



The Secretary  
NSW Planning, Industry & Environment

21 February 2020

**ATTENTION: Bruce Zhang, Acting Senior Environmental Assessment Officer**

Dear Sir or Madam

I refer to the Department's below email and letter of 15 January 2020 regarding modification application (SSD-7348-Mod-3) and a State Significant Development Application (DA) (SSD-10397) for the Oakdale West Estate Stage 2 Development, located at 2 Aldington Road, Kemps Creek in the Penrith City Local Government Area. Submissions need to be made to the Department by 21 February 2020.

Please find attached a copy of Endeavour Energy's submission made to the Department on 31 January 2020 regarding State Significant Development SSD 7348 MOD 2 Oakdale West Estate for 'Modifications to the Oakdale West Estate approved concept plan and Stage 1 development, including master plan layout, increase in gross floor area and expansion of Building 1A, changes to internal roads, civil design and building pad levels'. The recommendations and comments provided therein remain valid and are also applicable to these applications.

Endeavour Energy's Asset Planning & Performance Branch has provided the following update on the provision of electricity supply to the proposed development:

*Previous comments provided by Endeavour Energy to State Significant Development SSD 7348 MOD 2 Oakdale West Estate for 'Modifications to the Oakdale West Estate approved concept plan and Stage 1 development, including master plan layout, increase in gross floor area and expansion of Building 1A, changes to internal roads, civil design and building pad levels' regarding electricity supply implied that larger loads would need to wait for the future Oakdale West Zone Substation.*

*This statement expressed a preference by Endeavour Energy for supply by the future zone substation, as interim supplies from other sources are more complex and costly, especially for large loads. Endeavour Energy has now received applications for these lots and are working collaboratively with the proponent to determine supply arrangements in advance of a zone substation being commissioned.*

Endeavour Energy has noted the following in the Environmental Impact Statement for SSD-7348- Mod-3:

**4.2.3 Civil and services strategy**

Modification to services include:

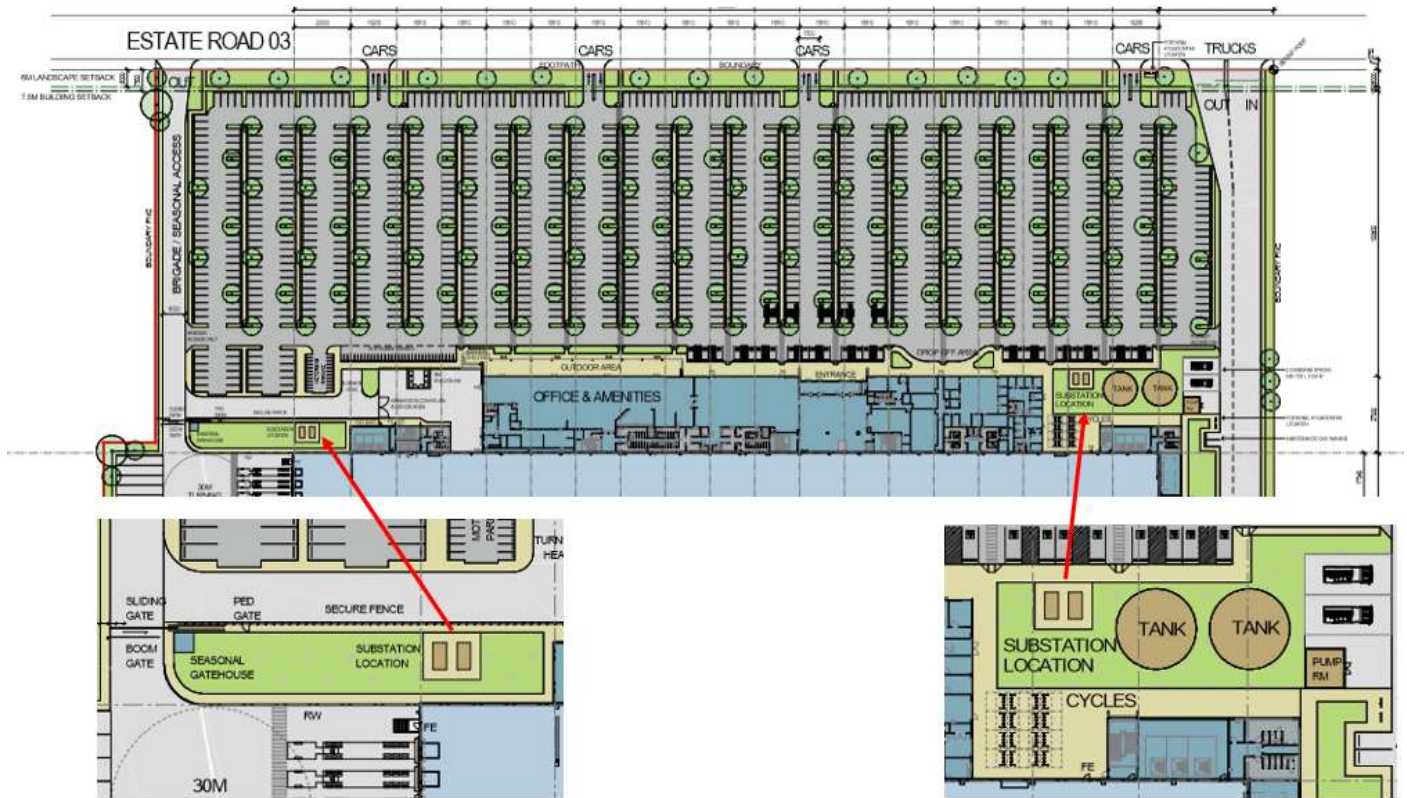
- Electrical - no change to the approved electrical design
- There is no change to the approved SSD 7348 easements throughout the site and therefore impacts will be consistent.

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In regard to SSD-10397, as shown in the following extract of the Architectural Plans for Proposed Building 2B, Endeavour Energy has noted that provision has been made for two padmount substation locations each with two transformers within the site with no direct access to an estate / public road.

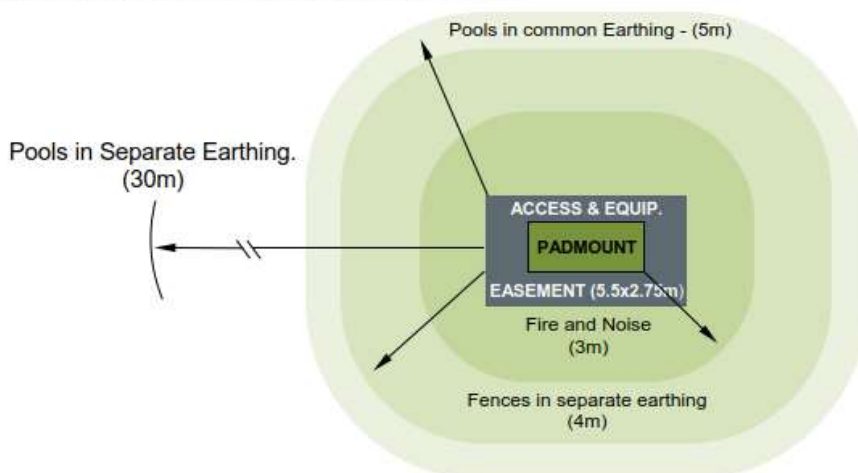


From Endeavour Energy’s perspective the fact that provision is being made for the substation is a positive. Endeavour Energy’s general requirements is for a padmount substation easement to have a minimum size of 2.75 x 5.5 metres and also have the additional restrictions for fire rating (which usually extends 3 metres horizontally from the base of the substation footing, and 6 metres vertically from the same point and also has regard to any structures etc. attached to the building that may spread a fire) and possibly swimming pools and spas (which in this instance does not appear to be applicable). The easement and restriction/s should not affect any adjoining property (unless supported by an appropriate easement / restriction). The substation should be at ground level and have direct access from a public street (unless provided with a suitable easement for right of access).

Generally it is the Level 3 Accredited Service Provider’s (ASP) responsibility (engaged by the developer) to make sure that the substation location and design complies with Endeavour Energy’s standards the suitability of access, safety clearances, fire ratings, flooding etc. As a condition of the Development Application \ consent the Department should request the submission of documentary evidence from Endeavour Energy confirming that satisfactory arrangements have been made for the connection of electricity and the design requirements for the substation, prior to the release of the Construction Certificate / commencement of works.

For further information please refer to the attached copy of Endeavour Energy’s Mains Design Instruction MDI 0044 ‘Easements and Property Tenure Rights’. The foregoing requirements are illustrated in the following extract of Figure A4.3 ‘Padmount easements and clearances’.

### A4.3 - Padmount easements and clearances



Endeavour Energy's further recommendations and comments in regard to SSD-10397 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<sup>2</sup> 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.

<sup>2</sup> 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.

- 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. 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.

- Prudent Avoidance

The electricity industry has adopted a policy of prudent avoidance by doing what can be done without undue inconvenience and at modest expense to avert the possible risk to health from exposure to emissions from electricity infrastructure such as electric and magnetic fields (EMF) and noise which generally increase the higher the voltage ie. Endeavour Energy's network ranges from low voltage (normally not exceeding 1,000 volts) to high voltage (normally exceeding 1,000 volts but not exceeding 132,000 volts / 132 kV).

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.

- Vegetation Management

The planting of large trees in the vicinity of electricity infrastructure is not supported by Endeavour Energy. 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 could become a potential safety risk, restrict access, reduce light levels from streetlights or result in the interruption of supply may become 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.

In regard to the future padmount substation sites required to facilitate the proposed development, please find attached for the applicant's reference a copy Endeavour Energy's 'Guide to Fencing, Retaining Walls and Maintenance Around Padmount Substations'.

- 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/safety+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](mailto: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 any relevant risk and safety management plan.

Subject to the foregoing Endeavour Energy has no objection to SSD-7348- Mod-3 or SSD-10397.

I appreciate that not all the foregoing issues may be directly or immediately relevant or significant to the Development Applications. 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](mailto:property.development@endeavourenergy.com.au) is preferred.

Yours faithfully

Cornelis Duba

Development Application Specialist

Network Environment & Assessment

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**From:** Erin White <Erin.White@planning.nsw.gov.au>  
**Sent:** Wednesday, 15 January 2020 3:41 PM  
**To:** Property Development <Property.Development@endeavourenergy.com.au>  
**Cc:** Bruce Zhang <Bruce.Zhang@planning.nsw.gov.au>  
**Subject:** Notice of Exhibition - Oakdale SSD-7348-Mod-3 & SSD-10397 - Endeavour Energy

Good afternoon

Please find attached correspondence regarding the exhibition of Oakdale West Estate Stage 2 Development (SSD-7348-Mod-3 & SSD-10397).

Further information can be viewed on the Department's website at:  
<https://www.planningportal.nsw.gov.au/major-projects/project/25921>

If you have any enquiries please contact Bruce Zhang on (02) 9274 6137 or  
[Bruce.Zhang@planning.nsw.gov.au](mailto:Bruce.Zhang@planning.nsw.gov.au).

Kind regards

**Erin White**  
**DA Coordinator, Social & Infrastructure Assessments**

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The Secretary  
NSW Planning, Industry & Environment

31 January 2020

**ATTENTION: Bruce Zhang, Acting Senior Environmental Assessment Officer**

Dear Sir or Madam

I refer to the Department's below email of 13 December 2019 regarding State Significant Development SSD 7348 MOD 2 Oakdale West Estate for 'Modifications to the Oakdale West Estate approved concept plan and Stage 1 development, including master plan layout, increase in gross floor area and expansion of Building 1A, changes to internal roads, civil design and building pad levels'. Submissions need to be made to the Department by 31 January 2020.

Endeavour Energy's Asset Planning & Performance Branch has provided the following update on the modification and provision of electricity supply to the proposed development:

*Asset Strategy & Planning Branch are aware of the proposed Oakdale West Estate development and are liaising with the customer/s on regular basis.*

*The road layout within amended Precinct 1 will alter the 22 kilovolt (kV) distribution reticulation requirements under Customer Application Management (CAM) for Urban Industrial Subdivision UIS0846 for the developer and will need to be reviewed by Endeavour Energy's Network Connections Branch / Asset Planning & Performance. The proposed two x 132 kV feeder routes along Estate Road 01 and Estate Road 6 will not change.*

*At this point in time no firm load application for electricity supply for the revised buildings 1A + 1B + 1C has yet been received.*

*Electricity supply for buildings 1A + 1B + 1C will be from the future Oakdale West Zone Substation which has frontages to Estate Road 06 and Estate Road 07 at 22 kV supply voltage – some initial capacity may be available to the smaller buildings 1B + 1C from the nearby Mamre Zone Substation (located at 8 John Morphett Place Erskine Park) via the revised reticulation under CAM UIS0846 depending on the size of the load application(s).*

As such, Endeavour Energy's Network Connections Branch are managing the conditions of supply with the proponent and their Accredited Service Provider (ASP). However the applicant will need to contact Endeavour Energy's Network Connections Branch (via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm) if this or any further modifications:

- Includes any contestable works projects that are outside of the existing approved / certified works.

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- Results in an electricity load that is outside of the existing Supply / Connection Offer requiring the incorporation of the additional load for consideration. This is due to load being based on a desktop assessment using an After Diversity Maximum Demand (ADMD) where demand is aggregated over a large number of customers providing an ADMD for the site / per lot. Depending on the actual development proposed for the site, the ADMD provided may not be sufficient.

Endeavour Energy's Property Services Section has provided the following updated advice regarding the acquisition of the Oakdale West Zone Substation site.

*The initial due-diligence investigations were completed in July 2019 confirming the site is in order to proceed to the next phase of the site acquisition.*

*Environmental controls and site clearing commenced in December 2019 and with the bulk earthworks commencing in the New Year and scheduled to be completed in October 2020.*

Subject to and based on the foregoing Endeavour Energy has no objection to the modification.

Could you please pass on a copy of this submission 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](mailto:property.development@endeavourenergy.com.au) is preferred.

Yours faithfully

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**From:** Bruce Zhang <[Bruce.Zhang@planning.nsw.gov.au](mailto:Bruce.Zhang@planning.nsw.gov.au)>

**Sent:** Friday, 13 December 2019 12:04 PM

**To:** Cornelis Duba <[Cornelis.Duba@endeavourenergy.com.au](mailto:Cornelis.Duba@endeavourenergy.com.au)>

**Subject:** Oakdale West Estate Modification 2 (SSD 7348 MOD 2) (Penrith City Council) - Request for Advice

Dear Sir/Madam

The Department of Planning, Industry and Environment has received an Environmental Assessment (EA) for the Oakdale West Estate Modification Application (SSD 7348 MOD 2)

The EA will be publicly exhibited from Friday 13/12/2019 to Friday 31/01/2020.

The EA can be viewed on the Department's Major Projects site at <https://www.planningportal.nsw.gov.au/major-projects/project/25911>.

The Department invites you to advise on the proposal, including advice on recommended conditions by 31/01/2020.

If you have any enquiries, please contact Bruce Zhang at [bruce.zhang@planning.nsw.gov.au](mailto:bruce.zhang@planning.nsw.gov.au).

Kind regards

**Bruce Zhang**

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