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UTS BROADWAY BUILDING, SYDNEY

LANDSCAPE DESIGN REPORT
REVISION E

prepared for
UNIVERSITY OF TECHNOLOGY SYDNEY

8 March 2011

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1.0 INTRODUCTION

This design report forms part of the EAR Part 3A submission in relation to the proposed Broadway Building for the University of Technology. The report is in response to the key assessments of the DGRS. The building is known as the New Faculty of Engineering and Information Technology (FEIT) facility and is located on Broadway, Sydney. The building forms part of the UTS City Campus re development masterplan.

This report addresses the opportunities and constraints of landscape elements to the building being contiguous of the ESD guidelines for the whole campus and the building in particular.

Broadway Building , North East elevation from Broadway. Image: DCM

2.0 LANDSCAPE DESIGN PROPOSAL

The landscape philosophy for the building has been developed in response to the guidelines of the Master Plan. The building incorporates and develops these guidelines in relation to opportunities identified within the building and to the immediate public domain. The landscape is proposed to be a proactive element providing holistic benefits in relation to aesthetics, air quality and amenity. It is important that the landscape is consistent with the overall philosophy of the building in demonstrating the benefits of landscape in the busy and confined urban environment in which the building is located. This approach is consistent with the proposed usage of the building as the Faculty of Engineering and Information Technology Facility being an education hub and venue for display of technology, located in a prominent urban location on Broadway in the inner city of Sydney.

The criteria to be addressed include:

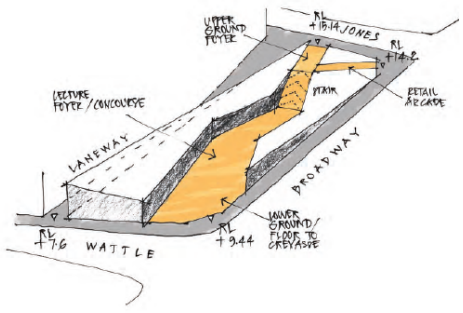
- Support the faculty's vision of a place where technology and creativity intersect
- Incorporate the University's masterplan objectives
- Demonstrate the role of planting in the facilitation of the maintenance of a clean indoor and surrounding environment.
- Provide innovative solutions using planting principles incorporating both the aesthetic and functional criteria of plants as a holistic design approach.
- Filter and potentially remove some of the particulates and dust from air entering the "crevasse" from the external environment, in particular responsive to the high pollution loads being generated from Broadway
- Support air quality systems incorporated through the building, particularly the atrium space of the Crevasse
- Accommodation of the functional requirements of pedestrian circulation and space through the building
- Planting to be low maintenance and capable of absorbing high pollution levels generated from the surrounding urban environment.
- Endure high volumes of pedestrian movement
- Upgrade streetscape and public domain consistent with current planning documents

3.0 SITE CONTEXT

The proposed building is located in Sydney's inner city suburb Ultimo, on Broadway, between Wattle Street and Jones Street. Both, Broadway and Wattle Street experience high volumes of traffic with Jones Street forming an integral part of the pedestrian and vehicular circulation of the UTS campus. To the north the site is bounded by Campus Building 10, which was extensively refurbished in the last ten years to provide facilities for the University.

Broadway Building in context of the Chippendale and Ultimo areas.
Image:DCM

GROUND PLANE



Ground Plane
The vertical transition zone between the grade separated entries is effectively addressed by providing vertical circulation by way of stairs or escalators between the upper ground (Jones Street) and lower ground (Wattle Street) floor plans.

Effective resolution and sloping ground plane

Image:DCM

4.0 LANDSCAPE OPPORTUNITIES

There are a number of opportunities to demonstrate the landscape principles in the site. Areas to be explored across the site include the following:

- Laneway between Broadway Building and CB10
- Concourse between Wattle Street and Jones Street
- General office areas, break out areas
- Dean's Garden/Wintergarden (Level 12)
- Broadway public domain renovations. As per the UTS City Campus Broadway Precinct EAR (2009) - The "Deverson Associates Landsacpe Report".

These areas provide opportunities for the development of the landscape to be expressed as an integral form consistent with the concept of the building as an expression of the philosophy of faculty.

In particular the deliberate voids associated with the circulation areas within the building that allow the passage of light through the building, in particular the Crevasse and the laneway, provide realistic opportunities to demonstrate the ESD principles in a manner that seamlessly flow with the principles of the architectural form and character that is expressed in the form of Corten Steel, glass and concrete.

To facilitate the opportunities for landscape, accommodation for growing medium and physical support for landscape elements are vital in the ongoing viability of the proposed ESD greening of the building.

5.0 PLANT FUNCTION PRINCIPLES

Landscape through and around buildings provide positive benefits to air quality, humidity and other related factors. Research documents, including papers such as “Interior Plants: Their Influence in Airborne Microbes inside Energy- efficient Buildings” by B. C Wolverton.

John. D Wolverton, published in 1996, has discussed at length research undertaken by NASA that came to the conclusion that “house plants can purify and rejuvenate air within our houses and workplaces, safeguarding us all from any side effects connected with prevalent toxins such as formaldehyde, ammonia and also benzene.” Other studies have shown rooms with plants will have up to 50% less airborne microbes than those without.

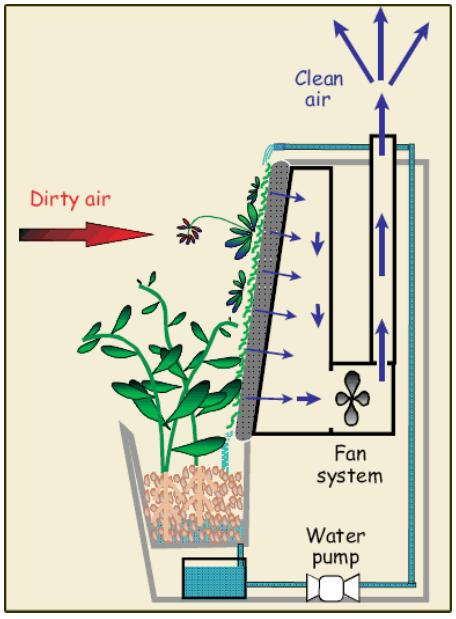
Common and hardy species are amongst the most effective at removing toxins. Plants such as Areca palm (Chrysalidocarpus lutescens), Lady palm (Rhapis excelsa), Bamboo palm (Chamaedorea seifrizii), English ivy (Hedera helix), Boston fern (Nephrolepis exalta), Dracaena (Dracaena deremensis) are common indoor plant varieties that are highly efficient at removing toxins.

NASA and other studies have documented the ability of plants to remove toxins from the air. Studies have shown that the rate of removal for toxins volatile organic compounds such as Benzene, Trichloroethylene, Formaldehyde from Sealed Chambers by potted plants. Plants effectively remove between 800 and 1800 mg per hour.

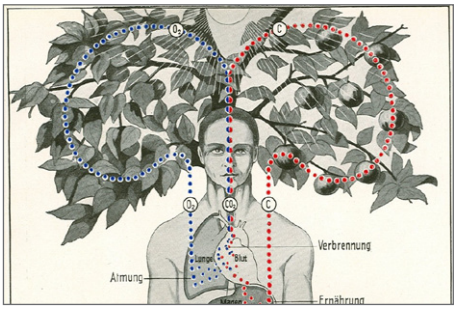
Further, it has been found that planting can be used as an effective air conditioner, the principles are noted below in the diagrams on this page.

Experiment	Concentration, ppm@			
	0 h	2 h	6 h	24 h
Carbon monoxide:				
1. Controls w/o pots	110		110	107
2. Controls w/pots	125		115	107
3. *Scindapsus aureus*	113		84	28
4. *Chlorophytum elatum var. vittatum*	128	98	68	<5
Nitrogen dioxide:				
1. Controls w/o pots	43	19	16	8
2. Controls w/pots	44	8	2	1
3. *Chlorophytum elatum var. vittatum* (soil exposed)	49	2	<0.5	<0.5
4. *Chlorophytum elatum var. vittatum* (soil covered)	47	7	<0.5	<0.5

Rates of absorption



Potential use of planting for air-conditioning



Principle of plants recycling and cleansing air supplies

6.0 LANDSCAPE DESIGN PRINCIPLES

LANEWAY

The laneway between the Broadway Building and CB10 transitions through several micro climate zones.

At the intersection of Wattle St, the laneway opens out onto Street frontage and is open to the sky above.

Moving North into the laneway, a connecting bridge between building CB10 and the Broadway Building encloses the area, before opening up onto a glazed roof section, high above the laneway. Each of these areas offers unique opportunities for landscape.

Hanging elements used to bring the laneway down to human scale

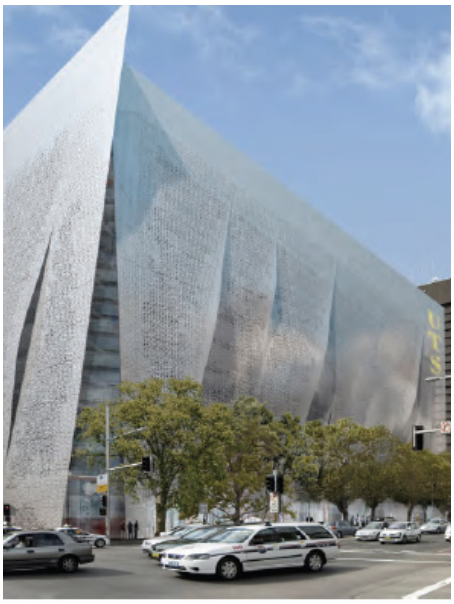
Vertical structures to support plant growth on edges of laneway

Trees used to create enclosure within a laneway

7.0 LANDSCAPE CONCEPT

PUBLIC DOMAIN STREETSCAPES

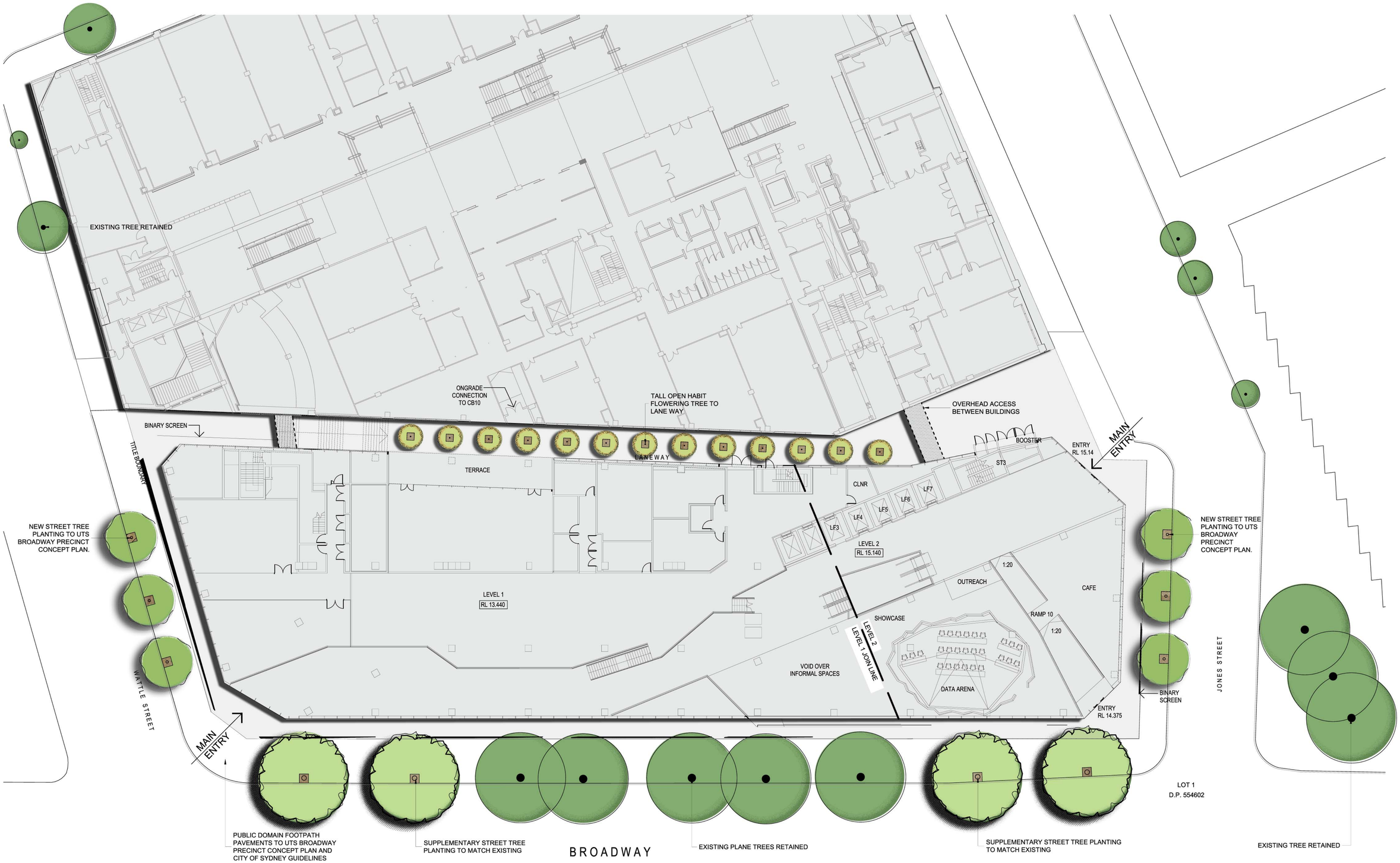
Street Trees retained
Existing Street trees will be protected, retained and reinforced with additional tree planting encouraged and in accordance with the City of Sydney Street tree Masterplan and the UTS City Campus Broadway Precinct EAR (2009) - The “Deverson Associates Landsacpe Report”.



Proposed Broadway streetscape

Existing street trees plan

Typical street tree plant and paving



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Issue	Comments	Date
A	FOR INFORMATION	08.03.2011

PROJECT
UTS BROADWAY BUILDING

JOB NUMBER
10-068S

DRAWING TITLE
PUBLIC DOMAIN PLAN

DRAWN	CHECKED	DATE CREATED	SCALE
KG	JH	MARCH 2011	1:200 @ A1

DRAWING NUMBER
LA01

ISSUE
A