SERVICES INFRASTRUCTURE REPORT

MINARAH COLLEGE CATHERINE FIELD

268-278 CATHERINE FIELDS ROAD, CATHERINE FIELDS

HYDRAULIC & ELECTRICAL SERVICES

JHA

DOCUMENT CONTROL SHEET

Project Number	210433
Project Name	Minarah College Catherine Field
Description	Services Infrastructure Report - Hydraulic and Electrical Services
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Prepared By

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CONTENTS

1. EXECUTIVE SUMMARY

This Services Infrastructure Report has been prepared by JHA Consulting Engineers to accompany an amended State Significant Development Application (SSDA) for the construction of a new school, Minarah College (the project) at 268-278 Catherine Fields Road, Catherine Field (the site. The legal description of the site is outlined in Table 1 below.

Table 1 Site Details

Property Address	Title Description
268 Catherine Fields Road	Lot 11 in DP 833983
278 Catherine Fields Road	Lot 12 in DP 833784
Site Area	4.50ha

The Amended Development Report (ADR) was lodged with the Department of Planning, Housing and Infrastructure in September 2024. The amended SSDA sought consent for the construction of a co-educational establishment (Minarah College) accommodating 980 students.

The ADR was placed on public exhibition between 17 September 2024 and 28 October 2024. During this time approximately 400 submissions were received from special interest groups, members of the local community, individuals and Council. A further 8 submissions were received from NSW Agencies and public authorities.

This report has been prepared to address the Departments request for a written response to issues raised in the submissions, as required under section 59(2) of the Environmental Planning and Assessment Regulation 2021.

This Report specifically relates to the following key matters raised during public exhibition:

ITEM	COMMENT / REFERENCE	SECTION REFERENCE
14 – Utilities	Assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site.	Section 2, Page 4
14 – Utilities	Identify any infrastructure upgrades required off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained.	Section 3, Page 5
14 – Utilities	Provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.	Section 3.1, Page 5 Section 3.2, Page 8

Introduction

The amended application seeks consent for the construction of a co-educational establishment (Minarah College) accommodating 980 students. The school will comprise of an Early Learning Centre (ELC) for 60 students, a School for Specific Purpose (SSP) for 30 students, a primary school accommodating 505 students and a high school for 385 students. The new school will be constructed in three stages, growing in line with growth in the local population. Specifically, consent is sought for:

- Demolition of the existing dwellings and ancillary structures on-site;
- Bulk earthworks across the site;
- The construction of the following:
    - One-storey early learning centre.
    - Two-storey administration building, with attached outside school hours care (OSHC), and wellbeing room.
    - Two-storey primary school building comprising of primary school classrooms.
    - SPP classrooms,
    - Primary school hall;
    - Two-storey high school building comprising high school classrooms;
    - Two-storey high school hall;
    - Shared one-storey canteen adjoining the high school building; and
    - Shared library located on the second storey above the ELC and Food and Textiles building below.
    - A full-sized sport field.
- Site access from Catherine Fields Road at two points;
- Works within Catherine Fields Road to allow for a right-turn bay from Catherine Fields Road and bus bays on the eastern side of Catherine Fields Road;
- Removal of trees and replacement planting and landscaping;
- Associated site landscaping and public domain improvements;
- On-site car parking; and
- Construction of ancillary infrastructure and utilities as required

The Site

The site is located at 268-278 Catherine Fields Road, Catherine Field, Dharawal Country, NSW and is legally described as Lot 11 in DP 833983 and Lot 12 in DP 833784. The site is located within Camden local government area (LGA) and has a site area of approximately 4.50ha

The site is in a typical large lot rural residential subdivision area. The site has a gentle fall from the east to west with a minor ridgeline along the east to west axis. Diagonal falls lead to the southwest and north west areas of the site. The northern and eastern boundaries of the site are characterised by remnant regenerating bushland, whilst majority of the site is former pastureland with sparsely scattered trees.

Both lots contain rural residential dwellings with ancillary farm structures including numerous sheds, farm buildings and water tanks. Lot 11 contains two prominent dams.

Figure 1 Site Context Maps

Source: Urbis

Source: Urbis, 2022

2. EXISTING INFRASTRUCTURE

2.1 HYDRAULIC INFRASTRUCTURE

2.1.1 SEWER DRAINAGE

Currently there is no existing authority sewer infrastructure available for the site. It is assumed that the previous Class 1 dwellings situated on lots 268 and 278 are serviced by on-site septic tanks.

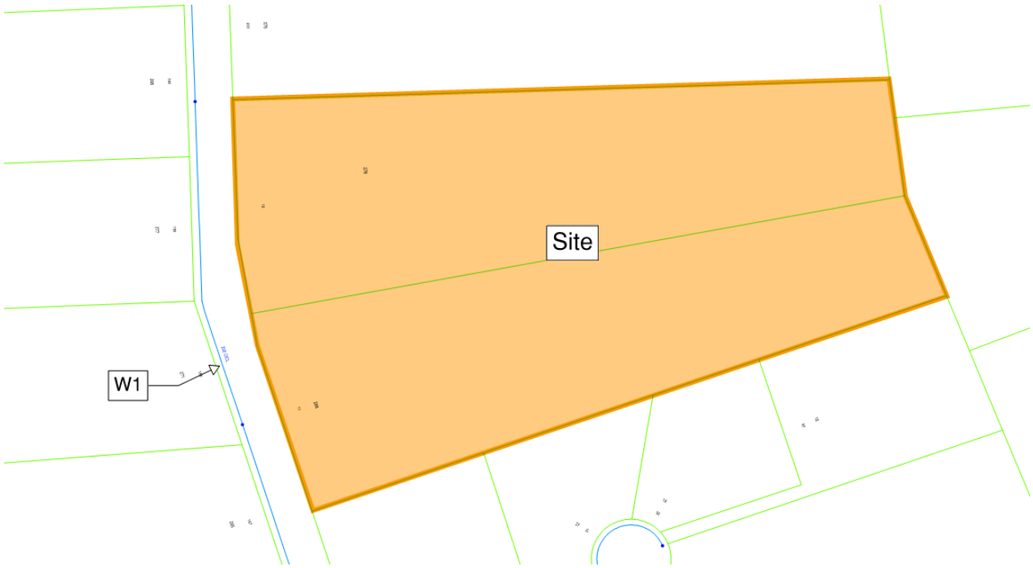
2.1.2 POTABLE WATER

The existing site has frontage to the following authority water main:

- Ø200mm CICL main in Catherine Fields Road

JHA have engaged a Water Servicing Coordinator (WSC) to apply for a feasibility study with Sydney Water, this study will suggest suitability for connection to the potable water main listed above and act as an 'anticipated' Notice of Requirements. This will also inform of any infrastructure requirements nominated by Sydney Water, where this can be 'locked-in' through the Notice of requirements (NOR)

The diagram below illustrates the surrounding authority water mains:



DBYD – Sydney Water - Water infrastructure map

2.1.3 GAS SERVICES

Currently there is no existing natural gas infrastructure available for the site.

2.2 ELECTRICAL AND COMMUNICATIONS INFRASTRUCTURE

2.2.1 EXISTING ENDEAVOUR ENERGY INFRASTRUCTURE

The proposed development site spans two (2) existing properties for a consolidated lot, being:

- 268 Catherine Fields Road
- 278 Catherine Fields Road

These two sites are currently supplied directly from the existing Low Voltage (LV) network the reticulates along the western side of Catherine Fields Road. These supplies are by the way of existing LV overhead service connections utilising Endeavour Energy poles.

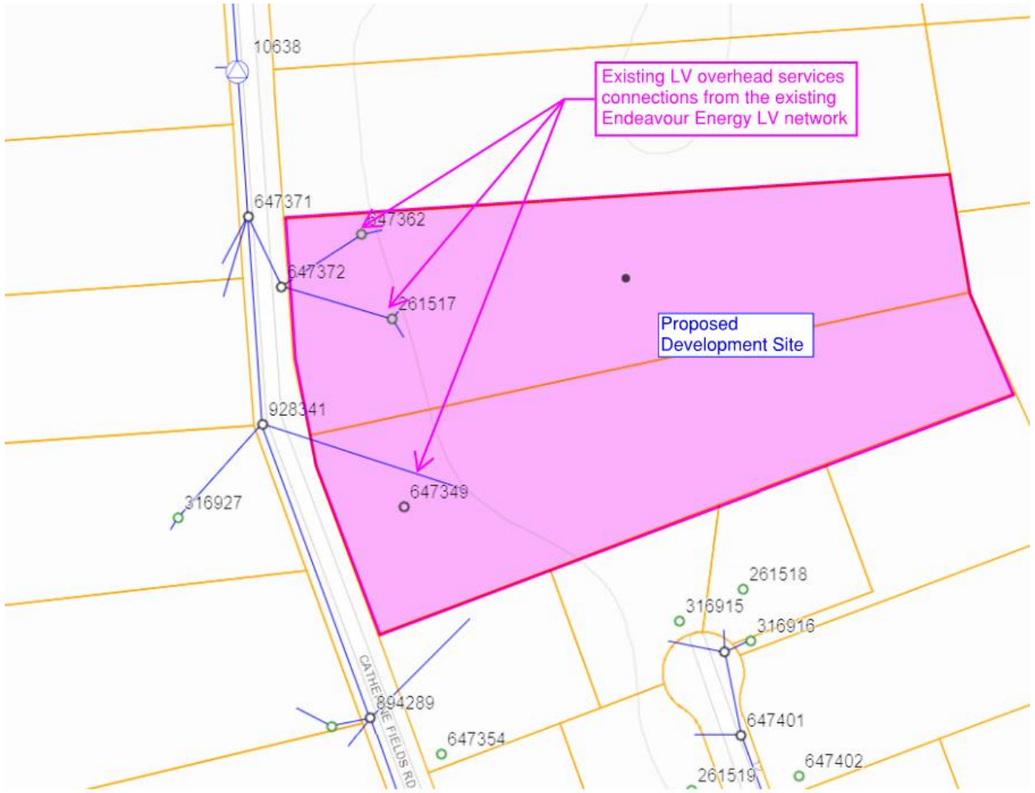


Figure 2.2 – Extract from Endeavour Energy Network Map (LV, 07/03/2022)

These supplies are proposed to be removed from site to ensure the development site is free of all authority electrical services to enable construction.

In addition to the Endeavour Energy LV network, there is an existing High Voltage (HV) network that reticulates on the western side of Catherine Fields Road in concert with the existing LV network as per the below network extract.

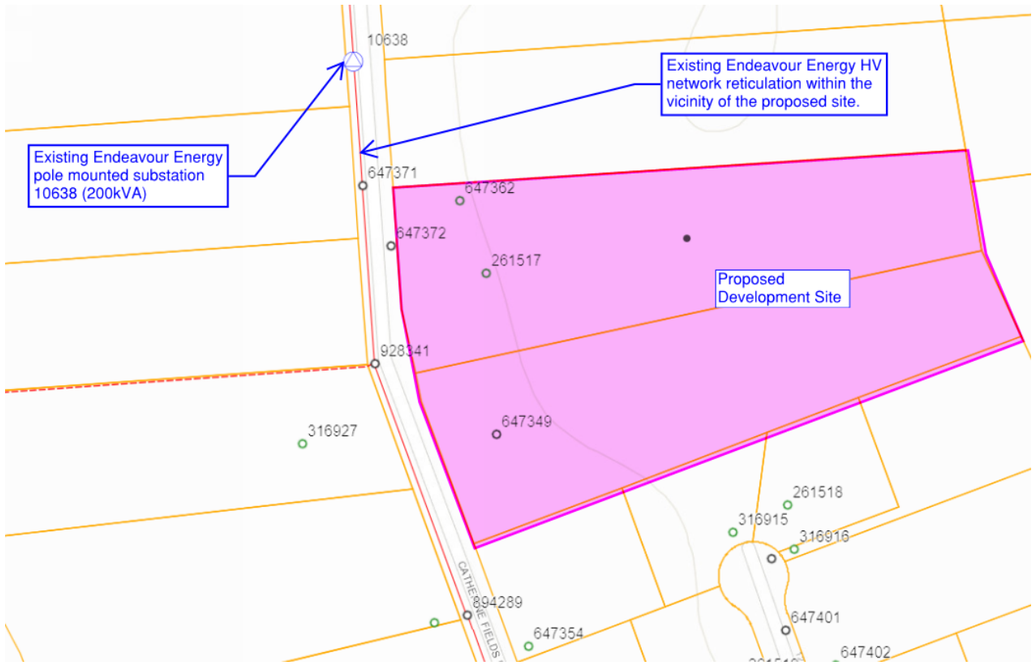


Figure 2.3 – Extract from Endeavour Energy Network Map (HV, 07/03/2022)

2.2.2 EXISTING TELECOMMUNICATIONS

Existing Telstra overhead fibre networks reticulate along the proposed site frontage on the eastern side of Catherine Fields Road. These assets are proposed to be relocated from the proposed site frontage.

Figure 2.3 – Existing Overhead Telstra Assets

3. PROPOSED INFRASTRUCTURE AND REQUIRED STAGING

3.1 HYDRAULIC INFRASTRUCTURE

3.1.1 SEWER DRAINAGE

Currently there is no Sydney Water sewer infrastructure available for the site.

JHA have engaged a have engaged a Water Servicing Coordinator (WSC) to undertake a feasibility study. A feasibility study acts as an anticipated Notice of requirements. A Notice of Requirements outlines any requirements or works that need to be completed before Sydney Water issue a Section 73 certificate.

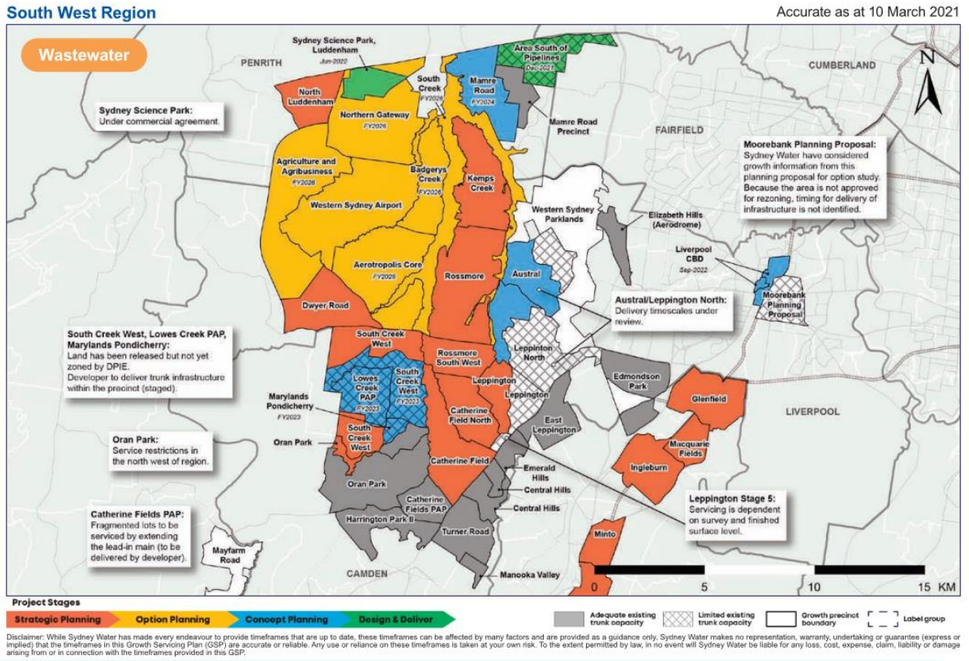
It is important to note that a feasibility letter should be used as a guide only, and provides general site-specific information of the Sydney Water requirements which are generally obtained through a Section 73 application and receipt of a formal Sydney Water notice of requirements.

The letter from Sydney water outlines that the site will not have option to discharge sewer to an authority sewer within the next 5 years, as wastewater services are not planned to be delivered within this timeframe.

Due to the advice from this letter, the site must be serviced by an on-site wastewater system. On-site wastewater solutions have been detailed in the wastewater assessment prepared by Martens. This assessment stipulates a wastewater collection and transfer system and wastewater treatment system to support up to stage 4. The assessment includes client preference for eventual change over to Sydney Water reticulated sewer infrastructure when the infrastructure is available, following Stage 2. (Based on the Sydney Water growth servicing plan)

It should be noted that while the Catherine Fields area on the Sydney Water growth servicing plan is in a 'strategic planning' stage there is no formal guarantee that this infrastructure will eventually become available or an associated completion timeline with the infrastructure.

Based on lack of guarantee from Sydney Water, on-site wastewater treatment (by others) should be sized to accommodate the full wastewater demand.



21 | Growth Servicing Plan 2020 – 2025

Sydney Water Waste-water growth servicing plan 2020-2025

Site frontage from Catherine Fields Road - Google maps image

Sanitary drainage indicative route and length

3.1.1.1 LOAD ESTIMATION - SEWER

A wastewater discharge analysis has been undertaken by Martens and the following estimated loads have been calculated:

Table 7: Wastewater generation for development stages.

Stage	Daily design occupancy[1]	Weekly community use[2]	Weekday generation (Peak rate) (20 L / person / day)	Weekly wastewater load (kL/week)	Balanced wastewater flow (L/day) [3]
1	333	45	6,660	34.2	4,886
2	685	45	13,700	69.4	9,914
3 and 4	1,031	90	20,620	104.9	14,986

Notes:
1. Based on student and permanent staff numbers from staging plans (Attachment B).
2. Based on daily community use numbers as advised: 45 community users / week for Stages 1 and 2, 90 users / week for Stages 3 and 4.
3. Flow balance system allowing irrigation of five days' generation over seven days.

Extract from Wastewater report P2108320JR05V10, prepared by Martens, Dated 14th March 2025

Based on the above the following demands can be extrapolated into litres per second:

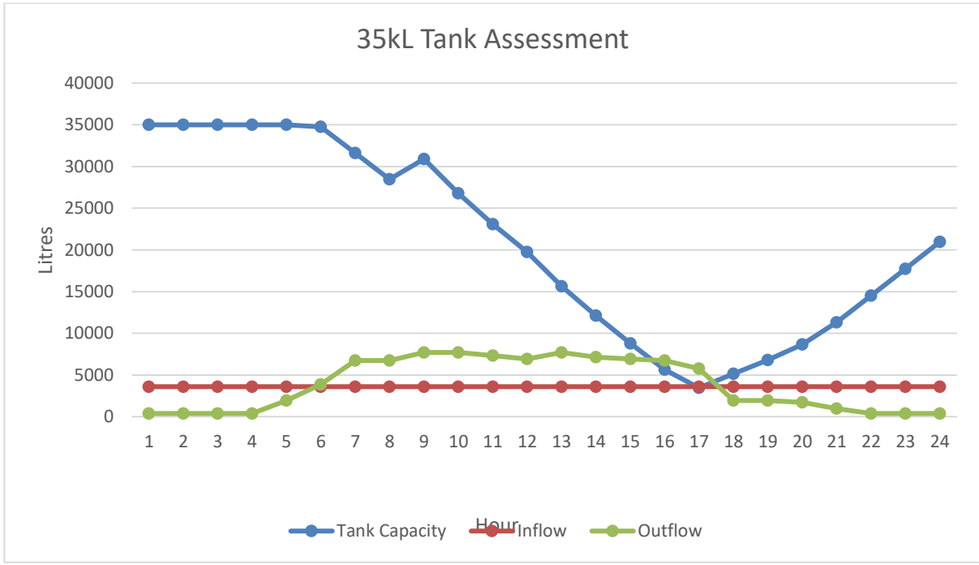
- Stage 1 average flow – 0.057L/s
- Stage 1 peak flow – 0.077 (20L/person/second)
- Stage 2 average flow – 0.115L/s
- Stage 2 peak flow – 0.159 (20L/person/second)
- Stage 3-4 average flow – 0.173L/s
- Stage 3-4 peak flow – 0.239 (20L/person/second)

3.1.1.2 POTABLE WATER

Installation of a new authority water meter, break tank and potable cold-water pump-set shall be installed to reduce the peak demand on Sydney Water's network. The tank will be complete with an internal dividing wall, to ensure that at least 50% of the volume is operational during routine operation, which is to be undertaken outside of peak demand periods.

By introducing a 35kL potable water break tank, will limit the incoming infill rate to a maximum of 1 l/s, which is 47% of the calculated peak flow (Refer 3.1.1.3) which equates to a 53% overall reduction, from the calculated internal peak demands (pump directly from main). Limiting the peak incoming flow avoids the need to extensively upgrade Sydney Water's potable water infrastructure to adequately supply the calculated peak demands of the proposed development.

The 35kL tank is expected to be turned over a minimum of 2.5 times per day ; thus preventing microbial growth and maintaining safe levels of chlorine within the overall potable water system



35kL

The graph demonstrates the following key findings.

- Peak demands on the water infrastructure can be successfully limited to a maximum of 1 l/s
- During peak demand period there is still a 3.5kL storage/ safety buffer in the tank, which can cater for any demands exceeding the calculated peak. The spare capacity equates to over 10% of the overall storage tank, which is considered reasonable buffer for any unexpected peak flow fluctuations.

JHA have carried out a pressure and flow enquiry on the 200mm water main reticulating Catherine Fields Road and the model can be found below. The Sydney water model suggests there is adequate pressure and flow for the firefighting/ potable water usage requirements of the school. The number of Fire Hydrant outlets required to discharge simultaneously according to building classification and floor area as stipulated in the NCC deem to satisfy provisions from AS2419.1 2005 is as follows;

- 2 x Fire Hydrants operating simultaneously (20L/s)

Note:

1. Design flow/ Authority Water main advice is based on the assumption that no fire sprinklers are envisaged/ required from a NCC Deem to Satisfy perspective, and that Class 9b fire compartments do not exceed 5000m2 as outlined in AS2419.1 2005.

2. If fire compartments were to exceed 10,000m2, as eluded to in the GFA (13,511m2), the required design flow for fire hydrants as stipulated in AS2419.1 2005 would be 4 x Fire hydrants operating simultaneously (40L/s) Fire water storage tanks would need to be introduced. Equal to 4 hours storage or 288,000L. (Including 20L/s automatic inflow) JHA understand this is not desired and that fire compartments should remain under 5000m2.

Pressure & Flow Application Number: 1269068
Your Pressure Inquiry Dated: 2021-10-18
Property Address: 268 Catherine Fields Road, Catherine Field 2557

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Catherine Fields Road	Side of Street: West
Distance & Direction from Nearest Cross Street	450 metres North from Heatherfield Close
Approximate Ground Level (AHD):	75 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	113 metre head
Minimum Pressure	51 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	51
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5 10 15 20	53 51 49 46
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5 10 15	49 46 43
Maximum Permissible Flow	20	40

Sydney Water – Pressure and flow model – Catherine Fields Road

3.1.1.3 LOAD ESTIMATION – WATER

A water usage analysis has been undertaken by JHA for the sole purposes of calculating the volume of the breaktank, to reduce the demand on the Sydney Water system. the following estimated loads have been calculated:

Average Flow

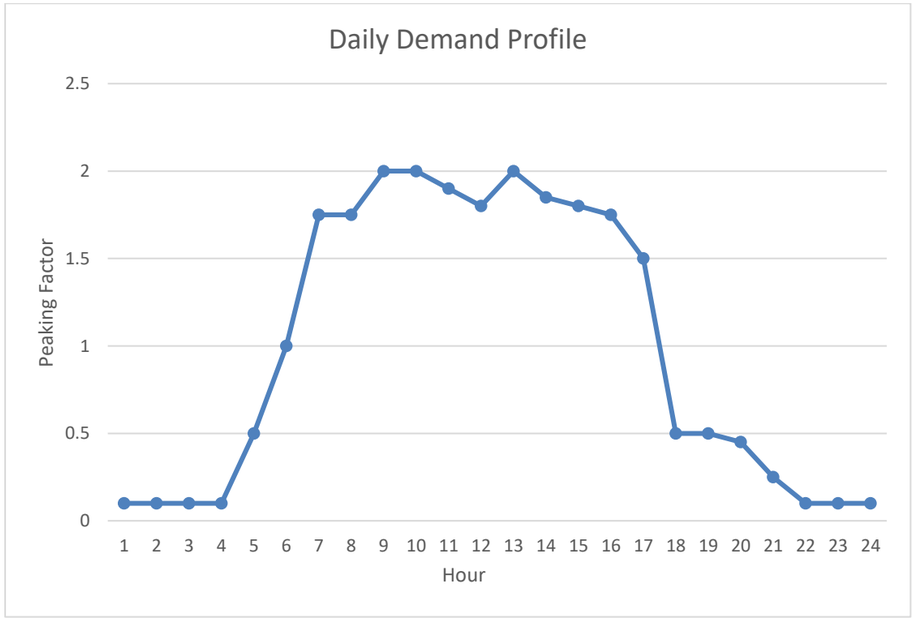
Utilising the Water Supply Code of Australia, the average flow was subsequently calculated based on 90L/d/student/ staff. Which is equal to 92,790L per day. Using this figure, over a 24hour period, the average flow is equal to 1.07L/s

Peak Flow

In accordance with the Water Supply Code of Australia, the peak flow was subsequently calculated using a peaking factor of 2. On this basis the updated calculated peak flow was estimated to be 2.14 l/s

Daily Demand Profile

Using the calculated average and peak potable water flows, the daily demand profile has been assumed, as per the following graph:



3.1.1.4 RAINWATER RE-USE

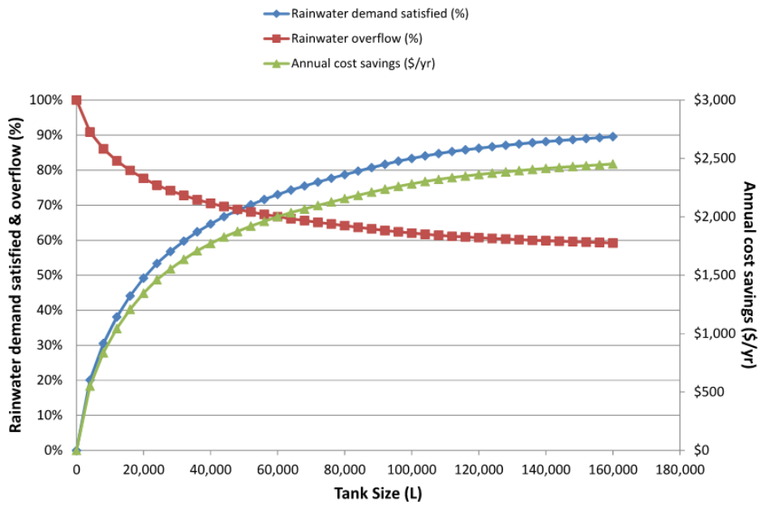
A feasibility study was performed by JHA into the potential use of rainwater harvesting to provide an alternative water source on site for landscape irrigation services. Rainwater storage tanks will be incorporated into the development and connected to the roof water downpipes. Tanks shall be located locally to the building catchment areas, with location finalised during detailed design phase. Tanks should be located as such so they are not visible from Catherine Fields Road.

It is envisaged that downpipes from the roof will discharge to a 40 kilolitre rainwater harvesting tank. The approximate roof catchment area is 3500m^2.

Preliminary calculations indicate that the proposed 40 kilolitre rainwater harvesting tank is the optimum size for providing the estimated landscape watering demands (in the order of 3 kilolitres per day).

Based on a preliminary water balancing assessment the proposed 40 kilolitre rainwater harvesting tank achieves the following:

- Meets an average of 65% of the estimated annual landscaping demands. I.e. only 35% of the landscaping water demands are estimated to be provided from the potable water supply
- Provides an average run-off reduction of 29% from the collected roof area



Rainwater tank model

3.1.2 GAS SERVICES

Currently there is no natural gas infrastructure available to the subject site.

During the RTS period it was requested that further information be provided regarding the potential on-site LPG storage tank as prescribed in 2.2

The following areas may require liquid petroleum gas (LPG) supply, however these expectations will need to be formalised by stakeholders and distributed to JHA during the detailed design phase. These areas may include, but are not limited to;

- Science laboratories
- Food tech
- Cafeteria
- Gas for other services such as mechanical

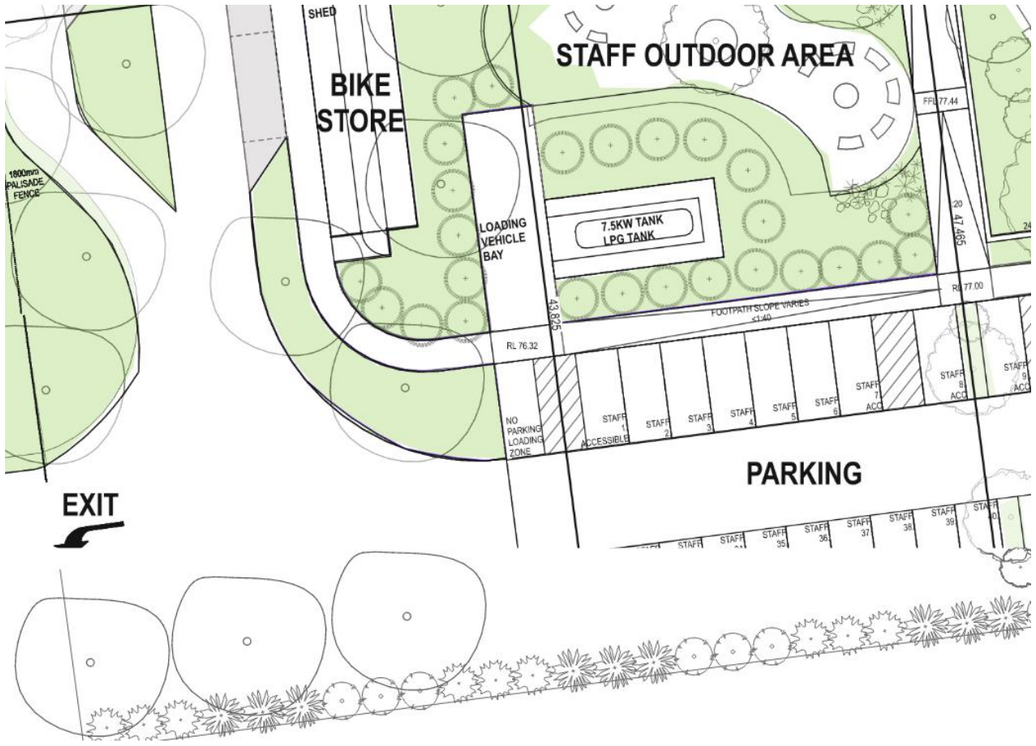
It is important to note that the principle hot water fuel source is electric hot water storage. Electric heat pump may be required to satisfy certain ESD initiatives, however these requirements are not yet formalised at this stage.

Following the receipt of LPG supply expectations, JHA may begin preliminary discussions with LPG suppliers and;

- Determine suitable tank capacities and arrangements
- Determine LPG bulk tanker refilling or replacement frequencies for the anticipated usage

On-site LPG storage tanks shall be designed in accordance with AS1596 2014 and the Educational Facilities Standards & Guidelines (EFSG)

LPG on-site storage tank (reference photo only) – 2 x 7.5kL



LPG on-site storage tank – TSG Site Plan A003 dated 26/02/2025

3.2 ELECTRICAL & TELECOMMUNICATIONS INFRASTRUCTURE

3.2.1 ELECTRICAL DEMAND LOADINGS

A maximum demand has been completed for the new proposed works on the site. The total expected maximum demand is 2360 A/phase.

3.2.2 SUBSTATIONS

The proposed Minarah College Catherine Field Campus falls within the Endeavour Energy operational area for power. In consideration of the development's expected power requirements as indicated above in the calculated maximum demand loadings, JHA expect the development site to require the installation of two (2) new padmount substations; each being a rating of 1000kVA.

To facility the proposed staging of the College, the substations are proposed to be installed at separate times:

- Stage 1 early works to the south (Proposed to be commissioned in 2026)
- Future (Stage 4) works to the north (Proposed to be commissioned in 2037)

Both substations are proposed to be located within the development site abutting the lot boundary facing Catherine Fields Road.

JHA has already submitted an application to Endeavour Energy for the Stage 1 early works substation and have attached the received Endeavour Energy Supply Offer for reference.

JHA has Accredited Level 3 ASP designers that will be carrying out the design works in co-ordination with Endeavour Energy for this project.

3.2.3 HV FEEDER CONNECTIONS & RETICULATION

To provide suitable electrical supply connections to the new development, it is proposed the existing Endeavour Energy high voltage overhead network located along the western side of Catherine Fields Road will be utilised to connect the new Endeavour Energy padmount substations proposed along the Catherine Fields Road frontage. This arrangement is subject to suitable spare capacity in the existing HV feeders and Endeavour Energy design acceptance.

The High Voltage connection arrangements to each substation will include the following:

- High voltage Underground-to-Overhead connections on two (2) existing poles across Catherine Field Road
- New HV cables will be extended from these poles, underground and across Catherine Fields Road to the proposed development site and padmount substation

3.2.4 ENDEAVOUR ENERGY PADMOUNT SUBSTATION ARRANGEMENTS

The design team has considered a number of options for substation locations and have developed a suitable location for a new padmount substations along the Catherine Fields Road site frontage as below.

Consideration has also been made to the DA and Planning Proposal Review response provided by Endeavour Energy on 3rd August 2022 (appended to this report). All requirements from this document have been noted and JHA's proposed substation location arrangements to ensure compliance with these comments have been made.

Further to Endeavour Energy's DA response, the proposed substation infrastructure has been located in consideration of Endeavour Energy network standards and documents. Formal compliance of all arrangements will be provided through Endeavour Energy as part of the detailed design phase works of the project and eventuate to an Endeavour

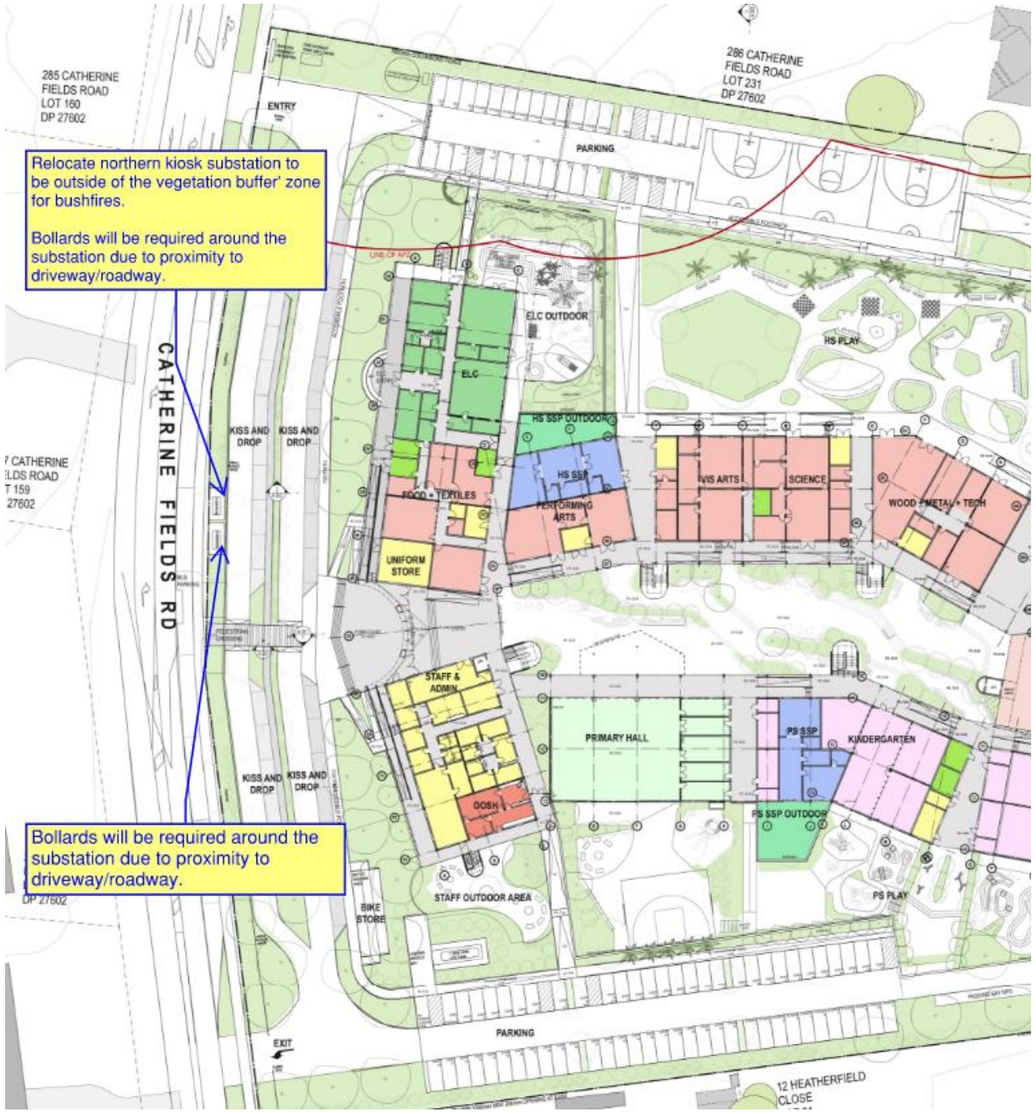


Figure 3.2 – Proposed Endeavour Energy Padmount Substation Location

The following are general spatial requirements/principles adopted for the proposed padmount substations:

- The padmount substations must have unimpeded access for Endeavour Energy personnel and vehicles, directly from a public street. Access from the public road to the substations must not be fenced or enclosed.
- The substation easement areas are to be made flat at a single RL
- 24hr/7day week access is to be provided from river road to the substations from the boundary for heavy vehicle movement and personnel access
- All works are to be in accordance with the site-specific Endeavour Energy Supply Offers and the still to be received Endeavour Energy Design Briefs, Endeavour Energy Network Standards, and certified Level 3 designs

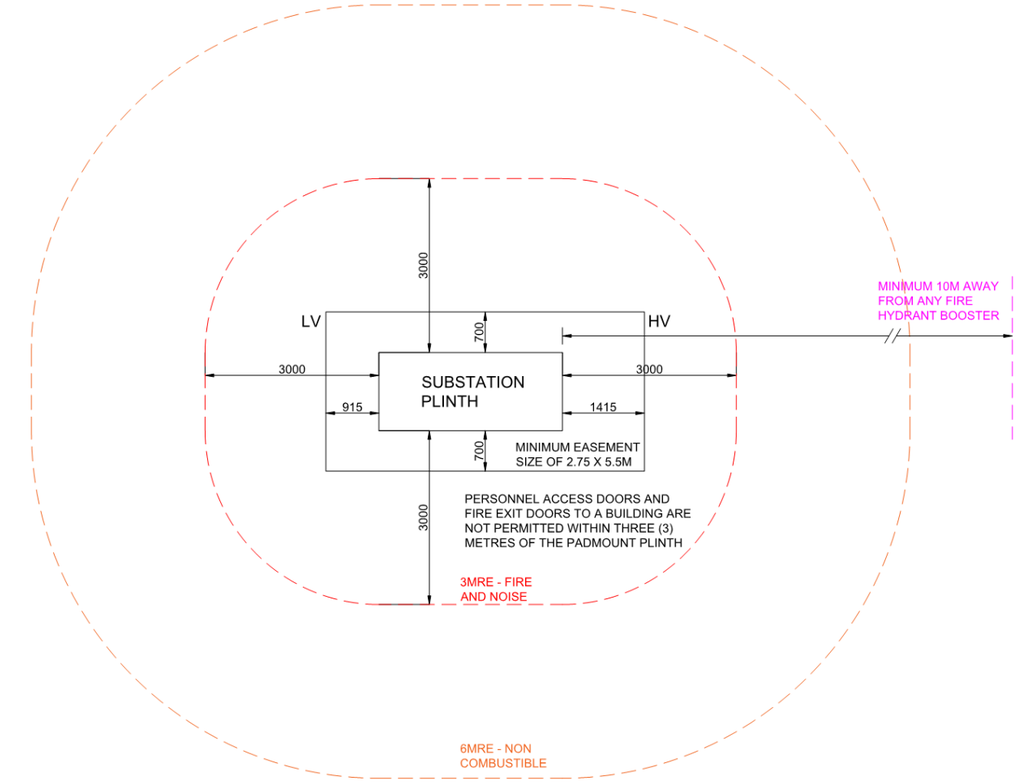


Figure 3.3 – Typical Endeavour Energy Padmount Substation Spatial Details

3.2.5 EXTERNAL LIGHTING

The external lighting design will prioritize the aesthetic ambience of the school façade while ensuring compliance with Australian Standard AS 4282, which addresses the obtrusive effects of outdoor lighting. This will effectively prevent any light spill into neighbouring residential areas

3.2.6 PROPOSED TELECOMMUNICATIONS INCOMING SERVICES

A DBYD (Dial Before You Dig) application shows existing NBN infrastructure along Catherine Fields Road. An application to NBN is being made to install a lead-in cable to provide telecommunications services to the campus. A separate application for a Telstra fibre connection to the site is being made to allow contingency with two carriers to reduce the chance both connections are lost at one given time.

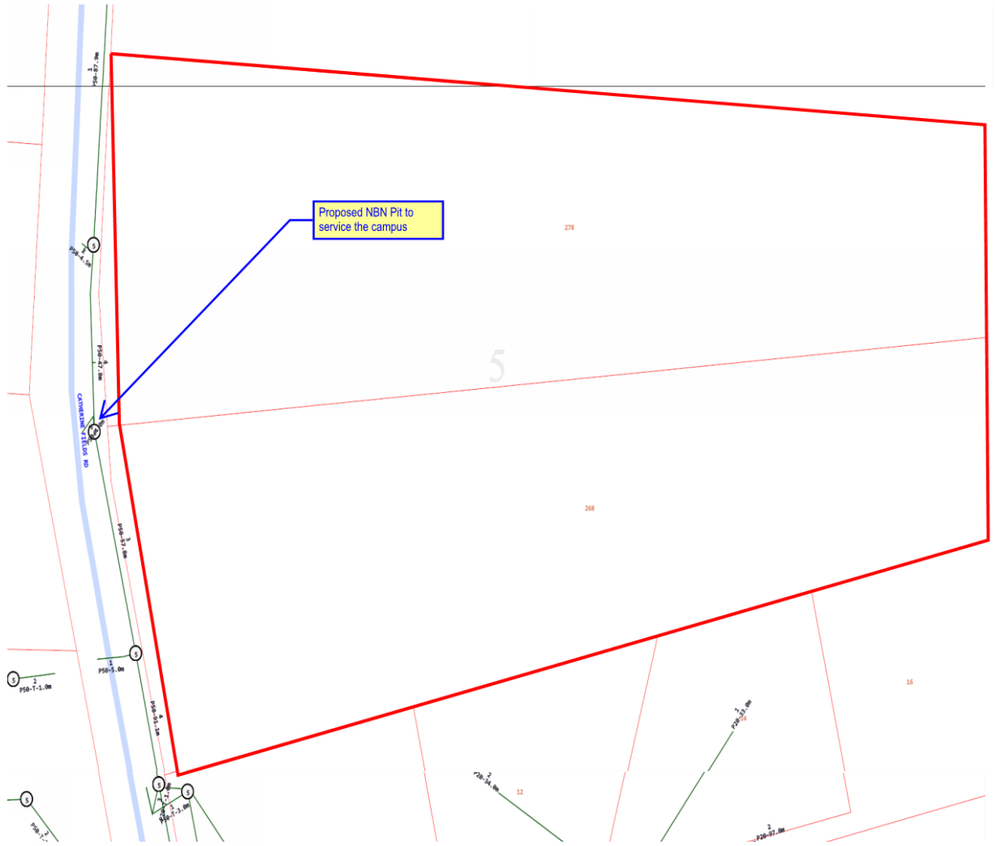


Figure 3.4 – DBYD NBN Existing Infrastructure

In addition to the propose site lead in communication arrangements, the existing overhead Telstra fibres reticulating along the Catherine Fields Road site frontage are proposed to be relocated underground to facilitate suitable access to the site and for aesthetic arrangements.

Below is an indicative sketch indicating the extent of existing Telstra to be undergrounded as part of this project. An application to Telstra has been undertaken and further coordination is currently underway to finalise the required scope.

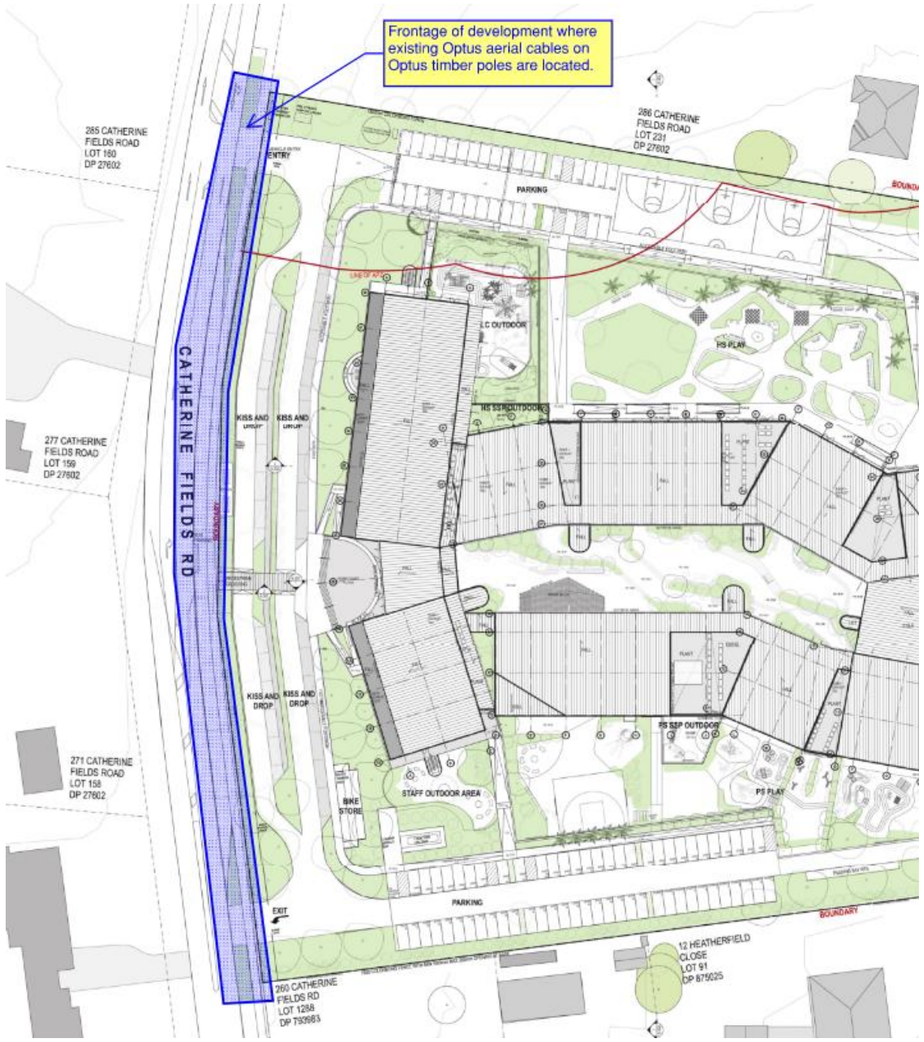


Figure 3.5 – Proposed Extent to Underground Existing Overhead Telstra Assets

The school will consist of four communications rooms to support the site. Each room will house the communications racks, NBN and security. The location of the rooms have been coordinated with the architect and the school to ensure a maximum fibre cable run of 90m.

3.2.7 CONCLUSION

In association with the proposed development project, JHA will be undertaking Electrical and Telecommunication Authority infrastructure augmentation works. These processes and works are generally outside of the development site to facilitate:

- New permanent network electrical connections to two (2) new padmount substations installed on the site; to be staged as per the client's construction program as power requirements arise for the site:
  - South construction phase and buildings
  - North construction phase and buildings

  Contact with Endeavour Energy has already been undertaken to progress the electrical authority works and ensure installations are coordinated to limit the impact to the surrounding community and site kerb appeal.
- Aesthetic and accessibility to the site by relocating the existing overhead Telecommunication assets on the site side of Catherine Fields Road underground along the proposed site frontage.
- Provision of external lighting compliant to Australian Standard AS 4282, control of obtrusive lighting

  With the authority Telecommunication works wholly external to the site, these works can be undertaken at any stage during the new development construction.

4. APPENDIX A – ENDEAVOUR ENERGY SUPPLY OFFER

5 November 2021

Endeavour Energy Ref: UCL11170

JHA Consulting Engineers
PO Box 3
NORTH SYDNEY NSW 2059

Attention:

CONNECTION OFFER – STANDARD CONNECTION SERVICE

UCL11170– LOT 12,11, DP 833784,833983, Connection of Load Application: 268-278 Catherine Fields Rd, CATHERINE FIELDS

Thank you for your application providing information of the proposed development at the above location. Your application has been registered under the above reference number. Please quote this reference number on all future correspondence.

This connection offer is made in accordance with the Terms and Conditions of the Model Standing Offer for a Standard Connection Service available on our website. To accept this offer, please complete the enclosed Notice of Advice form and obtain your Level 3 Accredited Service Provider (ASP) signature on the form prior to returning it to Endeavour Energy.

Endeavour Energy has completed a preliminary desk top assessment of the information provided in your application and issued an enclosed Supply Offer. Your next step is to obtain the services of a Level 3 ASP to prepare and provide an electrical design to Endeavour Energy in the form of a Proposed Method of Supply. This activity is customer funded contestable work and you will need to pay for it. An estimate of fees related to review of your design is attached.

A list of the Accredited Service Providers is available at the NSW Trade and Investment website: *https://energysaver.nsw.gov.au/households/you-and-energy-providers/installing-or-altering-your-electricity-service* or can be obtained via phone 13 77 88.

Please note under the National Electricity Rules (NER) customer may choose to enter into a negotiated agreement. A negotiation framework describing this process is available on our website.

Should you have any enquiries regarding your application please contact the undersigned.

Yours faithfully,
Tri
Tri Minh Truong
Contestable Works Engineer
Ph: 02 9853 7922
Email: cwtech@endeavourenergy.com.au

51 Huntingwood Drive, Huntingwood, NSW 2148
PO Box 811, Seven Hills, NSW 1730
T: 133 718

endeavourenergy.com.au
ABN 11 247 365 823

5. APPENDIX B – PRESSURE AND FLOW INQUIRY RESULTS

Statement of Available Pressure and Flow

Sydney WATER

Diego Montelvere
23 101 Miller Street
North Sydney, 2060

Attention: Diego Montelvere Date: %APRVDATE%

Pressure & Flow Application Number: 1269068
Your Pressure Inquiry Dated: 2021-10-18
Property Address: 268 Catherine Fields Road, Catherine Field 2557

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Catherine Fields Road	Side of Street: West
Distance & Direction from Nearest Cross Street	450 metres North from Heatherfield Close
Approximate Ground Level (AHD):	75 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	113 metre head
Minimum Pressure	51 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	51
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5 10 15 20	53 51 49 46
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5 10 15	49 46 43
Maximum Permissible Flow	20	40

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

swtapin@sydneywater.com.au

Sydney Water Corporation ABN 49 776 225 038
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au
Delivering essential and sustainable water services for the benefit of the community

6. APPENDIX C – SYDNEY WATER FEASIBILITY LETTER

Sydney WATER

Case Number: 196703

July 6, 2022

Green Valley Islamic College Ltd
c/- OPAL WATER MANAGEMENT PTY LTD

Feasibility Letter

Developer:	**Green Valley Islamic College Ltd**
Your reference:	**OWM0363**
Development:	**(Lot 11 DP 833783 Lot 12 DP 833784) 278 CATHERINE FIELDS RD, Catherine Field**
Development Description:	**The College is currently running at capacity and is looking to develop a new greenfield college in Catherine Fields to accommodate approximately 1500 students. This new college will also cater for students from kindergarten to year 12.**
Your application date:	**March 21, 2022**

Dear Applicant

This Feasibility Letter (Letter) is a guide only. It provides general information about what our requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. **The information is accurate at today's date only.**

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (WSC).

We'll then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed)

or

- Certificate.

These documents will be the definitive statement of our requirements.

There may be changes in our requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development eg the development description or the plan/site layout, after today, the requirements in this Letter could change when you submit your new application
- if you decide to do your development in stages then you must submit a new application (and pay another application fee) for each stage.

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from us and to the extent that it is able, we limit its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

What You Must Do To Get A Section 73 Certificate In The Future.

To get a Section 73 Certificate you must do the following things. You can also find out about this process by visiting Plumbing, building & developing page on our website.

1. **Obtain Development Consent from the consent authority for your development proposal.**

2. **Engage a Water Servicing Coordinator (WSC).**

   You must engage your current or another authorised WSC to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another WSC (at any point in this process) you must write and tell us.

   You'll find a list of WSC's at Listed providers on our website.

   The WSC will be your point of contact with us. They can answer most questions that you might have about the process and developer charges and can give you a quote or information about costs for services/works (including our costs).

4. **Water and Sewer Works**

   4.1 Water

   Your development must have a frontage to a water main that is the right size and can be used for connection.

   We've assessed your application and found that:

   - The proposed development is currently serviced via the Leppington Surface Water Supply Zone (WSZ).

   - The Leppington Surface WSZ has limited capacity to service growth. Sydney Water plan to carry out hydraulic modelling and options assessment in the next 6 months, to identify the next stages of trunk infrastructure required to service growth in this supply zone.

4.2 Sewer

Your development must have a sewer main that is the right size and can be used for connection. That sewer must also have a connection point within your development's boundaries.

We've assessed your application and found that:

- The proposed development is located within the South West Growth Area (SWGA) Catherine Fields precinct. This precinct has not been released or rezoned for development.

- Wastewater services are not planned to be delivered within the next 5 years.

5. **Ancillary Matters**

   5.1 Asset adjustments

   After we issue this Notice (and more detailed designs are available), we may require that the water main/sewer main/stormwater located in the footway/your property needs to be adjusted/deviated. If this happens, you'll need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of this Notice and you will need to complete it **before we can issue the Certificate**. We'll need to see the completed designs for the work, and we'll require you to lodge a security. The security will be refunded once the work is completed.

   5.2 Entry onto neighbouring property

   If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use our **Permission to Enter** form(s) for this. You can get copies of these forms from your WSC or on our website. Your WSC can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

OTHER THINGS YOU MAY NEED TO DO

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement from us in the future because of the impact of your development on our assets. You must read them before you go any further.

Approval of your building plans

Please note that your building plans must be approved. This can be done on our Tap in™ system Sydney Water Tap in ™ or call 13 20 92.

This is not a requirement of the Certificate, but the approval is needed because construction/building works may impact on our existing assets (e.g. water and sewer mains). In any case, these works MUST NOT commence until we have granted approval.

Your WSC can tell you about the approval process including:

- Possible requirements
- Their costs
- Timeframes.

We recommend that you apply for Building Plan Approval early as in some instances your WSC may need to refer your building plans to us for detailed review. You'll be required to pay us for the costs associated with the detailed review.

Note: You must obtain our written approval before you do any work on our systems. We'll take action to have work stopped on the site if you do not have that approval. We will apply Section 44 of the *Sydney Water Act 1994.*

Disused Sewerage Service Sealing

Please do not forget that you must pay to disconnect all disused private sewerage services and seal them at the point of connection to our sewer main. This work must meet our standards in the Plumbing Code of Australia (the Code) and be done by a licensed drainer. The licensed drainer must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Soffit Requirements

Please be aware that floor levels must be able to meet our soffit requirements for property connection and drainage.

Requirements for Business Customers for Commercial and Industrial Property Developments

If this property is to be developed for Industrial or Commercial operations, it may need to meet the following requirements:

Trade Wastewater Requirements

If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must wait for approval of this permit before any business activities can commence.

The permit application should be emailed to Sydney Water's Business Customer Services at businesscustomers@sydneywater.com.au

It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.

A **Boundary Trap** is required for all developments that discharge trade wastewater where arrestors and special units are installed for trade wastewater pre-treatment.

If the property development is for Industrial operations, the wastewater may discharge into a sewerage area that is subject to wastewater reuse. Find out from Business Customer Services if this is applicable to your development.

Backflow Prevention Requirements

Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable **Backflow Prevention Containment Device** appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on **1300 889 099**.

For installation you will need to engage a licensed plumber with backflow accreditation who can be found on the Sydney Water website:
http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, http://www.waterrating.gov.au/
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to http://www.sydneywater.com.au/Water4Life/InYourBusiness/RWTCalculator.cfm
- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's **customer contract** Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority.

Have you thought about a **contingency plan** for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at:
http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/ or contact Business Customer Services on **1300 985 227** or businesscustomers@sydneywater.com.au

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of our system to provide that flow in an emergency. Sydney Water's Operating Licence directs that our mains are only required to provide domestic supply at a minimum pressure of 15 m head.

A report supplying modelled pressures called the Statement of Available pressure can be purchased through Sydney Water Tap in ™ and may be of some assistance when defining the fire fighting system. The Statement of Available pressure may advise flow limits that relate to system capacity or diameter of the main and pressure limits according to pressure management initiatives. If mains are required for fire fighting purposes, the mains shall be arranged through the water main extension process and not the Section 73 process.

Large Water Service Connection

A water main is available to provide your development with a domestic supply. The size of your development means that you will need a connection larger than the standard domestic 20 mm size.

To get approval for your connection, you will need to lodge an application with Sydney Water Tap in ™. You, or your hydraulic consultant, may need to supply the following:

- a plan of the hydraulic layout
- a list of all the fixtures/fittings within the property
- a copy of the fireflow pressure inquiry issued by us
- a pump application form (if a pump is required)
- all pump details (if a pump is required).

You'll have to pay an application fee.

We don't consider whether a water main is adequate for fire fighting purposes for your development. We can't guarantee that this water supply will meet your Council's fire fighting requirements. The Council and your hydraulic consultant can help.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to our water main. This work must meet our standards in the Plumbing Code of Australia (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Other fees and requirements

The requirements in this Notice relate to your Certificate application only. We may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs
- the installation of backflow prevention devices;
- trade waste requirements
- large water connections and
- council fire fighting requirements. (It will help you to know what the fire fighting requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from us

and to the extent that it is able, we limit its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

END

7. APPENDIX D – ENDEAVOUR ENERGY DA & PLANNING PROPOSAL REVIEW

Development Application and Planning Proposal Review

Endeavour Energy

Authority	Authority's Reference	Authority Contact	Authority Notification	Submission Due	Submission Made
NSW Planning, Industry & Environment	SSD-30759158	Nahid Mahmud	22/06/2022	25/07/2022	3/08/2022

Address	Land Title
268-278 Catherine Fields Road, Catherine Field	Lot 11 DP 833983, Lot 12 DP 833784

Scope of Development Application or Planning Proposal

Environmental Impact Statement (EIS) for the Minarah College, Catherine Field. New school for 1,500 students in Kindergarten to Year 12 including an Early Learning Centre and Special Education.

As shown in the below site plan from Endeavour Energy's G/Net master facility model:

There are:

- No easements benefitting Endeavour Energy (active easements are indicated by red hatching).
- Extended low voltage overhead service conductors coming from poles on the opposite side of the road going to customer owned / private poles on the site providing the customer connection points for the existing dwellings.
- Low voltage and 11,000 volt / 11 kilovolt (kV) high voltage overhead power lines to the opposite side of the road.

51 Huntingwood Drive, Huntingwood, NSW 2148
PO Box 811, Seven Hills, NSW 1730
T: 133 718

endeavourenergy.com.au

ABN 11 247 365 823

Relevant / applicable clause numbers from Endeavour Energy's standard conditions for Development Application and Planning Proposal Review indicated by ☒ .

Cond-ition	Advice	Clause No.	Issue	Detail
☐	☐	1	Adjoining Sites	Adjoining or nearby development / use should be compatible with the use of Endeavour Energy's sites.
☐	☐	2	Asbestos	Area identified or suspected of having asbestos or asbestos containing materials (ACM) present in the electricity network.
☐	☒	3	Asset Planning	Applicants should not assume adequate supply is immediately available to facilitate their proposed development.
☐	☐	4	Asset Relocation	Application must be made for an asset relocation / removal to determine possible solutions to the developer's requirements.
☐	☒	5	Bush Fire	Risk needs to be managed to maintain the safety of customers and the communities served by the network.
☐	☐	6	Construction Management	Integrity of electricity infrastructure must be maintained and not impacted by vehicle / plant operation, excessive loads, vibration, dust or moisture penetration.
☐	☒	7	Contamination	Remediation may be required of soils or surfaces impacted by various forms of electricity infrastructure.
☐	☒	8	Demolition	All electricity infrastructure shall be regarded as live and care must be taken to not interfere with any part of the electricity network.
☐	☒	9	Dial Before You Dig	Before commencing any underground activity the applicant must obtain advice from the Dial Before You Dig 1100 service.
☐	☐	10	Dispensation	If a proposal is not compliant with Endeavour Energy's engineering documents or standards, the applicant must request a dispensation.
☐	☐	11	Driveways	For public / road safety and to reduce the risk of vehicle impact, the distance of driveways from electricity infrastructure should be maximised.
☐	☒	12	Earthing	The construction of any building or structure connected to or in close proximity to the electrical network must be properly earthed.
☐	☒	13	Easement Management	Preference is for no activities to occur in easements and they must adhere to minimum safety requirements.
☐	☐	14	Easement Release	No easement is redundant or obsolete until it is released having regard to risks to its network, commercial and community interests.
☐	☐	15	Easement Subdivision	The incorporation of easements into to multiple / privately owned lots is generally not supported.
☐	☒	16	Emergency Contact	Endeavour Energy's emergency contact number 131 003 should be included in any relevant risk and safety management plan.
☐	☐	17	Excavation	The integrity of the nearby electricity infrastructure shall not be placed at risk by the carrying out of excavation work.
☐	☒	18	Flooding	Electricity infrastructure should not be subject to flood inundation or stormwater runoff.

Cond-ition	Advice	Clause No.	Issue	Detail
☐	☐	19	Hazardous Environment	Electricity infrastructure can be susceptible to hazard sources or in some situations be regarded as a hazardous source.
☐	☐	20	Modifications	Amendments can impact on electricity load and the contestable works required to facilitate the proposed development.
☐	☐	21	Network Access	Access to the electricity infrastructure may be required at any time particularly in the event of an emergency.
☐	☒	22	Network Asset Design	Design electricity infrastructure for safety and environmental compliance consistent with safe design lifecycle principles.
☒	☐	23	Network Connection	Applicants will need to submit an appropriate application based on the maximum demand for electricity for connection of load.
☐	☐	24	Protected Works	Electricity infrastructure without an easement is deemed to be lawful for all purposes under Section 53 'Protection of certain electricity works' of the *Electricity Supply Act 1995* (NSW).
☐	☒	25	Prudent Avoidance	Development should avert the possible risk to health from exposure to emissions form electricity infrastructure such as electric and magnetic fields (EMF) and noise.
☐	☒	26	Public Safety	Public safety training resources are available to help general public / workers understand the risk and how to work safely near electricity infrastructure.
☐	☒	27	Removal of Electricity	Permission is required to remove service / metering and must be performed by an Accredited Service Provider.
☐	☒	28	Safety Clearances	Any building or structure must comply with the minimum safe distances / clearances for the applicable voltage/s of the overhead power lines.
☐	☐	29	Security / Climb Points	Minimum buffers appropriate to the electricity infrastructure being protected need to be provided to avoid the creation of climb points.
☐	☐	30	Service Conductors	Low voltage service conductors and customer connection points must comply with the 'Service and Installation Rules of NSW'.
☐	☐	31	Solar / Generation	The performance of the generation system and its effects on the network and other connected customers needs to be assessed.
☐	☒	32	Streetlighting	Streetlighting should be reviewed and if necessary upgraded to suit any increase in both vehicular and pedestrian traffic.
☐	☒	33	Sustainability	Reducing greenhouse gas emissions and helping customers save on their energy consumption and costs through new initiatives and projects to adopt sustainable energy technologies.
☐	☐	34	Swimming Pools	Whenever water and electricity are in close proximity, extra care and awareness is required.
☐	☐	35	Telecommunications	Address the risks associated with poor communications services to support the vital electricity supply network Infrastructure.
☐	☒	36	Vegetation Management	Landscaping that interferes with electricity infrastructure is a potential safety risk and may result in the interruption of supply.

Cond-ition	Advice	Clause No.	Issue	Detail
			Other	

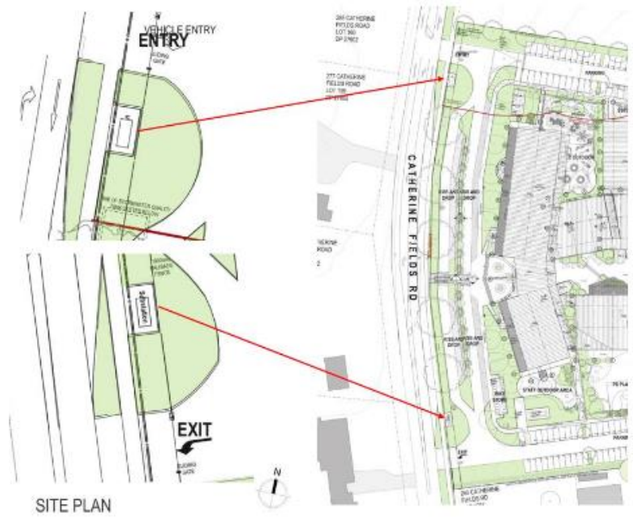
Endeavour Energy	
Completed by:	**Decision**
Cornelis Duba	Approve (with conditions)
Reason(s) for Conditions / Objection (If applicable)	

- The Engagement Summary Table includes the following advice addressing whether the available electricity services are adequate for the proposed development.

Stakeholder	How This Group was Consulted	Issues Discussed	Project Response
Endeavour Energy	JHA submitted an application for a standard connection service to Endeavour Energy for Stage 1 of the development which will include the installation of the early works substation. The offer from endeavour energy was received via email on 5 November 2021.	The proposed Minarah College Catherine Field Campus falls within the Endeavour Energy operational area for power. Two substations are proposed to be installed to accommodate the staging of the development. The application has been registered with endeavour energy and an offer has been made. The offer letter outlines that the next step is for JHA to engage a Level 3 ASP to prepare and provide and electrical design to endeavour energy In the form of a Proposed Method of Supply.	JHA has Accredited Level 3 ASP designers that will be carrying out the design works in co-ordination with Endeavour Energy for this project.

The applicant will need to complete the application for connection of load process with Customer Network Solutions Branch who are responsible for managing the conditions of supply with the proponent and their Accredited Service Provider (ASP) and can be contacted via Head Office enquiries on business days from 9am - 4:30pm on telephone: 133 718 or (02) 9853 6666 or alternatively by email cicadmin@endeavourenergy.com.au .

- The following extract of the Site Plan shows provision for two padmount substations.



- SITE PLAN

- Any required padmount substation/s will need to be located within the property (in a suitable and accessible location) and be protected (including any associated cabling) by an easement and associated restrictions benefiting and gifted to Endeavour Energy. Please refer to Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights'.

- Endeavour Energy's 'Design certification checklist for ASP L3' the design must comply with Endeavour Energy's 'Earthing Design Instruction EDI 001 – Earthing design risk assessment' in which schools, pre-schools, day care centres are regarded as a 'special location'.

- Generally it is the Level 3 Accredited Service Provider's (ASP) responsibility (engaged by the developer) to make sure substation location and design complies with Endeavour Energy's standards the suitability of access, safety clearances, fire ratings, flooding etc.

- As well as the provision / capacity of the padmount substations, other factors such as the size and rating / load on the conductors and voltage drop (which can affect the quality of supply particularly with long conductor runs) etc. need to be assessed. However the extent of any works required will not be determined until the final load assessment is completed.

- The foregoing advice is similarly included in the Services Infrastructure Report.

- Whilst there may be no restrictions in legislation that stop sensitive uses such as schools, pre-schools, day / child care centres being placed next to electricity infrastructure, prudent avoidance measures should however be implemented.

  The proposed locations for the padmount substations in the front building setback / car park areas away from the school buildings is in keeping with the policy of prudent avoidance.

  As a guide please refer to the Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights', Table 1 – 'Minimum easement widths'. With the observance of these separation distances, electric and magnetic fields (EMF) should not exceed the recommended magnetic field public exposure limits.

- The minimum required safety clearances and controls for buildings and structures (whether temporary or permanent) and working near overhead power lines must be maintained at all times. If there is any doubt whatsoever regarding the safety clearances to the overhead power lines, the applicant will need to have the safety clearances assessed by a suitably qualified electrical engineer / Accredited Service Provider (ASP).

  Even if there is no issue with the safety clearances to the building and structures, consideration must be given to WorkCover (now SafeWork NSW) 'Work Near Overhead Power Lines Code of Practice 2006' eg. ordinary persons must maintain a minimum safe approach distance of 3.0 metres to all voltages up to and including 132,000 volts / 132 (kilovolt) kV.

- The planting of large / deep rooted trees to near electricity infrastructure is opposed by Endeavour Energy. Existing trees which are of low ecological significance in proximity of electricity infrastructure should be removed and if necessary replaced by an alternative smaller planting The landscape designer will need to ensure any planting near electricity infrastructure achieves Endeavour Energy's vegetation management requirements.

  Screening vegetation around a padmount substation should be planted a minimum distance of 800mm plus half of the mature canopy width from the substation easement and have shallow / non-invasive roots. This is to avoid trees growing over the easement as falling branches may damage the cubicle and tree roots the underground cables. All vegetation is to be maintained in such a manner that it will allow unrestricted access by electrical workers to the substation easement all times.

- Not all the conditions / advice marked may be directly or immediately relevant or significant to the Development Application. However, Endeavour Energy's preference is to alert proponents / applicants of the potential matters that may arise should development within closer proximity of the existing and/or required electricity infrastructure needed to facilitate the proposed development on or in the vicinity of the site occur.

Yours faithfully

Cornelis Duba
Development Application Specialist
Sustainability & Environment
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Endeavour Energy