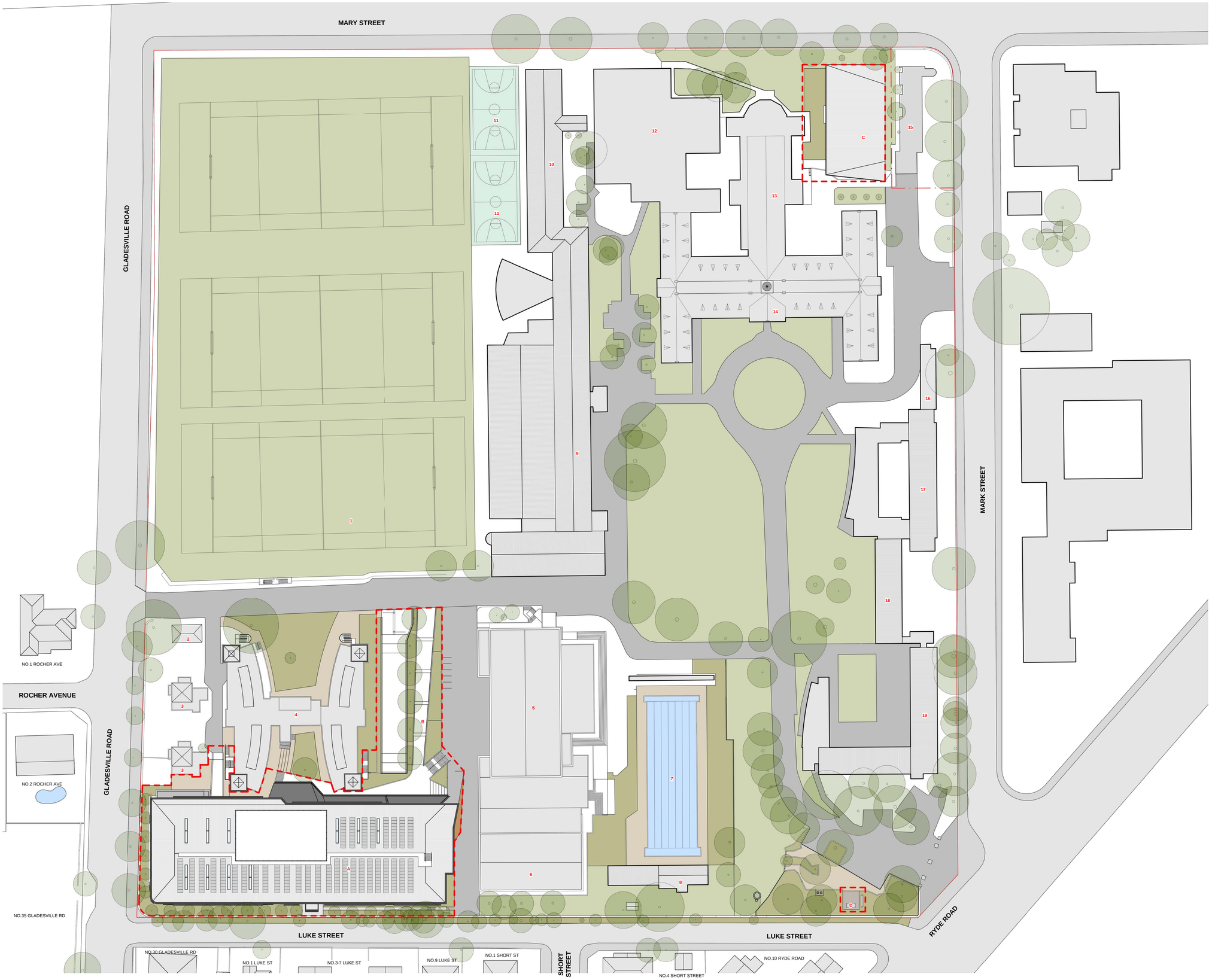
Appendices

Appendix 1 Proposed development



NOTES

1. GRASS SPORTS FIELDS
2. OLD SANDSTONE SHED
3. TEACHERS RESIDENCES
4. YR 10 DORMITORY
5. BR. EMILIAN HALL
6. SPORTS HALL
7. SWIMMING POOL
8. POOL FACILITIES / PLANT
9. CLASS ROOMS
10. 4 STOREY BRICK BUILDING
11. OUTDOOR SPORTS COURTS
12. 2 STOREY LIBRARY / ADMIN BUILDING
13. STONE CHAPEL
14. MAIN BUILDING
15. BROTHERS RESIDENCE
16. OLD TOILET BLOCK
17. YR 11 RESIDENCE WING
18. YR 12 RESIDENCE WING
19. YR 12 RESIDENCE WING - EAST

A. PROPOSED SPORTS HALL
B. PROPOSED DRIVEWAY ENTRY AND LANDSCAPE UPGRADE
C. PROPOSED HEALY GYM
D. PROPOSED SUBSTATION

SITE BOUNDARY

OUTLINE OF PROPOSED WORKS

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Abbreviations

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BK/F	FACE BRICKWORK
EWC	EXTERNAL WALL CLADDING 1
GL	GLASS LOUVRES
VB	VERTICAL BLADES

Rev	Date	Description	Checked	Auth.
A	21.08.18	Issue for SSD	IB	RD
B	06.11.18	Issue for SSD	IB	RD
C	23.04.19	Issue for RtS	IB	RD

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Alex Kibble Reg. No. 6015

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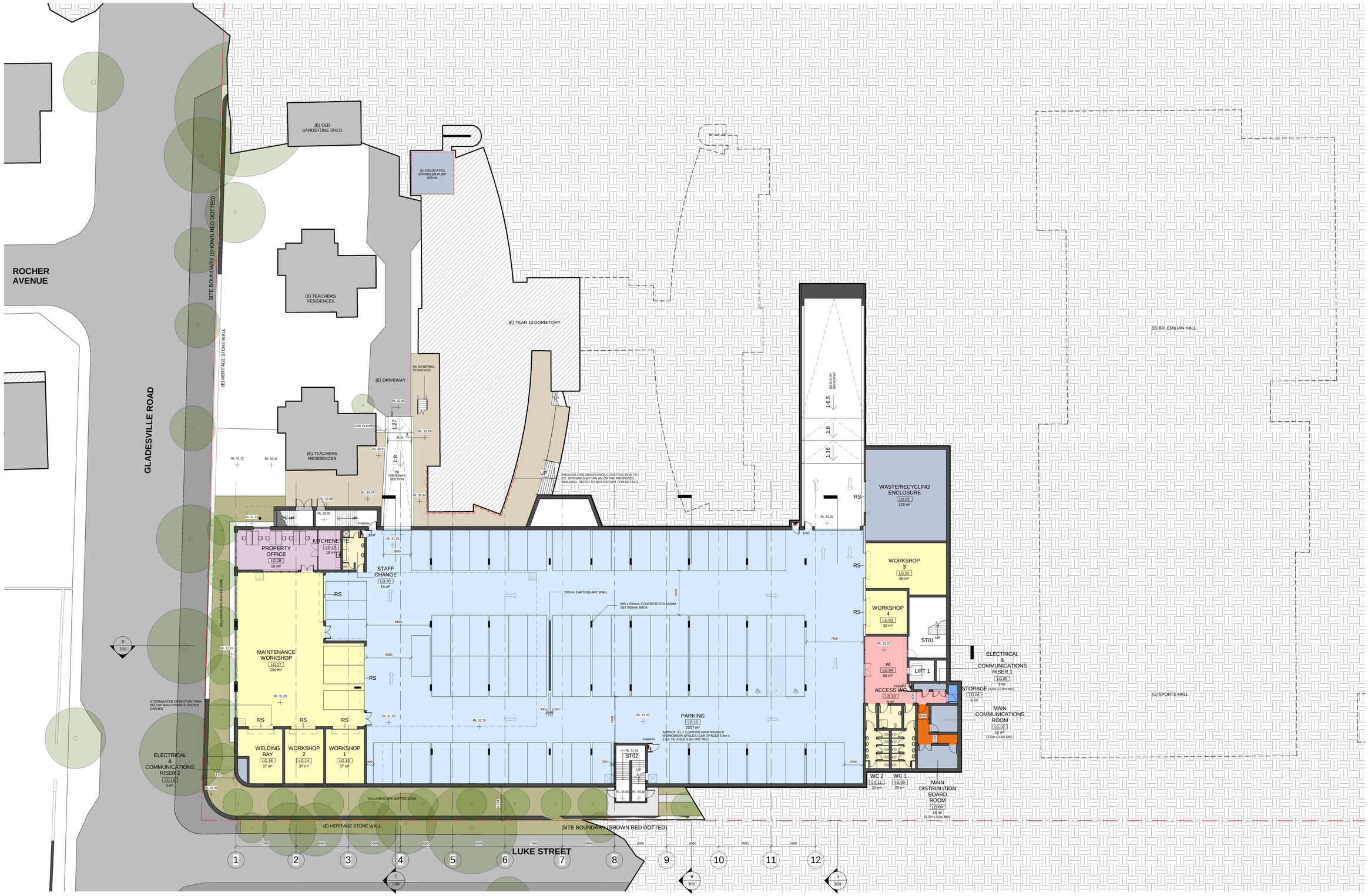

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Drawing Title
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Drawing No. AR.DA. 2103
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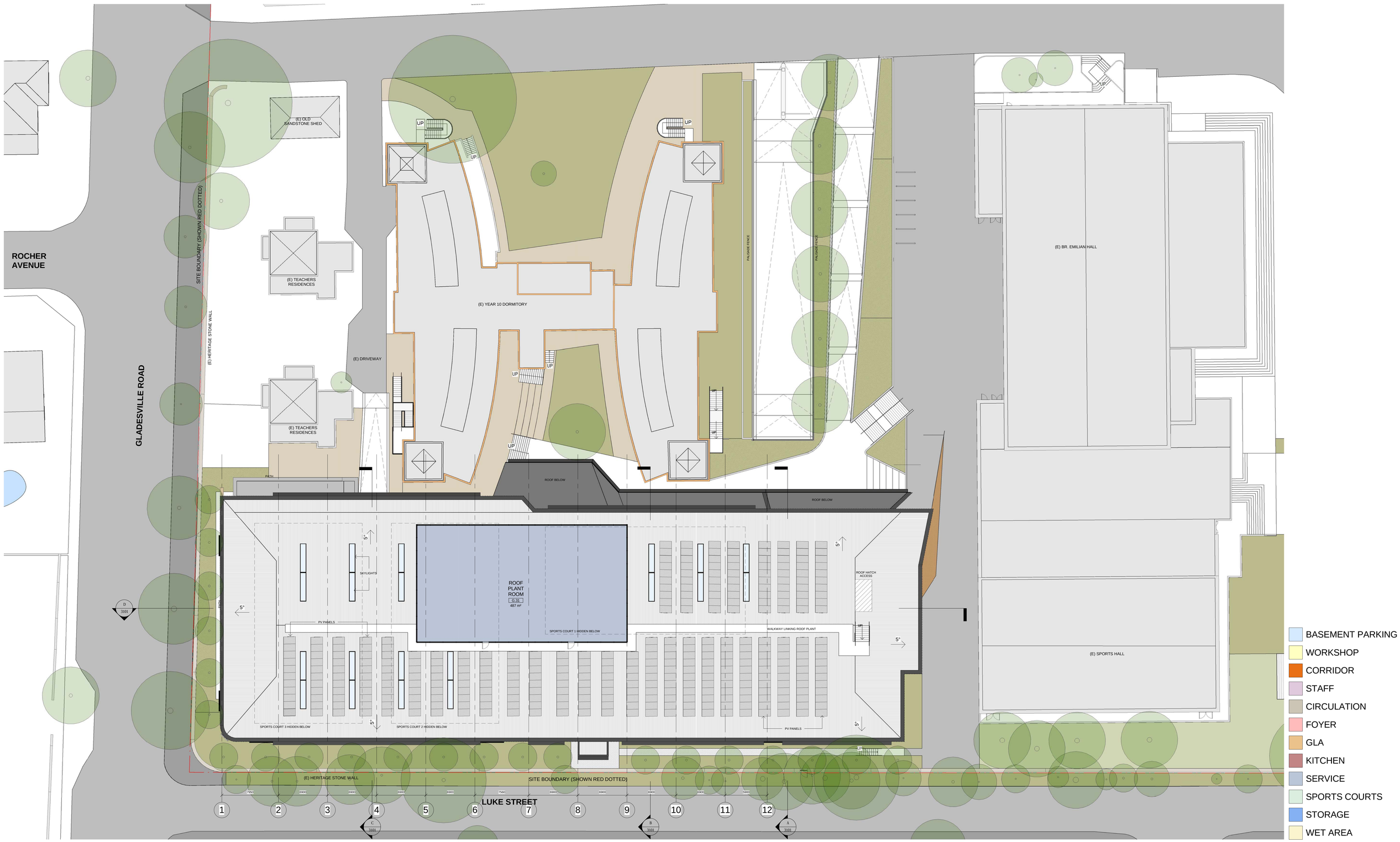

- BASEMENT PARKING
- WORKSHOP
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Abbreviations

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BK/F	FACE BRICKWORK
EWC	EXTERNAL WALL CLADDING 1
GL	GLASS LOUVRES
VB	VERTICAL BLADES

Rev	Date	Description	Checked	Auth.
A	21.08.18	Issue for SSD	IB	RD
B	23.04.19	Issue for RIS	IB	RD

Rev	Date	Description	Checked	Auth.

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Proj. Dir	Proj. Arch	Drawn
RD	IB	RT
Job No.	Sheet	Scale
161002	B1	1 : 200

NSW Nominated Architects:
Robert Denton Reg. No. 5782
Alex Kibble Reg. No. 6015

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0M 4 8 12 16 20

Project
PHYSICAL EDUCATION AND SPORTS PRECINCT PROJECT

Drawing Title
PROPOSED ROOF PLAN

Drawing No. AR.DA. 2104

Revision B

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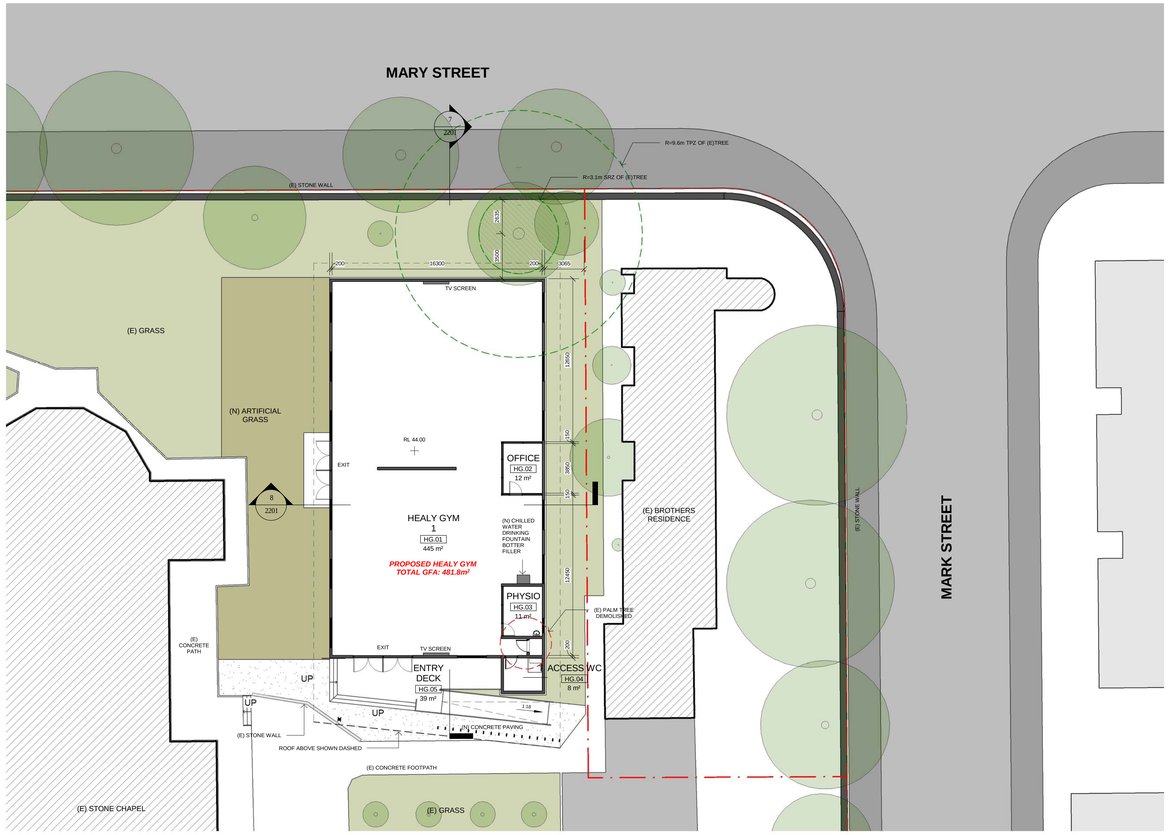
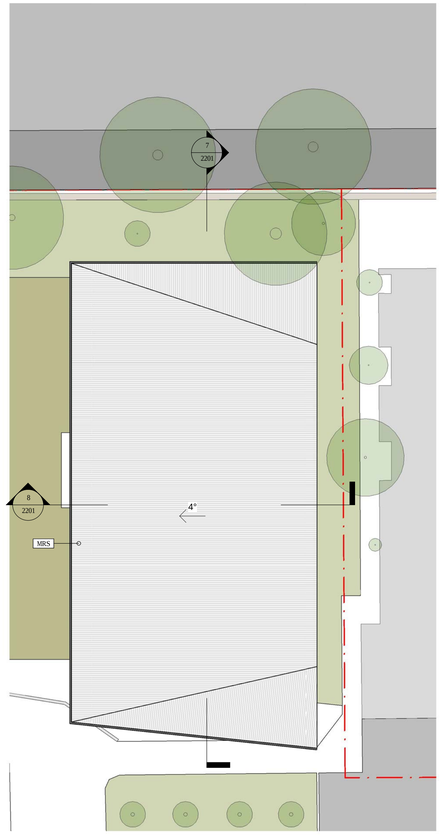
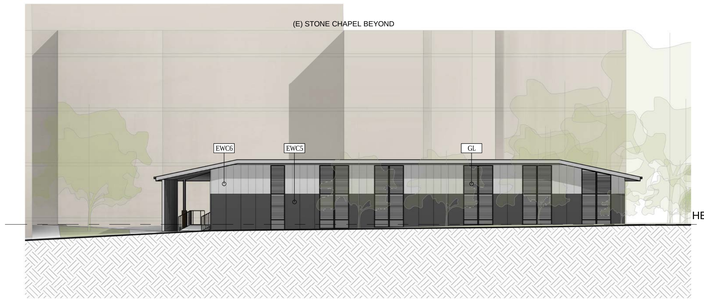


1 2201 PROPOSED HEALY GYM PLAN
1 : 200

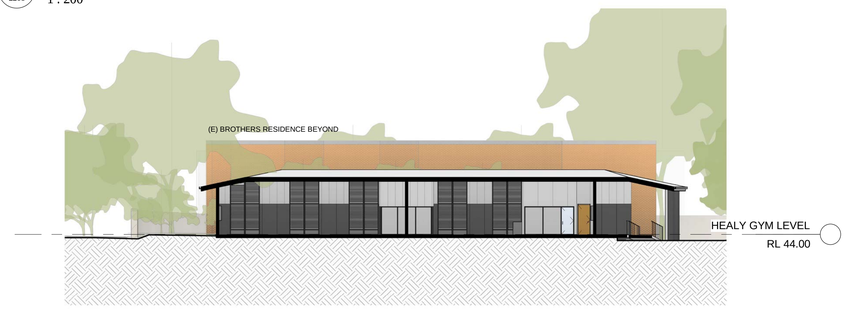


2 2201 PROPOSED HEALY GYM ROOF PLAN
1 : 200



3 1101 NORTH ELEVATION
1 : 200

4 1101 EAST ELEVATION
1 : 200



7 2201 LONG SECTION
1 : 200

5 1101 SOUTH ELEVATION
1 : 200

6 1101 WEST ELEVATION
1 : 200

8 2201 SHORT SECTION
1 : 200

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B	23.04.19	Issue for RtS	IB	RD

Rev	Date	Description	Checked	Auth.

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Job No.	Sheet	Scale
161002	B1	1 : 200

NSW Nominated Architects:
Robert Denton Reg. No. 5782
Alex Kibble Reg. No. 6015

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Project
PHYSICAL EDUCATION AND SPORTS PRECINCT PROJECT
Drawing Title
PROPOSED HEALY GYM

Drawing No. AR.DA. 2201
Revision B

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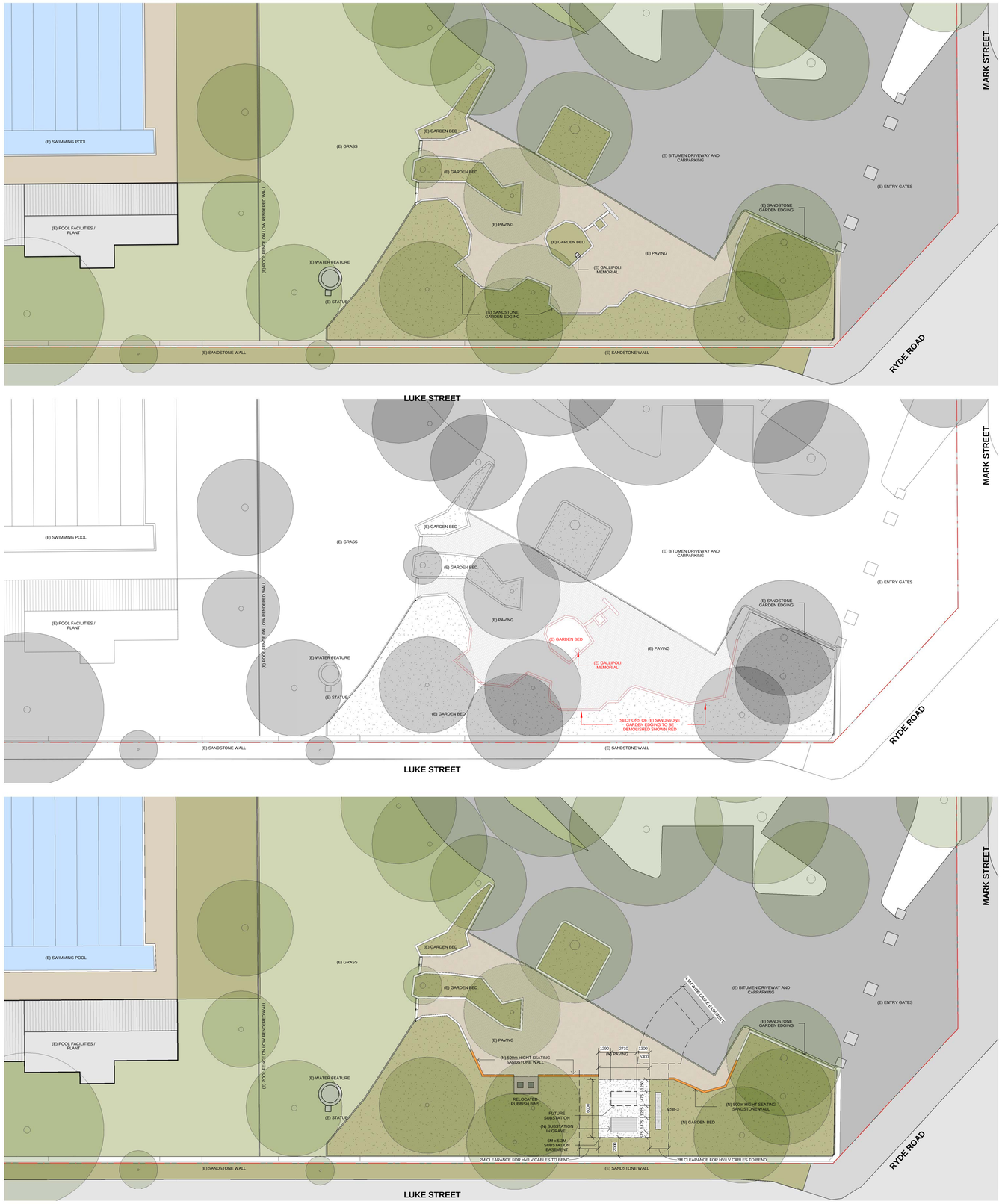

1 / 3001 EXISTING SITE PLAN FOR PROPOSED SUBSTATION
1 : 200

2 / 3001 SITE DEMOLITION PLAN FOR PROPOSED SUBSTATION
1 : 200

3 / 3001 PROPOSED SUBSTATION SITE PLAN
1 : 200

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A	21.08.18	Issue for SSD	IB	RD
B	06.11.18	Issue for SSD	IB	RD
C	23.04.19	Issue for RtS	IB	RD

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RD	IB	RT
Job No.	Sheet	Scale
161002	B1	1 : 200

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Project
PHYSICAL EDUCATION AND SPORTS PRECINCT PROJECT
Drawing Title
PROPOSED SUBSTATION

Drawing No. AR.DA. 2203
Revision C

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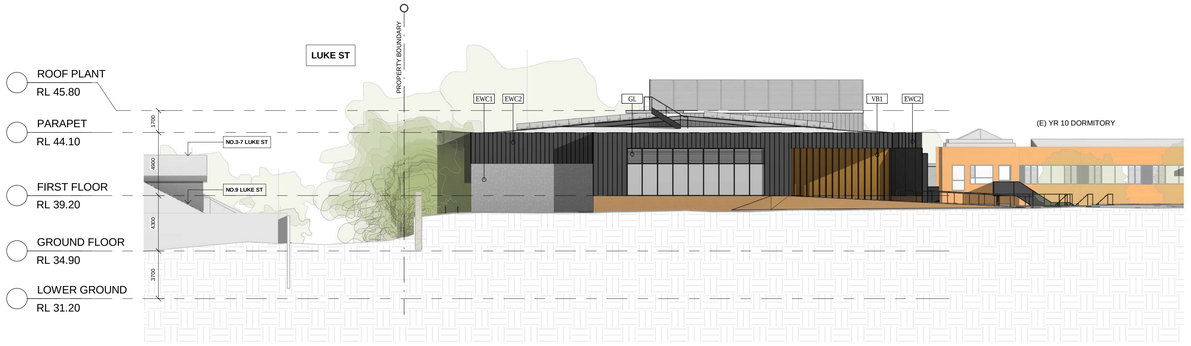
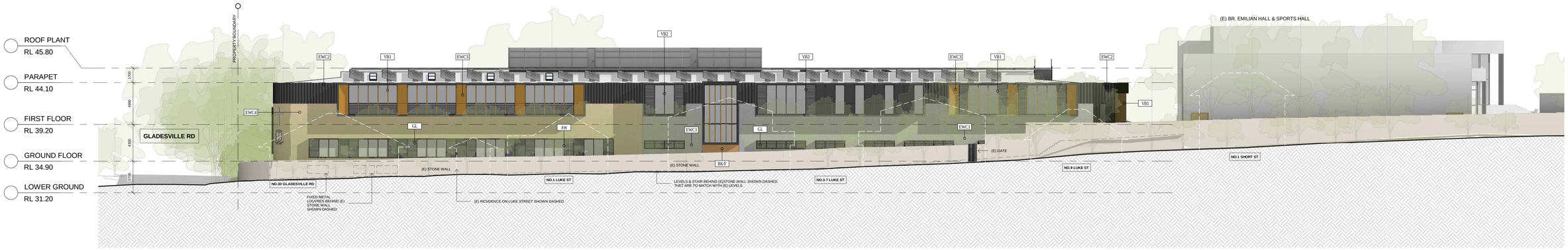


1 PROPOSED NORTH ELEVATON
1 : 200

2 PROPOSED SOUTH ELEVATION (GLADESVILLE ROAD)
1 : 200

3 PROPOSED WEST ELEVATION
1 : 200



4 PROPOSED EAST ELEVATION (LUKE STREET)
1 : 200

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Project
PHYSICAL EDUCATION AND SPORTS PRECINCT PROJECT

Drawing Title
PROPOSED ELEVATIONS

Drawing No. AR.DA. 3001
Revision B

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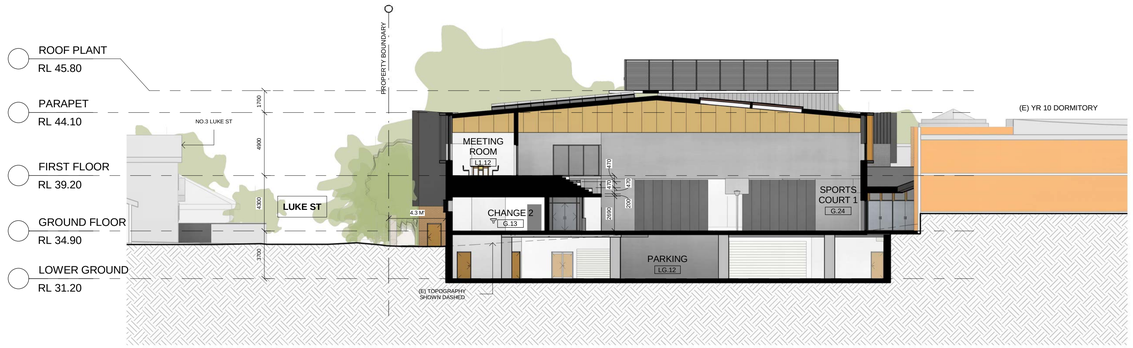

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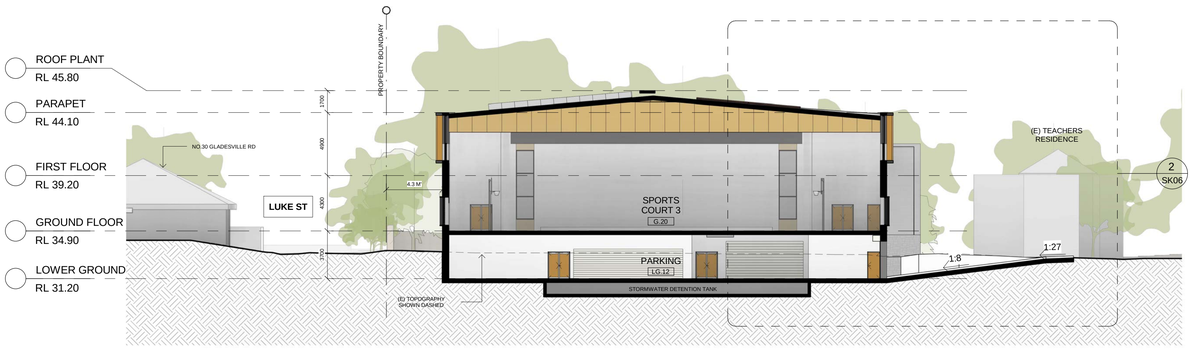

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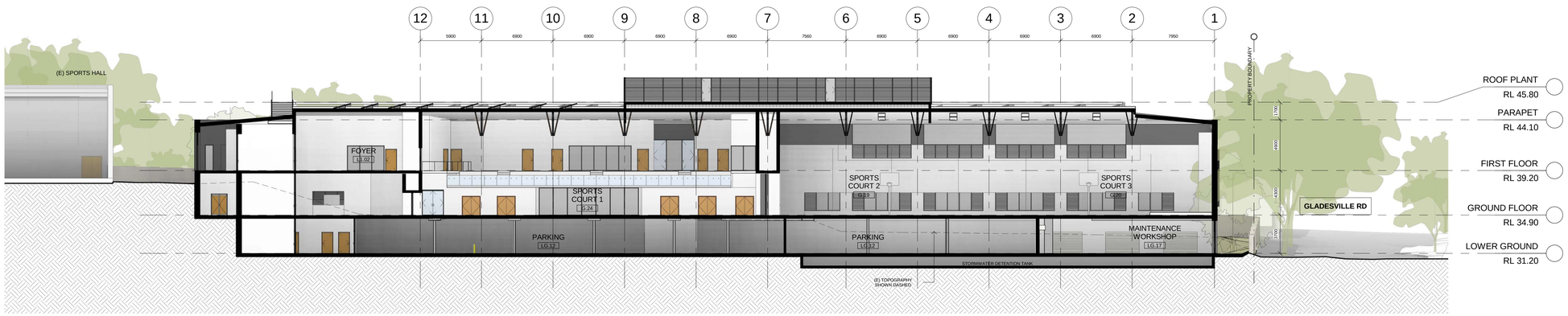

D 2101 SECTION D
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Rev	Date	Description	Checked	Auth.

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RD	IB	RT
Job No.	Sheet	Scale
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Alex Kibble Reg. No. 6015

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Project
PHYSICAL EDUCATION AND SPORTS PRECINCT PROJECT

Drawing Title
PROPOSED SECTIONS

Drawing No. AR.DA. 3101
Revision B

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Appendix 2 AHIMS results

THE FOLLOWING APPENDIX IS NOT TO BE MADE PUBLIC

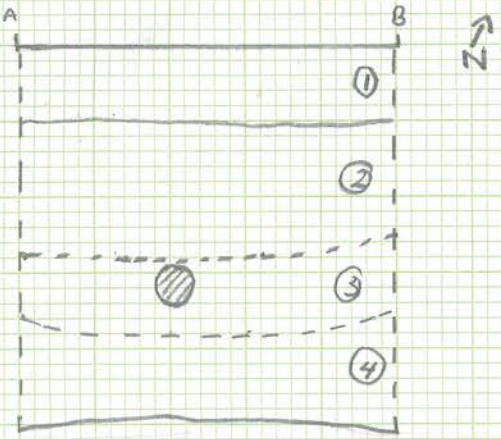
Appendix 3 Test excavation results

Test Pit No.	Context No.	Start depth (mm)	End depth (mm)	Colour (Munsell Code)	Compaction	Texture	Disturbance	Notes	Inclusions	PH
T1 TP1	1	0	50	10YR 2/2 Very dark brown	Low	Silty Sandy Loam	Plastic present in first spit	Lightly compacted very dark brown silty Sandy loam fill with plastic	0	6
T1 TP1	2	50	100	10YR 2/2 Very dark brown	Low	Silty Clay Loam	Gglass, plastic, modern orange ceramic	Lightly compacted very dark brown silty clay loam fill with plastic	2% red claystone measuring 10-50mm	6
T1 TP1	3	100	150	10YR 2/2 Very dark brown	Low	Silty Clay Loam	Glass, ceramic	Lightly compacted very dark brown silty clay loam fill	2% red claystone measuring 2-50mm	6
T1 TP1	4	150	200	10YR 2/2 Very dark brown	Medium	Silty Clay Loam	Glass, ceramic	Moderately compacted very dark brown silty clay loam fill	2% red claystone measuring 2-50mm	6
T1 TP1	5	200	250	7.5YR 2.5/4 Very dark brown	Medium	Loamy Clay	Glass, ceramic, iron fragments, building debri, small roots and large tree branch in southwest corner	Moderately compacted very dark brown clay loam fill mixing with natural orange brown clays	2% red claystone measuring 2-50mm	6.5
T1 TP1	6	250	300	7.5YR 2.5/4 Very dark brown	Medium	Loamy Clay	Glass, ceramic, iron fragments, building debri, small roots and large tree branches through north and east wall	Moderately compacted very dark brown clay loam fill mixing with natural orange brown clays	10% red claystone and charcoal fragments measuring 2-80mm	6.5
T1 TP1	7	300	350	5YR 4/4 Reddish brown	Medium	Loamy Clay	Ceramic, iron fragments, building debri, small roots and large tree branches through north and east wall	Moderately compacted reddish brown loamy clay fill mixing with natural orange brown clays	15% red claystone, and irone stone and charcoal and large coal fragments measuring 2-80mm, sandy red pockets	6.5
T1 TP1	8	350	400	5YR 4/4 Reddish brown	High	Clay	Small roots and medium tree roots through east wall	Highly compacted reddish brown clay with orange compacted clay pockets	20% red claystone, and irone stone 5-40mm and charcoal fragments measuring 2-10mm, sandy red pockets	6.5
T1 TP1	9	400	450	5YR 4/4 Reddish brown	High	Clay	Small roots and medium tree roots through east wall	Highly compacted reddish brown clay with orange compacted clay pockets	25% red claystone, and irone stone 5-40mm and charcoal fragments measuring 2-10mm, sandy red pockets	6.5
T1 TP1	10	450	450	5YR 4/4 Reddish brown	High	Clay	Small roots and medium tree roots through east wall	Highly compacted reddish brown clay with orange compacted clay pockets	25% red claystone, and irone stone 5-40mm and charcoal fragments measuring 2-10mm, sandy red pockets	6.5
T1 TP2	1	0	140	10YR 2/2 Very dark brown	Low	Silty Sandy Loam	<Null>	Lightly compacted very dark brown silty sandy loam fill with plastic	grass and rootlets	6
T1 TP2	2	140	210	5YR 4/4 Reddish brown	Medium	Loamy Clay	Fill deposit	Moderately compacted clay lense extending over entire tp	20% red claystone, and irone stone 5-40mm, charcoal flecks, gravel inclusions and small glass and ceramic fragments 2-5mm	6.5
T1 TP2	3	210	400	7.5YR 2.5/1 Black	High	Silty Clay Loam	Fill deposit, highly disturbed	Dark silty clay loam fill deposit with inclusions throughout	Ceramic and glass fragments 2-5mm, sandstone fragments 1-4mm, iron stone 2-10mm, plastic fragments 2-5mm	6
T1 TP2	4	400	700	7.5YR 2.5/4 Very dark brown	Medium	Loamy Clay	Glass, ceramic, iron fragments, building debri, small roots and medium tree branch in northwest corner	Moderately compacted very dark brown clay loam fill mixing with natural orange brown clays	20% red claystone measuring 2-50mm and 10% iron stone 2-50mm	6.5
T1 TP2	5	700	800	5YR 4/4 Reddish brown	High	Clay	Small roots and medium tree roots through north wall	Highly compacted reddish brown clay with orange compacted clay pockets	20% red claystone, and irone stone 5-40mm, sandy red pockets	6.5
T1 TP3	1	0	100	10YR 2/2 Very dark brown	Low	Silty Sandy Loam	Plastic and glass present	Lightly compacted very dark brown silty sandy loam fill with plastic and glass present	0	6
T1 TP3	2	100	200	10YR 2/2 Very dark brown	Low	Silty Sandy Loam	Plastic and glass present	Lightly compacted very dark brown silty sandy loam fill with plastic and glass present onto sandy gravel fill	5% gravels	6
T1 TP3	3	200	300	7.5YR 4/3 Brown	Low	Sand	Gravelly fill with plastic, gravels etc	Lightly compacted brown sandy gravels very mixed with overlying context	30% gravels	8
T1 TP3	4	300	400	7.5YR 4/3 Brown	Low	Sand	Gravelly fill with plastic, gravels etc many small tree roots within north wall and east wall surrounded by natural clays	Lightly compacted brown sandy gravels very mixed with reddish brown natural clays mixed in where small root system is present in north eastern corner	40% gravels	8
T1 TP3	5	400	500	7.5YR 4/3 Brown	Low	Sand	Gravelly fill with plastic, gravels etc many small tree roots within north wall and east wall surrounded by natural clays	Lightly compacted brown sandy gravels very mixed with reddish brown natural clays mixed in where small root system is present in north eastern corner	40% gravels	8
T1 TP3	6	500	600	7.5YR 4/3 Brown	Low	Sand	Gravelly fill with plastic, gravels etc many small tree roots within north wall and east wall surrounded by natural clays	Lightly compacted brown sandy gravels very mixed with reddish brown natural clays in north eastern corner continuing below small root system	40% gravels	8
T1 TP3	7	600	700	7.5YR 4/3 Brown	Low	Sand	Gravelly fill with plastic, gravels etc many small tree roots within north wall and east wall surrounded by natural clays	Lightly compacted brown sandy gravels very mixed with reddish brown natural clays in north eastern corner continuing below small root system	40% gravels	8
T1 TP3	8	700	810	7.5YR 4/3 Brown	Low	Sand	Gravelly fill with plastic, gravels etc many small tree roots within north wall and east wall surrounded by natural clays	Lightly compacted brown sandy gravels very mixed with reddish brown natural clays in north eastern corner continuing below small root system finishing once water table was reached; base consisted of natural red clays in northeast corner and brown sandy fill gravels	40% gravels	8
T2 TP1	1	0	150	7.5YR 3/2 Dark brown	Low	Silty Loam	Rootlets 20%, is a fill deposit	<Null>	Mostly clear, with some plastic wrappers, ceramic, claystone and metal throughout context (35%)	6
T2 TP1	2	150	500	10YR 2/2 Very dark brown	Low	Silty Clay Loam	Roots (40%), context is a fill deposit	Still very loosely compacted, however clay context slightly increases towards end of context	Roots (40%), ceramic, glass, pottery and brick (20%)	6
T2 TP1	3	500	900	10YR 4/6 Dark yellowish brown	Low	Silty Clay Loam	Roots (50%)	Due to roots throughout this context, we were required to cease work as the tools could not work through the roots; T2 TP1A continues in depth to natural clays	Bones (most likely macropod and/or bovine) found throughout test pit, concentrated on the western side of the pit, ceramic mug and claystone (20%)	6.5
T2 TP1A	1	0	150	7.5YR 3/2 Dark brown	Low	Silty Loam	Rootlets 20%, is a fill deposit	<Null>	Mostly clear, with some plastic wrappers, ceramic, claystone and metal throughout context (35%)	6

Test Pit No.	Context No.	Start depth (mm)	End depth (mm)	Colour (Munsell Code)	Compaction	Texture	Disturbance	Notes	Inclusions	PH
T2 TP1A	2	150	550	10YR 2/2 Very dark brown	Low	Silty Clay Loam	Roots (40%), context is a fill deposit	Still very loosely compacted, however clay context slightly increases towards end of context	Roots (40%), ceramic, glass, pottery and brick (20%)	6
T2 TP1A	3	550	900	10YR 4/6 Dark yellowish brown	Low	Silty Clay Loam	Roots (25%) mostly concentrated to nw corner	<Null>	Bones (most likely macropod and/or bovine) found throughout test pit, concentrated on the eastern side of the pit (10%), ceramic mug and claystone (20%)	6.5
T2 TP1A	4	900	1100	5YR 5/8 Yellowish red	Medium	Clay	Smaller roots from above context throughout context	Natural clay, similar to Transect 1	Claystone 5%	6

MATTER: 30198 ST JOSEPHS TEST EXCAVATIONS

TRANSECT 1 PIT1



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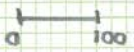

KEY:

— SOLID

--- DIFFUSED

TREE BRANCH

① 10YR 2/2 V. Dark BROWN SILTY SANDY LOAM - LOWLY COMPACTED

② 10YR V. DARK BROWN SITY CLAY LOAM TO LOAMY CLAY - MODERATELY COMPACTED.

③ 7.5YR 2.5/4 V. DARK BROWN LOAMY CLAY TO 5YR 4/4 REDDISH BROWN CLAY - HIGHLY COMPACTED.

④ 5YR 4/4 REDDISH BROWN - HIGHLY COMPACTED CLAY

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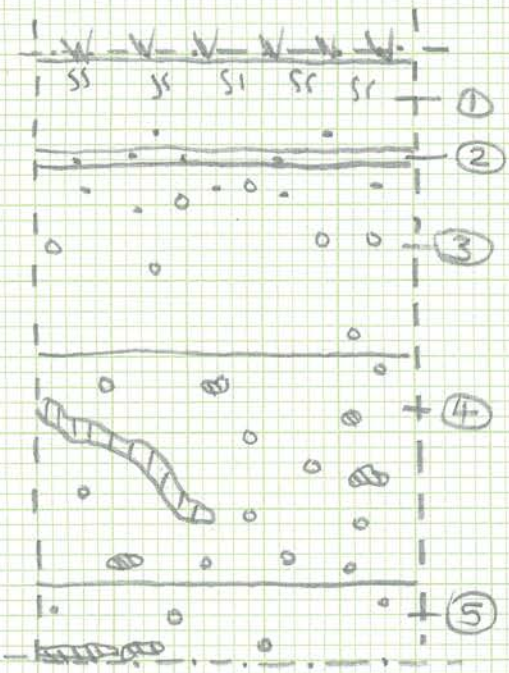
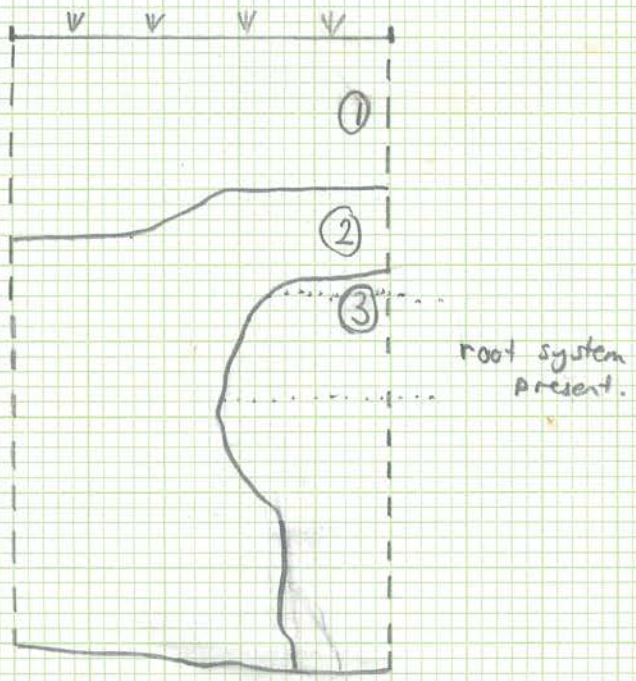
N

T1 PZ



- tree root
- rootlets
- grass
- gravel, ceramic, glass, plastic inclusions
- iron/clay stone.

MATTER30192 ST JOSEPHS TEST EXCAVATION



SCALE: 1:100

0 100mm

KEY:

..... Extent of roots.

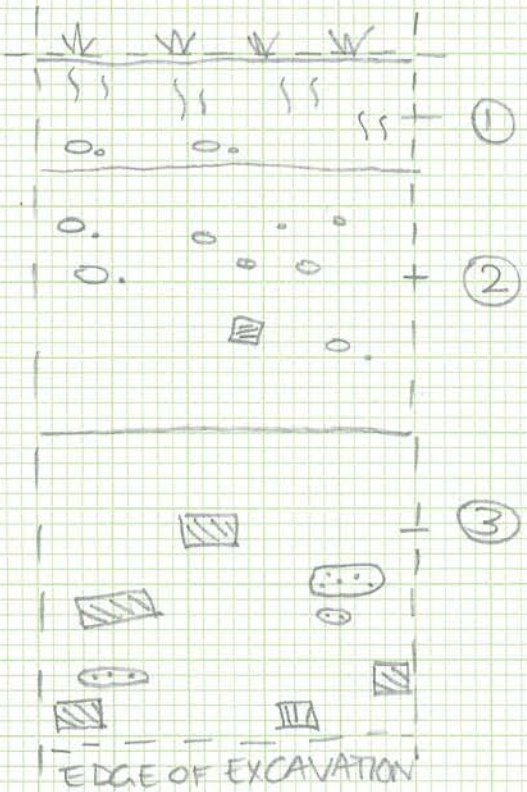
① 10YR 2/2 DARK BROWN SILTY SANDY LOAM. LOWLY COMPACTED.

② BROWN SANDY GRAVEL FILL. LOWLY COMPACTED

③ 5YR 4/4 REDDISH BROWN CLAY, HIGHLY COMPACTED.

30198 ST JOSEPHS
25/6/19 ALB 1:10

N T2 TP1



- roots
- bone
- plastic/ceramic/brick/glass
- rootlets
- grass

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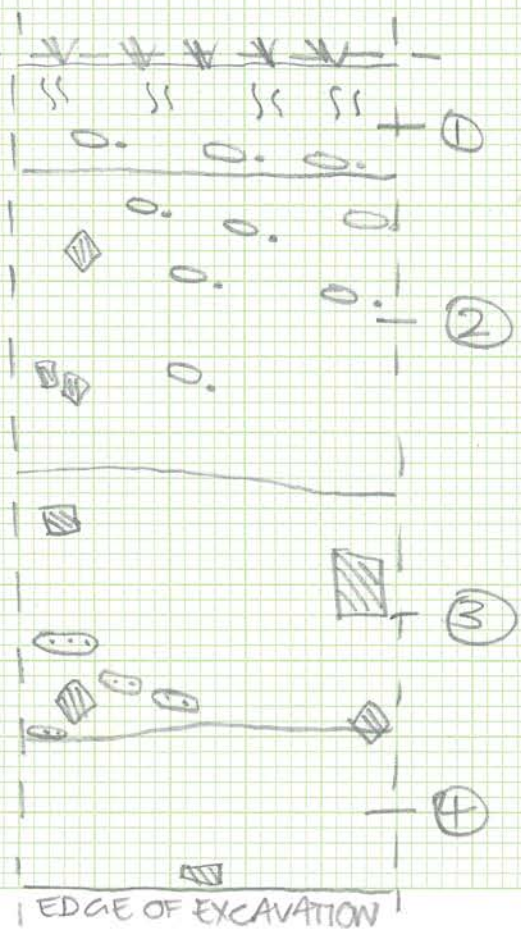
25/6/19 ALB 1:10

N T2 TP1A



- rootlets
- plastic/glass/brick/ceramic
- bone
- roots