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# Statement of Evidence to The Parliamentary Standing Committee on Public Works

Submission 1.0

For the CSIRO Clayton Property Strategy

Clayton, Victoria

December 2013



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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 54 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. The Commonwealth Scientific and Industrial Research Organization (CSIRO) requires property to enable its specialised science capabilities. As such, the organisation needs to ensure that all of their facilities are fit for purpose, support science and have facilities that will attract leading researchers and scientists to the CSIRO.
4. The CSIRO Property Investment Strategy was developed to deliver a 10 year program of works designed to reduce the property footprint by 20% and eliminate the forecast annual increase in property operating costs over 2012-2013 levels.
5. The proposal presented in this submission to the Parliamentary Standing Committee on Public Works (PWC) is for the relocation of its staff and research from Highett Melbourne to its Clayton Site adjacent to Monash University.
6. The proposal presented also includes the provision of a new building at North Clayton for the Science Education and Factories of the Future Innovation (FoFi) Centres. In addition to accommodating the FoFi, the new building will house the CSIRO Science Education Centre (CSEC), currently located at Highett. The FoFi component will have a focus on Additive Manufacturing and it will also be designed as a demonstrator for next generation digital and network enabled manufacturing concepts and technologies.
7. CSIRO's Highett site is a 9.3 hectare parcel of land owned by CSIRO, 20km south of the Melbourne CBD in a predominantly residential area within the City of Bayside. There are 55 buildings on the

campus, all of aging stock, with the oldest constructed in the 1940's and most recent constructed in the 1980s. This site is being prepared for sale by CSIRO.

8. CSIRO's site at Clayton site comprises two components. The main site located between Monash University and Normanby Road is a 15.36 hectare parcel of land owned by CSIRO, 19km south-east of the Melbourne CBD in a predominantly residential area within the City of Monash. There are 48 buildings on the campus, with the oldest constructed in 1964 and most recent constructed in 2006. The second component of the Clayton site is North Clayton, positioned on the north side of Normanby Road, directly opposite the main site, comprising 3.2 hectares of land and four main buildings.
9. The relocation from Highett to Clayton is consistent with the CSIRO Property Strategy designed to bring together science capability to enable a multidisciplinary approach to research issues and better engagement with both industry and universities by creating a critical mass for research, collaboration and innovation to the benefit of Australia.
10. The relocation of staff and science capabilities from Highett to Clayton is part of the CSIRO Property Investment Strategy and will realise the potential of existing building stock at Clayton through increased utilization, repurposing unused buildings and some refurbishment.
11. Whilst incorporating unique and specialised research capabilities, the condition of the buildings on the Highett site have deteriorated significantly over time, and inclusive of upgrades to national building regulations it is no longer good value for money to refurbish them. Over time, the continued occupation of the buildings could pose an occupational health and safety risk to staff.
12. The Clayton site has significantly greater science capability, infrastructure and space to allow the consolidation of Highett to Clayton thereby achieving a consolidation of property holdings which will reduce ongoing property operating expenditure over time.

## Proposed Scope of Works

13. CSIRO needs property to enable its science capabilities. As such, it needs to be fit for purpose, support science and have facilities that attract leading researchers and scientists to the CSIRO. The Clayton Property Strategy (CPS) is one of the mechanisms through which the organisation is seeking to achieve these goals.

14. The proposed works have been estimated at \$32,000,000 (excluding GST) inclusive of contingencies and escalation through to works completion in 2015 and relocation in early 2016. The works include:
  - a. the refurbishment and fit out of some existing facilities at Clayton and North Clayton to meet the science needs of relocated groups;
  - b. the relocation of staff and specialist science equipment; and
  - c. the creation of the FoFi Centre at Clayton incorporating CSEC providing opportunity for scientists of the future to see industry of the future.
15. The refurbishment and relocation phases involve eight business units currently at Highett occupying buildings covering 22,937m<sup>2</sup> and relocation of these facilities to 9,300m<sup>2</sup> of space at Clayton. This is intended to reduce CSIRO's overall building management costs for operation and maintenance.
16. The relocated functions from Highett to Clayton primarily comprise of adaptive reuse and refurbishment of existing facilities at Clayton minimizing investment and expenditure of resources to meet the project objectives with the exception of the relocated Science Education Centre to the proposed FoFi Centre.
17. CSIRO Highett site currently houses 190 staff and activities from the following key areas that are proposed to be relocated to CSIRO Clayton:

Division	Programme Groups
Materials Science and Engineering (CMSE)	Fluid Dynamics Polymers Geo Polymers Nanophysics Environmental Design Infrastructure Technologies
Process Science and Engineering (CPSE)	Fluid Engineering
Land and Water (CLW)	
Ecosystems Science (CES)	
Science Education (CSEC)	In house teaching and outreach programmes
Central Engineering Facility (CCEF)	Engineering capability unique to Highett and that will augment capability at Clayton

18. The relocation of activities from the Highett campus to the Clayton site provides the opportunity to enable a greater number of groups previously split across multiple buildings to be housed together to maximize efficiencies of space and improved collaboration.
19. The total building area at Highett is 29,688m<sup>2</sup> and of this 22,937m<sup>2</sup> of buildings are being occupied, the remaining buildings are dilapidated and closed. The utilisation of the buildings in use is low, with only approximately one third of the 22,937m<sup>2</sup> of building footprint being actively used. The Highett relocation produces significant spatial efficiency by moving all required capabilities and staff into 9,300m<sup>2</sup> of space on the Clayton sites.
20. Relocating facilities from Highett to Clayton will realise operating cost savings and leverage existing infrastructure already in place within the Clayton campus. The existing buildings at Highett are inefficient with respect to spatial utilisation and building energy performance, both issues will be improved by relocating to the Clayton campus. The table below summarises the spatial benefits of the project to CSIRO's property footprint across these two sites, resulting in a reduced building footprint of more than 28,000m<sup>2</sup>.

Sites	Existing GFA m <sup>2</sup>	Proposed GFA m <sup>2</sup>	Staff Population
Clayton Sites	80,597	82,097	1040*
Highett	29,688	0	190
<b>Total</b>	<b>110,285</b>	<b>82,097</b>	<b>1230</b>

\*Note: This figure excludes CSIRO staff relocating to the Monash University New Horizons Centre

21. New office fit outs will be designed to increase spatial occupancy in line with the Commonwealth Property Management Guidelines of 14 square metres per occupied work point.
22. A new building of approximately 1,500m<sup>2</sup> Gross Floor Area (GFA) will be provided to house the FoFi Centre. The complete realisation of the FoFi Centre will play an important role in helping to strengthen two-way connection between research and industry and provide the following capabilities to the Australian Manufacturing Industry:
  - a. increased speed to market and the agility to adjust to new supply chains as market demand changes;
  - b. increased ability to explore scalable multi-design, product offerings and process technologies;



- c. increased productivity in terms of labour and other resource inputs as a result of more efficient processes; and
  - d. increased sustainability in terms of the environmental footprint of production.
- 23. Current funding and budget provisions allow only for one technology area to be completed within FoFi. It is intended that Additive Manufacturing be the initial module as this has the broadest support from industry and Monash University. The design of the space is generic in nature, typically fitting CSIRO's description of a Technical Bay
- 24. The CSEC currently at Highett will be located adjoining FoFi. Incorporating CSEC at the Innovation Centre will create opportunities for future scientists to see manufacturing of the future in action and will benefit activities for both through the interaction with community and industry.

## Project Objectives

25. The requirement for CSIRO to undertake the proposed Clayton Property Strategy (CPS) project will:
  - a. Consolidate and provide critical mass of CSIRO's South Melbourne research Capability from two sites to one;
  - b. Provide efficiencies through reduced duplication of support facilities and co-located research equipment;
  - c. Creation of the FoFi Centre; and
  - d. Enable the sale of the Highett site which will reduce CSIRO's property holdings and release funding for the establishment of the Clayton Property Strategy.
26. The relocation of Highett to Clayton component of the project will:
  - a. Divest CSIRO of ageing properties that are no longer 'fit for purpose' in supporting the CSIRO's current and future science directions and outcome and consolidating capability within the Clayton site; and
  - b. Consolidating key sites and buildings within the Victoria region, and providing fit for purpose facilities that will provide relief in managing the CSIRO's currently escalating property operating costs.
27. The project Objective will be to enable CSIRO's Property Investment Strategy in Melbourne within a budget of \$32m (exclusive of GST) by June 2016.
28. The establishment of the FoFi Centre, to be co-located with the CSEC, provides research and development assistance to industry that will:
  - a. Be more responsive to market demands in terms of speed to market and the agility to adjust to new supply chains as market demand changes;
  - b. Have the ability to explore scalable multi-design, product offerings and process technologies;
  - c. Operate more productively in terms of labour and other resource inputs; and
  - d. Operate more sustainability in terms of the environmental footprint of production.

## Background to Requirement

### Clayton Property Strategy

29. In December 2012, the CSIRO board endorsed the CSIRO Property Strategy. The Property Strategy is required to consolidate CSIRO's current national footprint which aligns infrastructure, science directions and partnerships.
30. The proposed Clayton Property Strategy supports CSIRO's Property Strategy to provide a framework for:
  - a. future CSIRO development opportunities for key capital works projects, site infrastructure improvements in relation to 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.

### Highett Relocation

31. CSIRO Clayton is CSIRO's largest site in Victoria and is home to a variety of research areas. It is located adjacent to Monash University and the Australian Synchrotron. There are more than 800 staff members working at Clayton on projects designed to benefit the community and industry. Clayton is also the home to the CSIRO National Enquires Centre and a number of Corporate Support Groups. The consolidation of the Clayton and Highett sites will increase and enable greater science capability and provide critical capabilities to support the FoFi Centre.
32. CSIRO has undertaken an asset condition review of its Highett site on resulted as a high operational risk. CSIRO Highett is a large spread out site containing many empty buildings, resulting in staff being isolated in some area as well as resultant low efficiency in the utilisation of space.
33. The relocation of the Highett staff to Clayton will provide greater opportunities for collaboration between the two groups of CSIRO staff currently at Highett and Clayton as well as the CSIRO staff from other sites visiting Clayton.

34. The relocation will provide greater opportunities for collaboration between the CSIRO staff currently at Highett and Monash University and to be part of a global network of researchers and scientists conducting globally competitive research and promotes knowledge exchange.
35. Co-location also facilitates interactions with industry and other research collaboration partners through a concentrated capability and single point of entry as well as creating critical mass for research capability and improve opportunities for attracting international investment.
36. The relocation of the Highett staff to Clayton will provide:
  - a. Increase in scientific capability through access to advanced facilities and technology without the need to duplicate capability across sites;
  - b. Research and research operations staff currently located at Highett to have greater exposure to career opportunities;
  - c. The CSIRO Education Centre with an improved ability to engage with the community through consolidation of the research capacity in a modern, accessible and safe facility; and
  - d. A positive cost-benefit to CSIRO.

## Factories of the Future Innovation Centre (FoFi)

37. The FoFi initiative is responding to a need to assist Australian manufacturing firms maintain competitiveness and productivity by solving a number of key innovation challenges facing manufacturing firms, in particular Small to Medium Enterprises (SME). The FoFi Centre will provide connectivity between industry and research organisations as well as providing capabilities that enable more efficient and effective transfer of knowledge and expertise between research organisations and industry.
38. The FoFi Centre will be designed as a demonstrator for next generation digital and network enabled manufacturing concepts and technologies, with an initial emphasis on Additive Manufacturing.
39. The FoFi Centre will provide opportunity for 'soft-adoption', which is a crucial first step to de-risking the eventual uptake of specific equipment and processes within SME's.

## Need for Works

### Reduce Overheads and Operating Costs

40. The CSIRO Clayton site focuses on research capability in Manufacturing & Materials Sciences, enabling a superior capability in advanced materials and clean manufacturing technologies. Relocating the research capabilities currently at Highett to the CSIRO Clayton site, will create a zone housing more than 1300 staff. Combined with the new FoFi Centre, Monash University, Monash Enterprise Centre and Business Incubator, Monash Centre for Additive Manufacturing (MCAM), the Synchrotron and the Melbourne Centre for Nanofabrication, CSIRO Clayton will form a growing research hub and generate large-scale critical mass suitable for the delivery of integrated research.
41. The FoFi Centre will provide emergent technology research in addition to development assistance for industry that will offer, open access business operating models that enables companies to access a wide range of emerging, game-changing technologies for hands-on use, experimentation and training before making decisions on adoption and investment.
42. Based on existing budget allocations, the CSIRO has a future shortfall in operational and maintenance funding for the Victorian property portfolio, and with respect to Highett is expected to be in the order of \$6.9m excluding GST over the next ten years. The cost savings that will be realised by consolidating operations into a centralised and facility at the Clayton site support the sustainability of CSIRO's operating budget.
43. Cost savings through the consolidation to Clayton will be achieved through:
  - a. The non-requirement of completing major upgrade works at Highett to comply with statutory obligations;
  - b. The non-requirement of funding to prolong the operational life of the Highett site to meet safety and energy efficiency standards;
  - c. Rationalisation of working accommodation producing a 66% spatial reduction in building use; and
  - d. Will provide CSIRO with the potential of greater business interest and interaction from industry, universities, governments and international research collaborators.

## Mitigation of Health, Safety and Environment (HSE) Risks

44. CSIRO, as the owner/manager of the Highett and Clayton sites, is required to manage risks associated with workplace health and safety and the environment. There is an increasing HSE risk for the CSIRO staff currently working in ageing laboratory environments, where there is significant compliance deficiencies associated with the existing building infrastructure.
45. The key HSE issues identified at the Highett site include
  - a. Potential exposure to staff of asbestos bonded products in occupied buildings at Highett a legacy of the age of many of the facilities; and
  - b. An increasingly fragmented site with issues associated with working alone.

## Staff Amenity

46. The CSIRO Highett site has 55 buildings on the campus, all of aging stock, with the oldest constructed in the 1940's and most recent constructed in the 1980s. In a recent asset condition review of the CSIRO portfolio, the campus received a rating of 1.75 out of 5. This rating indicates high operational risk category with major repairs and maintenance required. Whilst aged building stock will have been constructed to the standards of the time, the condition of many buildings does not comply with current National Construction Code and current Australian Standards for Health, Safety and Environment (HSE) requirements. The current configuration and condition of the buildings at Highett have several important ramifications for the CSIRO:
  - a. many of the existing buildings will require major upgrade works to comply with current statutory requirements, to make them 'fit for purpose' and assure safe continuing scientific research operations;
  - b. many of the CSIRO's existing Highett laboratories are still in their original condition, that is inappropriate for modern scientific activity, and will require substantial injection of funds to operate for a further twenty years and to meet current safety, compliance, building and energy efficiency standards;
  - c. having facilities at Highett, creates an inability to achieve the required operational critical mass and realise economies of scale. The current geographical separation inhibits collaboration between staff, visitors and the public. The scale and critical mass of the proposed capability through the implementation of the CSIRO Property Strategy will also stimulate greater interest

and interaction from industry, universities, governments and international research collaborators;

- d. the CSIRO is unable to achieve its strategic objectives or Government policies and priorities for collaboration and operating efficiency with the facilities currently at Highett; and
- e. the relocation of Highett to the Clayton site will rectify these deficiencies and provide safe and secure fit for purpose facilities for CSIRO staff and work processes.

47. Strategically and functionally, CSIRO has a desire and need to relocate staff from the Highett site 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.

48. 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.

## Lease Disposal

49. Not Applicable

## Demolition of Facilities

50. With exception of the fire services storage located in the area of the FoFi Centre, no building demolition is proposed at the Clayton sites.

## Collaboration Space

51. The CSIRO's role as a collaborator and attractor of inward investment means the CSIRO needs to be fit for purpose, support science, and have facilities that will attract leading researchers and scientists to the CSIRO. A review of the building stock at the Highett site identified that 56% of buildings are over 50 years old and 87% percent are over 40 years old. Over time, with research moving in new directions, areas within operating buildings at Highett have become disused leading to low occupancy rates in several buildings. The age, inefficient and fragmented use of buildings leads to increased operating costs at Highett.

52. At Clayton, the majority of the buildings are less than 25 years old and in the context of this proposal are in good condition. The existing buildings at Clayton offer a variety of laboratory, technical and office space solutions to meet the requirements of capabilities currently located at the Highett site. Consolidation of Highett site at CSIRO Clayton will reduce CSIRO's operating costs with the aim of maintaining costs within the 2012-2013 expenditure levels.
53. The integration of Highett science capabilities with those at Clayton will connect researchers currently operating at both campuses with their broader teams and groups principally located at Clayton, improve operating efficiency through consolidation, and enhance collaboration and a scientific critical mass at Clayton. This is best exemplified by the Material Science and Engineering Division which currently occupies Highett, Clayton and the New Horizons Centre at Monash University Clayton. This division accounts for approximately 50% of the relocation component of the project and will realise significant benefit through the consolidation of their capabilities.
54. The relocation will also provide greater opportunities for collaboration between the CSIRO staff at Highett and Monash University and to be part of a global network of researchers and scientists conducting globally competitive research and promotes knowledge exchange.

## Refurbishment

55. The following provides a summary of the extent of works to be undertaken at the Clayton campus and the activity proposed to be relocated from Highett:

CLAYTON BUILDING	EXTENT OF WORKS	OCCUPANT
002N Ground & First Level	Part Existing Building (Process Bay): Consolidation of spaces from 10 buildings at Highett Fit out of specialist labs and construction of testing chambers (3 levels of cleanliness)	CMSE Infrastructure Technologies
004N Ground Level	Part Existing Building (Process Bay): Consolidation numerous labs from 4 Highett buildings Fit out of process spaces and specialist labs	CMSE Geo Polymers
104 Ground Level	Existing Building (Process Bay): Consolidation of spaces from 4 buildings at Highett	CPSE Fluid Engineering



CLAYTON BUILDING	EXTENT OF WORKS	OCCUPANT
	Conversion for fit out of large workshop & specialist labs	
105 Ground & First Level	Existing Building (Process Bay): Consolidation of spaces from 5 buildings at Highett Fit out of large workshop, including some relocation of existing equipment within space	CPSE Fluid Engineering
202 Ground Level	Existing Building (Light Tech Bay): Laboratories for Land and Water	Land and Water
203 First Level	Existing Building (Library): Fit out of office accommodation in accordance with Commonwealth requirements	Ecosystems Science
204 Ground & First Level	Existing Building (Process Bay/ Laboratory): Minor consolidation from Highett Construction to allow fit out of specialist workshops and labs	CMSE Polymers
205 Ground Level	Existing Building (Process Bay/ Workshop): Minor works to support relocated equipment from Highett.	Central Engineering Facility
206 Ground & First Level	Existing Building (Process Bay/ Laboratory): Consolidation of spaces from 5 buildings at Highett Construction to allow fit out of large technical bay and specialist labs	CMSE Fluid Dynamics
207	Existing Building (Laboratory – Wet): fit out of 3 laboratories	CMSE Fluid Dynamics CMSE Nanophysics
209 First Level	Existing Building (office and laboratory): Refurbishment of first floor to increase density of occupancy and Commonwealth requirements.	Land and Water
301 Ground Level	Existing Building (Laboratory –Wet): fit out of laboratories	CMSE Environmental Surface Design
302 Ground Level	Existing Building (Process Bay): fit out of technical bay to support unique equipment relocated from Highett Relocation of Router	Central Engineering Facility

CLAYTON BUILDING	EXTENT OF WORKS	OCCUPANT
External Area Adj. 001N	New Building: Development of new building with specialist technical bays and labs	FoFi Centre & CSEC
External Area Adj. 204	Relocation of existing Tilt Rig from Highett to external space adjacent B105 Construction of new pump-house and store	CPSE Fluid Engineering
End of Ride & Mini House Adj. 209	New Building to house showers, lockers and bicycle storage to support cycling to work	All staff groups

## Options Considered to Fulfil the Need

56. The Business Case developed by CSIRO for the works outlined in this submission examined three options. These were:
- a. **Do Nothing** and CSIRO to remain at Highett, with a high cost of deferred/maintenance;
  - b. **Do Minimal** and CSIRO to remain at Highett, also with a high cost of deferred/maintenance; and
  - c. **Deliver the Clayton Property Strategy** and relocate CSIRO from the Highett campus to the Clayton campus and sell the Highett campus, as described in this Submission.
57. The "characteristics" of the two rejected options were described in the Business Case as:

Do Nothing	Do Minimal
The CSIRO sites and infrastructure will continue to decline and date over time due to a lack of capital for maintenance and upgrading	Infrastructure will be maintained at an acceptable level for standards (\$6.9m required based on CSIRO condition report and quantity surveyor repair estimate)
Over time facilities will, become unsafe and unserviceable resulting in a need to shut the facilities down, directly impacting on science capability and leading to staff losses	Some loss of capability will occur due to equipment simply becoming obsolete with the advancement of science
The gradual attrition in staff numbers as high quality researchers are lost to competitors with state of the art infrastructure	Cost of essential health and safety repairs and maintenance expenditure will be sourced from internal budgets resulting in a

Do Nothing	Do Minimal
	loss of science staff and impact to science outcomes
New staff will not be attracted to the organisation due to poor infrastructure and result in loss of reputation	Retaining and attracting high quality staff will become difficult due to better quality facilities and more up to date infrastructure available elsewhere
Facilities will not comply with regulatory requirements, risking capability and increasing liability, particularly with the many cases on non conformance to barrier free access requirements.	With the deterioration of infrastructure and a lack of capital for renewal or change, the CSIRO will not be able to respond to changing national challenges and it will lose its place as advisor to the nation
Industry and research partners will be forced to move to new collaborative partnerships as the CSIRO is no longer competitive in the quality of its research	Partnering with industry will be compromised due to a lack of competitiveness
The loss of partners and therefore loss of external revenue will compound the CSIRO's inability to maintain a competitive research capability	Better quality science and state of the art infrastructure will be available elsewhere in the research sector, which over time will start to call into questions the CSIRO's relevance
The organisation will be in a state of gradual decline and moving towards a tipping point where the investment to renew infrastructure would be too great	The organisation will be in a state of gradual decline and moving towards a tipping point where the investment to renew infrastructure would be too great

58. The option to deliver the Clayton Property Strategy, by relocating CSIRO from the Highett site to the Clayton site, was adopted as it offers the best long-term sustainable solution and includes a strategy for funding the proposed works through disposal of the Highett site.

## Purpose of Works

59. The purpose of the works in this submission are to:
- a. consolidate the Highett capabilities onto the Clayton site to improve operational and research efficiencies, while expanding opportunities and optimising functionality;
  - b. relocation will achieve improvements in working conditions in line with current building standards;
  - c. the age and condition of the current facilities at the Highett site compromise the ability of the CSIRO to comply with current National Construction Code including barrier free access and health and safety requirements, but relocation of activities to Clayton will meet current standards and improve utilisation;
  - d. consolidation will continue to develop the Clayton sites for Materials and Manufacturing Sciences by developing the FoFi Centre to increase services to and collaboration with industry; and
  - e. the relocation from Highett to Clayton will achieve best value for money for Government.
60. This proposal demonstrates that through consolidation of sites under the preferred option, the current ongoing property operating budget will be maintained at an optimal level.
61. The existing gross floor area across the sum of the Clayton sites and Highett site will be significantly reduced whilst improving effective and efficient research operations, by consolidating all facilities within CSIRO Clayton. The strategy of consolidating also achieves a reduction in greenhouse emissions through the reduced floor area and development of new accommodation in line with current Ecologically Sustainable Design (ESD) criteria. The inclusion of the FoFi Centre will also result a significant overall reduction in greenhouse emissions.
62. A direct consequence of components of the Materials and Manufacturing Sciences resources being located at the Highett campus, some distance from Clayton, has resulted in issues including; a disconnection of aligned capabilities between multiple buildings and duplication of facilities and capability accommodated at Clayton. By developing the first stage of the FoFi Centre, the Clayton site will be able to provide a strategic link with industry and attract research and investment partners, which is not currently possible.
63. Benefits that accrue to CSIRO as a result of realising the planned works include:
- a. a reduction of health and safety risk to staff and operational risk to CSIRO;

- b. a reduction of escalating property operating expenses through the provision of safe fit for purpose accommodation;
- c. increased property utilisation and a decrease in the overall property footprint currently managed by CSIRO;
- d. providing greater opportunities for collaboration between the CSIRO internally as well as with university and industry partners;
- e. realisation of a critical mass of research capability through increased concentration of capability and interactions with industry and other research collaboration partners;
- f. greater opportunities for collaboration as part of a global network of researchers and scientists conducting globally competitive research and promotes knowledge exchange;
- g. decreased duplication of capability and equipment across sites; and
- h. increased community engagement by the CSEC in a modern, accessible and safe facilities.

## Highett Relocation

64. The groups being relocated from Highett and consolidated to Clayton provide unique capabilities that benefit the Nation. The benefit of these research programmes is summarised below:

Divisions/Programmes	Justification for Relocation
CMSE - Geopolymer	Program studying and testing the reuse of materials, predominantly involving concrete. This capability is unique to CSIRO.
CMSE - Fluid Dynamics	Research into the areas of microfluids, biofluids, thin-film algae biofuels, and chaotic and granular mixing. These capabilities are unique within Australia and are internationally recognised as a distinctive capability.
CMSE - Environmental Surface Design	The environmental testing capabilities and equipment are unique in CSIRO and require dedicated infrastructure.
CMSE - Polymers	The surface modification and coatings technology capability is unique to CSIRO and is essential in allowing CSIRO to generate commercially viable technologies to support the Australian Manufacturing sector.
CMSE - Surfaces and Nanophysics	The Surface Coatings and Nanophysics program is unique to CSIRO and covers inorganic geopolymer / hybrid systems and environmental surface design and is essential in allowing CSIRO to generate commercially viable technologies to support the

Divisions/Programmes	Justification for Relocation
	Australian Manufacturing sector.
CPSE - Devices, Systems and Engineering	Devices, Systems and Engineering is unique to CSIRO and is required to continue support for industry and nation building in the areas of mining, mineral processing, oil, gas, infrastructure and construction. The program has also been noted recently for the high performance biofuel growth demonstrators. These capabilities develop high technology devices to create competitive advantage for Australian manufacturing in global supply chains. The program creates competitive Australian products for global markets in both traditional and emerging industries. Future focussed work will be highly leveraged by the very large investment in major national enabling research infrastructure (both NCRIS and EIF) based at Clayton
CMSE - Infrastructure Technologies	The CMSE - Infrastructure Technologies capabilities do not exist elsewhere. These capabilities perform product conformity evaluations assessed to Australian Standards to ensure fit for purpose and confirm critical safety compliance. The construction and rail industries require these capabilities to be provided by CSIRO.
CLW	CLW research is targeted at meeting the national needs of Australia. Its work on: <ul style="list-style-type: none"> <li>• water flows and flood forecasting forms a critical component of the Bureau of Metrologies strategies for national water forecasting,</li> <li>• national standardisation of data defines national protocols for data exchange,</li> <li>• integrated water management and cities transition will ensure our future cities can provide adequate water services under conditions of climate change and population growth,</li> <li>• intelligent networks ensure that our current infrastructure can have extended lifetimes and be operated at optimal efficiency; and</li> <li>• water health and contamination will minimise the health risks associated increasingly complex water systems.</li> </ul>
CSEC	CSIRO Education Victoria develops and presents high-quality science programs, presentations and events for primary and secondary students and community groups throughout Victoria, as well as administering CSIRO Education's national programs.

Divisions/Programmes	Justification for Relocation
	CSEC is central to CSIRO's ability to continue building science capability within Australia into the future and provides outward-facing communication capabilities and a national presence.
CES	The Urban Systems Program is unique in Australia. It develops and delivers science that helps the nation to respond to pressures, challenges and opportunities related to cities and their communities. This multi-disciplinary research program is focussed on improved modelling, analysis and visualisation of urban systems, infrastructure, components and services, and is delivering outcomes that could make our future cities more resource-efficient, productive, liveable and resilient.

## Factories of the Future Innovation Centre

65. The FoFi Centre will provide access to state of the art facilities at scale with appropriate technical support that enable companies to trial, validate and de-risk uptake of new technologies and equipment. This will be underpinned by the research and development capabilities from CSIRO as required.
66. The initial technology pillar is Additive Manufacturing. The benefit of this technology has been reported to reduce delivery times by 75% - enabling direct manufacture of personalised (and short run) products directly from digital input
67. The FoFi Centre will house equipment and facilities that are inherently configurable and adaptable leveraging the latest in 'plug and play' methods. In the Australian context the capacity of manufacturers to deliver products into multiple supply chains and at different scales is recognised as being a key competitive advantage underpinning sustainability. The automotive sector for example has run diversification programs with its supply chain. Organisations will access the FoFi Centre to explore scalable multi-product processes technologies.
68. Improved agility will also result from the FoFi Centre providing a hub for exchange and networking and provide vocational training to up-skill a new generation of agile workers proficient in Agile manufacturing methodologies.
69. The FoFi Centre is a facility designed to address the important challenge of bridging the innovation gap for Australian manufacturing by performing a key interface role between applied research and the commercial adoption of new technologies by industry. The FoFi Centre is targeted towards:

- a. Australian manufacturing firms, particularly small to medium enterprises (SMEs), by providing access to a range of state of the art technologies, complimented by technical advice and research and development services that address companies process, product development and innovation needs;
- b. An opportunity for “soft adoption” so that companies can trial and evaluate technologies, which is a crucial first step to de-risking the eventual purchase of capital equipment and its utilisation within their businesses. This reduces the risk and therefore the costs of firm innovation;
- c. Reduce barriers to access for industry to work with research organisations in terms of undertaking projects that are within the capacity of individual companies;
- d. Access to a facility with skilled technical people aimed at reducing risks and costs to innovate using state of the art technologies;
- e. An opportunity for industry and CSIRO to educate and train their staff on new technologies;
- f. Opportunity to undertake highly applied, industry led projects with the goal of disrupting the innovation “valley of death” and assisting companies in the commercial adoption of new technologies;
- g. Facilitate the efficient and effective transfer of knowledge and expertise between research organisations and industry;
- h. Improving awareness and engagement between research organisations and industry through greater access to knowledge and capabilities;
- i. Strengthening the two-way connection between research and industry as well as informally fostering collaboration between FoFi companies; and
- j. A showcase hub to build connectivity attract industry investment through META and the AIG



## Technical Information

### Project Location

70. The project location comprises of two sites, the CSIRO Highett site and the CSIRO Clayton site based in Melbourne, Victoria.

### Site Description and Selection

71. The Highett site is a 9.3 hectare parcel of land owned by CSIRO, 20km south of the Melbourne CBD in a predominantly residential area within the City of Bayside. Whilst the property remains as Commonwealth land, it is not subject to the State and Local Planning Scheme. There are 55 buildings on the campus, all of aging stock, with the oldest constructed in the 1940's and most recent constructed in the 1980s.
72. CSIRO is preparing Highett for disposal by Sale and has been undertaking environmental and heritage assessments and is discussing the land with the Victorian State Government.
73. The Clayton site comprises two components. The main site located between Monash University and Normanby Road is a 15.36 hectare parcel of land owned by CSIRO, 19km south-east of the Melbourne CBD in a predominantly residential area. It sits within the City of Monash. There are 48 buildings on the campus, with the oldest constructed in 1964 and most recent constructed in 2006. The second component of the Clayton site, is North Clayton positioned on the north side of Normanby Road, directly opposite the main site, comprising 3.2 hectares of land and four main buildings. This is the proposed location of the CSEC co-located with the FoFi Centre.
74. The Clayton site has been selected for consolidation in support of the CSIRO Property Strategy for Victoria as;
  - a. Clayton's existing facilities support the integration of Highett capabilities with little requirement for new build;
  - b. the Clayton site is part of the CSIRO Property Strategy and therefore targetted for investment to improve science outcomes and operational efficiency; and
  - c. the Highett relocation strengthens the Clayton's ability to drive innovation.
75. The Highett site is located in a residential setting in suburban Melbourne, with the site bounded by houses, a supermarket and apartment complex adding to the local shopping strip, and Graham Road.

The departure of CSIRO's industrial research activities from Highett will create opportunity for development of the site in a manner consistent with its setting and align CSIRO's Highett based science capability with Clayton. The Clayton site is adjacent to Monash University, the Synchrotron, other research activities and importantly industry seeking a linkage to the materials and manufacturing technologies produced by CSIRO.

76. The Clayton site has a significantly greater science capability and infrastructure. The closure of the Forestry and Forest Products Division, relocation of Earth Sciences and Resource Engineering and space vacated through CSIRO's engagement in the Monash University's New Horizons Centre in recent years, has created the space to allow the consolidation of Highett to the Clayton site.

## Site Development and Planning

77. The Highett and Clayton sites are Commonwealth-owned, and are not subject to state planning controls. Kingston and Bayside Councils have however included the Highett CSIRO campus within their Highett Structure Plan developed in 2006. The Structure Plan includes options for development of the site if it was to be sold, which include either medium-density residential or an educational campus. Included within the Structure Plan is comment on development potential; proposed height and scale limits; future zoning; and information on biodiversity on the site.
78. The existing Clayton sites comprise approximately 18 hectares of land located 19km south-east of Melbourne within the City of Monash, adjacent to Monash University and industry.
79. No additional land is required to be acquired at Clayton to deliver the works in this submission.
80. The proposed relocations and development at the Clayton campus build on master planning and site selection works undertaken, including:
- a. the continued strong and evolving relationships with Monash University, the Australian Synchrotron and the Melbourne Centre for Nanofabrication (MCN);
  - b. the future focus on development of a public access point at the Clayton site;
  - c. potential future disposal of buildings in the western zone of Clayton; and
  - d. potential future demolition of the 50 year old Rivett Laboratories as outlined in a Draft Site Master Plan.
81. The Draft Site Master Plan has indicated that the potential for additional investment in the western end of the Clayton site is sub-optimal with much of the building stock dating to the early 1970's.

Feasibility studies on the re-use of the oldest building, the Rivett Laboratories (B001) dating to the mid 1960's, indicate that enabling works and fit out costs to restore this building to a safe fit for purpose status are not economically viable. This study lead to the determination to locate the CSEC with the FoFi Centre.

82. The works for the relocation of the Highett activities to Clayton will be managed within existing buildings reducing the need for geotechnical studies. However, geotechnical details may be required in three existing buildings where new mezzanines will be constructed. The new building for the FoFi Centre will also require geotechnical studies. Detailed site geotechnical investigations will be undertaken to allow design to be finalised. Information from previous investigations in the area indicate that the geotechnical outcome is manageable.

## Site Infrastructure and In-ground Services

83. The CSIRO Clayton site is heavily serviced at both a site wide infrastructure level and a building by building level. The buildings nominated for relocating equipment and operations from the Highett campus have been carefully selected to ensure that the fit out will require only minimal works to allow connection and servicing of the new equipment. Each existing Clayton space has been classified as 'Technical Bay', 'Laboratory' or 'Office based' for the purpose of appropriate servicing allocation for activities relocating from Highett. The works will primarily involve a reconfiguration of existing services including power supplies, water supplies and specialist gases in lieu of the provision of new plant and infrastructure to service the nominated building or space. This process has allowed for increased space efficiency and has reduced budget pressures associated with unnecessary additional infrastructure costs.
84. The CSIRO Clayton site has sufficient capacity and diversity in equipment and building usage to avoid authority upgrade works resulting from the project. Connections for power, communications, potable water, fire water, sewer, natural gas and storm water do not require substantial upgrade, unless there is a requirement to upgrade individual areas based on the available services within each existing area, and the condition or compliance of these services. However, the new building to house the FoFi Centre will require an upgrade associated with the site power supply (authority sub-station) and relocations works associated with the site fire water supply. These works have been fully costed into the project budget. Both the Metropolitan Fire Brigade and the energy utility will be consulted during the detailed design phase for coordination and approval.

## Mechanical Services

85. The existing heating, cooling and ventilation systems at Clayton will be refurbished and reconfigured to facilitate the relocated function and equipment. Where required, the systems will be upgraded to meet current Australian Standards and industry best practice with the aim of improving equipment longevity and operational efficiency. Similarly, where appropriate existing central specialist gases, vacuum and compressed air systems will be the point of connection for relocated equipment.

## Hydraulics

86. Domestic cold and hot water systems will generally be an extension to existing building infrastructure. Treated water systems and specialist trade waste drainage will be new systems unless existing infrastructure is suitable for re-use.

## Electrical Services

87. Lighting and power reticulation systems will generally be new throughout the refurbished spaces as in the majority of the existing buildings a retrospective compliance upgrade will be required. Communications and security systems will be an extension to the existing systems at CSIRO Clayton.

## Geotechnical Conditions

88. Geotechnical investigation will be required prior to the construction of the FoFi Centre.

## Heritage Considerations

89. As part of its due diligence in preparation for disposal of the property the CSIRO have commissioned a heritage report to identify areas of potential heritage significance on the site. There are no Commonwealth heritage interests identified on the Highett site. No heritage overlays have been undertaken for Clayton.
90. At Highett, an area of approx. 0.7 hectares has been identified as being of possible State Heritage interest. This cannot be confirmed until after the property has passed into Victorian planning control. This area has been removed from the valuation (similar to conservation space and Public Open Space). Upon the property transferring into Victorian State planning control an assessment will be made of this area by Heritage Victoria. If deemed to be of State significance this area will be passed to the Victorian Government to manage. If deemed to not be of State significance it will then

be assessed as to whether or not it is of local government significance and handed over to the local council. If the site is deemed to have no heritage significance the space identified will be added to the total area available as Public Open Space (POS).

91. At the heart of the potential heritage significance on the Highett site is the existing Anechoic Chamber, largely due to it being the first construction of its type for acoustic technology research in Victoria.
92. CSIRO also commissioned a study of Indigenous cultural heritage for the Highett Site. Whilst this study did find some artefacts on the site, these were not deemed to be of cultural significance and subsequently reburied in line with local custom. This study identified that there are no known indigenous sites affected by the proposal and no issues with respect to the Aboriginal Heritage Act identified
93. The City of Bayside 2006 Highett Structure Plan noted that the Highett site has regional significance for biodiversity, with “small remnants of Grassy Woodland, with the presence of indigenous vegetation such as Yellow Box and River Red Gum available within the site”.
94. The following are the key legislation relevant to the works in this submission:
  - a. CSIRO Precinct Strategy (as part of CSIRO 2011-15 Strategy) and
  - b. Prime Minister’s Manufacturing Task Force initiatives.

## Bush Fire Prevention

95. Bush Fire Prevention is not applicable to this project.

## Relocation

96. The CSIRO Highett site will require a minor works package associated with disconnection, decommissioning and make-safe of the existing equipment to be relocated, as part of the relocation works. Apart from selected specialist gases, reverse osmosis water and local compressed air systems, it is not proposed to relocate building services infrastructure and systems from the Highett campus to Clayton.
97. The works to relocate the Highett activities into existing buildings at Clayton involves minimal impact on the structural capacity of the existing buildings. All existing equipment has been reviewed and confirmed as able to be accommodated in the nominated positions in the existing Clayton buildings.

## Science Education and Factories of the Future Structure

98. The new CSEC and FoFi building is proposed to consist of a steel portal frame structure, clad with precast concrete that is faced with feature metal grid mesh for the high rise module. The low rise support section is a steel column and beam structure clad in vertical timber and glass strips.

## Landscaping

99. The project is primarily directed at the refurbishment of buildings on the Clayton sites. Consequently minimal landscaping treatment will be included in the project as outlined in the following:
- a. the northern aspects of North Clayton will require landscaping adjacent to the refurbished areas and the new building for the CSEC and the FoFi Centre. The FoFi Centre is an industrial facility within an industrial precinct, accordingly landscaping will be appropriate and modest. The creation of the Centre will require the removal of six medium sized non-native trees; and
  - b. on the main site, the Tilt Rig area will require the removal of one small native tree and some grass remediation to adjacent areas.
100. All other works at Clayton are within existing buildings, with no impact on the existing external landscaped spaces.

## Local Roads and Bicycle Facilities

101. The existing service roads are suitable for standard vehicular access, emergency vehicle access and deliveries, for the relocation of activities from Highett to Clayton and for the new CSEC and FoFi Centre works.
102. Road traffic accessing CSIRO Clayton shares some roadways with the adjacent Monash University which has a population significantly larger than CSIRO Clayton. Term fluctuations are in excess of the impacts of this project.
103. The relocation of activities from Highett to the Clayton site will take place within existing facilities and the existing support infrastructure of access roads is sufficient to support the proposed works.
104. The Science Education facility includes a new public entry and dedicated bus access for visiting school groups on site. An additional accessible parking bay will be provided adjacent to the FoFi Centre to support Disability Discrimination Access (DDA) compliance.

105. The relocation of the Tilt Rig to Clayton will result in a loss of approximately 20 car spaces. Currently there is a surplus of parking spaces at the western end of the Clayton site and North Clayton.
106. An “End of Ride” facility, providing bicycle storage, showers and lockers will be constructed to encourage more staff to cycle to work. The facility will be co-located with the CLW group’s mini house and will be actively used as a source of grey and black water for research purposes.
107. The Clayton site is currently well serviced by public transport including connection to the metropolitan bus network, for buses from stations near the campus, paired with good vehicle access and bicycle parking. The relocation of activities from Highett to Clayton involves fitting activities into existing buildings vacated by staff moving to other locations, resulting in no significant net population increase at Clayton.
108. Existing conditions provide a good network of pedestrian footpaths around the site that will easily support the relocation of activities from the Highett site to Clayton.

## Disability

109. In all cases it is essential to ensure the objectives of ‘Safe, Dignified and Equitable Access’ are met for staff, visitors and the public alike. The CSIRO facilities at Highett have many areas of non-conformance with the requirements for barrier free access, whilst the proposed works to facilities at Clayton can efficiently and effectively provide the required barrier free access.

## Childcare

110. A CSIRO Child Care Facility (CSIROCare) is located on the CSIRO Clayton site and accommodates 41 places. It offers full and part time care for children aged 6 weeks to 5 years in a bright, caring and supportive atmosphere. The Centre is currently extending by refurbishing an adjacent building, which will allow for an increase of 15 places by June 2014. Priority is given to CSIRO staff for placement. In addition to CSIROCare, there is a new private day care centre that has opened nearby on the north east corner of Normanby and Howleys Roads.

## Materials

111. All materials and furnishings specified for the works in this submission will match equivalent industry benchmarks, suitable for the nature of the works and the type of activities.

## Acoustics

112. Specific acoustic requirements for individual pieces of equipment to be installed as part of the project were noted as part of the briefing process and have been considered in the proposal for each building. Care has been taken to locate aligned functions appropriately to ensure work efficiencies and appropriate acoustic environments.

## Security

113. All Clayton buildings are currently equipped with Commonwealth approved access control and security systems. These systems will be adjusted as necessary to accommodate refurbished areas. The CSEC and the FoFi Centre will also be an extension of the existing systems at North Clayton.

## Fire Services

114. Sprinkler, detection and occupant warning systems will be reconfigured to maintain compliance with current Australian Standards for the Highett Relocation and FoFi works. A hazardous chemicals assessment and safety in design process will also be completed during the design phase for the Highett Relocation, CSEC and FoFi works.
115. Bushfire protection is not relevant to the works covered in this submission.

## Ecological Sustainable Design Principles

116. 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 conditions at the site.
117. The relocation of staff and capabilities from Highett to Clayton will target net savings of 20,000,000 kWh per annum for electricity and 13,000,000 MJ per annum for gas. The FoFi Centre will target an energy bench mark of 450kWh per m<sup>2</sup> per annum.
118. The new and refurbished buildings will be designed to comply with current ecologically sustainable design criteria and relevant Australian Standards, which will reduce carbon emissions and potential environmental impacts of research operations. The works will also meet relevant CSIRO policies on sustainability. The Highett Relocation works will adapt and reuse existing buildings and integrate existing services where practical and possible. Refurbishment of existing spaces, paired with the



reuse of existing equipment and existing furniture is a very sustainable approach for delivering accommodation. The only new building will be for the FoFi Centre.

119. The works that are the subject of this submission have been developed to meet industry best practice for energy efficiency, materials usage and water conservation design principles. Energy efficient central thermal plant is proposed to be the source of connection to new air conditioning equipment in lieu of bolt-on air-cooled split systems. All modified spaces are proposed to receive new lighting systems, switching and control. Laboratory equipment is proposed to utilise central process cooling in lieu of 'single pass' cooling systems to minimise water consumption. Natural light and indoor air quality will be considered during the design phase to ensure CSIRO staff are provided with a healthy and productive working environment.
120. No contamination issues have been identified in during investigations at the Clayton campus.
121. The works will be delivered in compliance with local, state and Commonwealth water and energy policies and requirements.
122. 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

123. CSIRO pursues an active staff Health and Safety Policy within the workplace and this will be extended to include all facilities.
124. Construction works during 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.
125. During construction, only FSC certified contractors will be engaged and the project will be audited for compliance during the contract by the FSC.
126. CSIRO will be active with all contractors to promote a zero harm policy with respect to safety.

## Consultation

127. The Project has the support of the following companies and organisations.

Organisation	Interest/Position
CSIRO	Sponsor – Desires works to proceed as outlined in this submission
Department of Finance and Deregulation	Project Implementation Branch - Agency Advice Unit
Government of South Australia	Support
Department of Defence – Defence Materiel Organisation	Support
Department of Defence - Science and Technology Organisation	Support
Orica	Support
General Motors Holden	Support
Dow Chemical Australia	Support
Boeing Research and Technology Australian	Support
BAE Systems Australia	Support
Rockwell Automation	Support
Futuris Automotive Interiors	Support
Australian CleanTech	Support
Coogee Chemicals Pty Ltd	Support
BioMelbourne Network	Support
QMI Solutions	Support
Swinburne University of Technology	Support
RMIT University	Support
Melbourne Centre for Nanofabrication	Support
Australian Synchrotron	Support
University of Cambridge	Support
Amaero Engineering Pty Ltd	Support
Lumen Australia	Support

128. The Project Implementation Branch and Agency Advice Unit of Department of Finance and Deregulation were also consulted during the following phases:

- a. initial property strategy proposal discussions;
- b. development of the CSIRO Property Investment Plan; and
- c. New Policy Proposal (CSIRO Property Investment Plan).

## Impact on Local Community

129. As demonstrated in the location plan (refer appendices), the CSIRO Highett site is located in a residential area, whilst the Clayton site is located in a research and industrial area. By relocating the Highett capabilities to Clayton, the CSIRO provides the opportunity for the Highett site to be returned to residential and community use. The CSIRO Clayton site is well established within the research and industrial zone and therefore the relocation of Highett to Clayton will have minimal impact on the Community. It is anticipated that the FoFi Centre will have a positive impact on the local community through its engagement with industry and other research collaboration partners.
130. The establishment of the CSEC within the FoFi Centre will have minimal impact, as the Clayton site has sufficient land area to manage the additional activities.
131. The Clayton sites currently support approximately 1,130 staff combined. The Highett site houses approximately 190 staff. It is anticipated that 90 staff will relocate to the New Horizons Centre at Monash University in early 2014. The combined impact of these relocations will result in a net increase of 100 staff at Clayton to 1,230. The decline of the Forestry and Forest Products Division over preceding years and other changes over time result in the Clayton sites being well placed to absorb the increase of 100 staff with little impact to the infrastructure at the site, to Monash University or the industrial environs.

## Cost Effectiveness and Public Value

132. The buildability and cost effectiveness of the project has been considered in the design proposal and will continue to be reviewed as the project develops. The cost effectiveness of the construction works is supported by the relocation of Highett capabilities, primarily being accommodated with the Clayton main site, through renovation and fit outs within existing buildings.
133. Relocation of all Highett staff to Clayton will resolve several existing occupational health and safety issues currently faced with accommodation and operations at Highett, including compliance deficiencies, potential building contamination and isolation at a low utilisation site. All new works proposed will meet Safety in Design requirements of the OHS Act 2004.
134. All buildings, services and external infrastructure will comply with relevant town planning, Commonwealth and state building health and safety regulations, the National Construction Code of Australia and relevant Australian Standards.
135. The CSIRO have procured the services of an independent Quantity Surveyor and Design Contractor to provide estimating, cost control and financial management services through the design stages and the life of the works.
136. All consultant agreements and construction contracts will be compliant with the Australian Government's Building Code for the Construction Industry and relevant OHS requirements.
137. Undertaking the works proposed in this submission will provide value to the public and benefits to the community, by enabling CSIRO to:
  - a. consolidate activities focused on Manufacturing and Materials Science to deliver the next stage of the Property Strategy at Clayton;
  - b. consolidate groups and facilities across the Clayton campus;
  - c. provide fit for purpose working conditions for CSIRO staff and continue to attract the best people to the organisation;
  - d. support industry to achieve innovative new practices through the development of a new building for the FoFi Centre;
  - e. resolve Occupational Health Safety and Equality of Access issues with the current facilities at the Highett site;
  - f. increase collaboration with CSIRO staff, partners and industry; and
  - g. eliminate ongoing and increasing operating costs required to maintain the Highett campus

138. Through analysis of the site options, the CSIRO determined that the Highett site was excess to requirements going forward and that disposal of the Highett site provides optimal option by funding the works necessary to undertake the site relocation and provision of the FoFi Centre whilst also mitigating cost and risk issues that have been associated with the retaining and operating the Highett site.

## Project Cost

139. The project budget for the proposed scope of works is \$32,000,000 (exclusive of GST) with all objectives delivered within this price at a confidence level of 80%. The Highett relocation component of the project is the primary objective with the remaining funds being used to deliver the FoFi Centre. The two key components of the cost at the 80% confidence, P80 estimate are:
- a. Highett relocation, associated refurbishments, building fit out (including the CSEC): \$24,000,000; and
  - b. the FoFi Centre: \$8,000,000.
140. The estimated total out-turn cost of the proposal in this submission is at September 2013 prices. The cost is inclusive of escalation costs, contingencies, all professional fees and authority charges.
141. The scope of works developed within the project budget does not include any decontamination or disposal costs related to the Highett site. The realisation of the value of the property is dependent upon agreement with the Victorian Department of Planning and Community and the Bayside City Council on the Development Control Plan and the quantum of land to be provided as either conservation space, POS or heritage space.
142. The project expenditure is funded through CSIRO's Capital allocation which is offset by proceeds from the sale of Highett and part of the proceeds from the future sale of CSIRO Parkville. This funding arrangement primarily reflects the need to carry out capital works for the refurbishment of part of the CSIRO Clayton and North Clayton sites to permit the relocation of Highett staff and capabilities to the Clayton site, after which the Highett site will be sold.

## Project Delivery Methodology

143. The proposed project delivery methodology addresses the refurbishment works and the new building for CSEC and the FoFi Centre separately. The intent of addressing refurbishment works and new

building works separately recognises that different construction capabilities are required to achieve the best value for money construction delivery method for each component.

144. The Highett relocation refurbishment and fit out works are proposed to be delivered utilising a Fixed Price Lump Sum form of contract subject to parliamentary approval to reduce risk and overhead compared to other forms of contract.
145. It is proposed to deliver the CSEC and the FoFi Centre using a Design and Construct methodology. The CSIRO will engage the Design and Construct contractor for the design stage only in early 2014. The Contractor engagement for the construction phase will be subject to parliamentary approval.

## Project Programme

146. The key milestones as identified within the delivery programme and based on an anticipated Parliamentary approval around mid-March 2014, are as follows:

Task	Start	Finish
<b>Highett Relocation to Clayton</b>		
Design, Documentation, ATM	June 2013	March 2014
Construction	June 2014	Sep 2015
Relocation (phased)	Jan 2015	Dec 2015
Defects Period	Dec 2015	Dec 2016
<b>Factories of the Future</b>		
Design Brief	Jul 2013	Feb 2014
Design and Construct ATM*	Feb 2014	April 2014
Construction	June 2014	Dec 2015
Defects Period	Dec 2015	Dec 2016

\* ATM: Approach to Market

## Conclusion

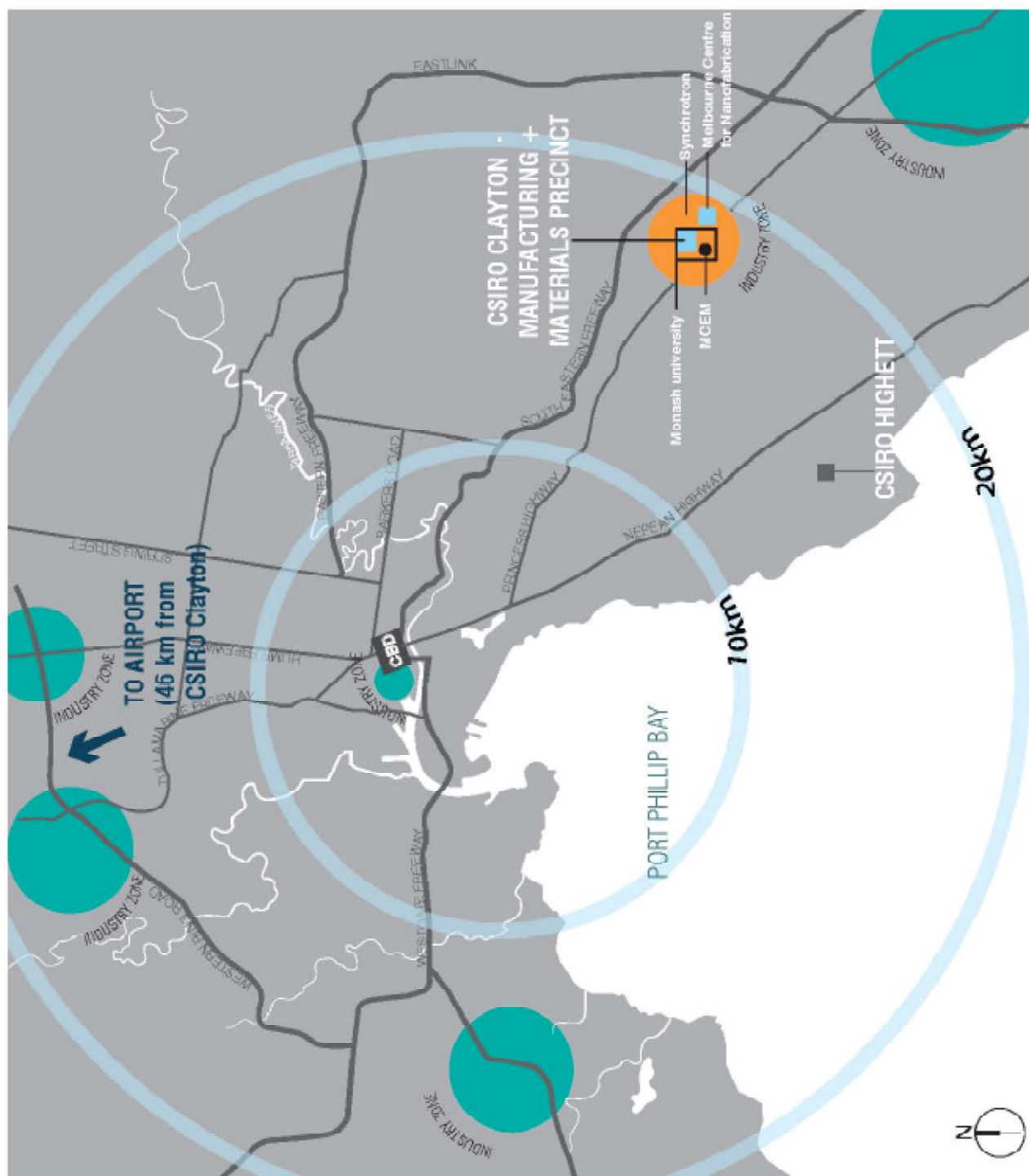
147. The project is consistent with the CSIRO Property Strategy.
148. The project will deliver increased critical mass to the Clayton research hub and consolidate CSIRO's Melbourne based industrial research, designed to increase scientific research collaboration and output
149. Within this project, the CSIRO will reduce its operating footprint by more than 28,000m<sup>2</sup> reducing operating costs and realise the potential of existing building stock. The reduction is inclusive of the creation of the new Science Education and FoFi Centres.
150. The Project will relocate industrial research activities from Highett's residential zone to the Clayton research hub unlocking this land for development to the benefit of the community.
151. The Project will improve disability access on the Clayton sites.
152. Through adaptive reuse of existing buildings at CSIRO Clayton, and a very significant reduction in operating footprint, this Project represents excellent value for money for the Commonwealth.

## Drawings

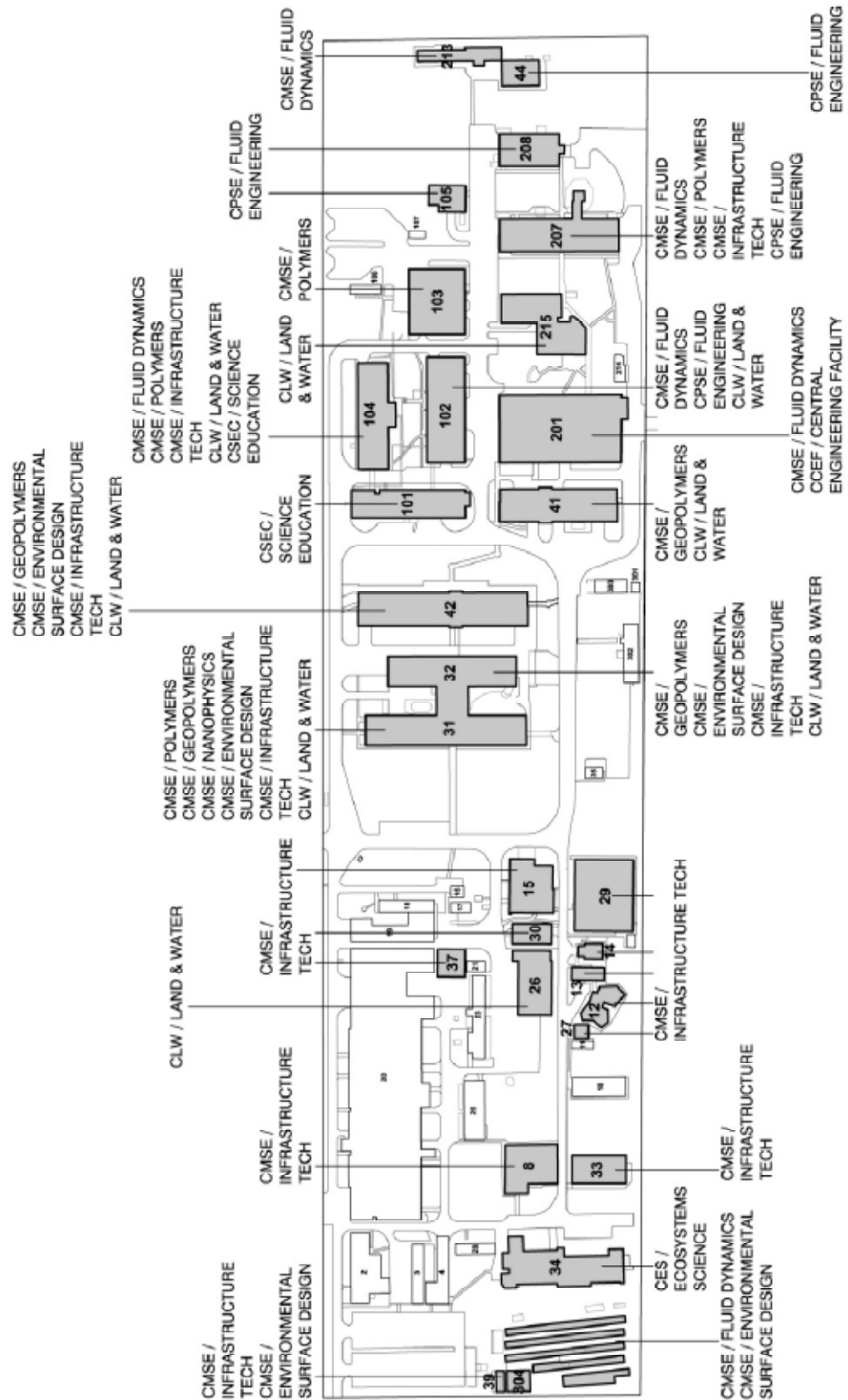
1. Location Plan
2. Existing CSIRO Highett Campus Plan
3. Proposed CSIRO Clayton Campus Plan
4. Science Education and FoFi Site Plan
5. Science Education and FoFi Floor Plan
6. Science Education and FoFi Roof Plan
7. Science Education and FoFi Elevations
8. Science Education and FoFi Elevations
9. Science Education and FoFi Sections
10. Science Education and FoFi Visualisation



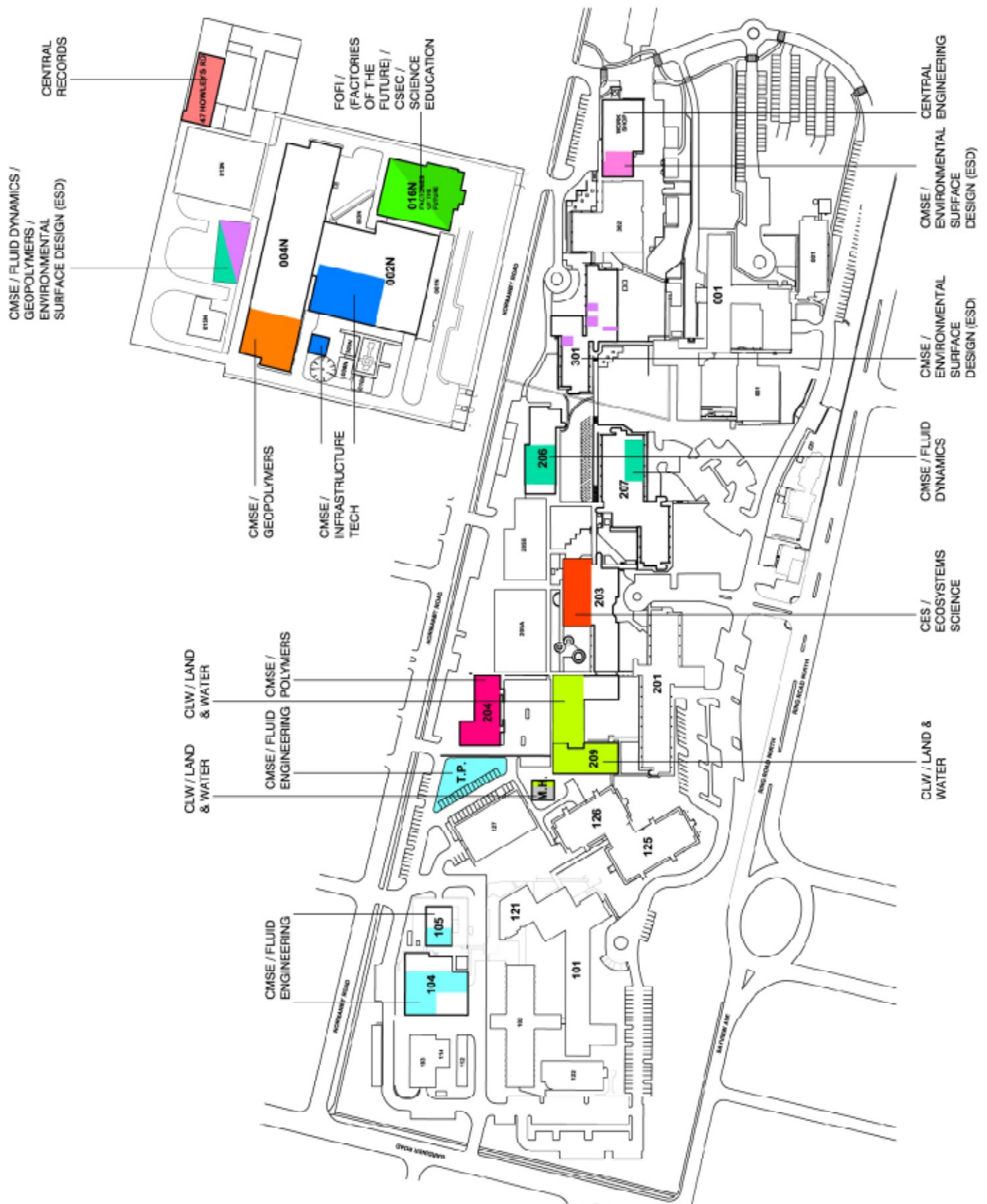
## Location Plan



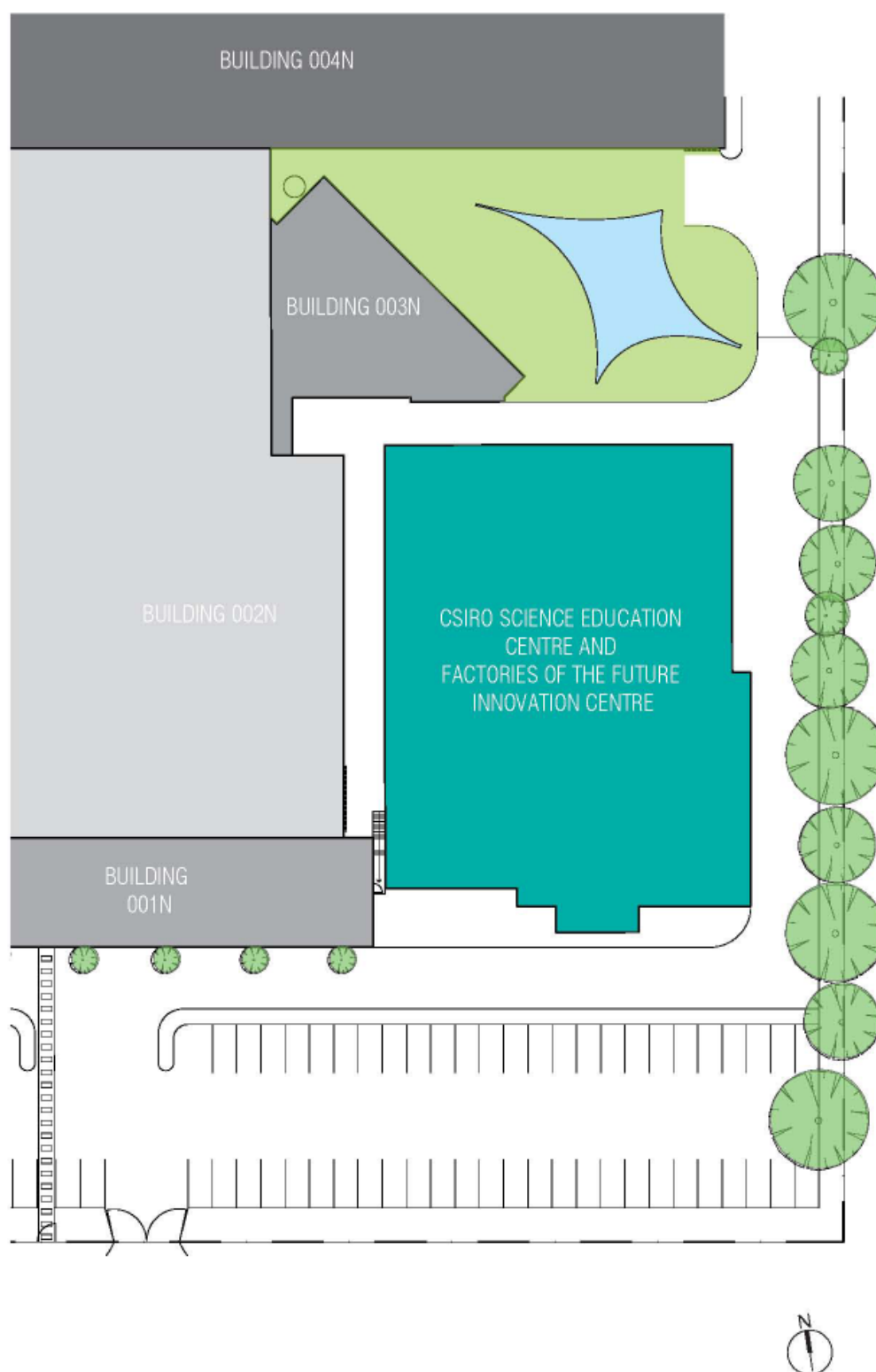
## Existing CSIRO Highett Campus Plan



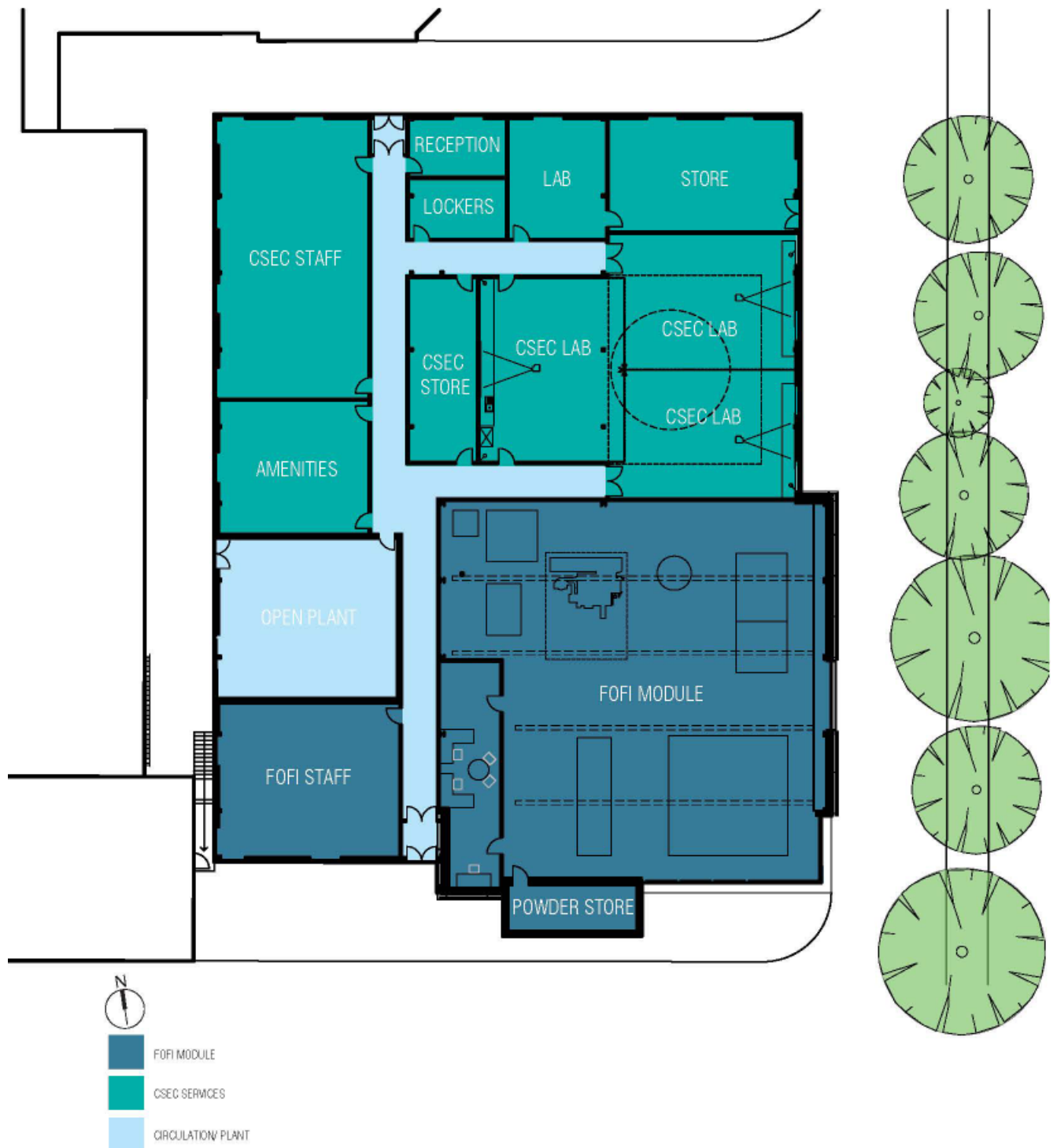
## Proposed Clayton Campus Plan



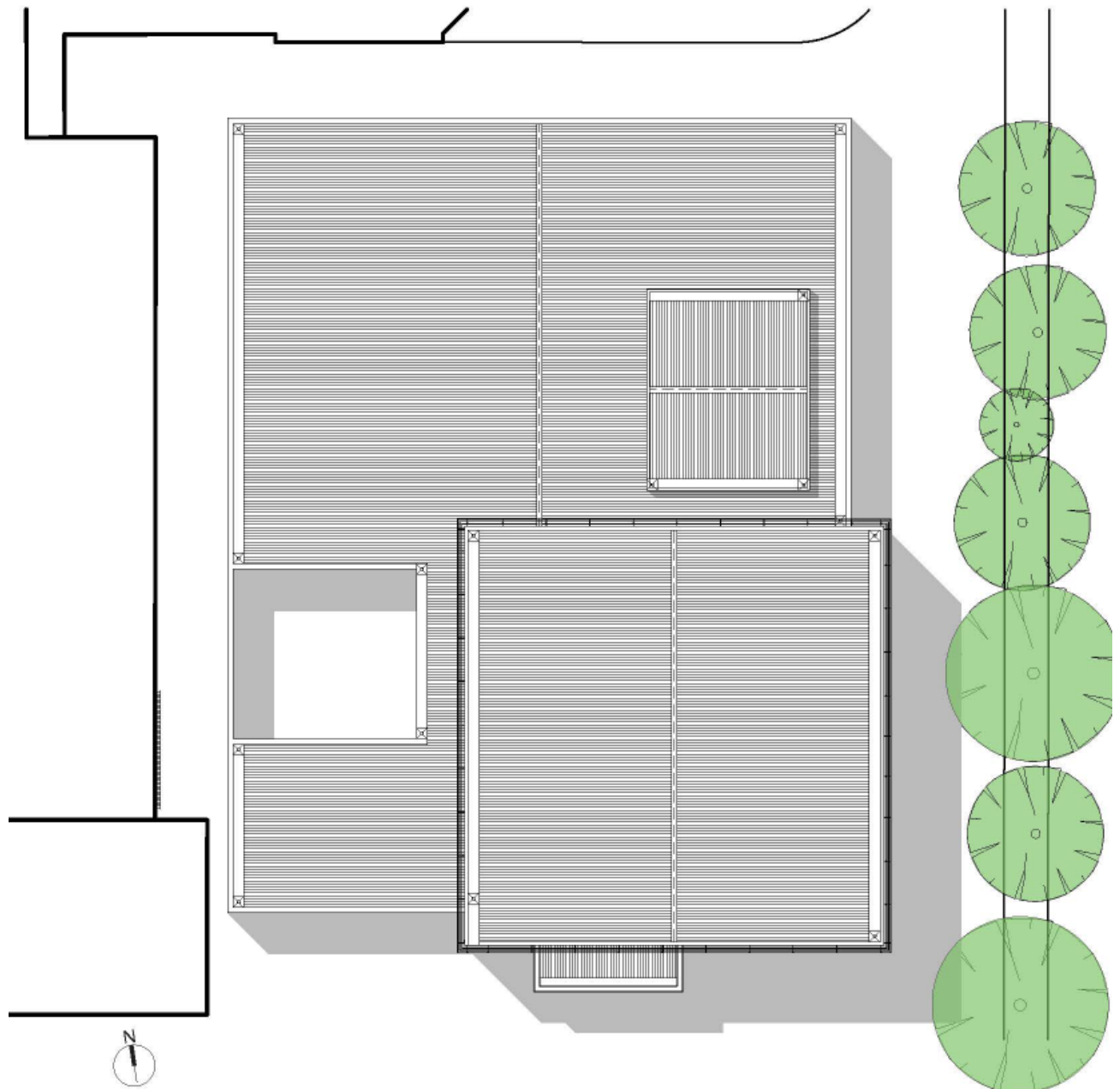
## Science Education and FoFi Site Plan



## Science Education and FoFi Ground Floor Plan

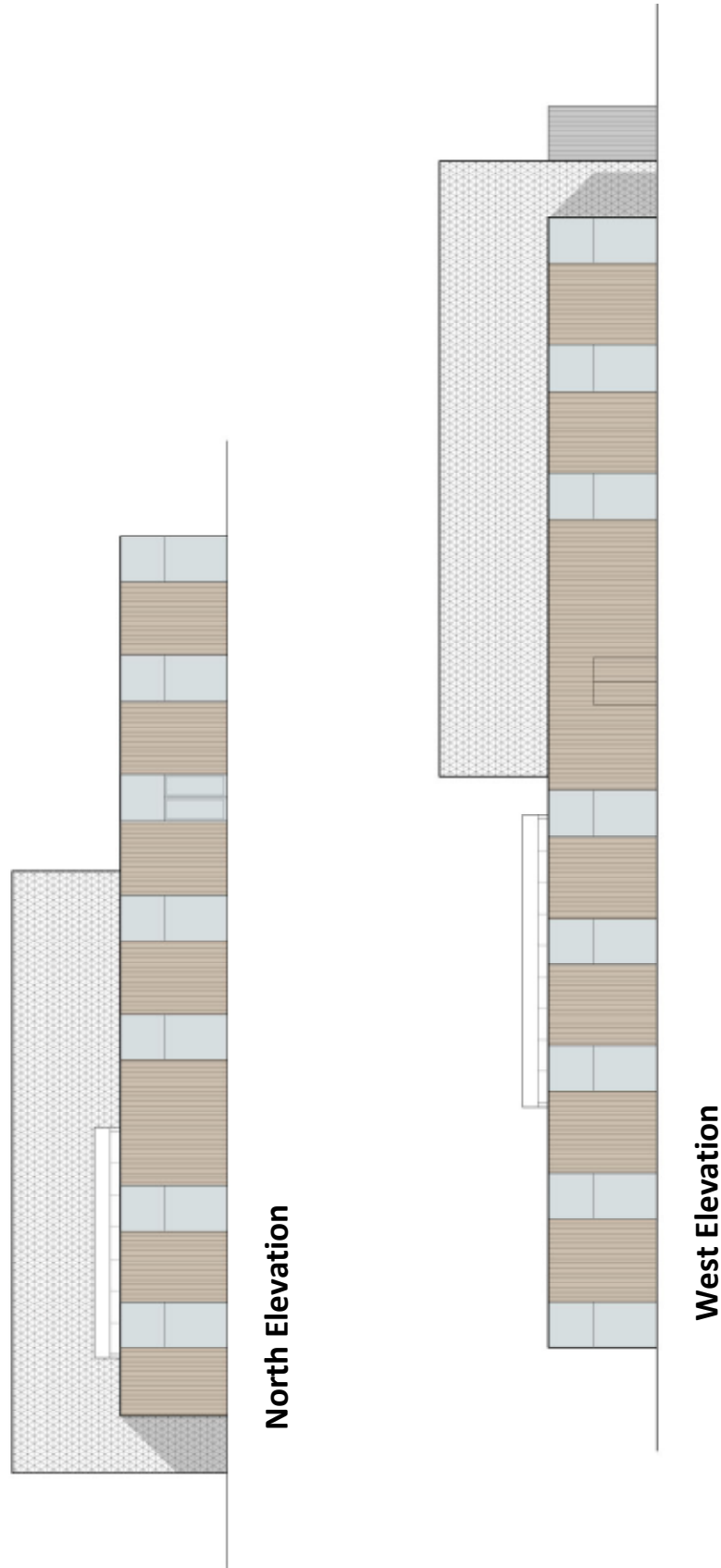


## Science Education and FoFi Roof Plan

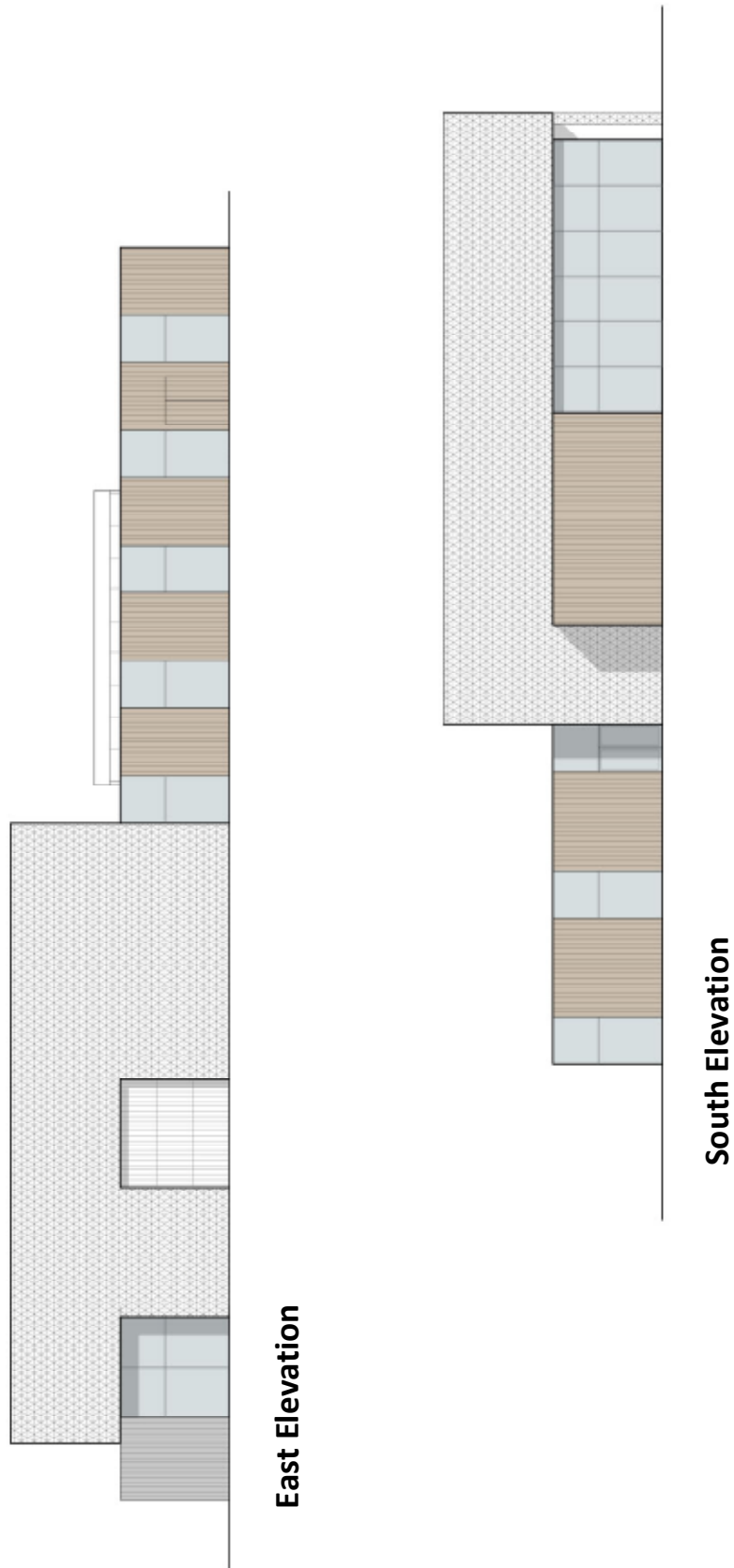




## Science Education and FoFi Elevation

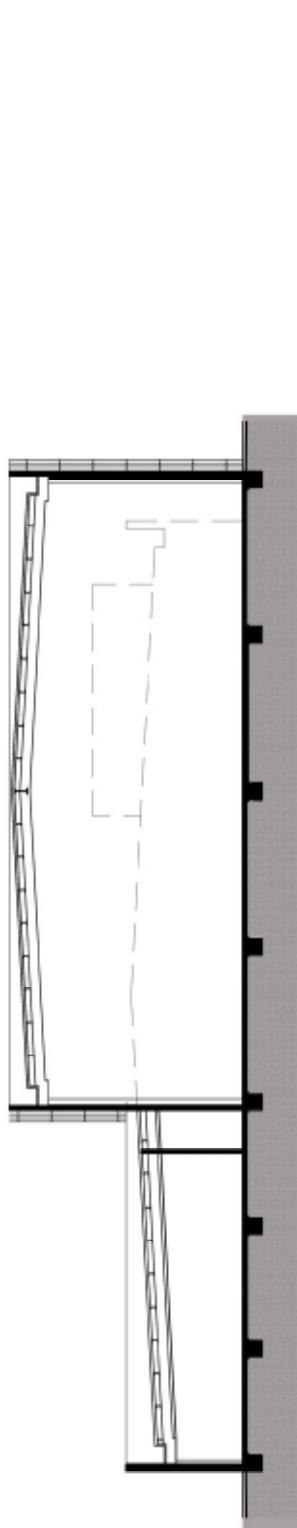


## Science Education and FoFi Elevation

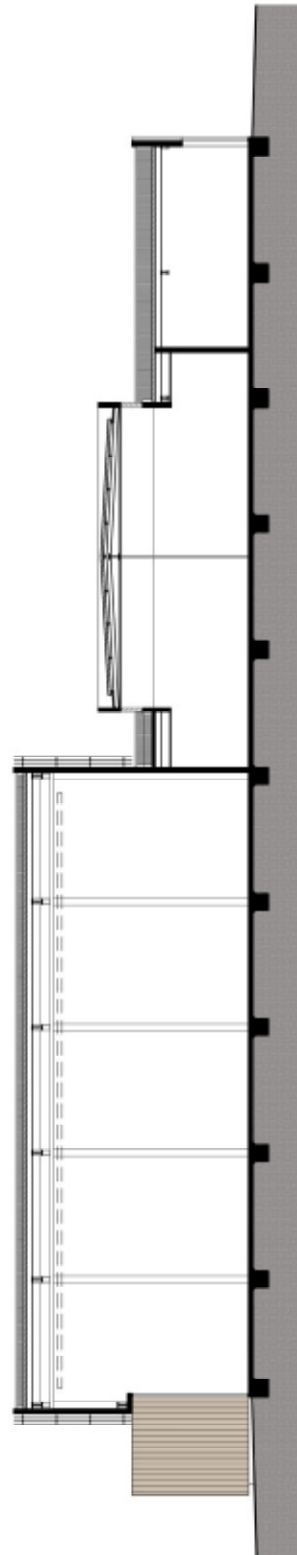




## Science Education and FoFi Sections



Section AA



Section BB

## Science Education and FoFi Visualisation



## Acronym List

The following terminology is used in this report:

AIG	Australian Industry Group
CCEF	CSIRO Central Engineering Facility
CES	CSIRO Ecosystem Sciences
CLW	CSIRO Land and Water
CMSE	CSRIO Material Science and Engineering
CPS	Clayton Property Strategy
CPSE	CSIRO Process Science and Engineering
CSEC	CSIRO Science Education Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
FoFi	Factories of the Future Innovation Centre
GFA m <sup>2</sup>	Gross Floor Area square metres
META	Manufacturing Excellence Taskforce Australia
NCC	National Construction Code of Australia
OHS	Occupational Health & Safety
PWC	Public Works Committee
MCAM	Monash Centre for Additive Manufacturing

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