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3.1 Landscape Architecture

3.1.1_Introduction

The development of the proposed CODCD building is viewed as the catalyst for the reorganisation of the universities western campus. In terms of urban and landscape design the development will introduce clear spatial connectivity between the hospital, the faculty of medicine and symbolically introduce a new connection between the faculty of Medicine and the faculty of Veterinary Sciences.

3.1.2_Pedestrian Legibility

Over time there have been various disconnected phases of built form development through the western campus. Vehicular movement to and from various buildings and on street parking has led to a fragmented public realm with limited pedestrian legibility. The design approach for the CODCD precinct has aimed to improve the clarity of pedestrian circulation in the western campus.

3.2 Pedestrian Sequence of Spaces

3.2.1_Two Squares

The design of building and landscape for stage one of the scheme has not been considered in isolation. Rather the scheme is part of a wider vision for the western campus. In terms of pedestrian movement and legibility, the CODCD building will often be approached from the eastern campus via Physics Road. The western end of physics road becomes a key decision point for pedestrians approaching the new building. At this point there could be a future pedestrian square with a clear view to the CODCD square (Figure 1).

Figure 1. Diagram illustrating the potential for two squares. [1] is the potential location for a square that terminates Physics Road and allows a clear view through to the CODCD building and associated square [2]. Square [1] is a decision point for pedestrians.

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The two squares have a strong visual connection across oval No.1. The pedestrian link between the two ovals has a cohesive vegetation structure and an enjoyable meandering stroll character that is retained in this proposal (Figure 2).

Views through to landmark structures such as St Johns tower to the east and Centerpoint Tower in the distant west have been considered in the layout of the proposed public realm (Figure 3).

Figure 2.The pedestrian path between the two ovals has a pleasant, meandering character that will be retained and enhanced. This area could become a pedestrian only zone in the future.
Photography: Mark Tyrrell

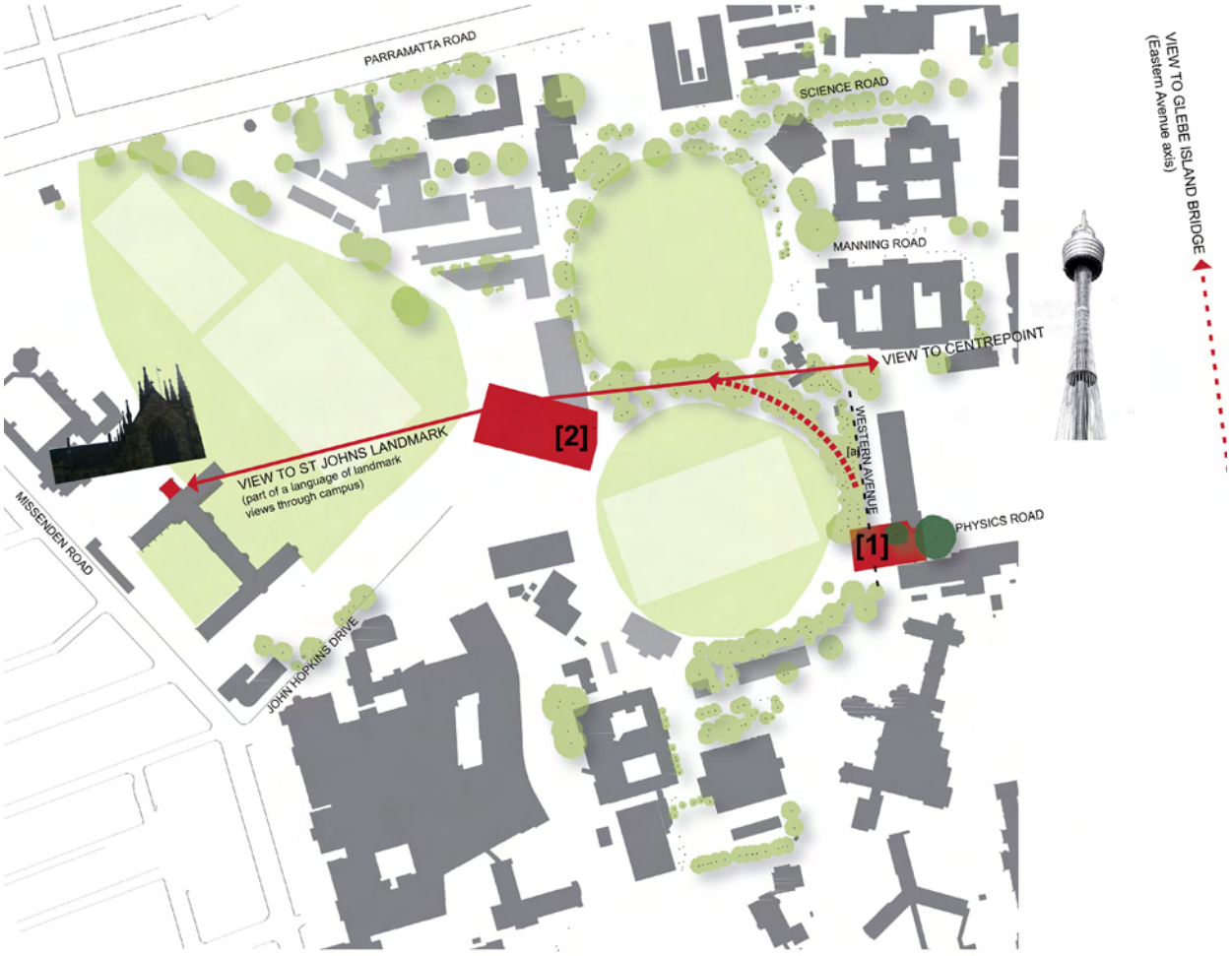

Figure 3. The design proposal for the public domain recognises key landmark views such as the St Johns tower and the distant Centerpoint tower and the layout of paths respond to these key orientation devices.

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The proposed CODCD square sits upon the new axis between Medicine and Vet . This square is further connected via an extended Johns Hopkins Drive through the CODCD building to a new public realm associated with the RPA hospital (Figure 4).

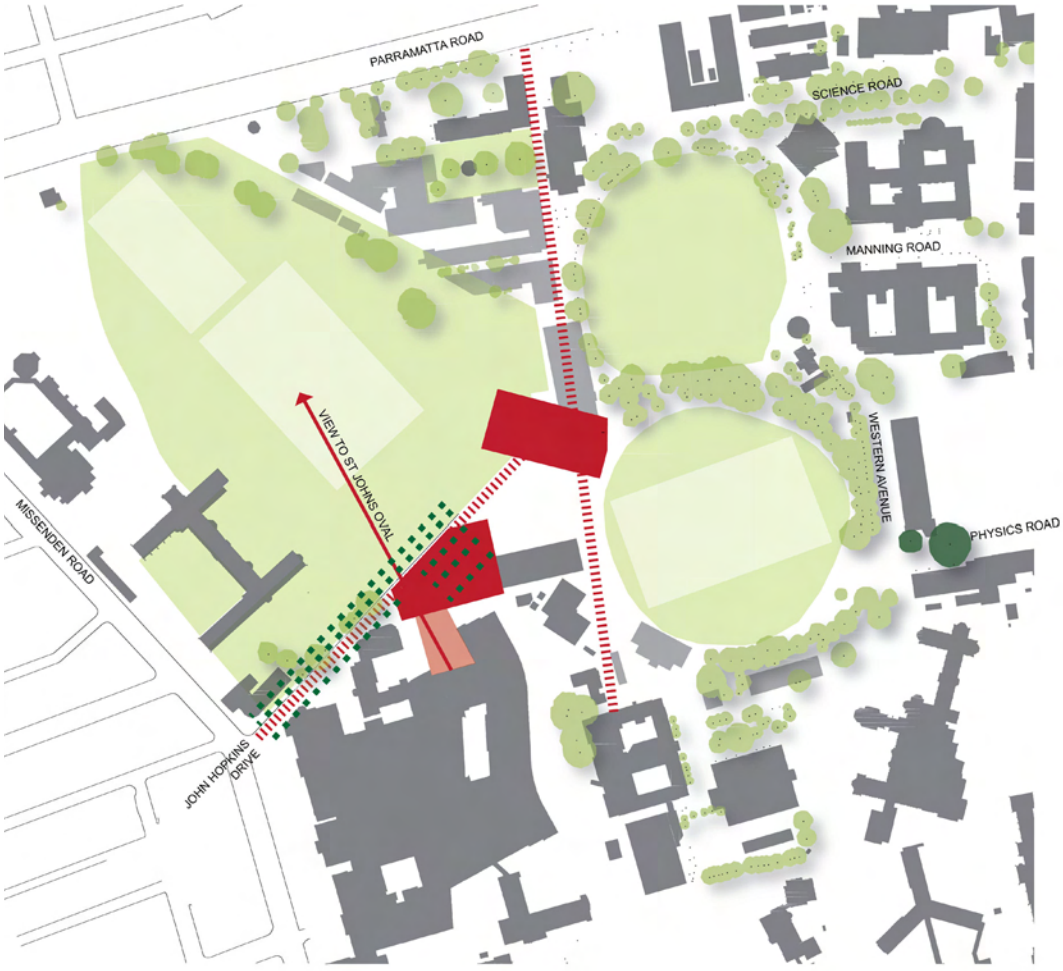

Figure 4. The proposed CODCD plaza connects with the proposed RPA Place via an extension of Johns Hopkins Drive through the CODCD building and into the plaza.

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3.2.2_Vegetation Structure

In the past, vegetation structure in this part of the campus has been mainly limited to screening or the greening of remnant wedges of landscape between roads, buildings and sporting facilities (Figure 5).

The removal of the HK Ward gymnasium building has enabled the establishment of a physical link between the Faculty of Medicine and the Faculty of Veterinary Sciences (Figure 6).

Figure 5. Currently there is a limited structure to the soft landscape. Often it occupies only the left over spaces.
Photography: Mark Tyrrell

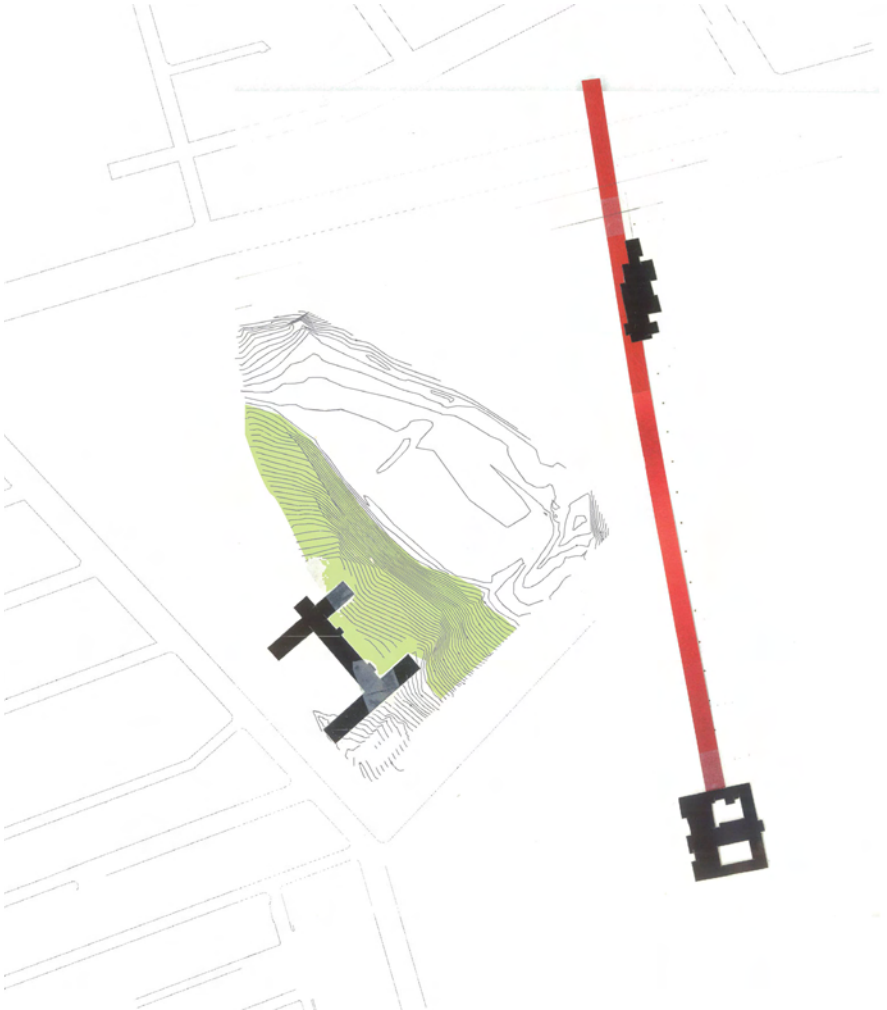

Figure 6. The removal of the H.K Ward Gymnasium has allowed for a new symbolic connection to be established between the Faculty of Medicine and the Faculty of Veterenary Sciences.

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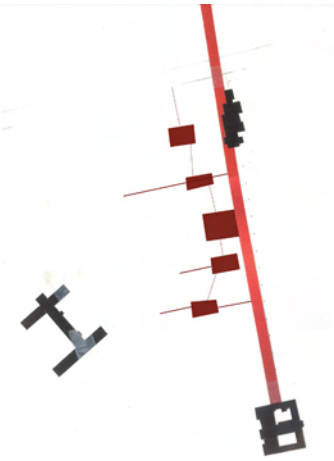
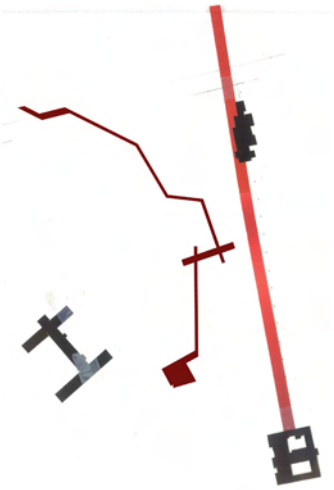
This connection will be made more apparent through a proposed avenue planting along this link. This axial connection becomes an organisational element for future form of the western campus (Figure 7a,b,c).

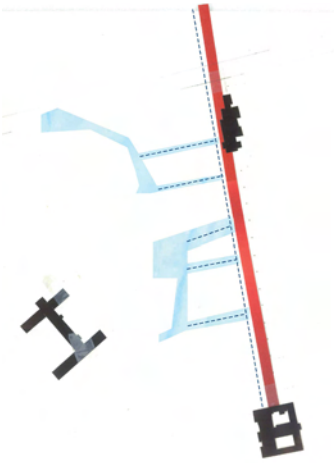
Figure 7. Once the proposed Med-Vet connection is established, it can begin a new structure for the western campus enabling:



7a. A system of courtyards



7b. A pedestrian connection between Parramatta Road and the new western campus buildings including the CODCD



7c. A system of stormwater management in the public realm where water is collected through permeable paving and stored and treated in vegetated swales. This enables many east west green connections. In peak events, St John's playing fields act as a detention basin

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Whilst the recently refurbished Eastern Avenue (Figure 8) has a formal quality consistent with the original Leslie Wilkinson vision of large symbolic sandstone buildings built on the ridgelines, the proposed Med-Vet Axis will have a less formal character (Figure 9).

Although this connection is almost parallel to Eastern Avenue, topographically it is located in the low part of the campus. It is close to the line of the old Orphans School Creek that ran through the site and on to Rozelle Bay (Figure 10). These conditions will inform the proposed landscape character of the scheme.

The planting palette will be of the site in terms of endemic plant choice. Sedges and grasses that would have been found in the original Orphans School Creek will be used in swales and rain-gardens that help manage storm water runoff (Figure 11).

Figure 8. The recently refurbished Eastern Avenue has a formal quality to its public domain.
Hawken, Scott 2009, The University of Sydney, *Landscape Architecture Australia*, August 2009, p.41.

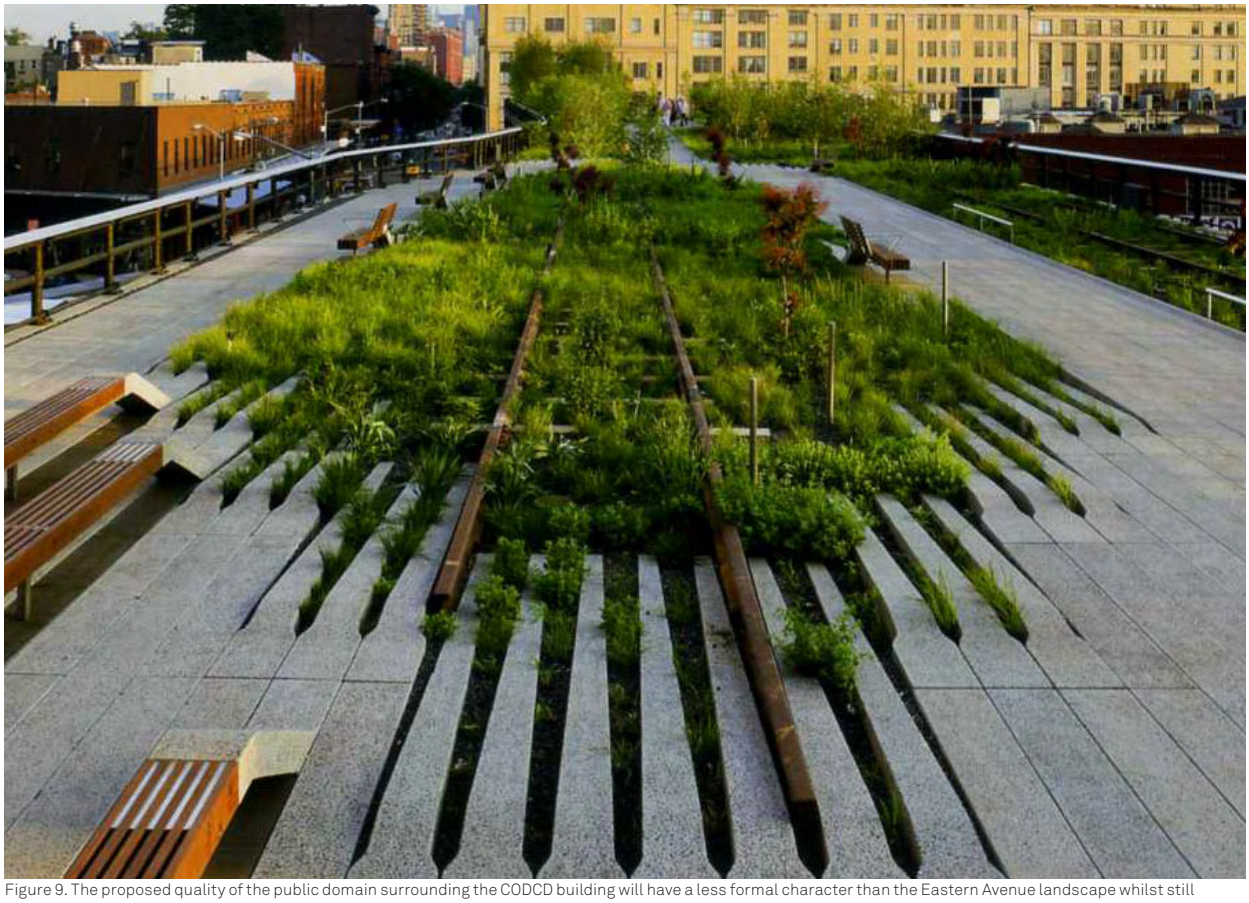

Figure 9. The proposed quality of the public domain surrounding the CODCD building will have a less formal character than the Eastern Avenue landscape whilst still maintaining a hard wearing landscape treatment. The image above shows how this type of landscape is achieved on the 'Highline' project by Field Operations.
http://cantileverdesign.files.wordpress.com/2009/09/new-york-high-line-1121250496_dsr-highline-09-06-5054.jpg

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Figure 10. The proposed connection between Med and Vet becomes a structuring device for the western campus just as Eastern Avenue offers structure to the eastern campus.

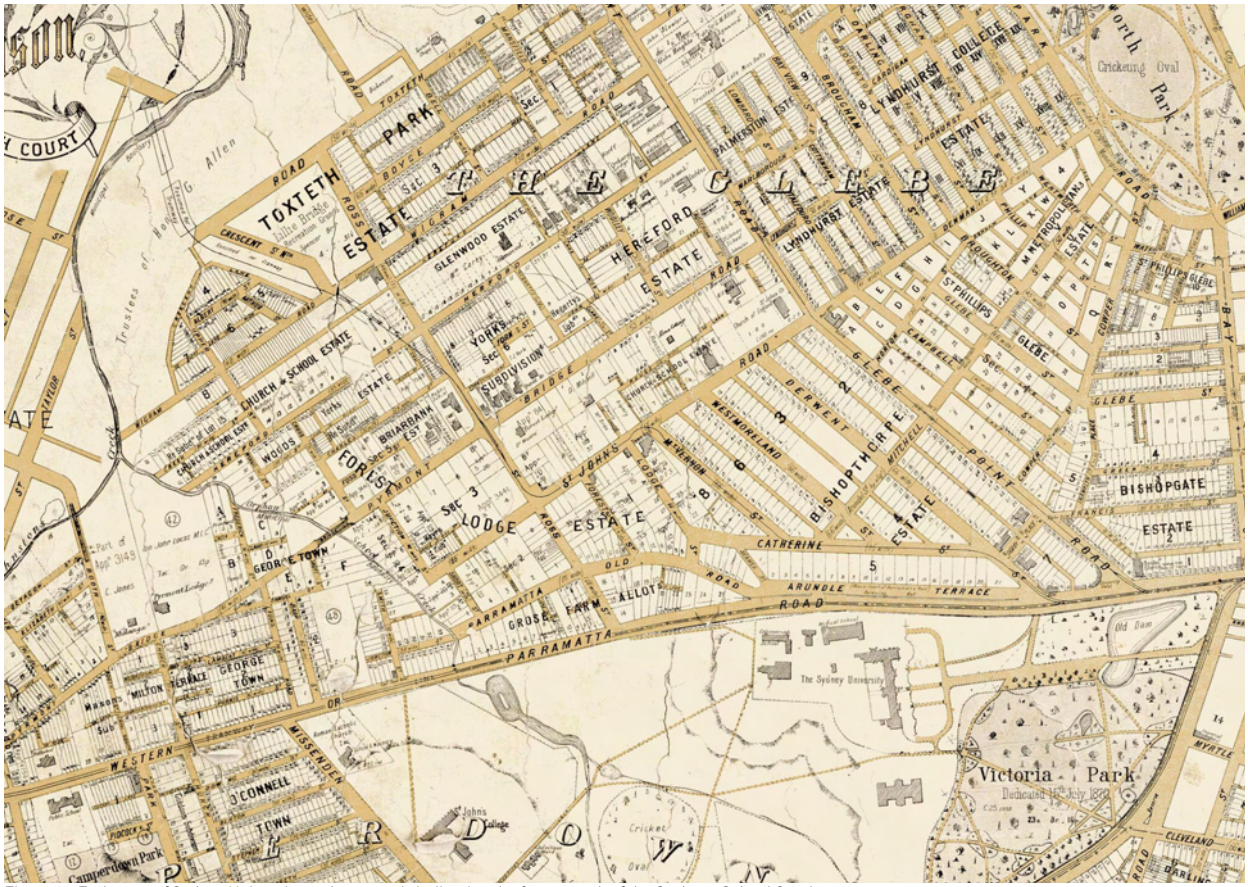

Figure 11. Early map of Sydney University and surrounds indicating the former path of the Orphans School Creek through the western part of the campus and on to Rozelle Bay.

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Between the proposed CODCD building and the Centenary building there is also proposed a new garden that creates an attractive green entry court for the existing Centenary institute whilst also managing storm water (Figure 12).

3.2.3_Removal of Trees and Succession Planting

The construction of the building and landscape will ultimately require the removal of much of the sites vegetation (Figure 13). There are some stands of trees that have been deemed 'significant' on the site. So as to allow time for the new landscape structure to mature and establish, there will be a phased process of existing tree removal as new planting matures.

3.2.4_Water Management (WSUD)

Storm water will be collected, stored and reused for irrigation within the public domain. Graded paved surfaces become permeable edges that guide overland flow into a series of vegetated swales that slow and treat water and filter it through to a wet sedge garden running along the north west face of the proposed CODCD (Figure 14). In peak events, excess overland flow will be detained within the St Johns playing fields.

Figure 12. A bioretention swale at Victoria Park (left) Photography: Hassell
and an informal sedge edge (above) .

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Figure 13. Examples of successful landscapes between buildings.
Desvigne, Michel 2009, Intermediate Natures, *The Landscape of Michel Desvigne*, Birkhauser Verlag, Basel.

04____Sustainable Design

4.1 Sustainable Design SV Report

Concept
The ESD design concept for CODCD is to maximise the potential passive design elements in the project with a view to minimising energy use, reducing operation and maintenance costs and maximising connectivity with the natural elements, and with people within the building.

Laboratories area highly structural and controlled environment. This design aims at providing relief from that environment for the researchers by;
_Maximising external views within labs and offices
_Provision of mixed mode air conditioning with operable all outside air capabilities
_Maximising daylight with full height glazed facades and atrium light walls
_Optimising walking distances within the complex for exercise and well being of the occupants, by location of a central core and interaction spaces adjacent, as well as three interconnecting stairwells.

The attached report by Steensen Varming shows the ESD concept being explored for the project. These will be subject to a rigorous feasibility analysis at the next phase of the project design with a view to include the optimum number of ESD initiatives in the design.

4.1.1_Design concept
The building has an integrated strategy for sustainability that covers natural light, energy reduction and visual comfort as well as a strong water sensitive UD plan and low energy smoke spill response.

Within the basic plan, the issues of light and heat protection for labs has been dealt with by the formal arrangement of dry spaces and labs. The dry spaces, or offices, 'wrap' around the labs acting as a light/ heat buffer; sun protection to offices is then dealt with in a more traditional way allowing greater visual connectivity to the landscape. This method of sun protection is by means of a second skin, or ventilating facade that cuts radiant heat and reduces the effect of convected heat through the building envelope. This double skin covers the north east and north west facades in their entirety.

Within the building, light wells are incorporated that bring controlled natural light deep into the building; the light is kept off the lab facades by controlled louvres, which also directed the light into the office spaces.

These light 'slots' also act as thermal chimneys- the sun heats up the top of the skylights causing thermal lift - air is then drawn from the office spaces discharging at high level.

These thermal chimneys also act as passive smoke extract systems - extracted through fans incorporated at the top of the chimneys.
Treated air supply is delivered through an under floor displacement system and vented through these thermal chimneys.

The perimeter glazed wall has low level openings sections that allow night purging of heat, natural smoke extract back up, and option for manual opening.

Externally the landscape is design around indigenous planting and the creating of drainage swales and permeable paving, all of which return surface water to a series of storage tanks for reuse.

4.1.2_Ratings approach
There is no lab "Greenstar" rating tool on the market at present - however - the education V1 AGBR Greenstar tool can be adopted for the education components as in the case of the HASSELL designed SA Water building in Adelaide.
The consultant team has evaluated tools such as Greenstar, LEEDS, BREEAM and Lab 21 and made a comparison of the initiatives under each of the rating tools.

4.1.3_Sunlight and daylight
Sunlight is captured both at the tops of the 'slots',and over the atrium. The orientation and specific design of the roof lights and 'scoops' helps to both direct and filter the light into usable daylight within the building.
For unwanted sunlight landing on the north east and north west facade, the 'ceramic fritted' glass vented screen cuts out the radiant heat from these orientations.

4.1.4_Natural Ventilation systems
The thermal chimneys, which also introduce daylight to the building, set up a thermal lift that draws air across the floor of the office spaces, either from a displacement system, or from outdoors on suitable days of the year.