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APPENDIX C ARCHITECTURAL & LANDSCAPE DESIGN REPORT

ELECTRICAL ENGINEERING BUILDING CAPITAL RENEWAL AND MODERNISATION PROJECT (EEB_CRM), UNSW AUSTRALIA

> Prepared for UNSW Australia (The University of New South Wales) 15 January 2016

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Cover image and opposite Electrical Engineering Building, UNSW Photography by Hassell

> Contact Matthew Todd, Principal mtodd@hassellstudio.com

> > HASSELL Level 2, Pier 8/9, 23 Hickson Road Sydney NSW Australia 2000 T +2 9101 2000 hassellstudio.com @HASSELL_Studio HASSELL Limited ABN 24 007 711 435

Electrical Engineering Building Capital Renewal and Modernisation Project (EEB_CRM), UNSW Australia RevC 2nd February

01 Executive summary Introduction

Introduction

This document has been prepared to assist with the approval process for the State Significant Development Application of the Electrical Engineering Building Capital Renewal and modernisation project (EEB_CRM) at UNSW Australia (The University of New South Wales), on the Kensington Campus.

The report describes the proposed architectural and landscape approach for a capital works project to comprehensively refurbish the Electrical Engineering Building (known as G17) and adjacent Rex Vowels Theatre (F17) for a further 30 years serviceable life.

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The project

The EEB is located in the academic heart of the Kensington Campus on the north side of the University Mall. The building was constructed in 1963 shortly after the Mechanical Engineering Building in 1961. Together they form a pair framing the view along University Mall towards Scientia. The expressive and articulated 1960s brick and concrete palette is considered a valuable reference to UNSW's formative years and worthy of retention and refurbishment.

The building (G17) comprises a six level 18 x 86metre long'South Block' facing University Mall with a perpendicular five level 18 x 66metre 'North Block' adjoining Basser Steps. Rex Vowels Theatre (F17) attaches to the Lower Ground floor foyer of G17 and forms part of the project scope. G17+F17 have an existing Gross Floor Area of 14,172sqm and a Useable Floor Area of 10,700sqm UFA (excluding Nura Gill)

Whilst roof level additions were made to the North Block in 2004, there has been no major capital renewal to the building in the last 50 years. The existing building service and fit-out infrastructure is inadequate and beyond its serviceable life, whilst the cellular enclosed planning is functionally restricted and compromises contemporary research, learning, and teaching practice.

It is proposed to holistically refurbish the building (G17) as well as the Rex Vowels Theatre (F17) to extend the base building and service life by 30 years and to upgrade to regulatory compliance. Refurbishment to building G17 is extensive and includes new facade elements (window, sun shading etc), a new roof top plant level, an accessible roof for research and student experiments, replacement of all services and a new interior fit-out to provide contemporary research and learning facilities. The refurbishment scope of Rex Vowels Theatre is to include upgrades of existing services, improvements to existing amenities including accessibility connections to and around the theatre, a complete new fit-out of the interiors including new tiered seating, wall linings & audio visual systems to enhance performance.

It is proposed to limit vehicular delivery access to after-hours to improve pedestrian safety to the Quadrangle whilst improving address and way-finding through and around the building with: _Learning Spaces consolidated at Lower Ground and Ground levels to collocate with the Rex Vowels Theatre with direct access from the Mall _A consolidation of Electrical Engineering & Telecommunications (EE+T) School executive & administration functions at level 1 with EE+T teaching labs focused on Ground, Level 1+2 _EE+T research & academic workplace consolidated primarily to Levels 3+4 to support research cluster collocation, interaction and collaboration.

> 01 Electrical Engineering Building from International Square. Photography by Hassell

> 02 Electrical Engineering Building looking west from Scientia, Photography by Hassell

03 Rex Vowels Theatre, photography by Hassell





The Electrical Engineering Building (G17)

The Electrical Engineering Building (G17) was purpose built for the School of Electrical Engineering in 1963. It was built in conjunction with the matching Mechanical Engineering Building (J17) and the Willis Annexe (J18) located across the Mall. The twin buildings have a civic presence and frame the end of the University Mall overlooking a central forecourt originally with a fountain.

The architectural style is classic 1960s Modernism featuring a modular facade, blank end walls, flat roof and is elevated on pilotis (columns) to create a shaded undercroft on the ground plane. The façade consists of regular vertical brickwork piers infilled with aluminium glazed windows and glazed brick spandrels. The Ground level and parapet concrete slabs are expressed with a folded profile shape that matches the profiled floor slabs within. The stairwells feature concrete block brise soliels' to signal building entrances and provide shading.

The Electrical Engineering Building was designed as two rectangular horizontal blocks arranged in an offset T-shaped layout with two lift towers expressed vertically. The building has long, thin floor plates to maximise natural light and ventilation. The design addresses the steep topography with a Lower Ground level and entrances at three levels. The primary vertical circulation is by three generous open stairwells and two lift cores distributed around the building. The building has a concrete structural frame with concrete encased steel columns and some steel encased beams in North Block.

The internal layout has off-centre corridors to allow for the various sized classrooms, laboratories and offices. The Electrical Engineering Building differed from the Mechanical Engineering Building with its larger plan footprint and its set down timber floors in South Block for additional in floor electrical cabling to the laboratory benches.

The Theatre Building was originally constructed as an addition to The Electrical Engineering Building in 1968. It was referred to as the Electrical Engineering Theatre until 1982, when the lecture was renamed in honour of the late Professor Rex Eugene Vowels who served as the head of the School for Electrical Engineering, Chairman of the Professional Board & University Pro-Vice Chacellor. The tiered lecture theatre was constructed over an existing car space to service increase in student numbers and the growing popularity of expanding electrical engineering courses.



01 Engineering fountain at night, 1963. Reference: History of the UNSW School of Electrical Engineering and Telecommunications 1949-2009.

- 02 Machines laboratory on Ground floor, 1963. Reference: History of the UNSW School of Electrical Engineering and Telecommunications 1949-2009.
- 03 The original building at completion 1962. Reference: History of the UNSW School of Electrical Engineering and Telecommunications 1949-2009.

A central location

The Electrical Engineering Building is located in a key location on the Kensington Campus. The main frontage of the building is to University Mall, defining the northern edge of International Square. University Mall is the main formal east/west pedestrian spine on campus. Topographically the building is located a transition point between the upper and lower campus and therefore is a key role in providing an accessible pathway for the campus. The eastern façade, aligned with Library Road, offers a secondary pedestrian access across the campus.



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03 Site analysis Building context

Urban context

The proposed development of the Electrical Engineering Building responds to the requirements of the Campus 2030: Urban Design Framework document.

The design proposal considers an integrated approach that coordinates both internal and external capital improvements to the Kensington Campus. It responds to the Master Plan/DCP Principles to deliver a cohesive solution that accommodates the immediate needs of the Faculty, whilst providing a strategic and flexible facility that responds to UNSW's overall long term needs.

The vision for the Kensington Campus is derived from the aspirations of the UNSW 2025 Stratey -Vision: UNSW aspires to be Australia's global university, improving and transforming lives through excellence in research, outstanding education and a commitment to advancing a just society [1].

To support the UNSW vision there is a need to create & develop world class environments, both physical & ditital with the following objectives

_To integrate our physical and digital campuses to provide a worldclass environment, flexible in adapting to changing circumstances.

_To provide a campus environment that promotes safety, social engagement, accessibility and collaboration, and that contributes to environmental sustainability.

_To provide a holistic individualised experience utilising the physical and digital assets of UNSW and providing fully integrated services to students and staff. [1].

Source 1. UNSW 2025 Strategy October 2015

It was identified in the Campus 2030: Urban Design Framework that the G17 - Electrical Engineering Building is:

_Located in the centre of the Academic Core

_Situated on the major East West Corridor and in close proximity to one of the proposed North-South Avenues

_Near to a proposed central activity hub of campus at the junction of International Square and Engineering Road _Close proximity to one of the major Campus

Landmark Buildings - Scientia Building

In terms of existing campus issues, the urban design framework identified Electrical Engineering Building having specialised academic functions and requires a review of building servicing. It also highlights the issues of its constrained vehicular access and subsequent conflicts between pedestrians and vehicular traffic.

In addition, the Urban Design Framework identified Rex Vowels Theatre as a building that is in poor condition and would benefit from refurbishment.

> 02 South West corner & Ground entry 03 Level 2 north block entry 04 View from roof towards north block 05 View from roof overlooking Rex Vowels & south block

01 Level 1 south block entry

06 View from Scientia looking down University Mall & the Electrical Engineering Building south block









03 Site analysis Building access

Pedestrian, bicycle and loading access

HASSELL was engaged in October 2014 to deliver the first stage of the updated Master Plan: The Strategic Framework. It establishes an understanding of UNSW's operation, campus environment and population numbers. The future vision is expressed as five distinct themes: Distinctive, Contemporary, Engaging, Connected and Adaptive. Each theme is supported by an objective which extend the broader strategic vision UNSW to the desired physical characteristics of the future Kensington campus.

Based on the review of the objectives of the Strategic Framework and current strategies and plans, including the Traffic and Pedestrian Management Plan (July 2015) by Cardno, most people travelling to UNSW enter the campus on foot and make their way across the campus as pedestrians. Therefore, it is a key point for the Electrical Engineering Building to establish a clear entry strategy which relates to the existing and future campus. The main entries to the building are along University Mall and along Library Road on the eastern side. They provide a clear identity and address to the EEB. The loading access is via Gate 2. Potential to upgrade the existing bicycle rack along the eastern side as facilities (showers) are provided within the building.



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03 Site analysis Building access

Reinforcing the accessibility path

Given the constraint of a complex site topograpy, the EEB needs to address a simple strategy for accessibility through different levels.

Entry 1 on the lower ground floor, will be upgraded and is already part of the accessibility University path.

Entry 2 on ground will be modified to create an equitable entry via an accessible ramp. It offers the potential to extend the North South Campus accessibility path to the Mechanical Engineering Building and beyond.

Entry 3, bridge access on level 2, is upgraded for a more obvious and welcoming presence along the eastern edge.

The new bridge will be wider than the existing & facilitate accessibility in and out of the building and through the campus. Signage and lighting will also be improved.





Axonometric diagram of disability access path

03 Site analysis Building approach

Building entries

Due to its central campus location and development over time, the building has 6 existing entries. This permeability is being retained and improved by new interventions limited to upgrading the primary entries on Ground and Level 2 to provide a clear and legible entry point as well as accessible access.



03 Site analysis View analysis

View Analysis

The closest UNSW boundary to the Electrical Engineering Building is the corner of Willis Street & Oval Lane which is approximately 49 metres south from the nearest (SE) corner of the building. The houses on Willis Street have obscured views north towards the south block & limited views of the northern block. The majority of the north block is fully obscured from view by surrounding existing buildings. Willis Street & the Kensington Campus fall away downhill from the corner & houses with views north become further obscured moving along Willis Street. Views west from properties neighbouring the Oval Lane boundary have no significant views of the Electrical Engineering Building as they are obscured by existing buildings.

The majority of new roof plant is located on the North Block which is the furthest aspect from Willis Street views. There will be minimal new roof plant on the south block which will be located behind the existing south block tower. Refer to Roof Massing for a more detail on the design approach of the roof plant to mitigate visual impact.

Properties along Willis Street currently have no significant or iconic views north towards surrounding aspects such as the city or the open spaces of the parklands beyond. As such, the bulk & scale of the new roof plant will have negligible impact on any existing views from Willis Street.

The height & profile of scale of the new roof plant will sit below the line of surrounding buildings to the north & will not alter the iconic existing profile of the UNSW silhouette from High Street.





View 1 - Corner of Willis Street and Oval Lane looking north-west



View 2 - Oval Lane looking west

Extent of proposed built form Extent of existing built form



View 3 - Willis Street looking north towards UNSW