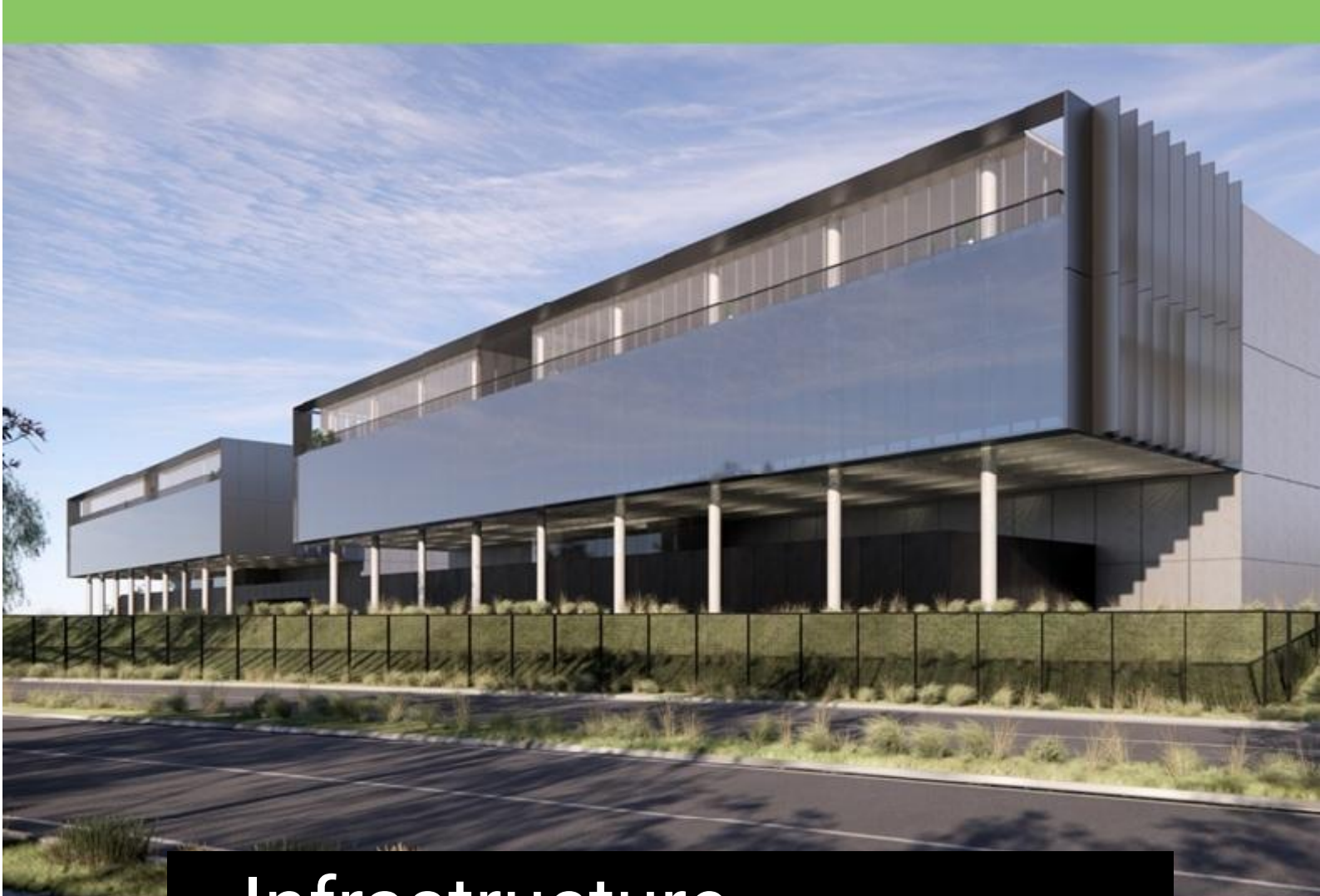




# Infrastructure Requirements & Utilities Report

**78 LOCKWOOD ROAD DATA CENTRE (SSD-  
82211208)**

**Client:**  
STACK Infrastructure

**Revision:**  
4

**Date:**  
3/24/2026



## REPORT INFORMATION

|                      |                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------|
| <b>Project</b>       | 78 Lockwood Road Data Centre (SSD-82211208)                                             |
| <b>Title</b>         | Infrastructure Requirements & Utilities Report                                          |
| <b>Client</b>        | STACK Infrastructure                                                                    |
| <b>Revision</b>      | 4                                                                                       |
| <b>Revision Date</b> | 3/24/2026                                                                               |
| <b>Prepared By</b>   | LCI Consultants<br>Sydney Office<br>Level 8, 73 Miller Street<br>North Sydney, NSW 2060 |
| <b>ABN / ACN</b>     | 92 124 107 973 / 124 107 973                                                            |
| <b>Author</b>        | LCI Consultants                                                                         |

## REVISION SCHEDULE

| Revision | Date       | Issue Name                 | Author | Authorised |
|----------|------------|----------------------------|--------|------------|
| P1       | 30.07.2025 | Draft                      | SH, JL | VD         |
| P2       | 08.08.2025 | Final for SSDA Submission  | SH, JL | VD         |
| P3       | 09.10.2025 | Final for SSDA Submission  | SH, MB | VD         |
| P4       | 24.03.2026 | Revised for RTS Submission | PP     | BA         |
|          |            |                            |        |            |

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# 1 Preface

## 1.1 Executive Summary

The Infrastructure Requirements & Utilities Report has been prepared by LCI Consultants on behalf of Stack Infrastructure to accompany a detailed State Significant Development Application (SSDA) for the data centre development at 78 Lockwood Road, Erskine Park. The site is legally described as Lot 101 in Deposited Plan 1268632. This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-82211208). This report provides an assessment of the proposed development's impact on surrounding utility infrastructure and service provider assets and outlines the necessary on-site and off-site infrastructure upgrades required, along with the arrangements to ensure timely implementation, staging and ongoing correspondence with utilities providers.

Following exhibition of the SSDA, the project has been refined in response to submissions from the authorities and ongoing design development. This has necessitated an update to the Infrastructure Report as outlined below:

- Section 2.4 – Updated project description
- Section 3.1.3 Changes in Existing Potable Water Assets- Removal of the demands and design changes for the data centre in relation to reduced water usage.
- Section 3.1.5 Sydney Water Applications- Removal of section on Feasibility Application
- Section 3.1.6 Potable Cold Water and Sewer Demands Breakdown- Removal of Industrial water storage/demands and add new potable cold water demands for the data centre. Clarified new mechanical cooling design and impact to water demand.
- Section 3.1.7 Fire Services Demand Breakdown- Added a new section to the site Fire Service Demands
- Section 3.1.8 Proposed Connections-Amended the proposed potable cold water, fire services and sewer connection sizes and flow rates
- Section 3.2 Water Sensitive Urban Design- Amended the proposed rainwater tank size and reduced the landscape area to be irrigated
- Section 3.3.2 Existing - Updated location of existing Transgrid substation
- Section 3.3.3 Proposed – Update location of proposed 330kV route into substation.
- Section 3.3.4 Back-up Power Supplies – Increased quantity of generators to suit design development
- Section 3.3.6 Onsite Fuel Storage – Increased fuel storage to suit final quantity of generators.
- Section 3.3.3 Proposed - Updated transformer capacity

## 2 Introduction

### 2.1 Purpose

This Infrastructure Requirements & Utilities Report has been prepared by LCI Consultants on behalf of STACK Infrastructure (STACK, the **applicant**) to accompany a State Significant Development Application (**SSDA**) for a proposed data centre development at 78 Lockwood Road, Erskine Park (the **site**).

This Report has been developed to support the SSDA to be submitted to NSW Department of Planning, Housing, and Infrastructure (NSW DPHI) and details the proposed backup power system requirements for the data centre.

This report identifies and assesses the site utilities infrastructure requirements, the impacts on existing infrastructure and service providers, as well as the delivery and staging plan for the project.

### 2.2 Response to SEARS

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (**SEARs**) dated 11 April 2025 issued for the SSDA (**SSD-82211208**). Specifically, this report has been prepared to respond to the SEARS requirement issued below.

Table 1: SEARS Compliance

| Project SEAR SSD-82211208                                                                                                                                                                                                                  | Section of report                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>Infrastructure Requirements and Utilities (SEARS #22)</b>                                                                                                                                                                               |                                   |
| In consultation with relevant service providers:                                                                                                                                                                                           |                                   |
| <ul style="list-style-type: none"><li>Assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site.</li></ul>                                                                 | 0, 3.1.3, 0                       |
| <ul style="list-style-type: none"><li>Identify any infrastructure required on-site and off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained.</li></ul>    | 3.1.1, 0, 3.3.3, 0, 3.4.1         |
| <ul style="list-style-type: none"><li>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.</li></ul> | 3.1.1, 3.1.5, 3.3.3, 3.3.1, 3.4.1 |

## 2.3 The Site

The site is located at 78 Lockwood Road, Erskine Park, within the Penrith Local Government Area (**LGA**), approximately 40km west of the Sydney Central Business District (**CBD**), 20km west of the Parramatta CBD, and 10km north-east of the future Western Sydney International Airport.

The site is an irregular shaped 7.7-hectare (**ha**) lot bounded to the north by Lenore Drive and to the east by a zoned E2 Environmental Conservation corridor that follows Ropes Creek. It relies upon access from a cul-de-sac at the eastern end of Lockwood Road at the site's southern boundary. An aerial photograph is provided at Figure 2-1.



Figure 2-1: Site Plan (Source: Urbis GIS, 2025)

The project comprises the construction of a data centre development including the following key components:

- Site preparation and bulk earthworks.
- Temporary construction access from Lenore Drive.
- Construction of a three-storey data centre comprising two buildings, with a maximum height of 26.5 metres and a total gross floor area (GFA) of approximately 56,506m<sup>2</sup>, including technical data halls, office and administrative areas, and ancillary circulation space.

- At-grade under-croft car parking (34 spaces) within the building footprint, plus an additional 44 on-site spaces, providing a total of 78 parking spaces.
- Separate generator gantry accommodating 188 backup generators.
- Landscaping and associated public domain works.
- Extension and augmentation of physical infrastructure and utilities as required, including an on-site substation and water storage tanks integrated within the building footprints.
- Off-site works comprising the delivery of two 330kV transmission lines from the TransGrid Sydney West Substation site to the subject site, utilising existing road reserve along Lenore Drive.

This project is proposed to be delivered in two (2) construction stages as follows:

- Stage 1: Eastern data centre building, on-site substation, generator gantry, external plant and equipment, new Lockwood Road access, internal roads, car parking, and landscaping, External HV Cabling Route
- Stage 2: Western data centre building, gantry expansion, external plant and equipment, additional car parking and landscaping.

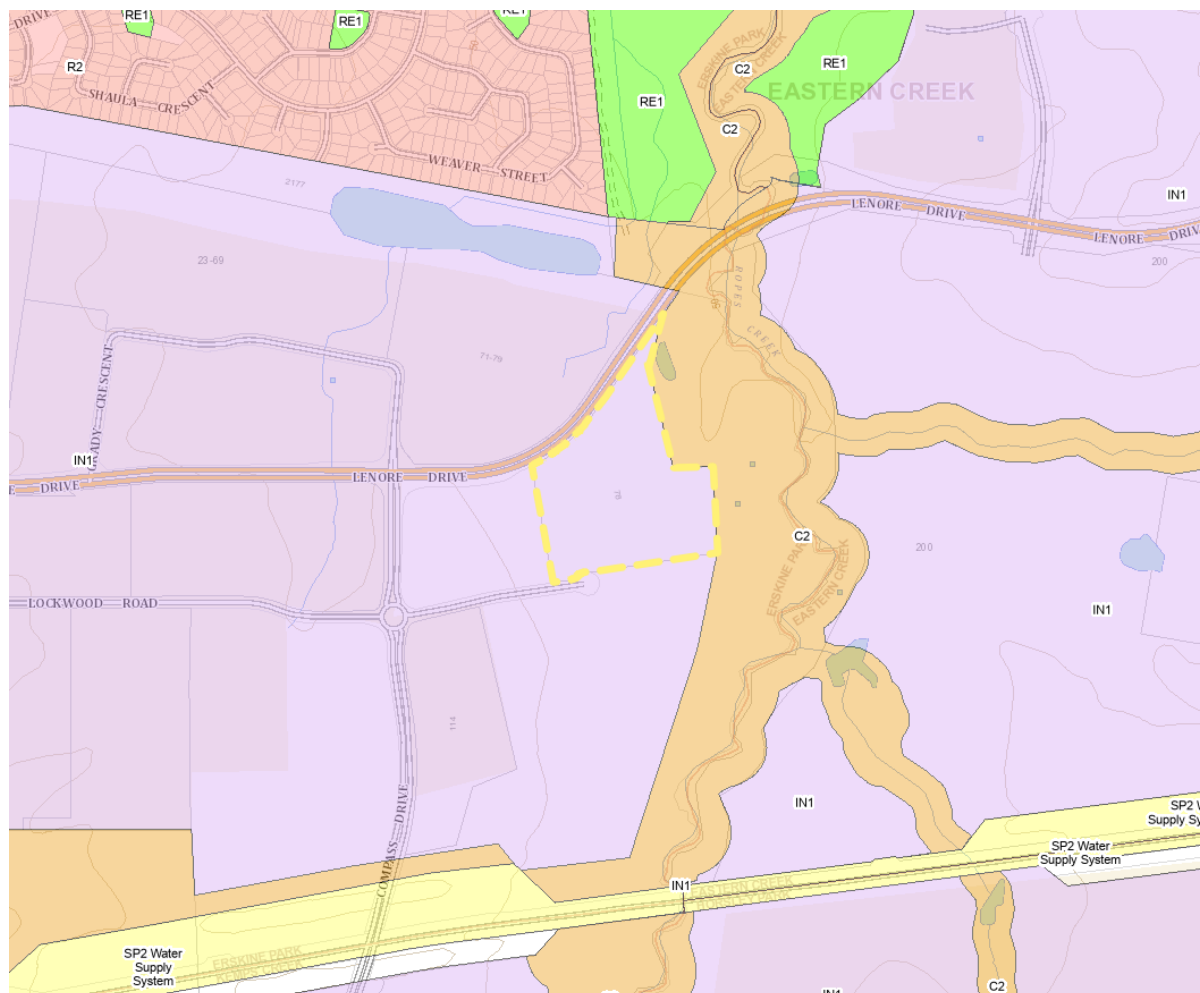


Figure 2-2: Site Context and Zoning (Source: PENRITH Local Environmental Plan, 2010)

The site is located within the 'Fitzpatrick Industrial Estate', an area of approximately 140-ha of land located on Lenore Drive. The estate is bounded by Ropes Creek to the east, the Erskine Park residential area to the north, and the Sydney Catchment Authority pipeline to the south. The Fitzpatrick Industrial Estate is located within the Western Sydney Employment Area (WSEA). The WSEA has long been identified as the single largest greenfield industrial precinct to serve the growing demand for industrial lands in the Sydney Metropolitan Area for the next 20 to 30 years.

The site is surrounded by a variety of industrial land use activities and significant transport and utilities infrastructure. Immediate surrounding development includes:

- **North:** The site is bounded to the north by Lenore Drive and the adjacent AutoNexus, a provider of automotive logistics and supply chain solutions. Further afield is the Erskine Park residential area.
- **East:** Ropes Creek adjoins the site to the east. This is zoned E2 – Environmental Conservation. An artificial wetland was established immediately east of the subject property boundary and within this E2 zoned land to support the industrial use of the site which results in stormwater runoff being conveyed to the E2 corridor.
- **South:** The Sydney Catchment Authority Pipeline is located approximately 540 metres to the south.
- **West:** Lot 101 and the remainder of the Fitzpatrick Industrial Estate comprise the surrounding land uses to the west. These include a variety of warehouse and logistics land uses.

The following table summarises the key features of the site.

Table 2: Site Description

| Feature                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site address</b>      | 78 Lockwood Road, Erskine Park, NSW, 2759                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Legal description</b> | Lot 101 in Deposited Plan 1268632                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Site area</b>         | 77,241.97sqm                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Frontages</b>         | <ul style="list-style-type: none"> <li>▪ North (approx. 357m): Lenore Drive</li> <li>▪ East (approx. 498m): Environmental conservation land, including an artificial dam at the immediate north-east and Ropes Creek further east</li> <li>▪ South (approx. 292m): Lockwood Road (at south-west); Residual industrial land (along remainder of frontage)</li> <li>▪ West (approx. 207m): Industrial land</li> </ul>                                                                 |
| <b>Site topography</b>   | The site is generally flat, however exhibits a fall of approximately 3m from the west to the east. The existing site levels were created following the approval of DA19/0818.                                                                                                                                                                                                                                                                                                       |
| <b>Vegetation</b>        | The site has been largely cleared of vegetation. There is a small strip of grass and young trees along the northern boundary alignment, on a temporary bund established under DA19/0818. This area of the site is not identified as having any significant biodiversity or environmental qualities. A small portion of the site area – approx. 538sqm of land at the south-east – is zoned C2 Environmental Conservation zone and contains a small amount of grass and tree canopy. |
| <b>Built environment</b> | The site comprises vacant land and does not contain any existing built form structures. The site survey indicates that there is a drainage channel along the northern boundary of the site.                                                                                                                                                                                                                                                                                         |
| <b>Contamination</b>     | Contamination issues on the site and across the broader, original landholding (being the Fitzpatrick Estate) were considered and resolved as part of development consent DA06/1646. A Validation Report dated 2007 outlined remediation works required and                                                                                                                                                                                                                          |

|                                    |                                                                                                                                                                                                                                                                                                                |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | confirmed that the Fitzpatrick Estate lands could be made suitable for industrial uses. A later Validation Report, dated November 2008, was commissioned subsequent to site remediation. This report confirmed that the risk of contamination on the site was greatly reduced following the remediation works. |
| <b>Flooding</b>                    | The eastern portion of the site is identified as flood prone land.                                                                                                                                                                                                                                             |
| <b>Bushfire</b>                    | The majority of the site is identified as Vegetation Category 2 bushfire land, with the exception of land along the norther boundary which is identified as Vegetation Buffer land.                                                                                                                            |
| <b>Biodiversity</b>                | The site is predominantly cleared of all vegetation.                                                                                                                                                                                                                                                           |
| <b>Salinity</b>                    | The 'Salinity Potential of Western Sydney' map prepared in 2002 by the then Department of Infrastructure, Planning and Natural Resources identifies the site is an Area of Moderate Salinity Potential.                                                                                                        |
| <b>Acid Sulphate Soils</b>         | The land is not mapped as containing Acid Sulphate Soils.                                                                                                                                                                                                                                                      |
| <b>European Heritage</b>           | The land is not affected by any heritage listings or draft heritage listings. The site is not located within any listed or draft Heritage Conservation Area.                                                                                                                                                   |
| <b>Aboriginal Heritage</b>         | Previous Aboriginal cultural investigations have confirmed that given the highly disturbed nature of the site, the potential for Aboriginal cultural relics on the land was found to be low.                                                                                                                   |
| <b>Obstacle Limitation Surface</b> | The land is affected by the Obstacle Limitation Surface (OLS) restrictions which apply to the Western Sydney Airport, pursuant to Chapter 4 of State Environmental Planning Policy (Precincts—Western Parkland City) 2021. Development on the land is restricted to a maximum height of RL 230.5m AHD.         |

## 2.4 Project Description

The key components of the Project are listed in the following table.

Table 3: Project Details

| Descriptor                 | Project Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project Area</b>        | <ul style="list-style-type: none"> <li>The project area extends along the Lenore Drive road reserve and includes the crossing of Ropes Creek. Land affected by the works includes 78 Lockwood Road, Erskine Park (Lot 101 in DP 1268632) and Lots 15, 16 and 17 in DP 1157491 located along Lenore Drive.</li> <li>While the project area defines the extent within which infrastructure may be located and works may occur, not all areas will be disturbed. Detailed design will refine the final alignment of the transmission cable within the road reserve and the location of joint bays and associated infrastructure within the assessed project area.</li> </ul>                                                                                                                                                                                                                                                                        |
| <b>Proposed Use</b>        | Data centre with ancillary office space.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Project Description</b> | <ul style="list-style-type: none"> <li>Site preparation and bulk earthworks.</li> <li>Temporary construction access from Lenore Drive.</li> <li>Construction of a three-storey data centre comprising two buildings, with a maximum height of 26.5 metres and a total gross floor area (GFA) of approximately 56,506m<sup>2</sup>, including technical data halls, office and administrative areas, and ancillary circulation space.</li> <li>At-grade under-croft car parking (34 spaces) within the building footprint, plus an additional 44 on-site spaces, providing a total of 78 parking spaces.</li> <li>Separate generator gantry accommodating 188 backup generators.</li> <li>Landscaping and associated public domain works.</li> <li>Extension and augmentation of physical infrastructure and utilities as required, including an on-site substation and water storage tanks integrated within the building footprints.</li> </ul> |

|                                             |                                                                                                                                                                                                                                                  |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | <ul style="list-style-type: none"> <li>Off-site works comprising the delivery of two 330kV transmission lines from the TransGrid Sydney West Substation site to the subject site, utilising existing road reserve along Lenore Drive.</li> </ul> |
| <b>Total Gross Floor Area</b>               | 56,506 sqm                                                                                                                                                                                                                                       |
| <b>Building Height</b>                      | 26.5 metres over 3 storeys                                                                                                                                                                                                                       |
| <b>Floor Space Ratio</b>                    | 0.73:1                                                                                                                                                                                                                                           |
| <b>Data Houses</b>                          | 32 data houses                                                                                                                                                                                                                                   |
| <b>Landscape Area</b>                       | 15,806.37sqm of deep soil (20.5% of site)                                                                                                                                                                                                        |
| <b>Car Parking</b>                          | 78 car spaces including 2 DDA space                                                                                                                                                                                                              |
| <b>Motorbike Spaces</b>                     | 3                                                                                                                                                                                                                                                |
| <b>Bicycle Spaces</b>                       | 30                                                                                                                                                                                                                                               |
| <b>Utilities</b>                            | Provision of required utilities including: <ul style="list-style-type: none"> <li>188 x diesel generators</li> <li>2 x above-ground water tank for fire water</li> <li>330/132/11kV switching station</li> </ul>                                 |
| <b>Power Consumption</b>                    | 450 MW                                                                                                                                                                                                                                           |
| <b>Operations and Management</b>            | The facility will be operated on a 24-hour, 7 day a week basis.                                                                                                                                                                                  |
| <b>Existing Services and Infrastructure</b> | The site is fully serviced; however, existing services and infrastructure will be extended, adapted and augmented to meet the demands of the project.                                                                                            |
| <b>Job Numbers</b>                          | Construction: 1,482<br><br>Operational: 200                                                                                                                                                                                                      |

## 2.5 Stakeholder Engagement

Stakeholder consultations with Transgrid and Sydney Water are ongoing, and engagement to date has been documented in this report.

## 3 Infrastructure Requirements

### 3.1 Hydraulic and Fire Infrastructure Connections

#### 3.1.1 Governing Authorities Requirements – Hydraulic and Fire Services

The water supply authority that operates in this area is Sydney Water. The wastewater authority that operates in this area is also Sydney Water. Sydney Water permits a single potable water supply and a single fire water supply connection for each site. Sydney Water permits a single sewer connection for each site.

#### 3.1.2 Existing Sewer Assets

An existing 225mm Sydney Water Sewer Main enters the site in the South-West corner. The pipe only enters approximately 3m into the site and then shortly exits the site. Sydney Water will need to review the sewer line and advise if additional protection works are needed.

An existing 525mm Sydney Water Trunk Main passes through the site in the South-East corner. A generator yard is currently proposed in the location of this sewer pipe, this would require inground works and foundation works. The sewer pipe will likely need to be either protected or re-routed outside the site boundary as part of the proposed works. A Water Services Coordinator will need to be engaged in the future design stages to coordinate the Building Plan Approval and the required works with Sydney Water to ensure protection of this sewer asset.

The 525mm Sydney Water Trunk Main also passes through the site in the North-East corner, this portion of the site does not have any proposed inground building works and therefore it is not anticipated that any protection or re- routing should be required in this location. The Water Services Coordinator will need to investigate and coordinate any requirements with Sydney Water in the future design stages. Refer to the map below for the location of Sydney Water sewer mains.

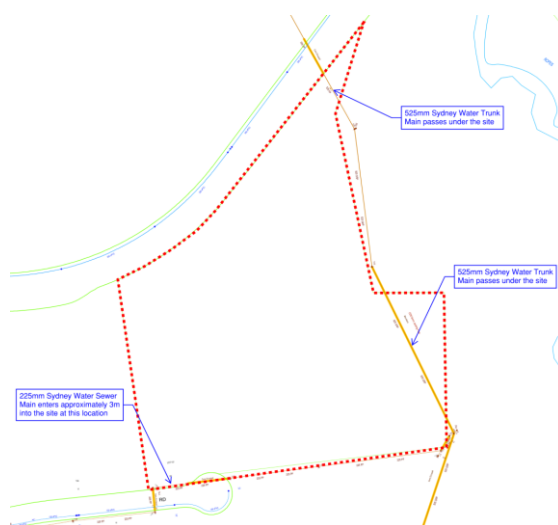


Figure 3-1: Sydney Water Before you Dig Australia (BYDA) Sewer Map

### 3.1.3 Existing Potable Water Assets

An existing 150mm diameter PVC Sydney Water reticulation main is located on the southern side of the Lockwood Road cul-de-sac. This pipe is a dead leg, and as noted in the ARUP High Level Due Diligence Study issued on 9th December 2024, it has the capacity to feed a site with a flow of 20 L/s.

An existing 300mm diameter PVC Sydney Water trunk main is located on the northern side of Lenore Drive. The pressure and flow enquiry indicates a maximum flow rate of 96 l/s.

There are no utility water services reticulating through the site, and therefore, it is not anticipated that any protection or re-routing works for the water supply will be required for this project.

Refer to Figure 3-2 below for the map of the location of Sydney Water networks.

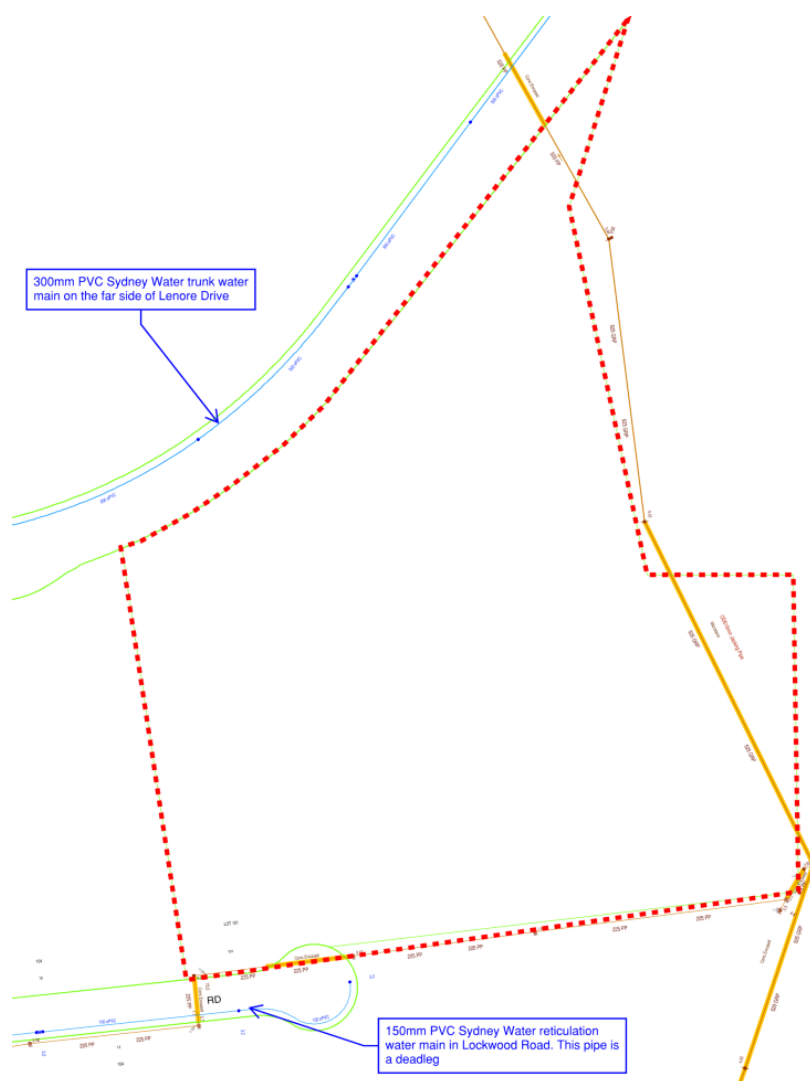


Figure 3-2 Sydney Water Before you Dig Australia (BYDA) Water Map

### 3.1.4 Potable Water Main Pressure & Flow Statement

Refer to Figure 3-3 below for the Sydney Water pressure & flow statement for the 300mm trunk main in Lenore Drive. The statement indicated a maximum permissible flow within the main of 96 l/s @ 40m head.

**Attention: Josh Lewis**

**Date: 04/07/2025**

**Pressure & Flow Application Number: 2164250**

**Your Pressure Inquiry Dated: 2025-06-26**

**Property Address: Lockwood Road, Erskine Park 2759**

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: Lenore Drive                      | Side of Street: North              |
| Distance & Direction from Nearest Cross Street | 300 metres East from Compass Drive |
| Approximate Ground Level (AHD):                | 53 metres                          |
| Nominal Size of Water Main (DN):               | 300 mm (As per diagram provided)   |

#### EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

|                          |               |
|--------------------------|---------------|
| Normal Supply Conditions |               |
| Maximum Pressure         | 87 metre head |
| Minimum Pressure         | 65 metre head |

| WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS                                                                                           | Flow l/s | Pressure head m |
|----------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| Fire Hose Reel Installations<br>(Two hose reels simultaneously)                                                                        | 0.66     | 65              |
| Fire Hydrant / Sprinkler Installations<br>(Pressure expected to be maintained for 95% of the time)                                     | 10       | 64              |
|                                                                                                                                        | 15       | 64              |
|                                                                                                                                        | 20       | 63              |
|                                                                                                                                        | 25       | 62              |
|                                                                                                                                        | 40       | 60              |
|                                                                                                                                        | 80       | 47              |
| Fire Installations based on peak demand<br>(Pressure expected to be maintained with flows combined with peak demand in the water main) | 15       | 64              |
|                                                                                                                                        | 20       | 63              |
|                                                                                                                                        | 25       | 62              |
|                                                                                                                                        | 60       | 54              |
| Maximum Permissible Flow                                                                                                               | 96       | 40              |

**(Please refer to reverse side for Notes)**

Figure 3-3 Pressure & flow statement for 300mm Sydney Water Trunk Main in Lenore Drive

### 3.1.5 Sydney Water Applications

#### Section 73 Application

The Anticipated Section 73 Application has been submitted at the time of issuing this report prior to SSDA's approval. The purpose of the Anticipated Section 73 Application will be to ascertain what flow rates and discharge rates the Sydney Water network can provide to the site and to gain the Notice of Requirements, which will lay out the required works that will need to be completed prior to applying for the Section 73 Compliance Certificates.

#### Building Plan Approval

The Building Plan Approval has not been submitted at the time of issuing this report. The application will be submitted once the SSDA is approved. A Water Services Coordinator is currently being engaged to facilitate the Building Plan Approval and associated works. As shown in Section 2.1.2, there are existing Sydney Water Sewer assets located within the site that will be near construction works. It is anticipated that this project will require an out-of-scope building plan approval as the existing sewer assets on site will likely need to be redirected or protected. The Water Services Coordinator will confirm the extent of required works in future design stages.

### 3.1.6 Water and Sewer Demand Breakdown

A detailed breakdown of the water and sewer demands for this development has been completed. The site shall have domestic water usage for amenities within the office/administrative portions of the data centre, as well as irrigation and general cleaning.

Table 4 below contains for the breakdown of the site water demand and sewer discharge broken down into the domestic and industrial water demands.

The previous mechanical design for the proposed development utilised water for the cooling processes of the building. This comprised of free cooling CLC and Air-cooled chillers coupled with and adiabatic wetting system. As the water supply in the system was required as a part of the redundancy for the operation of the building, large quantities of potable water supply from authorities were required in addition to vast quantities of on-site storage tanks. The revised design adopts an air-cooled mechanical cooling system that rejects heat directly to the atmosphere without relying on evaporative processes. As a result, the system no longer requires cooling make-up water or associated water treatment cycles, and tanks storage leading to a significant reduction in potable cold-water demand. This design change improves resource efficiency, reduces infrastructure requirements, and enhances the overall sustainability of the development's mechanical services strategy.

The current water usage is calculated into 3 categories

1. Fire Water Tank Top Up = 5.1L/S
2. Irrigation Water Usage = 2L/S
3. Office amenities /fixtures and maintenance hose taps =1.65L/S

**Total = 8.75 L/S**

Fire Water tank top-up will be used in the event there is a fire, and the tanks need to be replenished within 12 -24 hours in accordance with AS 2118.6. **It is highly unlikely that this demand of 5.1 L/S will be drawn from the Authority water main.** Refer to Table 6 for the combined fire water demand calculation.

If the rainwater tank is empty, the potable cold water supply will top it up to meet the irrigation demands of the proposed development.

The potable cold water will serve the following fixtures in the office building and the data halls. These fixtures are hose taps, water closets, basins, showers, cleaners' sink, and kitchen sinks.

Table 4: Water and Sewer Demand Excludes Fire Top Up

| Daily Demands in L/s                      | Updated Valves 03/03/2026 |
|-------------------------------------------|---------------------------|
| Peak Daily Instantaneous demand (L/s)     | 3.65L/S                   |
| Average Daily Instantaneous demands (L/s) | 1.65L/S                   |

Table 5: Water and Sewer Demand Includes Fire Top Up

| Daily and Yearly Demands in     | Updated Valves 03/03/2026 |
|---------------------------------|---------------------------|
| Peak Instantaneous demand (L/s) | 8.75                      |
| Maximum Day Demand (ML)*        | 0.04ML                    |
| Average Day Demand (ML)         | 0.022ML                   |

### 3.1.7 Fire Services Demand Breakdown

Please note, fire water is not listed within the usage table above as usage of fire water is strictly reserved for the event of a fire for sprinkler & fire hydrant use. The water supply for the fire protection systems shall be in accordance with NCC 2022, AS2118.1-2017, AS2419.1-2021 and the FM Global Data Sheet 5-32 where applicable. Where the FM Global Data Sheet 5-32 is more stringent than the Australian standards, provisions for FM Global Data Sheet 5-32 will apply. In addition, the evaluation of any water supply shall consider the anticipated peak concurrent domestic and industrial water demands for a fully constructed campus in accordance with the client's fire protection design guidelines.

As the building's effective height is less than 25m, under DTS requirements a single water supply is required per NCC 2022. The water supply system for the wet fire protection services shall be sourced from two separate storage tanks that will allow enough water for the full duration specified under AS2118.1 and AS2419.1. The duration and the capacity of the storage tanks shall be the combination of the sprinkler system requirements and the fire hydrant system requirements, the duration of each wet fire service is as follows:

- Sprinkler service: 1 (One) hour sprinkler duration.
- Hydrant service: 4 (Four) hours hydrant duration (at 3 hydrants flowing simultaneously)

The combined fire water demand for the site is 77.8 L/s as shown in the table below.

Table 6: Fire Service demand

| SYSTEM                    | FIRE WATER DEMAND (L/s)                                                             |
|---------------------------|-------------------------------------------------------------------------------------|
| Fire Sprinkler System     | <b>47.8</b> (Based on a sprinkler density of 12.2mm/min over 230m <sup>2</sup> )    |
| Fire Hydrant System       | <b>30.0</b> (Based on 3 hydrants flowing simultaneously per Appendix C of AS2419.1) |
| Minimum Fire Water Demand | <b>77.8</b>                                                                         |

Preliminary Based on the system demands, duration of each service and the available water supply from the Sydney water towns main asset, the minimum required tank size shall be 2 x 167kL (effective capacity).

### 3.1.8 Proposed Connections and Recommendations

Preliminary calculations have been completed to determine the suitable sizes of the new water connections and sewer connections for the site.

The following connections are proposed to Sydney Water Assets:

- 100mm potable water connection to the 300mm PVC trunk main on the northern side of Lenore Drive with a maximum flow rate of 8.75L/S
- 200mm fire service connection to the 300mm PVC trunk main on the northern side of Lenore Drive with a maximum flow rate of 77.8L/S
- 150mm sewer connection to the 525 GRP sewer trunk main on the eastern side of the site.

Refer to Figure 3.4 below for a markup of proposed connection locations.

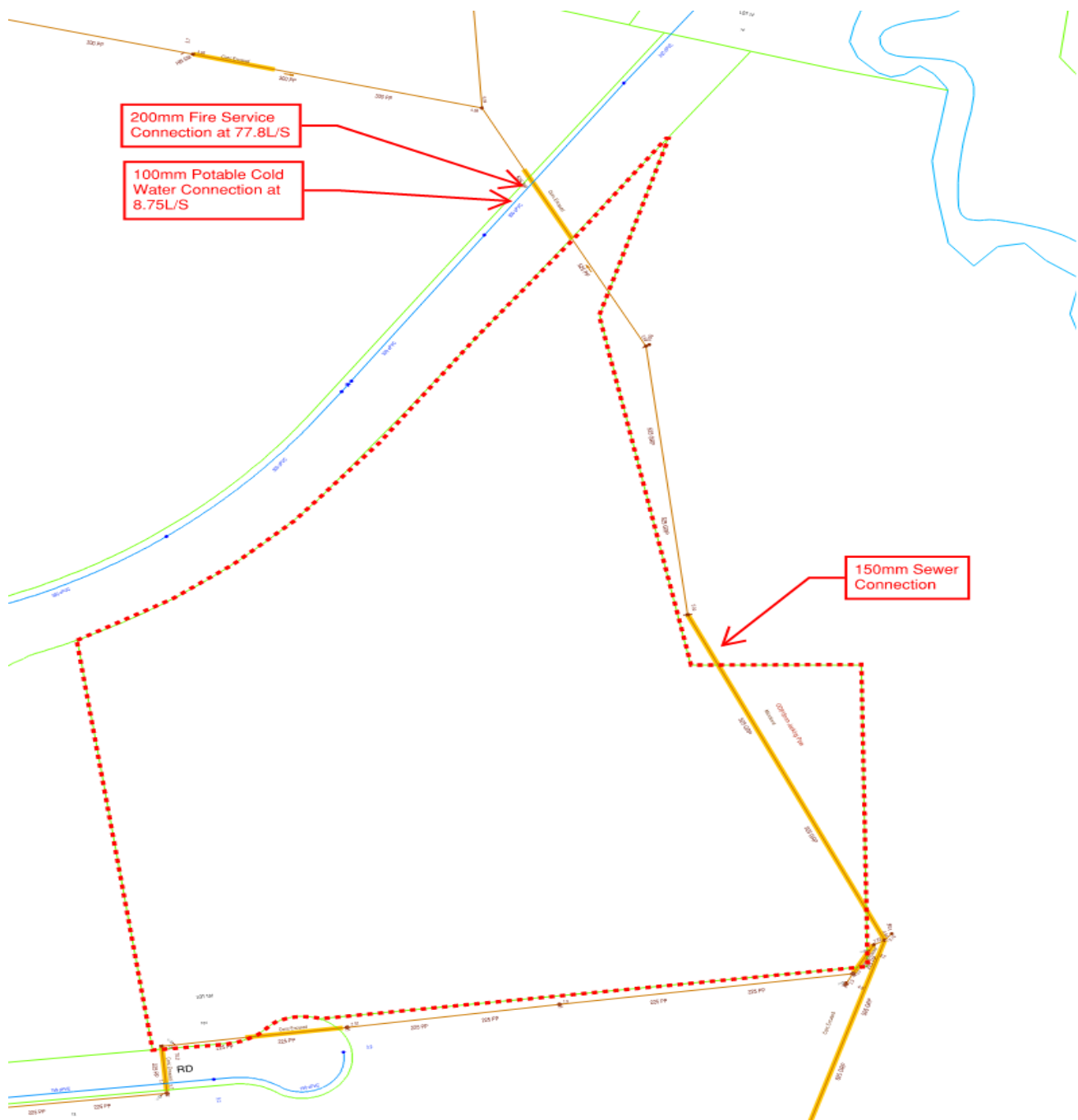


Figure 3.4 Proposed Connections to Sydney Water Assets

## 3.2 Water Sensitive Urban Design

### Reduce Water Consumption

The project will identify opportunities to reduce water consumption and potential uses for non-portable water.

The cooling system is designed to be an air-cooled units, and requires no water usage.

The project will also adopt highly efficient water fixtures with WELS ratings and appliances for use.

### Recycled water and Reuse

The proposed development will generate significant non-potable water demand. The demand considered for this sizing analysis consists of the following:

- Toilet flushing.
- Landscape irrigation of landscape zones nominated by the landscape architect that require permanent, long-term irrigation.

In addition to the above, mechanical water storage tank top-up for the data centre mechanical cooling system and hardstand washdown could also be considered for captured roof water at later stages during design development.

A high-level MUSIC model was developed to assess the efficacy of potential rainwater tank sizes and roof catchment areas in determining an appropriate size of rainwater tanks. Penrith City Council's MUSIC-Link was used to apply the standard rainfall and evapotranspiration data for the local area.

The non-potable demand for toilet flushing has been set as 0.1 kL/day/toilet for industrial sites (7 days a week operation). A total of 50 toilets is proposed across the development, totaling 5 kL/day non-potable water demand.

The landscape architect has nominated a total of 13700 m<sup>2</sup> of landscaping area for long-term irrigation. The non-potable demand for the native landscaping has been set at 0.4 kL/m<sup>2</sup>/yr, totaling to an annual demand of 4592 KL. The reuse demand was scaled with a Potential Evapotranspiration (PET) distribution to reflect the changing water demands during hotter and colder seasons.

It was found that 2 x 250 KL rainwater tanks in conjunction with a roof catchment of 50% of each data hall met the reuse demand 72.96% of the time, in line with industry practice due to spatial constraints.

### Low-Irrigation Demand Plant Selection

Plants with low irrigation demand will be considered to reduce water consumption for irrigation. The potential for plants that require low-irrigation will contribute strongly towards water usage reduction.

### Strategic Water Metering

Building-level and sub-metering will be provided to monitor and record the water consumption of the overall development, as well as irrigation systems, water fixtures and water use for the mechanical systems

## 3.3 Electrical

### 3.3.1 Introduction

The proposed development site is within the authority of the Endeavour Energy network, with the Sydney West 330kV Transgrid substation located approximately 1.5km to the East of the site and is the proposed connection point for the site.

Preliminary negotiations with the supply authority have already commenced between the client and Transgrid, with a connection enquiry response received on 11<sup>th</sup> December 2024, highlighting the requirements for an application to connection. The connection enquiry response from Transgrid is attached in Appendix 2.

### 3.3.2 Existing

There are currently Endeavour Energy buried assets on the Northwestern side of the site, along Leonore Drive, as well as to the South of the site along Lockwood Road. The services along Leonore Drive switch to overhead services towards the Northern part of the development. The current proposal is for easements to be created for all underground and overhead services and are anticipated to be unaffected by the project works.

To the east of the site, at a distance of approximately 1.5km, is the Transgrid Sydney West 330kV substation, which is the proposed connection point for the development.

Refer to Figure 3-5 below which highlights the existing Endeavour Energy assets currently within the vicinity of the project site.



Figure 3-5. Left: Endeavour Energy Assets DBYD, Right: Endeavour Energy Overhead assets (Source: Google maps).

### 3.3.3 Proposed

It is proposed that the new development will be supplied via an underground 450MVA feeder connected to the nearby 330kV Transgrid Sydney West Substation. This proposed underground feeder will reticulate from the easement at the east of the site and into the 330kV GIS switchroom located towards the Northeast section of the site. The final location and arrangement of the incoming 330kV feeder is subject to further design development and coordination with Transgrid. The 330kV switchroom shall be owned and operated by Transgrid and shall be the point of delineation with the client (Stack Infrastructure). It is anticipated that an initial load of 17.4 MVA is available from Q2 of 2027 and shall progressively ramp up to a total of 450MVA, anticipated to be by the year 2035. Refer to Figure 3-6 below for the location of the Transgrid Sydney West substation location (final connection point pending design development and further coordination).



Figure 3-6 330kV Transgrid Substation location relevant to project site (Source: Google maps)

Within the site, there will be three (3) 330/132kVA transformers to step down the voltage to 132kV, which in turn supply a total of eight (8) x 132/11kV transformers situated within the substation yard via a 132kV switchroom. The two (2) Data Centre buildings are supplied from these 132/11kV transformers. The services downstream of the 330kV switchroom will be privately owned and operated by the client and not managed by Transgrid. Refer to Figure 3-7 below.

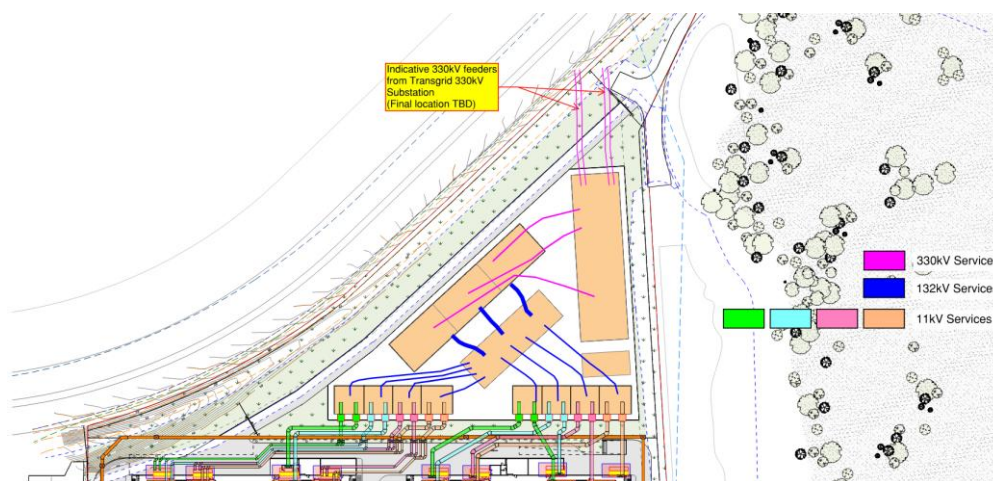


Figure 3-7 Indicative location of HV Services within the site (pending design development and coordination).

Each data centre building is supplied from four (4) 132kV / 11kV transformers configured in an N+1 redundant arrangement, with a total of eight (8) 132kV / 11kV transformers supplying the entire site. All 132kV / 11kV transformers are located in an external substation yard at the north of the site. Refer to the breakdown below:

- **West Building:** 4 x 90MVA 132/11kV oil type transformers.
- **East Building:** 4 x 90MVA 132/11kV oil type transformers.

Each transformer will supply multiple 11kV switchboards located within the associated data center building

The 11kV network within each building will be arranged in a ring topology, supplying multiple ring main units and 11kV/0.415kV dry type transformers on the plant room floor(s).

### 3.3.4 Back-up Power Supplies

Medium voltage diesel generators will be provided on the site to support the site loads during mains power failure events. These generators are designed to operate in standby in the case of a power outage only.

The site is proposed to consist of a total of 188 x 3,100kW 11kV diesel generators (94 x generator per Data Centre building), with each generator housed within a prefabricated generator enclosure with noise attenuation and an internal day tank designed to comply with AS1940. The generators are proposed to be installed within a dedicated 4-level structure in a 'stacked' arrangement, with the ground level utilized to house the individual double bunded diesel storage tanks. The generators and the associated support and storage infrastructure will be constructed in a staged manner, with final capacity reached once all colocation spaces are in use (anticipated to be by 2035). Fuel is proposed to be transferred from the dedicated storage tanks to the day tanks via a duty / standby pumping system with corresponding filtration units located within an enclosure on each respective fuel tank.

The proposed generators are as follows:

- **West Building:** 94 x 3.1MV 11kV containerised diesel generators.
- **East Building:** 94 x 3.1MV 11kV containerised diesel generators.

The above generator sizes are estimates only, with the final sizing pending further development and coordination.

### 3.3.5 Alternate Back-up Power Supplies

As part of the design development process, the project team explored various alternatives to diesel fuel for delivering the essential standby power required to meet the development's redundancy needs. After evaluating the site's substantial electrical demand, the critical nature of redundancy, and the risks associated with power failure, the team determined that diesel generation offers the most suitable and justified solution.

Diesel generator systems represent a well-established and reliable technology, supported by extensive industry expertise and a strong track record of performance when properly maintained. In contrast, emerging alternatives with comparable energy capacity are still in early stages of development. Given the importance of uninterrupted operations throughout the project's lifespan, adopting these newer technologies would introduce unacceptable levels of risk.

Alternative technologies which have been considered in some form are described below.

- **Lithium-ion Batteries:** Whilst lithium-ion batteries are a proven technology and widely used for energy storage, they are unable to provide backup power at the scale required. The final site electrical demand is approximately 450 megawatts, with a 24 hour back up availability. Due to the spatial requirements of lithium-ion batteries for the quantity of power generation required, coupled with fire-separation and safety requirements, it is not feasible to provide sufficient batteries in the event of an extended power failure to the site. Current proposed lithium-ion battery provision to the site is to facilitate the switch between utility and backup power. Hence, this technology is not viable to be used as standalone backup power for the site.
- **Alternative Fuel Generators (Hydrogen):** One of the more promising technologies is the substitution of diesel with hydrogen as a fuel source for generators. A large benefit of this is that the infrastructure downstream of the engine is essentially the same as a typical diesel generator. However, the engines would require a reliable source of fuel in large quantities. The current market or industry does not offer any known supplier which could cater for the demand. Additionally, the size of each engine would need to be equivalent to the current diesel engines, which cannot be procured in the required scale at this stage. Another issue to consider is the safety implication of introducing such an energy dense, explosive fuel which must be stored under pressure. A benefit of diesel fuel is that it is not flammable, but combustible under the classification of AS1940. This means it is relatively difficult to ignite.

Refer to the Backup Generation Report provided as part of the SSDA submission for further details on backup generation options and selections.

### 3.3.6 Onsite Fuel Storage

To supplement the containerised generator day tanks, each generator set shall be provided with one (1) above ground individual double bunded fuel storage tank, plus one day tank and associated fuel delivery system to provide a total of 24 hours fuel storage for all generators operating at 100% load. This will consist of:

- **West Building Generators:** 94 x ~22.7kL above-ground fuel storage tanks + 94 x ~990L day tanks.
- **East Building Generators:** 94 x ~22.7kL above-ground fuel storage tanks. + 94 x ~990L day tanks.

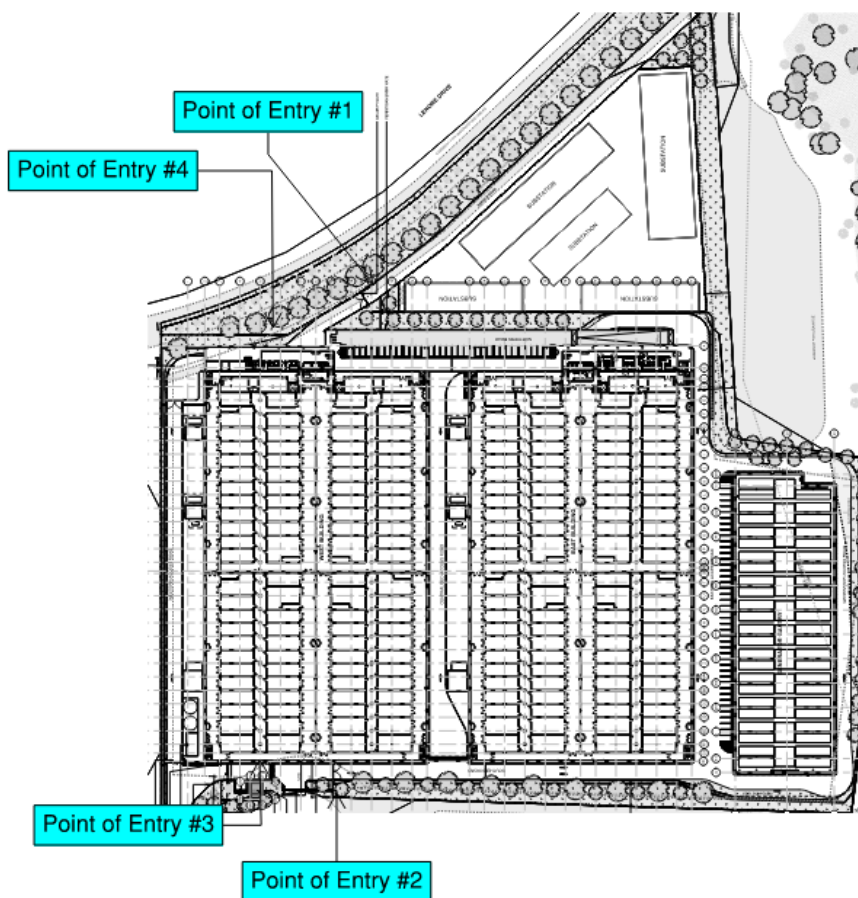
## 3.4 Information and Communication Technology

### 3.4.1 Telecommunications Lead-Ins

Multiple carrier point-of-entries (POEs) into the campus are proposed to be provided at the Northern and Southern boundaries of the development. Multiple POEs are required for capacity and resiliency. Alternate carriers may be also used for capacity and resiliency.

These POEs act as a telecommunications pathway demarcation point between the private property and the telecommunications carriers. Telecommunications carriers will meet and connect into these POEs for regional connectivity between the campus and other major telecommunications facilities including exchanges, gateways, other data centres etc. There is a total of 4 no. proposed POEs at the development, with 2no. along Leonore Drive, and 2no. along the southern boundary (Lockwood Road) as shown in Figure 3-8. The pathways are provided via underground telecommunications pit and pipe. This lead-in pipe is owned by the carrier up until the POE at the property boundary. A sub-duct may then be provided with a carrier cable contained within it. This is routed via the private pathways to the appropriate termination point within the campus.

Some Telecommunications pathways are adjacent to easements, and the client's Telecommunications Team will coordinate these pathways in conjunction with utilities providers outside of the property boundary.



*Figure 3-8 Point-of-Entries for Telecommunications*

Initial pit and pipe carrier connectivity will be provisioned to enable the facility. Where increased capacity and resiliency is required to meet the operational demand during the operation of the facility, subsequent further connections to the POE may be made.

Carrier connectivity usually ties into already available infrastructure routed along the roads near-by. To meet resiliency or capacity requirements, runs of new conduit pathways may be made between the existing carrier pit and pipe within the road reserve, and to the point of demarcation/POEs. External reticulation to the POEs will require careful carrier planning. This is typically handled by the telecommunications carriers on application for connection.

All the internal reticulation between the POEs to the building structure is via private infrastructure consisting of telecommunication vaults and communications conduits spanning between these vaults. These pathways will be sized to minimise subsequent on-site excavation activities during the life of the facility.

## Appendix A Transgrid Connection Enquiry Response

## Appendix B    Locality Plan

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