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Alexandria Park Community School

Integrated Water Management Plan

S.DOE-0102-RP003

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engineering sustainable environments

REPORT AUTHORISATION

PROJECT: **ALEXANDRIA PARK COMMUNITY SCHOOL**
INTEGRATED WATER MANAGEMENT PLAN

REPORT NO: **S.DOE-0102-RP003**

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1.0 INTRODUCTION

1.1 GENERAL

This Integrated Water Management Plan has been prepared by Umow Lai on behalf of the NSW Department of Education (the 'Applicant'). It accompanies an Environmental Impact Statement (EIS) prepared in support of State Significant Development Application SSD 17_8373 for the redevelopment of 'Alexandria Park Community School' at 7-11 Park Road, Alexandria (the 'Site'). The EIS seeks development consent for the following works:

The redevelopment of the Alexandria Park Community School ('the School') will address issues of capacity for schools in the inner city areas of Sydney and is also driven by the population growth resulting from the large number of residential developments that are transforming the former industrial precincts of Zetland, Waterloo and Alexandria.

The new school has been briefed to accommodate up to 1,000 primary school students and up to 1,200 secondary school students on one campus in an integrated and fully connected school building.

Specifically, this project includes:

- Demolition of all existing buildings on-site, including the temporary pop-up schools;
- Remediation of specific areas of the site containing contaminated fill;
- Construction of multiple school buildings of up to five stories, arranged along the western and southern parts of the site comprising:
    - Classroom home bases;
    - Collaborative learning spaces;
    - Specialist learning hubs;
    - Learning support spaces;
    - Offices for teachers and administrative staff;
    - Library; and
    - Student canteen.
- Construction of a sports hall and multiple outdoor sports courts;
- An all-weather multipurpose synthetic sports field;
- Informal play spaces and Covered Outdoor Learning Space or COLA;
- A community centre;
- A pre-school for 39 children;
- Site landscaping including green links, community garden and open space;
- Construction of a new on-site car park and associated vehicular access point off Belmont Street; and
- Augmentation and construction of ancillary infrastructure and utilities as required.

Delivery of the project will be undertaken in sequential phases to maintain an operational school on the Park Road Campus and will involve enabling works separate to this application followed by three main construction phases for the new building and external works.

The purpose of this report is to provide an assessment of the proposal as described above and detailed within the EIS.

Condition 13 of the SEARS requirements states:

Prepare and Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.

Specifically, this report details the potable, non-potable and alternative (rainwater) supply systems proposed for the Alexandria Park Community School (APCS) project.

1.2 APCS Construction Phasing Strategy

Delivery of the project will be undertaken in sequential phases to maintain an operational school on the Park Road Campus and will involve enabling works separate to this application followed by three main construction phases for the new building and external works. These phases are defined as follows:

- Enabling Works – Construction of 2 temporary demountable schools on Buckland Street side of the school (not part of this application);
- Phase 1 – Demolition of the existing Park Road building and construction of the southern part of the new building, including new COLA and associated external works;
- Phase 2 – Demolition of Pop up School 1 and construction of the remaining part of the new building, carpark and two outdoor sport courts;
- Phase 3 – Demolition of Pop up School 2 and construction of the new synthetic sports field and completion of the entry forecourt.

1.3 SITE LOCATION

The subject site (the site) is located at 7 Park Rd, Alexandria. The site has a total area of 27,600m^2 The site is bounded to the north by Buckland St, to the East by Park road. The southern and western boundaries are against the neighbouring properties, the location and configuration of the existing site is shown below.

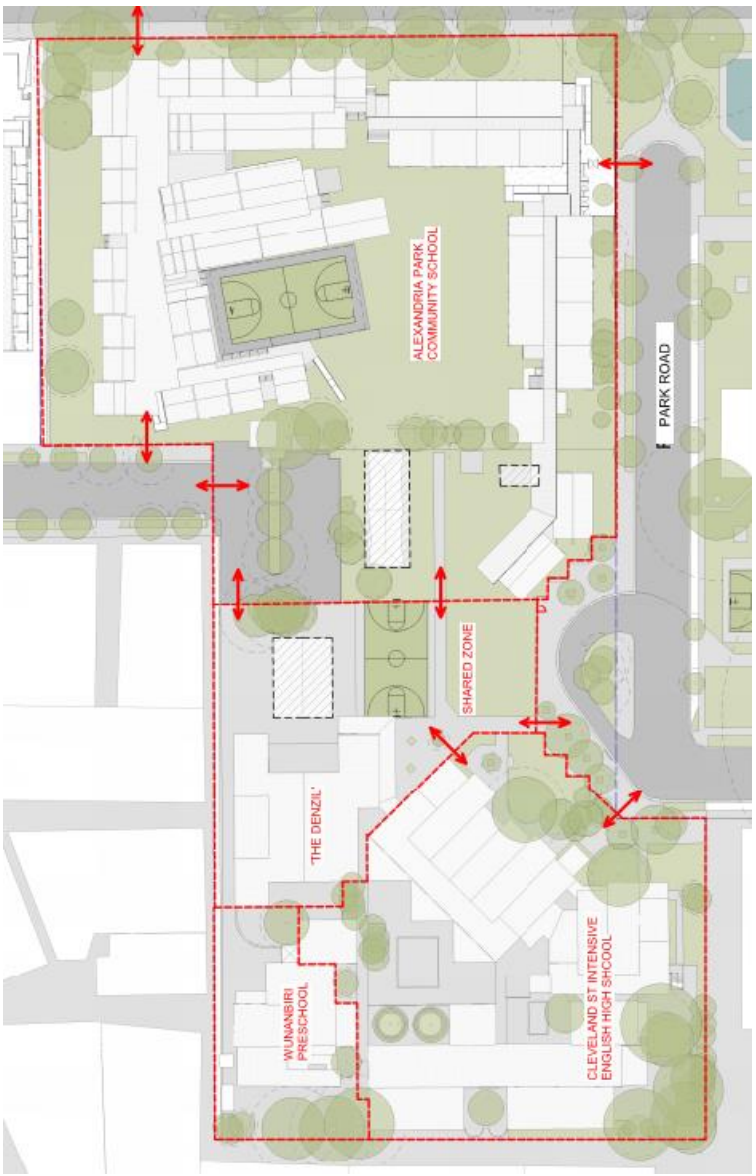

Figure 1 *Existing APCS Site and Configuration*

1.4 BUILDING CLASSIFICATION

The design of building services systems is based on the following NCC building classifications, as advised by the private certifying authority (PCA);

Classification

Occupancy in accordance with Part A3 *Classification of Building and Structures* of the NCC;

Building / Area	*Use*	*Classification*
New Primary School	Education	9b
New Secondary School	Education	9b

It is also noted that the *Effective Height*, as defined by the NCC, of all buildings within the development are <25m

2.0 HYDRAULIC SERVICES

1.1 PROPOSED SYSTEMS

The Hydraulic Services covered in this report include the following systems;

- Domestic cold water supply
- Rainwater capture and reuse
- Fire services water re-use

1.2 DOMESTIC COLD WATER SUPPLY

A domestic cold water system will be designed to service the new APCS facilities in compliance with the requirements of AS3500.1, Sydney Water and the NSW Department of Education "Educational Facilities Standards & Guidelines" (EFSG), as well as all requirements of the National Construction Code (NCC) and Plumbing Code of Australia (PCA).

Domestic cold water will be provided to the site from a new connection to the Sydney Water infrastructure located within Park Rd. The incoming water connection will be provided with a water meter, filter and high hazard backflow protection (RPZD).

Due to the height of the proposed buildings, the cold water supply pressure will be boosted prior to reticulation throughout the building to all points of demand. Water supply throughout the building will be provided with pressure regulation to ensure that the supply of water at all points of demand is between 350kPa and 500kPa. Main isolation valve will be provided to groups of fixtures and major plant equipment to allow for maintenance of areas without impacting the supply of water to other areas of the building.

The domestic cold water booster pump set will comprise of a triple variable speed drive multistage pumps with duty and standby operation. The domestic cold water pumps will operate automatically when the pressure in the building reticulation pipework drops below a nominated pressure limit. Pump operation will be automatically controlled to cycle operation, any failures of operation of the pumps will be immediately notified to the Building Management System (BMS).

As required by the EFSG private sub-meters will be provided to:

- Laboratories
- Irrigation systems
- Amenities blocks
- Canteens
- Major mechanical plant
- Major hydraulic plant

All sanitary fixtures, tapware and equipment specified will be registered and approved by the Water Efficiency and Labelling Scheme (WELS) to minimise the use of potable and non-potable water.

1.3 RECYCLED RAINWATER RE-USE

A recycled rainwater system will be provided to serve external areas and irrigation uses. The rainwater system will be designed in accordance with AS3500, EFSG and Sydney Water requirements as well as all relevant manufacturers specifications and authority criteria.

Rainwater will be collected from the roof levels via a first flush device in external above ground tanks, final tank sizes and locations will be determined during detailed design. Rainwater tank overflows will be directed to the external stormwater and On Site Dentation/Retention (OSD) system.

All re-used rainwater will be treated by an automated plant consisting of automatic backwash filters and UV disinfection. Re-used water will be reticulated via a pressure boosting pump to all points of demand. All points being supplied with re-used rainwater will be appropriately signed and marked “Do Not Drink”.

Any failure of either the rain water re-use pressure pumps or the associated treatment plant will be notified to the site BMS for action by maintenance staff.

1.4 FIRE SERVICES WATER RE-USE

Water used in the testing of fire services pumps will be discharged into a tank adjacent to the pumps during flow testing. All water collected in this tank will then be transferred to the rain water re-use system

Water discharged from fire sprinkler test and drain down points and hydrant drain down points will not be collected for re-use as it is unlikely to be of acceptable water quality due to long periods of stagnation.

1.5 COMMISSIONING AND MAINTENANCE

The hydraulic contractor will be responsible for commissioning all system at the completion of works. As part of the hand over process comprehensive maintenance manuals, operating instructions and system training will be provided to ensure that the operating staff of the school are fully familiar with the operation and maintenance of all hydraulic systems.