THE BIRTH OF CANBERRA: AN ARCHAEOLOGICAL STUDY OF SPRINGBANK ISLAND, CANBERRA'S EARLIEST REMAINING HOMESTEAD

A RESULTS AND FURTHER ANALYSIS REPORT OF SPRINGBANK ISLAND, CANBERRA, ACT FOR ACT HERITAGE AND THE NATIONA CAPITAL AUTHORITY

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Cover Photograph: Springbank Island excavations in action with Dr Duncan Wright, Robert Williams and Glenn van der Kolk. Courtesy of the ANU College of Arts and Social Sciences (CASS) Marketing and Communications.

EXECUTIVE SUMMARY

Introduction

This Results and Further Analysis Reports was prepared for ACT Heritage and the National Capital Authority following an archaeological investigation carried out on Springbank Island on Lake Burley Griffin, ACT. This investigation was made possible through the award of an ACT Heritage Grant valued at $17,000.

Methods

The investigation involved the following components:

- Environmental and historical background research;
- Preliminary EDM (Total Station) and Ground Penetrating Radar (GPR) survey;
- Hand auguring (with pollen analysis of the core); and
- Mechanical and hand excavation.

The mechanical and hand excavation component involved the excavation of one 3 x 2 m and two 3 x 1 trenches.

Results

The findings of the environmental and historical background research revealed that Springbank Island is a historically important part of the Canberra community. For instance, the foothills of Black Mountain were an important meeting place for local Aboriginal communities. Furthermore, the Springbank property itself became the first to be settled by Europeans in the Limestone Plains and it had a long history of occupation by various families. In addition, the later development of the lake and Springbank as an island were an important part of the history of Canberra as a planned city.

The physical testing carried out on the island located a total of 26 Aboriginal lithic artefacts and 266 historical artefacts, including items that could be dated to the nineteenth century occupation of the homestead as well as some modern items. No foundations or other intact features associated with the homestead were located during the excavations. However, loose mortar, brick and plaster fragments were found, evidence of the home's presence and later demolition. Although the excavated trenches had a clear stratigraphy, it consisted mainly of (and most artefacts derived from) a disturbed context of fill, introduced at the time the dam was constructed. Despite the

small number of artefacts this site was one of the first occupied in Canberra, continues to be of significance to European and Aboriginal custodians and therefore should be promoted as a site of high cultural heritage significance.

Recommendation 1- Heritage Signage

It is recommended that an informative sign/s be developed for installation within Springbank Island. The sign/s should describe Aboriginal past land use practices in the wider area and the significance of the Black Mountain foothills and Molonglo River floodplains as a meeting place. The sign/s should describe the historical land use of the area since European settlement. The history of all major family occupation phases of the Springbank homestead should be incorporated including the MacPherson, Kaye, Sullivan and Cox families. It should include significant events and land use practices, such as the use of the property as a school, to hold mass, and the creation of Lake Burley Griffin and Springbank as an island. It should also incorporate data from the current investigation in relation to the lithic and European artefact assemblage. Finally, it should identify the continued significance of this place to European and Aboriginal site custodians.

All text, images and other figures used on the sign/s should be presented to the relevant stakeholders including all RAOs, as well as descendants of the families that lived on Springbank homestead, for comment prior to the development and installation of the sign/s.

Recommendation 2- Display of Aboriginal and Historical Artefact Material at ANU

Representatives of the RAOs (including Matilda House and Wally Bell) as well as European descendants (including Rowan Goyne) agreed to have the artefacts collected during the archaeological investigations on Springbank Island, displayed in a glass cabinet within the School Archaeology and Anthropology, A. D. Hope Building, ANU. This would benefit the local community (as the building is open to the public and already includes the Classics Museum within the School of Literature, Languages and Linguistics) as well as ANU students who would have access to study a local collection that encompasses Aboriginal, European as well as recent artefacts.

It is recommended therefore, that all artefacts from Springbank Island be displayed in this way for a nominated period agreed to by the RAOs, European descendants and ANU. At the end of this period these terms can be re-negotiated and (for the Aboriginal assemblage) artefacts can be returned to the local communities for re-burial or storage.

Recommendation 3- No Further Heritage Investigation Required

As the heritage character of the study area has been established and there is a low likelihood that further or significant Aboriginal or historical heritage sites would be located on Springbank Island, there is no need for further heritage investigations to be carried out.

Recommendation 4- Contingency

It is recommended that if any Aboriginal or historical heritage material is encountered during the course of any maintenance or other potential future works, then works should cease immediately and a qualified archaeologist or heritage advisor should be contacted to investigate and advise on the appropriate course of action.

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1. STUDY AREA LOCATION AND DESCRIPTION

Springbank Island (the study area) is located within the West Basin of Lake Burley Griffin, Canberra and lies adjacent to the suburb of Acton (Figure 1). The island is approximately 47 ha in size. It was formed following the flooding of the Molonglo River during the creation of the Lake Burley Griffin in early 1960s.

Following initial discussions, background research and testing (particularly the ground penetrating radar survey and coring) it became clear that the western side of the island was the most likely location for the remains of the homestead to be present. As a result, all further testing (namely hand and mechanical excavations) were focused on this part of the island within close proximity to the modern picnic area with toilets, barbeque facilities and picnic tables.

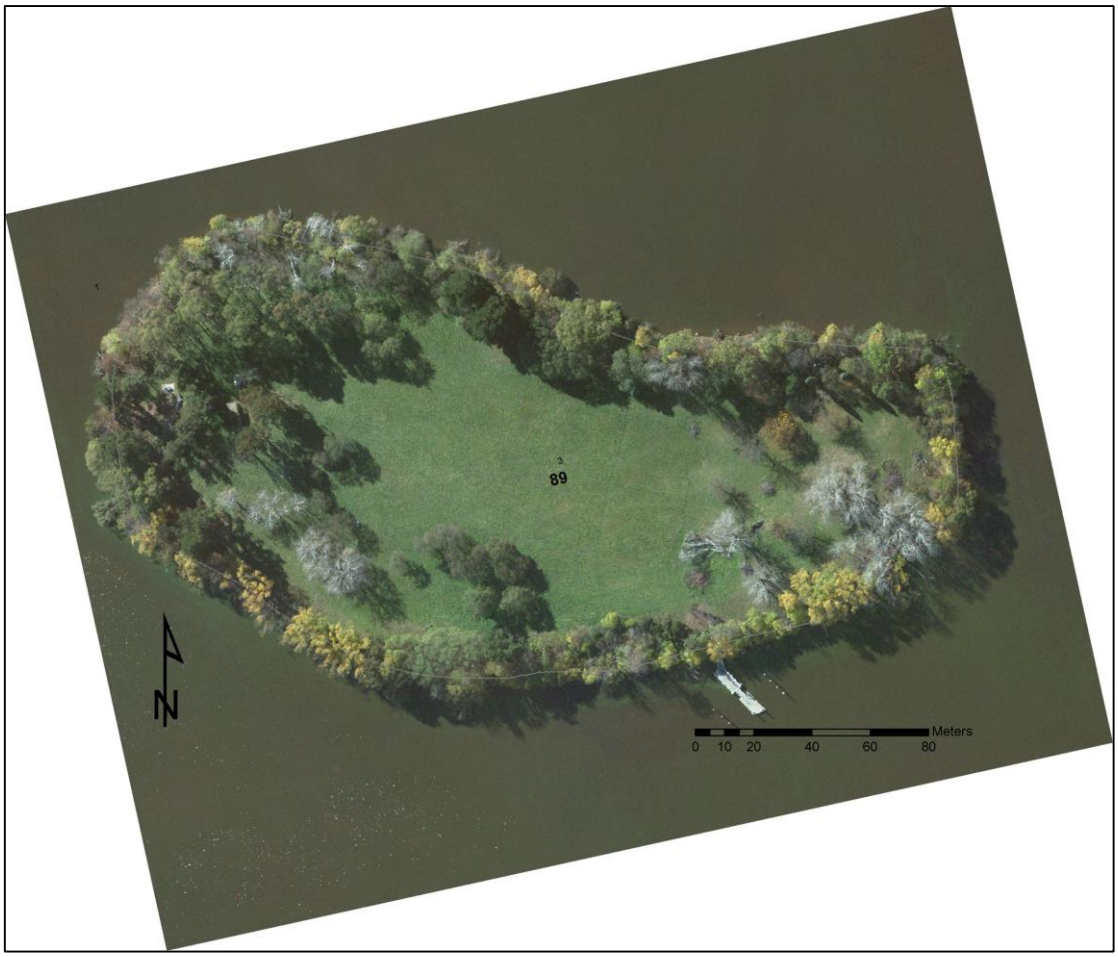

FIGURE 1: SPRINGBANK ISLAND AERIAL PHOTOGRAPH PROVIDED COURTESY OF NATIONAL CAPITAL AUTHORITY (GEORECTIFIED BY DR. FLEXNER, ANU).

1.1. HERITAGE STATUS OF THE STUDY AREA

Springbank Island (or any objects associated with it) is currently not listed on the National Heritage Lists, the Register of the National Estate (RNE) or the ACT Heritage Places Register. Neither does it have non-statutory registration, listing or classification on the Conservation Council.

However, Lake Burley Griffin (including all islands within it) and adjacent lands are currently a nominated place for the Commonwealth Heritage List (ID: 105230). The Lake Burley Griffin and Foreshores also have a non-statutory listing on the register of the National Trust (ACT).

1.2. RELATED REPORTS AND INFORMATION

Freeman Collet and Partners (1993) conducted a cultural heritage study for Acton/West Basin as part of an overall design study for the area, which was bounded by the ANU, Parkes Way and Commonwealth Avenue. Although the study area did not encompass Springbank Island, the Statement of Cultural Significance included in the report made important references about the wider area. For instance, it identified that the Black Mountain foothills and spur were an important meeting place for local Aboriginal communities. Overall, the report identified the study area as one of the most culturally significant areas within the ACT in terms of both Aboriginal and historical heritage.

Godden Mackay Logan (2009) undertook a heritage assessment of the Lake Burley Griffin for the National Capital Authority. The study was conducted to identify the heritage values of the area and determine if they met the threshold for National or Commonwealth Listing. The study area included Springbank and background review did not identify any previously recorded sites within the island. The report states that although Springbank is an artificial island the potential exists for Aboriginal sites to be present there. This is due to the fact that the material used to form the island likely originated from one of the sand bodies along the banks of the Molonglo River. These banks have previously been found to contain high archaeological potential and historically, many artefacts have been collected from them. A field survey was undertaken of Springbank Island, which resulted in no sites being identified. However, ground surface visibility was reported as poor. Overall, the report found that the Lake Burley Griffin possesses natural and cultural heritage values that meet the threshold for National and Commonwealth Heritage Listings.

2. PROJECT DESCRIPTION AND AIMS OF INVESTIGATION

This archaeological investigation was made possible through the award of an ACT Heritage Grant valued at $17,000 and the support of the National Capital Authority (NCA). This was a collaborative project between the Australian National University (ANU) and the Canberra Archaeological Society (CAS) and was led by ANU lecturer Dr Duncan Wright. Other partner organisations included the ANU student Archaeology, Biological Anthropology and Cultural Heritage Society (A.B.A.C.U.S).

The main aims of the project was to to provide a Results and Further Analysis report for the study area and to raise community awareness of the heritage values of Springbank Island. It aimed to improve a collective understanding of the earliest period of European (and potentially pre-European) settlement in Canberra. This involved a historical literature review as well as ground penetrating radar survey and test excavations. Specific objectives relating to the primary research aim were:

a) Complete a surface and Ground Penetrating Radar (GPR) survey;
b) Complete test excavations to determine whether sub-surface archaeology deposits remain intact. This would influence decisions about whether or not to complete larger excavation(s) in future; and
c) Compile historical and archaeological information for Springbank Island into a central database.

A subsidiary aim of this project was to involve the Canberra community. By doing so we hoped to raise awareness of Aboriginal and early European settlement in Canberra and emphasise the pressing need to protect significant cultural heritage. Objectives connected with this aim were:

d) To advertise public opportunities and project results through partner organisations: Canberra Archaeological Society and Australian National University;
e) To bring members of the Representative Aboriginal Organisations (RAOs) and broader Canberra community to the island to discuss broader significance of this area;
f) To disseminate results through media and community reports.

The project benefits the heritage of ACT by raising collective awareness about Canberra's history. The remoteness of Canberra during the early period of European settlement (1825-1840) meant that life for the first tenant farmers and owner occupier pastoralists differed from many areas in Australia. Development in Canberra has meant that many early historic sites dating to this period (and the information they contain) no longer survive. Therefore the primary outcome of this project will be improving understanding of early settlement in our nations' capital.

This project has tangible benefit to ACT Heritage, providing a Results and Further Analysis Report for this important site. Therefore, it enables informed decisions to be made about how best to protect, manage and promote the cultural heritage values of a site that currently offers unsupervised access to the general public. A digital database for storing and analysing data gathered throughout the course of the project provides oral histories and additional information about this site. It is imagined that this repository of data provides the infrastructure for further public dissemination of non-sensitive content by ACT Heritage (with citation to this document).

As a public education exercise, during the course of the project it offered opportunities for local Aboriginal groups, university students and members of the public to actively participate in historical research, surveying, excavation and artefact analysis. It offered a rare opportunity to bring together Indigenous and non-Indigenous partners to celebrate the early Aboriginal and European history of Canberra. It also allowed for widespread dissemination of results in public forums (media) to raise public awareness and appreciation about important ACT Cultural Heritage.

Products of this project include:

a) A preliminary Results and Further Analysis Report for Springbank Island (including detailed review of historic sources, surface and sub-surface mapping and results from archaeological test excavation);
b) A relational database for the storage and analysis of data gathered from the site assessment
c) Press releases submitted through project partner, Australian National University;
d) A broadly-accessible, information booklet detailing project results (currently awaiting comment from RAO families before printing).

3. EVIDENCE OF RAO, COMMUNITY AND STAKEHOLDER CONSULTATION

A key element of the Springbank Project is the involvement of those with a connection to the area – including descendants of both Aboriginal and European ancestors. As part of this, RAOs from all four groups within the ACT were contacted and invited to attend the fieldwork to view the locality, participate in the project and discuss the cultural values of the area. This was arranged by Dave Johnston during 18th to 20th February 2015.

The following four representatives participated in the fieldwork for one day each (excepting Robert Williams who participated every day):

- Matilda House and Robert Williams (Little Gudgenby River Tribal Council [LGRTC]);
- Wally Bell (Burra Ngunnawal Aboriginal Corporation [BNAC]);
- Carl Brown (King Browns Tribal Group [KBTG]); and
- James Mundy (Ngarigu Currawong Clan [NCC]).

The following two representatives participated in the public open day:

- Robert Williams (LGRTC]; and
- Wally Bell (BNAC).

The RAO representatives provided their perspectives on how the land would have been used in the past. They also described the importance of the Molonglo River and the use of the wider area surrounding the current National Museum of Australia as an important meeting place (see Wally Bell oral history in database and on http://www.abc.net.au/news/2015-04-13/budding-archaeologists-get-the-dirt-on-lake-burley-griffin/6389928).

A draft copy of this report will be provided to all RAO organisations for comment.

4. RESEARCH DESIGN AND METHODOLOGY

The following section outlines the research design and methodology employed throughout the project including: the EDM and Ground Penetrating Radar survey, hand auguring, mechanical and hand excavations and post-excavation artefact analysis. This section also presents the limitations that were encountered.

4.1. ENVIRONMENTAL AND HISTORICAL BACKGROUND RESEARCH

The environmental and historical background research components of the study comprised reviews of relevant primary and secondary sources as well as previous archaeological publications and unpublished reports.

4.2. PRELIMINARY EDM (TOTAL STATION) AND GROUND PENETRATING RADAR (GPR) SURVEY

The Preliminary EDM (Total Station) and Ground Penetrating Radar (GPR) survey was completed in order to provide a baseline for future excavations on the island. It was also important to ascertain the depth of lake sediment, which is historically known to have been deposited here before the lake was flooded.

The instrument used for the EMD survey was a Leica TS06 Total Station. A survey grid was created using temporary datum points, marked by wooden pegs, and a permanent station on the southeast interior corner of the footing of the picnic shelter area. Coordinates were converted into a shapefile in ArcGIS, then a surface using the 'nearest neighbour' function, from which topolines were extracted. These were then projected in ArcGIS and overlaid on a base map given by the National Capital Authority.

GPR Grids targeted the western side of the island (9 Grids). This tested the hypothesis (provided by descendant histories and old photographs) that the homestead was located in this area. Two additional Grids were set up towards the middle of the island to check whether the homestead was built on high ground.

Survey was conducted using Geophysical Survey Systems (GSSI; SIR-3000 GPR) with a 400 MHz antenna. Reflection data was collected along transects spaced 0.5m apart using a 100 nanosecond time window. All data were saved directly to computer and then analysed in 2D and 3D to determine the nature of subsurface reflections, depth of

penetration, amount and nature of background interference, and the velocity of radar energy in the ground.

4.3. HAND AUGURING

A total of one hand auger holes were excavated on Springbank Island. It measured 5x5 cm and were excavated to 3 m in depth. This was conducted in order to test moisture content and sediment transformations with depth in the study area. The tests were also used to confirm whether or not the top 1.5 metres is un-stratified sand dumped on the island after the flooding of Burley Griffin. The results of the hand auguring helped to develop the methodologies for subsequent excavation.

4.4. MECHANICAL AND HAND EXCAVATIONS

The major phase of fieldwork involved the excavation of one 3 x 2 m and two 3 x 1 trenches. The principal 2 trenches were located in areas established to have research potential during GPR survey.

For OH&S reasons the size of the trenches needed to be at least 3 x 1 m. This enabled the trenches to be stepped out after 1.2 m to get down to a depth of 2.4 m. The number of excavations was considered necessary because, i) it presented the greatest chance of recovering undisturbed evidence of the homestead and ii) additional trenches assisted the ACT Heritage Festival public open day, providing more opportunities for Canberra community to get involved in archaeological excavation. In order to obtain the maximum information possible (keeping in mind time constraints and the non-cultural/ unstratified nature of upper deposits) it was considered appropriate to obtain mechanical support.

Mechanical excavation consisted of a 2 tonne excavator, removing soil to the depth of 1.2 m within each 3 m by 1 m test pit under archaeological supervision. In the scenario that augur testing or mechanical fill removal identified the former land surface or archaeological deposits at depths shallower than 1.2 m, mechanical excavation would have been discontinued and manual excavation would start.

Excavation involved 10 cm spits during upper layers, with a sub-sample (3 x 1l buckets every second Excavation Unit [XU]) of deposit sieved through a 5 mm mesh. The bulk of excavated deposits were placed on tarpaulins with piles formed for each XU. This allowed for the identification of artefacts pertaining to each individual XU.

Once the original ground surface was reached manual archaeological excavation began. In line with the Heritage Act 2004 we will minimise risk of diminishing the heritage significance of a place by restricting excavations in stratified, cultural deposits to 2 – 4 x 1 m squares. Specifically, the trenches were stepped out at the required depth in order to cause minimum damage. It was also necessary to adopt a fine-grained approach where all information could be collected. For example, XUs followed stratigraphy with XUs not exceeding 4cm thick. Excavated sediments were weighed and dry sieved in the field through a fine (5mm) mesh. In line with current best practice, the weight and volume of each XU was recorded and depth elevations taken at the corners and centre of each trench at the beginning and end of each XU. Unique items were plotted in situ using a dumpy level. Where large quantities of non -cultural rock (>5cm) was recovered, this was weighed and discarded on site (included in backfill). All information (and associated photographs) were uploaded onto XU recording forms, developed as a computer database (by ESS Solutions) for Wrights previous research.

Excavations were completed in one block with test pits fenced in using steaks and survey tape. Signs were placed around the excavation square to ensure people do not access this during the evenings when the team were not on the island. Each test pit was backfilled (manually) at the cessation of works.

4.5. POST EXCAVATION ANALYSIS

Artefacts recovered were recorded by Wright and assisted by James Flexner, Oliver McGregor and student volunteers, and entered into an Excel spreadsheet. This involved the analysis of European materials (glass, nails, house foundations) as well as Aboriginal lithics. As a training exercise for students only basic analyses were completed. These followed methods for "basic analysis" outlined in Burke and Smith (2004: 185-189) and were supervised by experienced archaeologists. Diagnostic features of all artefacts enabled assessment of what it is, what it is made from, how it was made and when it was made. The basic identification (flake/ core w. material type) for lithic artefacts was followed by a more detailed overview of morphology (termination, extent cortex, retouch). Finally artefacts were be measured (maximum length/ maximum width). No use-wear or residue analysis was conducted at this stage.

4.5.1 SHORT TERM ARTEFACT MANAGEMENT

Artefacts collected were brought back to the ANU laboratories for recording and analysis.

4.6. LIMITATIONS

As a community archaeology project a major component was integrating student and local volunteers over the three week period. This culminated in an ACT Heritage open day in which over 100 people came out to the island to assist with excavations. While this has undoubtedly been of major benefit to public understanding of ACT heritage it meant that excavation technique varied through the life of the project. The involvement of multiple skilled archaeology coordinators at all times mitigates this issue. Another potential limitation was time constraints. Excavations were completed over a three-week period, within which time three trenches were excavated on Springbank. Although these were guided by ground penetrating radar survey and historical assessment it is plausible that other areas of the island may reveal additional information about the original Homestead. It is suggested, however, considering the extent of site damage through bulldozing, that few such areas would survive.

5. DESCRIPTION OF INVESTIGATIONS AND PRESENTATION OF FINDINGS

This section provides a description of each phase of physical investigation that was conducted within the study area.

5.1. EDM (TOTAL STATION) AND GROUND PENETRATING RADAR (GPR) SURVEY

Detailed topographic survey of Springbank Island was carried out on 19-20 November 2014 led by Dr James Flexner and Dr Duncan Wright with assistance from ANU student volunteers (Figures 2 and 3). During the survey 579 topographic points were collected in the form of x,y,z coordinates within an arbitrary local grid system. These included the corners of the GPR areas, the major landscape features, such as the picnic shelter, toilets, barbecue area, and boat dock, as well as a matrix of points covering the relief of the island's surface. These coordinates were converted into a shapefile in ArcGIS and overlaid on a base map in Adobe Illustrator to produce the overall plan of the geophysical survey (Figure 4).

FIGURE 2: EDM SURVEY IN ACTION WITH DR JAMES FLEXNER (ANU).

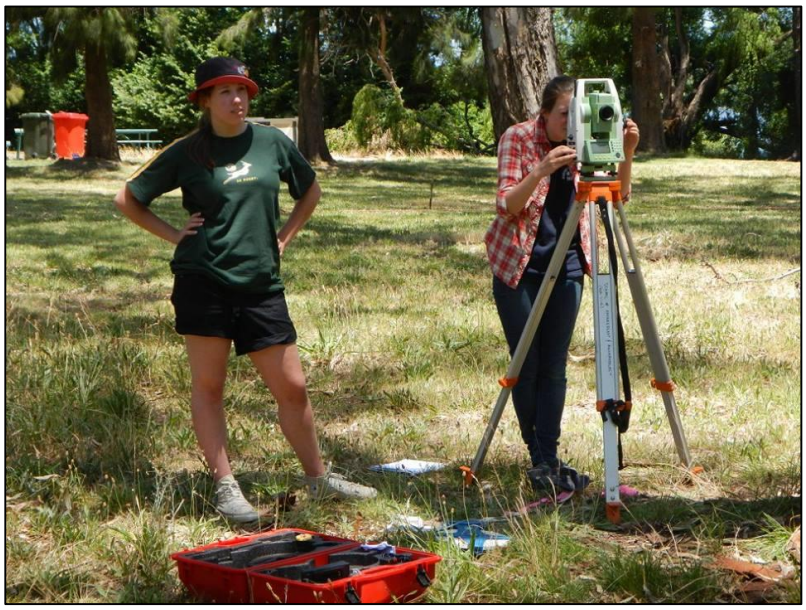

FIGURE 3: EDM SURVEY IN ACTION WITH VOLUNTEERS.

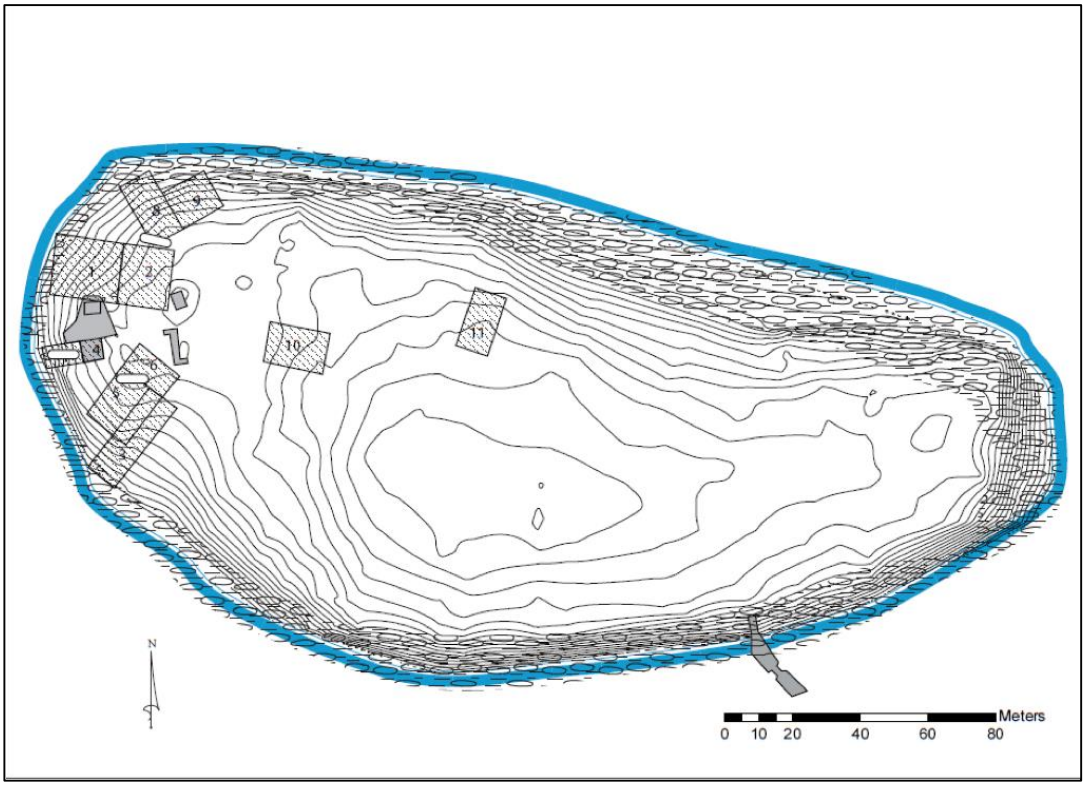

FIGURE 4: TOTAL STATION SURVEY OF SPRINGBANK ISLAND INCLUDING AREAS SURVEYED USING GROUND PENETRATING RADAR (COURTESY JAMES FLEXNER).

The GPR survey took place on 19-20 November 2014 and was run by Bruce Brown and Duncan Wright, with assistance from ANU student volunteers (Figure 5). The subsequent report provided by Bruce Brown which details the results of the survey is presented in

Appendix 1. The generic position and size of respective areas tested during the survey are represented schematically in Figure 4.

FIGURE 5: GPR SURVEY IN ACTION.

5.1.1. SOIL FORMATION

While the site is now flat and undisturbed, anecdotal evidence indicates that the entire surface of the island was covered with an undisclosed quantity of sediment during lake construction. Topographic mapping demonstrates that maximum height is 2.1 m above lake level. GPR results support this with at least one metre of un-stratified silt observed across the site (Appendix 1). This is likely to grade into the original foundation soils at a maximum depth of 2m.

The GPR report (Appendix 1) interprets a depth of 1.4 m as a stratigraphic separation layer between dry sand-silt (lake deposits; Relative Dielectric Permittivity, RDP level = 5-8) and original, moist foundation soils. The change in texture at a depth of 0.8m is likely to reflect increased moisture levels (RDP level = 7.5). A similar depth of "Lake deposit" appears to occur across the surveyed areas, with the undisturbed surface at approximately 1.8 m in some sections.

5.1.2. EVIDENCE OF HOMESTEAD

There was no conclusive evidence for walls or foundations found during the GPR survey. However, three of the eleven sample areas provide useful information. Grids 5 and 6

tested a linear anomaly recorded in Grid 3 (Grid 5 overlapped Grid 3; see Figure 4 for grid locations).

Location traces for Grid 3 are similar to others (i.e. parallel channels decreasing in intensity with depth until original soil horizons are reached at about 1.6 m), however slice images for 60ns (approx. 3 m) and 100ns (approx. 5 m) provide increasing levels of reflection. The 100ns reading is unusual as it is below the maximum radar depth determined by Radan. It is not clear why medium level signals should be recorded at this depth. It could indicate a physical structure at the limit of the 400MHz antenna, with definition poorly defined. Alternatively, it could be instrumental behaviour or influence of the water table. Whatever the case, there is value in recording measurements using the 200MHz antenna or sub-surface excavation. At 60ns there are only low level reflections, possibly representing stratigraphy and noise anomalies. The 100ns image shows higher intensity reflections. The linear feature in Grid 3 appears to be an instrument problem (probably due to overheating).

Grids 4 and 7 provide further information that may assist choosing an area for excavation. These grids were located at the far western extreme of the island, across a paved area and continue down to the water's edge. These Grids were surveyed over a two day period. The original Grid (#4) covered the paving slabs and was done quickly. Grid 7 represents a more careful sweep across the site (both North to South and West to East). Results support the appearance of a linear feature across both, overlapping Grids from 20ns to 100ns.

5.1.2.1. OTHER SUPPORTING INFORMATION

Dave Johnston ran a metal detector over the western part of the island. While metal was prominent across this area, the majority was located within the area covered by Grid 3, Grid 5 and Grid 6 (Figure 6). In the same area, coarsely made cemented bricks, tempered with river gravel were found. These appear to be old style bricks, historically known to have been used in the construction of old buildings on Springbank Island. Tests have not been completed on these bricks.

FIGURE 6: DAVE JOHNSTON USING A METAL DETECTOR OVER THE STUDY AREA.

5.2. HAND AUGURING

Hand auguring was undertaken on Springbank Island by Professor Simon Haberle (ANU) with assistance from Dr Duncan Wright and ANU student volunteers on 1st April 2015 (Figure 7).

FIGURE 7: HAND AUGURING IN ACTION.

FIGURE 8: AUGUR CORE SEDIMENTS.

The results of the augur testing revealed that the post 1961-1962 overburden was very complex spatially and with depth and is likely to be a mixture of fill from various sources, including weathered bedrocks of various kind dug when the artificial shoreline was created and surficial sediments (alluvium) and soil.

Figure 8 shows the augur core sediments and Figure 9 presents the core stratigraphy, an interpretation of each layer and speculative dating. It shows that the overburden is overlaying a layer of grey silty clay with charcoal at a depth between 100-120 cm. It is unknown whether this burning episode is associated with the construction of the dam, early European settlement or Aboriginal land management practices.

Beneath the grey silty clay with charcoal layer and watertable is a red silty sand ranging in depth from approximately 130 cm to 210 cm. This layer has been interpreted as comprising source-bordering dune or floodplain sediments. This overlays a red clayey sand which has been interpreted as comprising floodplain sediments and is likely of Holocene or Pleistocene age. A red sandy clay was reached at the base up to approximately 290 cm in depth.

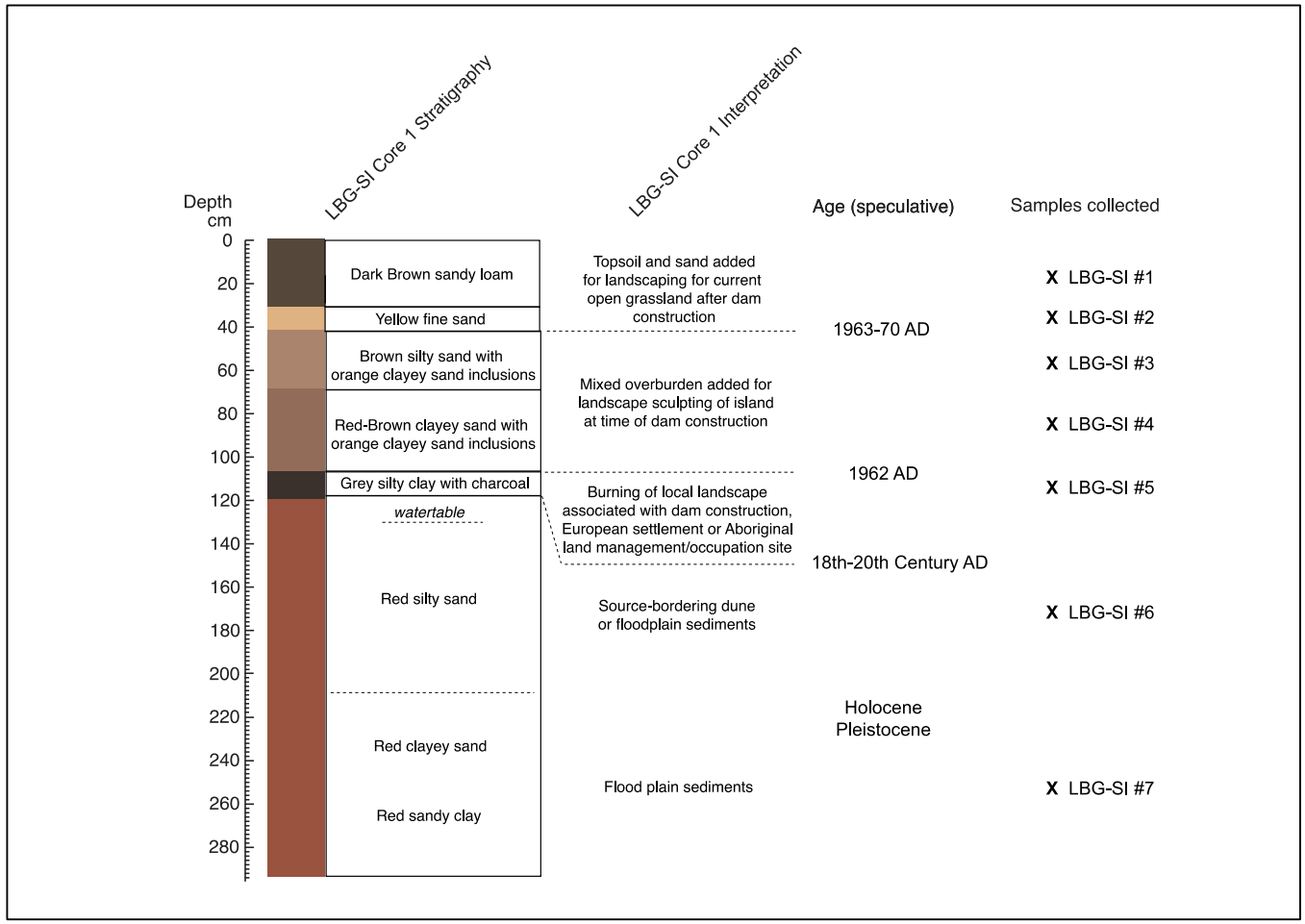

FIGURE 9: LBG-SI CORE 1 STRATIGRAPHY.

5.2.1. CORE POLLEN ANALYSIS

A pollen analysis was undertaken by Professor Simon Haberle for the pollen in Unit E of the Springbank core. Other units from the core were found to be too sandy and/or too oxidised to attain a good pollen count for analysis.

Basically the pollen assemblage from Unit E is made up of tree and herbaceous pollen dominated by Grass and Callitris/Taxus taxa, the latter presumably derived from the local Yew tree and perhaps some native Callitris (indistinguishable) in the area (Figure 10). The grass pollen could be derived from local and regional grasslands, though likely represents the extensive grasslands along the old riverbanks and around the old homestead. River edge trees such as Leptospermum and Casuarina are also present and the woodland tree Eucalyptus is also found. These would have likely grown along the river margins or floodplain woodlands prior to dam flooding. Pinus could come from a regional signal, but is likely to be in the local area as planted trees. Daisy's (Asteraceae) and Chenopods are also present and may have been in the fields or more likely in the local garden associated with the house. Dung fungi (Podospora and Sporormiella) are abundant (Figure 11).

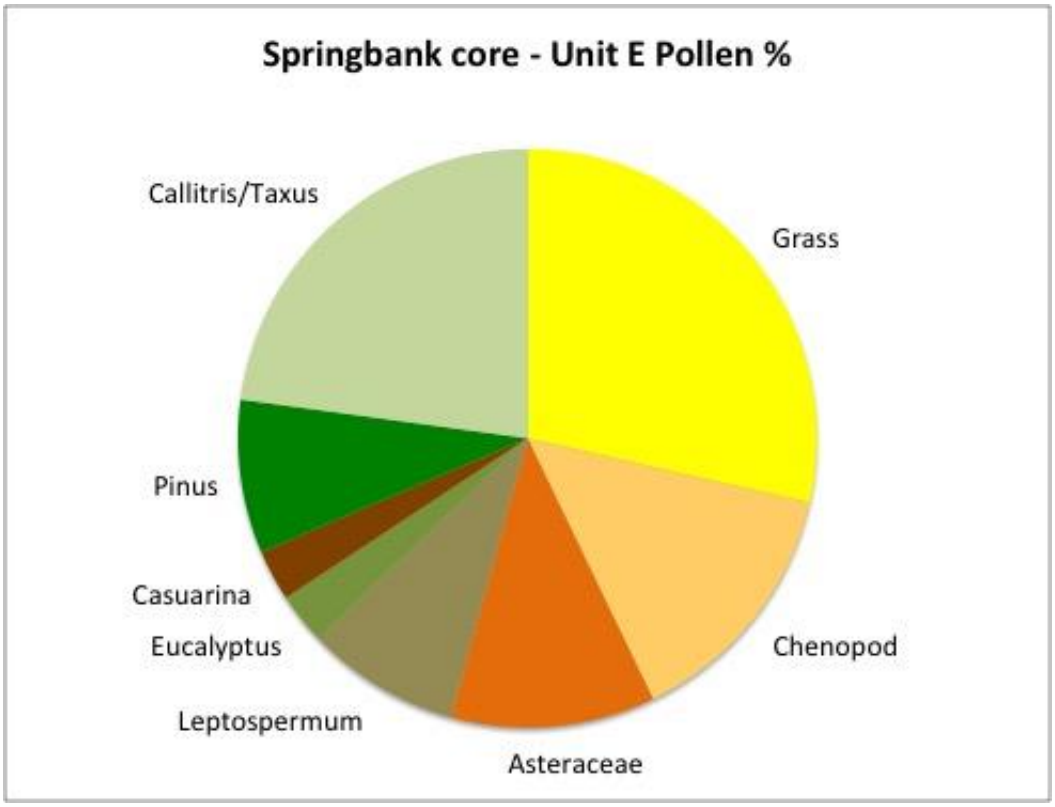

FIGURE 10: PERCENTAGE OF POLLEN FROM UNIT E, SPRINGBANK CORE.

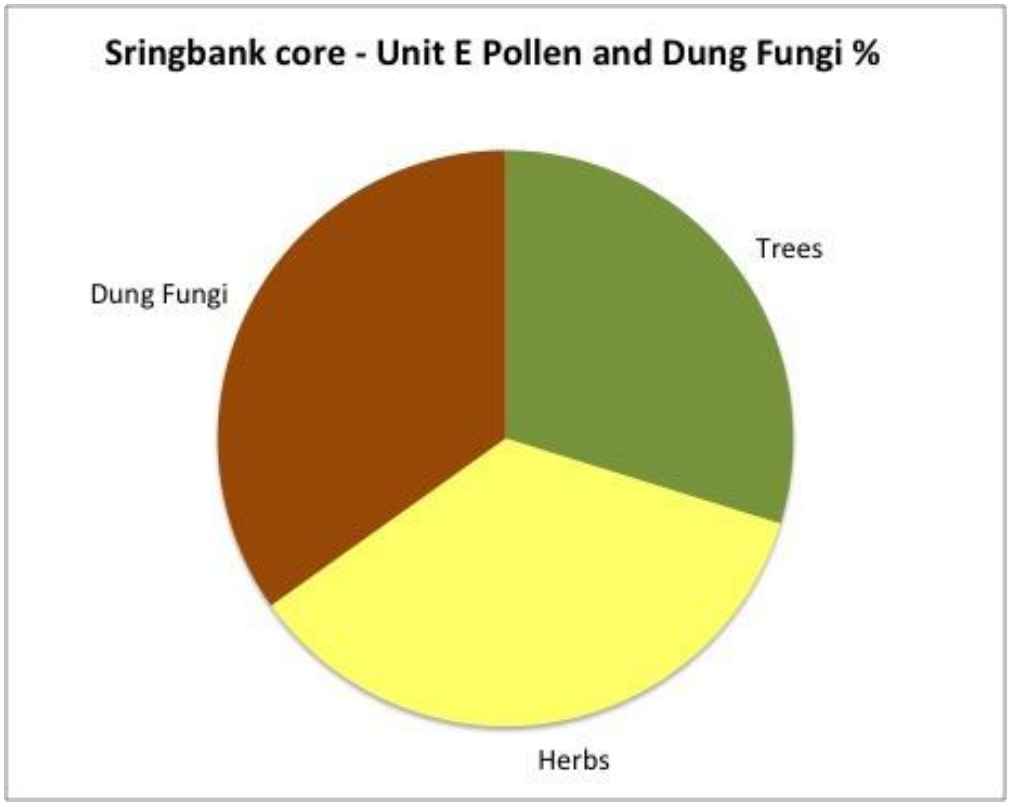

FIGURE 11: PERCENTAGE OF POLLEN AND DUNG FUNGI FROM UNIT E, SPRINGBANK CORE.

Overall the sample reflects an early phase of Canberra urban flora landscape that would have been typical of the late 1950's/early 60's. No evidence for the diverse exotic tree flora we see today, but with clear evidence for some European introductions and an open grassland with abundant sheep. This summary supports vegetation observed in black and white pictures from the time of the Springbank homestead.

5.3. MECHANICAL AND HAND EXCAVATIONS

The program of mechanical and hand excavation was carried out between 9th-17th April 2015. An Excavation Permit had previously been obtained under s61F of the *Heritage Act 2004* and was considered necessary to get through the upper overburden layer within the allocated time frame. A copy of this permit can be found in Appendix 2. Dr Duncan Wright headed the excavations, with assistance from Adjunct Professor Mike Smith, Ian Johnston, Philip Hughes, Marjorie Sullivan and ANU student volunteers.

A total of one 3 x 2 m and two 3 x 1 m trenches were excavated (Trench A and Trenches B and C respectively). These were located at the western end of the island, close to the picnic area. The trench locations were chosen based on anomalies identified during the

GPR survey. Trenches were placed within Grids 3, 5 and 6 as defined in the GPR survey report (see Figure 4 for Grid locations).

A 2-tone excavator was used at the beginning of each excavation to remove the layers of fill up to a depth of 1.2 m (Figure 12). Following this, excavation continued manually and excavated soil was sample sieved through a 5 mm mesh as per the methods outlined previously (Section 4.4; see Figures 13 and 14). The excavation program culminated in a public open day in which members of the public (including European and Indigenous descendant communities) could participate in the excavation of the open trenches (Figure 15) and other activities such as a stone knapping presentation run by Dr Oliver MacGregor from Navin Officer Heritage Consultants Pty Ltd.

FIGURE 12: 2-TONE EXCAVATOR USED DURING THE EXCAVATIONS

FIGURE 13: DR DUNCAN WRIGHT HEADING THE MANUAL EXCAVATIONS

FIGURE 14: ANU STUDENT VOLUNTEERS SIEVING

FIGURE 15: MANUAL EXCAVATIONS CARRIED OUT BY MEMBERS OF THE PUBLIC DURING THE OPEN DAY

5.3.1. STRATIGRAPHY

Examination of the three trench sections and of the deposits as they were excavated broadly confirmed the descriptions and interpretations made during the project planning stage by Professor Simon Haberle on the basis of the single auger hole he dug immediately east of Trench 1. In the excavations the upper stratigraphic units (A-E) were more complex and tended to be highly variable in their character both spatially and with depth (Table 1 and Figures 16 and 17).

FIGURE 16: TRENCH 1 NORTH SECTION

FIGURE 17: TRENCH 2 NORTH SECTION

TABLE 1: DESCRIPTION OF STRATIGRAPHIC UNITS AS THEY APPEARED IN THE TRENCH SECTIONS AND SEDIMENTS AS THEY WERE EXCAVATED. THE EQUIVALENT UNITS IN THE ORIGINAL CORE (A-G) ARE ALSO INDICATED.

Stratigraphic unit		***Sample depth (mm)***	***Description of unit***
Sections	***Core***		
Trench 3			This trench was described first and showed a simple 3-unit stratigraphy. Samples were taken from SE corner, south wall of the trench.
1	A	0-350mm	Humic dark grey medium to fine sand, moderately well sorted. Homogenous wherever exposed in this trench. Moderate root penetration throughout. Unit is firm, with small weak peds (formed under the current grassy woodland vegetation of the island). Very sharp slightly undulating break to Unit 2. [This sharp contact demonstrates that the topsoil was deposited as a separate layer as the island was built up, it is not a 'soil' formed on the underlying sandy fill layer.] Sample taken at 150mm.
2	C	350-600	Hard-setting massive silty fine sand with minor coarse sand grains and granules. Light yellowish pale-brown and white mottled with minor secondary brown-black iron concretions, and streaks of paler sediment with minor carbonate concretions. At eastern end of the trench the sediment is slightly redder – an orange-brown silty fine sand, probably from a separate 'bucket-load' of fill. Basal contact with Unit 3 is distinct/sharp along a very undulating line. Sample taken at 500mm.
3	D	600-1100 at base of trench	Dark reddish brown clayey silty fine sand with prolific red hard clayey sand inclusions throughout. These are not watertable mottles, suggesting instead admixing of slightly different fill materials. Sample at 900mm.
Trench 2			Samples taken from the south wall of Trench 2A which is broadly similar to the other two trenches, but the grey ashy layer is present only in patches, and the clayey fill unit is limited to blobs of sediment rather than a distinct unit.
1	A	0-350mm	Humic silty sand to fine sand with paler to very dark grey zones. Humic layer is darker at the northern and southern ends of the trench and dark layer contains several small reddish nodules. In the southeast corner (Trench 2B) is a larger depression to 250mm deep filled with greyish yellow very gravelly poorly sorted sand, with some stone artefacts in the gravels. Sharp contact at base with Unit 2. Sample taken from a non-gravelly sand unit at 250mm.

2	C Trace of D Trace of E	350-950mm	Similar to Unit 2 in Trench 3, but more heterogeneous with distinct bands of white (carbonate grains to small nodules), red and grey sediment of the same texture, generally without sharp boundaries, so mixed into the predominant sediments. At the northern end is a sharply defined upper unit 200-400mm thick with a very sharp straight contact with a lens of soft orange well sorted medium sand (i.e. softer and coarser sediment than most of the unit – a function of 'dumping'). At the base of Unit 2 are inclusions with diffuse margins of red clayey sand found in Trenches 1 and 3 and forming separate units in each of those trenches. At ~1m depth this unit grades into Unit 3 (as described below). The charcoal-rich grey ashy sand layer found in the test borehole and in Trench 1 occurs here only as a band of sediment around the base and within the protected root area of a sawn-off tree. Either it did not occur here, but it is more likely it was scraped off and was preserved only within the tree root area. Sample of Unit 2 was from 600mm.
3	F	950-~1300mm	Red slightly clayey silty fine sand (perhaps a source-bordering sand body). When excavated Unit 2 graded into Unit 3 over ~5mm and the surface of Unit 3 was penetrated by numerous root and insect voids filled with pale coloured sediment. The filled organic voids penetrated ~30mm and disappeared below that. This suggests the top of Unit 3 was an exposed surface on the original ridge before the island was built up artificially (a suggestion reinforced by the presence of persistent desiccation cracks in the unit). Artefacts were found at the contact and down to ~50mm in Unit 3, with none found below that. This suggests the sand unit was an old landscape element before the island was built up further. Sample at 1050mm. Unit 3 became more clayey downwards.
4	G	1300-1450 (base of excavated trench)	There is a gradual change to this unit which is red clayey silty well sorted sand with unweathered subangular pebbles (suggesting it is an alluvial deposit from a flood event which transported local colluvial gravel over a short distance). A burned root was noted in this unit. Sample at 1400mm.
Trench 1			Observations taken across both 1A and 1B trenches/walls, but all samples taken from Trench 1A SE corner, E wall.
1	A	0-250	As in Trench 3 but with variable amounts of humus, and increasingly root-penetrated upwards. Abrupt near-horizontal change at base. Sample from 150mm
2	B	250-500	Homogenous well sorted medium to fine sand which varies in colour in 'blocks' or lenses from pale greyish yellow to greyish brown, some slightly more reddish, suggesting different loads from one or more stockpiles of this sediment. At the eastern end

			the unit is capped with a discontinuous layer of yellow sand with the same texture. [This is the same as the sand exposed in the original 'borehole'.] Both units (1 and 2) contain occasional rounded large pebbles and small cobbles. Very sharp but irregularly shaped contact across a mainly slightly undulating surface at the change to Unit 3 (the equivalent of Unit 2 in Trench 3). Sample 2A (upper) yellow sand at 350mm. Sample 2B (lower) grey sand at 450mm.
3	C	500-800 to 1000	Very similar to Unit 2 in Trench 3 but it contains numerous small inclusions of other fill materials including iron concretions, large pebbles. The boundary with Unit 4 is sharp but irregular, and dips somewhat to the west/northwest end of the trench. Sample from 800mm (at a point where unit surface was at ~500mm).
4	D	800/1000- 1150/1200	Red clayey silty sand to sandy clay interbedded with grey to greyish yellow sediment with a more sandy texture (does not contain as high a proportion of clay as does the red sandy clay). In some zones the red clay dominates and occurs as lenses or distinct layers, in other zones the grey to greyish yellow clayey sand dominates, but while the two materials are interbedded/interdigitated, the boundary between them is generally sharp. It is likely these were two materials dumped simultaneously as fill to build the island, which merged as they were dumped. The base of this layer is marked by the thin charcoal layer at the surface of Unit 5. The boundary is sharp, with the red clayey unit especially peeling away from the charcoal layer as it was excavated. The charcoal/black stained organic layer resulted from the fire that was used to clean the 1960s surface before these upper fill units were emplaced, and is irregular and undulating. Numerous small cobbles and a few pebbles occur at the lower boundary of this unit, with the larger pebbles embedded in the surface of Unit 5. This unit rests on the 1960s surface, and from along this contact zone *in situ* glass fragments were recovered. The cultural material collected from a lens of the red clay must have been transported from a scraped surface layer and dumped as part of the fill for island construction, as it was from a 'floater' lens within Unit 4, not at the contact zone with Unit 5. Sample taken at 1100mm.
5	F	~1150-~1300	Sample was not taken from the south wall, but during the excavation, from the trench floor, mid-way along Trench 1A on its southern side. The unit is predominantly loose grey ashy silty fine to medium sand capped by a thin black organic layer of charcoal or degraded wood/leaf/root material, but its thickness is variable, and especially where it is thin the unit appears darker, and consists of grey fine to medium sand with finely divided charcoal dispersed throughout the sand. Many pebbles from this unit were subrounded to rounded quartz, not common in the fill units above it.

			Sample from 1250mm. At the eastern end of the trench, as this unit was excavated, it was noted that it contained blobs of red clay, suggesting it had been on a surface that was scraped, resulting in some overturning and disturbance of this thin sedimentary layer.
6	G	>1250 to base of excavation	Red well sorted 'windblown' sand similar to Unit 3 in Trench 2. This was partially exposed across the floor of the trench and the excavations extended down into to it to a maximum depth of ~100mm. Sample at 1300mm.

5.3.1.1. THE POST-1962 OVERBURDEN AND TOPSOIL (CORE UNITS A-E)

When the lake was to be flooded several islands were constructed largely from the material removed from the floor of the planned lake by various earthworks, including the digging a 2m deep vertical bank around the proposed lake margin. Springbank Island is one of the largest of these islands.

The small low ridge on the Springbank property formed the core of this largely artificially constructed island. Excavation Trenches 1 and 2 were placed on what had been part of this original low ridge, and the sediments exposed in those trenches indicate that a sand body, perhaps a source-bordering dune or windblown sand hummock overlying alluvium (Units F and G), had formed the rise on which the homestead and farm complex had been constructed.

The red sandy sediment from this rise is capped with a thin 'cultural' layer of grey ashy sand and charcoal (Unit E). The nature and widespread distribution of this very thin layer, and the sharpness of its contacts with the materials above and below it, strongly indicate that it resulted from clearing and burning the old farm buildings and associated trees and shrubs and scraping the ground surface, when the island was being constructed. This is the first of Habele's suggested causes (Figure 9). [Note in a brief discussion with Eva Papp (16-04-15) she confirmed this interpretation is consistent with the resistivity survey results, and that the homestead was likely to have been constructed on a sand rise].

In Trenches 1 and 3 the construction process can be identified more clearly than in Trench 2 closest to the original homestead.

As the island was constructed (in the early 1960s) it is apparent that a conscious effort was made to extend the elevated zone, to form a stable platform, and to provide a surface that could be vegetated subsequently to form a recreation area. Three main layers were emplaced over the burnt and scraped ground surface (Unit E), and appear to have been selected deliberately.

- The base of the fill (Units C and D) comprised clayey sediments. Only part of this (the 'red clay' of Unit D) was primarily clayey, most were clayey silty sands or silty sands, but these very fine textured materials were mixed as they were emplaced (dumped) to form a hard-setting stable basement layer for most of the island. This basement was scraped or smoothed to be near-horizontal. This fill probably

consists of a mixture of weathered bedrock of various local lithologies and ancient alluvium/colluvium from the area now inundated.

- In the area around Trench 1 an inorganic sand layer of near-uniform depth (Unit B) was emplaced over the clayey basement layer, no doubt to provide well-drained sediments on which plantings could occur, and which maintained the flat surface of the built island. This sand layer was encountered in the auger hole but not in Trenches 2 and 3.

- The entire area was capped by a separate organic/humic layer of sand and grass/some trees were planted (Unit A).

The fill used to construct the present island was on average about 1.2m thick. All units contain some isolated cultural materials, but these were apparently collected in surface scrapes, and incorporated into the fill used to build up the island, so have been recovered from blobs of clayey sand in the basement layer, and more commonly from the humic layer placed on the surface, and undoubtedly taken from surfaces of the landscape that were soon to be drowned by the lake.

In the time since the island was established, although the trees have grown to maturity and the surface has remained grassed there has been no significant mixing of the sediments between the layers that were emplaced to construct the island. As noted in the sediment unit descriptions above, the boundaries between the different components of the post-1962 overburden units remain sharply defined.

5.3.1.2. THE EARLIER SANDY SEDIMENTS (CORE UNITS F AND G)

These were extensively exposed only in Trench 2, where over about 30% of its area the excavations extended down into them for ~500mm at ~950-1450mm below the surface (Table 1). In Trench 1 across parts of the floor the excavations extended down to the interface between Units E and G and in a very small area another ~100mm into Unit G. These lower units were not reached in Trench 3.

The upper 450mm (between 950 and 1300mm below the surface) consisted of red slightly clayey silty fine sand which became more clayey downwards. The basal 150mm down to the base of the excavation at 1450mm was distinctly more clayey but still well-sorted sand which contained small amounts of unweathered subangular pebbles 10-

30mm in size. The subangular pebbles in the lower red sandy sediment (the equivalent of Core Unit G) suggests it is alluvium deposited during flood events which incorporated locally-derived colluvial gravel during transport. The upper stone-free well-sorted sand, the equivalent of Core Unit F, could be either windblown or alluvial in origin.

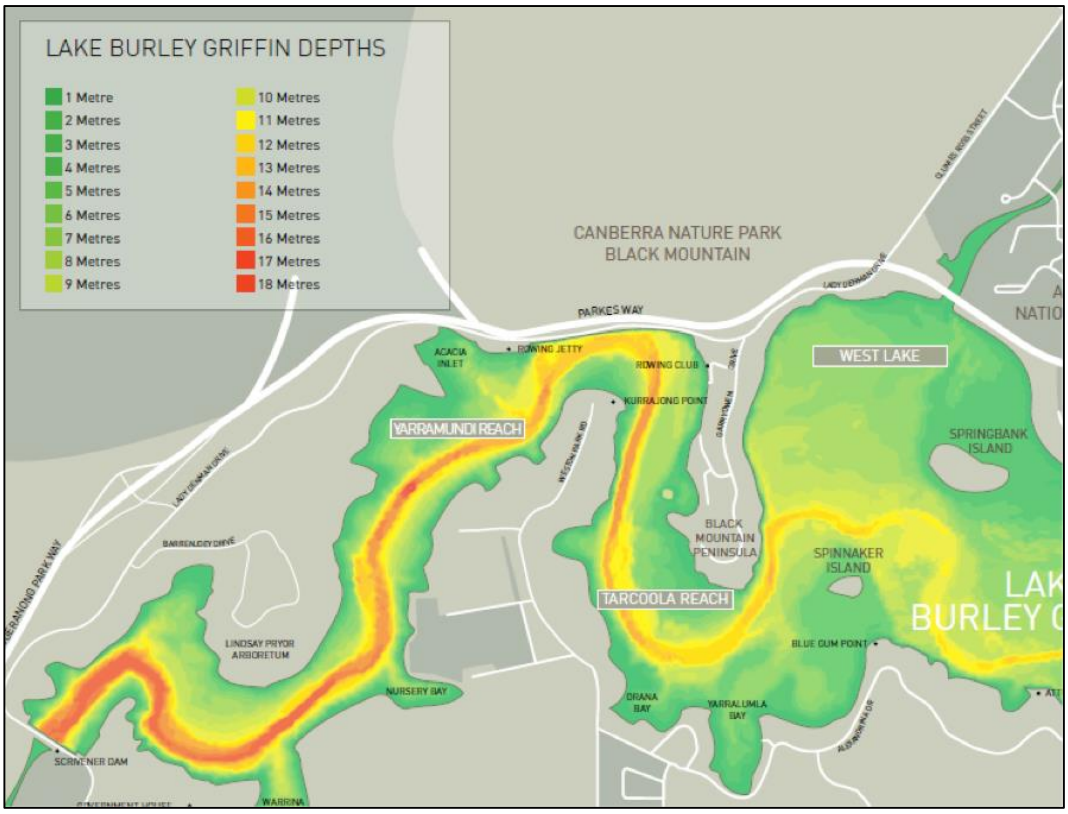

FIGURE 18: THE DEPTH OF FORMER COURSE OF THE MOLONGLO RIVER IN RELATION TO SPRINGBANK ISLAND (SOURCE: NATIONALCAPITAL.GOV.AU).

This alluvium is not of recent/historical age. The degree of weathering exhibited by the sediments (their strong redness and increasingly clayey nature with depth) and their elevated position well above the former floor of the valley (about 11m – Figure 18) suggest they are at least Holocene and more likely late Pleistocene in age. They may reflect a period of repeated alluvial deposition that was somewhat wetter than the present climate of the Canberra region, but such wetter phases occurred during the Pleistocene deglacial phase and during the early Holocene, as well as earlier in the late Pleistocene, so they are not a definitive chronological marker.

6. PRESENTATION OF ENVIRONMENTAL, ABORIGINAL AND HISTORICAL BACKGROUND

The following sections outline the results of the environmental, Aboriginal and historical background.

6.1. ENVIRONMENTAL BACKGROUND

This section presents the geological and geomorphological background for the Molonglo/Springbank Island area.

During the late Silurian period (around 440 million years ago) much of what was eventually to become eastern Australia was covered by sea. The Canberra area on the edge of the vast Australian plate was under shallow seawater.

Tectonic activity towards the end of the Silurian and early Devonian forced the seabed to buckle draining the sea and forming a landmass. To the west of present day Canberra, a huge and complex body of granite began to push its way high above the land surface. The upward movement of this batholith formed two separate existing elevations: the Tidbinbilla and Namadgi ranges which today dominate the visual landscape of Canberra and determine the western edge of the ACT watershed. Immediately to the east of the batholith, the land surface began to slowly subside and erode to form a landscape of lower relief valleys and hills - the valleys of present day Canberra urban area- Tuggeranong, Woden, Belconnen and Gungahlin. The Canberra valleys are intersected by the Molonglo River and smaller watercourses such as Ginninderra Creek, which flow into the Murrumbidgee River (Finlayson *et al.* 2008.) Further to the east, and much later, another period of slow horst uplifting occurred and it resulted in the Cullarin Ranges that are now evident above Lake George.

These two uplifting events created an elongated rift valley confining the Canberra valleys between two north-south running geological faults – The Murrumbidgee Fault in the west and the Queanbeyan Fault in the east. As the eastern uplift slowly continued rising, the Molonglo River, flowing from the plains near Bungendore, cut its way through the landscape and formed the Molonglo Gorge. Once free of the uplift and the confines of the Gorge, the river flooded out onto the open plain of Pialligo, depositing the sands and mud that it had cut and carried from the uplift. The process resulted in the depositing of

nutrient rich alluvial soils in the Molonglo River floodplains that were later to be utilised by European settlers as dairying, grazing and crop lands. The process is still continuing but now the Molonglo River is depositing its sediments on the bed of Lake Burley Griffin (Finlayson *et al.* 2008).

The surface geology in the Springbank and Canberra regions is characterised by sedimentary formations of mudstone and siltstone shale type rocks in a zone extending from Gungahlin in the north, through central Canberra and around the edge of Lake Burley Griffin (the edge of the Molonglo River floodplain). Woolshed Creek, which flows into the Molonglo near the Canberra Airport, is characterised by well-bedded Silurian grey calcareous mudstone and siltstone deposits rich in fossiliferous biota (Strusz 2011). Fine-grained sandstones with occasional thin beds of coarser sandstone form surface outcrops in several areas, particularly around State Circle and Parliament House (Finlayson *et al.* 2008).

Extending along approximately 80-100 metres of Lake Burley Griffin in the Acton area are low outcrops of dark grey recrystallised limestone formed during the periods of sea inundation in the Late Silurian. The Acton Peninsula outcrops contain sparsely distributed fragmentary macrofossils of corals and shells (Strusz 2011). While there are few remaining outcrops visible above the ground surface today it was the Acton limestone and other outcrops extending through the present Lakebed that induced the first Europeans to give the name, 'Limestone Plains' to the floodplain of the Molonglo River.

6.2. HISTORICAL BACKGROUND

The following section outlines the historical background for the study area and nearby surrounding region. It includes sections on the history of both Aboriginal and historical (post-colonisation) settlement.

6.2.1. ABORIGINAL

Archaeological investigations have shown that Aboriginal groups had occupied the lands through and around the Molonglo and Murrumbidgee Rivers for at least 25,000 years (Flood *et al.* 1987). Radiocarbon dating of cultural features excavated at Birrigai rock shelter in Tidbinbilla Nature Reserve has produced evidence for relatively discrete phases of occupation of the shelter dating to c. 21,000 BP (later corrected to c. 25,000 BP).

6.2.1.1. HISTORICAL ETHNOGRAPHIC INFORMATION

Information relating to the Aboriginal occupation of the Canberra region has been obtained from ethnographic historical documentation, which was written by early European settlers during the mid to late nineteenth century (Barwick 1984).

We know that Aboriginal people in the past occupied land according to a system of spatial organisation (Clark 1990: 11-14). Individual groups or clans were familiar with their own geographical regions, the availability of resources within it and how these changed throughout the seasons. Tribal boundaries were often defined through linguistic associations, social relations, and spiritual links to the land. These boundaries would likely have been fluid, changing through time (Flood 1980: 2). It is likely therefore, that the tribal boundaries as delineated today are relative to the period just after European settlement.

The south Canberra area was close to the tribal boundaries of the Ngunnawal and Walgalu clans. The Ngunnawal tribal boundary extended from Queanbeyan to Yass, east towards Goulburn and up to the highlands west of the Shoalhaven River. It is likely that Ngunnawal people occupied the environs associated with Black Mountain. It is uncertain what language was spoken by Aboriginal people living in the Canberra region as it lies in the linguistic boundary between the Gundungurra nad Ngunnawal languages (Cooke 1988:33; Flood 1980:194). However, Eades (1976) considers it likely that the Ngunnawal people living in this area spoke the Gundungurra language.

Aboriginal people in this area lived in small, nomadic, kin-based groups. People had a successful economy based on hunting and gathering and inter-clan social networks. Clan groups regularly came together to participate in trade but also to carry out marriages and other ceremonial activities (Flood, 1980). The Molonglo River flats and Black Mountain were areas favoured as meeting places by Aboriginal people in the past and it is thought that the name 'Canberra' meant 'meeting place' (ANU, 2011:8-9). It is clear that the region associated with what is now Springbank Island was one of major importance to Aboriginal communities.

Based on an early ethnographic account from Bennett (1834:173), local resources provided people with a rich diet that included: flying squirrel, possum, wombat, wallaby, kangaroo, koala, swan, emu, duck, goanna, snake, platypus, insects, ant eggs, various fish, yabbies, mussels, plant tubers, seeds and berries. Furthermore, based on the work of

Josephine Flood (1980) another important food source for Aboriginal people in the area was the Bogong moth. These moths spend the summer months in a torpid condition and as a result were easy to collect and available in high numbers. They provided a highly nutritious component to their diet.

Other important resources in the area included fresh water sources such as the Molonglo River and springs, flora such as Ovens Wattle (*Acacia pravissima*), Spiny-headed Matt Rush (*Lomandra longiflia*), Kangaroo Grass (*Themeda triandra*), Silver Wattle (*Acacia dealbata*) and Red Stringybark trees (*Eucalyptus macrorhyncha*). Some of these resources would have been used to construct canoes, coolamons, shelters; to weave baskets and rope; and would also have been applied to the body as insect repellents and healing ointments (ACT Heritage website, 2015). The area around the Acton peninsula would also have provided shelter from prevailing westerly winds and flat ground suitable for camping.

References from early settlers about traditional Aboriginal ways of life are rare and lack any great detail (Flood 1980: 26). Some of the best entries come from the journals of government surveyors, explorers and travel book authors. By the 1880s, when ethnographers visited the region, the consequences of European settlement had already greatly altered the traditional Aboriginal way of life (Flood 1980: 26).

Along with a disintegration of traditional ways of life, during the first 50 years or so following European settlement there was a significant depopulation of Aboriginal people from the Canberra region. By 1872, it was recorded that there were only 5 or 6 Aboriginal 'survivors' in the area (Goulburn Herald, 9th November 1872 in ANU, 2011). This disappearance of people from the tablelands was likely accelerated by the introduction of European diseases such as smallpox, influenza and measles. Epidemics of all of these occurred between the 1830s to the 1860s (Flood, 1980; Butlin, 1983).

Currently, four Aboriginal groups are representative of the ACT including:

- Buru Ngunawal Aboriginal Corporation;
- Little Gudgenby River Tribal Council;
- King Brown Tribal Group; and
- Ngarigu Currawong Clan.

6.2.1.2. ANTHROPOGENIC CHANGES TO THE ENVIRONMENT

While we cannot say with any certainty that large scale manipulation of the plants and animals of the highland area and through the Molonglo Valley had been practiced in these early times, we can accept that it had been happening well before the first Europeans made their way through the Molonglo Valley (Gammage 2011). Gammage (2011), using historical literature and artworks, coupled with archaeological evidence and plant and animal ecology has argued strongly that across the continent the ecosystems were manipulated and managed by Aboriginal populations to provide reliable food resources. He maintains that the 'natural' landscapes that were described by the European explorers and early settlers were the result of human intervention. Aboriginal people created areas or mosaics of open grasslands, open and dense woodlands, manipulated the density of specific food plants and created 'estate' like landscapes in which they could acquire animal and plant resources with the minimum energy expenditure. Their principle method was systematic, planned and regular firing to either promote the growth of grasses, trees and shrubs or to limit and control the spread of other selected plant species. These areas, in turn, were favoured by animal species, which were particularly desirable as food sources.

It was these landscapes with mosaic growth areas alternating with open grasslands which impressed the first European explorers with a culture based animal domestication and farming to write enthusiastically of country suitable for sheep and cattle grazing and agriculture.

Following the first European explorations of the Molonglo Valley, a botanist named Allan Cunningham arrived in April 1824. Cunningham with his botanical eyes was most likely the first European in the region to realise that the landscape he saw and the distribution of grasses, shrubs and trees was a result of long-term manipulation and management of the Aboriginal people. After reaching the Molonglo and Murrumbidgee Rivers he circled back to Lake George. On 19 April 1824 he wrote of his observations:

… a common practice of the Aborigines[is] *to fire the country in Dry Seasons particularly where it is wooded & bushy, in order to oblige such Game of the Kang'o Kind to quit their Couch* [grasses] *& subject themselves to be spear'd and the object these people have in View in firing the herbage of clear open tracts is, that as the young Grass grows immediately after such an Ignition, especially should rain succeed these Conflagrations, which often times are very extensive, Kangaroos & Emus are tempted to leave the forest brushes to feed on the*

undershoots, and thus are likewise exposed to their missile weapons (Cunningham 1824 quoted in Gammage 2011).

6.2.1.3. SITE TYPES IN THE REGION

Aboriginal people have been visiting in the Canberra region for at least 25,000 years. The high number of Aboriginal artefacts recovered from the Canberra area demonstrates how the area was a popular camping ground for the Ngunnawal people. The H.P. Moss collection for instance, includes artefacts recovered from the base of Black Mountain and on either side of the Molonglo River, relevant to the current study area. Many camping sites however, have been destroyed in recent times by the development of Canberra (Bindon, 1973:5).

The most frequently occurring site types in the Canberra region are stone artefact scatters and isolated artefacts. Scatters may be the remains from many different activities, and are most likely to include stone artefacts (lithics) but in some cases they also include charcoal, animal bone (ACT Heritage website, 2015). These sites may range significantly in density and size. They can provide insight into technological and stylistic variation as well as reduction sequence. The regional pattern observed in the ACT for these site types is one of higher frequency and size in areas within close proximity to permanent water sources such as creeks and wetlands.

Other Aboriginal site types in the ACT include:

- scarred trees
- rock art sites
- burials
- grinding groves
- stone quarries
- ochre quarries
- wooden artefacts and
- sacred landscapes.

6.2.3. EUROPEAN

Early European explorers have visited the wider NSW/ACT region since at least 1820 and permanent settlement of the area soon followed.

6.2.3.1. THE FIRST EXPLORERS

In early December 1820, Joseph Wild (or Wilde) and two other men were camped at the southern end of Lake George (Weereewa) below the Cullarin Range. They were employees of Charles Throsby, former Naval surgeon, now property owner and an accomplished explorer. Throsby had distinguished himself to the New South Wales Governor, Lachlan Macquarie, by completing several successful explorations to Jervis Bay, inland to the Bathurst and Goulburn areas and Lake Bathurst. Throsby had heard from Aboriginal people that there was a large lake they called Weereewa further inland and a large river, which they called Murrumbidgee. Throsby was greatly intrigued by these water bodies and thought that the river they spoke of may flow to the south coast of New South Wales and provide a viable water route from the coastal regions to the inland. With this in mind Throsby despatched Joseph Wild to lead a small party to find the lake and the river (Parsons 1967 [a]).

On 2 December after reaching the lake Wild climbed the steep slopes on its western shore (Cullarin Range) and looked toward the south and west. What he and his companions saw in the far distance were the Brindabella and Namadgi Ranges (Mayer 2000). Wild proceeded further to the southwest and came across the Yass River. He then turned back to report his findings to Throsby. Wild and his group were almost certainly the first Europeans to see the Brindabella Range, which overlooked what is now the capital city of Canberra.

Governor Macquarie was so impressed with the descriptions of Weereewa passed on to him that he decided to see it for himself and led a party of government officials to the site. They set up camp on the northern shoreline of the lake.

Throsby, after exploring along the edge of the lake and to the Yass River was still determined to find this great river, which he fervently hoped would flow to the New South Wales coast. He had in his mind a major trading route to the inland, which circumvented the overland routes from Sydney across the mountains of the Great Dividing Range (Mayer 2000). If he could discover this route and establish inland settlements in easy reach of Sydney and the rest of the world then surely he would prosper.

Throsby, who was in ill health at this time, then despatched his twenty-two year old nephew, Charles Throsby Smith, recently arrived in the colony, along with Wild and Police

Constable Vaughn to press on further to the southwest from Weereewa in search of the river. He wrote to his nephew:

I am instructed by His Excellency the Governor to desire you to proceed … with all possible dispatch to Lake George (Wee-raa-wee) from thence you are to take your departure, and proceed to the stream of water (Boon-ga-roon) [later named Yass River] which I discovered running to the southward, the spot will be pointed out by James Vaughan, who was with me, from thence you are to trace it. If possible until you meet the tides away (Lee-Scarlett 1968).

In the heat of December the small group started out from Weereewa, following the route first used by Wild and Throsby crossing the Yass River. They headed in a southerly direction, approximately along what is now the route of the Federal Highway, to encounter the open grassy plain of the Molonglo River. They erected a rough hut on its banks and Throsby Smith recorded large quantities of limestone around the margins of the plain. The name 'Limestone Plains' was to be given to this area (Mayer 2000). Their campsite on the bank of the Molonglo was probably in what is now Commonwealth Park or the West Basin of Lake Burley Griffin very near to the future property of Springbank.

Young Throsby Smith, along with Wild and Vaughn, then climbed the slopes of Black Mountain. From the high slopes they had an extensive view all around and saw that the river they had just found continued in a south west direction then turned to the northwest. From their vantage point they would also have seen further plains to the south (Woden and Tuggeranong) and looming in the distance, the forbidding heights of the Brindabellas that Wild had previously seen. They returned to camp and stayed the night, the first Europeans to dwell, albeit briefly, on the land that is now the national capital (Dowling 2013).

Throsby Smith was also the first European to describe the land along the Molonglo River valley. He recorded that they had travelled:

…thro' a fine forest country for 3 miles ascending a Stony Range … some beautiful clear plains in sight… Descended the Range & into a scrubby Country for about ½ a Mile then into a most beautiful country gentle Hills and Valleys… Came on to one of the plains we saw at 11óclock – at past I came to a very extensive plain Rich Soil and plenty of Grass – Came to a beautiful River that was running through the plain in a SW direction (Throsby Smith 1820; Gammage 2011).

The ‘beautiful river’ was the Molonglo. While on the Molonglo River it seems that Throsby Smith had his doubts about this river running to the sea. He was, however, convinced that the river his uncle had been seeking was a fantasy, and decided to go no further. He and his group turned back towards Lake Weereewa giving up the quest, without following further the course of the Molonglo. Uncle Charles was mightily displeased at his nephew’s unwillingness to press on when they again met up. If Throsby Smith and his group had proceeded on and followed the downstream course of the Molonglo River they would have reached the Murrumbidgee in a day or two – the first Europeans to do so – and seen that the river flowed to the north and inland. But he had returned to his uncle without this knowledge. He later wrote:

I was sent by my uncle by order of the Governor in charge of half a dozen men and pack horses to explore the country to the south of Lake George, and to trace down a river an imaginary one so I found and to my great vexation, being so led astray by my uncle’s report, and on my return we had a serious quarrel and I left him and rented a farm at Appin (Lee-Scarlett 1968).

Charles Throsby still held to the vision of this large river flowing south towards the sea and providing the transport route for the potentially new agricultural lands on the Limestone Plains. He also well knew the profits that could be made by those who first utilised the routes. His young nephew may have lacked the determination to go further into unknown lands in search of the river but Uncle Charles was made of sterner stuff.

The next year Throsby was again at Weereewa (now named Lake George) with the reliable Joseph Wild at his side. He followed the shoreline around the base of the Cullarin cliffs to where Bungendore now stands, and then headed towards where he suspected the fabled river would be flowing. They were now crossing country familiar to Wild. In May 1821 Throsby and Wild reached the Limestone Plains. Wild would surely have pointed out to Throsby his nephew’s former campsite by the Molonglo and then taken him to the mountain his companions had climbed just a few months before and looked towards the distant mountain range in the west. By now Throsby’s health was failing, but his vision of a highway to the sea was still as strong as ever, and he would have known that he was close to reaching his destination and fulfilling his dream. They pressed on, following a route through the low hills, finally reaching his fabled river and stood on its banks on rain swept day (Dowling 2013).

We can never know the full extent of Throsby's disappointment at finally reaching his river and seeing it flowing strongly to the northwest away from the sea. He would have had to finally reconcile to himself that his vision of a navigable route connecting the inland to the sea had come to nothing – it was, as his nephew had hinted, all in his imagination. He later wrote:

...from the appearance of the country, I am bound to say that the apparently continued chain of high mountains extending from South to North, leaves no hope of a river of any magnitude being discovered running to the south eastern coast of colony (Throsby in Dowling 2013).

Throsby returned to his home near Moss Vale with a heavy heart. Governor Macquarie granted him 700 acres (283 ha) of land to adjoin his property of Throsby Park, or any part of the new country he desired. In 1825 Throsby was appointed to the Legislative Council of the colony, but continued ill health, financial difficulties, drought and the falling price of wool drove him to take his own life on 2nd April 1828. He was just 51 years of age. Joseph Wild returned to the Limestone Plains and the Murrumbidgee in 1823, guiding an expedition led by Captains Mark Currie and John Ovens. After Charles Throsby's death, Wild stayed on with the family as head stockman for Charles Throsby Smith, who had been awarded land in the Wollongong area (Parsons 1967 (b)).

Following his exploration of the area, Charles Throsby described the landscapes and the rivers he saw. This was the first written description of what is now the Australian Capital Territory. His description of the land reached as far as Britain.

Throsby, writing to the Colonial Government, stated:

I admit the great extent of country through which these rivers appear to run, places it far beyond my power to determine their termination; yet I still hope they will be ultimately found to communicate with the sea, but most certainly not on the eastern coast. I am happy to report that the country in general is superior to that which we passed through when with His Excellency the Governor in November last. It is perfectly sound, well watered with extensive meadows of rich land on either side of the rivers; contains very fine limestone, in quantities perfectly inexhaustible, slate sand-stone and granite fit for building, with sufficient timber for every useful purpose; and, from the appearance of the country, an unbounded extent to the westward.

The approach from Lake George is in no part more difficult than the track the Governor's carriage and carts passed between Lake Bathurst and Lake George on his late tour; nor do the very high mountains to the south-east present that prospect of extreme barrenness which the mountains bounding this part of the colony do; the whole being thinly timbered, with a pleasant appearance of verdure between the trees (Throsby 1821).

Following Throsby's expedition Captain Mark Currie, RN, led an excursion into the newly found district in 1823. He was accompanied by Brigade-Major Ovens and the ever-reliable Joseph Wild, who had been with Throsby and Throsby Smith the previous year. They traversed the Molonglo plains, passing the site of the city and future Lake Burley Griffin and went south to the Tuggeranong Valley, which Currie named Isabella Plains. From there they reached the Murrumbidgee River, the second group of Europeans to see the river.

Currie's diary of 1st and 2nd of June recounts the journey:

1st June 1823 – Crossed Limestone Plains and travelled through a fine forest country to a small, beautiful plain, which we named Isabella's Plain after Miss Brisbane [the Governor's daughter]. It is situated about six miles from the others, on the right bank of the Morumbidgee [sic]. Went up the right [east] bank of that river four miles, searching for a crossing, without success, in doing which we passed through a fine forest country and encamped for the night on the right bank. Killed an emu (Currie 1823).

Currie and his party had reached the Murrumbidgee in the vicinity of Pine Island but were unable to cross because recent rains swelled the river. The next day they followed the river upstream.

2nd June 1823 – passed through a fine forest country intersected by stoney and lofty ranges… Encamped by a small run of water in a fine forest vale, not yet being able to cross the Morumbidgee [sic]. *Killed a kangaroo* (Currie 1823).

They caught 'a considerable quantity of fish', probably Murray Cod and then travelled about forty miles south into country which they were informed by the Aborigines was called the 'Monaroo' (now called Monaro).

Allan Cunningham, a botanist, and his party were the next to pass through the area. His objective was to make a detailed botanical inspection of the lands already seen by Throsby and Currie. On 15 April 1824 he crossed the Tuggeranong Valley where he noted the hoof marks left behind in the wet ground by Currie's party. He found the Murrumbidgee at its normal autumn level and was able to cross near Tharwa. The following day he passed Mt Tennant (which he named Mt Currie) and the Gudgenby River. He described the area as a 'fine tract of country and 'valuable sheep pastures' which he considered were at that time 'wasted' (Lee-Scarlett 1968)

Throsby Smith's description of 'very extensive plain Rich Soil and plenty of Grass', Throsby's report of the land he traversed as 'extensive meadows of rich land', followed by Currie's view of 'fine forest country' and a 'beautiful plain' and then Cunningham's impression of a 'fine tract of country' brought news to the would-be settlers in crowded Sydney of vast and profitable grazing lands and high opportunities. Word reached as far as England where Throsby's descriptions were written up in *The Philosophical Magazine and Journal* in 1821 (Throsby 1821(b)

It was reported by the colonial government that these explorations and observations have:

Contributed in a very eminent degree to open to the colonists a large tract of land that now affords abundant pasturage to a considerable number of cattle and sheep, and has much relieved the exhausted and overstocked grazing-grounds in the early-settled parts of the colony (Commonwealth of Australia Year Book 1931).

6.2.3.2. LANDSCAPE DURING FIRST SETTLEMENT

The present landscape of Springbank Island, the West Basin of Lake Burley Griffin and the surrounding higher grounds bears little resemblance today to what it was when the first European explores and settlers arrived. The development of the capital city has greatly altered the natural water courses and flora to a point where only a trained eye could look back into the past and recognise what the first Europeans saw and to a large extent what was created by the Aboriginal people over millennia.

Gammage (2011) pieced together what the landscape surrounding present day Springbank Island and indeed most of the original Springbank grazing property would

have been. Using as a main source the observations and mapping of surveyor Robert Hoddle between 1832-5, Gammage described the pre-capital landscape:

The Molonglo was variously called a 'rivulet', 'a Chain of connected Ponds' and a 'creek'with 'ponds'. In the 1829 winter it was only running in some places, but 'consists of large Ponds' in May 1833 and August 1835 it was dry and 'difficult to trace its bed, only a Pond at intervals'. It was a typical inland watercourse, spreading shallow around small islands [such as Springbank] *flooding readily into wetlands, with a scatter of reedy pools some more permanent than it, holding fish, eel, platypus and yabbies. On each side were grassy plains.*

… One hut was near where Canberry (Sullivan's) Creek joined the river. The creek rose in hills north and trickled shallow and swampy to Turner. Above Barry Dirve it spread into a 300-400 metre wetland, narrowed to a small 'spring'or 'pond' at the Australian National University pond, then squeezed between high banks through a kilometre or so of 'open plain' backed by 'grassy open forest'. The right (west) plain tapered to meet open forest at O'Connor Ridge, the forest continuing until the ground fell gently to a narrow reedy flat below Ursula College. The left bank opened to undulating grass plains with tree clumps on rises such as at Manning Clark Theatre, and to a tree-ringed plain towards Civic. The bank continued to a sharp-edged 'grassy' open forest' belt. Its inner edge began on a gravelly rise lower down the creek, circled higher ground across several soil types towards the Menzies Library, then curved back to the creek, making an edge and a tree belt around a grass plain 600 meters by 400, roughly today's South Oval (Gammage 2011:276-277).

Hoddle described the area of the Springbank as open plains (the Molonglo floodplain) dominated by Kangaroo Grass (*Themeda* sp.) with areas of Blakely's (*Eucalyptus* blakelyi) Red Gum (*E. camaldulensis*) , Ribbon Gum (*E.viminalis*), and Apple Box (*E. bridgesiana*), with Yellow Box (*E. melliodora*) on lighter soils, and wattle (*Accacia* sp.) or casurina (*Casuarina cunninghamiana*) in places. Hoddle did not record dense forests on the higher grounds above the Molonglo Corridor but noted belts of scrub. Black Mountain was at that time in the 1820-1830s bear of the thickly forested Eucalypts and undergrowth scrub as it is today. In fact Black Mountain has derived its name from the areas of burnt scrub and sparse trees, which Hoddle observed – a result of Aboriginal land management (Gammage 2011: 276).

Figure 19 shows a portion of a survey map by Surveyor Robert Hoddle showing the Molonglo River Valley in the vicinity of Black Mountain. This map shows J. McPherson as

holder of the Springbank property, which was later to extend to take in more of Black Mountain. The map shows several discrete areas of forest on the lower slopes of Black Mountain (Robert Hoddle Survey Map c.1835).

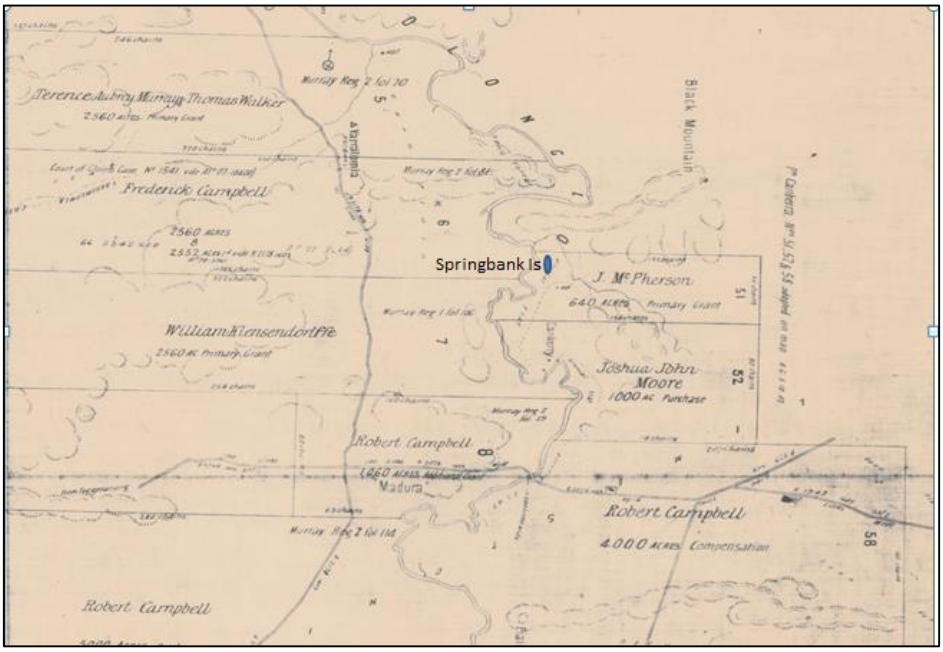

FIGURE 19: ROBERT HODDLE SURVEY MAP C.1835

William Govett, on the staff of Surveyor-General Thomas Mitchell, surveyed land blocks in the County of Argyle (which included the Lake George region) in the early 1930s. He wrote of his observations around the time when the landscapes created by the Aboriginal groups were giving way to the more intensive manipulations of European agriculture.

The general character of the country … may be denominated "open forest-land," that is, where the trees (which are not the largest in size but rich in foliage,) stand at a considerable distance one from the other, and the ground, entirely free from underwood or scrub, is clothed with excellent pastureage [sic]*; thus the general aspect of the country, though intersected here and there with tangled tracts of underwood, presents an appearance not unlike that of an English park.*

The natives occasionally set fire to the grass in particular spots, for the purpose of insnaring [sic] *and spearing the kangaroo, but it is quickly replaced by new and vigorous herbage. It sometime happens from this circumstance that a whole district, for several miles, has been set on fire in the dry seasons, and this in the neighbourhood of a settlement or farms, has been often attended with serious consequences…*

These, but twelve years ago, were in the quiet and undisturbed possession of the humble native tribes, and the animals indigenous to the country. Then might have been seen the black, proud of his territory, wandering in full freedom and independence… Then too, the explorer might have beheld a herd of kangaroos frisking together playfully in some rich and sequestered part of the forest, - the emu majestically stalking over the plain, the heavy-winged turkey selecting carefully his choice food, and various other birds and animals all enjoying themselves as if unconscious of being disturbed…

But how has the scene been changed within the last few years? There is now not a section of land in the whole County of Argyle that is worth possessing, but what is in the occupation of the white man. The tide of civilized population has already swarmed into that county; houses and elegant cottages are everywhere to be seen; farms are fenced in, cultivation has made rapid progress…

The kangaroos have either been killed, or have fled in search of more retired forests. Sheep and cattle have taken their place, the emu and turkey are seldom seen, the millions of parrots have even become scarce… (Govett 1836).

Figure 20 shows a property survey map of the Molonglo River in the Canberra region showing the property boundaries and ownership c. 1930.

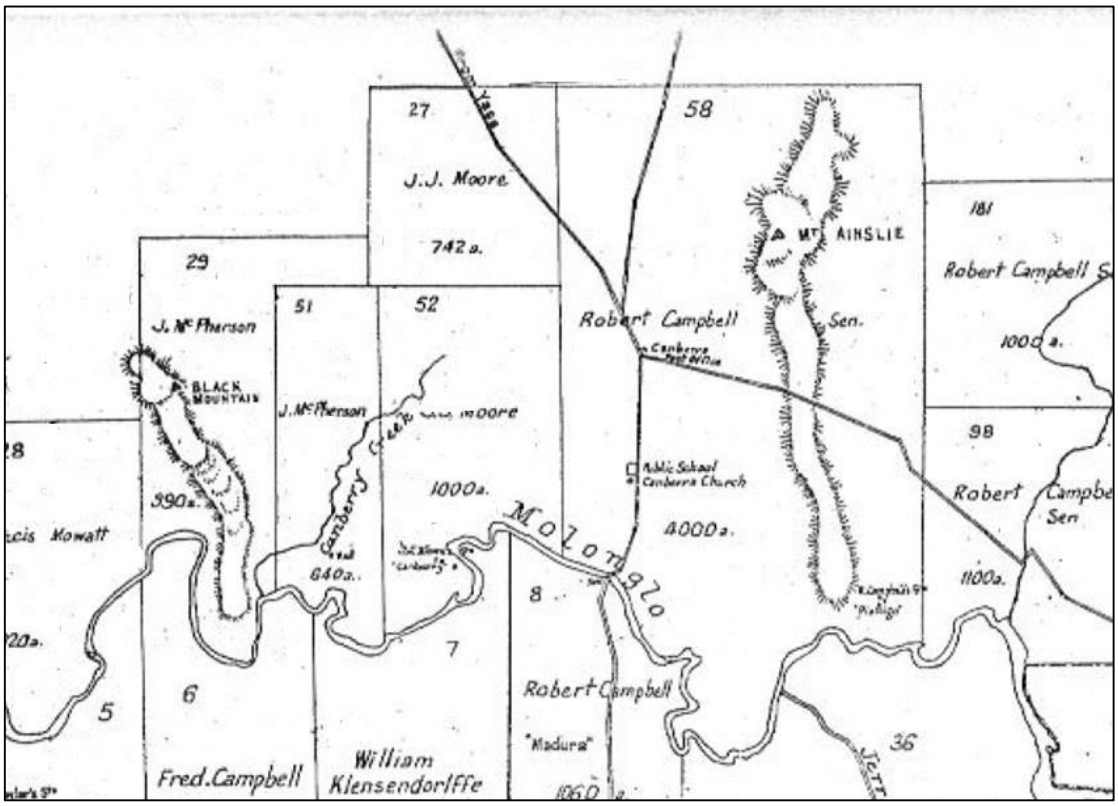

FIGURE 20: CANBERRA REGION C.1930

6.2.3.3. EARTLY COLONISATION OF THE LIMESTONE PLAINS

The *Sydney Gazette* celebrated the 39th anniversary of the founding of the colony in 1817 by publishing an article describing the vigour and enthusiasm of the population growth across New South Wales (NSW).

"*Smiling villages, crowded towns, growing cities, extending settlements, infant Colonies, and thousands upon thousands of the human family who are ramifying themselves in all directions, and attract, by their unparalleled exertions, the notice and admiration of Europe."* (Perry 1965).

Indeed, the rate of settlement exceeded the government's administrative powers and, in 1825, limits were set to curb the rate of spread. Farmers and graziers had filled out an arc approximately 150–200 miles around Sydney including the central-eastern part of present NSW, the highlands, and the eastern edge of the Murray-Darling Basin. This area was designated as the Nineteen Counties and settlement beyond became illegal (Heaton, 1984).

With the formation of the Nineteen Counties also came town planning. One seventh of the land within each county was reserved for the Clergy and School Estate under the administration of the Church and School Corporation, while reservation of land for "every object of public convenience, health or gratification on: land reserved in each county for roads, village sites, churches, parsonage houses, schools, burial grounds, recreation grounds and quarries" was also made (Perry 1965).

For these reasons, the major influence on the direction of the spread of settlement was the government. Even the manner of settlement across the counties was dictated by the government with Governor Macquarie, followed by Governor Brisbane, directing the majority of graziers to the County of Argyle, whereas the Country of Westmoreland was considered to be the place of absentee proprietors. The Limestone Plains, within the County of Murray, consisted of natural grassland and open woodland vegetation that made it the perfect location for pastoralists (Perry 1965).

6.2.3.4. CANBERRY AND DUNTROON

Within six months of Cunningham's exploration of the Limestone Plains, Lieutenant Joshua John Moore founded the first settlement on the northern side of the Molonglo River at Acton. He acquired the land by 'ticket of occupation' on the 21 October 1824 (almost one year before the 'limits of location' were established). The property, known as Canberry[1], was described as "2000 acres in a circle 15 miles north of the Marlow Plains (Molonglo Plains) and south of the west-end of the Yass Plains" (Fitzhardinge, 1975). While Moore never visited the property himself, he did send ex-convict and overseer John McLaughlin with two assigned convicts, John Tennant and John Rix (who both later resorted to bushranging) to establish a stock station. They constructed rudimentary slab huts on the present site of the Australian National Museum and, in May 1825, Moore sought permission to purchase another 1000 acres of unoccupied land (Exploration, Discovering and Early Settlement). In 1827, he wrote:

"*My having had possession of that land upwards of three years, on which I have caused huts, stockyards, etc., to be built, and have enclosed about 30 acres, part of which is now in cultivation, I do hope that you will have the goodness to represent that circumstance to His*

[1] Moore's station at Acton was often referred to as 'Canberry' although variations included 'Kgamburry', 'Kimberly', 'Nganbra', 'Gnabra', 'Chamberry', 'Canbury'. By 1860, the accepted spelling became 'Canberra', but it was not officially recognised until 1913 (Gillespie,1991). The word 'Canberra' comes from the Aboriginal Nganbirra language and, while it cannot be accepted with complete confidence, it more than likely means 'meeting place' (Reed 1969).

Excellency to Governor of the Colony, and that he will see the serious loss I must sustain if not permitted to purchase that land in question." (Fitzhardinge, 1975).

By this time, Moore's property adjoined that of Robert Campbell Senior, who acquired the land in 1825 (after which the suburb of Campbell is named). Campbell had come to Sydney in 1798 on behalf of the Calcutta business *Campbell, Clark and Co* but decided to stay in Australia. Establishing himself as Sydney's first free merchant, Campbell's business endeavours were supported by successive Governors all wishing to break the trading monopoly of the NSW Corps. Quickly, Campbell was established as a leading man and owner of the best wharf and warehouse in Sydney. He was also appointed one of the first nonofficial members of the Legislative Council (Wigmore, 1963).

Unfortunately, in 1806, the colony was faced with famine and the government charted two of Campbell's ships, sending them to India for provisions. However, one was wrecked and Campbell was granted land and sheep to the value of £2000 to be selected in equal proportion as compensation (Fitzhardinge, 1975).

Therefore, in 1825, Campbell advertised for "an Overseer for an Establishment, about to be made in the Interior for Sheep…" (Wigmore, 1963). Subsequently, James Ainslie (after whom Mt Ainslie is named) was employed to deliver 700 sheep from the government stocks at Bathurst to a location of his choosing within the Country of Murray on Campbell's behalf. Failing to find suitable pasture near the Goulburn Plains, Ainslie drove the flock towards Yass where he met a gathering of Indigenous Australians and a young Aboriginal woman guided him to the Limestone Plains. Here, he erected huts prompting Campbell to apply for a grant of 4000 acres (later increased to 5000), which he received with a valuation of five shillings per acre (Fitzhardinge, 1975).

Ainslie remained in charge of the Duntroon estate (named after Campbell's Scottish ancestral home) for ten years. He also fathered a child with his young Aboriginal guide. It was recorded that Ainslie was prone to 'irritability and excitement' especially when drunk because of a head wound incurred while serving with the Scottish cavalry at the Battle of Waterloo. After those ten years, he returned to Scotland, became an alcoholic and committed suicide in 1835 (Brown 2014).

Robert Campbell's third son, Charles Campbell, took over from Ainslie, continuing to manage the property for his father and then for his older brother George until 1845 when

he retired to Scotland. As soon as he arrived in Duntroon, Campbell organised for twelve Highland shepherds to immigrate to Australia with a £16 wage per year, £20 if they could shear. By 1838, he employed between 70–80 free immigrant shepherds and approximately half of these had been brought to Australia from the Western Highlands. Generally, Campbell paid £25 for the passage of one man and their wife as well as £4 for their expenses from the Highlands to the port of embarkation, a sum he predicted would be recovered within two years of their employment (Fitzhardinge, 1975).

Campbell preferred immigrants to convicts writing that they were "so superior in honesty and stability that the situation of the overseer having them under him is free from anxiety comparatively from what it is when the flocks replaced in charge of convicts".

Campbell also provided accommodation for his shepherds and their families by allocating them small areas of land so they could grow veggies and keep a cow. As Fizhardinge (1975) notes, his conditions of employment were of a greater standard to the general practice as many landowners believed the small plots would distract the men from giving proper attention to their master's work.

Continuing to move against the grain, Campbell argued for the development of small villages, as he believed men who settled with their families provided cheaper and more stable labour. In 1843, he outlined his theory of colonisation to the Immigration Committee. In doing so, he described the current trend of employing wandering men verses the advantages of encouraging the development of small settlements.

"We employ at sheep shearing and reaping, men who wander through the country, from one place to another, in quest of occasional employment; many of these are handy, clever fellows, but unmarried, and of irregular and dissolute habits; these men will earn from £12 to £20 during the two months they are engaged in sheep-washing, shearing, and reaping, and all they thus earn is frequently spent in the first public house they come to, after leaving the station where they were in employment… [If] flockmasters and landholders had invited married emigrants to settle in small villages on their estates, by allowing them to have half an acre of land pieces and a very low rent, without attempting to monopolise their labour, permitting them to choose their employer in the neighbourhood, we should have our reaping, mowing, and shearing down at a cheaper rate than hitherto, and the emigrants (especially if one were a rough carpenter, another a stonemason, a third a shoemaker, a fourth a fencer, etc.) by means of the money they would make during what we term our busy

season, added to their earnings through the remainder of the year, would be enabled to maintain and clothe their families decently, and their children, from not being scatters, might have opportunities of learning to read and write, and of receiving religious instruction, and advantage in which the children of the neighbouring shepherds and watchmen would participate."

In conclusion, Campbell argued that he "should like to see plenty of these villages, only eight or nine miles apart, throughout the Interior, because I am satisfied they would improve both the physical and moral conditions of our working classes," and encourage men with families to move further inland.

Before 1831 only 7000 free migrates had come to Australia from the British Isles. However, the white population was rapidly growing with the number of ships carrying free migrants outnumbering the convict ships. By 1850 there were over 400 000 white people and nearly half of them were living within the New South Wales boundary (Blainey 2000). This is turn meant the population of the Limestone Plains also rose with the 1836 census recording 1728 people compared to the 53 people present in 1828. (Robinson 1924). This rise was mainly due to Campbell's settlement program, which also resulted in a strong Irish-Catholic influence as well as the prevalence of the Gaelic language.

During this time, Campbell also provided the Limestone Plains with its first church: St John's Anglican church. It was built to the west of Duntroon Estate, the location chosen for its accessibility as settlers and their workers from across the district were encouraged to attend (Body, 1982). Along side the church, Campbell organised for the construction of a schoolhouse. Built early in the 1840s, the school provided elementary instruction for working-class children of the district irrespective of their religious beliefs (Hewitt 1987). This was the first school in the Canberra district, built well before institutionalised education reached the Limestone Plains.

As Dowling (2013) stated, it is important to note that land regulations at this time were specifically designed to advantage individuals of a high socio-economic background. Campbell is the perfect example of the government's attempt to create landed gentry who were served by a labouring class. Much of the grazing land of the Limestone Plains was taken up by large holdings, leaving the less productive areas for people of lesser wealth. Duntroon Estate was one of the largest stations closely followed by Lanyon, Tuggeranong, and Yarralumla.

6.2.3.5. LANYON, TUGGERANONG AND YARRALUMLA

While not everyone shared Campbell's liberated views on the treatment of workers, the population continued rising across the Limestone Plains with the census recording 2111 people in 1841, and 2721 in 1846 (Martin, 1978) with the majority of new landholders settling in the district in the 1830s. To the south, James Wright and John Hamilton Mortimer Lanyon established the Lanyon Estate. Between them they purchased 2340 acres in 1835, and another 1170 were bought by Wright's brother in 1936 (Gillespie 1991). Here, convicts made up the majority of the working staff and records shows that fifty lashes was a common punishment for occurrences ranging from lost sheep to bogging the dray. Then, when convict labour was no longer available, migrates were employed, with shepherds and their families settling in cottages on the property (Withycombe 1988).

During this time, John Langdon, Richard Popham and Henry Hall also obtained grants along Ginninderra Creek, with Peter Murdoch being the first authorised landholder in the Tuggeranong area. Robert Campbell's nephew, George Thomas Palmer, selected land along the bank of Ginninderra Creek after a recommendation from his uncle describing the fertile grazing land. He was eventually granted official permission to settle and his station was first known as Palmerville, later changed to Ginninderra (Dowling 2013). Captain George Edward Nicholas Weston settled on 2560 acres at Weston Creek while James Taylor and Robert Johnston settled at Yarralumla and Western Creek, respectively (Gillespie 1991). Both men established stock camps although Taylor did not stay for long, leaving before the 1828 Census. That being said, Mount Taylor in Woden Valley is named after him regardless of his short stay. The land was then purchased by Francis Mowatt who built a 'hospitable retreat' where he even entertained Governor Bourke during his tour in March 1835.

In fact, practically all the land between the Murrumbidgee River at Tuggeranong to the Ginninderra River, north of Black Mountain was settled (Fitzhardinge 1975) with Land Commissioner Henry Bingham recording properties as far as Auroral Valley, Naas, Bobeyan, Tidbinbilla and Cuppacumbalong by 1839. A visitor to the district made the following entry in his diary:

LIMESTONE Plains. The ground all occupied. On each side of the plain meanders in a serpentine course a fine river. Being close to the highroad to the great interior districts of

Maneroo Plains or Brisbane Downs and Omeo and the White Mountains, it will doubtless become in time a first-rate settlement.

6.2.3.6. SQUATTERS AND BUSHRANGERS

Despite the rising population, the Limestones Plains remained relatively isolated. When Polish scientist, John Lhotsky, travelled through the area he described Canberra as being the last outpost of the civilised world. He wrote, for the first time in his life he headed into the purest of anarchies, as the Limestones Plains was a land with no government (Martin 1978).

In particular, unauthorised squatting had become widespread. The 'limits of location' where largely ignored by graziers who continued to expand as overstocking and drought meant that pasture within the limits was deteriorating (Perry 1965). For example, Garrett Cotter, an Irishman who had been transported for life as punishment for firing on British troops during an uprising in 1820, was assigned to a station near Lake George. He was among the first to take cattle across the Murrumbidgee (after which we have named the Cotter River and the Cotter Dam). He was then guided by Onyong, a Ngambri elder, to good pasture. However, after feuding over a horse, he evaded arrest by sheltering beyond the 'limits of location' with his free-roaming herd (Brown 2014).

Ex-convict Timothy Beard was also an illegal squatter. In 1828, he settled at the eastern end of the Limestones Plains, where two streams met forming the Murrumbidgee River. Called Quinbean, or clear waters, the area was named after the local Aboriginal tribe. Its geographical situation made it the natural stepping area for travels heading into and out of the Plains. By 1833, 12 stations had been established nearby.

Bushrangers and runaway convicts also ranged the Limestone Plains, the most notable being John Tennant (after which we have Mt Tennent). Transported from Belfast for burglary in 1823, he was assigned to Moore's property at Acton. Three years later, he was convicted for stealing £6 from Moore and sent to work in a road gang. He escaped to become a bushranger and in 1828 Tennant, along with his associate Rix, robbed Ainslie's camp. Together, they reportedly stole 29 lb of Brazil tobacco, four blue vests, two blue jackets, one striped vest, one black vest, one yellow vest, one light-coloured vest with pearl buttons, one light-coloured vest with covered buttons, one black silk handkerchief, one Spitalfield soil handkerchief, three red shirts, one pair of jean trousers, a pair of fustian trousers, 150 lb of flour, tea, sugar, three gallons of spirits, power and shot, a pair

of half boots, four holey dollars, three Spanish dollars, two rupees, one cotton night cap and one small horse-pistol. They also attempted to set the roof alight to avoid capture, failing only because the damp bark would not catch (Fitzhardinge 1975). Both Tennant and Rix were captured two months later by a search party and sentenced to seven years incarceration on Norfolk Island. Legend states that his loot is still hidden on Mount Tennent.

Other bushrangers include Francis Gardiner, Ben Hall and William Westwood. The later eventually ended up in the penitentiary at Port Arthur, from which he escaped three times. He was then sent to Norfolk Island and after killing an overseer and three constables was hanged in 1846.

6.2.3.7. WOOL AND WHEAT

In Britain, Australian merino wool was preferred over that of German and Spanish wool (Perry 1965) and the Limestone Plains, in particular, quickly become known for its superior wool. Pastoralists were attracted by its natural grassland and open woodland vegetation making it the ideal area for sheep. Wool was first produced at the Duntroon and Lanyon estates in 1830, although the entire district had become an important wool producing area by the end of the decade. Yarralumla alone had 25 000 sheep, and Duntroon even more after Ainslie's very successful breading program that initially brought Campbell's 700 head herd to more than 20 000.

At the other end of the scale, the first person to utilise the rich soil of the Limestone Plains for wheat was squatter James Martin. In 1827, he applied for permission to rent land just three miles south of Moore's property with the intention of future purchase. He erected a 'good habitable dwelling-house' valued at £50 and a barn at £20. Of his 2000 acres, 12 were planted with wheat and eight with corn (Frei 2014).

More than 60 years later, William Farrer retired to the banks of the Murrumbidgee River to begin full-time work on his wheat experiments and by 1901 he had developed a number of disease-resistant and drought-tolerant wheat varieties. In particular, his rust-resistant wheat was named after Australia's Federation, in 1901.

The *Sydney Gazette* mentioned the prevalence of both wool and wheat in their 1832 piece calling the government's attention to where roads were urgently needed to service

expansion. They described the Limestone Plains as “the great resort of our graziers, and, for wheat, the best soil in either of the colonies” (Brown 2014).

In less than ninety years from the first settlement at Sydney cove British settlers had colonised 498,900 square kilometres of New South Wales. Soon small villages were springing up at Ginninderra and Canberry. Queanbyan (original called Quinbean) on the other hand, developed into a small city, providing the surrounding area with essential amenities, including a postal service in 1836, a Police Magistrate in 1838 (operating from Moore’s station at Canberry until suitable premises became available in 1839) and a resident doctor in 1839.

Despite Lhotsky’s reservations about the government’s lack of control across the Limestones Plains, he predicted that a ‘fine town’ would one day be built there, linking Sydney and the south coast (Martin 1978). Of course he was right and by 1908 construction began on the capital city, which soon became a sprawling city covering many of the original properties. To this day, Duntroon homestead is apart of the Australian Army’s Royal Military College, while Campbell’s St John’s is still a working church where even Queen Elizabeth II and Prince Phillip have attended morning service.

6.2.3.8. SPRINGBANK HOMESTEAD

John MacPherson was the Limestone Plains first resident landowner. His property was considerably smaller than the larger stations of Duntroon, Tuggeranong, Lanyon and Yarralumla, covering only 640 acres. Known as Springbank, the property was situated on the north of the Molonglo River and was granted to McPherson as his reward for helping to catch a bushranger.

However, it was not until 1831 that the Colonial Secretary’s Offices requested Surveyor-General provide McPherson with the necessary authority to select. Moore’s property adjoined Springbank and he opposed the grant of land. Moore wrote: “I beg leave to inform you that I am desirous of retaining the 1000 acres already in my possession. It is called and known by the name Canberry.” Nevertheless, in 1844, the Crown grant was issued to McPherson.

The MacPherson family intended to make Springbank their home, at least for a while. They made their first homestead on a high point of ground within their holding on the Molonglo floodplain. That high point of ground is now Springbank Island within Lake

Burley Griffin, which was in turn created by the damming of the Molonglo River in the 1960s. One of the children born to the MacPhersons in 1833 was John Alexander MacPherson, who grew up to become, briefly, the 7th Premier of Victoria. He may have been the first European boy to be born in the Canberra region (Fitzpatrick 974).

The 1841 census recorded eleven inhabitants in residence at Springbank; two of them were convicts assigned to the MacPhersons as labourers. By this time the MacPhersons had extended the property by acquiring a large part of Black Mountain. The Macpherson family lived at Springbank until a severe drought and falling fortunes left the property for Melbourne in 1842. Springbank was retained in the family for the next ten years and rented out to Joseph Kaye and his family (Young 2007; Figure 21).

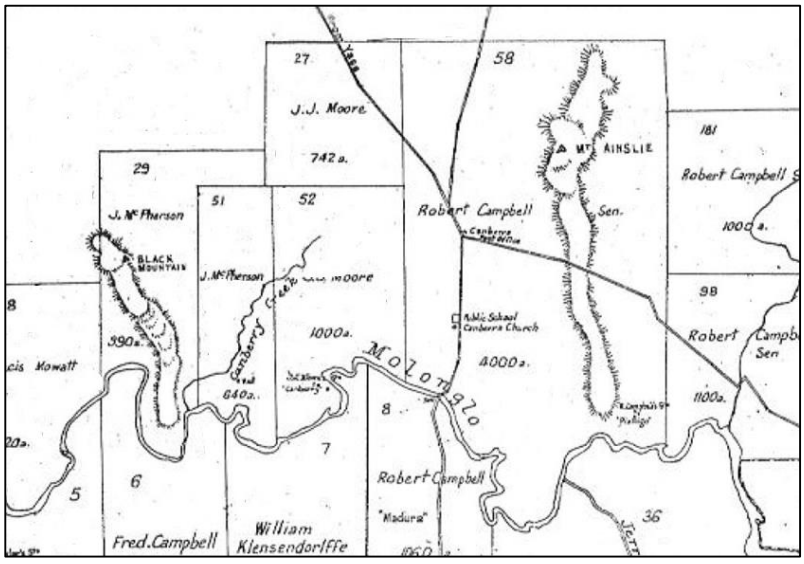

FIGURE 21: PROPERTY MAP SHOWING THE EXTENDED HOLDINGS OF JOHN MCPHERSON (RIGHT) EXTENDING TO AND INCLUDING BLACK MOUNTAIN (NATIONAL LIBRARY OF AUSTRALIA)

Joseph Kaye migrated to Australia in 1832 and in 1838 arrived in Queanbeyan, where he ran the local pub for several years. In 1844 the family moved to the Springbank property. At this time the property extended over a roughly rectangular area extending from the lower slopes of Black Mountain, bounded by the present University Avenue in the north, Clunies Ross Street to the west, the Acton precinct to the east and, to the south, the Molonglo River (in the vicinity of Commonwealth Avenue Bridge). The area embraced the old Canberra race track, the original Federal golf course (at Acton before moving to Red Hill) and a large part of the present ANU. Campus. Canberra High School was built on part of the Kayes' farmland in 1938 (CDHS).

While farming on the flood plain of the Molonglo River had its advantages of good soil for crops and a nearby water source, it also had disadvantages. In 1852, a great flood occurred on the Murrumbidgee River and its tributaries. The Molonglo River overflowed across the flood plain, inundated the crops and marooned the Kaye family in their homestead on the high ground. (The flood levels of the Murrumbidgee were high enough completely cut off and destroy much of the small town of Gundagai causing 89 deaths). The flood was followed by an insect plague and later large numbers of poisonous brown snakes (CDHS *op cit.).*

The Kaye family eventually found the Springbank home unpleasant to live in. About 1855 they retreated to a house near the present Hyatt Hotel Canberra. This was to be their family home until 1924 (CDHS *op cit.*). Kaye Street running along the side of the present Albert Hall marks their long occupancy in the area.

The Springbank property was to enter a period of transformation of size and ownership. After the Kayes left Springbank the property was sold in 1857 to Dr William Hayley, a medical practitioner from Queanbeyan but was later sold, after his death by his widow to Andrew Cunningham of Lanyon. Cunningham bequeathed the property to his daughter, Sarah in 1887 (Young 2007). By this time the Springbank property was divided into four leases, occupied in the short term by various families arriving in the Canberra area. Following this period of different ownerships Springbank was to have its final private owner.

William Sullivan was born at Dunmoon, County Waterford , Ireland in 1829. He emigrated to Australia with his cousin John Morrison in 1860. They had both most likely heard of the opportunities to be had in Australia, and in particular the chances of striking it rich on the gold fields of New South Wales. After arriving in Sydney the cousins purchased a dray and provisions and set out for the Kiandra goldfields. On arrival they found that most of the alluvial gold had been obtained and with winter approaching digging in the snow would not offer much profit. They then made their way to the Canberra area and in partnership took out a lease on Springbank. John Morrison and his wife Catherine later farmed an area where the United States Embassy now stands and then moved further south to the Tuggeranong Valley and established the Tralee property.

William Sullivan married Anastasia Pike in 1865 and stayed at Springbank. The leases of Springbank were gradually bought up by the Sullivans who purchased the whole from

Sarah Cunning ham in 1889 for £5,000. The Sullivan family name is associated with the creek (Sullivans Creek) now running through the Australian National University campus into Lake Burley Griffin. Before the lake was formed this creek ran into the Molonglo River near the tip of the present Black Mountain peninsula.

During the Sullivan occupation Springbank was a large productive property in the area with extensive river flatland and frontage. It was ideal for dairying and could hold fifty dairy cows. The Sullivans also ran sheep and grew wheat, maize, barley, oats and potatoes (young 2007).

William and Anastasia must have found farming at Springbank profitable and preferable as they purchased a second property, Sulwood, further south in the Tuggeranong Valley in what is now the Canberra suburb of Kambah (Young 2007). The family thrived on the Springbank property but with the selection of the area for the site of the national capital their lives were to change forever and the Springbank property would pass into the hands of the Federal Government.

William and Anastasia Sullivan saw the imminent end of their property – William died in 1911 and Anastasia the next year. The property was acquired by the Federal Government and the remaining family left in 1913.

The Sullivan family of Springbank were among those landholders who chose to challenge the government valuation of their property and engaged legal representation to negotiate on their behalf for a better price. Following protracted negotiations between the government and their legal representatives and a further valuation the Sullivan family accepted the government's offer. The family left the Sprfingbank property in 1913 and its ownership was transferred to the Federal government (NAA A657 DS1915/21672).

At the time the Sullivan family left the property was surveyed and assessed as 1,955 acres (791 ha):

115 acres of arable flats
53 acres of dark soil
570 acres wheat lands
1,207 acres of grazing lands

The whole of the above area is well adapted to the growth of cereals particularly wheat. Well grassed heavy stock carrying and fattening and suitable for daring and mixed farming, fruit growing.

Improvements:

Homestead buildings

Yards

Buggy-shed and Bedroom

Woolshed, yards etc

Stable and Horses yard

Orchard – 120 trees

Fencing – 4 miles netting

4 miles 6- wire

1,100 willow trees

3 dams

The whole property was valued at £10, 022.10.0 (Gair Sloane & Co. 1914; Figure 22). The homestead area and buildings were assessed separately (Table 2;NAA L1915/2298).

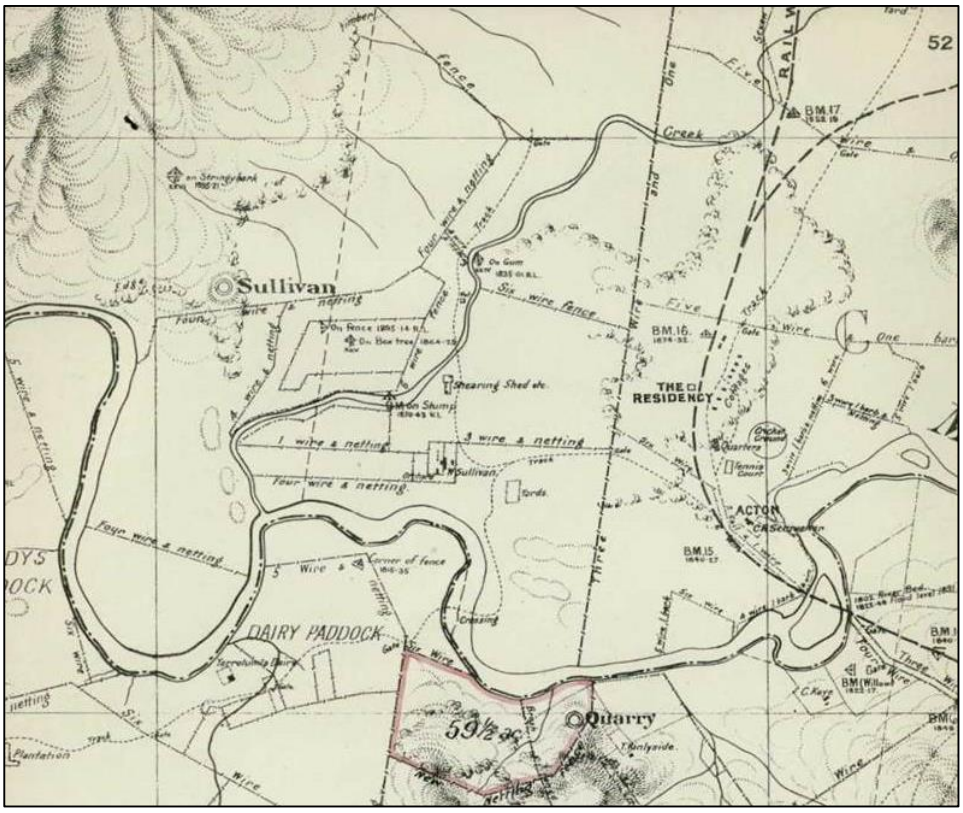

FIGURE 22: FEATURE MAP (C. 1915) OF THE MOLONGLO RIVER PROPERTIES SHOWING THE SPRINGBANK AREA (CENTRE) (NATIONAL LIBRARY OF AUSTRALIA)

TABLE 2: HOMESTEAD AREA AND BUILDINGS VALUATION.

Structure	**Cost in £**
House, slabs, iron roof, wood floor	41.0.0
House, slabs iron roof, wood floor, verandah	115.0.0
House, weatherboard, lined, wood floor, iron roof verandah	271.4.0
House, slabs lined, iron roof, verandah (old)	152.0.0
Old shed, slabs bark roof (poor)	6.0.0
Store, stone foundations, slabs iron roof, shelves	21.10.0
Shed, slabs, iron roof, wood floor	9.0.0
Room, slabs, wood floor, iron roof	9.0.0
Room, slabs, wood floor, iron roof	9.0.0
Buggy shed, slabs, iron roof, earth floor	10.0.0
Shed slabs, bark roof, earth floor	5.0.0
Pise room, iron roof, cement floor	28.0.0
Bark Buggy shed	3.0.0
Cow bails, bark roof	6.0.0
Bark roof shed	2.10.0
Blacksmith's shop and cow bail	3.0.0
Woolshed and yards	203.5.0
Maize shed	20.0.0
Old sheds	16.0.0
Loose box	25.0.0
Feed room	12.0.0
Horse yard, fencing	6.10.0
Orchard and ornamental trees	100.0.0

The Cox family then occupied the farm from 1913 until 1924, when the next generation of the Kaye family returned there. Charles Kaye and two other brothers continued to work the farm under a leasehold arrangement with the Federal Government after their father died in 1932. The family continued grazing dairy cattle and operated a dairy until 1948. The property continued to be farmed until 1961, when preliminary work for the construction of Lake Burley Griffin obliged the family to sell off the farm assets. The Kaye family connections with Springbank were finally severed.

Young (2007) has provided a description of the homestead complex (see also Figure 23):

> *Springbank House comprised an old three-part slab house, hut and kitchen, and a smart new weatherboard house built in 1908-9. The slab buildings were probably built sequentially; the three-room-plus-skillion house was the third, recorded as built in 1890. The large kitchen part of the house was described by the Commonwealth valuer in 1912 as 'rough and badly finished' and in bad condition; it may have dated from the 1860s. The new house was lined and ceiled with pine boards, a considerable degree of comfort more than the hessian-lined and ceiled old house and unlined kitchen and the 'hut' between. By the time the new house was added to the complex, it totalled twelve rooms. The house complex was surrounded by a hawthorn hedge and a split post fence, enclosing an orchard of 120 mixed fruit trees. Close to the house was an old timber stable for three horses and a slab shed.*

FIGURE 23: SPRINGBANK FARM PRIOR TO THE FILLING OF LAKE BURLEY GRIFFIN IN 1963 (SOURCE: KAYE FAMILY COLLECTION)

Springbank, now represented above ground as Springbank Island, was the first grazing property in what is now the Australian Capital Territory. The area was first in the hands of an absentee land speculator, Joshua John Moore, then officially surveyed and purchased by another land speculator, John MacPherson who chose to stay and built a small homestead on the property. The property then went through stages of ownership and tenancies, being broken up in separate sales and finally brought back into a substantial grazing and farming property under the Sullivan family when it was finally compulsorily

acquired by the Federal Government as part of the planning for the site of national capital. The property continued to see the comings and goings of several tenants until finally in 1962 the tenants were moved out in advance of the damming of the Molonglo River and the formation of Lake Burley Griffin.

6.2.3.9. THE FORMATION OF LAKE BURLEY GRIFFIN

The history and development of the lake and the island are irrevocably connected. The history of the lake is intertwined with that of Canberra becoming the National Capital. Historians, scholars, politicians, researchers and many others have attributed the formation of the Lake as the defining moment in the history of the city. In his book Canberra- City in the Landscape, Ken Taylor, describes the lake as 'one of the glories of Canberra' perhaps even the jewel in the crown. He quote's John Overall describing the lake as the most significant project in the early years of NCDC: 'building it would demonstrate once and for all that the commission was serious about building a National Capital (John Overall 1995 quoted in Taylor, 2006).

Urban scale water bodies had always been central to the greatest cities in the world. Their setting almost always has a water feature be it a lake, river or a coast. All of the other major cities of Australia feature a water body as an anchor. Scrivener's recommendation for Canberra clearly stated the capability of the site to allow water storage for ornamental purpose (Pegrum, 2008).

"I regard the Canberra site as the best that can be obtained in the Yass-Canberra district. Being prominently situated and yet sheltered, while facilities are afforded for storing water for ornamental purposes at reasonable cost" (Charles Scrivener, 1909 quoted in Sparke 1988).

The winning entry by Griffin in 1911 fully exploited the opportunities presented by the site (Figure 24). In his report explanatory he states:

"The considerable central flats are unavailable for building purposes, but eminently suitable for a waterway of the largest extent that would be consistent with a location in the heart of the city, where only, on the other hand, a water feature of the restricted size procurable at Canberra can maintain a dignity in keeping with its purpose.

The practicability of maintaining a surface of 5 square miles of water is verified by all known data, provided proper precautions are taken in the head waters of the Queanbeyan and Molonglo Rivers. Moreover, there are additional river supplies available within the limits of expense proportionate to any unprecedented or possible nee" (Griffin 1913:15).

FIGURE 24: GRIFFINS PLAN. SOURCE:

HTTP://DESIGN29.NAA.GOV.AU/GRIFFIN/IMAGE-TWO.ASPX (27/20/2015)

But there was another entry by Griffiths, Coulter and Caswell, entry No.10, which featured a similar central water feature in the city on the plains of Molonglo (Figure 25).

FIGURE 25: THREE DIMENSIONAL VIEW OF THE CANBERRA PLAN BY GRIFFITHS COULTER AND CASWELL. SOURCE: HTTP://DESIGN29.NAA.GOV.AU/CONTENT/4185409-STANDARD_TCM51-72494.JPG (26/10/2015)

This lake follows the more natural contours of the valley and bears uncanny similarity to the lake that was constructed in the first part of 1960's.

The idea of the water body next to the Capitol or the Parliament House or the seat of governance also featured in several other entries although in more geometric and stricter forms far removed from the natural curves of Molonglo catchment.

The design of the lake underwent several iterations synchronized with the changes in the authority and bureaucracy administering the design of the city. On 26 May 1909, scrivener's recommendations were accepted by the board appointed by the Minister of Home Affairs and on 16 June 1909 the board recommended the adoption of the site. The then Governor General declared 1 January 1911 on which the Territory surrendered by NSW 'is accepted as the Territory of the Commonwealth' this was later amended to Australian Capital Territory by amendment of the existing Act in 1938 (Dexter, 1991; Sparke, 1988; Taylor, 2006; Pegrum, 2008; Brown, 2014).

On 30 April 1911 the government launched an international competition for the design of the new Capital. On the closing date 31 January 1912, 137 designs were received. A three man Federal Capital Design Board was appointed led by then Minister of Home Affairs

was to evaluate, investigate and report on the submitted designs. On 14 may 1912 a report was submitted to the Minister, King O' Malley, who declared that his decision was to be 'final and without appeal'. Two Board members – J A Smith (engineer) and J Kirkpatrick (architect) favoured designs 29, 18, 4 and the third member J M Canoe (surveyor) recommended 10, 41 and 18 respectively. Finally, on 23 May 2012 the prizes were declared in the following winning order: Walter Burley Griffin of Chicago, Eliel Saarinen of Helsingfors and D Alf Agache of Paris. The designs of Griffiths, Coulters and Caswell were all purchased (Wigmore ,1963; Dexter, 1991).

The populist reaction to Griffin's Canberra can be summarised in the words of Sir Keith Hancock:

'The great majority of the Australians knew well enough that Canberra had been conceived, not in the generous national enthusiasm, but in the haggling provincialisms. The plan of Canberra was that of a garden city, in which the garden is more emphasised than the city."

Owing to the general criticism of Griffin's plan as being too ostentatious, extravagant and costly, O' Malley constituted a board[2]under Miller to review the three awarded and one purchased entries. The board could not recommend any one plan. Instead 'it served one it had itself concocted, largely on the combination salad principle' (Wigmore, 1963).
It recommended majority of the development to occur south of the river to avoid heavy expenses of developing the North of the Territory. The parliament approved the Minister and his board's recommendation. With the plan approved orders to commence works were issued. This new plan although populist and appeasing towards the economy-minded did not sit well with the intelligentsia and the professionals. A total of 260 architects, engineers and others signed a petition against it.

"The new plan is evidently the product of a Department whose personnel is utterly untrained in the elements of architectural composition, whose mind is turmoil of confusion….. indeed, the whole layout is entirely outside the pale of criticism (and)…… reminds us of third rate Luna Park" (Pattrick Abercrombie as quoted in Wigmore, 1963).

Griffin himself was not very pleased with the board's iteration of the scheme. He personally wrote to the Minister that a conference with him was needed before the plan

[2] The departmental board comprised of Miller, Owen, Scrivener as well as G J Oakeshott, T Hill and JS Murdoch.

was implemented. Later, Murdoch (a member of the board) visited Griffin and recommended changes to its combination plan. As a directive from cabinet, Griffin was invited to Australia to study the site in person and confer with the board. W H Kelly who now acted as the Minister of Home Affairs under J Cook, clearly directed that the plan on the discussion table was the one prepared by Griffin. The discussions between board and Griffin fell through and his plan was reinstated as the design for Canberra. In October 1913 the board was dissolved and Griffin was appointed the Federal Capital Director of Design and Construction for three years (Sparke, 1988; Dexter, 1991; Pegrum, 2008).

With the acceptance of the Griffin Plan as the definitive design for the city the lake came to the forefront again. Two fundamental axes, which formed the framework for the city functions were the land axis and the water axis. Figures 26 and 27 from his report explain this idea.

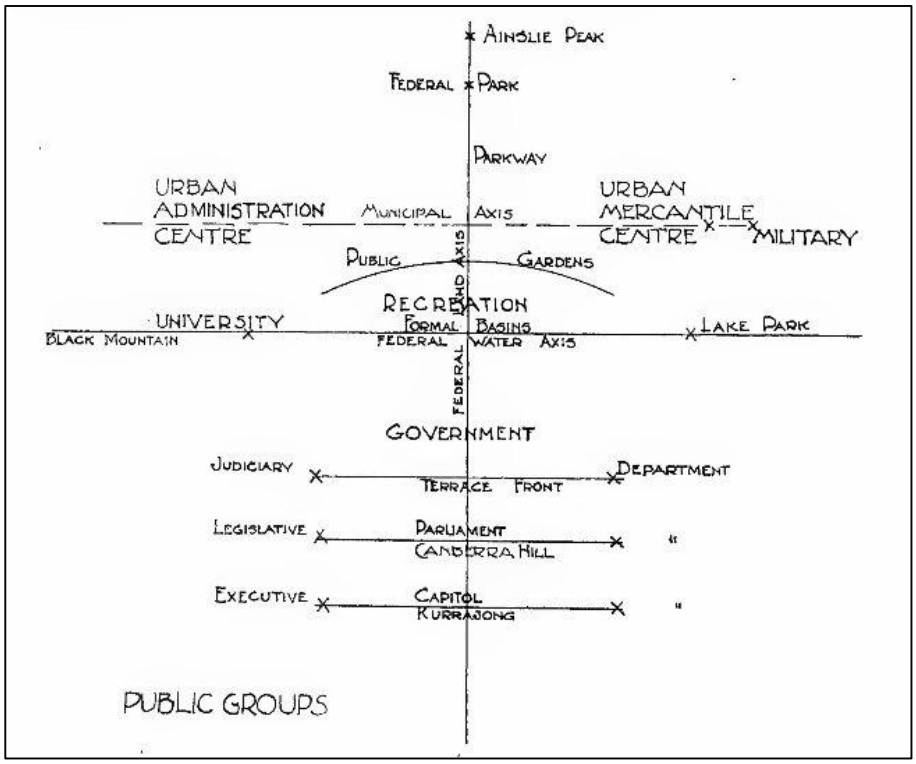

FIGURE 26: DIAGRAM OF THE AXES AS ILLUSTRATED BY GRIFFIN IN EXPLANATORY REPORT. SOURCE: HTTP://GUTENBERG.NET.AU/EBOOKS13/1305201H.HTML (26/10/2015)

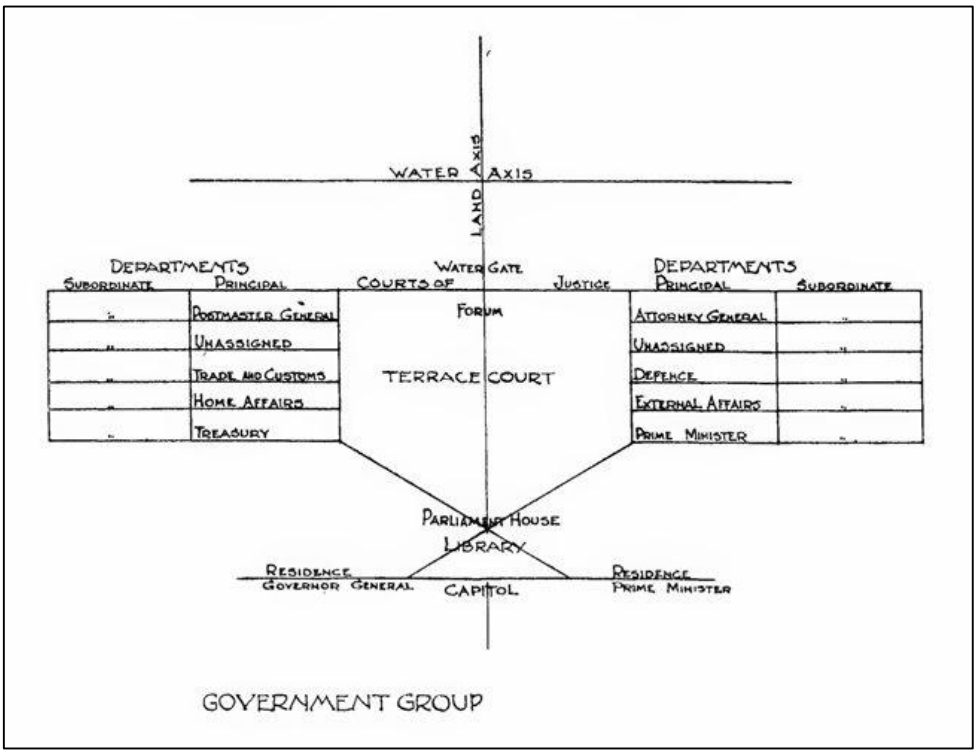

FIGURE 27: DIAGRAM OF THE AXES AS ILLUSTRATED BY GRIFFIN IN EXPLANATORY REPORT. SOURCE: HTTP://GUTENBERG.NET.AU/EBOOKS13/1305201H.HTML (26/10/2015)

However, Griffins job was not easy as per his contract:

" ….. *for the purpose of creation and development of the Federal Capital City at Canberra prepare general designs specifications plans and documents and generally direct the details and execution of works necessary to give effect to them'; also ' upon the future development of the Federal Capital city, including the location of structures their coordination constructional material and relative scale and proportions"* (Wigmore, 1963:73).

This was in conflict with the responsibilities of the office of the Director General of Works. Moreover, due to the setup of the government he was to work with and report to the very people whose plan he had just upstaged. These day-to-day conflicts over the next three years generated an environment of dissent and few outcomes. The problem of unclear roles and responsibilities and differences in departmental officers led to the 1915 - 1917 Royal Commission on 'Issues relating to Mr Griffin'. The commission found that:

"Necessary information and assistance were withheld from Griffin and his powers were usurped by certain officers; Griffin and his office were ignored, his rights and duties under

his contract denied, and false charges of default made against him; Minister Archibald and the members of the Departmental Board tried to set aside Griffin's design to substitute the Board's own design; and there was in the Department of Home Affairs a combination including Minister Archibald and certain officers, hostile to Griffin and to his design for the capital city" (Wigmore, 1963:78*).*

This led to O' Malley approving Griffin's design and placing him in charge of all works. While the inquiry was still in progress there was a restructure in the Government placing Canberra administration under Home and Territories but dependant on Works and Railways for work. Both these departments were in Melbourne, which meant that there would be no fast action. At the same time the Parliamentary Public Works Committee recommended that to cut costs the construction on the lakes and the basins in the Griffin design be put on hold. Thus, the lake was sent to an unwanted hiatus for a while (Wigmore, 1963; Sparke, 1988; Dexter, 1991).

Griffin remained in charge of the works and his plan until 1920. The then Prime Minister Hughes realised that the work had been slow in Canberra for various reasons including the strangling of funds due to World War I. During the war years expenditure on Canberra was limited to maintenance works only. In three years form 1917-1920 the total expenditure on construction was £8,744 only. Hughes stressed on the acceptance of the Griffin Plan and directed his attention to the construction of the Parliament House and transfer of Commonwealth Public Servants to Canberra once accommodation was constructed (Dexter, 1991). Griffin's contract came up for renewal in 1919. Resources were few, but the government wanted to push the works at Canberra. This required compromises and everyone was aware that Griffin may not agree to some of the compromises suggested by the bureaucrats. A Federal Capital Advisory Committee (FCAC) was appointed with Griffin as a member. The Government was acutely aware of Griffin's shortcomings in carrying out the construction of the capital in a pragmatic and practical way. In the end Griffin was politely told that his services were required in an advisory capacity only, an offer that Griffin declined (Wigmore, 1963:87). Canberra times reported in its editorial:

"The realisation of his dreams of has been carried out by other hands, directed by other minds, yet the conception of his plan has been respected in its broad outlines while it has demonstrated a certain elasticity permitting its adaptation to recently –arising

requirements not to be foreseen a quarter of century ago when the planning of the city was first undertaken." (Canberra times in Wigmore, 1963:88).

The FCAC was appointed in January 1921. The lake was relegated to the plan cabinet only and all concentration was on the building of structures.

6.2.3.10. THE LAKE AFTER GRIFFIN

'The lake proposal is dead as a ghost' (Colonel Goodwin 1934 in Sparke, 131). He reminded people when FCAC had shown a completed lake in the pamphlets distributed to promote Canberra. A significant amount of research and design work had been undertaken. In the time when the change of guard took place between the dissolution of FCAC in 1930 and formation of the National Capital Development Committee in 1957 not much happened in Canberra.

Lord William Holford, eminent planner from England, was appointed to review the Canberra Griffin Plan following the 1955 Senate Select Committee Inquiry. The focus of the interest in Canberra's planning and development shifts to the proposed Lake.

Lord Holford in his 1957 report observed:

"Most significant features of the town plan depend on what final decisions are taken on the future of the Molonglo Plain."

He strongly recommended the creation of the lake and cites examples of great cities such as London, Venice and Paris as all having surfaces of water. He stressed that the lake would unite the two halves of the city and suggested a number of necessary steps for the creation of the lake. Amongst others is the suggestion for building a dam at Yarralumla instead of Acton thus slightly decreasing the size of the west basin as compared to the 1925 Gazetted Plan. He also suggested that formal engineered banks be limited to the South and follow the more natural contours in the North. This stress on the natural contours is one of the factors that lead to the formation of Springbank Island (Figure 28).

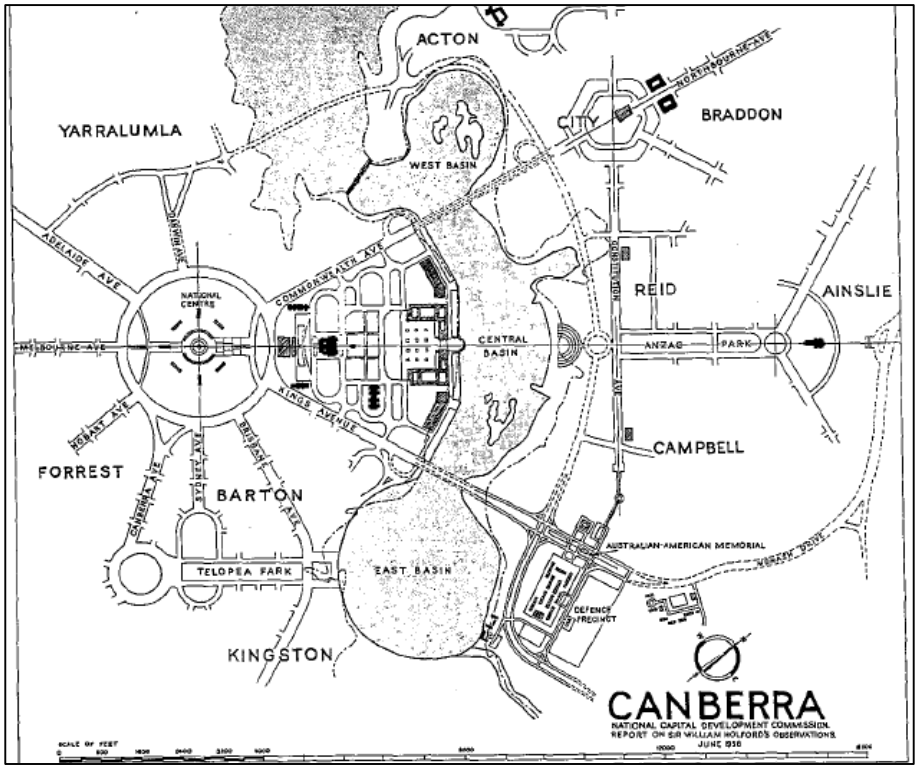

FIGURE 28: DIAGRAM OF THE LAKE AND CENTRAL CANBERRA AS ILLUSTRATED BY WILLIAM HOLFORD. SOURCE: HTTP://WWW.ARCHIVES.ACT.GOV.AU/__DATA/ASSETS/PDF_FILE/0010/562609/OBSERVATIONS_ON_THE_FUTURE_DEVELOPMENT_OF_CANBERRA,_ACT.PDF (28/10/2015)

Based on Sir Holford's suggestions the NCDC made the Lake central to the development of the city. The NCDC commissions an engineering study by Maunsell and Partners in 1958, which approves the feasibility of the lake (Taylor 135, Wigmore, 1963). The alternative would only be a dry expanse of flood plain 'an untidy area in the centre of the city' (Sparke, 131).

With firm conviction NCDC put forward the proposal for Canberra's development for next five years before the cabinet in February 1959. The cabinet accepted the recommendations based on yearly evaluation of the proposed features and NCDC was given authority to proceed. Robert Menzies then prime minister was instrumental in pushing this through. Given Menzie's contribution to the building of the lake it was suggested that the lake be named after him but he wanted it to be Griffin's legacy. Which is ironic given that the lake that was built was closer to the plan of his detractors. Most of the East Basin was lost. The lines were less formal and followed the natural contours and the formality was confined to a small section of the Central Basin to the south side. The dam was appropriately christened Scrivener after the man who identified the potential of the site to store water cheaply. In fact the engineers worked to maintain the levels of the

lake to be maintained within a meter of the 556 meter level at all times, the height above the mean sea levels as proposed by Scrivener in 1909 (Sparke, 1988: 132,136).

NCDC got to work to achieve the deadlines altering the plains of Molonglo drastically to make way for the lake. The bridges were built first, the kings Avenue Bridge was completed in 1962 and the old timber bridge at Commonwealth Avenue was replaced with a modern world-class structure in 1963. Construction of the Scrivener Dam began in 1960 and was completed in 1963, which was no mean achievement in itself. The valves to the dam were closed on 20 September 1963 by Robert Menzies. The lake took its time to fill owing to the weather and dry conditions accentuated by the stripping of the river basin. Finally in April 1964 the lake reached its desired levels.

"With an uncharacteristic suddenness and dramatic quality which must have surprised even its planners Canberra suddenly came in to focus and all the vistas and cross axis that we had read about and seen on diagrams .....all this came to life and the faith of many friends of Canberra over a period of last fifty years was justified" (Robin Boyd, 1964 in Sparke, 1988: 141).

6.2.3.11. SPRINGBANK 'THE ISLAND'

Springbank Island came into existence in the West Basin with the filling of the lake. It was the result of the cutting and filing of the basin. It was the higher ground section of the basin where once the Springbank homestead stood.

The island reflects the generic consensus of the planners to let the lake shape within the natural contours of the Molonglo plains. Early photographs of the island show a lone tree standing on the island. Tree plantings has been done over the years in keeping with the desire of creating fit and indefinable character areas (Taylor, 2006:136). The island was never intended to be connected to the main land and to date is accessed by boat or kayak. It was further disconnected from the North Bank by Parkes Way, which opened in November 1961 (Canberra times, 29 November 1961).

The island has seen its fair share of cultural and curio events earlier in life. Jon Stephen and Paul Thom staged six shows of Alice in Wonderland in March 1971. The Canberra times report notes:

"The production, certainly the most original, if not the most ambitious, undertaking timed for Canberra Week, will involve audiences in a series of ferry lifts to and from the hospital jetty, Acton, and fares will be included in the price of the tickets".

An article form 13 February 1983 reports:

"More than 600 jazz fans were ferried out to Springbank Is land on Lake Burley Griffin last night to listen to more than five hours of continuous music. The concert, organised by the Canberra Festival Committee, was attended by a foot-tapping, jigging and bouncing crowd ranging in age from babes to old-age pensioners. They were treated to a good variety of traditional and mainstream jazz by the Jerrabomberra Jazz Band and J. B. and the Jazzmen who played alternate 40 minute brackets. The island provided an ideal venue for the concert and the crowd, many wearing screen printed T-shirts and jerseys depicting previous jazz concerts, were easily accommodated in the large tree encircled bowl of the island."

For another event in 1985 the island was rechristened to Norfolk Island as reported by Edna Boling on 17 March 1985 for a day:

"On Tuesday night Canberrans had the opportunity to take a quick trip to 'Norfolk Island' (Springbank Island in Lake Burley Griffin renamed for the occasion) aboard the 'Bounty' (the Lady Clare also renamed). Representatives of the island community were at the Canberra function to promote their island as a vacation resort, bringing with them some of the superb fish that abounds in the Pacific waters that foam around the pine-clad cliffs."

Another report form 1995 mentions Utopia/Distopia, presented by Splinters Theatre on Springbank Island, November 15-25.(7pm at Royal Canberra Hospital wharf):

"When the water transport finally arrived to take the opening-night audience to Springbank Island to look at Utopia/Distopia, there were a few mutterings in the ranks when it turned out not to be a nice comfy ferry, but a barge. Any notion that Splinters were expecting us to restage the Normandy Landings was rapidly dispelled when we arrived safely to be greeted by tour guides."

Springbank Island is not very popular with event hosting any longer mostly due to the high cost of ferrying. Currently it is the venue for Canberra Beach Cricket, a semi-annual beach cricket carnival.

The island is not irrigated, there is no power source on the island, and overnight camping is prohibited. Barbecue facilities, tap water, picnic tables, and toilets are available. The National Capital Authority is responsible for oversight and management of the island.

7. PRESENTATION OF ARTEFACT ANALYSIS

This section presents the results of the artefact analysis for both the Aboriginal and historical artefact assemblages.

7.1. ABORIGINAL ARTEFACTS

A total of 26 lithic artefacts were identified as a result of the subsurface excavations at Springbank Island. The artefact analysis focused on determining aspects of the assemblage such as raw material type, technology and typology. Attributes recorded for each artefact included:

- Raw material type;
- Artefact type (e.g. flake, core, specific tool);
- Retouch type and location (where applicable);
- Completeness and fracture type;
- Platform width and thickness and termination type (where applicable);
- Percentage of cortex present (where applicable);
- Artefact dimensions and weight; and
- Provenance and depth of artefacts.

Appendix 3 contains the complete artefact catalogue, which includes all lithic artefacts.

7.1.1. RAW MATERIAL

Four raw material types were identified in the Springbank Island assemblage. These included quartz, quartzite, silcrete and an unidentified fine grained rock. Figure 29 shows that together, fine grained rock and silcrete make up the largest proportion of the assemblage (n= 9 and 8 respectively). Quartz is the next highest raw material represented (n= 7) followed by quartzite, which is the lowest (n= 2).

Silcrete is a sedimentary rock, which is formed through the impregnation of a sedimentary layer with silica. It contains quartz grains and varies in texture. As a result, it also varies in the way it fractures when it is knapped (Holdaway and Stern, 2004:24).

Quartzite is a metamorphic rock, which has a granular texture and varies in grain-size (Holdaway and Stern, 2004:24).

Quartz is a mineral which was used widely throughout Australia in stone tool manufacture. It has flaws which influence its fracture pathway and as a result, it is difficult and unpredictable to work with (Holdaway and Stern, 2004:24).

Of the identified raw material types in the assemblage, silcrete and quartz in particular have been shown to commonly used for stone tool manufacture in the Canberra region (Bindon, 1973; GML, 2009).

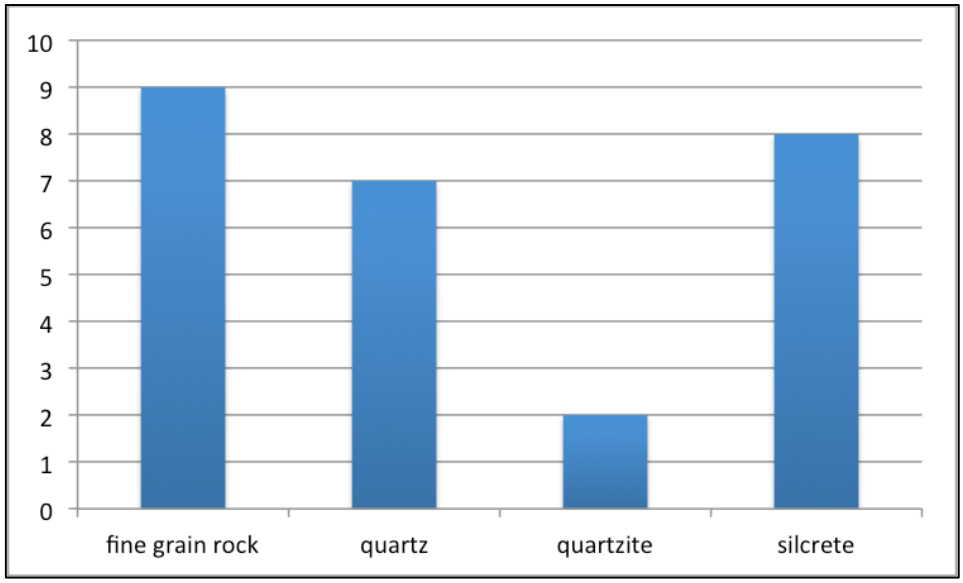

FIGURE 29: QUANTITY OF EACH RAW MATERIAL TYPE PRESENT IN THE ASSEMBLAGE

7.1.2. ARTEFACT TYPE

Artefact types included flakes and cores, of which flakes made up the highest proportion (Figure 30). One flake has a worked edge and may have been a scraper or utilised flake (see Retouch Type and Location section below).

7.1.3. RETOUCH TYPE AND LOCATION

Only one artefact (a silcrete flake, artefact ID number: S2B015) was found to have a worked edge (Figure 31). The worked edge is approximately 5 cm in length and it is located on the second and third quadrants of the dorsal surface (as per Holdaway and Stern, 2004:158-161). The retouch is present along straight edge and appears to consist of a series of complex notches (i.e. the result of multiple flake removals), otherwise referred to as denticulated retouch (Holdaway and Stern, 2004:165). The artefact is therefore possibly a scraper or utilised flake.

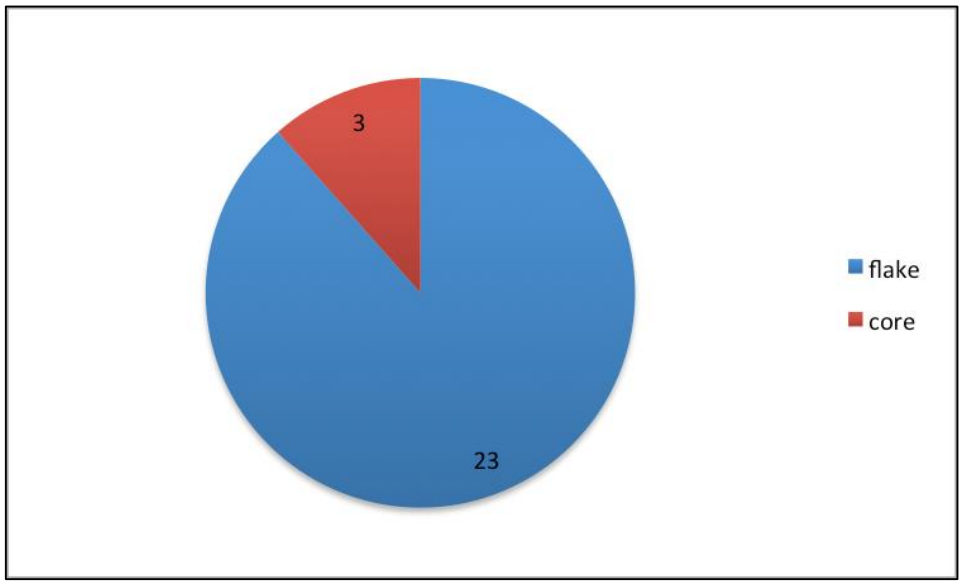

FIGURE 30: QUANTITY OF ARTEFACT TYPES PRESENT IN THE ASSEMBLAGE

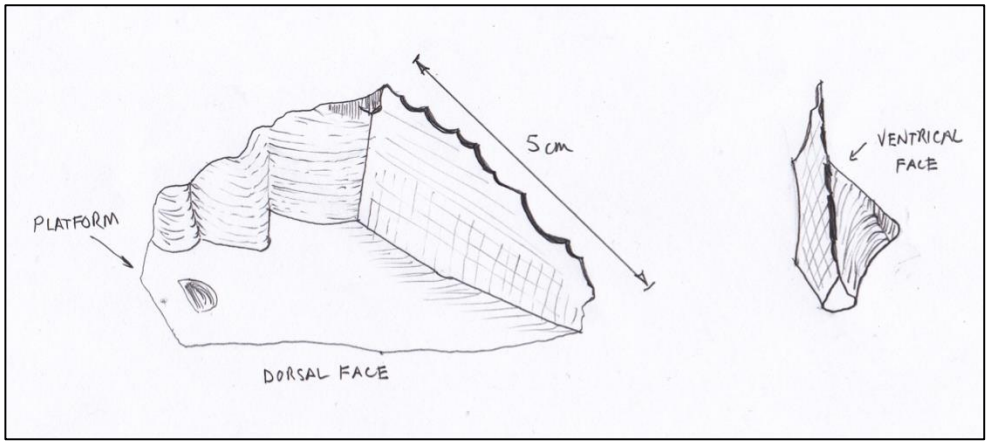

FIGURE 31: RETOUCED ARTEFACT (ID NUMBER S2B015). IMAGE COURTESY OF ANU STUDENT, GLENN VAN DER KOLK

7.1.4. COMPLETENESS AND FRACTURE TYPE

In terms of completeness and fracture type the majority of artefacts were broken, with medial fractures (n= 11) being the most common (Figure 32). The next most common fracture type is proximal (n= 5), while distal and traverse cone fractures are represented by one artefact each. There are 6 complete artefacts in the assemblage (one of which is a core) and two artefacts that are 50% complete or over (one of which is also a core). The third core had a medial fracture.

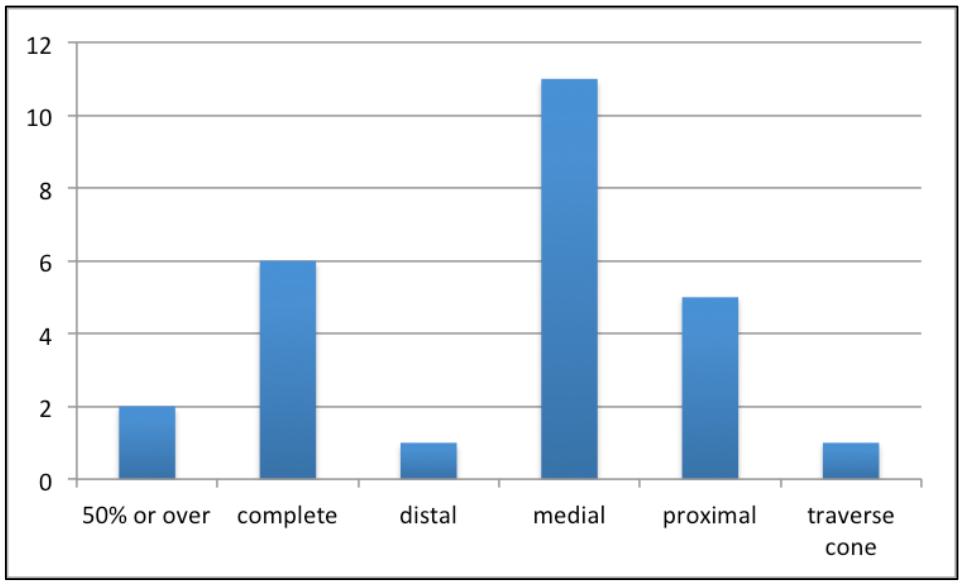

FIGURE 32: COMPLETENESS AND FRACTURE TYPE OF ARTEFACTS IN THE ASSEMBLAGE

7.1.5. PLATFORMS AND TERMINATIONS

The assemblage included a total of 6 feather and one step termination types. Measurements were taken of platform width and thickness. Platform width ranged between 3 mm and 8.5 mm, while platform thickness ranged from 0.7 mm to 5.6 mm.

7.1.6. CORTEX

The majority of artefacts (n= 11) in the assemblage had a large amount of cortex present (Figure 33). Most of these (n= 9) were entirely covered in cortex (100%). As all artefacts with 100% cortex were flakes, the percentage relates to the dorsal surface only. Other artefacts had less cortex ranging from 26-50% (n= 5), while a total of 10 artefacts had no cortex at all.

The presence of artefacts exhibiting no cortex at all and other exhibiting 100% cortex suggests that some level of stone tool manufacture was carried out either on site, or on the nearby Molonglo River floodplain (where the layer of fill containing artefacts is likely to have originated from).

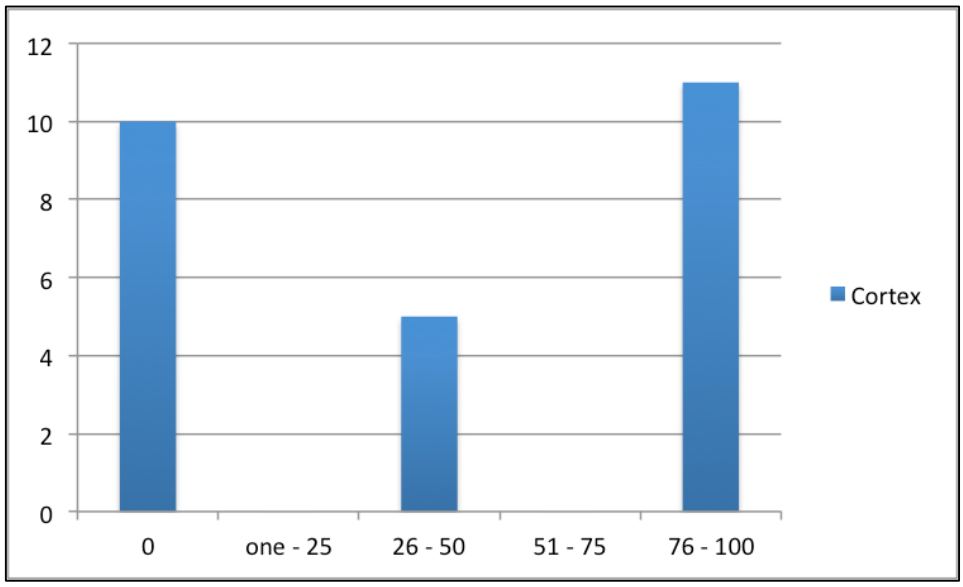

FIGURE 33: PERCENTAGE OF CORTEX PRESENT

7.1.7. ARTEFACT DIMENSIONS AND WEIGHT

Artefact length, width, thickness and weight were recorded for the lithic assemblage. Length ranged between 7.39 to 51.5 mm. The average length was 18.31 mm, while the median and mode was 16.5 mm each. Artefact width ranged between 4.6 to 27.75 mm. Average width was 12.18 mm, median 12.54 mm and mode 14 mm. The thickness of artefacts ranged between 1.3 to 18.7 mm. The average thickness was 5.16 mm, median 3.75 mm and mode 3.2 mm. Artefact mass ranged from 0.01 to 6.5 g. The average weight was 1.99 g, while the median and mode were 1 g and 0.2 g respectively. Overall, lithic artefacts in the assemblage tended to be small in size.

7.1.8. PROVENANCE AND DEPTH OF ARTEFACTS

Lithic artefacts were identified in Trenches 1 and 2 and squares 1A, 1B and 2B only. All other squares/trench did not have any lithic artefacts present (Table 3). In terms of depth (other than those artefacts that were found on the wall profile and depth was not recorded) artefacts from Trench 1 were located at depths ranging between 250-690 mm. These depths were all located within a disturbed context, being the layer of mixed fill that was added to the surface of the island during the construction of the dam. Of the lithic artefacts located in Trench 2, those located up to 960 mm in depth (n= 7) were also within the layer of fill. The remainder (n= 7) were found within the natural source-bordering dune or floodplain sediments pre-dating the construction of the dam.

TABLE 3: PROVENANCE AND DEPTH OF LITHIC ARTEFACTS

Trench Number	Stratigraphic Unit	Depth Range (mm)	Lithic Artefact Quantity
Trench 1A	wall profile	N/A	1
	XU4	250-300	1
	XU7	390-430	1
	XU8	430-500	2
Trench 1B	wall profile	N/A	3
	XU5	300-350	1
	XU6	350-390	1
	XU10	590-690	1
Trench 2A	N/A	N/A	0
Trench 2B	wall profile	N/A	1
	XU5	820-860	6
	XU7	910-960	1
	XU8	960-1000	2
	XU10	1030-1050	3
	XU12	1100-1130	1
	XU14	1130-1150	1
Total			**26**

7.2. HISTORICAL ARTEFACTS

A total of 266 individual historical artefacts were identified during the excavations. All artefacts were cleaned, bagged and labeled prior to cataloguing and analysis. Glass and ceramic artefacts were washed in water. All other material types such as, leather, metal, wood and bone, which had potential to be damaged from water, were dry brushed cleaned.

Artefacts were then sorted by material and form and catalogued. Information recorded in the catalogue included (where appropriate) object ID number, number of fragments, provenance information (trench, excavation unit), material, colour, decoration, manufacturing technique, dimensions and weight, notes and references.

In order to aid discussion, the historical assemblage was divided into functional categories. The categories included building materials, domestic, miscellaneous, organic, personal, recreational, tools and equipment and unidentified. Each category is individually discussed below. Figure 34 shows that domestic objects, followed by building

materials and unidentified objects dominated the assemblage. All other categories were represented to a much lesser extent.

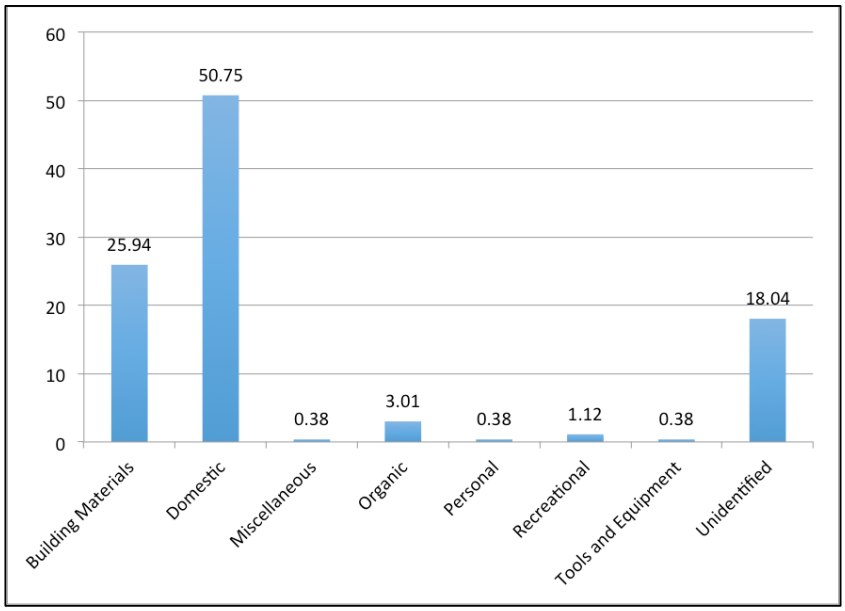

FIGURE 34: PERCENTAGE OF ARTEFACTS IN EACH FUNCTIONAL CATEGORY

Table 4 shows the quantities of artefact material and form within each functional category. The highlighted columns represent the highest quantities. These include metal nails in the building materials category, and coal, ceramic vessels and glass bottles in the domestic category. There are also high quantities of unidentified fragments of various material types.

TABLE 4: FUNCTION, MATERIAL AND FORM SUMMARY FOR THE HISTORICAL ARTEFACT ASSEMBLAGE

Function	Material	Form	Quantity
Building Materials	Ceramic	Brick	7
	Mortar	Fragments	9
	Foam	Unidentified	1
	Plaster/paint	Interior wall fragments	7
	Plastic	Wire insulator tube	1
	Plastic	Wire	1
	Plastic	Washer	1
	Metal (iron)	Nails	25
	Metal (unidentified)	Nails	10
	Metal (copper)	Wire	1
	Metal (unidentified)	Wire	1
	Metal (iron)	Pipe	1

Function	Material	Form	Quantity
	Metal	Slag	4
Domestic	Anthracite	Heating coal	36
	Ceramic	Unidentified vessels	14
	Ceramic	Blacking bottle	1
	Glass	Bottle	71
	Glass	Drinking glass	1
	Glass	Jar	1
	Metal (aluminium)	Foil	1
	Metal (unidentified)	Bottle tops/ring pulls	8
	Plastic	Bottle tops	2
Miscellaneous	Styrofoam	Unidentified	1
Organic	Bone	Unidentified	1
	Charcoal	Unidentified	7
Personal	Metal (Copper alloy)	Button	1
Recreational	Paper	Unidentified	1
	Plastic	Golf tee	1
	Rubber	Golf ball	1
Tools and Equipment	Metal (iron)	Unidentified tool	1
Unidentified	Glass	Unidentified vessel	22
	Metal	Unidentified fragments	14
	Plastic	Unidentified fragments	12
TOTAL			**266**

7.2.1. BUILDING MATERIALS

Metal nails, the majority of which were manufactured from iron, dominate the building material category. Of these, a total of seven had identifiable manufacturing techniques or other datable characteristics, which included hand-wrought, cut and wire nail types. Hand-wrought nails were commonly used in Australia between 1788-1850s (Burke and Smith, 2004:378). Cut nails were in common use up to the 1860s, while iron wire nails were used between 1860s to 1893 (Burke and Smith, 2004:378-379).

Other artefact types in this category include brick, mortar and plaster fragments as well as metal wire, pipe and slag fragments. Various modern items were also identified including foam, and plastic wire and washer.

7.2.2. DOMESTIC

The domestic category is dominated by glass bottle fragments (n= 71). A total of 48 of these fragments were either brown or medium to dark green. These colours were often associated with wine and beer bottles. However, bottles may have been re-used during the course of their lifetime and possibly contained other contents (Busch, 2000:175-188). At least seven brown bottle fragments appear to be modern and at least one of these is likely to be from a Toohey's beer bottle.

Other glass bottle colours in the assemblage include aquamarine, blue, light green and purple. Purple, reddish and amethyst coloured bottles generally date between 1840s to 1880s (Society for Historical Archaeology website, 2015). The assemblage also contained aquamarine bottle stopper fragments (a shaft and an incomplete head fragment) with embossed lettering of which only a 'G' followed by a possible 'F' or 'E' and 'O' were legible (Figure 35). The stopper was likely from a club sauce bottle. Due to the heavily fragmented nature of the assemblage it is unknown what the remainder of the bottles contained.

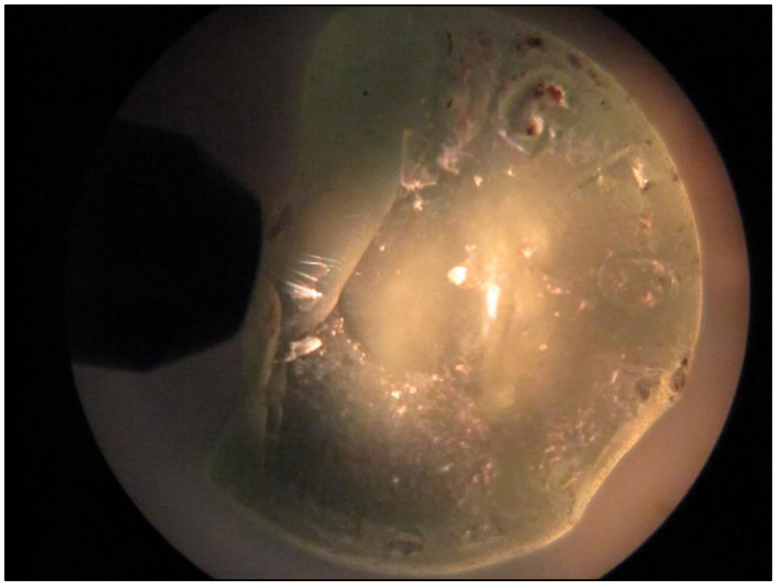

FIGURE 35: BOTTLE STOPPER HEAD FRAGMENT (PHOTOGRAPH TAKEN UNDER MICROSCOPE)

A total of four bottle fragments have embossed lettering. Only one of these contained multiple letters which read '…WAYS REMAI… ' (this is likely to have spelt '…always remains…'). Embossed lettering on glass has a date range of 1821-1920s (Burke and Smith, 2004:359).

Other glass objects in the domestic category include one drinking vessel fragment and a jar with a metal lid still attached. The jar has yellow writing on side with the letters 'E' and 'D' visible. Embossed writing was also identified on base including 'B68', a triangle with 'D', 'B' and 'C' in the middle and the number '1' below the triangle. This jar is modern in appearance and possibly dates to the time the dam was constructed and fill was introduced on Springbank Island.

There are a total of 15 ceramic fragments in the domestic category. At least two of these are from a drinking vessel (e.g. teacup, coffee cup, mug) and both are likely to be Whiteware. Another vessel has been identified as a stoneware blacking bottle (Figure 36).

FIGURE 36: STONEWARE BLACKING BOTTLE

The remainder of the fragments are from unidentified vessels. These comprise one lead glazed porcelain fragment, two brown salt-glazed stoneware fragments, six Whiteware fragments and two unidentified ware type fragments. One Whiteware fragment has blue and black banded, industrial slip decoration. The peak of industrial slip production dates between 1790 and 1830 however; it is found on archaeological sites in Australia dating from the 1780's through to the 1850's (Brooks, 2005:40). At least another three Whiteware fragments are decorated with blue transfer printing, although no specific patterns were identified. Blue transfer-printed vessels have a start date of 1780 (Brooks, 2005:72).

There were also six anthracite coal fragments in the assemblage, which were likely used for heating. Other items in the domestic category include modern objects such as aluminium foil, as well as metal and plastic bottle tops and ring pulls.

7.2.3. MISCELLANEOUS

There was only one item identified in this category. This comprises one Styrofoam fragment from an unidentified container.

7.2.4. ORGANIC

The organic category comprises one unidentified bone fragment and seven charcoal fragments.

7.2.5. PERSONAL

The personal category comprises one copper alloy button measuring 16.04 mm in diameter. This medium button size suggests that it was likely worn on outer clothing (e.g. shirts, coats, pants) rather than on undergarments. The button shows signs of corrosion however; a faint inscription is discernible which includes a double horseshoe motif and illegible writing (Figure 37). Embossed metal buttons have a start date of 1770 (Hinks, 1995:59).

FIGURE 37: COPPER ALLOY BUTTON (PHOTOGRAPH TAKEN UNDER MICROSCOPE)

7.2.6. RECREATIONAL

The recreational category comprises modern items including a fragment of paper, a rubber golf ball and a plastic golf tee. These artefacts were discovered in the upper deposits of Trench 2. These items may have been lost after a casual game of golf on the island.

7.2.7. TOOLS AND EQUIPMENT

This category comprises one unidentified iron tool, which is heavily corroded.

7.2.8. UNIDENTIFIED

This category comprises a total of 48 unidentified glass, metal and plastic fragments.

7.2.9. ARTEFACT DIMENSIONS AND WEIGHT

Artefact length, width, thickness, diameter and weight were recorded for the historical assemblage (were appropriate). Length ranged between 4.61 to 208 mm. The average length was 32.98 mm, the median was 23.53 mm and the mode was 14.2 mm. Artefact width ranged between 2.21 to 59.88 mm. Average width was 15.99 mm, median 13.49 mm and mode 9.55 mm. The thickness of artefacts ranged between 0.17 to 31.3 mm. The average thickness was 6.08 mm, median 5 mm and mode 4.2 mm. Artefact mass ranged from 0.01 to 165.5 g. The average weight was 6.07 g, the median was 1.65 g and the mode was 0.9 g. Overall, the vast majority of historical artefacts were small, with very few complete objects (the glass jar with metal lid being an exception).

7.2.10. PROVENANCE AND DEPTH OF ARTEFACTS

Historical artefacts were identified in all trenches (and all individual squares within the trenches) that were excavated (Table 5). Depth was recorded for most artefacts other than those found during sieving or in spoil heaps. Artefacts from Trench 1 were located throughout most excavation units including the layer of mixed fill. However, other artefacts were identified between 790-940 mm, which included some sections of natural soil deposits prior to the construction of the dam. Within Trench 2 a significant proportion (n= 122) of artefacts were located in a disturbed context within spoil heaps. For the remainder, as per Trench 1 some artefacts were located within the layer of fill while others were found in a natural context (Table 5).

TABLE 5: PROVENANCE AND DEPTH OF HISTORICAL ARTEFACTS

Trench Number	Stratigraphic Unit	Depth Range (mm)	Historical Artefact Quantity
Trench 1A	sieve	N/A	2
	ND	N/A	3
	XU1	80-160	1
	XU2	160-195	1
	XU4	195-225	2
	XU8	430-500	2
	XU10	590-690	1
	XU12	790-870	16
	XU13	870-940	1
Trench 1B	spoil	N/A	1
	XU1	80-160	6
	XU5	300-350	2
	XU6	350-390	2
	XU7	390-430	2
	XU10	590-690	1
	XU11	690-790	1
	XU12	790-870	1
	XU13	870-940	4
	XU15	1004-1011	1
Trench 2A	sieve	N/A	1
	ND	N/A	2
	spoil	N/A	113
	XU2	600-680	8
	XU3	680-940	7
Trench 2B	spoil	N/A	9
	XU1	570-670	3
	XU2	670-740	21
	XU3	740-780	8
	XU4	780-820	2
	XU5	820-860	17
	XU6	860-910	2
	XU8	960-1000	2
	XU9	1000-1030	1
	XU10	1030-1050	6
	XU11	1050-1100	1
	XU12	1100-1130	1
	XU13	1130-1150	3
	XU14	1150-1190	3
Not recorded	N/A	N/A	6
Total			**266**

8. ANANYSIS OF FINDINGS

The findings of this report have revealed that Springbank Island is a historically important part of the Canberra community. Early ethnographic accounts and oral histories mention that the foothills of Black Mountain and Molonglo River flats were important meeting places for local Aboriginal communities. Following European exploration, the Springbank property was the first to be settled in the Limestone Plains (by John MacPherson). The property had a long history of occupation by various families right up to the construction of the Lake Burley Griffin. In addition, the development of the lake and Springbank as an island are irrevocably connected and as such, Springbank Island is an integral part of the history of Canberra as a planned city.

The archaeological investigations on Springbank Island found evidence of both Aboriginal and European occupation. Although all trenches excavated had a clear stratigraphic profile, they consisted largely of a layer of fill, which extended up to 1.2 m in depth (on average). This fill layer is associated with levelling works and the introduction of fill during the construction of the lake. Artefacts were largely located in disturbed contexts associated with the fill layer, while a few were located in natural contexts below the fill. Overall, the artefact assemblage is small in quantity with a total of 26 lithic and 266 historical artefacts found.

The lithic artefacts confirm the use of the area by Aboriginal people in the past and indicate that stone tool manufacture was carried out on site and along the nearby former banks of the Molonglo River. The historical artefact assemblage includes items that could be dated to the period of the Springbank homestead occupation such as hand-wrought, cut and wire nails (1788-1893), purple glass fragments (1840s-1880s) and industrial slip decorated ceramic fragments (1780s-1850s). Although foundations or other intact features associated with the homestead were not located during the excavations, loose mortar, brick and plaster fragments were found; evidence of the home's presence and subsequent demolition. The historical artefact assemblage also includes modern items, which point to the area's latest transformation and were deposited either at the time of the island's creation or later, with items such as the golf ball and tee reflecting the use of the space as a recreational area.

9. ASSESSMENT OF HERITAGE SIGNIFICANCE

Springbank Island is located on commonwealth-managed land within the ACT the assessment of heritage significance must be applicable to both the ACT and Commonwealth assessment criteria.

9.1. ACT HERITAGE ACT ASSESSMENT CRITERIA

The *Heritage Act 2004* has eight heritage significance criteria as listed in the Heritage Assessment Policy (2015). These include:

a) Importance to the course or pattern of the ACT's cultural or natural history;
b) Has uncommon, rare or endangered aspects of the ACT's cultural or natural history;
c) Potential to yield information that will contribute to an understanding of the ACT's cultural or natural history;
d) Importance in demonstrating the principal characteristics of a class of cultural or natural places or objects;
e) Importance in exhibiting particular aesthetic characteristics valued by the ACT community or a cultural group in the ACT;
f) Importance in demonstrating a high degree of creative or technical achievement for a particular period;
g) Has a strong or special association with the ACT community or a cultural group within the ACT for social, cultural or spiritual reasons;
h) Has a special association with the life or work of a person, or people, important to the history of the ACT.

9.2. COMMONWEALTH ASSESSMENT CRITERIA

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes the Commonwealth Heritage List, which comprises natural, Indigenous and historic places on Commonwealth lands and waters or under Australian Government control, and identified by the Minister for the Environment and Water Resources (the Minister) as having Commonwealth Heritage values.

The Commonwealth Heritage criteria include the following:

a) The place has significant heritage value because of the place's importance in the

course, or pattern, of Australia's natural or cultural history;

b) The place has significant heritage value because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history;
c) The place has significant heritage value because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history;
d) The place has significant heritage value because of the place's importance in demonstrating the principal characteristics of:
    i) a class of Australia's natural or cultural places; or
    ii) a class of Australia's natural or cultural environments;
e) The place has significant heritage value because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
f) The place has significant heritage value because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period;
g) The place has significant heritage value because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
h) The place has significant heritage value because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history; and
i) The place has significant heritage value because of the place's importance as part of Indigenous tradition.

NOTE: the cultural aspect of a criterion means the Indigenous cultural aspect, the non-Indigenous cultural aspect, or both.

9.3. SPRINGBANK ISLAND AS AN ABORIGINAL SITE

Representatives of ACT RAOs have indicated that the Aboriginal site located at Springbank Island is valued by the local Aboriginal community as important as part of their culture and tradition. Its location at the foothills of Black Mountain and the Molonglo River flats has been recognised as an important meeting place where local community groups within the wider region would gather. The site itself, which comprises an artefact scatter of lithic artefacts, provides evidence of the use of the area as a possible campsite

and area in which to manufacture lithic implements. It is socially and culturally important to the local Aboriginal communities. As such, this site meets criterion i) of the Commonwealth Heritage Listing criteria and criterion g) of ACT Heritage assessment criteria.

9.4. SPRINGBANK ISLAND AS A EUROPEAN SITE

The European site at Springbank Island consists of evidence of the original Springbank homestead. The site is associated with the early rural settlement of the area. In fact, Springbank was the first settlement in the Limestone Plains. The property changed hands numerous times until it was compulsorily purchased by the government prior to the construction of the lake in the 1960s. As such, it is important as it has the potential to provide information about the material discard of early pioneer families as well as later residents of the region. It has importance to the course of the ACT's cultural history and has the potential to contribute to an understanding of this history. Therefore, the site meets criteria a) and c) of ACT Heritage assessment criteria. However, as the site is relevant to the territory's heritage, it does not fulfill the criteria assessment against the Commonwealth Heritage listing criteria.

In addition, Springbank Island has a strong association with the early planning of the national capital. The Lake Burley Griffin, in which the island is located, plays an important role in Walter Burley Griffin's design for Canberra. By the time the lake was built it followed later designs overseen by the National Capital Development Committee (NCDC). The lake followed lines that were less formal than Griffin's vision, following the natural contours of the landscape. Springbank Island fit into this more 'natural' plan for the lake. As such, the island represents two important aspects of Canberra's history as a planned environment. It has importance to the course of the ACT's and the nation's cultural history and has a special association with the work of Walter Burley Griffin and the NCDC. Therefore, the site meets criteria a) and h) of both the ACT Heritage assessment criteria and the Commonwealth Heritage listing criteria.

The continued use of Springbank once it became an island represents the ongoing importance of the place - now as a recreational area. Since its creation as an island, it has hosted numerous cultural and sporting events and includes picnicking facilities. These facilities are still in use and enjoyed by the Canberra community, as per the wider Lake Burley Griffin landscape.

9.5. STATEMENT OF HERITAGE SIGNIFICANCE

Springbank Island has been assessed as having both ACT and Commonwealth heritage values. The island is able to clearly illustrate several historic themes including: Aboriginal life in the area and Aboriginal associations with place, European rural settlement of the area, and Canberra as a planned environment associated with Walter Burley Griffin and the NCDC. Springbank Island has significant historic and social/cultural heritage values associated with both the traditional Aboriginal and early European use of the area. It also has special and significant association with the work of Walter Burley Griffin and later, the NCDC. This makes it significant to both the ACT and the Commonwealth due to the important role this played in the development of Canberra as a planned city and the birth of the nation's capital.

10. RECOMMENDATIONS

The following recommendations are made as a result of this Results and Further Analysis report.

Recommendation 1- Heritage Signage

It is recommended that an informative sign/s be developed for installation within Springbank Island. The sign/s should describe Aboriginal past land use practices in the wider area and the significance of the Black Mountain foothills and Molonglo River floodplains as a meeting place. It should also incorporate data from the current investigation in relation to the lithic artefact assemblage.

In addition the sign/s should also describe the historical land use of the area since European settlement. The history of all major family occupation phases of the Springbank homestead should be incorporated including the MacPherson, Kaye, Sullivan and Cox families. It should include significant events and land use practices, such as the use of the property as a school, to hold mass, and the creation of Lake Burley Griffin and Springbank as an island. The sign should also incorporate data from the current investigation on the historical artefact assemblage.

All text, images and other figures used on the sign/s should be presented to the relevant stakeholders including all RAOs, as well as descendants of the families that lived on Springbank homestead, for comment prior to the development and installation of the sign/s.

Recommendation 2- Display of Aboriginal and Historical Artefact Material at ANU

Representatives of the RAOs (including Matilda House and Wally Bell) as well as European descendants (including Rowan Goyne) agreed to have the artefacts collected during the archaeological investigations on Springbank Island, displayed in a glass cabinet within the School Archaeology and Anthropology, A. D. Hope Building, ANU. This would benefit the local community (as the building is open to the public and already includes the Classics Museum within the School of Literature, Languages and Linguistics) as well as ANU students who would have access to study a local collection that encompasses Aboriginal, European as well as recent artefacts.

It is recommended therefore, that all artefacts from Springbank Island be displayed in this way for a nominated period agreed to by the RAOs, European descendants and ANU. At the end of this period these terms can be re-negotiated and (for the Aboriginal assemblage) artefacts can be returned to the local communities for re-burial or storage.

Recommendation 3- No Further Heritage Investigation Required

As the heritage character of the study area has been established and there is a low likelihood that further or significant Aboriginal or historical heritage sites would be located on Springbank Island, there is no need for further heritage investigations to be carried out.

Recommendation 4- Contingency

It is recommended that if any Aboriginal or historical heritage material is encountered during the course of any maintenance or other potential future works, then works should cease immediately and a qualified archaeologist or heritage advisor should be contacted to investigate and advise on the appropriate course of action.

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APPENDICES

See compact disc included in this submission titled ‘Appendices’.