Australian National University

Acton Campus — Site Inventory

Godden Mackay Logan Heritage Consultants

Study Item / Area	Research School of Physics and Engineering (RSPE) Buildings
Acton Campus Precinct	GARRAN Precinct
Building Nos. & Names	Cockcroft Building (58), Le Couteur Building (59), Oliphant Building (60), Applied Mathematics Building (84), Leonard Huxley Building (56), Nuclear Physics Building (57), Heavy Ion Accelerator Facility (58A), Erich Weigold Building (58B), John Carber Building (58C), Cockroft Oliphant Link Building (58D)

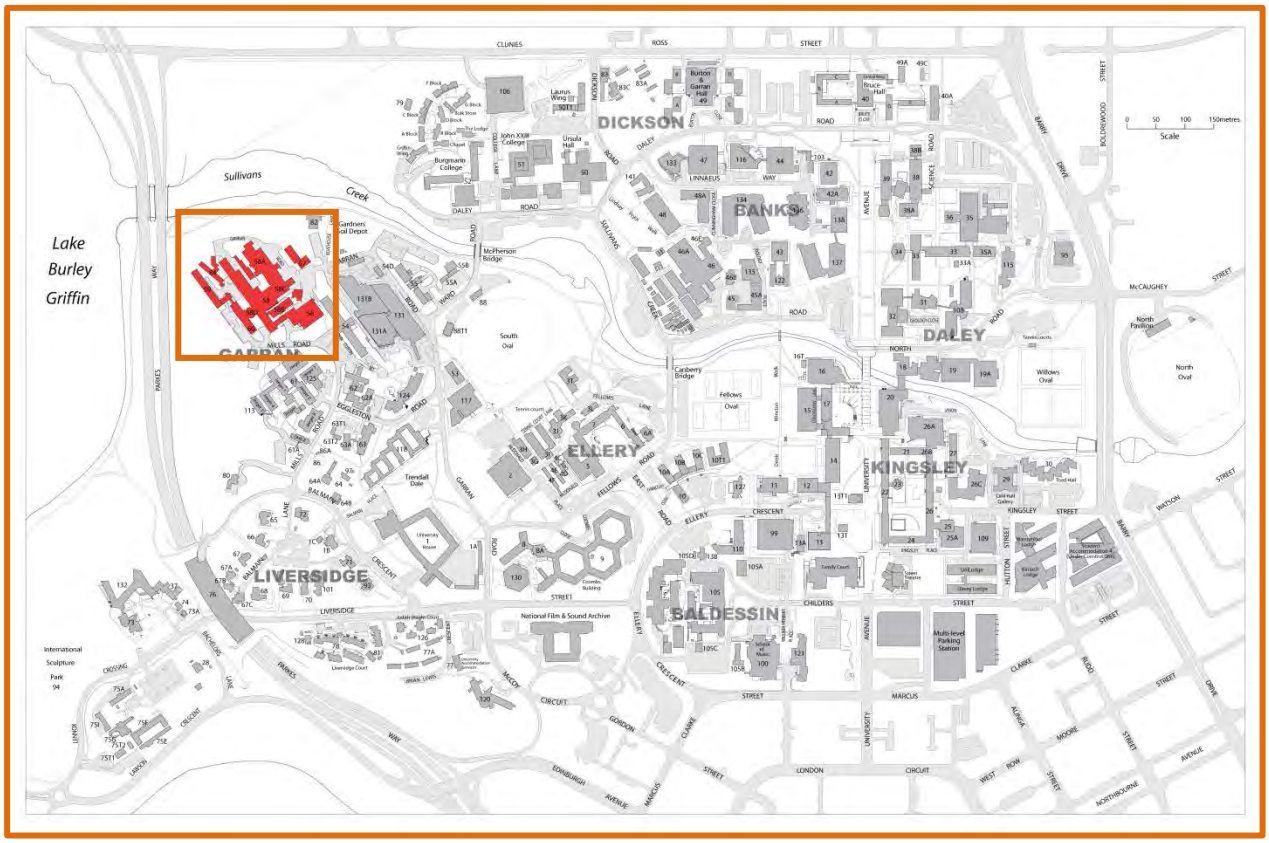

Figure 1: Location of study area within the ANU Acton Campus site. Source: ANU plan 2011.

Heritage Ranking	RSPE Buildings; 58, 59 and 60—High—Meet the criteria for Commonwealth Heritage List Applied Mathematics Building (84)—High—Meets the criteria for Commonwealth Heritage List Other Precinct Buildings (56, 57, 58A, 58B, 58C, 58D)—Low—Do not meet criteria for Commonwealth Heritage List
Heritage Listing	The RSPE buildings are not included in the Commonwealth Heritage List (CHL).
Condition—Date	A condition assessment was not undertaken in preparation for this inventory.
Relevant Documentation	A Heritage Study of the Applied Mathematics building was undertaken by the ANU Heritage Office in September 2009. No specific heritage assessments or studies have been prepared for the other buildings. The history and descriptions below are taken from the draft Historical Review of the ANU by Gary Estcourt, 2005, ANU Heritage Study by John Armes and Richard Ratcliffe, 1995, The Making of the Australian National Univeristy 1946-1996 by Foster and Varghese, and the ANU publication on the Research School, *'Fire in the Belly' The first 50 years of the Pioneer School at the ANU*, by Trevor Ophel and John Jenkin,1996.

Context of the Buildings

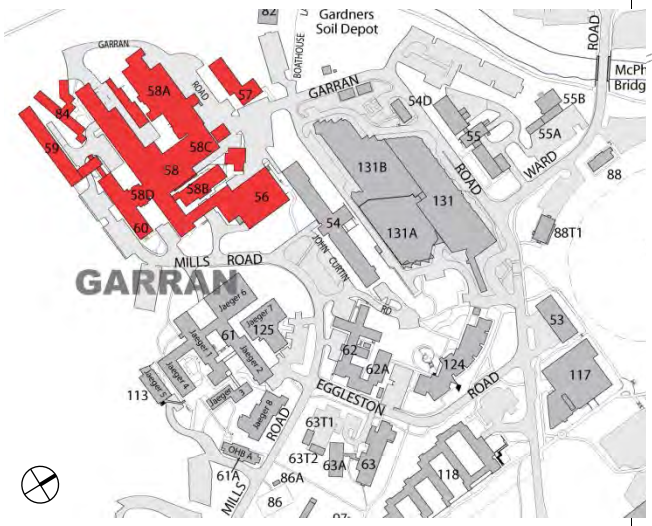

Figure 2: Context of the RSPE buildings in relation to surrounding University buildings. (Source: ANU plan 2011)

Figure 3: Configuration of the RSPE buildings. (Source: ANU plan 2011)

Brief Historical Overview

Research School of Physics and Engineering

The Research School of Physics and Engineering (RSPE) known originally as the Research School of Physical Sciences (RSPhysS) the 'pioneer school' of the University, was one of the first research schools established on the ANU campus.

Section 7 of the *Australian National University Act 1946* outlined the organisation of the ANU which was divided into two groups: the Institute of Advanced Studies (IAS) and the Faculties. Section 8 of the Act outlined the structure of the IAS with institutes to be devoted to medical science, the physical sciences, the social sciences, Pacific studies and such other fields of learning as the Council determined.

Sir Marcus Oliphant was one of the early members of the Academic Advisory Committee (AAC), along with Florey, Hancock, and Firth, established in April 1948 under the direction of the Interim Council for the University. Oliphant was appointed Director of the RSPhysS in October 1948 and preparations for the construction of the laboratories began soon after.

Cockcroft Building (58)

Professor Brian Lewis, the architect at the establishment of the University, was appointed to design some of the early university buildings, including the laboratories for the Physical Sciences Building. He had to meet the requirements of the AAC which were simply that 'the character and construction of all buildings should be unpretentious'. In October 1949 the foundation stones for the RSPhysS (Cockcroft Building 58) were laid by Prime Minister Ben Chifley and the laboratories for the RSPhysS were officially opened in 1952.

Le Couteur Building (59)

The construction of the Mathematical Sciences Building (59) designed by Buchan Laird and Buchan Pty Ltd began in 1961 and was completed in 1963. Later extensions to this building were undertaken in 1971 and 2005-06 and it was renamed the Le Couteur Building in 1996.

Oliphant Building (60)

Prime Minister Ben Chifley also laid the foundation stone for the office building for RSPhysS (60) in October 1949. This was originally named the Chifley Building, and officially opened in 1952. It was renamed in 1970 as the Oliphant Building when the undergraduate library was determined to be named after Chifley. A link building (58D) between the Oliphant and Cockcroft Buildings was constructed in 1990 by Collins Caddaye Architects.

Other buildings in the RSPE complex including 56, 57, 58A, 58B, 58C, 58D

Various buildings and extensions for the RSPE have been constructed at different stages surrounding the original Cockcroft

Building.

The Heavy Ion Accelerator Facility (58A) was developed to house the 12MeV Tandem Electrostatic Generator for the Department of Nuclear Physics in 1958. Alterations were undertaken to this building in 1972, 1989 and 1998. A link from this building connected the High Tension Laboratory, designed by Lewis, was constructed in 1951 to house the 1.2m volt Cockcroft-Walton Accelerator (HT1) and later the 600kv Cockcroft-Walton Accelerator (HT2) in 1954.

Another building (now the John Carver (58C) was originally constructed at the same time as the Cockcroft Building to accommodate the Accelerator Hall. The hall was to house the cyclo-synchrotron that Oliphant was developing, but work was set back and complex so the plan was changed to instead construct a large homopolar generator from the already half built accelerator. The homopolar generator, the world's largest at the time, was opened in 1961 by Prime Minister Robert Menzies.

In 1970 the High Tension Laboratory was demolished and construction began in 1971 on the tower building for an Electrostatic Tandem Generator. It was opened in 1974 by Prime Minister Gough Whitlam but the generator was increasingly superseded by the 14UD accelerator so it was removed in 1979. Extensive refurbishments of the Accelerator wing was undertaken in c1992 and then was renamed the John Carver Building (58C) in 1994.

The Synchrotron Building, known as the Roundhouse, was constructed in the mid-1950s but was demolished in the mid-1990s. The Erich Weigold Building (58B) was constructed on the site of the Roundhouse in 2005.

Other buildings associated with the research of the RSPE have been constructed at the Campus as the requirements and specialisation of the school expanded. While this document focuses on the three main buildings of the RSPE, these other buildings are important for their association with the school. These include the Nuclear Physics Building (57) constructed in 1963; the Leonard Huxley Building (56) constructed in 1974; and various stores and workshops.

Building 84, Applied Mathematics Building

The Geophysics Building (84) originally prefabricated and constructed in 1951 was designed by Kenneth Oliphant and Brian Lewis and now houses Applied Mathematics. Construction had already begun by the time John Jaeger, the first Professor of Geophysics, arrived in the Capital. The original building consisted of the elongated workshop and laboratory building, and a double-storey annex attached to the centre of the northern façade for the preparation of rock slides. Shortly after a boiler house was added to the east of the central annex, and an insulated room added in the basement for thermal measurements. Further extensions to the building continued from 1952, designed by Harry Divola, a well-known local architect in the post-war period. While Divola was prominent in the Post War International style, he continued to extend the building in the 'functionalist' style of Oliphant. The construction of the extension was undertaken by Karl Schreiner and was complete by August 1953. This round of extensions included a brick front portico, a new wing set at a 45 degree angle from the building which provided a rear courtyard, with open views of the racecourse and river below (now inundated by Lake Burley Griffin). The extension also added an extra five rooms, used for additional laboratory space, much-needed lavatories, rock store and offices. Jaeger noted that it was "in rather better design and construction" than the original building.

As Jaeger had predicted the building became very crowded in a very short span of time and by the end of 1954 he had requested further extensions to the building, although the University Council instead decided to move the school to more permanent quarters. The Department of Geophysics was fragmented and eventually moved out in 1969, to occupy the new Jaeger Buildings. Despite plans to demolish the building in 1969, it was retained and altered for the Department of Applied Mathematics in 1971.

The Research Schools

The ANU expanded to 12 research schools within the IAS, many of which grew from the RSPhysS. The six original departments in RSPhysS were: Astronomy, established in 1950 and headed by Richard Woolley; Geophysics, established in 1952 and headed by John Jaeger; Radio Chemistry, established in 1952 and headed by Frank Scarf; Particle Physics, established in 1950 and headed by Marcus Oliphant; Nuclear Physics, established in 1950 and headed by Ernest Titterton; and Theoretical Physics, established in 1951, headed by Ken Le Couteur.

In 1991 the RSPhysS was renamed the Research School of Physical Sciences and Engineering (RSPhysSE) following the establishment of the Department of Electronic Materials Engineering in 1988.

Following the grouping of the Research Schools with the Faculties and Centres under seven ANU Colleges in 2006, the RSPE currently sits within the ANU College of Physical and Mathematical Sciences.

Figure 4: Brian Lewis' Cockroft Building (58), which housed the early laboratories for the RSPhysS. (Source: ACT Heritage Library c1952.)

Description of the Site

The Site

The RSPE complex has grown in an ad hoc manner and lacks a formal approach with vehicle access from Mills Road which leads to the Oliphant and Cockcroft Buildings. It is accessed either on the southern side or via Garran Road past the John Curtin School of Medical Research to the northern side. Carparking is ad hoc along the side of the entry roads or in the larger areas on the southern side of the Oliphant and Cockroft Buidings.

RSPE Buildings

The Cockcroft Building (58) is a rectangular steel-framed building with skillion roof and southern clerestory. The John Carver Building (58C), completed in 1953, intersects at the centre of the northern façade and the Oliphant Building (60) is connected via a modern glazed siting area. Internally the Cockcroft Building is divided into two wings, with laboratories in the east and metal and wood workshops in the west. The iconic 14UD Tower is part of the Heavy Ion Accelerator Facility (58A), projecting high above its surrounding buildings and the tree canopy of the campus.

The Le Couteur Building (59) is a rectangular reinforced framed concrete building with brick panel and window suite infill. It is located on the ridge overlooking Lake Burley Griffin, where it is visible from Parkes Way. The southern façade has four levels, with the basement level exposed. This level is set back from the general façade. This building has undergone alterations and extensions, including extension of the western end of the building by Cappello and Anderson in 1966 to a design commissioned by the NCDC from Thompson and Goldsmith. In 2005-06 the Le Couteur Building was joined to the Oliphant Building (60) with a linkway building designed by Daryl Jackson Alastair Swayn Pty Ltd. The linkway is a modern glass and steel structure with two shades of Alucobond cladding, extending over a roadway leading to a carpark at the Cockcroft Building.

The Oliphant Building (60) is a concrete-framed rectangular building with skillion roof. The frame is in-filled with white painted brickwork at the ends with tall sets of window down the longer sides. The southern façade is dominated by vertical elements of windows and tiles symmetrically surrounding the central entrance. On the northern façade the first floor concrete slab extends beyond the façade to provide awnings to the lower windows. Alterations to the buildings were undertaken internally in 1961 and 1995 and the link to the Cockcroft Building (58) was constructed in 1990.

Other buildings in the Complex

The Leonard Huxley Building (56) was built for Solid State Physics and houses a computer centre and a 230-seat lecture theatre. Alterations and extensions have been undertaken to the building in 1978, 1986 and 2010.

The Nuclear Physics Building (57) is separated from the other RSPE buildings to the north of the complex. The two-storey office-laboratory building required substantial engineering as it was built on the loosely-compacted fill which pushed Sullivan's Creek over toward the (then) future lake bed.

Building 84, Applied Mathematics Building

The old Geophysics Building (84) is unique for the ANU campus. It was constructed at a different angle to both the neighbouring buildings, and the intent of Brian Lewis' 1948 campus site plan. The building was sited to address the contours of the land. It was positioned on high, stable land in a remote location (important for Geophysics research) that could accommodate the long building form. The building is constructed of prefabricated components, in painted face brick, forming an elongated workshop and laboratory, and a double-storey annex attached to the northern side. The double-storey arm of the building looks out to the southwest, and is a prominent feature visible from outside the Campus.

Landscape

The RSPE buildings are located on a ridge in the southwestern corner of the Acton campus. Their elevated location provides views south over Parkes Way toward Lake Burley Griffin as well as overlooking Sullivans Creek and Black Mountain. The 14UD Tower is a dominant feature of these buildings, as it is higher than the tree canopy of the campus and can be seen from various locations around the lake and from Black Mountain. When travelling east along Parkes Way, the buildings of the RSPE are highly visible.

Significance Assessment against the Commonwealth Heritage criteria

Statement of Significance

The RSPE, known originally as the RSPhysS, was one of the four pioneer research schools of the ANU and instrumental in the early development of the research schools at the ANU. The RSPE is associated with many of the research schools at the University today, as they were initially departments within the original RSPhysS. These include Astronomy, Geophysics, Radio Chemistry, Particle Physics, Nuclear Physics and Theoretical Physics.

Some of the buildings associated with the school are the earliest permanent buildings designed specifically for the university. This includes the Oliphant Building, which has strong associations with its designer Brian Lewis who had firm direction from the Research School Director, Sir Marcus Oliphant. It was the first permanent building to be occupied at the ANU.

The RSPE buildings have strong associations with many of the important early members of the ANU. The members of the AAC comprising Oliphant, Firth, Florey and Hancock all contributed to the early development of the research school.

Criteria	Assessment
(a) Historic The place has significant heritage value because of the place's importance in the course, or pattern, of Australia's natural or cultural history.	The RSPE, known originally as the RSPhysS, was one of the four pioneer research schools of the ANU and some of the buildings associated with the school are the earliest permanent buildings designed specifically for the campus. This includes the Oliphant Building, designed by Brian Lewis with firm direction from Sir Marcus Oliphant, which was the first permanent building to be occupied at the ANU. The RSPhysS was instrumental in the early development of the research schools at the ANU. Many of the research schools at the university today were formed from the original RSPhysS including Astronomy, Geophysics, Radio Chemistry, Particle Physics Nuclear Physics and Theoretical Physics. The RSPE meets CHL criterion (a) for historic values. Attributes Cockcroft Building (58), Oliphant Building (60) and the Le Couteur Building (59), Applied Mathematics Building (84). The location of the buildings in the RSPE, historic association with the commencement of the university, including the Academic Advisors and Brian Lewis, architect of the Cockcroft Building (58).

Significance Assessment against the Commonwealth Heritage criteria	
	The contributory buildings to the RSPE complex including the) and the dominant 14UD Tower.
(b) Rarity 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.	The RSPE does not meet CHL criterion (b) for rarity values.
(c) Scientific 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.	The RSPE does not meet CHL criterion (c) for scientific values.
(d) Representative 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.	The RSPE does not meet CHL criterion (d) for representative values.
(e) Aesthetic The place has significant heritage value because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.	The buildings of the RSPE, notably the Le Couteur Building, Applied Mathematics Building and the 14UD Tower are both highly visible within and from outside the campus, but at this stage the RSPE does not meet this part of the criterion because the aesthetic value has not been formally tested by the community or cultural group. The RSPE does not meet CHL criterion (e) for community held aesthetic values.

Significance Assessment against the Commonwealth Heritage criteria	
(f) Creative/Technical 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.	The RSPE does not meet CHL criterion (f) for creative/technical values.
(g) Social 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.	The RSPE has strong connections with the ANU community, both for their historical associations and the social connections with the research staff, including the original members of the RSPhysS. At this stage, the presence of social value (strong or special attachment to the place by an identified community group) has not been formally tested. The RSPE does not meet CHL criterion (g) for social values.
(h) Associative 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.	The RSPE Buildings have strong associations with many of the important early members of the ANU. The members of the AAC comprising Oliphant, Firth, Florey and Hancock all contributed to the early development of the research school. The Oliphant Building has strong association with Sir Marcus Oliphant and other physical science researchers. It is associated with the architect and planner Brian Lewis who designed the earliest buildings of RSPE, including the Cockcroft Building, the Oliphant Building, Applied Mathematics (formerly Geophysics) and the now demolished High Tension Laboratory. The RSPE is associated with many of the research schools at the University today, as they were initially departments within the original RSPhysS. These include Astronomy, Geophysics, Radio Chemistry, Particle Physics, Nuclear Physics and Theoretical Physics. The RSPE meets CHL criterion (h) for its associative values. Attributes The Oliphant Building and the historic associations with key notable figures of the ANU who achieved remarkable research in the complex. There are also associations with architect Brian Lewis in the design of the Cockcroft Building, Geophysics Building and Oliphant Building.
(i) Indigenous The place has significant heritage value because of the place's importance as part of Indigenous tradition.	The RSPE does not meet CHL criterion (i) for Indigenous values.

Photographs

Figure 5: 1953 aerial of the Acton Campus, the former racecourse can be seen which is in the location of Lake Burley Griffin and Parkes Way. The RSPE (then RSPhysS) Buildings are on the left. (Source: ANU Archives)

Photographs

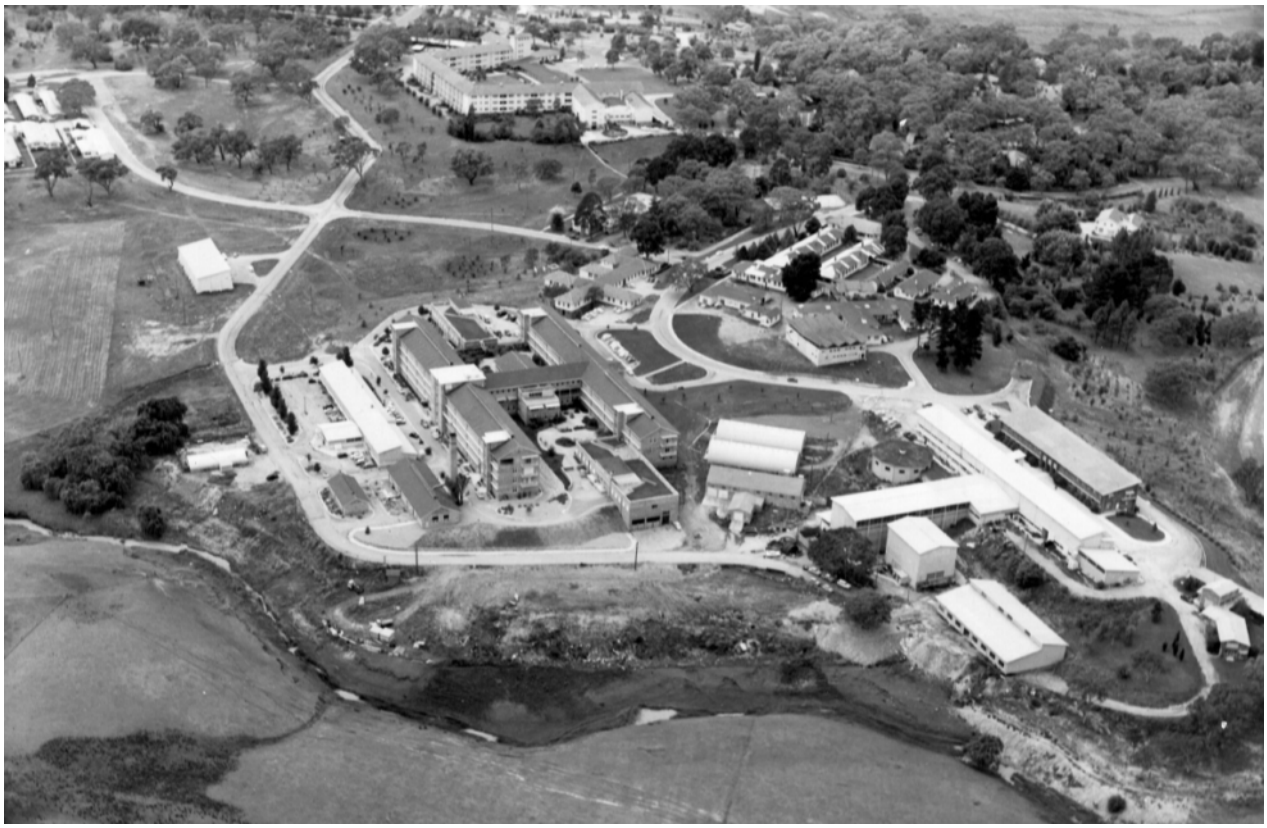

Figure 6: January 1960 aerial view of the RSPhysS (on the right) and John Curtin School of Medical Research (centre). Sullivan's Creek is in the foreground. (Source: ANU Archives)

Figure 7: 1963 view of the mathematical sciences building (Le Couteur Building (59) (Source: Trevor Ophel and John Jenkin 'Fire in the Belly' p49)

Figure 8: 1952 view from the race-course toward Research Buildings. (Source: Trevor Ophel and John Jenkin p13.)

Photographs

Figure 9: Prime Minister Menzies at the opening of the Cockcroft Building in 1952. (Source: NAA 11223135)

Figure 10: Sir Marcus Oliphant outside the RSPhysS in 1955. (Source: http://www.science.org.au/fellows/memoirs/oliphant.html)

Figure 11: View of the Cockcroft Building (58). The link building (58D) is visible on the left and the 14UD Tower behind. (Source: GML 2011)

Figure 12: Remnant of the Homopolar Generator outside the RSPE. (Source: GML 2011)

Photographs

Figure 13: The 14UD Tower is a dominant feature of the Acton campus, as it is higher than the tree canopy which is unusual for the buildings on campus. (Source: GML 2011)

Figure 14: View over Lake Burley Griffin from the RSPE. (Source: GML 2011)

Figure 15: Geophysics Building (84) on completion of construction. (Source: ANU Archives)

Figure 16: Geophysics Building (84) with extensions, 1955 (Source: ACT Heritage Library)

Management Issues

Constraints and Opportunities

Constraints arise from the identified heritage values of the RSPE and the requirement under the *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* (EPBC Act) to conserve them. The significant attributes of the RSPE, as indicated in the attributes above, should be conserved wherever possible through effective heritage management and interpretation and compliance with the relevant legislation.

Individual buildings within the group require further research and analysis of their potential heritage values. In particular specific management guidance is needed for individual buildings to guide conservation, adaptive re-use and interpretation.

There are information constraints in determining the full heritage values of the RSPE. These should be addressed to confirm potential heritage values.

The Tolerance for Change heritage management tool, outlined in Section 7.6 of the ANU Action Campus Heritage Study 2012, will assist in conserving heritage values at the RSPE through a process of change. Generally, the buildings will be able to tolerate a moderate to reasonable level of change.

Opportunities arise from the identified heritage values of the RSPE. Opportunities exist for further research and analysis to fully determine potential heritage values. Interpretation will enable the University's communities, visitors and public to understand and celebrate the many stories of the ANU, its history, its heritage places and its remarkable legacies.

The buildings within and adjacent to the RSPE complex of buildings that are not fully discussed in this inventory sheet require heritage assessments to be undertaken and the findings considered for a future heritage management plan for the precinct.

Recommendations

The RSPE Buildings

The RSPE is of high heritage values and meets the EPBC Commonwealth Heritage criterion a) historic and h) associative. Elements of 'high' heritage value embody Commonwealth Heritage values in their own right and make a significant contribution to the values of the Acton campus as a whole. In this case, the RSPE buildings (58, 59 and 60) require a management plan to be prepared. Elements of high heritage value should be retained and conserved. They require a high level of care in their management and the tolerance for change is generally low or able to tolerate some change and adaptive reuse. Loss or unsympathetic alteration would diminish the Commonwealth Heritage values of an individual element and the campus as a whole.

Other Buildings in the Complex

A heritage management plan for the precinct of buildings, which takes into account the heritage values of the group and the larger precinct area, should be developed.

Generally for the Complex

If development resulting in loss of significant fabric is proposed, interpretation and a heritage impact assessment would be a prerequisite according to EPBC Act requirements.

Photographic recording for the ANU archives should be undertaken prior to any potential loss of significant fabric, buildings or landscaping in any future development.