EXECUTIVE SUMMARY

Purpose
The primary purpose of the Kioloa Coastal Campus Master Plan 2030 (KCC MP 2030) is to guide the evolution of the Australian National University’s (the University or ANU) “campus in the forest by the beach”. The intention is to provide a unique environment that staff, students and collaborators will seek out as a place where they can focus on the development of new ideas and knowledge through dialogue, reflection and research.

The Master Plan was prepared by LociGenesis in collaboration with Fresh Landscape Design. It is based on consultation with existing users, ANU Executive and ANU Facilities and Services (ANU F&S), the Kioloa Advisory Board (KAB), the Edith and Joy London Foundation (EJLF), and the Shoalhaven City Council (SCC), as well as information provided by the University on the site conditions and assets.

The KCC MP 2030
• Guides ongoing development and maintenance of the physical environment of the campus,
• Responds to the obligations established in the Deed gifting the land to the University (The Gift),
• Responds to the themes of University’s Strategic Plan
• Responds to the University’s ambition for the campus to be an internationally recognised venue for collaboration on leading research and educational projects,
• Provides planning guidelines that create a rationale and structure for future development, and
• Proposes improvement of the functionality of the campus through enhancing the communal facilities, legibility and ease of arrival and orientation and accommodation quality.
• Proposes a more proactive engagement with the ANU Reconciliation Action Plan (RAP).

The Master Plan will be reviewed on a maximum 5 yearly cycle to ensure its continuing relevance as the University and KCC develop.

Vision
The ANU Kioloa Coastal Campus (KCC) is a place for intellectual collaboration in a beautiful Australian environment to nurture innovation and thought leadership. The KCC allows academics, students and staff at ANU and an international community of leading researchers and scholars to temporarily free themselves from everyday demands and activities to achieve more. With access to the resources of the University, this retreat provides a collegiate venue for focussed academic work augmented by the opportunity for informal social interaction to build relationships between people, disciplines and spheres of knowledge.

Existing Conditions
The campus is a 348ha property located between the New South Wales coastal townships of Bawley Point and Kioloa. Gifted to the University in 1975 by Joy London the development and use of KCC is governed by the Deed that requires the land to be used for University purposes including teaching and research.

There are a wide range of activities occurring at varying levels of frequency and intensity run by the ANU Colleges, Research Schools and Centres, external organisations working with schools, external institutions, partner organisations and community groups.

Support for usage of the site as part of the development of the University teaching and research program is variable between Colleges and highly dependent on individual academics and staff with personal knowledge of the site. The undergraduate groups on campus are currently seen as providing the strongest links into the academic program of the University. Those who use the campus value it very highly as a unique resource within the University.

Two key values of the KCC articulated by a wide range of stakeholders are the intimacy derived from having regulated access of people, allowing unstructured interactions and the relaxed and informal beach / landscape experience.

Activity organisers would benefit from significant improvements in the booking system, packaging of catering, accommodation and technical support to suit a range of groups, the logistics of arrival and orientation for their attendees, the amenity of the
communal facilities and consistency in comfort of the accommodation.

The communal kitchen and dining facilities are not satisfactory due to poor acoustics, unsuitable layout and size of rooms and lack of protected external gathering spaces. In their current condition they have a negative impact on the function and perception of the campus.

A number of potential ANU users are taking up packages provided by competing venues that enable organisers to focus on the activity content but do not have the same association with the ANU culture and environment.

Current Opportunities

The campus is a unique asset of the ANU, having the potential for development into an internationally recognised centre for researchers to gather together to work on complex problems, and as a distinctive place to create a unique academic experience for ANU academics and students in a quintessentially Australian coastal setting.

The history of research on the site, its preservation as a predominantly landscape environment containing evidence of the history of human habitation, and modifications made to the environment over time create the potential for long term studies into complex problems such as climate change and sustainable land management.

The KCC is currently underutilised. Investment in the site to improve the existing facilities and operation would significantly enhance its attractiveness for program organisers if combined with development of accommodation / catering / venue packages and integration into the academic and pastoral programs of the ANU’s Colleges, Research Schools and Centres.

Drivers of Change

The primary drivers for further development of the KCC are:

- Structuring the campus to accommodate concurrent use by diverse groups undertaking a range of activities,
- Provision of a full complement of facilities at a standard required to support University programs,
- Replacement and upgrading of existing facilities that are no longer fit for purpose or compromise visitor amenity, and
- Improvement of the visitor arrival and orientation experience.

Strategic Planning Framework

KCC MP 2030 identifies future values, planning objectives and planning principles around the following key themes.

Theme 1 Academic Intent
Theme 2 Campus Structure
Theme 3 Functional Elements
Theme 4 Built Form
Theme 5 Heritage
Theme 6 Landscape
Theme 7 Transport and Movement
Theme 8 Infrastructure
Theme 9 A living campus

All aspects of the campus master planning, development and management can contribute to an exemplary holistic approach to the long term sustainability of the KCC and protection of its environment and this has been considered in the development of each theme.

Key Initiatives

Through the consultation process a number of key initiatives have been identified that would support increased use of KCC for a curated program of field work, academic retreats and international research projects and workshops.

The central area of the campus could sustain an increased level of development and be expanded with limited impact on the adjoining landscape.

This Master Plan proposes growth in numbers accommodated in on-site residential programs by up to 50 percent. This requires a modest level of development but would accommodate larger groups and enable a range of smaller groups to be on site concurrently.

Refer to Figure 4 2030 ANU KCC Master Plan
The Campus Core

The Campus Core is the focus for visitor activity on the site and the location of most facilities. It is here that there is the greatest opportunity to enhance the amenity and operation of the KCC.

Key initiatives proposed in the Campus Core are:

- Replacement of the existing meeting / dining facilities with two new communal facilities that provide a high level of amenity to enable them to function as multipurpose hubs for programmed activities, dining and social interaction.
- Creation of an all-weather pedestrian circulation spine to separate people moving around the campus on foot from vehicle traffic and link all facilities.
- Creation of an expanded accommodation zone north of the Avenue. By locating the new accommodation north of the pedestrian spine the original settlement structure that is a feature of the existing campus would remain legible and new facilities would have northerly outlook and orientation. Combined with progressive upgrading or replacement of the existing campus accommodation as required, this would expand the accommodation capacity on the site and achieve a consistent level of amenity for use throughout the year.
- Creation of a new purpose built central office would improve staff conditions and accessibility of administrative support for visitors.
- Creation of a reception facility near the campus entry and improved wayfinding would significantly enhance the arrival, and orientation.
- Upgrading the landscape to provide sheltered outdoor gathering places for both programmed and informal use.
- Establishment of a comprehensive record of site service infrastructure as a basis for future rationalisation and expansion to provide increased capacity as required to sustainably develop the campus.

Land Management

Retention of the property in a largely “natural” state would preserve its value as a research asset and is consistent with the intent of the Deed. Land management of the forest, clearings and waterways is a significant ongoing obligation.

Key initiatives proposed with regard to land management are:

- Establishment of a land management program linked to research programs within the ANU Colleges and partner institutions demonstrating excellence in coastal land management, conservation and protection of endangered ecological communities.
- Establishment through on-site field work of the extent and status of the endangered ecological communities and threatened species habitat and the embedding of strategies for their protection in the land management and outreach programs.
- Establishment and resourcing of a holistic program of land management that achieves bushfire protection of the campus and its facilities whilst protecting and enhancing the biodiversity of the landscape.

Implementation

The nearby towns provide a wide range of accommodation on a commercial basis. By concurrently building links to these resources, the ANU could stage development of the site to enable an early focus on replacement of the communal hubs.

A progressive upgrading and expansion of the on-site accommodation could follow as demand emerges based on a curated program of use.

In the longer term, ongoing use of commercial accommodation and services, such as catering, sourced in the nearby towns would provide a benefit to the local community and enable the campus to draw on this extended capacity and flexibility as needed to run a growing diverse program of activity.

Critical to the future of the campus is a sustained commitment to the use of the campus by the ANU at a level that supports the required investment to maintain exemplary stewardship of The Gift.
INTRODUCTION

Purpose

The primary purpose of the Kioloa Coastal Campus Master Plan 2030 (KCC MP 2030) is to guide the evolution of the Australian National University’s (the University or ANU) “campus in the forest by the beach”. The intention is to provide a unique environment that staff, students and collaborators will seek out as a place where they can focus on the development of new ideas and knowledge through dialogue, reflection and research.

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The KCC MP 2030

• Guides ongoing development and maintenance of the physical environment of the campus,
• Responds to the obligations established in the Deed gifting the land to the University (The Gift),
• Responds to the themes of University’s Strategic Plan
• Responds to the University’s ambition for the campus to be an internationally recognised venue for collaboration on leading research and educational projects,
• Provides planning guidelines that create a rationale, cohesion and structure for future development, and
• Proposes improvement of the functionality of the campus through enhancing the communal facilities, legibility and ease of arrival and orientation and accommodation quality.
• Proposes a more proactive engagement with the ANU Reconciliation Action Plan (RAP).

The Master Plan will be reviewed on a maximum 5 yearly cycle to ensure its continuing relevance as the University and campus develop.

Vision

The ANU Kioloa Coastal Campus (KCC) is a place for intellectual collaboration in a beautiful Australian environment to nurture innovation and thought leadership. The KCC allows academics, students and staff at ANU and an international community of leading researchers and scholars to temporarily free themselves from everyday demands and activities to achieve more. With access to the resources of the ANU, this retreat provides a collegiate venue for focussed academic work augmented by the opportunity for informal, social interaction to build relationships between people, disciplines and spheres of knowledge.

ANU’s Strategic Themes

Strategic Theme 1: Building on a Culture of Academic excellence

Research, Innovation and Research Training

The KCC provides a collegiate venue, both close enough to and far enough from the Acton Campus (185 kilometres), for groups of academics and students to break the routine of the everyday to immerse themselves in short term, focussed transformative programs and projects.

The campus itself is a resource for ongoing research projects in physical, biological and social sciences. For undergraduates the preservation of the site and its heritage support field work that opens minds to the diversity and interconnectedness of the natural and human world and how to better understand it. For leading researchers in various fields the longevity of data sets available and a singular site transecting diverse ecological communities from the escarpment to the coast provide a valuable basis for long term research.

Research based on the property and coordinated with the ongoing sustainable land management requirements of the campus can provide national leadership in coastal land management practices.

Education

The campus, as a fully supported retreat with access to the academic resources of the University and a diverse range of venues and activities, provides a...
collegiate meeting place where cohorts of students from a mixture of disciplines can participate in innovative, collaborative teaching activities which:

- Hot house development of skills and confidence while overcoming isolation and promoting resilience through integration into the broader academic community,
- Deliver cross disciplinary projects and courses tackling complex problems (e.g. Vice Chancellor’s courses, international workshops)
- Test new educational processes.

Strategic Theme 2: Delivering on our Unique National Responsibilities

Transforming Society

The KCC provides a uniquely attractive and intimate Australian locale for international and national collaboration with key partners, such as the International Alliance of Research Universities (IARU) and other institutions, to tackle complex global problems and issues.

The readily accessible regional location of the campus extends ANU’s capacity for outreach – opening doors to knowledge and opportunity and creating support networks in the broader community.

Indigenous Reconciliation

The KCC is a unique University venue in a landscape environment replete with evidence of Indigenous habitation. It has a documented history of at least 20,000 years of inhabitation and a number of listed Indigenous sites form a distinctive part of its heritage and a valuable resource for ongoing research and cultural experiences.

As members of the ANU community, Indigenous academics and students are able to access the campus facilities as they develop themselves and their disciplines through the wide range of programs and courses run by ANU Colleges, Research Schools and Centres.

ANU is a national institution and its campuses encompass landscapes inhabited by Indigenous peoples of several language groups. KCC is a place in which “Welcome to Country” mentoring and orientation retreats for first year cohorts of Indigenous students could be created in addition to the above opportunities.

As a venue for international workshops the campus provides a highly appropriate place to bring together academics from the world’s leading Indigenous research universities.
Strategic Theme 4: Building a Culture of Collegiality and Engagement - Across and Beyond ANU

The campus is a uniquely Australian coastal retreat fit for the creation of an international centre that draws leaders in various fields from the ANU and around the globe to workshops promoting peer to peer collaboration to cross pollinate, push and test emerging ideas.

The KCC is a venue for mentoring programs that develop leadership skills and culture in students and academics.

The campus is neutral ground – a place where capacity for cultural behaviour enabling cross disciplinary collaboration and dialogue can be fostered in undergraduate and postgraduate students, emerging and early career academics and international thought leaders.

Strategic Theme 5: Creating an Unrivalled Campus Environment

KCC is a unique and beautiful environment that provides a distinctive educational and research experience. The setting, with its access to the forest and beach, helps to create an intensely focussed, but relaxed, collegiate environment. By enhancing the structure of the campus and updating and upgrading its facilities it could be transformed into a globally recognised centre for excellence in collaborative research and academic development.

Context

The Locale

The campus is a 348 ha property located between the coastal townships of Bawley Point and Kioloa. Bawley Point has a resident population of 565 people and Kioloa has a resident population of approximately 200 people. Tourism is one of the primary sources of income for the area and both towns contain campgrounds and other accommodation for visitors who come to the area primarily in the summer. During summer the population expands significantly due to the presence of regional, interstate and international visitors.

The campus extends from above the mean high tide mark on the beach forming its eastern boundary, to the foothills of the Murraramang Range and Murraramang National Park to the west. To the north it is bounded by private land holdings and the SCC Kioloa Waste Depot and Mens’ Shed. To the south

Figure 2 ANU Kioloa Coastal Campus Location
is the Murraramarang National Park, a small area of private land holdings and crown land at the edge of a lagoon, the entrance of which is located at the southern end of the beach.

History of Campus Development

Early History of the Property

There is documented evidence of inhabitation of the campus locale dating back 20,000 years. The site falls within the boundary of the Yuin language group and near the boundary of the Dhurga language group. The Murraramarang people are still present in region and a number have ongoing connections to the campus.

The settlement of the land by people of European origin commenced in the 1830’s following surveys of the area in the preceding years. Over time the landscape was modified to suite forestry and agricultural activities. The settlement created on the KCC property comprised a cleared pasture area, a main homestead, cottages tenanted to workers, surrounding outhouses and roads providing access to the forest areas. The homestead became a centre for communication as the Post Office for the growing local community.

The London family held the property from 1929 to 1975 when Joy London decided to protect the property from subdivision and development as a coastal resort by gifting it to the University for the purposes of research. The Deed (refer Section 1.6) includes an obligation to maintain the property largely as it was handed over, subject to the need to modify it support the University’s activities.

History of Campus Development

Since 1975 there have been several buildings added to the campus to provide accommodation, communal facilities and, most recently, a dedicated venue for teaching meetings and events. Since 2007 this development has been guided by a Master Plan setting out development principles for a central area adjoining the original settlement.

Resourcing of KCC’s development has been ad hoc and sporadic as funding, volunteer and in kind resources have become available resulting in an inconsistent quality in the functional elements required for the operation of the campus. Over the last 20 years development has been highly dependent on the efforts of the on-site Campus Manager supported by the Kioloa Management Committee and the succeeding KAB and EJLF. ANU F&S have provided support to delivery projects and operate the campus.

Today the campus is a valued resource to a limited cohort of the ANU community. The variability in the quality of campus facilities, and the operational legacy of a period of limited access to broader ANU support systems, has compromised the operation of the campus and its capacity to build awareness and support across the ANU.

Current Opportunities

The campus is a unique asset of the University, having the potential for development into an internationally recognised centre for researchers to gather together to work on complex problems, and as a distinctive place to create a unique academic experience for ANU academics and students in a quintessentially Australian coastal setting.

The history of research on the site, its preservation as a predominantly landscape environment containing evidence of the history of human habitation, and modifications made to the environment over time create the potential for long term studies into complex problems such as climate change and sustainable land management.

The KCC is currently underutilised. Investment in the site to improve the existing facilities and operation would significantly enhance its attractiveness for program organisers if combined with development of accommodation / catering / venue packages and integration into the academic and pastoral programs of the University Colleges, Research Schools and Centres.

The Deed

Gifted to the University in 1975 by Joy London the development and use of KCC is governed by the Deed. The Deed records the donation of the land to be used for

“...University purposes which shall include student instruction in a number of disciplines, experiments and long term research projects in geology, forestry, botany, marine biology, zoology, geography, pre-history, farming and associated scientific studies from time to time decided upon by the donee.”

It also records the University’s agreement to:

“...so far as it is competent to do so to preserve the land in its entirety in its natural and present state as far as possible consistent with using it for the University purposes as referred to above and shall not unnecessarily subdivide or develop it other than for University purposes. Such development is to be carried out with a view to maintain as far as practical its sense of simple natural environment.”

12 INTRODUCTION
Governance

KCC is one of the University’s named Foundations under the Board of Governors.

Since the initial donation of the campus to the University the governance structure for the campus has evolved from the initial Campus Management Committee to encompass more structured groups with clear delegations as shown in Figure 3 KCC 2016 Governance Structure.

The position of KCC Program Manager has existed historically but is currently not funded. A KCC program manager who coordinates the outreach, workshop and academic programs in conjunction with packaging accommodation and catering to support activity organisers will be important to the promotion of the campus and its level of use.

Statutory Planning Context

The local statutory planning authority is the Shoalhaven City Council. Except where provisions are made under a State Environmental Planning Policy (SEPP) the Shoalhaven Local Environment Plan (SLEP) sets the conditions for development.

The land west of Murramarang Road is zoned RU1 and several land uses are regulated under SEPP (Infrastructure) 2007 for this zone. To the east of Murramarang Road is zoned E3 Environmental Management. Murramarang Road is zoned SP2 Infrastructure.

In addition to these zones the SLEP maps show:

- The whole campus is classed as Heritage - General although it should be noted that only the homestead is identified as having local heritage significance,
- The whole campus is classed as a Biodiversity – Habitat Corridor,
- Butlers Creek and the upper reaches of Prossers Creek are a Watercourse Category 2, the lower section of Prossers Creek running through the cleared area is Watercourse Category 3 and Butlers Lagoon is recorded as a Sensitive Area – Water, and
- The extent of acid sulphate soils.

Drivers of Change

The primary drivers for further development of the KCC are:

- Enhancement of the connection between the use of the campus and the academic purpose of the ANU,
- Expansion of the campus program to create a centre for international level academic workshops and courses with a reputation for the pursuit of excellence in research,
- Development of a sustainable pattern of use and land management to protect the ongoing value of The Gift and the campus environment into the future.
- Structuring the campus to accommodate concurrent use by diverse groups undertaking a range of activities,
• Provision of a full complement of facilities at a
  standard required to support University programs,
• Replacement and upgrading of existing facilities
  that are no longer fit for purpose or compromise
  visitor amenity, and
• Improvement of the visitor arrival and orientation
  experience.

**Strategic Planning Framework**

KCC MP 2030 identifies future values, planning objectives and planning principles around the following key themes.

**Theme 1 Academic Intent**
The Deed requires the use of the campus for research and education purposes by the University.

**Theme 2 Campus Structure**
Campus Structure describes the major ordering of the physical and planning components of the site and defines the underlying framework and character.

**Theme 3 Functional Elements**
Functional Elements describes the primary buildings and landscape structure for recreational, operational and research use. They define what occurs within the campus and where.

**Theme 4 Built Form**
Built Form describes the architectural and spatial design qualities of the campus as well as defining the overall character of the campus established through the design of its building and spaces.

**Theme 5 Heritage**
Heritage describes heritage values of the campus that enable the creation of connections with the past to inform its evolution to meet the aspirations of the present whilst protecting the value of The Gift.

**Theme 6 Landscape**
Landscape defines the visual and ecological qualities of the campus that are a key resource for research programs as well as a setting for recreational activities.

**Theme 7 Transport and Movement**
Under Transport and Movement pedestrian, recreational cyclist and vehicle movement paths are considered along with path networks and access roads.

**Theme 8 Infrastructure**
Infrastructure using sustainable, efficient methods of providing services to the site is the focus of this theme.

**Theme 9 A Living Campus**
Living Campus addresses the operational and social aspects of the campus that support its use as a teaching and research centre.

All aspects of the campus master planning, development and management can contribute to an exemplary holistic approach to the long term sustainability of the KCC and protection of its environment and this has been considered in the development of each theme.

**Key Initiatives**

Through the consultation process a number of key initiatives have been identified that would support increased use of KCC for a curated program of field work, academic retreats and international research projects and workshops.

The central area of the campus could sustain an increased level of development and be expanded with limited impact on the adjoining landscape.

This Master Plan proposes sustainable growth in numbers accommodated in on-site residential programs by up to 50 percent. This requires a modest level of development but would accommodate larger groups and enable a range of smaller groups to be on site concurrently.

Refer to Figure 4 2030 ANU KCC Master Plan.

**The Campus Core**

The Campus Core is the focus for visitor activity on the site and the location of most facilities. The greatest opportunity to enhance the amenity and operation of the KCC exists in the Campus Core.

Key initiatives proposed in the Campus Core are:

• Replacement of the existing meeting / dining facilities with new communal facilities that provide a high level of amenity to enable them to function as multipurpose hubs for programmed activities, dining and social interaction.
• Creation of an all-weather pedestrian circulation spine to separate people moving around the campus on foot from vehicle traffic and link all facilities.
Figure 4 2030 ANU KCC Master Plan
• Creation of an expanded accommodation zone north of the Avenue. By locating the new accommodation north of the pedestrian spine the original settlement structure that is a feature of the existing campus would remain legible and new facilities would have northerly outlook and orientation. Combined with progressive upgrading or replacement of the existing campus accommodation as required, this would expand the accommodation capacity and achieve a consistent level of amenity for use throughout the year.

• Creation of a new purpose built central office would improve staff conditions and accessibility of administrative support for visitors.

• Creation of a reception facility near the campus entry and improved wayfinding and interpretive signage would significantly enhance the arrival experience and orientation of external visitors.

• Upgrading the landscape to provide sheltered outdoor gathering places for both programmed and informal use.

• Establishment of a comprehensive record of site service infrastructure as a basis for future rationalisation and expansion to provide increased capacity as required to sustainably develop the campus.

**Land Management**

Retention of the property in a largely “natural” state would preserve its value as a research asset and is consistent with the intent of the Deed. Land management of the forest, clearings and waterways is a significant ongoing obligation.

Key initiatives proposed with regard to land management are:

• Establishment of a land management program linked to research programs within the ANU Colleges and partner institutions demonstrating excellence in coastal land management, conservation and protection of endangered ecological communities.

• Establishment through on-site field work of the extent and status of the endangered ecological communities and threatened species habitat and the embedding of strategies for their protection in the land management and outreach programs.

• Establishment and resourcing of a holistic program of land management that achieves bushfire protection of the campus and its facilities whilst protecting and enhancing the biodiversity of the landscape.

**Implementation**

The nearby towns provide a wide range of accommodation on a commercial basis. By concurrently building links to these resources, the University could stage development of the site to enable an early focus on replacement of the communal hubs.

A progressive upgrading and expansion of the on-site accommodation could follow as demand emerges based on a curated program of use.

In the longer term, ongoing use of commercial accommodation and services, such as catering, sourced in the nearby towns would provide a benefit to the local community and enable the campus to draw on this extended capacity and flexibility as needed to run a growing diverse program of activity.

Critical to KCC’s future is a sustained commitment to the use of the campus by the University at a level that supports the required investment to maintain exemplary stewardship of The Gift.
Figure 5 The lagoon on the beach

Figure 6 The diverse forest understorey
THEME 1 ACADEMIC INTENT

2016 Condition

The use of the site has grown to 33% of capacity driven by a program of diversification of user groups. While this usage rate is comparable with local tourist accommodation, increased research activities should see higher use.

Within the University the core user groups are researchers and academics for whom the assets of the site are viewed as a valuable resource for teaching and research, and groups of students (undergraduate and post graduate) engaged in a range of writing, training and mentoring programs. Support for usage of the site as part of the development of the University teaching and research program is variable between Colleges and highly dependent on individual academics and staff with personal knowledge of the site.

There are a wide range of activities occurring at varying levels of frequency and intensity run by the ANU Colleges, Research Schools and Centres, external organisations working with schools, external institutions, partner organisations and community groups.

For all of these activities KCC represents an out of the ordinary experience – a place where the day to day concerns do not impinge, where contemporary teaching facilities, the natural beauty of the site and the shared accommodation, dining and activity allow both focussed concentration and building of interpersonal connections and networks.

However, for organisers there are issues with the booking system, the logistics of arrival and orientation for their groups, the variability in comfort of the accommodation and the amenity of the communal facilities.

For the site managers, the lack of continuity of commitment from user groups is an issue.

Undergraduate Usage

The undergraduate groups on campus are currently seen as providing the strongest links into the academic program of the University through:

- Undergraduate mentoring and training activities related to leadership and engagement in the pastoral activities both on campus and beyond,
- Undergraduate orientation and social activities building peer to peer support bonding within various cohorts to ground them for experience of the main campus, and
- Undergraduate course field work utilising the research assets of the campus and its locale.

Alternate venues are also being used by various University groups for all of these activities. They do not have all the assets of KCC but are often packaged to alleviate the need for engagement in catering and venue organisation by event organisers.

International Workshops

International workshops / courses have been occurring driven by individual academics with a knowledge of the assets at KCC. There is a low level of uptake at present for this type of activity and the venue facilities and operations need enhancing to make it more attractive for University and International academics.

There are a number of international institutes that have been cited as benchmarks for this kind of facility including Aspen Centre for Physics in the United States and Les Houches School of Theoretical Physics in France. In these centres venue and operational support are marketed as a defined package(s) that workshop organisers can interface with easily. This approach, combined with appropriate physical infrastructure, makes management of visitor arrival and orientation, arrangement of supplementary off-site accommodation, service supply and efficient running of on-site programs of activity easy to achieve.

Higher Degree by Research (HDR)

HDR related field work is not currently occurring other than in the context of courses.

Post graduate retreats to undertake writing workshops allow total focus and break the isolation of the individual pursuit. These retreats have been running for several years and there is a significant level of demand for support programs from HDR students. Competing venues offer packages that enable organisers to focus on the content but do not have the same association with the University culture and environment.
Values to 2030

The University’s commitment to use of the site underpins KCC’s long term viability and ongoing stewardship of the gifted property.

A retreat from day to day demands to focus on creation of new knowledge and skills.

A collegiate place which, as neutral ground, provides an environment for innovation where academics from diverse disciplines can meet to develop and share ideas.

A campus with environmental integrity maintained over a period of decades and its associated historic and current curated data sets provides a base for development of ongoing research programs of national and international significance.

Planning Objectives

KCC provides a renowned venue for leading international and national strategic thinkers to develop world class research through reflection and collaboration with their peers.

The research value of the KCC is enhanced through identification and protection of the natural and heritage site assets that provide the resources that underpin use of the site for research programs.

Full access is provided to University resources required to enable a diverse range of research and educational activities that enhance the University’s international recognition as a centre of academic excellence.

KCC provides a unique resource and venue actively used by all Colleges to meet the academic and pastoral goals of the University.

Planning Principles

The facilities provided on the campus attract and encourage Colleges to run unique programs that support the achievement of the academic and pastoral goals of the University.

Research facilities are provided at a standard consistent with those on Acton campus and designed and equipped to enable use by a diverse range of field work programs.

Campus development enables flexibility to accommodate a range of concurrent groups to maximise use of the site.

Figure 7 View from Nundera Point to Avenue Beach and the Coastal Forest
THEME 2 CAMPUS STRUCTURE

2016 Condition

Structural Elements
The four principal biodiversity and landscape zones set the overall character and structure of the campus.

Coastal Forest Zone
The Coastal Forest is a coastal dune and lagoon area to the east and west of Murramarang Road including vulnerable or endangered ecological communities. The property boundary is 30.5 metres above the mean high tide level and excludes Butlers Lagoon. Below this level there is public beach accessed from a council carpark east of Murramarang Road and a publicly accessible track across Nundera Point. This zone is therefore subject to a high level of uncontrolled access by the public.

Forest Zone
A forested area rising from the Paddocks up to the escarpment near the boundary with Murrumarang National Park.

The Paddocks
The Paddocks comprises two cleared areas west of Murramarang. To the north of The Avenue is the Prossers Creek Paddock within which are located waste treatment and water collection areas and a community garden. To the south of The Avenue is the Butlers Creek Paddock. At present the kangaroo proof fence boundary to the Paddocks encroaches on forest areas.

Campus Core
The 2007 Master Plan defined a development area on the ridge between the two creeks where the main access road and most buildings are located. This has been fenced and additional facilities constructed resulting in a distinct accommodation and activity zone separating the Paddocks. This forms the existing Campus Core which is the focus for visitor activity.

N.B. The Paddocks and the Campus Core were previously identified as the Agricultural Zone in the reports on KCC biodiversity prepared by Judith Caton.

Figure 8 The forest on Moores Road
Three key roads form the remaining structural elements. They are:

Murrarang Road, a public road transecting the site from north to south parallel to the beach at the rear of the dunes, separating the Coastal Forest Zone from the rest of the campus.

The Avenue, the road located on a ridge of land between Butler’s and Prosser’s Creek pasture areas is the primary organising vehicular access spine.

Moores Road, a 4WD road providing controlled access to the forested areas of the site from the western end of The Avenue.

Opportunities and Constraints
Sustainable expansion of the existing Campus Core would enable provision of additional accommodation and facilities on the campus. Water supply, energy and sewerage disposal are key constraints to growth.

Values to 2030
Consistent with The Deed the campus is retained in single ownership by the University.

Consistent with the Deed the campus land use pattern is substantially retained and the biodiversity and heritage value of the site is protected.

Planning Objectives
The campus structure expresses the history of the site whilst providing flexibility for increased usage as an extension of the Acton Campus and location for high level international research workshops.

The Campus Core is extended to provide sufficient area to allow for supplementary facilities required to support expanded usage aligned with University teaching and research mandates within an open landscape setting.

Figure 9 The fire pit in front of Nix Cottage in the Campus Core
Planning Principles

Refer to Figure 10 2030 ANU KCC Campus Structure.

The Campus Core housing all facilities required by visitors to the site is located in a defined area flanking The Avenue with accommodation areas extending to the north.

The Coastal Forest Zone’s primary purpose is conservation of biodiversity, vulnerable and endangered ecological communities, and listed heritage sites along with associated research and field work training. Limited infrastructure is provided to manage visitor access and display interpretive material.

The Paddocks are defined by perimeter vegetation and the Campus Core boundary. Management of this area is to provide a strategic fire advantage zone around the Campus Core development and infrastructure and environmental site services associated with waste treatment, water supply collection, water quality protection and energy generation.

The Forest Zone is a conservation and research zone that can be developed to provide core infrastructure to the site such as a communications tower and low impact recreational access and facilities, provided that the research and biodiversity values are maintained and any impacts on these values and associated uses are mitigated.

The beach and Murramarang Road frontages are managed as the key public interfaces between the campus and the local community and transient / seasonal visitors.

The Avenue is reinforced as the vehicular access spine servicing the developed area of the site.

A pathway spine located north of the Avenue provides pedestrian access to all facilities.

Moores Road provides controlled access to the forested areas of the site from the western end of The Avenue.
Figure 10 2030 ANU KCC Campus Structure
THEME 3 FUNCTIONAL ELEMENTS

2016 Condition

The key functional elements of the KCC in 2016 as shown on Figure 11 2016 Distribution of Uses comprise:

- Visitor accommodation located along the northern edge of the Avenue which provides vehicular access to adjacent parking. The accommodation format ranges from bunkhouses with limited space to twin share rooms within cottages containing individual workstations.
- The publicly accessible London Shed which is the primary venue for meetings and events on site and is located off a public carpark adjacent to the road and accessed from Murraramang Road. Its main lecture room accommodates 150 people.
- Visitor amenities / dining facility buildings located at the eastern and western ends of the visitor accommodation area in the “Mess” and Walkers Cottage. These have commercial kitchens most suitable for use by caterers or supervised groups rather than allowing individuals to cater for themselves. These communal facilities are not satisfactory for use by large groups due to poor acoustics and layout and size of their rooms. Neither have substantial protected external verandas which limits their amenity and capacity to be used flexibly for social gatherings. Walker Cottage is also used for campus housekeeping operational activities for which it is not designed.
- A central field work laboratory. This facility has developed on an ad hoc basis over time driven by specific research projects and associated donations of equipment. It is not consistent with the quality of current facilities on the Acton campus.
- The administrative area at the western end of the avenue comprising the Joy London Homestead and garden (the current site manager’s residence and the office), the machinery workshop and the works depot and storage.

The landscape of the campus is itself also provides key functions:

- The whole site provides a range of interpretive experiences and natural resources used extensively in teaching, research and outreach activity on the site,
- Social gathering places within and the setting for the Campus Core,
- The beach area provides a significant recreational opportunity for visitors to the campus and the public for whom access is provided by a public carpark east of Murramarang Road on an area of land ceded to the SCC for this purpose, and
- A community garden for the local Bawley Point / Kioloa communities in the Prossers Creek Clearing.
- The key functional elements of the site are largely contained within the existing Campus Core. The current distribution of amenities and accommodation facilitates use of the site by concurrent groups. It can be nominally organised as an upper and lower campus each focussed on a separate dining / meeting facility.

The arrival and address point for on-site visitors requires visitors to enter a private residence at the westernmost end of The Avenue where there is no clear parking provision. The location of the office in the residence and lack of dedicated staff amenities has been identified as a problem in the Business Health Check report.

Opportunities and Constraints

A clear arrival and orientation point for visitors, especially those staying on site, is required and would ideally be located in the campus entry area.

Improvement on staff amenity and a central location for visitor support would be achieved by provision of a central office and staff amenities facility located within the shared resources or campus entry areas. This would also provide a location for visitor support and separate the workplace from the site manager’s accommodation.

The communal dining / meeting facilities are social hubs for visiting groups both for intra and inter group social activities and for smaller group workshops and meetings. Their compromised function is reported to have a negative impact on perceptions of the site as a suitable venue for workshop, educational and research activities. Upgrading these facilities to provide functional attractive spaces is a priority for the campus to fulfil its potential.

To support enhanced use of the campus for field research, improving the laboratory capacity and enhancing its flexibility for use by concurrent groups and research projects should be investigated.
Figure 11 2016 Distribution of Uses
Provision of purpose designed housekeeping facilities well located for servicing the accommodation would enhance operational efficiency.

Values to 2030
The campus functions effectively as a field station for undergraduate and graduate programs, a retreat for focussed academic work and a venue for research collaboration, workshops of international significance and cultural activities.

Planning Objectives
KCC is a fully resourced ANU campus providing the full range of facilities required to enable visitors to stay on the site and undertake workshops, research and teaching activities.

The functional elements of the campus are located to support concurrent use by separate groups for research projects, education and training, international academic workshops and public outreach programs.

Planning Principles
Refer to Figure 12 2030 ANU KCC Functional Elements.

A reception facility is provided within the campus entry area to provide an arrival and orientation point for visitors to the campus.

An office is co-located with shared facilities either in the campus entry zone or shared resource zone.

Visitor accommodation is located north of The Avenue in adapted heritage cottages and in new facilities located behind them.

The on-site accommodation is increased by up to 50% to provide for larger capacity workshops and orientation programs.

Public activity within the campus is focussed on the Murramarang Road frontage.

Accommodation facilities in the Campus Core zone are structured into an upper and lower area to facilitate flexibility in allocation to the diverse range and size of groups visiting the campus.

Each accommodation facilities area is linked to a communal meeting / dining facility to enable groups to undertake concurrent activities on the campus autonomously where required.

The London Shed is the venue for public events and international workshops. It also provides the principal meeting and teaching facilities on the site.

A new main communal and dining facility with a capacity for up to 150 people is provided in close proximity to the London Shed to form the main activity hub for ANU and visitor use of the site and to cater for public events.

A new communal and dining facility capable of functioning as a meeting room for 30 to 50 people, is provided in the upper accommodation area.

Building on an upgraded laboratory, shared support facilities in a central location in the Campus Core for ease of access by groups located in adjoining accommodation and to provide access for service and field work vehicles from The Avenue.

The service depot is located out of the accommodation zone, accessible from Moores Road.

It is managed to limit its visual impact and extent.
Figure 12 2030 ANU KCC Functional Elements
2016 Condition

The original settlement structure with former sawmill workers cottages located along the northern edge of The Avenue which terminates at the Kioloa Homestead creates a memorable image at the heart of the campus. The newer buildings are typically located to the area north of the Avenue behind the original settlement cottages.

With the exception of the London Shed, which houses the main lecture and seminar spaces, most buildings on the site are of single storey light weight construction with pitched metal roofs. The original London Homestead and cottages are weatherboard. A rather disparate group of buildings is given a level of cohesion through colour, material and roof form.

All of the buildings have a modesty of scale and simplicity of form suited to the coastal rural setting and the intimacy of the activities on the site.

The London Shed’s public scale, ochre coloured rendered straw bale walls and colonnades of timber columns sourced from the forest on the campus make it an architecturally distinctive building within the campus. Its location close to Murramarang Road to the north of the cottages along the Avenue gives it high visibility as the prime venue for events and outreach activities on the site whilst preserving the legibility of the original settlement for visitors arriving on the site.

The condition of the buildings is variable with a number in need of maintenance or replacement. The older buildings were not designed to incorporate ESD principles and are poorly insulated and sealed, with limited heating reportedly making them uncomfortable to use in winter.

The outbuildings of the property provide storage and workshop areas. Storage of materials and equipment is increasingly being managed by bringing shipping containers onto the site. Their advantage is that they are robust, secure and provide a high level of protection from damage by vermin or prevailing atmospheric conditions. However, they lack architectural quality and are not well located with regard to their impact on the presentation of the campus.

Opportunities and Constraints

Retention of the visual prominence of the original cottages on the Avenue is possible whilst opening up the site to alternate development patterns.

The location of The Avenue on the east west ridge creates the opportunity for buildings to be located to the north on a slope with a favourable aspect for passive solar design and outlook over the Prosser Creek Paddock.

Values to 2030

The campus is a centre of excellence in research and sustainability with high quality architecture that complements the relaxed coastal settlement character.

The architecture achieves a high level of functionality for research and educational activities and provides comfort for visitors in all seasons.

Planning Objectives

New building design and existing building refurbishment promotes and contributes to the long term sustainability of the campus through innovative ESD design.

The campus buildings are integrated into the landscape to create social places to foster collaboration and build a sense of community for groups visiting the site.

The facilities, while modest in character, are of a quality that supports excellence in research and teaching.
Figure 13 2030 ANU KCC Master Plan Campus Core
Planning Principles

The landscape character of the Campus Core is retained by limiting the footprint of new development through:

- progressive removal and replacement or adaption of buildings which are no longer suitable for their function and are not structures identified as having heritage value
- progressive adaptation of structures identified as having heritage value to make them suitable for use for ANU purposes. Adaptive reuse is to be considered prior to proposing infill to limit the requirement for new buildings
- use of smaller buildings sited within a landscape setting

New buildings enhance the social spaces of the campus through placement to define and provide shelter to outdoor gathering places and inclusion of generously sized transitional spaces such as verandas and decks.

New accommodation buildings complement the existing weatherboard, pitched roof cottage architecture in scale and form but are contemporary in detail and distinguished by their use and expression of sustainable design principles.

Materials used in new accommodation buildings create a similar palette of pastel colours and materials to that of the existing heritage cottages, and Nix and Barwick Cottages, maintaining a sense of architectural cohesion.

Communal buildings and shared resource facilities, while contributing to a coherent campus grouping, have a distinctive character and, when appropriate to their function, scale, making them easily identifiable as venues for visitor activities.

Buildings are sited to take advantage of views to the surrounding landscape and broader vistas and to maintain the sense of being within a rural landscape.

The existing facilities are replaced or upgraded as required to provide comfortable use in all seasons.

New buildings are:

- oriented to take advantage of solar access to the interior communal spaces in winter,
- provided with external shading to limit heat build-up in summer,
- sited and designed to capture cooling summer breezes whilst providing protection from winter prevailing winds,
- highly insulated to reduce the energy demand for heating and cooling, and
- designed to limit ongoing maintenance requirements.

Selection of materials and systems used in construction of facilities and infrastructure on the site considers their environmental impact.

Figure 14 The London Building Verandah
2016 Condition
At the time of writing ANU Facilities and Services have prepared a draft Heritage Management Plan (HMP) in accordance with the University’s obligations under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) as a Commonwealth agency.

Heritage Listings
- The London Homestead is listed as item 246 on Shoalhaven City Council LEP2014 on Schedule 5 Environmental Heritage.
- The NSW Government’s Aboriginal Heritage Information Management Service (AHIMS) lists 27 Aboriginal sites on or within 200 metres of the University property. Analysis of the GPS data shows that there are at least 19 AHIMS-listed sites on the campus. There are 2 sites (58-4-0014; 58-4-1033) with restricted location data that may also be on the campus.

Indigenous Heritage
The KCC is situated within a locale that evidence suggests has been inhabited by Aboriginal people for at least 20,000 years. This includes habitation by the Murramarang people of the Yuin language group. The campus is also situated near the boundary of the Wandandian and Walbanga tribes of the Dhurga language group.

As shown on Figure 15 2016 Indigenous Heritage Sites identified by Titchen (1986) and AHIMS, the three major Indigenous site types found at KCC are:
- Shell middens
- Grinding grooves and
- Artefact scatters or isolated finds
Nundera Point and the dunes behind Shell Beach are the site of Aboriginal middens of heritage significance requiring conservation. Walkways and fences manage public access in the coastal zone by creating preferred walking routes, thereby protecting adjoining dune areas.

Local members of the Indigenous community have been actively involved in activities undertaken on site as part of University field trips and outreach programs.

Historical Heritage
The European history of settlement and use of the KCC site for agriculture and forestry remains visible through The Avenue and the main homestead, cottages and outbuildings that remain on the campus. Most of these structures are still in active use today as part of the accommodation and operational infrastructure of the campus. Refer to Figure 16 2016 Historic Heritage for locations of key Historic heritage assets.

In the draft HMP the University has identified the following elements as having heritage significance:
- Elements with high local heritage value:
  - Kioloa Homestead
  - Collins’ Cottage
  - The Avenue
- Elements with moderate local heritage value:
  - Groper’s Cottage
  - Peter’s Cottage
  - Walsh’s Cottage
  - Frankel’s Cottage
  - Homestead Outbuildings
  - The Barn
  - The Dairy
  - Lookout on Don Moir Hill
- Elements with low local heritage value:
  - Old Fire Shed
  - The Schoolhouse Dormitory (Low-Moderate)
  - Original Butler’s Creek Bridge (Low-Moderate)
  - Walk-saw site
  - European Rubbish Dump

The condition of the built elements varies, in part dependent on the degree to which they have been adaptively reused as part of the University operational requirements.
Figure 15 2016 Indigenous Heritage Sites identified by Titchen (1986) and AHIMS
Figure 16 2016 Historic Heritage
Natural Heritage

The KCC is bounded to the south and to the west by the Murramarang National Park which is a protected area managed by NSW Parks and Wildlife. The campus is included in the Southern New South Wales Regional Forest Agreement.

A diverse mosaic of plant communities exist on the KCC and there is habitat suitable for a number of threatened fauna species that are known to be present in or near the locale.

The NSW Office of Environment and Heritage (OEH) has mapped two data sets indicating the presence of Endangered Ecological Communities (EEC) on the campus. Figure 18 in Theme 6 Landscape and Land Management shows how these communities contribute to the biodiversity and cultural landscape of the site.

The Coastal Forest zone is habitat for a number of threatened species including the Hooded Plover, a shore bird that nests on the beach and whose survival is under pressure from predators and human (and pet animal) activity. There is a local Shore Bird Recovery group active in the area.

Interpretation

The Indigenous, Historic and Natural heritage of the campus and the research undertaken on the site over several decades create a unique resource for ongoing research programs that can draw on data collected over an extended period of time.

The heritage and biodiversity characteristics of the site have a value to researchers running research programs or field training courses and, as a consequence, interpretive walks have been developed as part of these programs but not documented.

There is a collection of artefacts associated with the history of the site but only a limited number are on display. The current storage conditions in the Barn are inadequate and create a risk to the Kioloa artefact collection.

Opportunities and Constraints

Enhanced awareness and protection of threatened species through controlled access, interpretive signage, conservation and outreach.

Adaptive reuse of the original settlement buildings to support their ongoing retention, protection and maintenance whilst making them suitable for contemporary expectations of comfort in accommodation.

Active ongoing use of the campus as an important element in the delivery of the core ANU teaching and research objectives to sustain its retention in its current form as a singular and unique site. This would provide a reservoir of biodiversity and ongoing protection, investigation and curation of its heritage assets.

An interpretative centre, located in the campus entry area near the reception and events facilities, could provide the campus visitors access to a display illustrating the heritage of the campus. It would raise awareness of its landscape and environment as well as ongoing research, academic and conservation activities being undertaken by the University.

Inclusion of heritage elements in interpretative walks established as part of the recreational, educational and cultural resources of the campus. Refer Section 10 Living Campus.

Any proposed development will need to be assessed for heritage impacts under the EPBC Act.

In SCC LEP 2014 under Part 4.3 Height of buildings there are the following requirements for heritage features

"(c) to ensure that the height of buildings on or in the vicinity of a heritage item or within a heritage conservation area respect heritage significance."

Values to 2030

The campus is esteemed for its sensitive approach to combining contemporary needs with the biodiversity and heritage values of the site.

Conservation and protection of heritage assets and biodiversity is integral to the planning of development and operation of the campus.

The stories embedded in the landscape based on previous Indigenous, Historic farming and academic uses provide complex layers of interpretation and understanding of the campus landscape.

Planning Objectives

Development of the campus improves the recognition and conservation of the Indigenous, European and natural heritage assets and values of the site.

The social and cultural value of the site’s heritage is enhanced through interpretive presentation of heritage assets and research and activities incorporating engagement with heritage features.
Planning Principles

Development decisions and actions that may impact the campus heritage places, landscapes and values are assessed in accordance with the EPBC Act.

Adaptive reuse of buildings assessed to be of heritage significance is pursued to ensure their ongoing conservation as part of an actively used and evolving campus.

The location, scale and character of any new development maintains the legibility of the original sawmill settlement layout and the visual prominence of the London Homestead in the Avenue vista.

The Coastal Forest is actively managed as a conservation zone in collaboration with the local community and Council to protect endangered ecological communities and the Indigenous heritage sites located there.

An interpretive centre open to campus visitors displays and stores Kioloa artefacts securely and presents historical and current research information about the site’s history and environment.

Figure 17 The Kioloa Homestead and garden
2016 Condition
Located in KCC is a rich mosaic of diverse ecological communities that have developed in response to the habitats created by the topography, geology, prevailing weather conditions and human activity.

The Forests and Grasslands
The forests on campus extend to the beach from the western boundary and are largely located on the upper slopes of the property and the coastal dunes. They form a legible edge for the Paddocks and a setting for the campus core.

The forests and grasslands comprise a mix of ecological communities that occupy the range of habitats created by the topography and geology of the site as shown on Figure 18 2016 ANU KCC Landscape. This map combines information from two OEH mapping datasets: OEH 2013 Biometric Vegetation Types and Endangered Ecological Communities and 2002 Rare and Vulnerable Extant Ecosystems Mapping with information provided in Caton (2007) and requires further field verification to create a basis for ongoing land management and conservation activity.

Endangered ecological communities include the Bangalay Sand Forest and possibly three other vegetation types. Other vegetation types such as the rainforests and open grassland with mound springs may be of special value because of their relatively undisturbed ecosystems.

The tall forests of the more inaccessible slopes and gullies (identified by Caton as South East Dry Sclerophyll Forest, Southern Lowland Wet Sclerophyll Forest and Southern Warm Temperate Rainforest):
- occupy approximately half of the site
- contain a diverse understorey with species composition varying depending on topography and aspect, and
- are potentially more robust because of relatively large areas, difficult access and capacity to manage access.

This area is steeper and heavily vegetated with tall straight trunked trees and a diverse understorey interspersed with a variety of rock formations.

Lookout-type views across the campus and ocean are available from an escarpment along the western edge.

The cleared woodland with grassy understorey on the lower and more accessible slopes has been previously logged and grazed but still contains a diverse understorey below a more open tree canopy. Limited development has occurred in the form of a small dam for fire tanker recharge and a pit where clay has been extracted for maintaining roads and fire trails. Walkers Lookout, with views across the campus to the Pacific Ocean, is located on the edge of the woodland and easily accessed on foot or by 4WD.

The Coastal Forest zone includes a diverse range of vegetation types in a small area. The vegetation communities in this zone:
- are under significant pressure from adjacent land uses including farming, recreation and tourism, and
- require extra focus on conservation because of relatively small areas, EEC status, accessibility and management of public access is challenging.

The lagoon at the southern end of the beach extends north and is fed by both Butlers and Prossers Creeks.

The Paddocks
The Paddocks is the open area west of Murramarang Road which has been cleared for pasture and contains various exotic grasses. It has a kangaroo proof fence around the perimeter and is effectively subdivided by the Campus Core. The Paddocks currently are designated as a Strategic Fire Advantage Zone.

To the north of the Campus Core is an open pasture area around Prossers Creek, a Category 3 watercourse. Two large water storage dams are located in the Prossers Creek catchment at the forest edge. On the lower section of pasture a community garden has been created west of the effluent absorption trenching.

A large area of flat land between Prossers Creek and a minor drainage line north of the home paddock is boggy in wet weather. This extends into the Campus Core in lower areas.

To the south is an open pasture area flanking Butlers Creek, a Category 2 watercourse. Adjacent to a
Figure 18 2016 ANU KCC Landscape
kangaroo fence on the forest edge is a fenced area nominally designated for use for primitive camping by school groups.

By 2016 an increase in the kangaroo population had led to the removal of stock from The Paddocks due to the shortage of suitable pasture and an increase in tussock grass. The latter was identified as a potential fire hazard by the site manager. The kangaroo population has been reduced and will be excluded from the Paddocks.

The Campus Core

Located around the original houses, a fenced “home paddock” defines the development area as proposed in the 2012 Master Plan and is the location for most of the buildings on the campus. Combined with the Homestead and its grounds, this area forms the existing Campus Core.

The landscape of this area is open in character with closely mown grass, scattered mature trees and a series of curved, grassed terraces retained with large rounded rocks providing flat outdoor spaces near individual buildings. Generally, infrastructure elements are in full view with minimal landscape screening.

There are two fire pits, one of which is sheltered from the wind by planting, but otherwise the campus lacks attractive sheltered outdoor gathering spaces for small groups.

The campus is subject to hot and cold prevailing winds from South-east and North-east respectively and the open landscape provides little opportunity for shelter.

The Avenue is a mostly gravel road heading straight up the hill and flanked on both sides with banksias. The banksias were planted with the intention of enhancing the avenue effect but are performing poorly. At the top end of the avenue, the area around the Kioloa Homestead has been developed into an attractive garden with grassed terraces, curved planting beds and a pergola covered path.

Further landscape works have been designed for the surrounds of the London Shed but are not yet constructed.

Opportunities and Constraints

The KCC location adjacent to Murramarang National Park and its own vegetation and topography make protection of lives and assets during bushfire a key driver in landscape design and land management. The need to manage bushfire fuel levels needs to be considered in developing management strategies for maintaining biodiversity in the forest areas.

Cool mosaic burning techniques have been used successfully in native forests around Eden in recent years to reduce bushfire hazard by reducing combustible fuel loads in the understorey while enhancing biodiversity. The experience there is that the resources required to do the burns have lessened significantly with each successive burn.

KCC offers opportunity to establish a research program tied to the land management of the campus that creates a demonstration site for an evidence-based cooperative approach to innovation in coastal land management. This needs both curation of historic data and ongoing data creation. KCC would be a model site due to both its preservation and the history of data collection. This program could include understanding and implementing traditional Indigenous approaches to land management.

Limitations on water supply and the need to minimise water usage require water efficient landscape design.

The need to protect the riparian systems needs to be considered in development of land management strategies. Development within 50m of the top bank of the watercourses requires assessment for impacts on water quality, water course stability and related ecology and habitats.

Values to 2030

The landscape setting, traversing a series of forest communities from steep hills through to the beach, acts as a drawcard and inspiration for visitors and contrasts with the urban setting of the Acton campus.

The site contains and protects a diverse range of ecological communities.

The site is recognised as demonstrating excellence in coastal land management, conservation and protection of endangered ecological communities.

A holistic program of land management achieves bushfire protection of the campus and its facilities whilst protecting the biodiversity of the landscape.

Planning Objectives

Research programs are established within the University and partner institutions to support the development, implementation and monitoring of the land management program for the campus.

The diverse landscape character, mosaic of forests and biodiversity of the campus are retained, protected and enhanced.

The extent and status of the endangered ecological communities and threatened species habitat are established through on-site field work and
strategies for their protection embedded in the land management program.

The Campus Core provides a relaxed and comfortable outdoor environment that celebrates the uniqueness of the local landscape.

**Planning Principles**

Refer to Figure 20 2030 ANU KCC Campus Core Landscape Structure and Figure 3 2030 ANU KCC Master Plan.

The campus provides opportunities for visitors to experience the natural qualities of the place – the flora, the fauna, the landform, waterways and geology.

The campus land is managed to keep ecological communities healthy and to protect and enhance biodiversity.

Classified waterways are protected, managed and conserved to maintain water quality and enable stable, diverse self-sustaining riparian ecosystems to establish and continue.

Casual and recreational uses are managed to mitigate their impacts on KCC use for field research, conservation of heritage or threatened species, Indigenous cultural activities or sites and maintenance of reservoirs of ecological diversity.

The Campus Core landscape is designed to moderate the extremes of the local microclimate to enable comfortable year round use.

The Campus Core landscape is designed to provide a variety of outdoor spaces that encourage social and academic interaction including an outdoor laboratory.

Bushfire and weed management are undertaken as part of a research-based land management program that can be sustained and is sustainable.

The areas cleared for historic use as pasture are utilised to provide ecological services to the campus including sewer waste treatment.

Endemic plant materials, or exotic plants that pose no risk to biodiversity, are used in the Campus Core and the landscape designed to reduce or eliminate the need for irrigation and introduction of weeds.

Land management methods protect the soil structure and integrity particularly in boggy areas vulnerable to damage and development disturbing acid sulphate soils is avoided.

Land management is based on an understanding of the campus as cultural landscape with its layers of use, history and natural features.

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*Figure 19 The view from Walkers Lookout*
Figure 20 2030 ANU KCC Campus Core Landscape Structure
THEME 7 TRANSPORT AND MOVEMENT

2016 Condition

Vehicular Access

Murramarang Road is a public road running west of the dune system along Shell, Avenue and Kioloa Beaches as shown on Figure 21. This road runs between Bawley Point and Kioloa townships with a speed limit of 80 kph. The main entry to the built area of the campus is off Murramarang Road at The Avenue.

After a short section of bitumen, The Avenue becomes an unsealed gravel road. This was washed out in 2016 by heavy rains and requires ongoing maintenance.

Moores Road, an unsealed gravel road suitable for 4WD provides access to the site from the Murramarang National Park. In addition there is access from the park on a 4WD track to the west. These access points are secured with locked gates. 4WD drivers and trail bike riders frequently attempt unauthorised entry and have damaged the gates and removed signs while attempting to get into the campus.

Moores Road, and by implication The Avenue, is identified on the Bushfire Management Plan (BMP) as providing a through link to the Murramarang National Fire Trail, requiring maintenance for that purpose.

A narrow, all-weather gravel road has been constructed to the community gardens by the community gardens group.

Pedestrian access

Pedestrian access into the developed area of the site is compromised by the conditions on Murramarang Road which has a narrow unformed shoulder in most areas, no footpath and poor sight lines for crossing in several places including at the entry to The Avenue.

A boardwalk from the bottom of the development area near the London Shed directs pedestrians to a designated crossing to the Coastal Forest that has reasonable lines of sight along Murramarang Road.

Curved concrete paths connect some buildings in the Campus Core to each other and to the gravel carparks. In other areas, pedestrian circulation is across the grass. Some grassed areas are extremely soft and boggy in wet weather.

During the peak season for tourists in the area, the fenced walkways created through the dunes and the beach are actively used. People do however walk and cycle on the road or road verge, putting themselves at risk of injury. There is also a defined pedestrian access track from the public carpark to the beach.

Bicycles

The campus has 10 mountain bikes available for use by visitors on site. In addition the Land’s Edge group which brings school groups to the site regularly have bikes stored in a container on site.

People with Disabilities

Access suitable for people with disabilities is provided to a limited number of cottages and the London Shed, Joy London fire pit and adjacent Amenities and Dining Hall. The Packard Bunkhouse provides accessible accommodation and ablutions facilities, as does Barwicks Cottage. The level of compliance with current codes was not assessed as part of this study.

The Community Garden has also been laid out to allow for people with disabilities to move freely between the garden plots. The toilet facility would not be compliant with accessibility standards.

Opportunities and Constraints

Sealing The Avenue and adjoining car parks would create all weather access and minimise dust in summer and ongoing erosion in periods of high rainfall. Other options should also be considered that mitigate creation of large areas of impervious surfaces.

Extending the existing pathways within the campus centre would provide all weather access between campus venues and enhance access for people with disabilities.

Improved road crossing and signage for pedestrians crossing Murramarang Road in the area and liaison with SCC to extend a cycle / footpath link to Bawley Point and Kioloa would increase pedestrian and cyclist safety. KCC has helped to raise funds for the Community Connect Pathway to connect the two villages and, when possible, contributes to their construction.
Road speed is set at 80 km and there is limited visibility for pedestrians crossing the road so access to and from the beach to the campus centre is constrained to the current crossing point.

Values to 2030
Public access to the campus is managed to protect biodiversity and assets and visitor safety and to maintain the focus of the campus as a place of academic collaboration, research and education.
Pedestrians have priority and the visitor experience is one of moving on foot through the landscape environment of the campus.
All weather vehicular access is provided to the Campus Core.

Planning Objectives
All weather vehicular access is provided to the Campus Core with an access and service spine structure based on The Avenue.
An all-weather path system creates a pedestrian focussed environment in the Campus Core linking to clearly formed walking trails providing access to other areas of the campus.
Vehicular access beyond The Avenue and the visitor carparks is limited to operational / service access and access required to support visitor activities, land management and bushfire control.
Access for fire fighting vehicles to the forest area is provided and maintained in accordance with a Bushfire Management Plan prepared in consultation with NSW RFS.

Planning Principles
Murrarang Road remains the public road providing access to the campus and linking it to the adjoining communities and facilities at Bawley Point and Kioloa.
The interface with Murrarang Road is managed to create a clear address frontage to the Campus Core and improve crossing safety for campus visitors.
The Avenue is the primary all weather access road onto the campus and the organising spine for vehicular access to visitor areas within the site.
Moores Road is maintained as the key access route to the forest areas for researchers, visitors, land management and bushfire fighting requirements.
A formalised pedestrian access spine, separated from vehicle access, forms part of the landscape structure of the Campus Core, and provides all weather access to facilities in the zone.
Pedestrian infrastructure enables buggy based service access and people movement separated from general vehicle access.
A footpath network links The Avenue and the adjoining visitor carparks with facilities on the campus and the facilities to the beach and interpretive walking trails on the campus, and pedestrian routes to adjoining towns,
Working with the limitations of the terrain, access for people with disabilities is provided to enable them to participate in activities on the site.
Bicycle facilities are provided for recreational cycling.
Unescorted public access to the site is contained to the Coastal Forest perimeter and the public event area located on Murrarang Road.
Figure 21 2030 ANU KCC Access and Movement Paths
2016 Condition
At the time of writing, comprehensive information on the condition, spare capacity or potential for expansion of existing on-site service infrastructure was not available. A site survey undertaken during the study provided limited additional information on location of services. The information below was provided by the site manager.

Water Supply
There is no mains based water supply to the campus. The campus is required to be self-sufficient through water harvesting and reuse.

Water collection and storage is provided on site as follows:

- Rain water storage tanks adjacent to individual buildings with a collective capacity of approximately 400,000 litres.
- Two earthen wall dams within the catchment of Prossers Creek. Spring Dam has a storage capacity of 3,000,000 litres. Wallensky Dam has a storage capacity of 10,000,000 litres. Its catchment has an annual capacity of 20,000,000 litres with a collective storage capacity of 13,000,000 litres.
- Header and storage tanks with a capacity of 30,000 litres.

Both the dam and rain water are filtered and a dual pipe system is provided to most buildings as part of water quality assurance program monitored by the SCC which requires regular testing of water and ongoing improvement of the system. The exceptions are the Schoolhouse, Peters Cottage and Groper Cottage which use dam water throughout.

Rain Water Supply
The rain water collection tanks supply a gravity-based down feed main to an 80,000 litre storage tank below the London Shed. From here the water is pumped via a rising main to an 85,000 litre header tank next to the Machinery Shed providing a gravity feed system to the buildings reticulated through the rising main which has back flow controls. The rising main is a 50mm rural poly pipe.

Figure 22 Wallensky Dam in the Prosser Creek Clearing
**Dam Water Supply**

A 30,000 litre header tank above Kioloa Homestead supplies dam water for toilets and showers for the buildings and water for the building grounds as well as the sinks in Schoolhouse, Peters Cottage and Groper Cottage.

The dam water is primarily used for watering stock, the community garden, the firefighting system and in toilets and showers.

**Bushfire Protection**

A 44,000 litre tank located below the London Shed is reserved for fire protection purposes and supplies an adjacent hydrant, brigade booster valves and auxiliary suction lines. In event of a fire there is a 100mm supplementary gravity fed main from the Wallensky Dam to provide access to water stored there.

The Wallensky Dam has been designed to allow helicopters to refill with water for firefighting purposes.

Currently there is no provision for water for fire protection for the smaller buildings. In the event of bushfire, the only option for ember control is “slip on” vehicle mounted fire fighting units.

Small dams for recharging firefighting tankers are located in the forest area with access from Moores Road.

The vulnerability to damage of critical infrastructure in the event of a fire is not known. However, the infrastructure has been assessed by the RFS and the Red Cross and approved as a Neighbourhood Safer Place and Emergency Centre.

**Sewerage**

Sewerage generated on site is processed through an On Site Waste Management System constructed in 2011. Effluent is gravity fed to a worm farm for treatment and from there to an effluent absorption trench system located immediately to the east of the community garden.

**General and Recycled Waste**

General waste recyclable materials are separated by users into bins located outside individual buildings. Waste is disposed of via the SCC transfer station located off Murraramarang Road to the north of the site.

**Power**

An overhead power line crosses the site from north to south. At the intersection of this line and The Avenue there is a pole mounted 100 kVA transformer taking power to the main switchboard which is located on the exterior of a generator shed.

The site diesel generator has a capacity of 100kVA and has enough built in fuel supply to last for 24 hours only. Bulk fuel supplies are generally no longer used on the campus due to the inability to get fuel delivered.

A bulk fuel store was previously held on site but has now been decommissioned. The tank remains on site.

**Communications**

There is no mobile device communication coverage from the main commercial carriers on site.

There is a microwave communication tower on site that provides a direct link to the University network enabling full access for ANU staff and students and limited visitor access. A communications panel providing site wide Wi-Fi services is located in the Packard Bunkhouse.

There have been problems accessing data in a number of cottages. The system has also been overloaded causing disruption to users on a number of occasions.

Video conferencing equipment is not reliable and there are regular brown outs and black outs on the video system requiring it to be rebooted.

The existing level of communications and data services is identified as a potential reputational risk for the ANU when offering the venue for high profile events.

**Opportunities and Constraints**

There was at the time of writing commercial interest in provision of improved communication services to the region with a tower located on site. This would have the potential to significantly enhance access to digital communications and resources on the campus. Campus wide mobile data use in the field would significantly enhance research use of the site consistent with leading practise.

Use of on-site renewable energy generation could reduce the environmental impact of the campus through balancing of energy usage with energy generation.

Water supply is limited to water that can be harvested on the site through dams and rainwater collection from roofs.

Fire protection infrastructure could be extended by adding storage capacity above the buildings with the potential for smaller hydrants located near the buildings.
The vulnerability of the site services infrastructure to damage in the event of a bushfire should be reviewed and upgraded if required.

Sewerage treatment capacity is limited to what can be treated on site whilst protecting on-site waterways. The SCC Development Servicing Plan (SCCDSP) was under review at the time of writing however the SCC have indicated that the current service at Lake Tabourie is unlikely to be extended. The capacity to extend the existing on-site sewer treatment if required needs to be confirmed, or alternate technologies identified, to support the expansion of on-site accommodation.

There is potential to process green waste generated on site through the worm farm and material sourced from caterers can be treated this way. However, green waste generated by visitors is not currently adequately separated from recyclable materials and general waste to allow this.

Values to 2030

On-site infrastructure is rationalised, fully documented and able to be systematically modified to expand capacity as required for future development in the Campus Core zone.

The infrastructure systems required to operate the campus are designed to minimise the ecological footprint of the campus.

ICT infrastructure enables University and international academics to have reliable access to full digital resources and communications in a remote setting.

Planning Objectives

Service infrastructure and facilities are designed to minimise requirements for water and energy supply.

Infrastructure is designed to limit the potential for damage to critical services in the event of a bushfire.

Collection and reticulation of water and collection and treatment of sewer and compostable waste to meet the requirements of the campus at maximum occupancy is managed sustainably on site.

On-site renewable power generation enables the site to balance power generation with power usage whilst maintaining access to the grid.

Communications infrastructure to the site provides a service suitable for running international workshops and teaching programs with full access to University resources.

Communications infrastructure has the capacity and range to accommodate use of emerging technology in field work.

Planning Principles

Refer to Figure 23 2030 ANU KCC Infrastructure.

All water is sourced on site and catchments and storage areas are protected to maintain water quality in accordance with legislative requirements.

All potable water is sourced from the roof catchment of the buildings.

Treatment of sewerage and organic waste composting is managed on site.

On-site treatment of effluent and compostable waste streams minimises solid waste removal from the site and protects the waterways from pollution.

Laboratory waste requiring treatment is minimised and treated offsite with secure on-site storage facilities provided.

Waste disposal facilities provide for clear recyclable and general waste stream separation by users to minimise land fill generated from the site.

Solar power generation is incorporated into all new buildings, and existing buildings retrofitted where this is viable, as part of an overall site power provision strategy.

Renewable energy generation infrastructure is managed to limit its visual impact on the environs of the campus.

A service spine is provided for in-ground water and sewer infrastructure that limits the land area assigned to infrastructure and allows for expansion of the accommodation on site to the north and west.

All facilities within the Campus Core are provided with access to digital communications at the capacity to effectively support proposed research and educational use and administrative / operational requirements.
Figure 23 2030 ANU KCC Infrastructure
2016 Condition

The campus in 2016 provides a unique venue for university and external groups undertaking a wide range of training, educational and outreach activities that is highly valued by those familiar with it.

The London Shed, provides a venue able to be configured to suit a range of workshops and outreach activities and has a clearly visible entry point from the public carpark. It is the focus for community participation on the site.

As discussed previously in Section 5 Built Form, the accommodation on site is of variable comfort and amenity due to the age and condition of the buildings and the services provided to them.

Twin share accommodation makes up the majority of rooms and the Nix and Barwick cottages are seen as a suitable model for future accommodation. The existing bunkhouses are also valued as a way of providing cost effective accommodation for undergraduate students and school students and creating a communal environment which encourages social involvement. However, the Kumasi Bunkhouse rooms are overcrowded when fully occupied and the quality of accommodation provided does not lend itself to flexibility in use.

The on-site accommodation in 2016 has an upper limit of 90 beds which is supplemented by using off-site commercial accommodation in the nearby townships for guest lecturers, workshop leaders and overflow capacity when required.

Most cottages have either a small kitchen or kitchenette where individuals or small groups can self-cater to varying degrees. For researchers undertaking longer term site visits this resource is important.

The limited level of development of the campus is seen as a positive attribute. Any growth in accommodation numbers needs to be balanced with environmental impacts and a reduction in the intimacy of the on-site community that leads to serendipitous interactions with people from other disciplines.

The communal dining / meeting facilities described in Section 4 Functional Elements are the core social hubs on the campus and venues for much of the informal group and collegiate interaction on campus.

The campus has been designated a Neighbourhood Safer Place, a refuge in times of fire events by the Rural Fire Service (RFS) and may be used by the community as a refuge of last resort.

Wayfinding signage on the site is very limited.

Opportunities and Constraints

The accommodation needs to be brought to a consistent basic standard of comfort to enable all year use whilst providing a range of price points and room types to suite various user profiles.

New accommodation could incorporate a proportion of cottages similar in character to the existing Nix Cottage but incorporating bunks and slightly larger sitting areas and decks to accommodate 6 or 12 people to replace the Kumasi bunkhouse.

The landscape in which KCC is located provides a diverse range of recreational opportunities to visitors which could be enhanced by increased access to equipment such as mountain bikes and sea kayaks, and the creation of interpretative walking trails to enhance access to forest and cleared areas of the campus as shown on Figure 3.

Ongoing support for the community gardens which is a community outreach project that connects the campus and its community to broader environmental protection and social programs through community garden members.

Cold weather in winter compromises the use of the outdoor environment due to a lack of shelter and makes some of the existing cottages uncomfortable to use.

Comprehensive way finding signage on the campus linked with interpretative signage from the arrival point onwards and site maps would improve the visitor experience.

Upgraded facilities and enhanced research usage would support expansion of outreach programs such as academic presentations and workshops. This could be undertaken with other community organisations.

Values to 2030

KCC, the University campus in the forest by the beach, with its unique fauna and flora, is an integral part of the University’s reputation for providing a distinctive educational experience.
KCC is a place where intense intellectual activity is balanced by reflection, relaxation and recreation in a rural, cultural landscape setting.

The limited number of on-site visitors enables them to meet people from their own and other disciplines in an intimate social and collegiate environment.

KCC is a place connected to the local, regional, national and international communities of which the University is a part.

KCC offers a unique venue to host Indigenous student recruitment and student development activities consistent with the key initiatives under the ANU Strategic Plan.

Planning Objective

The campus provides a range of meeting spaces to enable concurrent activities by groups of varying character and size.

The campus and its setting provide a convivial and comfortable environment that supports a high level of social interaction and research collaboration and a diversity of recreational opportunities.

The campus provides a venue for a variety of University public outreach programs.

Visitors to the site feel welcome, safe and able to move around freely.

A campus which provides an informed reading of the landscape and the history of human engagement with it.

Planning Principles

The reception in the campus entry area is the venue for welcoming and site induction of visitors, and initial emergency response coordination.

A range of accommodation and catering facilities is maintained to ensure the viability of the campus as a venue for students at the University to participate in field work courses, workshops, retreats and research as part of their undergraduate and postgraduate education.

The heritage residences used for accommodation are retained in house format to allow smaller groups or individuals to have self-catered accommodation on site for lower cost or longer term use.

The communal facilities are designed to suit catering, social gatherings and use for presentations and workshops.

The communal facilities, dispersed informal gathering spaces established in the grounds and accommodation buildings and in locations such as Walkers Lookout provide a variety of settings for groups of varying sizes to gather and interact.

Facilities are modest but of a quality and amenity to attract international researchers and collaborators to the campus.

Public events and outreach programs are focussed on the London Shed as a venue or orientation point for field visits.

Well defined walking trails provide a key recreational resource enabling visitors to explore the campus and using interpretive signage foster and understanding of the landscape, environment and heritage of the campus and convey stories of the place. Where these traverse sensitive areas of the forests boardwalks are provided to protect the environment from the impact of increased usage.

Way finding signage directs on-site visitors and the public to the arrival / orientation point and throughout the site to facilities clearly identifying areas where access is restricted.

Signage on Murramarang Road at the campus boundaries is prominent and highlights the presence of the University on the site.

Interpretative signage and displays are used at the active public interfaces of the campus on the Coastal Forest zone perimeter to raise increase public understanding of their role in protection of areas requiring ongoing conservation.

The campus contributes to the local economy by building partnerships with businesses providing on-site services for visitors and supplementary off-site accommodation to extend the capacity of the campus.

The campus is a Neighbourhood Safer Place providing a refuge of last resort in bushfire emergencies.

The Community Garden outreach initiative is managed consistent with University access and campus usage policies and the campus land management program.