Submission No. 1
(CSIRO ACT)
Date: 10/12/13

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Statement of Evidence to The Parliamentary Standing Committee on Public Works

Submission 1.0

CSIRO ACT Consolidation Project

Australian Capital Territory

November 2013
Canberra

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Summary

Background

1. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency and one of the largest and most diverse research agencies in the world. It has a staff of approximately 6,300 in 11 research divisions located in 57 sites throughout Australia and overseas.

2. Since its inception in 1926, CSIRO has played a vital role in shaping Australia and generating wealth for the nation. The organisation and its scientists have established an international reputation for excellence and achievement in basic and applied research. Its work contributes to the ongoing prosperity of Australia's primary and secondary industries, to the creation of new technologies, products and techniques for the continuing development of Australia's manufacturing and service-based industries.

3. CSIRO's ACT Property Portfolio accommodates 1,669 staff across six sites, comprising a total of 110,759m² of laboratories, technical support facilities, glasshouses and commercial office space. CSIRO has developed a Property Strategy of rationalisation and realignment of the Canberra property portfolio. The CSIRO proposes to consolidate its ACT property holdings by relocating staff from leased premises in Campbell, Yarralumla, and Acton to CSIRO's owned site at Black Mountain. The existing sites are shown in the Location Plan at Annexure A.

4. The Black Mountain campus is Australia's longest serving site dedicated to science and is central to CSIRO's research objectives and the organisation's national and international identity. It presents an exciting opportunity for the site's future development and is the basis for how the Black Mountain campus can be adapted, developed and maintained as an internationally recognised science centre of excellence.

5. The Black Mountain campus has an area of 37.3 hectares. The current dispersed layout reflects a legacy of dispersed buildings, a result of individual developments since 1929 on the site. The existing site plan for the Black Mountain campus is provided at Annexure B.

6. CSIRO has been considering the future of the Black Mountain campus, specifically, how the organisation can support the critical priorities of its ACT business and science capability platforms.

7. The CSIRO submitted a New Policy Proposal (NPP) to the Federal Government in May 2013 in support of the ACT Consolidation to the Black Mountain Campus and received Budgetary Approval to proceed with the project valued at up to 195.6M over the two phases, with an initial Phase 1 over 2013-2017 and Phase 2 over 2017-2021.

8. The intent of the CSIRO ACT Consolidation Project is to implement through the two phases, a development program consisting of two new science research and support facilities in the order of 13,731m² on the Black Mountain campus. These new buildings will accommodate staff and functions that currently occupy buildings which have passed their effective design life, do not meet current standards for health and safety, represent inefficient use of space, have high maintenance costs and present operational risk. The unsuitable buildings will be demolished.

9. The proposal also includes the refurbishment of four existing buildings totalling approximately 8,900 m2, as well as the upgrade of associated support infrastructure.

10. The project will result in the relocation of CSIRO staff currently at Campbell, Yarralumla and Acton sites into fit-for-purpose flexible accommodation at the Black Mountain campus and will reduce operational expenditure of leases and maintenance costs through reduced footprint to a single site.

Proposed Scope of Works

11. The underlying objective of the project is the overall reduction of CSIRO's property footprint in the ACT to achieve significant savings in recurrent property operating expenses through the construction of a new development, coupled with the refurbishment of four key buildings. This will rationalise CSIRO's key operational activities that are currently spread across the site to a more concentrated and efficient operational zone including the removal of redundant buildings.

12. The Phase 1 scope of works includes:

    a. Construction of approximately 7,900m² purpose built specialist laboratory and research building, comprising science capability and constructed to level of Physical Containment Level 2 (PC2) laboratories, office accommodation and staff amenities;

    b. Refurbishment of two floors of the Discovery Centre (building 702) to convert existing non compliant PC2 laboratories into office accommodation;

    c. Construct a new on-grade car park for 310 spaces;

d. Demolition of obsolete buildings; and

e. Associated infrastructure and landscaping.

13. The key milestone for Phase 1 is to vacate the Campbell site and relocate staff to the Black Mountain campus prior to the lease expiry in June 2016. Phase 1 Development Proposal is provided at Annexure C.

14. The Phase 2 scope of works includes:

a. Construction of approximately 5,800m² purpose built specialist laboratory and research building, comprising PC2 laboratories, office accommodation and staff amenities;

b. Associated infrastructure and landscaping;

c. Refurbishment of the Pye Laboratory (building 019) into support office accommodation and conversion of the buildings lower level into a science calibration and technical workshop facility;

d. Refurbishment of the Library (building 060) to office accommodation; and

e. Minor refurbishment of Sir Otto Frankel Laboratories (building 002/079) to convert a number of non-compliant PC2 laboratories to Physical Containment Level 1 (PC1) laboratories and science support facilities.

15. Phase 2 will be delivered over a three year timeframe to align with the lease expiry of Acton in January 2020 and Yarralumla in June 2021, at which time, staff from both sites will be relocated to the Black Mountain Campus. Phase 2 Development Proposal is provided at Annexure D.

16. The Commonwealth Property Management Framework Review prepared by the Department of Finance (referred to as PRODAC) specifies a gross office accommodation density maximum of 14m² per occupied work point. Whilst CSIRO as a statutory authority is not currently required to achieve PRODAC compliance, its aim on all new developments and refurbishment works is to align with current PRODAC guidelines.

Project Objectives

17. The requirement for CSIRO to undertake the proposed development of the Black Mountain campus is being driven by a number of factors which are outlined below.

a. **Science Purpose:** A Consolidation of CSIRO's ACT research and Enterprise support from four sites to a redevelopment of the Black Mountain site will:

i. Will support and enhance CSIRO's position as a world leader in biological, environmental, agricultural and natural systems sciences enabling collocation of cross-Divisional and external collaborators into new teams of critical mass that operate in modern and globally attractive facilities;

ii. Enhance and capture new and evolving research and technical support platforms including rationalising support services across the site and wider precinct where appropriate;

iii. Provide a strong, visual statement of CSIRO's presence in Canberra supporting CSIRO's current and future science directions and outcomes;

iv. Rationalise and improve CSIRO's ability to address changed regulatory and environmental compliance frameworks;

v. Creating new synergies both internally and in collaboration with Precinct partners for enhanced science capability and infrastructure to facilitate a more agile response to changes in research focus within the innovation system;

vi. Supports delivery of the CSIRO's Precinct strategy to improve science outcomes from CSIRO and its research partners in the national innovation system.

b. **Economic Utilisation:** Maximise the economic utilisation of the site by implementing the following strategies:

i. Reduction of recurrent operating and maintenance expenditure through the rationalisation of the ACT property footprint and the demolition of buildings that are uneconomical to-maintain, have passed their effective design life and which provide sub-standard working accommodation that does not meet the requirements for the effective and efficient operation of CSIRO's activities;

ii. Relocation of staff from under-utilised facilities and operationally inefficient buildings into the consolidated footprint in a centralised zone of the site. While the vacated properties are considered to be in sound condition, one of the key drivers of the project is to co-locate the various research Divisions to a modern and functional centralised location to improve inter Divisional engagement and to maximise the efficiencies associated with co-location This strategy provides opportunities for external collaborators and partners to lease these vacated buildings under adaptive re-use arrangements; and

iii. Implement a new CSIRO model of workplace design with the adoption of open plan office accommodation, shared science facilities and staff amenities. The new model will focus on providing a campus wide approach to CSIRO's research operations and will be a driving mechanism for collaboration and reduced operational costs.

c. **Leases**: Expiry of existing leases at Campbell (2016), Acton (2020) and Yarralumla (2021) and the relocation of the staff at these locations to the Black Mountain campus to reduce recurrent operating costs.

d. **Efficiency**: Relocation and consolidation to a single site at the Black Mountain campus will aim to achieve the efficiencies associated with co-location of CSIRO's research groups, as well as increase the critical mass on a single site. All new office fitouts will be designed to achieve an occupational density of up to 14m² per occupied work point, consistent with targets set out in PRODAC.

e. **Reduced Footprint**: A key objective of this project will be the overall reduction in floor area from 110,759 m² to 64,591 m², which represents a reduction of 42%. The operational efficiencies and cost savings associated with such a significant area reduction will produce ongoing benefits to CSIRO for the life of those facilities. The consolidation of facilities areas will be achieved as shown in Table 1 following.

Table 1 – Consolidation of Facilities

Site	Existing GFA m²	New GFA m²	Demolish or lease handback	Vacant	Final GFA m²
Black Mountain	78,177	13,731	-20,518	-7,619	63,771
Campbell*	7,398	0	-7,398	0	0
Acton (ANU)*	2,765	0	-2,765	0	0

Yarralumla*	11,021	0	-11,021	0	0
Crace*	11,398	0	0	-10,578	820
TOTAL	**110,759**	**13,731**	**-41,702**	**-18,420**	**64,591**

* ACT leased sites

Background to Requirement

Black Mountain Campus Master Plan Framework

18. In January 2013, CSIRO developed a draft Black Mountain Campus Master Plan. As part of this plan, a short term, seven-year Development Plan was also developed to guide the CSIRO ACT Consolidation Project.

19. The draft Master Plan vision for the Black Mountain campus seeks to provide a framework for:

    a. future CSIRO development opportunities for key capital works projects, site infrastructure improvements in relation to car parking, road networks and landscaping for staff amenity and pedestrian movement;

    b. commercial opportunities for the site through collaborations with external government agencies and industry partners;

    c. the long term rationalisation of current aged and redundant facilities to divest of inappropriate building stock and reduce current expensive site costs of maintenance and services; and

    d. an efficient site layout and environmentally sensitive design strategy including development controls and guidelines.

20. The Black Mountain Campus Master Plan was endorsed by the CSIRO Board in May 2013 and is provided as information in Annexure E.

21. The Black Mountain campus is a Commonwealth Property owned by CSIRO and is under the planning control of the National Capital Authority (NCA). CSIRO has been consulting with the NCA on the development of the draft Master Plan and will be lodging the Master plan as the Development plan for the next 20 years.

22. The Development Plan has essentially informed the methodology for how the various science and business divisions of CSIRO can be co-located at the Black Mountain campus under the CSIRO ACT Consolidation Project.

CSIRO ACT Accommodation Portfolio

23. Table 2 provides a list of CSIRO's sites in the ACT, which have been, or are planned to be co-located to the Black Mountain campus as a result of the proposed CSIRO ACT Consolidation Project.

Table 2 – CSIRO ACT Property Portfolio

ACT Sites	Existing GFA m²	Lease Expiry	Staff Population
Black Mountain	78,177	Owned by CSIRO	1,197
Campbell*	7,398	June 2016	233
Acton (ANU)*	2,765	January 2020	100
Yarralumla*	11,021	June 2021	128
Crace*	11,398	June 2022	11
TOTAL	**110,759**		**1,669**

* ACT leased sites

24. The proposal to consolidate all CSIRO activities from Campbell, Acton and Yarralumla to the Black Mountain campus will bring an additional 461 staff to site, increasing the total Black Mountain campus population to 1,658 people, whilst simultaneously reducing the ACT property footprint from its existing 110,759 m² GFA to 64,591m² GFA (a 42% reduction). The 11 staff at Crace associated with the National Wildlife Collection will not initially be relocating to the Black Mountain campus as part of this project.

CSIRO Activities in the ACT

25. CSIRO has four research sites and two administrative sites in Canberra. The largest of these, the Black Mountain campus, is home to four Divisions which house the premier research capacity for plant and natural sciences. A fifth Division located on the ANU campus (Acton) specialises in the mathematics and information sciences. The Australian National Wildlife Collection is located in the suburb of Crace and an experimental field station is at nearby Ginninderra. Administrative and corporate services are located at Campbell and Yarralumla.

26. The strength of the research undertaken in the ACT has been instrumental in placing CSIRO in the top research institutions internationally in the fields of agricultural sciences (9th), plant science (11th) and environmental/ecology sciences (10th). The staff are of world standard and provide a centre of gravity in research nationally and internationally. The research excellence also attracts collaboration with a number of multinational life science companies.

27. The research focus in the ACT is trans-disciplinary and seeks to address continental scale problems and opportunities by integrating knowledge across a range of scales from gene to landscape; and the natural sciences are brought together with the social sciences and economics. ACT activities provide the foundation science for activities elsewhere in CSIRO.

28. The areas tackled include food security, profitable agri-business, new bio-based manufacturing, landscape management under competing demands, water security, carbon emissions and agricultural resource assessment of northern Australia.

29. Some examples of research strengths are:

    a. Collections of Australia's natural resources: Four major national collections are held on the Black Mountain campus (plants, insects, soil and tree seeds) with a fifth (wildlife) at Crace. These collections are internationally significant research collections of Australia's unique living organisms and its soil. They provide the foundation for a deep national and international collaborative research in ecology and biodiversity;

    b. Knowledge Portals and Information Services: CSIRO provides its foundation information publicly and through portals such as the Atlas of Living Australia (for biodiversity) and SoilMapp (for soils). Using its skills in remote sensing, CSIRO Land and Water develops applications that convert information into knowledge such as satellite imagery to monitor vegetation cover;

    c. Plant Sciences : CSIRO Plant Industry is one of the world's leading research centres in plant science spanning fundamental research in plant genetics and gene discovery to providing practical application in crop improvement and development of new industries for agriculture and horticulture;

    d. Land and Water Resources: Three Divisions provide research capability in global and national integrated assessment modelling for our water and land resources. CSIRO Land and Water provides much of Australia's capability for the measurement and prediction of the availability and condition of Australia's land and water resources. CSIRO Marine and Atmospheric Resources provide important in providing national outlook under climate change scenarios; they also generate an annual carbon dioxide emission summary for Australia. CSIRO Ecosystem Sciences provides multidisciplinary skills that integrates the ecology of our landscapes with socio-economic elements;

e. New Bio-Industries: CSIRO Plant Industry and Ecosystem Sciences Divisions collaborate to develop future industries using novel biological processes – new fibres such as synthetic silks; new industrial oils produced by field crops; new fermentation capacity using synthetic enzymes; and

f. Infrastructure: In the ACT, CSIRO supports a range of national infrastructure to underpin its foundation sciences. This includes the phytotron and plant phenomics facilities, sensor network capacity at its Ginninderra Field Station, its national biological collections; analytical infrastructure for applied biochemistry.

30. The intention of the CSIRO ACT Consolidation Project is to locate these research groups into contemporary facilities that enable better collaboration across activities. In addition, CSIRO corporate support groups housed at Campbell and the Information and Technology function housed at Yarralumla which will relocate to the Black Mountain campus.

a. Corporate Services (Campbell) involved are:

i. The Office of the Chief Executive
ii. Finance
iii. Health and Safety
iv. Communications
v. Education Programs
vi. Operations
vii. Science Strategy and People
viii. Business and Infrastructure Services (Property, Procurement, Security)
ix. Ministerial Liaison
x. Enterprise Legal

b. CSIRO Information Management & Technology (IM&T) (Yarralumla) provides and maintains up-to-date, quality information services in support of CSIRO's strategic objectives. IM&T maintains strong connections with other CSIRO research areas so the services are closely aligned with CSIRO's business needs supporting research.

31. The specialist requirements for these Divisions are summarised below.

Table 3 – CSIRO ACT Division Accommodation Requirements

Division	Accommodation Requirements
Research	• Research activities in wet and dry laboratories • Glasshouse research support to laboratories • Phenomics from laboratory to field applications • Computer based tasks in an office environment • Bioinformatics – dry laboratory • Analytical and chemical laboratories and services • Wind tunnel technology (Pye Lab) • Dry laboratory use for instrumentation and calibration
Corporate and IM&T	• Computer based tasks in an office environment

The Need for the Work

Reduce Overheads and Operating Costs

32. Based on existing budget allocations, the CSIRO has a future shortfall in operational and maintenance funding for the ACT property portfolio, expected to be in the order of $28 million excluding GST over the next ten years. The cost savings that will be realised by consolidating operations from leased sites and unsuitable owned facilities in the Black Mountain campus into a centralised and modern facility at the Black Mountain campus are critical to the sustainability of CSIRO's operating budget.

33. The cost reductions will be achieved through:

    a. Lease savings;

    b. Demolition of end of life buildings that have high maintenance and running costs;

    c. Construction of new low maintenances buildings which have modern, energy efficient design features; and

    d. Rationalisation of working accommodation from 110,759 m² to 64,591 m².

Mitigation of Health, Safety and Environment (HSE) Risks

34. CSIRO, as the owner/manager of the Black Mountain campus, is required to manage risks associated with workplace health and safety and the environment.

35. The key HSE issues identified at the Black Mountain campus include:

    a. Potential exposure to staff of asbestos bonded products in occupied buildings at the Black Mountain campus a legacy of the age of many of the facilities. For example, the Pye Laboratory (building 019) has an exposed asbestos-based waffle pan floor above the ground floor office areas;

    b. Unairconditioned buildings resulting in unacceptable working conditions such as building 201 with many staff complaints during the peak of summer;

    c. Non-compliance with the National Construction Code (NCC) in relation to building fire safety systems, such as emergency lighting, smoke detectors and occupant warning speakers; and

d. Varied compliance with DDA within the older buildings and between buildings across the site.

Staff Amenity

36. A number of buildings on the Black Mountain campus have significantly deteriorated, as the rate of upgrade and replacement has been slower than the decline in condition of the properties due to capital funding constraints on CSIRO. As a result, there is a pressing need to upgrade facilities on the Black Mountain campus to provide efficient, effective and fit for purpose science and office environments for staff currently accommodated in buildings that are at the end of their economic life and are considered to be in unacceptable condition.

37. The provision of quality science and office accommodation is an important factor in the recruitment and retention of quality staff. This has been identified as an issue for CSIRO for a number of years as CSIRO competes with other research institutions for staff, who in recent times have invested heavily (through Commonwealth's Education Investment Fund (EIF) and other grants) in modernising their accommodation to contemporary standards.

38. In addition, research-based work has significantly changed over time to become more focussed on bio-infomatics and computer simulation as opposed to the predominantly laboratory based research facilities that exist within the existing older facilities.

Lease Disposal

39. CSIRO will relocate staff from three leased sites in the ACT to its owned the Black Mountain campus, which will provide financial savings for the organisation in the order of $4.3 million per annum.

Table 4 – Savings Derived From ACT Lease Disposal

ACT Leased Site	Lease Expiry	Lease Cost Per Annum
Campbell	June 2016	$1.8 million
Yarralumla	June 2021	$2.5 million
Total Savings Derived From Disposed Leases (2021)		$4.3 million

40. CSIRO's lease at Acton located within the Australian National University (ANU) campus is based on a 'peppercorn rent' to the ANU and has therefore been excluded from these lease saving calculations.

Demolition of Facilities

41. The consolidation of the Black Mountain campus is tied to the removal of old and functionally inefficient facilities to a more consolidated infrastructure footprint for CSIRO.

42. A number of buildings will be demolished to make way for new construction, while other will be demolished and not replaced, due to the efficiencies gained with the provision of the new buildings.

Table 5 – Total reduction of GFA m² at the Black Mountain campus resulting from demolition.

Development Phase	Existing GFA m²	Demolished GFA m²
End of Phase 1 - June 2016	78,177	6,466
End of Phase 2 - June 2021	74,093	14,052
Total Area Demolished at the End of Phase 2		20,518

43. The Development Proposal identifies the following buildings for demolition.

Table 6 – Buildings at the Black Mountain Campus Identified For Demolition

Phase 1: 6,466 m²		
B001	B012	Southwest glasshouses and sheds Phase 1
B011	B013	
Phase 2: 14,052 m²		
B017	B081	B508
B018	B111	B505
B073	B204	B401A, B & C
B010	B602	Remaining Southwest glasshouses and sheds Phase 2

Collaboration Space

44. Buildings B201, B209 and B301 will be vacated by CSIRO during Phase 1 and Phase 2, as they are under-utilised, inefficient and no longer meet operational capability requirements. These buildings will be available for upgrade and lease as collaboration space to external partners and other government agencies who will therefore be able to work more collegiately with the CSIRO researchers.

Table 7 – Total reduction of GFA m² due to vacated buildings assigned as collaboration space.

Development Phase	Existing GFA m²	Buildings Vacated For Collaboration Space GFA m²
End of Phase 1 - June 2016	78,177	5,520
End of Phase 2 - June 2021	74,093	7,568
Total Area Vacated For Collaboration Space		13,088

45. The Master plan releases sufficient land on the Black Mountain campus to enable CSIRO to provide for future collaboration and development opportunities. However, immediate collaboration opportunities that could use the vacated buildings include:

    a. close engagement with the ANU which is adjacent to the CSIRO. The ANU offers a rich source of talented teachers and students who would welcome the opportunity to engage with CSIRO and other scientific research organisations. The ANU is landlocked at their Acton campus and CSIRO's collaboration facilities provide opportunities for the ANU to lease that space and engage with CSIRO researchers;

    b. collaboration with the ANU and the Australian National Botanical Gardens (ANBG) has a strong appeal to CSIRO researchers. Significant benefits are expected to arise from close association with a leading university and the optimisation of the close association with a national natural resource such as at the ANBG;

    c. CSIRO and ANU already share access to facilities across the two sites. This opportunity allows for existing synergies to be leveraged and in doing so increase the collaboration that currently occurs and develop new opportunities; and

    d. the potential for other government agencies and private collaborators to locate in the Black Mountain campus to broaden and deepen research opportunities which will benefit CSIRO and the broader research industry.

Refurbishment

46. The proposed refurbishment of the Discovery Centre (B702), Library (B060) and Pye Laboratory (B019) will align with the PRODAC density provision of up to 14m² per occupied work point.

Discovery Centre - Building 702

47. The CSIRO Discovery Centre is a landmark building in Canberra and a pivotal building for CSIRO as a public platform for the CSIRO to demonstrate its science activities and providing an interactive exhibition showcasing CSIRO's research to School children from around Australia as well as the public.

48. The three storey building is currently occupied as follows:

    a. the lower ground floor is occupied by the CSIRO Education Centre,

    b. central to the atrium is a café, seminar and conference facilities;

    c. levels 1 and 2 containing PC2 laboratories which are occupied by CPI.

49. The current design and operation of the PC2 laboratories in the Discovery Centre pose HSE concerns because the office space is integrated within the PC2 containment area. The HSE issues are currently being mitigated through CSIRO management procedures and controls however, the current Australian Standard 'AS2243.3-2010 Safety in Laboratories - Part 3 Microbiological Safety and Containment' requires physical separation of staff offices from laboratory PC2 containment areas.

50. The refurbishment of Levels 1 and 2 will eliminate this HSE issue by converting the PC2 laboratories into office accommodation and relocate the laboratory functions to new compliant facilities within the new proposed building.

Library - Building 060

51. The Library was constructed 1972 and extended in 2005.

52. The building is currently under-utilised with the majority of the reference materials currently available electronically. However the building is of cultural and architectural significance and is in sound condition, so it will be refurbished to improve its effectiveness and efficiency as office accommodation.

53. It comprises two floors as well as two mezzanine levels and a basement. The refurbishment scope proposes to convert the ground and first floor into efficient, effective and fit for purpose office accommodation. The second and third floor mezzanines are excluded from the scope as they have an inefficient footprint and do not currently comply with DDA provision for lift access.

54. The existing roof has an inherent water leak design issue and will be rectified through the planned refurbishment program.

Pye Laboratory – Building 019

55. The Pye Laboratory was constructed as a purpose built research facility in 1966 and was extended in 1986. A new lift core and entry ramp were added in 2004. It has a Gross Floor Area (GFA) of approximately 2,200m² and has not been substantially refurbished since its 1986 extension.

56. The building is currently used as a research facility for CMAR, accommodating approximately 40 staff. It does not comply with current building standards and does not provide the efficiencies in a modern working environment.

57. The requirement for CSIRO to refit and refurbish Pye Laboratory is being driven by a number of factors including:

    a. removal of asbestos;

    b. rectification of roof damage;

    c. removal of tree canopies that have caused part of the damage to the roof;

    d. upgrading the roof access system to comply with current standards and allow safe access to the roof; and

    e. upgrade toilet and other amenities to comply with the NCC and to address DDA access requirements, where this can be achieved.

58. The purpose of the works is to ensure that the building can provide a safe and compliant workplace in accordance with Commonwealth and statutory standards and for CSIRO to comply with its duty of care responsibilities to its staff and visitors.

Sir Otto Frankel Laboratories- Building 002/079

59. The Otto Frankel Building is a three level brick facility comprising two conjoined buildings. Building 002 was constructed in 1961 and is used as a CPI Molecular Biology Facility with PC2 laboratories, which were reconstructed in 2006. Building 079 consists primarily of PC2 laboratory facilities that are ageing and non-compliant with the current building codes and have not been upgraded since their construction in 1986.

60. A key concern of Building 002 is the inclusion of office space within the PC2 environment. The building was designed on a now redundant model of integrated staff offices within the laboratory PC2 containment area, which is no longer compliant with regulatory requirements. The HSE issues are currently being mitigated through CSIRO management procedures and controls.

61. The redevelopment proposal for Building 002/079 focuses on redeveloping non-compliant laboratory areas in Building 079 into office accommodation for research staff. The remaining laboratories will be re-classified to PC1 in which case the location of the existing offices within the laboratory will not be a HSE concern.

Technical Information

Project Location

62. CSIRO established a campus on the eastern slope of Black Mountain in 1929.

Site Description

63. The site comprises 37.3 hectares in a campus of office buildings, laboratories, support facilities and glasshouses set within a landscape of natural Australian bush.

64. Situated to the north-east of the site is Barry Drive, a major arterial route. To the south-east is the primary ANU campus which is separated from the Black Mountain campus by Clunies Ross Street. Positioned to the south-west is CSIRO's immediate neighbour, the ANBG which is connected via a walking trail.

65. The topography of the site slopes downwards with a fall in excess of 25 metres from the highest north-east point of the site towards the south-east at Clunies Ross Street over a distance of 800 metres.

66. The current site circulation network has grown in an ad-hoc manner over time with dispersed development of the site with the extreme distance between buildings being nearly a kilometre of walking. The network therefore lacks overall coordination and efficiency.

Site Development and Planning

67. The Black Mountain campus is a 'designated area' under the National Capital Plan. It is a Commonwealth site covered by the Australian Capital Territory (Planning and Land Management) Act (1988) (Cth).

68. CSIRO has consulted closely with the National Capital Authority (NCA) in the development of the planning proposal and has received the NCA's endorsement of the proposed works. The built environment is permitted to contain buildings that may rise occasionally to punctuate but not dominate the existing tree canopy and the site's natural rise in contour. It is intended that future development will not detract from the tree line or site character of the Black Mountain campus, the neighbouring ANBG and nature reserve.

69. The NCA has mandated a general development height limit of RL 617 with a maximum of four storeys. The Phase 1 and Phase 2 development proposal complies with this height requirement.

70. Although the development of the Black Mountain campus is not subject to the requirements of the ACT Government's planning and design regulations, CSIRO will comply with those regulations and has consulted with the ACT Planning and Land Authority (ACTPLA) on the requirements for the proposed development. ACTPLA has endorsed the proposed works.

Site Infrastructure and In-Ground Services

71. The site wide infrastructure has developed across the campus over many years and has tended to focus on the immediate need and short-term development requirements. Those services which will be directly impacted by the proposed works will be upgraded as required. However, there is no provision to undertake a site wide refurbishment of existing services.

72. As part of the project, the condition and capacity of municipal services entering the site will be investigated in consultation with the ACT Government to confirm the ability of those services to support the proposed works.

73. Two major electrical easements run through the site serving the ANU and Canberra City from an existing major substation located on the north boundary. These easements run parallel to Dickson Way and across the North East corner of the site. These easements will be retained.

Geotechnical Conditions

74. A preliminary geotechnical study has been undertaken and has not identified any concerns regarding the foundation properties of the propose site for new building works.

75. A detailed geotechnical investigation will be undertaken to confirm conditions and appropriate engineering solutions will be developed to ensure appropriate foundation and seismic rigidity.

Heritage Considerations

76. The Black Mountain campus celebrates the history of CSIRO in built form and is cognisant of the value of this cultural legacy and accordingly the proposal specifically seeks to protect and re-use heritage buildings.

Commonwealth Heritage Register

77. The Black Mountain campus has a number of buildings listed on the Commonwealth Heritage register. These are excluded from the Development Plan.

Buildings of Architectural Interest

78. The Black Mountain campus' buildings recognised by the Commonwealth Heritage List as having 'architectural interest' include:

    a. Pye Laboratory (Building 019)

    b. Library and extension (Building 060)

    c. Discovery Centre (Building 702)

    d. Wall Mural in the Entry Foyer of Building 201

79. The CSIRO ACT Consolidation Project includes three of these buildings for adaptive re-use, to provide functional and modern working accommodation whilst preserving their heritage value. CSIRO will respect and consult the original designers where feasible to comply with the Copyright (Moral Rights) Act (1968) (Cth):

    a. Pye Laboratory – Building 019

        i. The works proposed by CSIRO will not fundamentally change the Pye Laboratory façade. The only notable change to the building exterior is the addition of stainless steel downpipes. New downpipes are required to address existing problems with roof drainage. Stainless Steel has been proposed given its long life and low maintenance requirements; and

        ii. Other minor external works will respect the design integrity of the façade, the internal courtyards and the atriums.

    b. Library – Building 060

        i. The internal spaces will enhance the original nature of the facility by increasing occupation and activity within the building and use the value of this real estate in an appropriate manner; and

        ii. The Library works consist of internal refurbishment will have no material impact to the building façade.

c. Discovery Centre – Building 702

i. The refurbishment proposed for the Discovery Centre is limited to the northern wing, with no impact to the building façade or internal atrium. The proposed scope comprises the removal of laboratory capability and replaced with open plan office accommodation;

ii. The Education facilities, conference capability and café will be retained; and

iii. All work on the Discovery Centre will respect the integrity of the existing design.

80. The Wall Mural in building 201 will be professionally documented for CSIRO and NCA records. For the foreseeable future, building 201 will be retained as collaboration space. Any future refurbishment works associated with collaboration leasing agreements will be subject the relevant heritage controls.

Bush Fire Prevention

81. The CSIRO Campus is located adjacent to the 450-hectare the Black Mountain Nature Reserve. There were major fires on Black Mountain in the summers of 1984-5 (225 hectares) and 1990-91 (127 hectares) both of which threatened the CSIRO site without significantly entering it.

82. CSIRO commissioned a Bush Fire Hazard Assessment of the Black Mountain campus in June 2013. The recommendations of this report are being implemented throughout the site including the reduction of flammable fuel and creation of a buffer zone to the adjacent bush land.

Proposed Scope of Works

Phase 1 and 2 – New Building Works

Building Design and Concept

83. The concept design for the new buildings propose:

    a. Two interlinked four storey buildings accommodating construction in Phases;

    b. Phase 1 building (approx. 7,900m²) will be located opposite the CSIRO Discovery Centre and will utilise North Science Road as a predominantly pedestrian boulevard;

    c. The Phase 2 building (approx. 5,800m²) may be located perpendicular to the Phase 1 building;

    d. The buildings heights have been limited to match the existing tree canopy so as not to dominate the Black Mountain aspect;

    e. The spatial planning of the new buildings is to embody a more efficient, collaborative and shared resource platform for the Science divisions. The integration of the corporate support staff and Executive with the Scientists is a key driver in the planning strategy; and

    f. The types of accommodation provided in the new buildings will include:

        i. Office accommodation;
        ii. conference, seminar and meeting room facilities;
        iii. quiet rooms and various styles of telepresence rooms;
        iv. Facilities for staff amenity and breakout spaces; and
        v. PC2 laboratories and laboratory support facilities.

Building Services

84. Detailed below are the new buildings services requirements. CSIRO will examine during further design studies the viability of alternative energy generation systems in conjunction with CSIRO Energy Technology division.

Mechanical Services

85. The mechanical services will include:

a. central chilled water plant for the air conditioning systems;

b. central heating hot water plant for the air conditioning systems;

c. air conditioning for comfort conditions to laboratories, laboratory support areas, offices, meeting rooms, seminar rooms and reception;

d. air conditioning for specific conditions such as constant temperature rooms and cold rooms;

e. exhaust air ventilation systems for toilets, equipment heat removal and local fume extraction;

f. room pressure regimes and insect barriers to maintain PC2 conditions in all nominated PC2 areas;

g. reticulated laboratory gases from a central bottled store; and

h. connection to the CSIRO site wide BMS network.

Electrical Services

86. The electrical services will include:

a. New electrical sub-station;

b. Distribution boards;

c. Connection points to allow back-up power supply generators;

d. Internal lighting systems including emergency and exit lighting;

e. Sensor lighting in toilets areas and after hours detection in office and laboratory areas;

f. External and security lighting systems;

g. Voice and data communication wiring;

h. Emergency Warning and Intercommunication System (EWIS) and intercommunication phones linked to a site wide system;

i. Electronic security and access control to main entry and the perimeter of the proposed new building; and

j. connection to the CSIRO site wide BMS network.

Hydraulic Services

87. The hydraulic services will include:

    a. separate domestic and laboratory cold and hot water reticulation (potable and non potable);

    b. laboratory grade (reverse osmosis) water reticulation;

    c. sanitary plumbing and drainage;

    d. laboratory trade waste treatment;

    e. rainwater harvesting and use through toilets and gardening; and

    f. stormwater drainage.

Fire Services

88. The fire services systems will consist of fire hydrants, hose reels, extinguishers and automatic fire sprinkler systems. Fire services will be connected to the site wide BMS system.

Vertical Transportation

89. The Phase 1 building will include:

    a. a central passenger lift core provided in Phase 1 Building.

    b. A goods lift, linked to the loading dock.

Acoustics

90. Acoustic design will include an acoustic assessment that will model noise levels from outside the building, the impact of building vibrations (plant rooms, lifts, wind loads etc), internal traffic noise from footfall and the transmission of these sounds through the building fabric.

91. Acoustic requirements will be addressed for work and support areas, including open plan offices, enclosed offices, meeting rooms, quiet rooms, telepresence rooms, staff amenities, lifts and plant rooms.

Proposed Scope of Works

Phase 1 Refurbishment and Other Works

Refurbishment: Discovery - Building 702

Building Design and Concept

92. Conversion of North Wing level 1 and level 2 from non-compliant PC2 laboratories into office accommodation.

Mechanical Services

93. Modifications to the existing mechanical system, which are currently designed for laboratory use. The new layout will suit workstation and office layout and will be connected to the site wide BMS system.

Electrical Services

94. Modifications to existing lighting to suit new accommodation.

95. Improvements to the existing lighting control system to provide better zoning and time control.

96. The electrical services will be connected to the site wide BMS system.

Hydraulic Services

97. Refurbishment of toilet areas on level 1 and 2 to comply with increased staff population.

Fire Services

98. Modifications to existing fire system to suit new office layout and connection to the site wide BMS system.

Vertical Transportation

99. The existing lift will be retained and modified as necessary for code compliance.

Demolition

100. Buildings 001, 011, 012, 013 are proposed for demolition in Phase 1.

101. A collection of glasshouses and sheds will be demolished to make way for the new carpark.

Collaborative Space

102. Buildings 201 and 209 will be vacated by CSIRO and will be available for lease.

Lease Disposal

103. The Campbell lease will be vacated by the end of June 2016 in accordance with the lease expiry.

Car Parking and Road Works

104. A new on-grade car park for 310 spaces will be constructed and will include security lighting.

105. A new road connection will be provided from the new car park to Dickson Way and to South Science Road.

Phase 1 Consolidation Summary

106. The scope of works described under Phase 1 is summarised below.

Table 8 – Phase 1 Summary Scope of Works

Scope	GFA m²
New Build	
Phase 1	7,902
Refurbishment	
Discovery Centre - B702	2,824
Demolition	
B001	3,546
B001	248
B012	340
B013	480
South West Glasshouses / Sheds	1,852
Total	**6,466**
Collaboration Space	
B201	5,430
B209	90
Total	**5,520**
Lease Disposed	
Campbell	-7,398
Car Parking Spaces (number of spaces)	

Existing	748
Deleted	-18
New	310
Total	**1,040**
Landscaping (m2)	
Green Space	1,094
Hard Landscaping	1,200
Total	**2,294**

Table 9 – ACT Portfolio Consolidation at the End Of Phase 1

ACT Sites	Existing GFA m²	Final GFA m²	Staff Population
Black Mountain	78,177	79,613	1,430
Campbell*	7,398	0	0
Acton (ANU)*	2,765	2,765	100
Yarralumla*	11,021	11,021	128
Crace*	11,398	11,398	11
TOTAL	**110,759**	**104,797**	**1,669**

* ACT leased sites

Proposed Scope of Works

Phase 2 Refurbishment and Other Works

Refurbishment: Library - Building 060

Building Design and Concept

107. The scope of building works to be delivered includes:

    a. Conversion of the ground floor and first floor into compliant and functional modern office accommodation office accommodation;

    b. Rectification and maintenance works to the roof and skylight; and

    c. DDA upgrade as required throughout the building to comply with the NCC and Commonwealth requirements.

Mechanical Services

108. The current Heating Ventilation and Air Conditioning (HVAC) system primarily caters for book storage and will be upgraded to cater for increased staff population density, and will be connected to the site wide BMS system. Alternative technologies will be considered for the HVAC solution to respect the architectural characteristics of the building and its heritage value.

Electrical Services

109. The lighting systems and selection will require considerable upgrade to suit the new office accommodation.

110. Extensive Information and Communications technology (ITC) and power cabling will be required for the new staff numbers and sensitively incorporated into the original architecture.

111. Electrical services will be connected to the site wide BMS.

Hydraulic Services

112. The proposed works will be limited to refurbishment of toilet areas on level 1 and 2, including provision of equal access toilet and ambulant toilets.

Fire Services

113. The scope of fire services upgrade includes:

    a. Upgrade of fire suppression systems, detectors and alarms and connection to the site wide BMS system

    b. NCC compliance upgrades required for egress and emergency exits.

Vertical Transportation

114. The existing lift that was installed in the recent extension serves the basement, ground and first floors and will be retained. Previous studies have deemed the installation of a dedicated lift to service the mezzanines as uneconomical.

Refurbishment: Pye Laboratory - Building 019

Building Design and Concept

115. The scope of building works to be delivered includes:

    a. refitting of the ground and first floors with offices to provide functional and efficient working accommodation and will adopt the PRODAC principles in terms of density;

    b. Reconfiguration of the lower ground floor to convert the existing workshop space into a new centralised site facility for electronics and equipment calibration. Research Wind Tunnels currently located within the basement will be retained;

    c. Rectification of roof leaks;

    d. Removal of asbestos formwork to the waffle pan of the ground floor ceiling; and

    e. Access upgrade as required throughout the building to comply with the NCC and Commonwealth requirements.

Mechanical Services

116. Central services upgrades including existing air handling system as required for compliance, and connected to the site wide BMS system.

Electrical Services

117. Electrical Services works includes:

    a. Improvements to the existing lighting control system to provide better zoning and timer control;

    b. Connection of emergency lighting to site network as well as escape and exit signage; and

    c. The electrical services will, be connected to the site wise BMS system.

Hydraulic Services

118. Hydraulic Services works includes refurbishment of toilet areas on level 1 and 2, including provision of equal access toilet and ambulant toilets.

Fire Services

119. Upgrade of the fire detectors and alarms, and connection to the site wide BMS system, will be required.

Vertical Transportation

120. The existing lift serves all floors of the building and was installed 2004. The capacity has been confirmed to be acceptable for the new building population, however minor upgrades to the controls are required.

Minor Refurbishment: Sir Otto Frankel Laboratories - Building 002/079

Building Design and Concept

121. This facility will be utilised in two stages for the duration of Phases 1 and 2. Phase 1 as decanting space for the adjoining Discovery Centre PC2 laboratories whilst that building is converted to office based accommodation. Towards the completion of Phase 2 minor refurbishment will be undertaken to de-regulate non-PC2 laboratories.

122. Refurbishment will be limited to controlled environment rooms located on the ground floor and increasing office/workstation accommodation mostly in B079 by removing non-compliant laboratories.

Mechanical Services

123. Retain existing HVAC with minor reconfiguration to suit construction of cold rooms and open plan office accommodation will be required.

Electrical Services

124. Existing lighting and power will be retained, with minor reconfiguration required.

Hydraulic Services

125. Retain existing toilet facilities with minor reconfiguration to comply with increases staff population density.

Fire Services

126. Retain existing fire services, with minor reconfiguration.

Vertical Transportation

127. Existing lift services will be retained and adjusted for compliance if necessary.

Demolition

128. Buildings 010, 017, 018, 073, 081, 111, 204, 401A, B and C, 508, 505, 602, plus a number of glasshouses and sheds are proposed for demolition in Phase 2. These building are beyond their serviceable life, generally do not comply with current building standards and represent an ongoing repairs and maintenance cost burden. Some of these buildings have to be demolished to make way for the new facilities. Others will be surplus to CSIRO's requirements and are unsuitable for adaptive re-use.

Collaborative Space

129. Buildings 201, 209 and 301 will be vacated by CSIRO and will be available for commercial lease to external collaborators and Government agencies.

Lease Disposal

130. The Yarralumla lease will cease by the end of June 2021 and Acton (ANU) in January 2020 in accordance with the lease agreements.

Phase 2 Consolidation Summary

131. The scope of works described under Phase 2 is summarised below.

Table 10 – Phase 2 Summary Scope of Works

Scope	GFA m²
New Build	
Phase 2	5,829
Refurbishment	
Discovery Centre - B702 (Lower Ground)	300
Library - B060	1,200
Pye Lab - B019	2,231
B002/079	2,513
Total	**6,244**
Demolition	
B017, B018	1,400
B073	3,100
B10, B81, B111, B204, B602, B508, B505	2,557
B401 A, B & C	5,498
South West Glasshouses / Sheds	1,497
Total	**14,052**
Collaboration Space	
B301	2,048
B201, B209	5,520
Total	**7,568**
Lease Disposed	
Acton (ANU)	-27,65
Yarralumla	-11,021
Total	**-13,786**
Car Parking Spaces (number of spaces)	
Existing (Phase 1)	1040
Deleted	-20
Total	**1,020**
Landscaping (m2)	
Pedestrian Avenue	4,000

Greenspace	7,500
Hard Landscaping	7,155
Total	**18,655**

Table 11 – ACT Portfolio Consolidation At The End Of Phase 2

ACT Sites	Existing GFA m²	Final GFA m²	Staff Population
Black Mountain	78,177	63,822	1,658
Campbell*	7,398	0	0
Acton (ANU)*	2,765	0	0
Yarralumla*	11,021	0	0
Crace*	11,398	820	11
TOTAL	110,759	64,642	1,669

* ACT leased sites

General

Furniture

132. The proposed work includes the provision of new workstations, loose and fixed furniture conducive to open plan office environments as well as the furniture fixtures and fittings required for laboratories.

133. Furniture selection will be based on appropriate occupational ergonomic standards and minimising VOC materials.

134. Workstation density will be developed in accordance with PRODAC guidelines.

Hard Landscaping

135. Hard landscaping will utilise a moderate palette of materials respecting the bush edge setting of the site, and will look sensitively at minimising stormwater runoff.

136. The Main Entry zone to the new building will be enhanced and formalised through avenue planting.

137. A formal tree lined boulevard will be established along the Plaza and North Science Road.

138. The Pedestrian zone will become the spine, to link the consolidated heart of the CSIRO with the existing buildings and the future CSIRO and collaborator development sites. A strong focus on pedestrian and cyclist centric design will provide comfortable pathways that encourage walking and cycling throughout the campus and through to its neighbours of the ANU and the ANBG.

Soft Landscaping

139. Landscaping will be provided to areas surrounding demolished buildings.

140. A xeriscape planting strategy will build upon the existing planting and tree species featured on site. Xeriscaping is a form of landscaping and gardening that reduce or eliminates the need for supplemental water from irrigation.

Design and Construction Standards

141. All buildings, services and external infrastructure will comply with all relevant town planning, Commonwealth and State building, health and safety regulations, the NCC and all relevant Australian Standards.

142. All consultant agreements and construction contracts will be compliant with the Australian Government Building Code 2013 and the Australian Government Building and Construction OHS Accreditation Scheme.

Vehicular Access

143. The consolidation and amalgamation of CSIRO activities onto the Black Mountain campus will build upon the efficient utilisation of the existing road infrastructure.

144. The current principal access and egress point of Julius Road with its dedicated roundabout on Clunies Ross Street will be retained as the primary access point to the Black Mountain campus.

145. Secondary access via South Road will also be retained, however certain traffic manoeuvres may be restricted following further detail traffic studies.

146. North access into the site via the intersection of Christian Road and Frith Road, may be barrier controlled to limit and reduce through traffic to stop the public utilising the Black Mountain campus as short cut to Clunies Ross Street.

Bicycle Parking

147. Phase 2 of the proposed development will provide dedicated staff ‘end of ride’ facilities incorporating change rooms and lockers along with bicycle parking facilities to support the utilisation of this mode of transport as a primary method for staff and visitors to access the campus.

Car Parking

148. The Black Mountain campus is currently provided with 748 car parking spaces distributed throughout the site.

149. A new dedicated staff car park providing 310 additional spaces will be provided in Phase 1, taking the total parking capacity of the Black Mountain campus to 1,040 spaces. During Phase 2, there is a reduction of 20 parking spaces, resulting in the final allocation of 1,020 car parking spaces.

150. The location of this new primary car park will be less than a three to four minute walk to the new consolidated 'heart' of the CSIRO activity zone.

151. In the longer term, a parking expansion zone has been indicated on the Master Plan to accommodate either on grade parking expansion or a multi-decked parking solution.

Pedestrian Access

152. The site circulation strategy provides a focus to the central heart of CSIRO's Black Mountain campus activities where priority is given to pedestrians. It is proposed that pedestrian movement will be the principle mode of movement in the site, further facilitating integrated site function and consolidation.

153. Pedestrian priority will be supported with:

    a. active street edges, which will feature generous, grade continuous paving; not just entries to buildings, complimenting a human scale streetscape and built environment;

    b. pathways that will present to the user a legible hierarchy that connects the surrounding neighbourhood; and

    c. pedestrian, active transport and open space networks with high quality public realm design with site and precinct specific way finding system linking to the ANBG / ANU and broader Canberra network.

Site Security

154. The consolidation of the CSIRO activities into a much smaller foot print, enhanced sight lines and improved environmental design will intuitively improve the security and management of safety on the Black Mountain campus.

155. The placing of new car parking close to the centre of CSIRO operations with adequate lighting and access control will also improve campus security and safety.

Maintenance and Servicing

156. The maintenance and serviceability strategies to be considered in the detailed design solution will focus on minimising long term maintenance requirements to the building fabric and building services infrastructure, including:

    a. Building finishes and material selection includes:

        i. A selection of finishes and materials that are hard wearing and do not require regular maintenance, such as using pre finished materials rather than using high maintenance painted finishes on facades;

        ii. guttering and downpipes in stainless steel; and

        iii. using materials that withstand harsh weather conditions and UV exposure.

    b. Cleanability:

        i. the buildings are essentially low rise, up to 4 floors providing ready access for cleaning;

        ii. facades and glazing will be designed for ease of cleaning; and

        iii. internal finishes will be selected for ease of cleaning and longevity in performance and hard wearing.

    c. Building services:

        i. new buildings will enable the possibility of a future centralised plant and infrastructure to support Phases 1 and 2;

        ii. ‘On floor’ HVAC plant rooms located on ground, levels 1 and 2, with roof mounted HVAC plant situated on level 3 offers the most flexible solution to future proofing and servicing for the new buildings; and

        iii. the useable floor area on level 3 will be optimised by using the overhead plant room space for HVAC support, this provides flexible space for reconfiguration of science and technical spaces.

157. Refurbishment projects may choose standalone plant to service the individual needs of each refurbishment project, and be scalable to either occupation or changes to budget or scheduled maintenance replacement.

Environmental Management

158. The construction contractor will be required to implement a Construction Environmental Management Plan during the construction phase to manage waste, noise, airborne pollutants and dust, erosion and stormwater control ands a rang of other environmental controls.

159. CSIRO will be developing with the Contractor waste management and recycling of materials.

160. An Environmental Management Plan consistent with AS/NZS ISO 14001:1996 will be developed for the post-occupancy management of the new facilities.

Ecological Sustainable Design Principles

161. Energy conservation and sustainable design are primary considerations for the project. The design and construction of site services and buildings should optimise Ecological Sustainable Design (ESD) principles and take into account the microclimate conditions at the site. Compliance with minimum energy performance standards set out in Energy Efficiency in Government Operations (EEGO) policy is also required.

162. The detailed design phase will require the following ESD assessment studies:

    a. whole of life cost benefit calculations of renewable energy systems;

    b. thermal modelling studies;

    c. optimum building orientation on the site to provide maximum north/south exposure in order to maximise passive solar energy;

    d. optimum building layout enabling maximisation of day-lighting conditions for offices, and laboratories;

    e. optimisation of building materials for thermal mass and minimising impact;

    f. high quality and efficient HVAC systems;

    g. utilisation of highly efficient lighting; and

    h. provision of primary or borrowed natural light in all major functional spaces thus minimising the use of artificial lighting.

163. CSIRO will adopt approaches that improve lighting hardware efficiency (light power density); reduce the time that lights are illuminated through installation of appropriate lighting controls that take advantage of available natural light and occupancy patterns. The design will aim to minimise or avoid over-illumination of work areas and provide a quality visual environment that enhances wellbeing and productivity of the occupants while minimising energy consumption.

164. To achieve these outcomes, CSIRO will install appropriate lighting solutions that will utilise energy efficient fluorescent lighting, LEDs and/or other lighting solutions depending on the application. As a minimum, for new buildings, CSIRO will achieve:

a. maximum lighting power density of 2W/m2/100 lux;

b. separate zoned switching in individual rooms or every 100 m2 in open plan spaces;

c. all lighting to be linked to the site building management system or a local lighting control system, with inclusion of automatic lighting time controls to turn lights off after hours (manual switch on);

d. automatic presence detector sensors or timed switches on all intermittently occupied spaces (e.g. wash rooms, store rooms, bicycle storage areas, and meeting rooms); and

e. intelligent lighting control systems where viable.

165. Sustainable transport options such as cyclist facilities and linkages across the Black Mountain campus will be considered.

166. The above initiatives and measures are consistent with a continuing commitment by CSIRO to reduce energy use through the adoption of better and more efficient energy management practices in the design and operation of its facilities.

Health and Safety

167. CSIRO pursues an active staff Health and Safety Policy within the workplace and this will be extended to include all facilities.

168. Construction of the project will be compliant with the Federal Safety Commissioner (FSC) requirements and as a consequence, will be required to undergo Safety in Design during the Design process to ensure that the building is safe to build and safe to operate/service.

169. During construction, only FSC certified contractors will be engaged and the project will be audited for compliance during the contract by the FSC.

170. CSIRO will be active with all contractors to promote a zero harm policy with respect to safety.

Consultation

171. The following authorities and Departments have been or will be consulted by CSIRO and its consultants during the preparation of this submission:

a. Commonwealth Government

i. National Capital Authority
ii. Department of Industry
iii. Department of the Environment
iv. Department of Finance
v. Department of the Prime Minister and Cabinet
vi. The Department of the Treasury

b. Territory and Local Government

i. ACT Territory and Municipal Services
ii. ACTewAGL
iii. ACTew Water
iv. ACT Fire Brigade
v. ACT Planning and Land Authority

c. Federal and Local Members

i. ACT Senator – Senator, the Hon Zed Seselja
ii. ACT Senator – Senator, the Hon Kate Lundy
iii. Federal Member - Member for Canberra, Ms Gai Brodtmann
iv. Federal Member - Member for Fraser, Mr Andrew Leigh
v. ACT Legislative Assembly – Chief Minister, Ms Katy Gallagher
vi. Local MLA Members of the appropriate electorate

d. Unions

i. CSIRO Division of Community Public Sector Union (CPSU)

e. Other Organisations

i. Australian National University

ii. University of Canberra

iii. University of New South Wales, University College, Australian Defence Force Academy

iv. Office of the Gene Technology Regulator

v. Australian National Botanic Gardens

f. Public consultation – a public consultation meeting is to be conducted before the PWC hearing to brief the community on the proposal and to respond to any questions.

g. The CSIRO has also conducted information and consultation sessions during the planning and concept design phases with the CSIRO Divisional leaders and representatives as well as CSIRO staff.

Impact on Local Community

Environmental

172. An assessment of impacts of the current proposal upon the 'environment' (as defined under the Environment Protection and Biodiversity Conservation Act (1999) (EPBC Act)) was completed, as is required for works undertaken on Commonwealth land or by a Commonwealth entity.

173. Based upon this assessment, CSIRO has been advised by the project environmental consultants, that the project is a Non Controlled action as defined under the EPBC Act. Irrespective of a non controlled action CSIRO has opted to proceed with a formal EPBC submission to ensure that there is no future risk associated with environmental issues that may impact on the project program or costs.

Employment

174. The proposed development of the Black Mountain campus will provide significant employment opportunities for local construction industry businesses and support services. It will lead to anticipated continual employment from June 2016 to June 2020.

175. Professionals/Consultants: It is anticipated that approximately 10 separate companies will be engaged to provide consultancy services during the project delivery. This has the potential to involve 16 to 20 employees in order to ensure that the timeframes and deliverables are achieved.

176. Contractors: There is likely to be a need for up to 60 trade companies and 800 personnel on site (and off site including manufacturers and suppliers) during the project delivery.

177. Other Civic, O'Connor and Acton based businesses including hospitality and other services industries will also benefit from the construction works and increased CSIRO occupation of the Black Mountain campus.

178. CSIRO is a major employer and this facility will have a positive impact on staff satisfaction and retention. The ability for CSIRO to provide modern and efficient working accommodation is of valuable assistance in maintaining staff satisfaction and attracting skilled and experienced staff.

Community Resources

179. No adverse impact on existing parking will result from the refurbishment or construction works at the Black Mountain campus. Temporary parking for construction personnel will be provided on site during the construction works.

180. The proposed development at the Black Mountain campus will:

    a. have no significant detrimental impact on the natural or human environment;

    b. encourage improved utilisation of existing public facilities and transport infrastructure;

    c. make use of, and improve existing engineering services including water, sewerage and storm water in the area;

    d. improve overall operation, efficiency, safety and staff satisfaction through the provision of refurbished staff accommodation;

    e. provide improved collaboration opportunities with the ANU and the ANBG; and

    f. have a positive effect on the local economy via the creation of jobs during construction and fitout.

181. Child Care Provisions

    a. A childcare facility currently operates at the Northern end of the Black Mountain campus and is sufficient to meet the expanded needs of the site.

Project Outturn Costs

182. This proposal is self-funded, utilising funds from the Wireless Local Area Network (WLAN) licencing arrangements, which was awarded to CSIRO in 2012, following a legal process regarding CSIRO's Intellectual Property over key features of the WLAN capability. Funding is also being provided through the Science and Industry Endowment Fund (SIEF) contribution and CSIRO's ongoing capital funds.

183. The project budget is based upon the following internal funding and reinvestment:

    a. Proceeds from the 2012 WLAN licensing arrangement (approximately $100 million) have been quarantined for the proposed project development;

    b. SIEF funding ($10 million) for collaborative space within the redevelopment.; and

    c. Capital in the CSIRO's existing budget committed to this proposal ($85.6 million).

184. The indicative cost for this proposal is $195.6 million (excluding GST). This includes the construction costs, site preparation; infrastructure services costs, management and design fees, furniture, fittings and equipment, contingencies and escalation.

Option Analysis

185. A range of options have been investigated by the CSIRO including: the sale and lease back of both corporate and scientific facilities; Public Private Partnerships (PPP) on specific facilities and options; and leased facilities and decentralisation.

186. An external review of the business case has confirmed that CSIRO has undertaken due diligence to provide confidence to CSIRO that the proposed solution provides the best value for money, while also mitigating cost/risk profile that have historically been associated with specialised and unique properties in the past.

Project Delivery Methodology

Phase 1 – Managing Contractor Contract

187. A Managing Contractor (MC) contract is proposed for the Phase 1. The advantages of this this delivery methodology are:

    a. The Managing Contractor is able to contribute to the Planning Phase to apply their expertise to the design of the facilities, particularly in terms of buildability assessment.

    b. The Contract is able to be established in two contractually separate phases, being the Planning Phase and the Delivery Phase. No commitment to the Delivery Phase will be made until after the PWC review process has been completed and passed in the Parliament.

    c. Subject to passing of an Expediency Motion in Parliament, the MC will be able to proceed immediately and effectively with the Delivery phase of the project, with positive benefits to the project program, ensuring completion before the expiry of the Campbell lease.

188. MC tenders will be required to comply with the requirements of Building Code 2013 and the office of the Federal Safety Commissioner.

Phase 2 – Lump Sum Contract

189. Phase 2 documentation will be completed in advance of Phase 2 construction, which provides CSIRO some flexibility with the delivery methodology. Options include a Head Contract, a series of Head Contracts or extension of the Phase 1 Managing Contractor form of delivery.

190. CSIRO will assess the most appropriate form of delivery for Phase 2 as the design develops and as the delivery of Phase 1 works proceeds.

Program

191. The critical milestone to be achieved is the vacation of Campbell prior to expiry of the lease in June 2016. This is the key program driver for Phase 1 of the project. The subsequent relocation from Acton and Yarralumla in Phase 2 must be achieved by January 2020.

192. The key milestones, based on an anticipated Parliamentary Expediency Motion around mid-March 2014, are as follows:

Table 12 – Summary Program for CSIRO ACT Consolidation Project

Task	Phase 1		Phase 2	
	Start	Finish	Start	Finish
Detailed Design & Documentation	Jan 14	Sep 14	Jan 14	Dec 14
Contractor Procurement	Dec 13	Mar-14	Oct 167	Jan 17
Construction and Relocation	Jul 14	April 16	Sep 17	Mar 19
Defects Liability Period	Apr 16	Apr 17	Mar 19	Mar 20

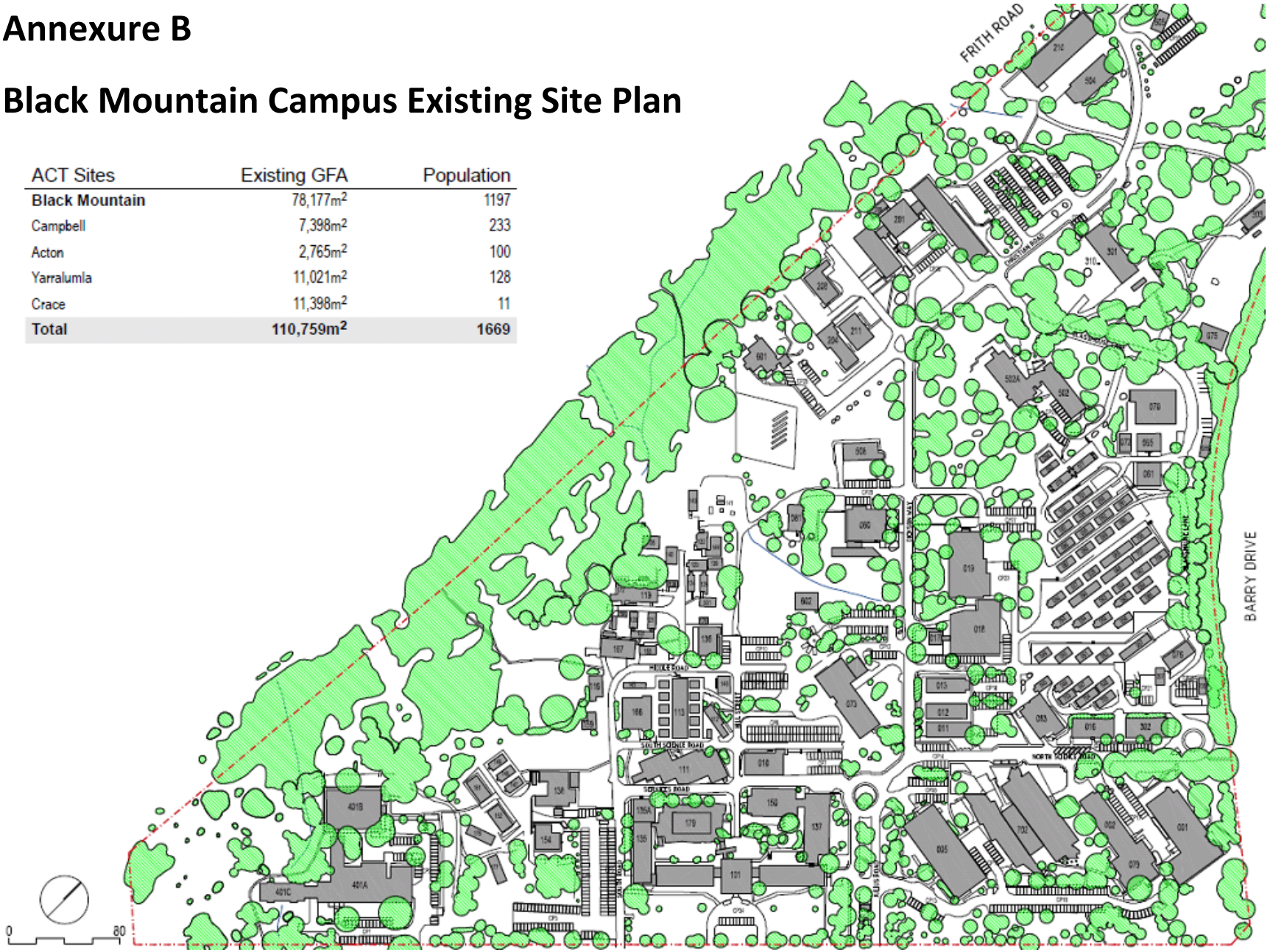
Annexure A

Location Plan

Annexure B

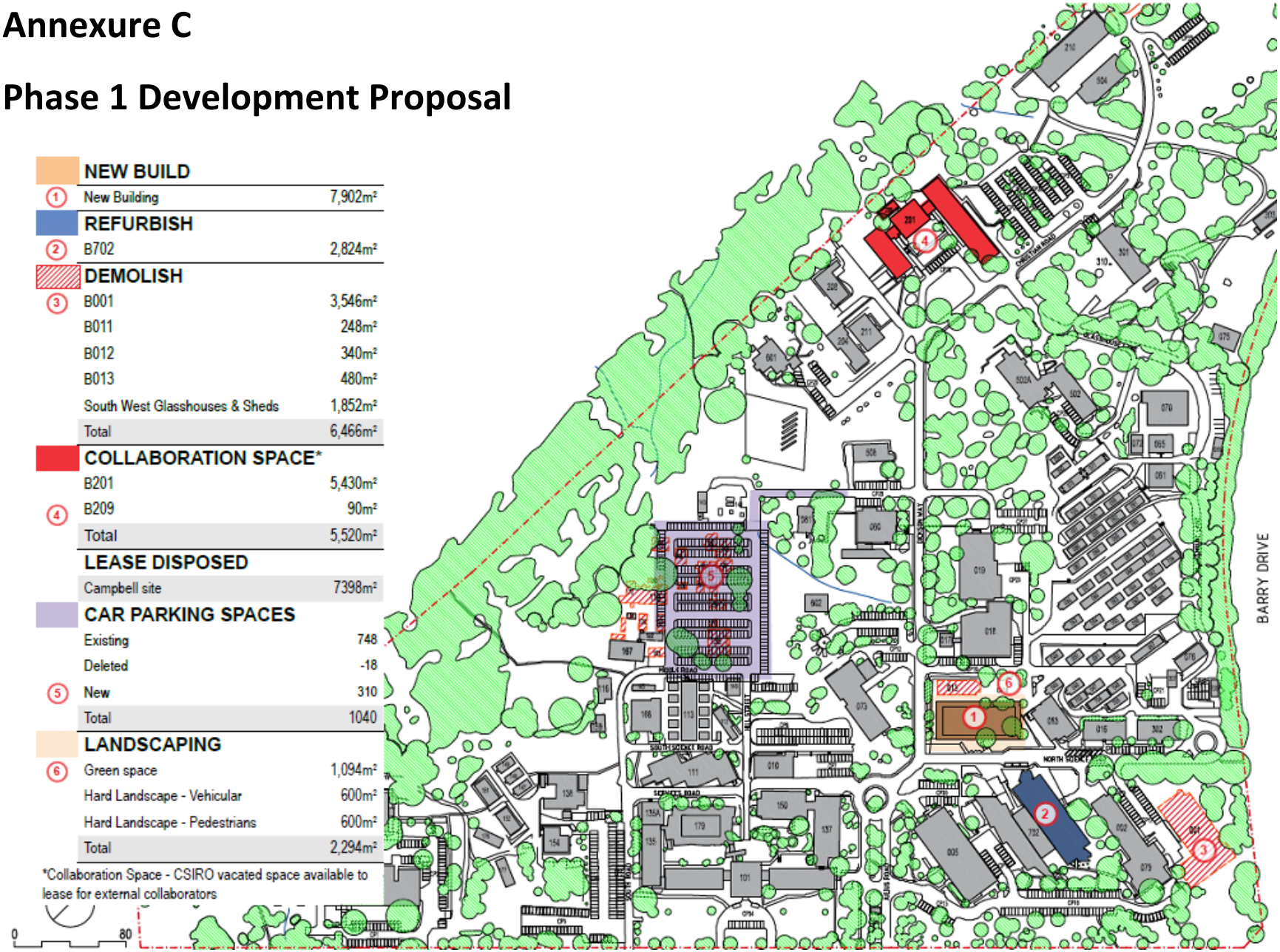
Black Mountain Campus Existing Site Plan

ACT Sites	Existing GFA	Population
Black Mountain	78,177m²	1197
Campbell	7,398m²	233
Acton	2,765m²	100
Yarralumla	11,021m²	128
Crace	11,398m²	11
Total	**110,759m²**	**1669**



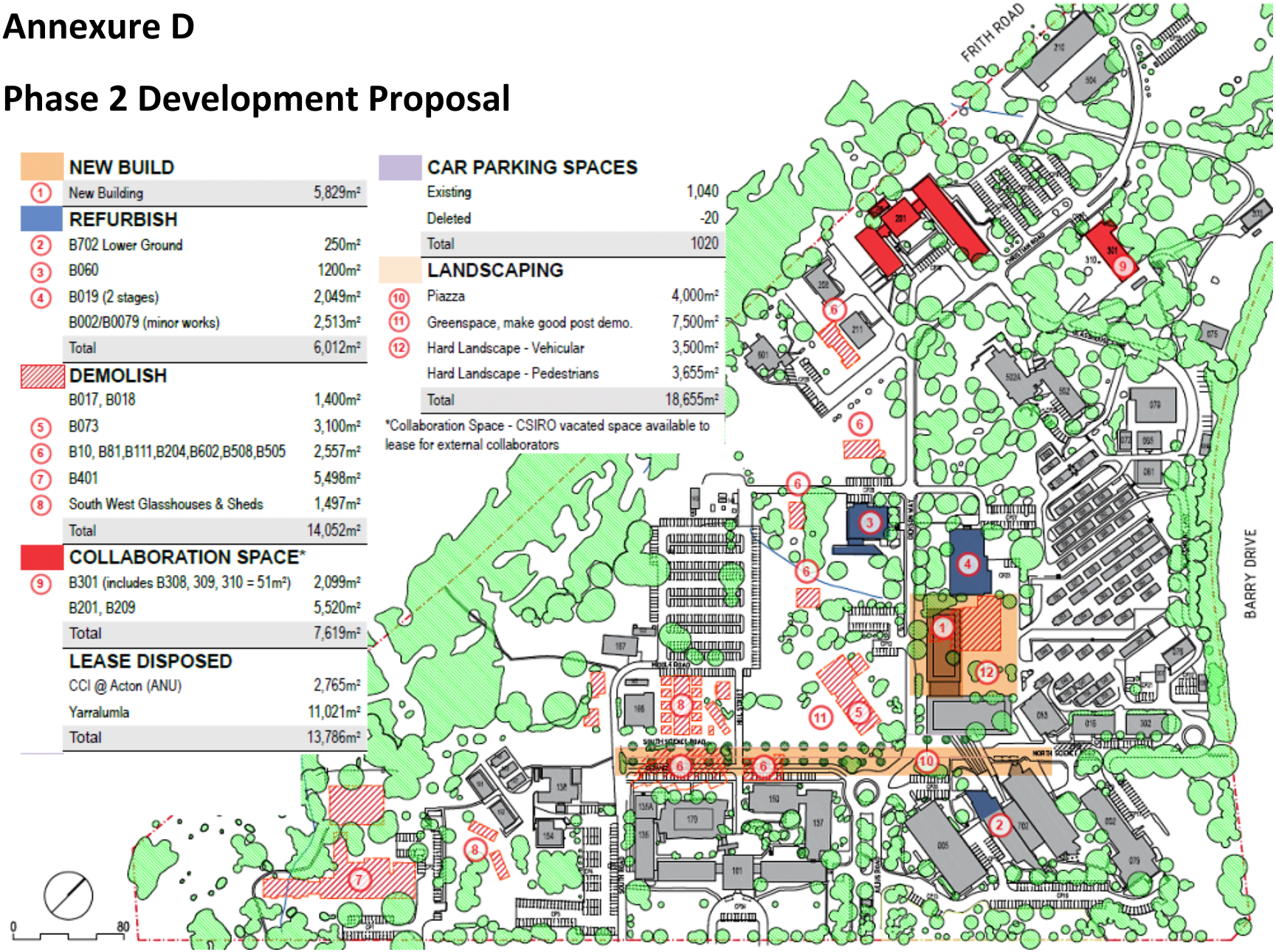
Annexure C

Phase 1 Development Proposal



Annexure D

Phase 2 Development Proposal



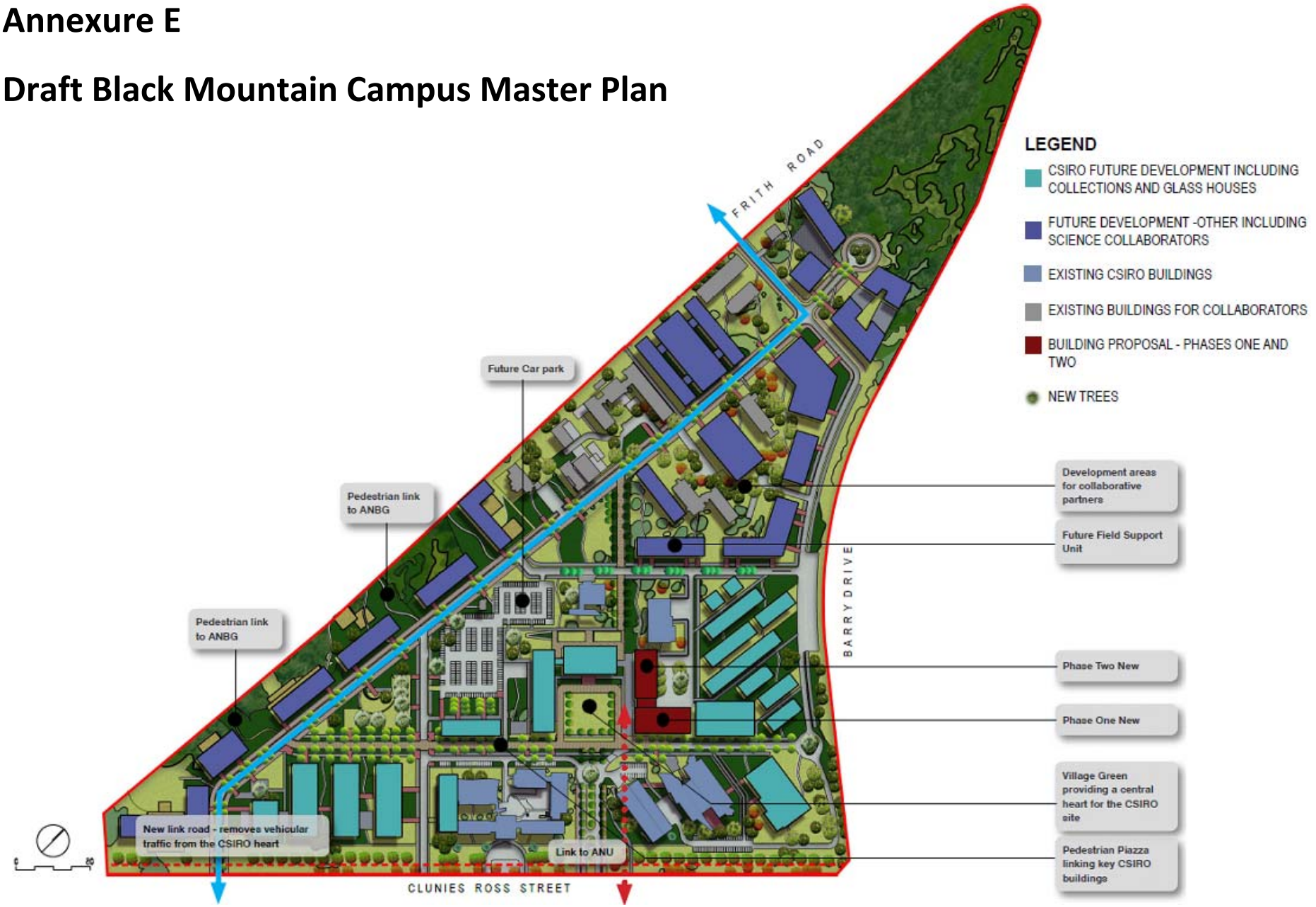
NEW BUILD	
1 New Building	5,829m²
REFURBISH	
2 B702 Lower Ground	250m²
3 B060	1200m²
4 B019 (2 stages)	2,049m²
B002/B0079 (minor works)	2,513m²
Total	6,012m²
DEMOLISH	
B017, B018	1,400m²
5 B073	3,100m²
6 B10, B81,B111,B204,B602,B508,B505	2,557m²
7 B401	5,498m²
8 South West Glasshouses & Sheds	1,497m²
Total	14,052m²
COLLABORATION SPACE*	
9 B301 (includes B308, 309, 310 = 51m²)	2,099m²
B201, B209	5,520m²
Total	7,619m²
LEASE DISPOSED	
CCI @ Acton (ANU)	2,765m²
Yarralumla	11,021m²
Total	13,786m²

CAR PARKING SPACES	
Existing	1,040
Deleted	-20
Total	1020
LANDSCAPING	
10 Piazza	4,000m²
11 Greenspace, make good post demo.	7,500m²
12 Hard Landscape - Vehicular	3,500m²
Hard Landscape - Pedestrians	3,655m²
Total	18,655m²

*Collaboration Space - CSIRO vacated space available to lease for external collaborators

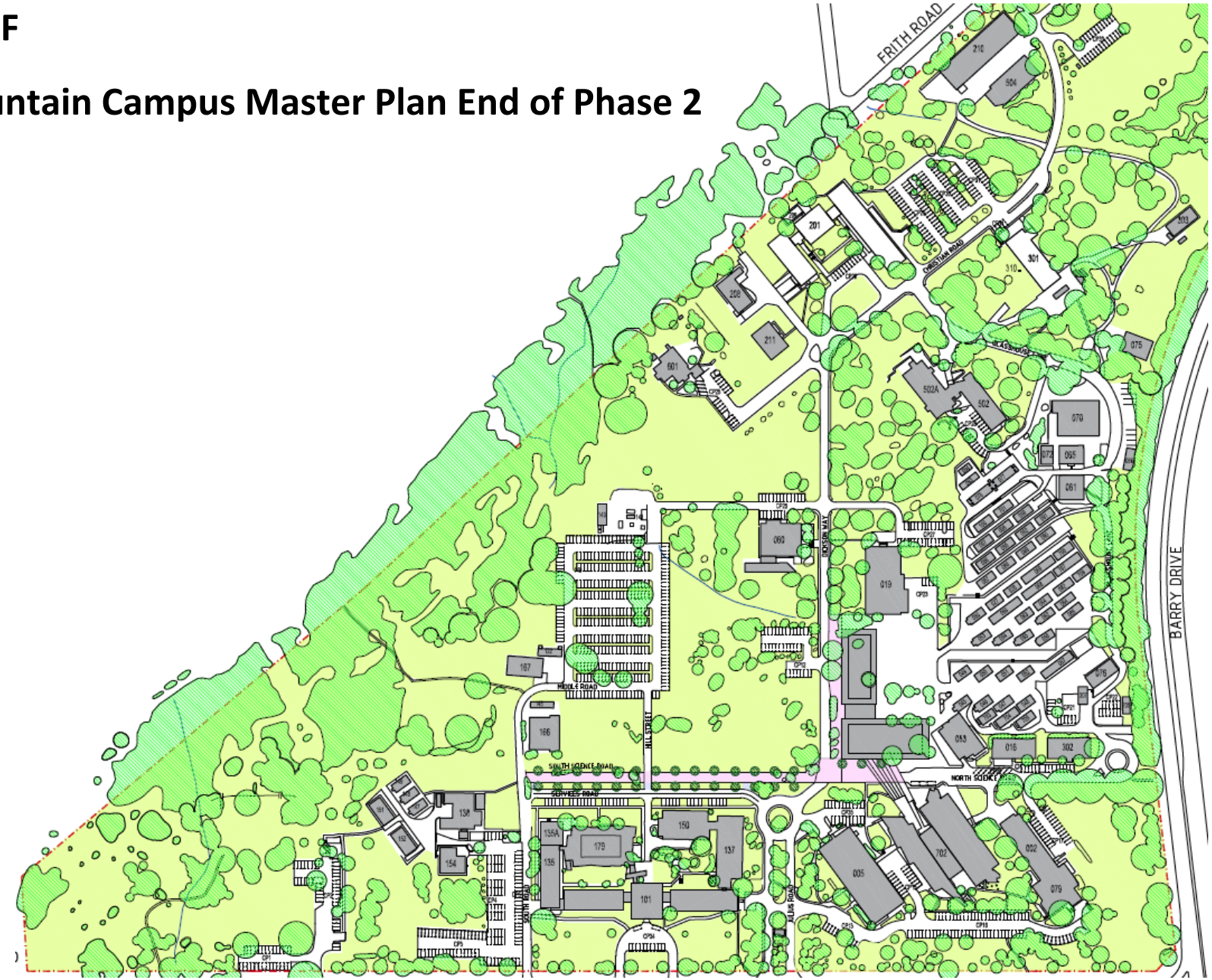
Annexure E

Draft Black Mountain Campus Master Plan



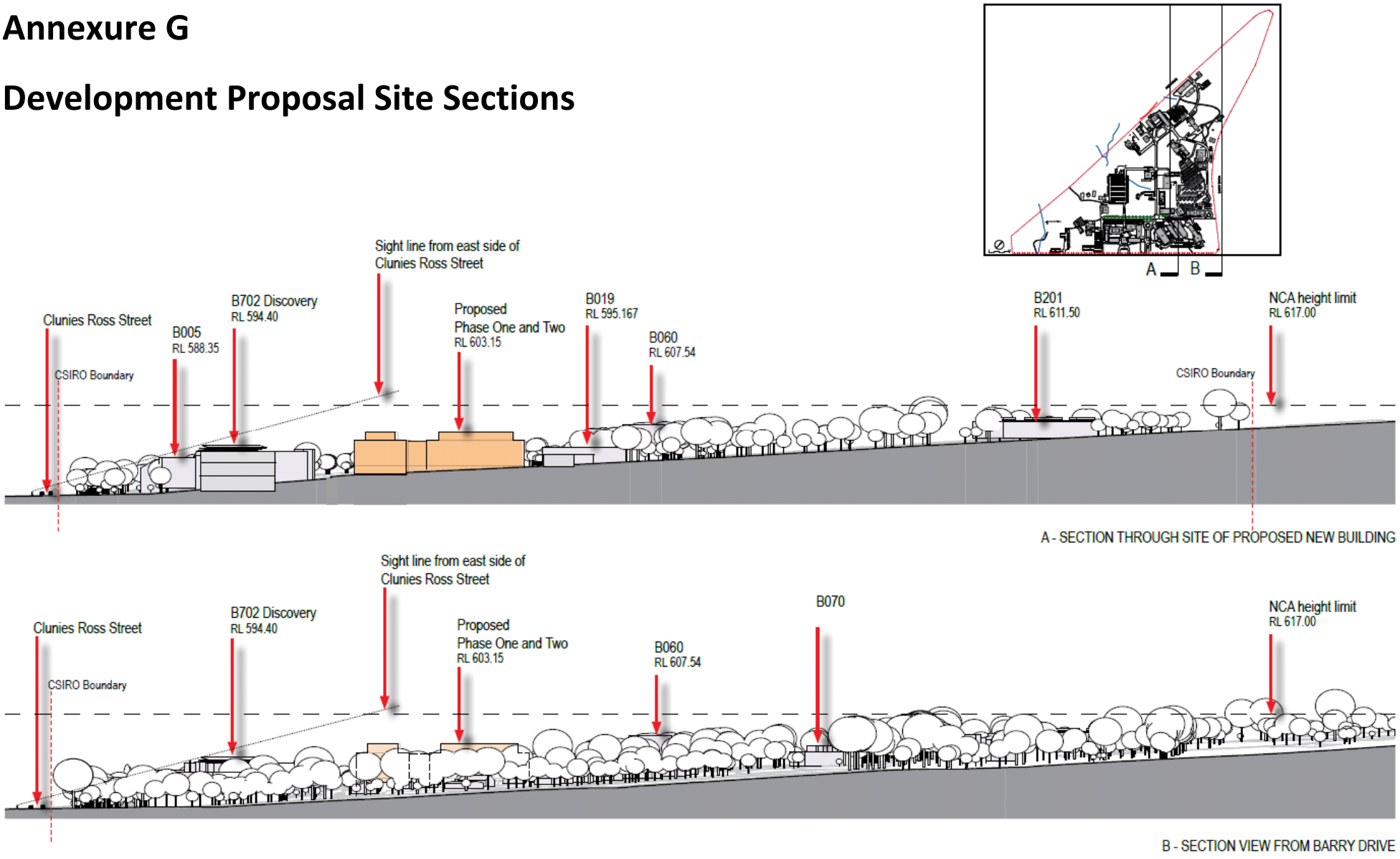
Annexure F

Black Mountain Campus Master Plan End of Phase 2



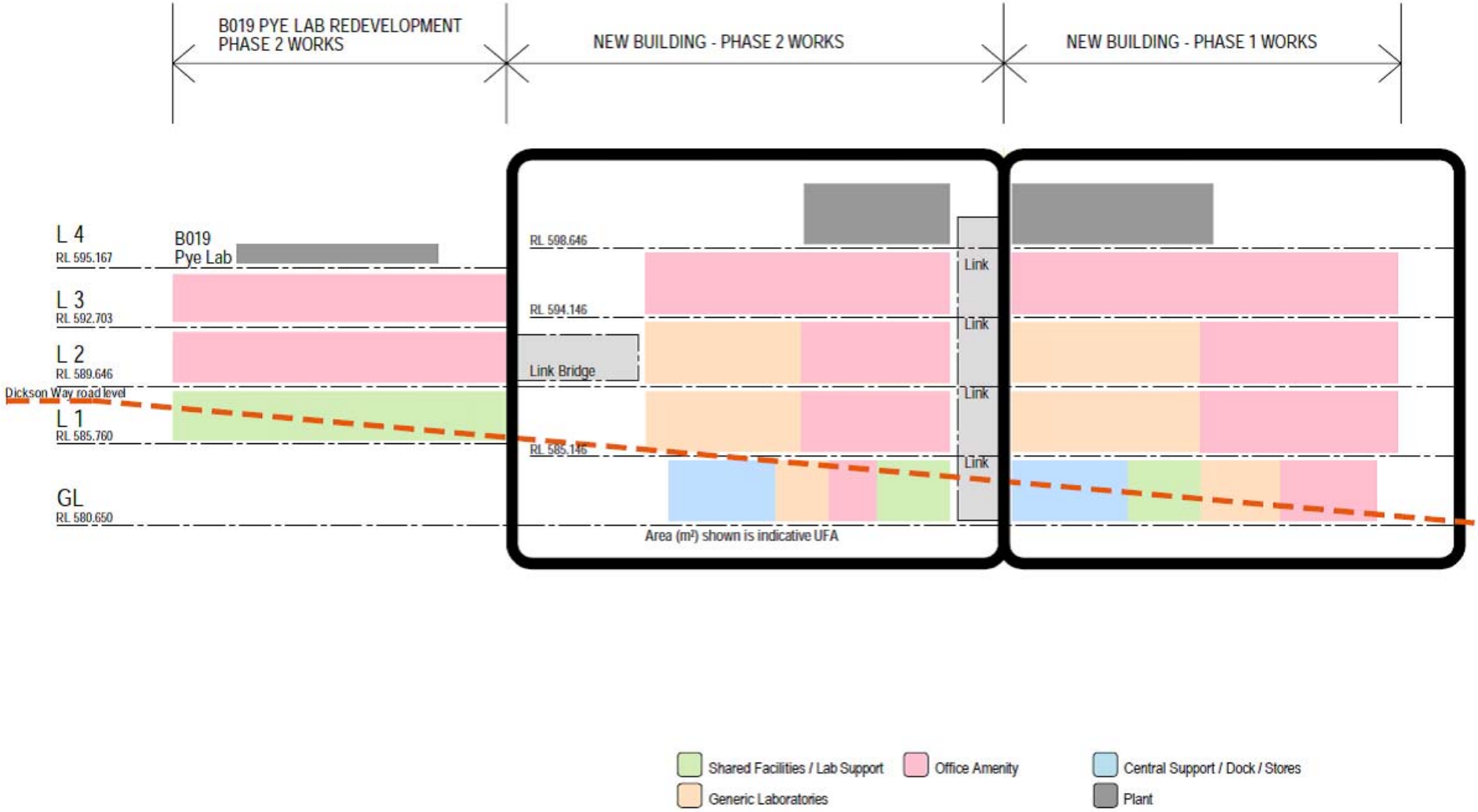
Annexure G

Development Proposal Site Sections



Annexure H

Block and Stack Plans



Example of a typical Blocking and Stacking Diagram

Annexure I

New Development Perspective (Conceptual)