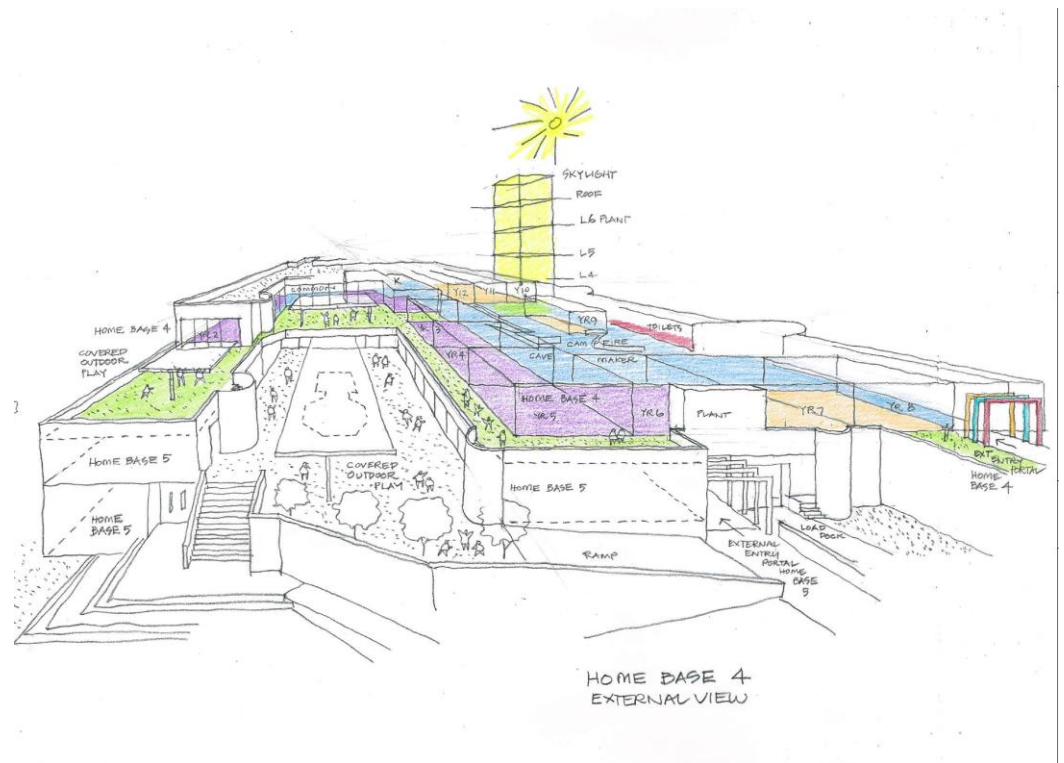


Lindfield Learning Village Infrastructure & Services Report



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1. Introduction

This report provides commentary to the extent of the statutory infrastructure available to Lindfield Learning Village (the Project). The infrastructure and design strategies herein may change or be developed with further scope as the design progresses.

The information used in the compilation of this report is current at the time of issue. It is noted that any future infrastructure or adjoining development plans not available for public information have not been considered in its preparation.

For the purposes of this report it has been assumed that the BCA 2016 considers Buildings 1 through 5 as a single building, as the fire segregation does not appear continuous through the building. The building has multiple BCA classifications storeys / part storeys including Class 5 offices, Class 6 shops / café areas, Class 7a car parking, Class 7b storage and Class 9b school therein.

Construction compliance issues that will need to be addressed by any future upgrades include:

- Compartmentation and separation;
- Provision for escape;
- Construction of exits;
- Access for people with disabilities;
- Atrium construction;

It was concluded that several of the existing building services systems are inherently non-compliant with current standards, including those legislated by BCA 2016. This is not unexpected as standards have been updated or introduced since the original construction during the 1970-1990's. Any service augmentation or capacity assessment has taken this into account and should not affect the outcome or recommendations herein.

The information within this report has assumed optimal use of available site information whilst also considering the Building Code of Australia, relevant Australian Standards and Codes, client driven design guidance and best practice industry guidelines.

While a prolific number of as-installed documents are available their accuracy and currency has been considered and caution has been taken. The supplied documents could not be verified within the remit of the site visits. However, where duties and capacities could not be determined from the site visits, this information has been utilised in the absence of any other as no intrusive testing or measurements have been carried out to date.

The services strategy herein includes for conceptual infrastructure planning and expectations sufficient for Department assessments, or SEARS review.

The information contained within this report has been prepared by ERBAS Engineers to detail the services and infrastructure strategy for the proposed works.

The intent of this report is to provide a detailed overview of the existing services, and to create an infrastructure methodology framework to enable a SEAR's review to take place.

This Infrastructure Management Report report will outline;

- authority services requirements;
- roof and green space preliminary assumptions;
- essential services (hydrant, hose reel, sprinkler & dry fire) review;
- intended services strategies
- existing service connections

2. Overview of Proposed Development

This SSD Application seeks approval for the following components of the development:

- Site preparation works, including temporary services and facilities to support demolition and clearance of the existing areas as required by the works;
- Services termination sufficient to facilitate safe reconfiguration the proposed layouts;
- Services re integration to the new building form by staged construction of new services and extension of existing services where deemed appropriate to service the new layouts and building uses;
- Fit out of new floors in accordance with DECS guideline criteria and to meet the current construction standards;
- Advice for any required infrastructure augmentation and integration of services required for the Public domain improvements surrounding the site;
- Installation of services to meet equivalent quality of the current Standard requirements;

The new floor space will accommodate a range of educational and ancillary educational uses, such as:

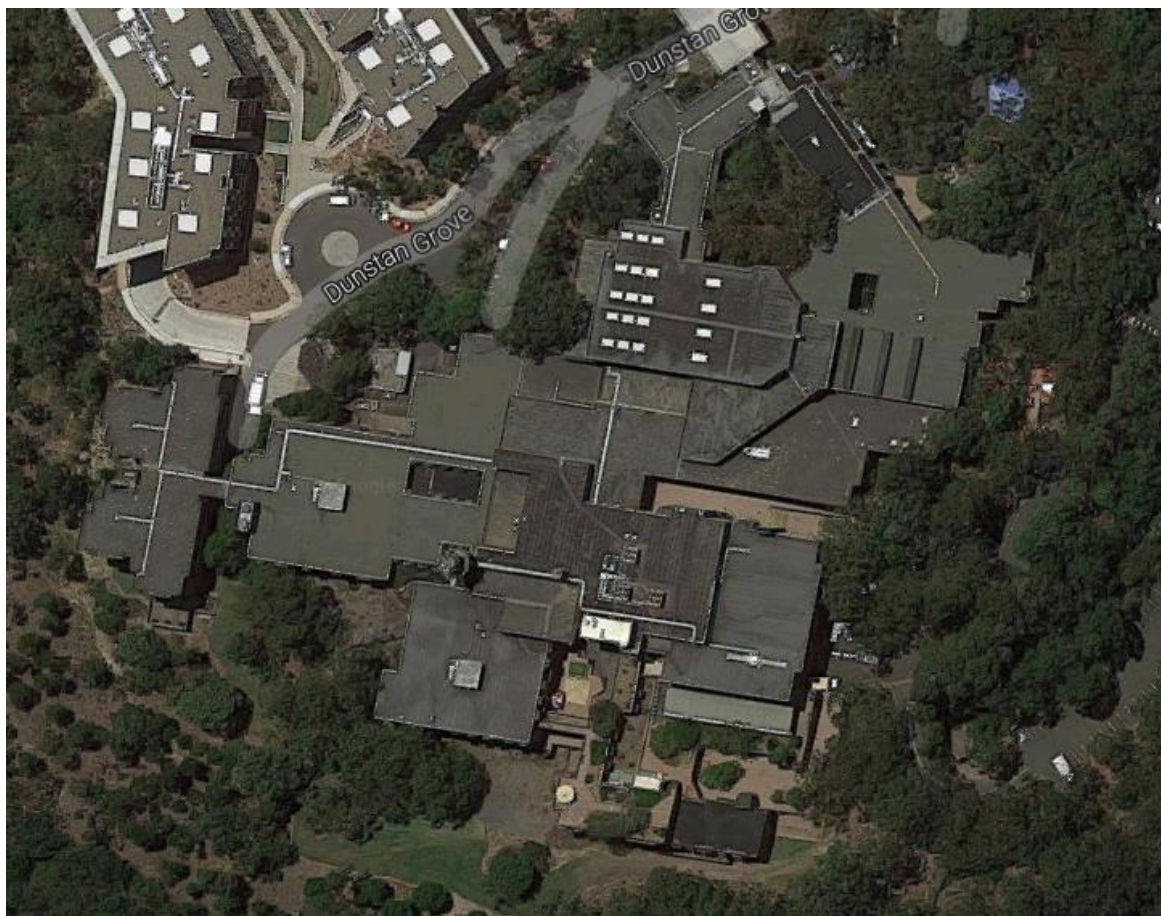
- Library
- Teaching Space
- Informal Learning Space
- Student Centre
- Food and Beverage Outlets
- Academic (including Faculty space)
- Retention and re-use of existing structure;
- Construction and use of new floor spaces;
- Landscaping/ Greenscaping works to some roof levels and exposed areas;
- Extension and augmentation of physical infrastructure / utilities as required.

3.The Project Site

The Lindfield Learning Village is located in the northern suburb of Lindfield and is accessed by Eton Road from the north. The Campus has multiple existing buildings on the site and is surrounded on its southern eastern and western fringes by bushland which is North West of the site is a recently built residential complex on the opposite side of Dunstan Grove. Dunstan Grove is a cul-de-sac street with no thoroughfare to any adjoining streets.

The site shares a close proximity to Blue Gum Creek to the south towards Chatswood West.

Figure 1- Google Maps image of the site.



4. Services Executive summary

The detailed impact assessment of the Project had the following focus areas;

- Existing infrastructure capacity and redundancy;
- Existing infrastructure proximity to the extended footprint;
- Services augmentation or diversions that may be required;

Summary Statement;

The Water, Gas, Sewer and Electrical infrastructure has been reviewed and the result of the investigations and enquiries outlined herein is that there appears to be sufficient capacity in the surrounding infrastructure to support the Project without the need for augmentation or diversion of the surrounding supplies available to the campus.

Various temporary strategies for protection of utility infrastructure will need to be employed during construction. No services have been identified as traversing the site, or documented as encroaching on the property boundaries.

5. Limitations

The approach for each of the services disciplines is based upon preliminary concept planning solutions and layouts in tandem with a high level analysis of the existing services condition and layouts.

This report does not currently incorporate specific fire engineering solutions or identified constraints, which are yet to be determined by the issue of the Fire Engineered Report.

This report does not incorporate any requirements of the project that may be imposed as part of any required development conditions.

The following methodology was used to develop the strategies herein;

- A review of as built documentation.
- A walk through inspection of the existing site including plant and exposed services arrangements.
- General commentary on the adequacy of plant and systems to meet a minimum Property Council of Australia (PCA) Grade compliance.
- Supply adequacy based on Space Standards recorded in section 3.3 UTS guidelines as a minimum requirement.

6. Electrical Services

6.1. Existing Electrical Systems Overview

From the information gathered and received we can ascertain the main electrical infrastructure, including switchboard and general power distribution, appears to be original base-build. The majority of the services appear to be from the original install dates ranging from 1972 to 1999. The majority of base building installations were replaced during a refurbishment in 1999 (due to change of use of the buildings).

The as-built documentation received to-date indicates that the electrical services have been installed for a period of 15 to 40 years (which confirms the observations made on site) and have passed or reaching to their service life.

There are two existing 1000kVA Ausgrid substations supplying the entire campus. The main switchboard is located on the ground floor of building 2B in the main switch room. The switchboard has been modified during a major refurbishment in 1999 to suit the requirements.

The switchboards have very limited spare capacity and have passed their recommended service life; and henceforth require replacement. It is noted that due to the age of the installed equipment, resourcing parts or upgrading would be difficult and costly.

The existing circuits are not RCD protected as per AS3000 and do not meet the current requirements.

The existing lighting installation comprises mixture of recessed/surface fluorescent fittings. The majority of the lighting installation is original or has extended past its life expectancy.

The emergency and exit lighting appears to be regularly maintained. The emergency fittings have been upgraded and replaced in years as part of maintenance.

The majority of the communications active gear equipment have been decommissioned and removed from the site.

6.2. Electrical Infrastructure

The reconfiguration of the buildings will incorporate detailed assessment of each rooms required use as defined within the client user room data sheets. Reasonable assumption can be made to the required systems at this stage by interpretation of the NCC (2016), AS3000 and past experience, with projects of similar uses and configurations.

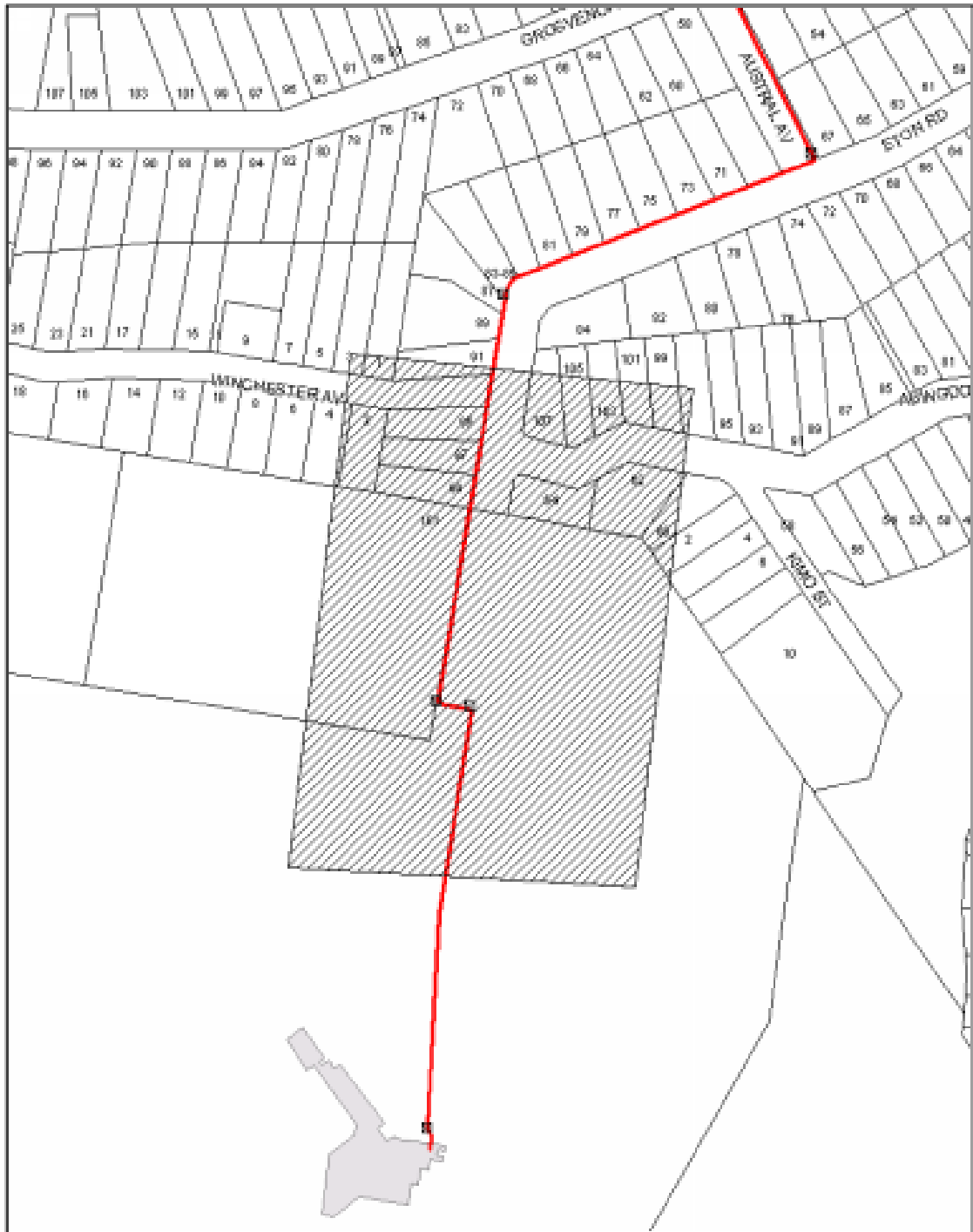
At this stage it is anticipated the incoming service arrangement and substation is sufficient to utilise for the development. The main switchboard is to be further assessed during due diligence reporting, however is considered suitable to be reconfigured to supply the project.

From the main switchboard, low voltage submains will distribute to various distribution boards that will service the building. The sub-mains will be sized to meet the demand requirements for each portion of the building, as well as future contingencies.

Further to the assessment of the existing infrastructure, it is anticipated that service renewal for the following systems will be required for the project:

- energy metering & sub monitoring metering system;
- distribution boards and sub-mains;
- earthing;
- surge protection;
- internal and external lighting, including controls;
- telecommunication services;
- emergency and exit lighting system;

Figure 2- OPTUS underground services map of the site.



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7. Hydraulic Services

7.1. Existing Hydraulic Systems Overview

From the information gathered and received we can ascertain the main hydraulic infrastructure appears to be original base-build. The majority of the services appears to be from original install dates ranging from 1972 to 1999 (In some parts of the existing building/s majority of base building installation were replaced during a refurbishment in 1999 (due to change of use of the building/s).

The as-built documentation received to-date indicates that the main equipment's/plant have been installed for a period of 15 to 40 years, which confirms the observations made on site and have passed or reaching to their service life.

All pressure service connections originate from Eton Road at the top of the site and feed down to serve each building. The main water meter assembly and booster connections are located at the site boundary in this location also.

Sewer drainage connection originates from the lower side of the project adjacent to Building 5. The sewer connects via a 200mm at the lowest section of the site.

7.2. Water supply

The Project has frontage to water reticulation infrastructure located on Eton Road at the north end of the site.

Existing connection is provided from this main to the existing buildings via a 100mm water supply main that feeds into the northern end of the site directly downstream of the connection and Booster assembly.

Water supply pressure and flow characteristics have been confirmed and the modelling by Sydney Water shows the main being capable of supporting the required flows for the project. A Section 73 Feasibility Application is being processed by Sydney Water and the resultant Provisional Notice of Requirements is pending outcome. Consultation with Sydney Water confirms the location and capacity of the surrounding infrastructure. Once the Development Conditions are received a Section 73 application will need to be formally processed and the exact requirements determined.

The project is proposed to be connected via the existing connection to the Eton Road water supply. This connection would form the primary water services for the Project works.

Potable water supply requirements will be reduced due to rainwater reuse systems for the Project. This recycled water system will be used to supply irrigation, toilet flushing, and process make-up water where required.

7.3. Sewer Drainage

There is existing sewer infrastructure to the southern boundary on the lowest part of the site. **The sewer currently connects to a 315mm PE main that is sufficient to serve the development.**

A Section 73 Feasibility Application is being processed by Sydney Water and the resultant Provisional Notice of Requirements is pending. Once the Development Conditions are received a renewed Section 73 application will need to be processed as application will need to be formally processed and the exact requirements determined.

The existing 315mm PE sewer main Street will be the connection point for the project.

A services protection report for the services surrounding the development is underway to ensure that the Project works will not adversely affect the surrounding utility infrastructure. The protection report will place a definitive location of the surrounding drainage services that can be visibly marked and recorded prior to construction proceeding.

Figure 4- SYDNEY WATER underground services map of the site

