

Report

Sustainability Strategy

ST VINCENT'S PRIVATE HOSPITAL REDEVELOPMENT

St. Vincent's Private Hospital Sydney (SVPHS)

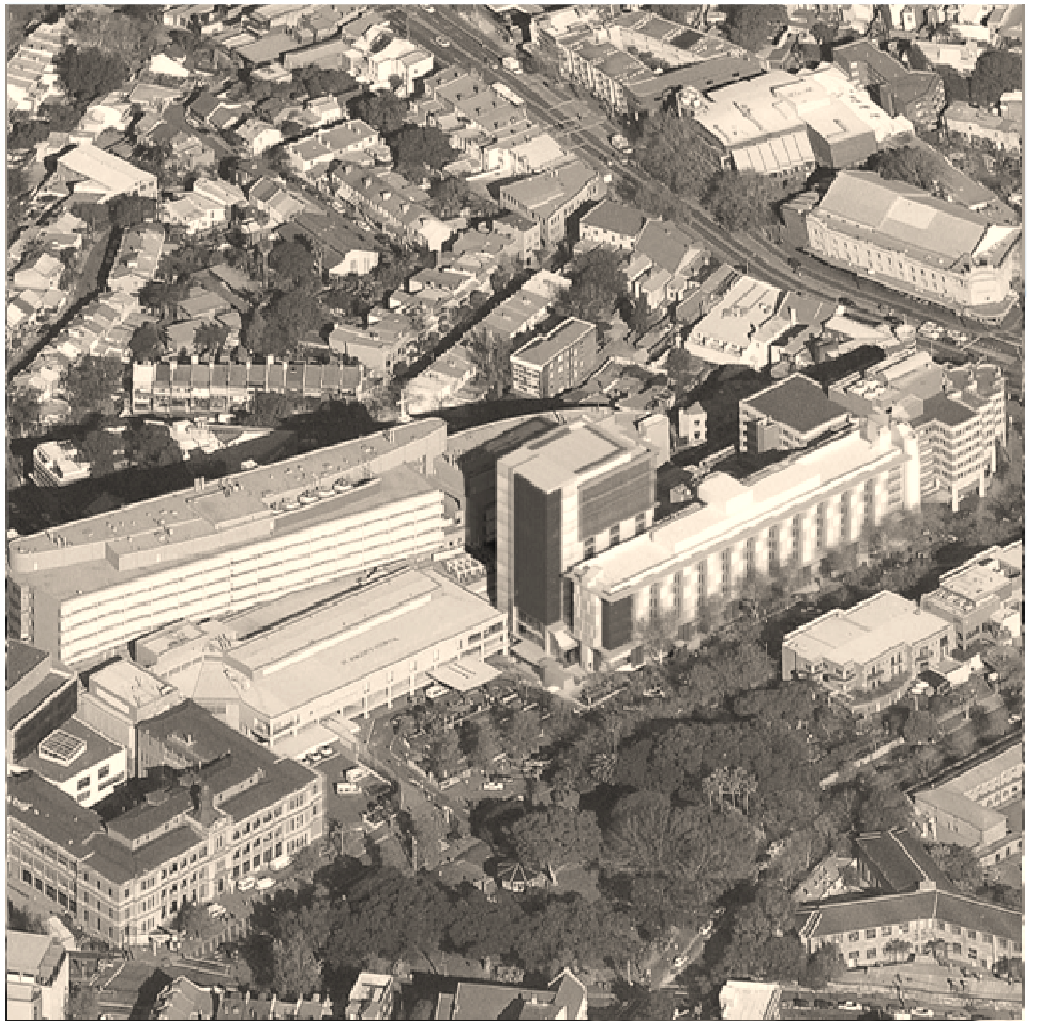




Table of Contents

EXECUTIVE SUMMARY	II
1 CONTEXT	1
1.1 Purpose	1
1.2 Project Overview	1
1.3 Project Description	1
1.4 Sustainability Policy	3
1.5 Policy Clarifications	4
1.6 Sustainability Approach	5
2 SUSTAINABILITY STRATEGY	6
2.1 Energy [Efficiency]	6
2.1.1 Solar Passive Design	6
2.1.2 Building Envelope Performance	7
2.1.3 HVAC Strategy	7
2.1.4 Power, Lighting & Controls	8
2.1.5 Energy Monitoring (Metering)	9
2.1.6 Fixtures & Fittings	9
2.2 Water	10
2.2.1 Hot Water Supply	10
2.2.2 Fixtures & Fittings	10
2.2.3 Water Metering	10
2.3 Waste Management	11
2.3.1 Waste reduction by Design	11
2.3.2 Waste Management Plan	11
2.4 Materials	12
2.4.1 Sustainable Procurement	12
2.5 Land Use & Local Ecology	13



EXECUTIVE SUMMARY

St. Vincent's Private Hospital Sydney (SVPHS) has made a commitment to address sustainability imperatives throughout the redevelopment of their Darlinghurst Campus buildings.

This report demonstrates compliance with the following policy and development approval documents:

- Secretary's Environmental Assessment Requirements (*Section 78A(8A) Environmental Planning & Assessment Act, Schedule 2 Environmental Planning & Assessment Regulation 2000*)
- City of Sydney Development Control Plan 2012;
- Sydney Local Environmental Plan 2012.

The report has identified a number of initiatives that will be measured and tracked throughout the project using either One Planet Living or Green Star Healthcare_v1 rating tool (no formal certification).

1 CONTEXT

1.1 Purpose

This report aims to demonstrate St.Vincent's Private Hospitals Sydney's (SVPHS) sustainability commitment to their proposed redevelopment of the facility, located in Darlinghurst Sydney. SVPHS is committed to mitigating environmental impacts from both the facility and the greater Mater Health Sydney Darlinghurst Campus, while equally providing an improved level of care and place of employment for patients and staff.

1.2 Project Overview

A major redevelopment of SVPHS has been initiated by the SVPHS Capital Works & Asset Management Unit.

SVPHS is located on the Mater Health Sydney Darlinghurst Campus; bound by Victoria Street to the west, St.Vincent's Clinic to the south and St.Vincent's Hospital to the North and East (see figure 1).



Figure 1 – Project Location

1.3 Project Description

Facility redevelopment works include:

- Full refurbishment (including new facade) of Inpatient Unit (IPU) located on levels 6 – 10 of the existing SVPH building;
- Refurbishment and expansion of the existing SVPH low-rise building, which includes:



- › Refurbishment of existing general office areas for new support services and associated plant areas on level 3;
- › Refurbishment and upgrade of existing Disability Specialist Unit (DSU) on level 3;
- › A new public cafeteria and minor up[grade of food services area on level 3;
- › Partial upgrade of existing pharmacy (adjacent to SVC) on level 4;
- › Partial Refurbishment of existing Surgical Services area on level 5;
- › An additional 9th floor, housing a new Central Sterile Supply Department (CSSD);
- A new East Wing of the SVPHS facility, which includes:
 - › New Ambulatory Care unit on level 4;
 - › Expansion of Surgical Services at levels 5 and 6;
 - › New plantroom on level 6 adjacent to Surgical Services;
 - › Expansion of existing facility IPU on levels 8 – 10;
 - › A new Rehabilitation Unit and Gym on levels 11 and 12 respectively;
 - › A new Medical Consulting space on levels 13 and 14;
 - › A new roof top plantroom.



1.4 Sustainability Policy

There are a number of relevant policy documents that address Sustainability and/or Environmentally Sustainable Design (ESD). Those considered of material consideration to the development application process are listed below:

- Secretary's Environmental Assessment Requirements (*Section 78A(8A) Environmental Planning & Assessment Act, Schedule 2 Environmental Planning & Assessment Regulation 2000*)
- City of Sydney Development Control Plan 2012;
- Sydney Local Environmental Plan 2012.

Table 1 provides a summary of where compliance with these policies, either in parts or their entirety, is demonstrated within the overall SVPHS development application.

Table 1 – A Summary of Report Compliance with Relevant Policy

Contained in this Report		Documented Separately		Reference
Secretary's Environmental Assessment Requirements (SEARS) Section 78A(8A) Environmental Planning & Assessment Act Schedule 2 Environmental Planning & Assessment Regulation 2000				
Item 6				
Detail how ESD principles will be incorporated in the design, construction and ongoing operation phases of the development;				Throughout this report
Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice				See section 1.6
Include a description of the measures that would be implemented to minimise consumption of resources, water and energy.				Throughout this report
City of Sydney Development Control Plan 2012				
3.3 Design Excellence		3.2 Defining the Public Domain		
3.3.2 (g)	Design Excellence Strategy – ESD Target benchmarks	3.2.1.1	Sunlight to publicly accessible places	Architectural Documentation
3.3.8 (h)	ESD Strategies and benchmark commitments	3.2.7	Reflectivity	Reflectivity Report
3.6 Ecologically Sustainable Design		3.2.8	External Lighting	Architectural Documentation
3.6.1	Energy Efficiency	3.5 Urban Ecology		Architectural Documentation/ section 2.4 of this report
3.6.2	Water Efficiency	3.7 Stormwater Quality		Stormwater/ Drainage Report (SEARS item 14)
3.6.3	Solar Photovoltaic Panels	3.14 Waste		Waste Mgt Plan/ Report (SEARS item 15)
3.6.5	Materials & Building Components			Section 2.3
Sydney Local Environmental Plan 2012				
6.21 (vii)	Design Excellence – Ecologically Sustainable Design			Throughout this report



1.5 Policy Clarifications

Further detail on SVPHS's response to the SEARS is provided in table 2 below:

Table 2 – A Summary of Report Compliance with Relevant Policy

Policy Item		SVPH Summarised Response
SEARS – Item 6		
1.	Detail how ESD principles will be incorporated in the design, construction and ongoing operation phases of the development.	A description of key design initiatives is provided in section 3 of this report.
2.	Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice.	The project team has identified two sustainability tools they consider most appropriate for benchmarking the development, which are: > GBCA Green Star Healthcare_v1; > Bioregional One Planet Living (OPL) Framework A list of key design initiatives proposed for the project are included in this report, however the tool used to measure and benchmark the success of these throughout the project will be decided during the design development phase. Further detail is provided in section 1.6
3.	Include a description of the measures that would be implemented to minimise consumption of resources, water and energy.	A description of key design initiatives is provided in section 3 of this report.
City of Sydney Development Control Plan 2012		
3.3.2(g)	The target benchmarks for ecologically sustainable development.	As per response to item 2 above.
3.3.8(h)	Ecologically sustainable development strategies and benchmark commitments (including connection to green infrastructure).	As per response to item 2 above.



1.6 Sustainability Approach

SVPHS acknowledges the value of using an accredited tool to benchmark sustainability targets for the project and the following will be used for the project:

Green Star Healthcare_Tool_v1

The Green Building Council of Australia (GBCA) has a suite of ‘Green Star’ rating tools applicable to different building types. For SVPHS, the applicable rating tool is Green_Star_Healthcare_v1 (GS-HC_v1), which is specifically tailored to targeting sustainability improvements in healthcare facilities. The benefit of using GS-HC_v1 is that it provides a widely recognised, robust, set of categories and credits that can be selected for the project team to target. The following categories and assessment criteria will be used to benchmark the development.

Table 3 – Green Star Healthcare – Categories and Primary Assessment Criteria

Green Star Category	Primary Assessment Criteria
Management	Various
Indoor Environment Quality	Various
Energy / GHG Emissions	kgCO ₂ eq/m ² /year
Transport	Various
Land Use & Ecology	Improvement in land use
Water	kL/person/year
Emissions	Various

A Green Star credit pathway will be developed during design development for achieving 4 Star Green Star (In-principle). This is essentially an inventory of specific initiatives that will be targeted for inclusion in the project.

2 SUSTAINABILITY STRATEGY

2.1 Energy [Efficiency]

2.1.1 Solar Passive Design

The project contains a complex arrangement of buildings and therefore passive design initiatives are specific to the nature of particular works. This section summarises the approach to the following key functional areas:

- New East Wing;
- Refurbishment of Inpatient Unit (IPU);
- Refurbishment & Expansion of the 'Low-Rise' building.

2.1.1.1 East Wing

The new East Wing expansion reaches 4 floors above the adjacent existing IPU building; and is exposed to direct solar gain on all elevations. The following key initiatives have been incorporated into the design:

- Lift core and general lobbies on floors are located to the north of the building. Extensive horizontal shading is provided to 100% of the glazed facade area;
- Extensive floor-to-floor vertical shading has been provided on the west elevation for those floors extending above the top of the IPU building (level 11). This measure allows good daylight in early morning/ mid afternoon, while mitigating solar load in late afternoon;
- IPU en-suites are located on the perimeter of the building, with glazing for these orientated north and south.

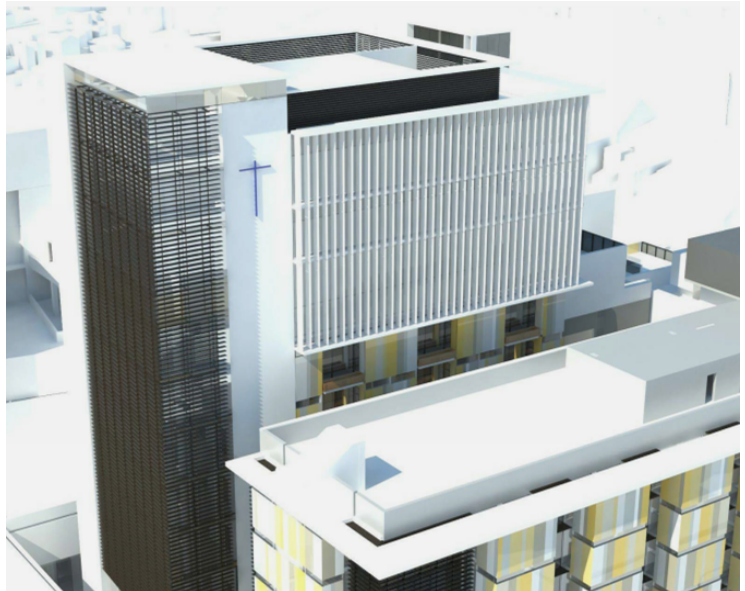


Figure 2- New East Wing Architects Illustration

2.1.1.2 Refurbishment of Inpatient Unit (IPU)

The IPU refurbishment will include installation of a new facade to the west and north of the building. Figure 3 (following page) highlights the IPU's location in relation to other parts of the facility. The following key initiatives have been incorporated into the design:

- Patient en-suite facilities are located on the western perimeter of the building. Glazing on these en-suites are positioned north and south, therefore minimising direct solar gain (and heat load) to the building, while also providing ample daylight to the facilities (see figure 4)
- Glazing on the north elevation is minimised by the existing lift core, which is bound by en-suites with minimal east and west glazing;
- An entrance awning spanning the length of the building, reducing solar load onto lower levels.



Figure 3 – Refurbished IPU Building

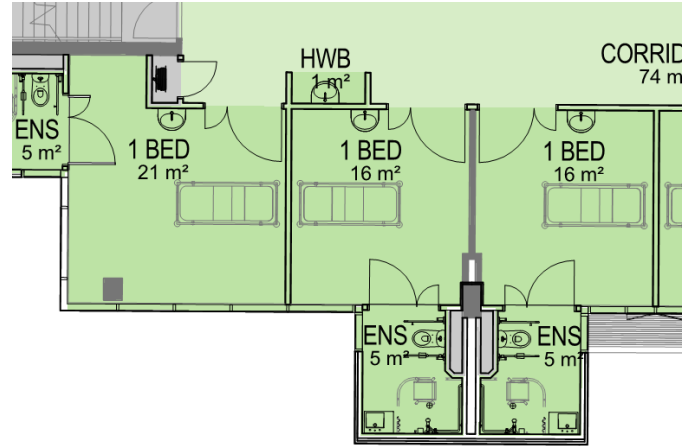


Figure 4 – Plan View of IPU En-suite Facilities

2.1.1.3 Refurbishment & Expansion of 'Low-Rise' building

The Low Rise building works largely consist of refurbishment of internal areas, with exception of an additional 8 level to house an expansion of CSSD. The following key initiatives have been incorporated into the design:

- The building is bound by hospital facilities at all orientations, giving it a degree of protection to direct solar gain;
- Notwithstanding the above, a high performance facade that exceeds NCC Section J benchmarks has been specified that is in keeping with other facade works as part of the overall redevelopment;

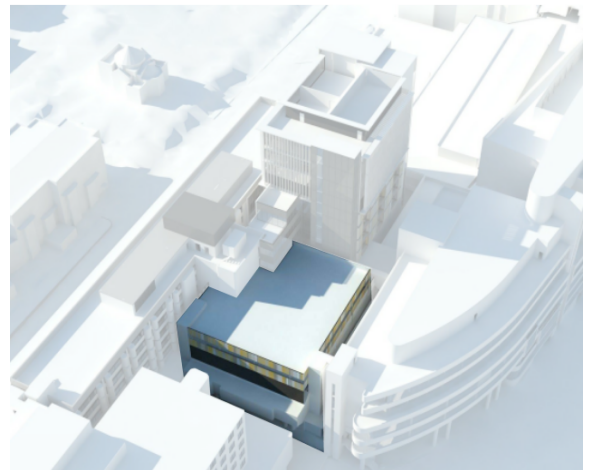


Figure 5 – Low-rise Building Architects Illustration

2.1.2 Building Envelope Performance

The building envelope performance has been designed for compliance with the NCC [Section J]. Improvements on minimum requirements will be sought where possible.

2.1.3 HVAC Strategy

Previous sections highlight the different areas of the building and how these are treated according to their functional requirements. The approach to the HVAC strategy is consistent with this and the outline approach for each functional area is described in table 5. General features and initiatives applicable to all functional areas include:



- All mechanical services are to be served from existing upgraded central plant, with exception of the consultant space which will be serviced by its own dedicated system once determined by the fitout designer;
- Outside air rates for each functional area are as required by Australian Standards;

Table 5 – Overview of HVAC solutions by functional area

Functional Areas	HVAC Arrangement
New East Wing	> New Air-cooled central chilled water plant; > VAV Air Distribution System; > Separate HVAC system for Consultant Suites located on levels 13 and 14 (detail to be determined)
Refurbishment of IPU	> Upgrade of existing water cooled, chilled water plant > Constant volume air distribution system
Expansion of Low-rise building	> Air-cooled package unit plant
Refurbishment of internal departments (e.g. Surgical Services)	> Air-cooled package unit plant > Make good as required

2.1.4 Power, Lighting & Controls

Provisions for all areas of the facility include:

- Emergency back-up generator will be located on the IPU roof plantroom, providing critical-to-life services to the facility;
- Lighting power density will be equal or better than NSW Health Technical Series [TS-11]

Table 6 – Overview of lighting arrangement by functional area

Functional Areas	Lighting Arrangement
New East Wing	> Full LED lighting solution, with exception to consultant suites. The lighting fixtures for this area will be determined by the fit-out designer; > Dali lighting control system; > Separate power and lighting metering of all major electricity loads (over 100 kVA).
Refurbishment of IPU	> Full LED lighting solution; > Photoelectric sensors throughout;
Expansion of Low-rise building	> Fluorescent [T5] strip lighting throughout;
Refurbishment of internal departments (e.g. Surgical Services)	> Fluorescent [T5] strip lighting throughout; > Efficient halogen lighting for theatre suites
External Lighting	> Pathway lighting and signage will be provided for access and egress paths to the building; > A decision on any external façade lighting will be determined during design development.



2.1.5 Energy Monitoring (Metering)

All new plant and equipment installed will include mechanisms for accurately monitoring and managing energy during building operation. The following features will be incorporated into the design to help maintain and improve energy efficiency throughout lifetime building operation.

The metering arrangement for the facility will include the following for the new installations:

- Separate sub metering of base building sections and tenant sections of main switchboards;
- Sub metering of mechanical plant;
- Sub Metering of lifts;
- Sub metering at house distribution boards to individually monitor lighting consumption and power consumption;
- Sub metering at tenant floor distribution boards to individually monitor lighting consumption and power consumption; and
- Sub Metering of loads over 100kVA;

All energy metering will be linked to a centralised Building Management System (BMS) to allow ongoing measuring and monitoring of energy use by the facilities manager.

2.1.6 Fixtures & Fittings

Fixtures and fittings, where applicable, included as part of the base building upgrade will achieve best practice Energy Star ratings.



2.2 Water

2.2.1 Hot Water Supply

Existing gas boilers for the facility will be upgraded with new condensing boilers to serve general hot water and kitchen facility requirements.

2.2.2 Fixtures & Fittings

The project will incorporate base build fixtures that carry best practice WELS star ratings available at the time of construction tender. Waterless urinals will also be considered in line with the DCP 2012.

2.2.3 Water Metering

Where new supply is installed in the development, sub-meters will be installed to separately monitor water consumption for major water users and this includes:

- Sub-meter, valves and backflow prevention device (BFPD) on the cold water supply to mechanical plant;
- Sub-meter, valves and backflow prevention device (BFPD) on the cold water supply for irrigation/landscape;
- Sub-meter, valves and backflow prevention device (BFPD) on the cold water supply to the Rainwater auto change-over system;
- Sub-meter and valves on the cold water supply to the hot water system
- Sub-meter and valves on the cold water supply to each level.

A dedicated BMS system will be installed for the hotel component, with retail aligning with existing monitoring mechanisms.



2.3 Waste Management

2.3.1 Waste reduction by Design

SVPHS recognises the importance of sound design that reduces waste through elimination. The following principles have been carried through the design using this approach:

2.3.1.1 Design for reuse and recovery;

SVPHS made the critical decision to upgrade its existing facilities where possible and develop new facilities where necessary. By remaining on the existing site and maximising its potential, this decision in itself presents a far more environmentally responsive solution than constructing a new purpose built facility. Some of the key design initiatives for reducing waste in design include:

- Maintaining structural layout of existing IPU, while replacing the facade and internals;
- Expanding within the existing footprint of the site, maintaining the integrity of the low-rise building and providing a link to the new expansion and Sister Bernice Wing at various levels;
- Retaining existing service core and lift access areas;
- Maintaining existing road access infrastructure;

2.3.1.2 Design for off-site Construction;

The benefits of off-site factory production in the construction industry are well documented and include the potential to considerably reduce waste especially when factory manufactured elements and components are used extensively. Its application also has the potential to significantly change operations on site, reducing the amount of trades and site activities and changing the construction process into one of a rapid assembly of parts that can provide many environmental and commercial social benefits.

Where possible, the design has considered components that could be fabricated off-site in a controlled environment and brought to the site.

2.3.2 Waste Management Plan

A Waste Management Plan for the demolition, construction and operation of the building is provided under separate cover in accordance with the SEARS, item 15.



2.4 Materials

2.4.1 Sustainable Procurement

The balance between energy efficiency, cost and sustainable material selection is challenging for any project. For example: superior products that reduce thermal transmission and better regulate indoor conditions are not necessary the best environmental product choice. In addition, sourcing local products must be considered in conjunction with availability and suitability for application.

The project will look to incorporate the following materials into the project where possible:

- materials which are sourced from renewable and abundant resources;
- materials which are durable;
- locally manufactured materials;
- materials with a low embodied energy content;
- salvaged and/or recycled materials;
- timber obtained from certified sustainable sources;
- materials with a high recycled content (>30%);
- low volatile organic compound (VOC) emitting materials;
- mechanical fixings instead of adhesives and glues, wherever possible;
- when using Medium Density Fibreboard, ensure that it has a low formaldehyde content;
- use low-toxin floor finishes.

2.5 Land Use & Local Ecology

The building is a consolidation of existing site amenities on a Brownfield site. As noted earlier, from an environmental perspective, the decision to reinvigorate existing built infrastructure is always the preferred option. There are limited opportunities to enhance the existing landscaping on the site, however the design team has maximised these where possible as well as including new initiatives. Key landscaping features of the facility include the following:

- Existing trees to the north of the west of the IPU building have been retained and will be protected during the construction phase;
- Existing landscaping and permanent fixtures will be made good following the construction process and enhanced where possible. Figure 6 from the project Architect [Hassell] illustrates indicative options for a series of landscape items;

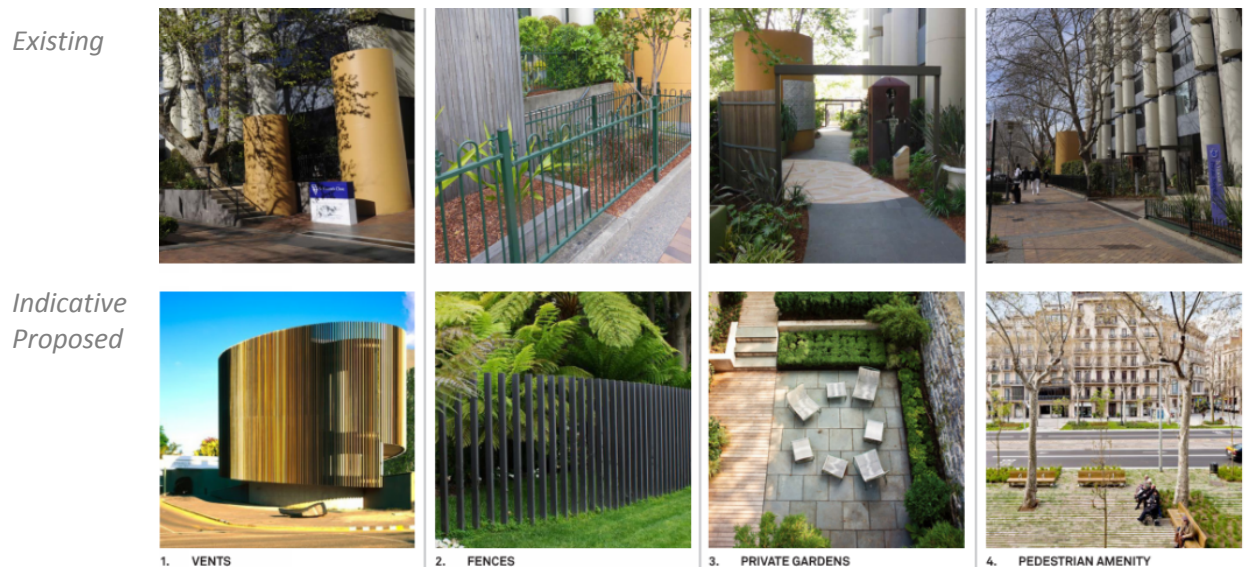
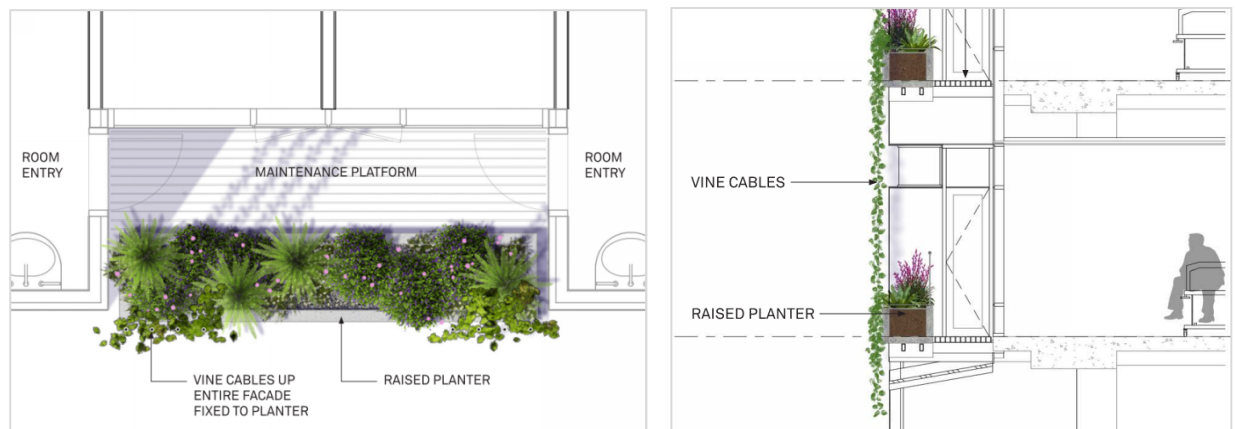


Figure 6 – Existing and Indicative Proposed Landscaping Works

- A key feature of the design has been to improve the quality of IPU amenity through initiatives such as better en-suite facility access and greater access to daylight. For new IPU facilities on the East Wing, the design has also aims to enhance site biodiversity by introducing planter box balconies on the facade. Figures 7 & 8 provide an indicative illustration by Hassell.



Figures 7 & 8 – New East Wing – Planter Box/ Balcony Design, Architects Illustration



NORMAN DISNEY & YOUNG CONSULTING ENGINEERS

NDY Management Pty Limited trading as Norman Disney & Young
ABN 29 003 234 571
60 Miller Street
North Sydney NSW 2060

Telephone: +61 2 9928-6800
Facsimile: +61 2 9955-6900

www.ndy.com

OFFICES

Australia:	Sydney, Melbourne, Brisbane, Perth, Canberra, Adelaide, Darwin, Gold Coast
New Zealand:	Auckland, Christchurch, Wellington
United Kingdom:	London
UAE:	Dubai
Malaysia:	Kuala Lumpur (NDY Licensee)

CONFIDENTIAL INFORMATION

This document is made available to the recipient on the express understanding that the information contained in it be regarded and treated by the recipient as strictly confidential. The contents of this document are intended only for the sole use of the recipient and should not be disclosed or furnished to any other person.

DISCLAIMER OF LIABILITY

The information contained in this document is provided under direction from the nominated client and addresses this direction. Any third party reviewing the content of this document needs to make their own assessment on the appropriateness of the information contained. NDY Management Pty Limited makes no assurance the information meets the needs of a third party and as such accepts no liability for any loss or damage incurred by third parties whatsoever as a result of using the information.

COPYRIGHT

© NDY Group 2015.

NDY QA SYSTEM

Revision No: 1.0
Revision Date: 2 February 2015
Reason Description: FINAL
File Location: W:\S297xx\S29792\004\G-124_Reports
Filename: rp150202s0004

Client Name: St. Vincent's Private Hospital Sydney (SVPHS)
Client Contact: Matthew Owen

Project Coordinator: Ryan Hahn
Editor: Mark McKenna

Authorisation By: Mark McKenna

Verification By: Mark McKenna

NDY Offices:

AUSTRALIA

Adelaide
Brisbane
Canberra
Darwin
Gold Coast
Melbourne
Perth
Sydney

UNITED KINGDOM

London

NEW ZEALAND

Auckland
Christchurch
Wellington

MALAYSIA

Kuala Lumpur
(NDY Licensee)

UAE

Dubai

www.ndy.com



**Norman
Disney &
Young**