Our ref: 5093



26 May 2023

Thomas Nader Bilbergia

ASP Level 3 Substation Location Advice

RE: DA117/2017 - 266 Longueville Road

Edgewater Connections have carried out ASP Level 3 design services under Ausgrid Project AN-24200 to establish supply to the new residential development located at 266 Longueville Road Lane Cove. Assessment of the supply requirements for the development determined that a substation would be required.

ASP Level 3 design has been carried in accordance with Ausgrid Standard Design Information, Ausgrid HV Planning assessment issued 14 September 2022, and Ausgrid network standards for the establishment of a substation. The substation location has been determined with the following considerations:

Ausgrid Compliance Requirements:

Ausgrid allow for the establishment of a substation for customer supply within a site as a chamber substation or a kiosk substation arrangement. A chamber substation is located within the building footprint. A kiosk substation is located separate from structure. Each substation type requires 24/7 personnel and equipment access to be provided and maintained direct off public road.

The location and type of the substation for the site has been considered with reference to the following Ausgrid network standards.

- NS113 Site Selection and Construction Design Requirements for Chamber Substations
- NS141 Site Selection and Site Preparation Standards for Kiosk Type Substations

Specific reference is brought to the following standard extracts for compliant site selection:

- NS113 Section 7.3, NS141 Section 2.2.1 Substations shall not be installed in areas prone to stormwater run-off or ponding or areas subject to declared 1 in 100 year floods
- NS141 Clause 2.2.8 To avoid potential electrical hazards, high voltage electrical distribution equipment such as transformers (kiosks) and distribution boards shall not be within 10m of external fire hydrants, except where protected by an intervening wall or barrier.
- NS113 Section 7.4 and 8, NS141 Section 8.1 Substation location shall have unimpeded access for Ausgrid personnel and vehicles, directly from a public street, for 24 hours per day, 7 days per week.
- NS113 Section 8, NS141 Section 8.2 A heavy truck with a vehicle-mounted crane is required to install or remove the heavy equipment. Access routes, where required, shall be suitable under all weather conditions and constructed to withstand the maximum road legal wheel loadings and loadings during installation.
- NS113 Section 8, NS141 Section 8.3 The access route shall be a minimum of 4 metres wide, have a minimum of 4 metres headroom, provide increased width for turns where required and be continuous from the property boundary to the substation site. Access ways must not be located in areas where access may be obstructed by persons, vehicles, equipment, material storage areas, site usage, enclosed or partially enclosed car parks, loading docks, similar facilities or any other possible impediments.
- NS113 Section 8 A transformer handling area with sufficient space for vehicle manoeuvring must be included adjacent to the substation. The floor grade of the transformer handling area should not exceed 1:20.

- NS113 Section 8, NS141 Section 11.5 Any portion of a building within 3 metres in any direction from the housing of a kiosk substation shall have a Fire Resistance Level (FRL) of not less than 120/120/120 unless it is sheltered by a non-ignitable blast-resisting barrier, or from the opening of a chamber substation shall have a Fire Resistance Level (FRL) of not less than 180/180/180
 Kiosk substation housings or chamber openings shall be separated from building ventilation system air intake and exhaust duct openings, by not less than 6 metres.
- NS113 Section 13 The selection of the site for a chamber substation should take into account the
 possible effects of Electric and Magnetic Fields (EMF) and Electromagnetic Interference (EMI) on adjacent
 sensitive receptors such as residential or childcare areas or sensitive medical equipment.

Site Constraints:

The arrangement and location of the substation has been considered noting the following site constraints:

- Existing and proposed site topography the development is proposed on land that falls away from the public road. Impact on substation access and equipment loading requirements.
- Existing tree locations and potential impact on structural roots.
- Existing bus stop location and impact on substation access.
- Type of development impact on residents living above a substation of electromagnetic fields and noise.
- Type of development impact on residents of fire restriction and ventilation restriction zones impacting building structure and building use at location of substation.
- Location of proposed essential services including fire brigade access requirements.
- Location of proposed resident open spaces and services.

Site Specific Recommended arrangement:

A kiosk substation is considered the most suitable substation arrangement for this site. The nominated location at the north west boundary provides compliance with the following conditions.

- 24/7 direct unimpeded access from public road.
- Suitable clearance from building and essential services.
- No impact on existing trees.
- No impact on proposed residents for noise and electromagnetic fields
- No impact on access requirements for fire brigade
- No impact on building use due to construction segregation requirements such as fire and ventilation.

Yours faithfully, Edgewater Connections

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