HANSEN YUNCKEN

Infrastructure Management Plan

Project: Catherine Field Primary School
Job No.: SC126

Rev: A

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Contents

1 Authorisation

1.1 Document Status

REVISION	DATE AUTHORISED	BRIEF DESCRIPTION FOR ISSUE	PREPARED BY	AUTHORISED BY
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2 Project Information

2.1 Introduction

The Catherine Field Primary School site covers an area of approximately 2.0Ha, and is located within a growth precinct. The surrounding area includes newly constructed single dwellings to the west with undeveloped open space to the north, east and south. The site is contained by O'Keefe Drive on the west, and future roads to the south and east.

The proposed developments of Catherine Field is subject to a State Significant Development Application (SSDA) approval. This includes the design and construction of a Core 35 Public School inclusive of; teaching spaces, ancillary & sport spaces, hall, library, administration spaces, Canteen, special programs spaces and unique areas.

A combination of offsite and onsite construction techniques will be used to deliver a high quality, future focused innovative, state of the art school. Meeting the current and future school and community needs whilst complying with the requirements as detailed in the Educational Facilities Standards and Guidelines (EFSG) and providing a high level of end user satisfaction.

3 Property Overview

3.1 Catherine Field Primary School

The site is currently green field or vacant land. The arrows indicate the proposed entry points for the new site.

3.1.1 Catherine Fields Public School Site Plan

4 Services Overview

4.1 Electrical Services

4.1.1 Power Supply

The *Dial Before You Dig* results indicate an existing 11kV high voltage line running along O'Keefe Drive which connects to substations 35064 on Dugay Street and 35065 on McEvoy Street. Pending on level 3 design for the project, Catherine Fields Public School proposed new substation should most likely be able to utilise this existing high voltage infrastructure. The proposed new kiosk substation will be rated at 1000kVA to supply the school with enough power for the current design as well as providing a level of spare capacity for future. The final substation location and other details are subject to change, as such there is not set location at this stage of design.

The new substation will supply directly to a new main switchboard located in the Hall building. This main switchboard will supply power to sub-distribution boards located throughout the various buildings on the campus. All submain cables originating at the main switchboard which are reticulated through a building or underground to supply power to distribution board, mechanical switchboards and other miscellaneous load centres requiring a power supply.

4.1.2 Communication Services

Catherine Fields Public School will be provided with a new telecommunication fibre-optic connection. Preliminary investigations suggest that NBN Co. is the main telecommunications provider within the area, as such an application to NBN Co. will need to be complete to secure the necessary services.

A communications room / campus distributor will be provided within the administration / library buildings for the school to which the incoming telecommunications connection will be reticulated. These rooms shall serve as the site main communications room from which fibre optic cable links will be established to the various building distributors provided throughout both schools.

4.1.3 Lighting

All lighting proposed throughout both sites will be in accordance with Australian Standards, NCC, Educational Facilities Standards & Guidelines and any associated specifications. The schools will be provided with a combination of artificial and natural lighting sources. All the artificial lighting proposed will be specified to have good light colour temperatures and LED's to achieve the energy efficiency ratings required. The lighting will also be designed to ensure that they are simple to use and have the availability to be linked to schools Building Management Systems (BMS).

A computer monitored single point emergency exit / lighting system is proposed for the new school. Each emergency fitting will be LED and complete with backup battery.

External lighting will be provided to nominated spaces on campus, namely car parks, access roads and pedestrian pathways. It is proposed that the external lighting will be controlled through a time lock and PE cell system.

4.1.4 Security System

The security systems for the schools will be provided in accordance with EFSG and Australian Standards. It will be required for the Department of Education School Security Unit (SSU) to determine the required systems for each school. These systems are to be provided based on an IP system with headend equipment located throughout communication rooms on the sites. The EFSG has standard requirements that the SSU are to confirm scope of the requirements for the school. These include:

***Access Control**:* Based on the EFSG an access control is not required and requires confirmation.

***Fixed Duress**:* EFSG require alarm call buttons to be in various areas such as sick bays, clinics, access toilets and access showers, as such these buttons will be incorporated where suitable.

***CCTV**:* EFSG require CCTV coverage to be provided in various areas such sick bays and libraries, as such these cameras will be incorporated where suitable.

Intruder Detection System: EFSG require an alarm system to be provided to all subsidiary exit doors to school libraries, as such this system will be incorporated where suitable.

4.1.5 Ceiling Fans & Wall Mounted Fans

Ceiling & wall mounted fans for the new schools are to be in accordance with EFSG, specifically referencing DG62 for certain rooms. Ceiling fans shall be provided together with fan speed controllers from a recognised and approved supplier that offers equipment that has been assessed as suitable for school use.

4.1.6 Photovoltaic Solar Power Generators

Both schools will incorporate a photovoltaic solar power system as a requirement within the EFSG and be compliant with Australian Standards. This system will be done by a separate subcontractor and whilst no one has been engaged at this stage of the design, provisions have been made within the electrical specifications.

4.1.7 MATV System

The EFSG does not specifically call for a Master Antenna Television as a requirement, the decision for the system to be provided in the design for the schools is to be confirmed by the client and relevant stakeholders for the project.

4.2 Hydraulic Services

The DBYD survey conducted at East Leppington revealed hydraulic services including Sydney Water; water and sewerage, and Jemena gas mains located within the site vicinity.

4.2.1 Water Mains

For Catherine Fields an existing 150 mm diameter water main is available across the road along O'Keefe Drive. The connections to the water mains have not been finalized, an application will be submitted to Sydney Water for review and approval.

4.2.2 Sewer Mains

At Catherine Fields there is no sewer main available at the front of the site, however, there is an existing 375mm sewer carrier located to the east of the site. The school will need to allow for a sewer extension from an existing sewer manhole up to the south east corner of the site. At this stage the connection to the sewerage main has not been finalized for both schools, an application will be submitted to Sydney Water for review and approval.

4.2.3 Gas Mains

Catherine Fields has an existing 50mm diameter gas main is available located in O'Keefe Drive with 50mm diameter branch line installed down Secondary Road pressure in main is 210kPa. The connections to the gas main have not been finalized for both projects, an application will be submitted to Jemena for review and approval.

4.2.4 Stormwater

The proposed site for Catherine Field has no formal drainage on site. All current overland flows travel towards the north-eastern side of the site into a stormwater drainage pipe which in turn drains towards into a bio-retention basin and eventually discharges into South Creek.

4.3 Mechanical Services

As the design is developing for both the Catherine Fields and East Leppington Public Schools no specific selection for HVAC systems have been made, however, key considerations for the selection for the learning spaces include:

- Focus on the learning environment in terms of thermal comfort and indoor air quality;

- Energy efficiency;
- Maintenance and serviceability;
- Risk and redundancy;
- Statutory compliance;
- Thermal comfort;
- Reference to international and national benchmarks
- Ambient conditions;
- Aesthetic architectural preferences e.g. roof plant to be minimised;
- WoL (Whole of Life) operational performance - As the client is the long-term owner / occupier of the building, plant selections / strategies should be considered from a WoL costing perspective, and considered across an appropriate duration;
- Acoustic sensitivity from internal and external noise travel;
- Simple to operate and understand;
- Systems must be considerate of the skill base of the facilities management team, in maintain and optimally operating the nominated plant;
- Staged occupancy and handover.
- Future allowances

The learning spaces such as Homebase's are intended to be served by a mixed mode ventilation strategy utilising natural ventilation for space cooling when possible. Administration and staff areas are to be naturally ventilated and heated only. Current design considerations will all be designed to be compliant with Australian Standards and the EFSG. As summary of the mechanical systems are as follows:

Heat Rejection: VRF Air Cooled top discharge outdoor units. The units will be located on the ground for ease of access for maintenances and replacement.

Outdoor air heat recovery ventilating units locally ducted via façade louvres**.**

General learning spaces and library's: Mixed mode ventilation with variable refrigerant flow (VRF) providing supplementary comfort heating and cooling.

Administration and staff areas: Naturally ventilation with ceilings fans and flued gas heaters.

Communal Hall: Gas fired radiant tube heaters (by hydraulic trade).

Communications rooms: Dedicate DX air conditioning split systems

Changing / shower areas, toilets, laundry: Single pass exhaust.

Plant area ventilation: Naturally ventilated or supply and exhaust ventilation, no temperature control.

Smoke System: The BCA consultant is to confirm the provision of stage smoke exhaust system to the hall.

4.4 Fire Services

All the fire services for both schools will be designed in accordance with the requirements and recommendations by the Council, WorkCover, Sydney Water Corporation, BCA (2019) and Australian/New Zealand standards.

The extent of fire services provided are wet services only of which includes Fire Hydrants, Fire hose reels and portable fire extinguishers. The building will also be provided with a smoke detection and alarm system in accordance with BCA.

Portable fire extinguishers will be installed in accordance with the requirements of the Building Code of Australia, AS 2444 and the NSW Fire and Rescue. Generally, places of potential hazard will be provided with extinguishers, such as electrical switch room, mechanical and plant rooms.