From: Cornelis Duba <Cornelis.Duba@endeavourenergy.com.au>
Sent: Sunday, 13 September 2020 7:44 PM
To: DPE CSE Information Planning Mailbox <information@planning.nsw.gov.au>
Cc: Amy Watson <Amy.Watson@planning.nsw.gov.au>; Philip Wilson <Philip.Wilson@endeavourenergy.com.au>
Subject: NSW Planning & Environment Edmondson Park South Concept Plan (Town Centre North and Precinct 3) (MP 10_0118 MOD 5) and Planning Controls

The Secretary
NSW Planning & Environment

ATTENTION: Amy Watson, Team Leader, Key Sites Assessments

Dear Sir or Madam

I refer to the Department's letter of 9 September 2020 advising that Landcom has submitted its Response to Submissions (RtS) for the modification to the Edmondson Park South Concept Plan (Town Centre North and Precinct 3) (MP 10_0118 MOD 5), located at Edmondson Park South, Gallipoli Drive, Bezentin Ridge Road, Croatia Road and Campbelltown Road in the Liverpool and Campbelltown Local Government Areas. Submissions need to be made to the Department by 23 September 2020.

In regard to Endeavour Energy's submission made to the Department on 4 December 2018, Endeavour Energy has noted that in the RtS report Section 2.6 'Key Issues – Endeavour Energy' provides a detailed response to the key issues raised by in regard to the provision of electricity supply required to facilitate the proposed development and is supported by a revised Utilities Infrastructure Assessment dated 14 January 2020 (which still makes reference to Endeavour Energy Technical Review Request (EE Ref: ENL3127 – 2014/02306/0015) dated 5 September 2018. Endeavour Energy has no further comments.

As shown in the below updated site plan from Endeavour Energy's G/Net master facility model there is extensive electricity infrastructure within the Edmondson Park South Concept Plan (Town Centre North and Precinct 3). Due to the large area the scale required to show the area makes it difficult to see the detail in the plans. However if the Department or Landcom require more detailed plans of any specific area they can be provided upon request. Please note the location, extent and type of any electricity infrastructure, boundaries etc. shown on the plan is indicative only. In addition it must be recognised that the electricity network is constantly extended, augmented and modified and there is a delay from the completion and commissioning of these works until their capture in the model. Generally (depending on the scale and/or features selected), low voltage (normally not exceeding 1,000 volts) is indicated by blue lines and high voltage (normally exceeding 1,000 volts but for Endeavour Energy's network not exceeding 132,000 volts / 132 kV) by red lines (these lines can appear as solid or dashed and where there are multiple lines / cables only the higher voltage may be shown). This plan only shows the Endeavour Energy network and does not show electricity infrastructure belonging to other authorities or customers owned electrical equipment beyond the customer connection point / point of supply to the property. This plan is not a 'Dial Before You Dig' plan under the provisions of Part 5E 'Protection of underground electricity power lines' of the *Electricity Supply Act 1995* (NSW).

Endeavour Energy's further recommendations and comments are as follows:

- Network Asset Design

Endeavour Energy's Company Policy 9.2.5 'Network Asset Design', includes the following requirements for electricity connections to new urban subdivision / development.

5.11 Reticulation policy

5.11.1 Distribution reticulation

In order to improve the reliability performance of and to reduce the operating expenditure on the network over the long term the company has adopted the strategy of requiring new lines to be either underground cables or where overhead is permitted, to be predominantly of covered or insulated construction. Notwithstanding this strategy, bare wire overhead construction is appropriate and permitted in some situations as detailed below.

In areas with the potential for significant overhanging foliage, CCT is used to provide increased reliability as it is less susceptible to outages from wind-blown branches and debris than bare conductors. CCT must only be used in treed[2] areas as the probability of a direct lightning strike is low. In open areas where the line is not shielded from a direct lightning strike, bare conductors must generally be used for 11kV and 22kV reticulation.

Non-metallic Screened High Voltage Aerial Bundled Cable (NMSHVABC) must be used in areas which are heavily treed and where it is not practicable to maintain a tree clearing envelope around the conductors.

[2] A "treed" area is one with a substantial number of trees adjacent to the line, in each span. In these situations CCT is used to provide increased reliability as it is less susceptible to outages from wind-blown

5.11.1.1 Urban areas

Reticulation of new residential subdivisions will be underground. In areas of low bushfire consequence, new lines within existing overhead areas can be overhead, unless underground lines are cost justified or required by either environmental or local council requirements.

Where underground reticulation is required on a feeder that supplies a mixture of industrial, commercial and/or residential loads, the standard of underground construction will apply to all types of load within that development.

Where ducting is used, adequate spare ducts and easements must be provided at the outset to cover the final load requirements of the entire development plan.

Extensions to the existing overhead 11kV/22kV network must generally be underground. Bare wire will be used for conductor replacements and augmentations except in treed areas where CCT or NMSHVABC must be used.
Extensions to the existing overhead LV network and augmentations must either be underground or ABC. Conductor replacements greater than 100m in route length must utilise aerial bundled cable.

- Bushfire

Endeavour Energy has noted that the Bushfire Protection Assessment Addendum which provides and assessment of the site having regard to NSW Rural Fire Service 'Planning for Bush Fire Protection 2019' includes the following advice:

3.7 Electricity

Table 3.6 outlines the required performance criteria for electricity supply.

Table 3.6 – Performance criteria for electricity services (*PBP* guidelines pg. 27)

Performance criteria	Acceptable solution	Acceptable solution	Performance solution	Comment
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings	Where practicable, electrical transmission lines are underground;	☑		Future electricity supply is to comply with the acceptable solutions.
	Where overhead, electrical transmission lines are proposed as follows: • lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; • no part of a tree is closer to a power line than the distance set out in accordance with the specifications in *ISSC3 Guideline for Managing Vegetation Near Power Lines.*	☑		

The following is an extract of Endeavour Energy's Company Policy 9.1.1 Bushfire Risk Management:

9.1.1 BUSHFIRE RISK MANAGEMENT

1.0 POLICY STATEMENT

The company is committed to the application of prudent asset management strategies to reduce the risk of bushfires caused by network assets and aerial consumer mains to as low as reasonably practicable (ALARP) level. The company is also committed to mitigating, the associated risk to network assets and customer supply reliability during times of bushfire whilst achieving practical safety, reliability, quality of supply, efficient investment and environmental outcomes. The company is committed to compliance with relevant acts, regulations and codes.

Accordingly the electricity network required to service the proposed development must be fit for purpose and meet the technical specifications, design, construction and commissioning standards based on Endeavour Energy's risk assessment associated with the implementation and use of the network connection / infrastructure for a bushfire prone site. In assessing bushfire risk, Endeavour Energy has traditionally focused on the likelihood of its network starting a bushfire, which is a function of the condition of the network. Risk control has focused on reducing the likelihood of fire ignition by implementing good design and maintenance practices. However the potential impact of a bushfire on its electricity infrastructure and the safety risks associated with the loss of electricity supply are also considered.

- Earthing

The construction of any building or structure (including fencing, signage, flag poles, hoardings etc.) whether temporary or permanent that is connected to or in close proximity to Endeavour Energy's electrical network is required to comply with Australian/New Zealand Standard AS/NZS 3000:2018 'Electrical installations' as updated from time to time. This Standard sets out requirements for the design, construction and verification of electrical installations, including ensuring there is adequate connection to the earth. It applies to all electrical installations including temporary builder's supply / connections.

Inadequate connection to the earth to allow a leaking / fault current to flow into the grounding system and be properly dissipated places persons, equipment connected to the network and the electricity network itself at risk from electric shock, fire and physical injury. The earthing system is usually in the form of an earth electrode consisting of earth rods or mats buried in the ground. It should be designed by a suitably qualified electrical engineer / Accredited Service Provider (ASP) following a site-specific risk assessment having regard to the potential number of people could be simultaneously exposed, ground resistivity etc.

The ASP scheme is administered by Energy NSW and details are available on their website via the following link or telephone 13 77 88:

https://energy.nsw.gov.au/government-and-regulation/legislative-and-regulatory-requirements/asp-scheme-and-contestable-works .

- Location of Electricity Easements / Prudent Avoidance

The incorporation of electricity easements into privately owned lots is generally problematic for both Endeavour Energy and the future landowners and requires additional easement management to ensure no uncontrolled activities / encroachments occur within the easement area.

Accordingly Endeavour Energy's recommendation is that whenever reasonably possible, easements be entirely incorporated into public reserves and not burden private lots. Endeavour Energy's preference is to have continuity of its easements over the most direct and practicable route affecting the least number of lots as possible.

This is also in keeping with a policy of prudent avoidance. In practical terms this means that when designing new transmission and distribution facilities, consideration is given to reducing exposure and increasing separation distances to more sensitive uses such as residential or schools, pre-schools, day care centres or where potentially a greater number of people are regularly exposed for extended periods of time.

These emissions are usually not an issue but with Council's permitting or encouraging development with higher density, reduced setbacks and increased building heights, but as the electricity network operates 24/7/365 (all day, every day of the year), the level of exposure can increase.

Endeavour Energy believes that irrespective of the zoning or land use, applicants (and Council) should also adopt a policy of prudent avoidance by the siting of more sensitive uses eg. the office component of an industrial building, away from and less susceptible uses such as garages, non-habitable or rooms not regularly occupied eg. storage areas in a commercial building, towards any electricity infrastructure – including any possible future electricity infrastructure required to facilitate the proposed development.

Where development is proposed near electricity infrastructure, Endeavour Energy is not responsible for any amelioration measures for such emissions that may impact on the nearby proposed development.

Please find attached a copy of Energy Networks Association's 'Electric & Magnetic Fields – What We Know' which can also be accessed via their website at https://www.energynetworks.com.au/electric-and-magnetic-fields and provides the following advice:

Electric fields are strongest closest to their source, and their strength diminishes rapidly as we move away from the source.

The level of a magnetic field depends on the amount of the current (measured in amps), and decreases rapidly once we move away from the source.

Typical magnetic field measurements associated with Endeavour Energy's activities and assets given the required easement widths, safety clearances etc. and having a maximum voltage of 132,000 volt / 132 kV, will with the observance of these separation distances not exceed the recommended magnetic field public exposure limits.

- Subdivision of Easements

Endeavour Energy's preference is to have continuity of its easements over the most direct and practicable route affecting the least number of lots as possible. Therefore, except in special circumstances such as a staged or facilitating subdivision, it generally does not support the subdivision of easements (even in part) and their incorporation into to multiple / privately owned lots. The incorporation of electricity easements into privately owned lots is generally problematic for both Endeavour Energy and the landowner and requires additional easement management to ensure no uncontrolled activities / encroachments occur within the easement.

Dissecting the easement along its route results in restriction of access eg. every lot being potentially fenced on both sides, multiple gates / openings would be required to ensure contiguous / ready access (please also refer to the below point 'Network Access'). This is particularly important where there are poles or structures and changes in direction to a line route. In the event of fallen conductors or faults in underground cables, access to the poles or cable pits to restring or pull cables is essential for restoring electricity supply.

If there is no reasonable alternative option, in subdividing an easement consideration must be given to minimising the impact on the easement rights. The longitudinal subdivision of an easement / parallel to the overhead power lines or underground cables is generally not permitted. The number and length of crossings should be kept to a minimum eg. crossings should be or close to perpendicular to the overhead power lines or underground cables and must be at least half the easement width beyond any pole or structure. Easements for other types of electricity infrastructure such as padmount substations or switching stations shall not be subdivided but any associated restriction or right of access etc. may encumber and adjoining lot.

However , if the subdivision does result in the incorporation of Endeavour Energy's easement into multiple lots, not only must the easements, rights and restrictions, covenants etc. be retained over the effected lots and in accordance with the requirements of NSW Land Registry Services (LRS),but Endeavour Energy may need to include additional requirements / restrictions to be registered on titles to each of the lots to ensure it can reasonably access and manage its existing electricity infrastructure within the easement.

- Easement Management / Network Access

The following is a summary of the usual / main terms of Endeavour Energy's electrical easements requiring that the landowner:

- Not install or permit to be installed any buildings, structures or services within the easement site.
- Not alter the surface level of the easement site.
- Not do or permit to be done anything that restricts access to the easement site without the prior written permission of Endeavour Energy and in accordance with such conditions as Endeavour Energy may reasonably impose.

Endeavour Energy's preference is for no activities or encroachments to occur within its easements. However, if any proposed works (other than those approved / certified by Endeavour Energy's Network Connections Branch as part of an enquiry / application for load or asset relocation project) will encroach/affect Endeavour Energy's easements, contact must first be made with the Endeavour Energy's Easements Officer, Philip Wilson, on direct telephone 9853 7110 or alternately by email Philip.Wilson@endeavourenergy.com.au or Easements@endeavourenergy.com.au .

For further information please find attached for the applicant's reference a copy of Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights' which deals with activities / encroachments within easements.

It is imperative that the access to the existing electrical infrastructure on and in proximity of the site be maintained at all times. To ensure that supply electricity is available to the community, access to the electricity infrastructure may be required at any time. Restricted access to electricity infrastructure by maintenance workers causes delays in power restoration and may have severe consequences in the event of an emergency.

- Vegetation Management

The planting of large trees near electricity infrastructure is not supported by Endeavour Energy. Particularly for overhead power lines, ongoing vegetation management / tree trimming is a significant network cost and falling trees and branches during storms are a major cause of power outages.

Suitable planting needs to be undertaken in proximity of electricity infrastructure (including any new electricity infrastructure required to facilitate the proposed development). Only low growing shrubs not exceeding 3.0 metres in height, ground covers and smaller shrubs, with non-invasive root systems are the best plants to use. Larger trees should be planted well away from electricity infrastructure (at least the same distance from overhead power lines as their potential full grown height) and even with underground cables, be installed with a root barrier around the root ball of the plant.

Landscaping that interferes with electricity infrastructure may become a potential safety risk, cause of bush fire, restrict access, reduce light levels from streetlights or result in the interruption of supply. Such landscaping may be subject to Endeavour Energy's Vegetation Management program and/or the provisions of the *Electricity Supply Act 1995* (NSW) Section 48 'Interference with electricity works by trees' by which under certain circumstances the cost of carrying out such work may be recovered.

- Dial Before You Dig

Before commencing any underground activity the applicant is required to obtain advice from the ***Dial Before You Dig*** **1100** service in accordance with the requirements of the *Electricity Supply Act 1995* (NSW) and associated Regulations. This should be obtained by the applicant not only to identify the location of any underground electrical and other utility infrastructure across the site, but also to identify them as a hazard and to properly assess the risk.

- Public Safety

Workers involved in work near electricity infrastructure run the risk of receiving an electric shock and causing substantial damage to plant and equipment. I have attached Endeavour Energy's public safety training resources, which were developed to help general public / workers to understand why you may be at risk and what you can do to work safely. The public safety training resources are also available via Endeavour Energy's website via the following link:

http://www.endeavourenergy.com.au/wps/wcm/connect/ee/nsw/nsw+homepage/communitynav/safety/s afety+brochures .

If the applicant has any concerns over the proposed works in proximity of the Endeavour Energy's electricity infrastructure to the road verge / roadway, as part of a public safety initiative Endeavour Energy has set up an email account that is accessible by a range of stakeholders across the company in order to provide more effective lines of communication with the general public who may be undertaking construction activities in proximity of electricity infrastructure such as builders, construction industry workers etc. The email address is Construction.Works@endeavourenergy.com.au .

- Emergency Contact

In case of an emergency relating to Endeavour Energy's electrical network, the applicant should note the Emergencies Telephone is 131 003 which can be contacted 24 hours/7 days. Endeavour Energy's contact details should be included in the any risk or safety management plan.

I appreciate that not all the foregoing issues 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.

Could you please pass on a copy of this submission and the attached resources to the applicant? Should you wish to discuss this matter, or have any questions, please do not hesitate to contact me or the contacts identified above in relation to the various matters. Due to the high number of development application / planning proposal notifications submitted to Endeavour Energy, to ensure a response contact by email to property.development@endeavourenergy.com.au is preferred.

With the current COVID-19 health risk, as many as possible of Endeavour Energy staff are working from home. As a result there is only a small contingent located at the Huntingwood head office for essential operations. Although working from home, access to emails and other internal stakeholders is now somewhat limited and as a result it may take longer than usual to respond to enquiries. Thank you for your understanding during this time.

Yours faithfully
Cornelis Duba

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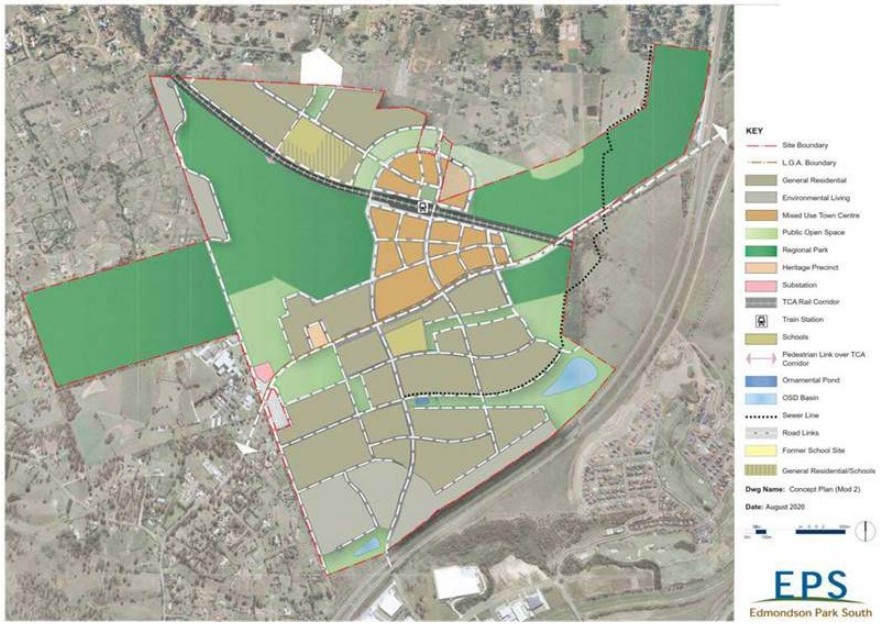


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