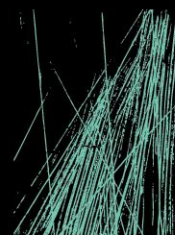


ENERGY EFFICIENCY AND SUSTAINABILITY REPORT

OXFORD FALLS GRAMMAR SCHOOL, OXFORD FALLS

SUSTAINABILITY SERVICES



JHA

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DOCUMENT CONTROL SHEET

Project Number	190353
Project Name	Oxford Falls Grammar School
Description	New Educational Building Development
Key Contact	Stefan Takac

Prepared By

Company	JHA
Address	Level 23, 101 Miller Street, North Sydney NSW 2060
Phone	61-2-9437 1000
Email	Gary.Tang@jhaengineers.com.au
Website	www.jhaservices.com
Author	Gary Tang
Checked	Lawrence Yu
Authorised	

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1 INTRODUCTION

JHA Engineers has been commissioned to provide an Energy Efficiency and Sustainability Report for the proposed school building at Oxford Falls, NSW 2100.

This report establishes the energy efficiency and sustainability initiatives that will be incorporated into the development.

2 PROJECT DESCRIPTION

The project is for a new school building with a library, administration, car parking and ancillary amenity rooms. The site is located adjacent to a riparian zone within Northern Beaches Council Area.

NCC Climate Zone	Zone 5
NCC Building Classification & Use	Class 7a – Carpark Class 7b – Storage Class 9b – Assembly Building



NCC Climate Zone Location

3 REFERENCE DOCUMENTATION

The following documents were reviewed and referred to in the production of this report:

Architectural Drawings	Allen Jack+Cottier Architects, dated 11/03/20
Project Name & Number	OFGS Field of Dreams 18025
Drawings	REF201 Ground Level Plan REF202 Level 1 Plan REF203 Roof Plan REF311 Elevations – Sheet 1 REF312 Elevations – Sheet 2 REF321 Sections

4 ESD OPPORTUNITIES

Sustainability is defined as the ability to optimise or balance healthy environmental, economic and social systems within limited resources on different scales.

Buildings produce greenhouse gases and other emissions that contribute to climate change and reduce the air quality of our environment. These happen in the construction phase, as well as during the operation of the building. Incorporation of sustainability initiatives will result in a decrease in both embodied and operational energy, thus reducing the associated emissions.

The development of more sustainable building not only can benefit the environment but often means a reduction in operating cost, added value to the development and enhancement of the building's reputation. In addition to the compliance level of National Construction Code (NCC) 2016 Volume One Amendment 1, Section J, JHA recommends the following sustainability strategies for the proposed school building development at Oxford Falls, NSW 2100 to achieve improved energy efficiency and a more sustainable outcome.

		Sustainable Practices	Proposed Measures
Environment	Energy	Lighting	Integration of natural lighting is recommended as this will decrease lighting energy usage. The use of LED lighting is encouraged as LEDs only takes one-fifth of energy consumption compared to incandescent lighting.
		Materials	Both embodied energy and carbon footprint can be reduced by prioritising sustainable, recycled, reused products or materials over other choices. GECA certified material is recommended.
		Appliances	Installation of efficient appliances is recommended. Appliances with higher energy stars will provide a return in saving energy and decrease greenhouse gas emission. Recommend selecting appliances within 1 star of the highest energy efficiency rating available on the market.
		Standby power	Recommend the implementation of timers and/or sensors (daylight/occupancy) to cut off energy usage when the premise is not occupied to reduce wasting energy.
		Hot Water system	Recommend an energy efficient hot water system such as heat pump or instantaneous gas hot water system.
		Renewable Energy	The project is seeking renewable energy source opportunities with less environmental impact such as an on-site PV system. The pending on-site PV system will be orientated to maximise its exposure to have good solar access. Recommend the PV design to allow sufficient roof space for maintain paths, mounting systems and shadowing.

		HVAC system	The air-conditioning and ventilation systems shall be designed to comply or exceed the minimum requirements of NCC 2016 Section J5. An energy efficient HVAC system is recommended to allow savings in energy use. Such as incorporation of an evaporative cooler to the main assembly area and providing VRV/VRF air conditioning system to other learning spaces.
		Evaporative cooler	Evaporative cooling uses much less energy than the refrigerated air conditioning to temper the internal main assembly area. It also brings less carbon footprint as well as less operational costs.
		Shading	The proposed building has been designed with good external eaves and vertical fins to prevent the high summer sun from entering the building.
	Water	Alternative water source	The collection and reuse of alternative water sources such as rainwater, stormwater, and greywater are recommended.
		Rainwater tank	Rainwater from roofs will be captured from the non-trafficable roof area and diverted to a rainwater tank. Rainwater will be reused for toilet flushing and irrigation purpose
		Fittings and fixtures	Recommend the installation of fittings and fixtures with the following WELS Rating. In addition, flow restrictors or taps with timed flows can be used to minimise water usage. Showerhead: min 3 WELS Stars, Sink Tap: min 5 WELS Stars Toilet cistern and Urinals: min 4 WELS Stars
		Low water use species	JHA recommends the planting of low water use and/or native plant species to minimise irrigation demands.
Economy		Employment	The provision of a new school building will provide greater opportunities for the school to continue to improve their facilities, supporting the development of the staff and students
Society		Community engagement	Acknowledgement of County and the traditional custodians of the land. Recommend incorporating Aboriginal and Torres Strait Islanders design elements to help promote awareness of the past and ongoing connection to place and land of Aboriginal Australians. Further investigations to be undertaken in the aboriginal heritage reporting.
		Sustainability education	Displays and signs to highlight the sustainable features of the school projects are recommended to promote sustainable initiatives to parents and encourages students and society to develop sustainable mind-sets from an early stage.

Full Name of Designer: Gary Tang
Qualifications: B.Eng, M.Eng.Sc
Address of Designer: JHA
Level 23, 101 Miller Street,
NORTH SYDNEY NSW 2060
Business Telephone No: (02) 9437 1000
Name of Employer: JHA

Yours sincerely,



Gary Tang
Sustainability Engineer