CONSULTANT ADVICE NOTICE

PROJECT:	**UPGRADE TO DUNDAS PUBLIC SCHOOL**			**CAN NO:**	**G-005[1.0]**
Date:	**12 December 2024**	**Project No:**	**41155 - 001**	**Pages:**	**7**

SUSTAINABILITY – NET ZERO STATEMENT

1 NET ZERO COVER LETTER AND CERTIFICATION

As per the *Department of Planning and Environment - Net Zero Statement Technical Note*, which outlines how to prepare a Net Zero Statement when one is required under the NSW Sustainable Buildings SEPP. A Net Zero Statement describes how a project will avoid dependence on fossil fuels and be capable of operating at net zero emissions by 2035.

1.1 INTRODUCTION

This Net Zero Statement has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of the Dundas Public School (DPS) (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP and in consideration of the stakeholder and community participation plan.

The proposed activity is for upgrades to the existing DPS at 85 Kissing Point Road, Dundas NSW 2117 (the site).

This report examines and takes into account the relevant environmental factors in the Guidelines and Environmental Planning and Assessment Regulations 2021 under Section 170, Section 171 and Section 171A of the EP&A Regulation.

1.2 SITE & PROJECT DESCRIPTION

Proposed Activity Description

DPS is located at 85 Kissing Point Road, Dundas. The school site is bound by Kissing Point Road to the north and Calder Road to the south. Kenworthy Street is located parallel to the site to the east as is Saint Andrews Street to the west. The site has an area of 1.99 ha and comprises 1 allotment legally known as Lot 3 DP 610.

The site currently comprises an existing co-education primary (K-6) public school with 9 permanent buildings, 6 demountable structures (1 demountable includes 2 classrooms), interconnected covered walkways, play areas, on-grade parking, sports court and green spaces with mature trees.

Majority of the buildings are 1 storey with only one 2-storey building being Building A (Admin/staff hub and amenities building). Buildings are clustered to the north of the site, with the southern part comprising of a large play area/informal sports oval and a sports court.

An aerial photograph of the site detailing the development footprint is provided in Figure 1.

FIGURE 1 - AERIAL PHOTOGRAPH

Activity Site

The proposed activity involves upgrades to the existing DPS, including the following:

- Creation of 6 new teaching spaces and 2 learning commons in a single-story building
- Installation of covered walkways connecting the new building to the existing school network
- Landscaping and external works around the new building and eastern entry
- Upgrades to site infrastructure and services to support the new building.

1.3 NET ZERO PATHWAY

The *Net Zero Statement Technical Note* outlines two different pathways to comply with new SEPP requirements for a Net Zero project. These are described as follows:

- **Net Zero Ready**: The building is designed to operate fully on fossil fuel-free systems immediately upon occupation and use.
- **Transition Strategy**: Confirm how the development will operate as fossil fuel-free by 2035, where fossil fuel-dependent building systems are used.

The Dundas Public School Upgrade is designed to be fully electric at practical completion, with no gas-powered plant used to meet space heating and domestic hot water (DHW) demand. In addition, Dundas Public School Upgrade is currently designed to produce the net energy it consumes via solar PV and therefore meets the Net Zero Ready pathway. This is achieved through strategies addressing the following areas, with additional detail provided on each within this document:

- On-Site Fossil Fuel Usage;
- Renewable Energy Generation;

- Energy-efficient design;
- Energy consumption and emissions calculations.

1.4 DOCUMENTATION

The drawings and specifications that evidence the project's Net Zero approach accompany the REF submission and are listed below:

TABLE 1 - DOCUMENTATION REFERENCE

DOCUMENT REFERENCE	TITLE	DATE	REVISION
Dundas PS - NDY Schematic Design Report	Electrical & Mechanical Services Schematic Design Report	06/11/2024	1

The remainder of this document provides additional details on the strategies incorporated into the design and operation of the building to achieve Net Zero.

This report has been endorsed by:

Jarrad Underwood MIEAust CPEng (Electrical): 5359514

2 NET ZERO STRATEGY

2.1 The intent of the activity is to increase the number of permanent teaching spaces (PTS) from 9 to 15 and students from 331 to 391. **NET ZERO STRATEGY**

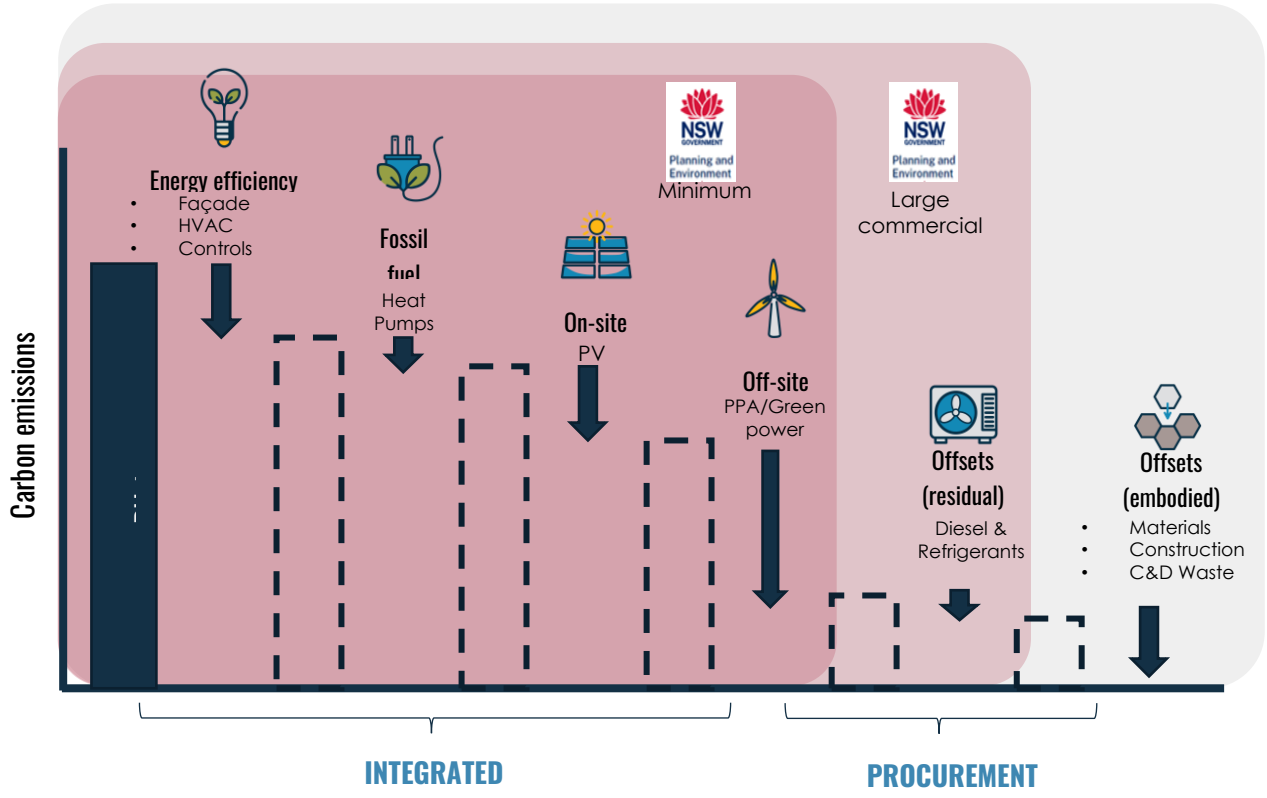
Figure 2 illustrates at a high level the strategies that are typically considered at different stages of a project (design, construction, and operation), in order to achieve its Net Zero ambitions.

The stage with most potential to reduce operational energy is the Concept and Schematic Design stage when there are many opportunities and significantly more flexibility to reduce emissions through building design. This ranges from high performing building fabric and passive design, efficient and fossil fuel free HVAC systems and other building services, effective controls strategies, as well on-site energy production, typically provided by roof top or building integrated PV. Specification of low embodied carbon materials also typically occurs during the design stage, however the actual products used will ultimately by chosen by the builder during construction.

By the time the project reaches Procurement stage, during construction and then on to operation, the procurement of green power for operational energy demands, and, as a last resort, offsetting residual emissions can take place.

The graph circles the components that are captured through SEPP requirements (red) and will be committed to as part of this development.

FIGURE 2 - NET ZERO STRATEGY



2.2 ON-SITE FOSSIL FUEL USAGE

The development will not use on-site fossil fuels for building services, as the project has been designed to operate using alternative energy sources and technologies to replace fossil fuel consumption.

As per evidence in Table 1, all services including space heating will be fully electric, with no allowance for systems reliant on fossil fuels.

2.3 RENEWABLE ENERGY GENERATION AND STORAGE

The project's renewable energy generation considers both on-site and off-site generation.

Onsite renewable energy

Concept design calculation propose the project will install a PV system in the order of 21 kW. This system is estimated to generate approximately 27,000 kWh per year.

Offsite energy generation

SINSW's electricity procurement falls under the responsibility of the NSW government. We understand that their renewables procurement targets are currently under review, and the exact details of the offsite electricity to be procured is not yet known.

Storage infrastructure

Energy Storage Infrastructure has been noted as unfeasible at this stage, however provisions have been made for the future addition of battery storage.

2.4 ENERGY-EFFICIENT DESIGN

The project has implemented strong passive design principles alongside efficient active HVAC systems to reduce the demand when compared to a "code-compliant" alternative.

Shading

The façade incorporates eaves and other shading devices to reduce the energy demand of the building.

Natural ventilation

A mixed mode natural ventilation system is currently designed when outdoor conditions are favourable. Whilst active air conditioning will also be provided, this will only need to operate during hotter and colder months, taking advantage of the Sydney climate, and consuming less energy as a result.

Building fabric

As per the EFSG requirements, the project will exceed the minimum requirements of Section J of the National Construction Code (NCC) 2022, by at least 10%. The project team are currently refining the specification of the glazing and insulation thermal performance by using a Verification Method of compliance (J1V3) which utilises an energy model to compare the performance and allow a bespoke solution that is relevant to the project to be developed.

Additionally, technical design features implemented to further reduce energy consumption include:

Efficient lighting

The project incorporates the following initiatives:

- To AS/NZS 1680, AS/NZS 1158 and BCA Part J7
- Luminaire utilising LEDs to be used throughout

In addition, the following are being considered:

- Inclusion of Digital Addressable lighting with Dimmable luminaires.
- Inclusion of intelligent lighting control system with daylight and occupancy sensing on internal lighting.
- Self-contained emergency luminaires will be provided with lithium battery and long-life LED luminaires.

HVAC systems

The school is designed to be fully electric at practical completion, with no gas-powered plant used to meet space heating demand. As per NDY's Schematic Design Drawings, the followings are provided:

- In-ceiling ducted reverse-cycle Variable Refrigerant Flow (VRF) fan coil units (FCUs) serving learning spaces. Condensers are located in a dedicated plant area.
- Outside air in learning spaces is ducted directly to FCUs, intake is via louvre on façade.
- Excess air in learning spaces are relieved via louvre on façade, complete with non-return damper.
- A mixed-mode natural ventilation control strategy is provided to all learning spaces, complete with SINSW's standard "Traffic Light" HVAC controls.
- BCR is to be provided with wall-mounted split A/C and outside air via in-line duct-mounted fan. Intake to the fan is via louvre on façade. Relief of excess air is via door grille. Condenser is located externally in a dedicated plant area.

2.5 ENERGY CONSUMPTION AND EMISSIONS CALCULATIONS

Operational energy consumption of the building has been estimated based on benchmarking of other similar SINSW projects. The values provided are high level estimates and will be further refined in future design stages.

TABLE 2 - ENERGY CONSUMPTION AND GHG EMISSIONS

ITEM	WITHOUT SOLAR PV		WITH SOLAR PV	
Fossil fuel consumption (MJ/annum)	0			
Energy - Electricity (kWh/annum)	28,361	39.5/m^2	1,361	1.9/m^2
Direct Emissions (Scope 1) (kgCO2eq/annum)	0			
Indirect Emissions (Scope 2-3) (kgCO2eq/annum)	26,135	36.4/m^2	1,254.2	1.75/m^2

More detailed modelling will be conducted in future design phases which will further refine these results.

2.6 NET ZERO STATEMENT CHECKLIST

A completed Net Zero statement checklist is provided in Annex 1.

NDY, A Tetra Tech Company

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ANNEX 1 – NET ZERO STATEMENT CHECKLIST

Department of Planning and Environment

Net Zero Statement Technical Note

Net Zero Statement Checklist

Cover Letter	
Project details and overview	☑
Confirm if development is fossil fuel-free or requires a transition strategy.	☑
Certified and signed by a mechanical or electrical engineer	☑
On-Site Fossil Fuel Usage	
If development is fossil fuel-free:	
Provide evidence of fossil fuel-free operations	☑
~~**If development is fossil fuel dependent:**~~	
~~Provide details of each fossil fuel system used and electrification transition strategy.~~	☐
~~**Provide evidence the development will operate without fossil fuel by 2035 by confirming it -**~~	
~~Incorporates infrastructure or space for necessary infrastructure to transition plant, equipment, ventilation etc~~	☐
Energy Efficiency	
Have energy reduction initiatives been described for the following? -	
Passive design features – building orientation, natural ventilation, insulation, glazing performance, air tightness etc.	☑
Technical design features – energy efficient HVAC and lighting systems, smart controls and occupancy sensors etc.	☑
Renewable Energy Generation and Storage	
Have renewable energy or storage initiatives been described? – solar panels, photovoltaics, wind turbines etc.	☑
Estimated Energy Consumption if available	
Estimated fossil fuel consumption per year	☑
Estimated electricity consumption per year	☑
Total estimated energy consumption per year kWh/y/m² of GFA	☑
Estimated GHG emissions for energy use if available	
Estimated direct (scope 1) GHG emissions per year	☑
Estimated indirect (scope 2 and 3) GHG emissions per year	☑
Total estimated GHG emissions per year	☑

Abbreviations & Glossary

DHW – Domestic hot water

GFA – Gross floor area

GHG – Greenhouse gas emissions

HHW – Heating hot water

HVAC – Heating, ventilation and air conditioning

PV – Photovoltaic

SB SEPP – State Environmental Planning Policy (Sustainable Buildings) 2022

Emission scopes – A mechanism for classifying different sources of GHG emissions used in carbon accounting. There are three 'scopes'

- **Scope 1** covers direct emissions from on-site fuel combustion (e.g. diesel, natural gas and LPG).
- **Scope 2** covers indirect emissions from the consumption of purchased electricity, steam, heating and cooling.
- **Scope 3** covers indirect emissions from activities not owned or controlled by the reporting organisation, including production of fuels, electricity transmission losses, embodied carbon in construction and maintenance (including materials and products) tenant energy consumption, waste treatment, water treatment and travel to/from the building.

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