The Secretary
NSW Department of Planning, Industry and Environment

20 July 2020

ATTENTION: Paula Bizimis, Senior Planning Officer, Key Sites Assessments

Dear Sir or Madam

I refer to the Department's below email of 18 June 2020 regarding Environment regarding State Significant Development SSD-10425 Tallawong Station Precinct South - Stage 2 detailed design application at 1-15 & 2-12 Conferta Avenue, Rouse Hill (Lots 293 & 294 DP 1213279) in the Blacktown LGA. Submissions need to be made to the Department by 22 July 2020.

Please also refer to Endeavour Energy's submission made to the Department's regarding State Significant Development SSD-9063-Mod-1 for the Tallawong Station Precinct at 1-15 & 2-12 Conferta Avenue, Rouse Hill (Lots 293 & 294 DP 1213279) in the Blacktown LGA for Modification to the approved Concept Plan for Tallawong Station Precinct South (SSD 9063).

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

- To 1-15 Conferta Avenue (Lot 293 DP 1213279) there are:
    - No easements benefitting Endeavour Energy (active easements are indicated by red hatching).
    - Low voltage underground cables to the Conferta Avenue road verge / roadway.
    - Low voltage and 132,000 volt / 132 kilovolt (kV) high voltage underground cables and underground pilot cables (carrying protection signals or communications between substations) to the Schofields Road road verge / roadway.
    - Low voltage, 22,000 volt / 22 kV high voltage and 132,000 volt / 132 kilovolt (kV) high voltage underground cables and underground pilot cables to the Cudgegong Road road verge / roadway.

- To 2-12 Conferta Avenue, Rouse Hill (Lot 294 DP 1213279) there are:
    - No easements benefitting Endeavour Energy.
    - Low voltage and 22 kV high voltage underground cables to the Themeda Avenue road verge / roadway.
    - Low voltage underground cables to the Aristida Street and Cudgegong Road road verges / roadways.

- It is opposite Endeavour Energy's Rouse Hill Switching Station located at 83 Schofields Road Rouse Hill (Lot 1 DP 1175409) on the corner of Cudgegong Road.

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).

Please find attached copies of Endeavour Energy's submissions made to the Department on:

- 9 August 2018 regarding Concept State Significant Development Application (SSD) for the Tallawong Station Precinct South, located at 69-79 Schofields Road, Rouse Hill in the Blacktown Local Government Area (Lots 13, 14 & 15 DP 1168129, Lot 10 DP 1185116) for a mixed-use precinct located south of the approved Tallawong Station.

- 16 November 2018 regarding the Response to Submissions for Sydney Metro Tallawong Station Precinct South (SSD 9063) - Rouse Hill.

The recommendations and comments provided therein remain valid.

As an adjoining or nearby owners and occupiers, whilst Endeavour Energy is not necessarily opposed to the Development Application, it does have concerns over the traffic impact. The Traffic and Parking Impact Assessment Report provides the following summary of the proposed parking and assessment of the current commuter car parking.

Table 3: Proposed parking

Land Use	Concept SSD 9063 Approval requirment	SSD 9063 rates	RMS Guide Requirement (based on proposal)	Council DCP Requirement (based on proposal)	Proposed Parking
Residential sub total	1,144	919	1,037	1,238	1,068
Non-Residential total	143	143	345	348	300
Total	**1,287**	**1,062**	**1,382**	**1,586**	**1,368**

4.3 Tallawong Station existing commuter car parks

In summary we undertook a car park survey on Thursday 12 March 2020 with the following results:

- Informal car parking on the opposite side of Cudgegong Road to the development site – 108 vehicles parked at 4:15pm
- On street parking in Cudgegong Road stretching from Sydney Metro to Rouse Road (400m) – 64 cars parked at 4:15pm.

The car parking survey reveals that the 1,000 existing car parking spaces located at the Tallawong Station are already at capacity (with the exception of the accessible spaces in P1 which remained vacant) with a substantial overflow of all-day parking currently occurring onto the surrounding street network and adjoining properties during the working week.

Note that this car park survey was also undertaken at a time when the coronavirus was already impacting the use of public transport.

As the report indicates that the moment that the Tallawong Station car parks were completed and opened they were at capacity, even when considering the principles of transit-oriented development etc. it is difficult to imagine that the provision of an additional 81 proposed parking spaces will address these issues and not detrimentally impact the on-street parking and the surrounding road network.

Given the likely worsening of the car parking situation, the remaining original section of Cudgegong Road to which Endeavour Energy's Rouse Hill Switching Station retains a significant frontage could become subject to increased informal car parking and possibly impact on ready access required.

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

- Network Capacity / Connection

Endeavour Energy has noted the following in the Statement of Environmental Effects:

8.1.2 State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Public Utility Infrastructure

Clause 6.1 states that the consent authority must not grant development consent to development unless it is satisfied that essential public utility infrastructure is available or that adequate arrangements have been made to ensure the infrastructure is provided when required.

A Utilities Report accompanied the Concept Proposal application which outlined the public utility infrastructure, particularly water, electricity, sewage, gas and telecommunications services that are available for the development.

In addition, in preparation for the construction of the project further investigations have been undertaken as follows:

- DEP Consulting have been engaged as the Level 3 Accredited Service Provider to undertake the design of the electrical infrastructure & power supply for the overall Tallawong Station Precinct. DEP Consulting has assessed the proposal for the site and has determined that several new Padmount Substations will be required to service the entire development. The Substations will be positioned wholly within the development and will be designed to be installed to meet the staging requirements of the development. The Substations, the associated High & Low Voltage network extensions and public roadway streetlighting will be designed to comply with Endeavour Energy construction requirements.

The Services DA Report Electrical & Mechanical Services includes the following advice:

4.3 PRECINCT ELECTRICAL ARRANGEMENTS

4.3.1 Maximum Demand

Preliminary maximum demand calculations have been undertaken for each stratum as denoted in the section above based on the latest architectural drawings revision S.

The preliminary maximum demand as included below provides a breakup of the theoretical electrical demand the stratums are expected to require for operation. The below table summarises the calculations:

	Maximum Demand (Amps)	Maximum Demand (kVA)
Site 1A	1624 A	1300 kVA
Site 1B	3689 A	2576 kVA
Site 2A	1277 A	886 kVA
Site 2B/2C/2E	2324 A	1613 kVA
Site 2D	1296 A	899 kVA
Total Maximum Demand	8933 A	7141 kVA
Diversity Factor	0.8	0.8
Diversified Maximum Demand	7146 A	5713 kVA

Table 1: Preliminary Maximum Demand

The following assumptions were taken for the above calculation:

- Residential A/C rated at 13A/phase per unit
- Retail load rated at 200VA/m2
- Supermarket load rated at 1000 Amps
- Communal Lighting rated at 15VA/m2
- Lift Load is 32A/ph

The above calculations were assessed on a kVA/apartment and VA/m^2 for the basement areas and are in accordance with AS3000 Table C3 and Endeavour Energy standards.

We have assessed the most recent drawings (from Rev S of the latest architectural drawings) and an A/C load of 13 Amps per apartment (advised by mechanical consultant). We have applied a diversity factor of 0.8 which is generally a conservative diversity factor for residential loads.

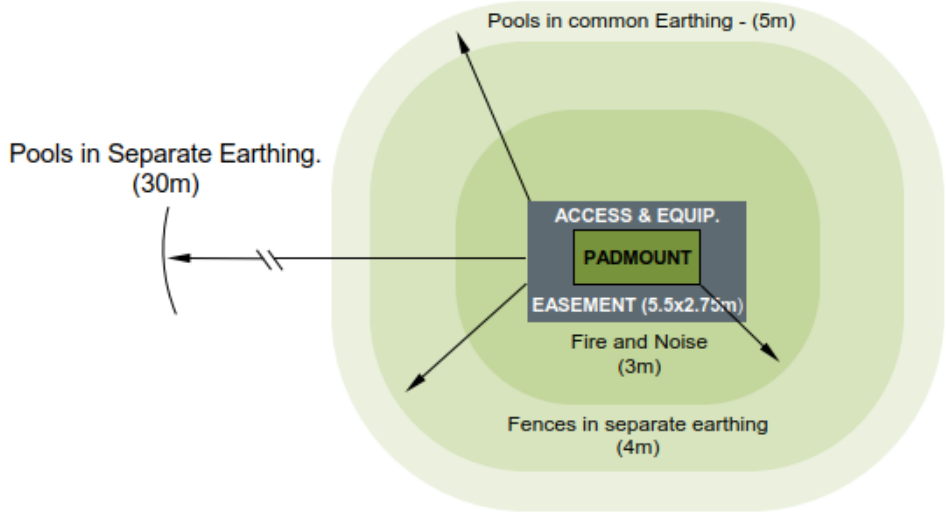
By adjusting the diversity factor, it limits the flexibility of increasing the electrical load of final selection of equipment and architectural changes.

From the Architectural Package it appears that provision has been made for 7 padmount substations in 5 locations ie. there are 2 locations with dual transformers. With the exception of the one proposed location fronting Cudgegong Road, to meet the requirements of the padmount substation fire restriction, fire rated construction will be required to the adjoining buildings.

As shown in the following Figure A4.3 'Padmount easements and clearances', from Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights', padmount substations require:

- Easement with a minimum size of 2.75 x 5.5 metres (single transformer)
- Restriction for fire rating which usually extends 3 metres horizontally from the base of the substation footing and 6 metres vertically from the same point.
- Restriction for swimming pools which extends 5 metres from the easement.

A4.3 - Padmount easements and clearances



Accordingly the applicant must as part of the padmount substation design / approval provide an engineer's certificate identifying that all the parts of the building within the fire restriction meet the appropriate fire rating. Endeavour Energy's experience is that the location of any openings or glazing within the fire restriction make it difficult to achieve the required fire ratings.

Traditionally Endeavour Energy's preference has been for the utilisation of padmount substations. For new developments particularly within town centres and central business districts where zero and minimal building setbacks are allowed (and which given their size makes the provision of the easements and restrictions for a padmount substation difficult to achieve on site).

Endeavour Energy's recommendation is for the distribution substation locations consideration be given to the use of an indoor substation. Whilst indoor substations are predominantly utilised for commercial / office type development, in May 2017 Endeavour Energy's Mains Design Instruction MDI 0028 'Underground distribution network design' was amended to allow certain types of urban multi residential load (UML) (mixed use) developments to utilise either indoor substations where a padmount substation is not practicably possible.

In regard to the solar photovoltaic (PV) systems will be installed on the roof of each building to reduce the development energy demand, Endeavour Energy allows connection of up to 8 kW total panels to a 5 kW inverter or up to 40 kW total panels to a 30 kW inverter. If the applicant's connection requirements are other than these, an application for a micro embedded generator connection service will be required.

- Network Asset Design

Endeavour Energy's Company Policy 9.2.5 'Network Asset Design', includes the following updated 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.

- Flooding and Drainage

Endeavour Energy's response to flood events is based on electricity supply being maintained as long as practicable consistent with the safety of employees, general public and emergency services personnel. This involves rearranging of the network and isolation of electrical assets to prevent any electrical accidents. Once isolated during a flood, restoration of supply can only occur once the flood waters have receded and the area has been patrolled clear and flooded installations inspected. Any damage to the electrical assets will be repaired as soon as possible after the flood. The response is aimed at eliminating or reducing the number and duration of customer service interruptions from flooding impacts, particularly to other critical infrastructure / services and life support customers. Accordingly flood mitigation strategies should seek to minimise any impact on electricity infrastructure and assists in maintaining road access to the critical infrastructure in order to allow for electricity supply to be maintained for a longer period and quicker restoration of supply.

Whilst the Flood Impact Assessment does address the likely flood impacts on 'Area 5 – Council Owned SP2 Lands' being the area east of Cudgegong Road, it does not appear to specifically address the Rouse Hill Switching Station site which is also located to the east of Cudgegong Road. The Assessment indicates there will be post development impacts which are deemed to be considered to be acceptable. However, it is imperative that as a result there is no worsening of the existing flood impacts on the nearby properties / existing development. Reducing the effectiveness of flood conveyance or flood storage areas increases the risk of property damage to other parties – which is of particular concern for the Rouse Hill Switching Station. This issue needs to be specifically addressed and Endeavour Energy should determine if any impacts are considered to be acceptable to the Rouse Hill Switching Station.

Area 5 – Council Owned SP2 Lands

The proposed development will discharge more runoff to the drainage easement east of Cudgegong Road, resulting in slightly elevated flood levels (30mm increase) when compared to existing conditions. This is associated with a low hydraulic hazard and it is contained within SP2 drainage lands which are designated for a flood and drainage management purpose.

On these grounds, the impact the impact is considered to be acceptable.

FIGURE A5 FLOOD LEVEL DIFFERENCE – 1% AEP

KEY

- Site Boundary
- SP2 zoned land
- Existing stormwater pipe
- Proposed stormwater pipe

Impacts (m)

-2.8 - -2.3	0.01 - 0.03
-2.3 - -0.5	0.03 - 0.1
-0.5 - -0.25	0.1 - 0.25
-0.25 - -0.1	0.25 - 0.5
-0.1 - -0.03	0.5 - 1.2
Wet Dry	
-0.03 - -0.01	Was wet, now dry
-0.01 - 0.01	Was dry, now wet

- Prudent Avoidance

Endeavour Energy has noted that in the Environmental Impact Statement Section 4.3 'Surrounding Development' mentions 'To the east of Cudgegong Road is an Endeavour Energy Substation and the Second Ponds Creek reserve'. Besides the following photograph there is no apparent further mention of Rouse Hill Switch Station or of the Feeder 9JA 132 kV high voltage overhead power lines.

Photograph 12:

The Endeavour Energy Substation to the east of Cudgegong Road

In addition, as mentioned in Endeavour Energy's submission made to the Department's regarding State Significant Development SSD-9063-Mod-1 for the Tallawong Station Precinct South, the increase of building heights to the western site of Cudgegong Road are not in keeping with the principles of prudent avoidance to electricity infrastructure.

Endeavour Energy has noted that the Acoustical Report does not appear to refer to the existing electricity infrastructure in proximity of the site. Although the Rouse Hill Switching Station currently operates without transformers, overhead power lines can produce an audible sound or buzz as a side effect of carrying electricity. The sound can be louder if there is increased moisture (during rain, fog, frost etc.) or pollutants in the air. The sound usually occurs at the poles at the insulators supporting the power lines and increase at higher voltages. In this instance whilst the acoustical requirements related to the proximity of the site to the Tallawong Station and the Metro North West Line would also address any issues related to the electricity infrastructure, with increasing density and building heights Endeavour Energy believes it is still worth considering.

Endeavour Energy has also noted that the Acoustic Report in regard to the Mechanical Plant and Building Use Noise Impacts includes the following advice and this should similarly apply to the distribution substations required to facilitate the proposed development.

6.3 DESIGN SCENARIOS

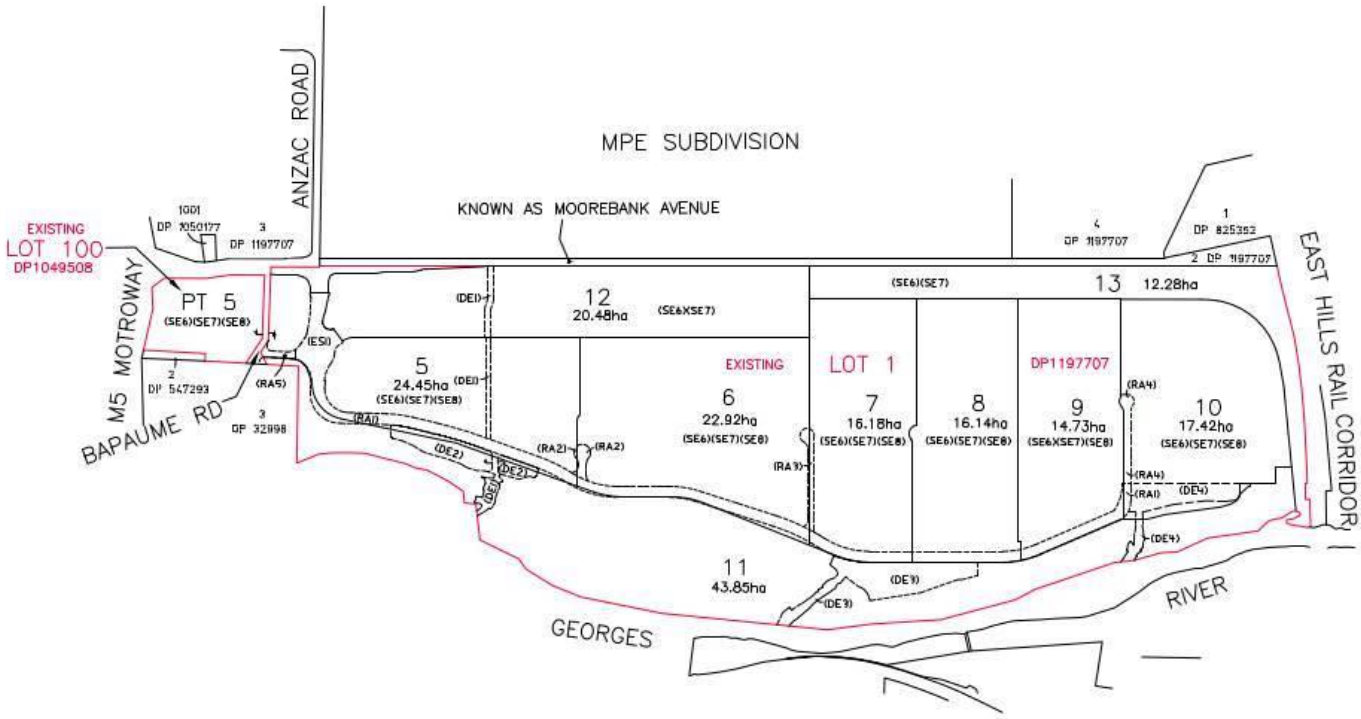
Mechanical plant noise assessment is normally undertaken once final mechanical design and specification have been completed for CC Stage.

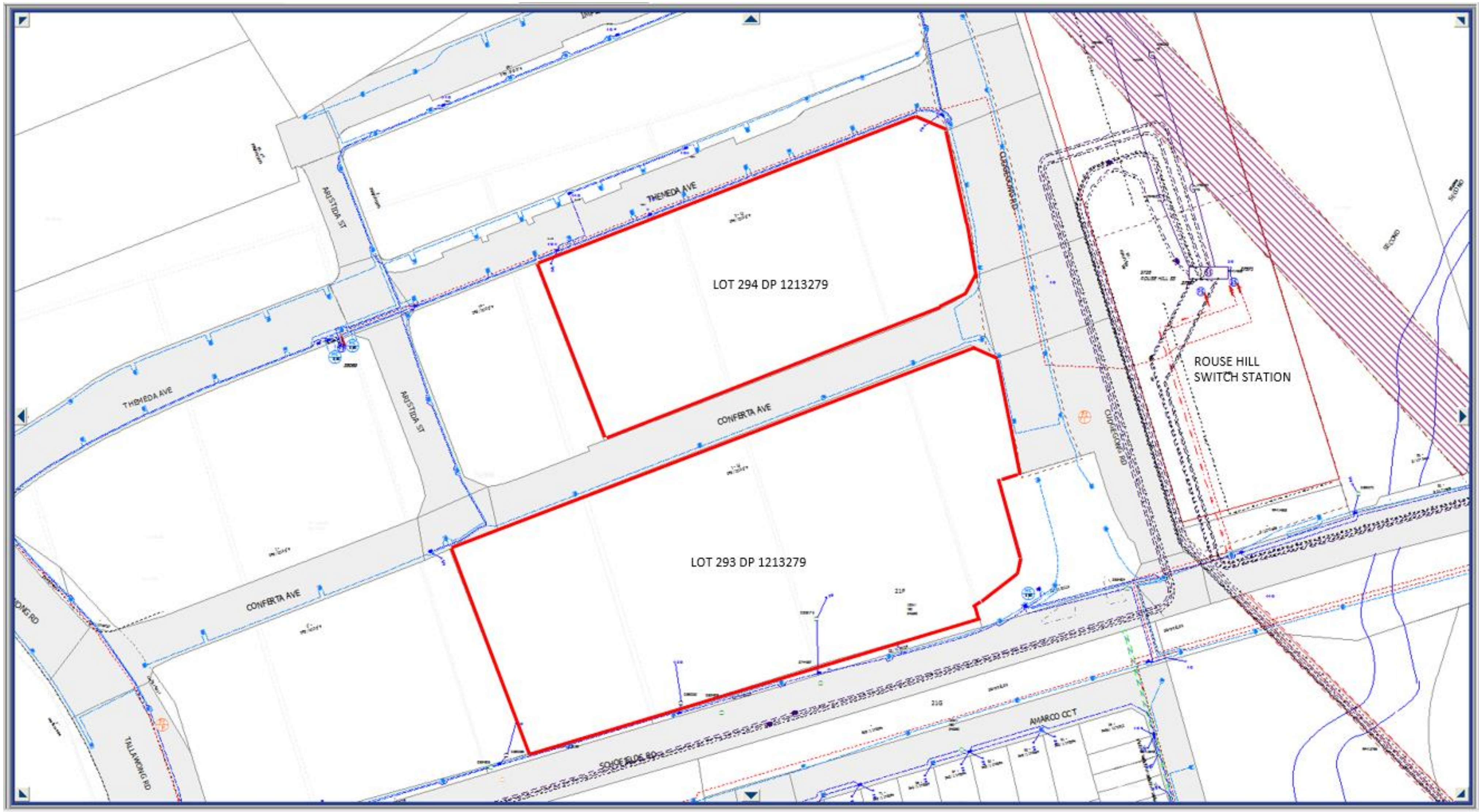
Should you wish to discuss this matter, or have any questions, please do not hesitate to contact me or the contacts identified above in relation to the various matters. Due to the high number of development application / planning proposal notifications submitted to Endeavour Energy, to ensure a response 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
Development Application Specialist
Network Environment & Assessment
M: 0455 250 981
E: cornelis.duba@endeavourenergy.com.au
51 Huntingwood Drive, Huntingwood NSW 2148
www.endeavourenergy.com.au


MPE SUBDIVISION
ANZAC ROAD
KNOWN AS MOOREBANK AVENUE
EXISTING
LOT 100
DP1049508
PT 5
(SE6)(SE7)(SE8)
M5 MOTROWAY
BAPAUME RD
EAST HILLS RAIL CORRIDOR
12
20.48ha
(SE6XSE7)
13
12.28ha
(SE6)(SE7)
5
24.45ha
(SE6)(SE7)(SE8)
EXISTING
LOT 1
DP1197707
6
22.92ha
(SE6)(SE7)(SE8)
7
16.18ha
(SE6)(SE7)(SE8)
8
16.14ha
(SE6)(SE7)(SE8)
9
14.73ha
(SE6XSE7)(SE8)
10
17.42ha
(SE6)(SE7)(SE8)
11
43.85ha
GEORGES
RIVER



LOT 294 DP 1213279
LOT 293 DP 1213279
ROUSE HILL
SWITCH STATION
THEMEDA AVE
CONFERTA AVE
ARISTIDA ST
SCHOFIELDS RD
AMARCO CCT
TALLAWONG RD

From: Cornelis Duba
Sent: Thursday, 9 August 2018 1:18 PM
To: 'information@planning.nsw.gov.au' <information@planning.nsw.gov.au>
Cc: Simon Lawton <SIMON.LAWTON@endeavourenergy.com.au>; Steven Baker <Steven.Baker@endeavourenergy.com.au>
Subject: NSW Department of Planning and Environment Notice of Exhibition Tallawong Station Precinct South (SSD 9063)

The Secretary
NSW Planning & Environment

ATTENTION: Annie Leung, Team Leader, Key Sites Assessments

Dear Sir or Madam

I refer to the Department's letter of 10 July 2018 regarding Concept State Significant Development Application (SSD) for the Tallawong Station Precinct South, located at 69-79 Schofields Road, Rouse Hill in the Blacktown Local Government Area (Lots 13, 14 & 15 DP 1168129, Lot 10 DP 1185116) for a mixed-use precinct located south of the approved Tallawong Station comprising:

- Maximum building envelopes for up to 16 buildings, including building heights up to 8 storeys, street-walls and setbacks;
- Allocation of up to 85,000m2 of residential and 9,000m2 of non-residential gross floor area;
- An indicative residential yield of 1,100 dwellings, including affordable housing;
- Road layouts, landscape concept for public and private domain, including a 2,900m2 central park; and
- Allocation of car parking and bicycle parking rates.

Note: the application is for concept only and does not including any construction works.

Submissions need to be made to the Department by 9 August 2018.

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

- No easements over the site benefitting Endeavour Energy (active easements are indicated by red hatching).
- To the Schofields Road road verge / roadway:
    - Low voltage underground cables.
    - 11,000 volt / 11 kV high voltage underground cables to the corner of Cudgegong Road.
- To the Cudgegong Road road verge / roadway:
    - Low voltage underground cables.
    - Low voltage overhead power lines.
- Underground earth cables and underground pilot cables (carrying protection signals or communications between substations) to the both Schofields Road and Cudgegong Road.
- The Cudgegong Road frontage of the site is opposite Endeavour Energy's Rouse Hill Switching Station at 83 Schofields Road Rouse Hill (Lot 1 DP 1175409) and 132,000 volt / 132 kV overhead Feeder 9JA – Vineyard to Rouse Hill Switching Station.

Please note the location, extent and type of any electricity infrastructure, boundaries etc. shown on the plan is indicative only. 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).

As an adjoining or nearby owners and occupiers, the main area of concern which Endeavour Energy has is in relation to the access arrangements to the Rouse Hill Switching Station.

Endeavour Energy has noted the following in the Environmental Impact Statement:

> 1.3.2. Relationship between SSI-5414 Approved Works and Concept Proposal
>
> The approved works under the *North West Rail Link – Stations, Rail Infrastructure and Systems* CSSI (SSI_5414) are as follows:
>
> - Widening and realignment of Cudgegong Road from Schofields Road to just north of the rail corridor to provide two traffic lanes in each direction

The road widening and realignment being illustrated in the following extract of the Urban Design Report.

Access to the Rouse Hill Switching Station has previously been affected by the road widening and/or realignment of both Schofields Road (the original site access) and Cudgegong Road. As a result of these previous road works the current access to the site is off Cudgegong Road with a crossing over the original road alignment which is shown in the following extracts of Google Maps Street View.

Access to Rouse Hill Switching Station needs to be maintained at all times. Endeavour Energy will require reasonable notice if any of the road works will affect the access to the site to ensure arrangements are in place to maintain access ie. particularly in the event of an emergency. For safety and security reasons access to the site is restricted. Should access to the site be required by any consultants or contractors, it can only occur with Endeavour Energy's prior consent and under direct supervision.

For any enquiries in regards to Endeavour Energy's Rouse Hill Switching Station please contact:

- Simon Lawton, Strategic Property Manager, on direct telephone 9853 7819 or alternately email SIMON.LAWTON@endeavourenergy.com.au and/or Property@endeavourenergy.com.au for any property tenure issues.
- Steven Baker, Transmission Manager North, on direct telephone 9853 7101 or alternately email Steven.Baker@endeavourenergy.com.au and/or Regional.ServicesNorth@endeavourenergy.com.au for any access or technical issues.

As Endeavour Energy's Rouse Hill Switching Station is a non-habitable building / site it is comparatively less impacted by the proposed development of the Precinct. Endeavour Energy is not necessarily opposed to the Development Application but in regards to the appropriate development controls and the impact of the proposed development on adjoining or nearby owners and occupiers, it will leave such determination to the Department / Council.

In regards to Endeavour Energy's role as an electricity supply authority, subject to the following recommendations and comments Endeavour Energy has no objection to the Development Application.

- Network Capacity / Connection

  In regards to the availability of electricity supply to sites within the Precinct, the availability of supply to a site is based on a wide range of factors eg. the age and design of the network; other development in the locality utilising previously spare capacity within the local network; the progress of nearby / surrounding sites including electricity infrastructure works eg. a smaller and isolated development that may not of its own accord require a padmount substation may require a padmount substation to facilitate the development and from which the spare capacity is made available to subsequent nearby development. Older / above ground areas of the network utilising pole mounted substations have comparatively limited capacity of 25 kilovolt amperes (kVA) up to a maximum of 400 kVA where as a newer padmount substation can accommodate loads from 315 kVA up to 1,500 kVA (typically 500 kVA) ie. there is a significant variation in the number and type of premises able to be connected to a substation.

In due course the applicant for the future proposed development of the sites within the Precinct will need to submit an application for connection of load via Endeavour Energy's Network Connections Branch to carry out the final load assessment and the method of supply will be determined. Depending on the outcome of the assessment, any required padmount or indoor / chamber substation/s will need to be located within the property (in a suitable and accessible location) and be protected (including any associated cabling) by an easement and associated restrictions benefiting and gifted to Endeavour Energy. Please refer to Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights'. Further details are available by contacting Endeavour Energy's Network Connections Branch via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm or on Endeavour Energy's website under 'Home > Residential and business > Connecting to our network' via the following link:

http://www.endeavourenergy.com.au/

- Urban Residential Subdivision

Urban residential subdivision of a site is subject to Endeavour Energy Underground Residential Distribution (URD) policy. Endeavour Energy's Company Policy 9.2.5 'Network Asset Design', includes the following requirements for electricity connections to new residential subdivisions:

5.11.1.1 Urban areas

Reticulation of new residential subdivisions will be underground. In non-bushfire prone areas, new lines within existing overhead areas can be overhead, unless underground lines are cost justified or required by 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.

CCT = Covered conductor thick with insulation fully rated for the voltage on the conductor.
NMSHVABC = Non-metallic Screened High Voltage Aerial Bundled Cable.

Table 2 – Distribution Network Design Parameters Summary

Limits	Urban	Industrial and commercial	Non-urban
Default HV reticulation	U/G	U/G	O/H
Default LV reticulation	U/G	U/G	O/H – ABC

Non-urban
Any area that is identified as rural land zoning

- Location of Electricity Easements

The incorporation of electricity easements into privately owned lots eg. for padmount substations and associated underground cables likely to be required to facilitate the proposed development, 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 (except where they are remnant lots or not subject to development). 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 it generally does not support the incorporation of easements into to multiple / privately owned lots.

The future proposed substation locations on a site will require a detailed assessment to consider the suitability of access, safety clearances, fire ratings, flooding (please refer to the following point 'Flooding and Drainage) impact on adjoining properties etc. For example, to avoid the creation of restrictions on the adjoining site the development shown in the following extract of Google Maps Street View is of a site in Liverpool required the installation of a fire wall next to the padmount substation. Whilst meeting the fire rating requirements etc. from an aesthetics perspective this is not an attractive outcome. Restricted access to the substation by maintenance workers causes delays in power restoration and may have severe consequences in the event of an emergency. Delays to accessing electricity infrastructure due to traffic congestion may also have severe consequences in the event of an emergency.

Fire wall constructed for padmount substation in Liverpool. Source: Google Maps Street View.

- Flooding and Drainage

Endeavour Energy has noted that the Environmental Impact Statement indicates that a Flood Impact Assessment has been undertaken by AECOM which identifies that the site is located outside the 1% and PMF flood extent of Second Ponds Creek to the east with flood modelling of the local overland flow paths has been undertaken to identify the 1% AEP flood level with 50% blockage of stormwater pipe network and a 15% increase in rainfall intensity to reflect possible climate change impacts.

Distribution substation should not be subject to flood inundation ie. the padmount substation cubicles are weather proof not flood proof. Endeavour Energy's Mains Construction Instruction MCI 0006 'Underground distribution construction standards manual' Section 7 'Substation and switching stations' provides the following details of the requirements for new padmount substation locations in flood prone land.

7.1.6 Flooding and drainage

Substations are to be located such that the risk of flooding or stormwater damage is minimal.

As a minimum the level at the top of the transformer footing, HV and LV switchgear, shall not be lower than the 1:100 year flood level.

All drains within the substation site area or in the vicinity shall be properly maintained to avoid the possibility of water damage to Endeavour Energy's equipment.

In areas where, as determined by the Network Substation Manager, there is a high water table or a heightened risk of flooding, indoor substations will not be permitted.

All materials used in the construction below the substation (ground level) shall be capable of withstanding prolonged immersion in water without swelling or deterioration.

Figure 51 - Example substation raised above 1:100 flood level

- Bushfire

Endeavour Energy has noted that the Environmental Impact Statement indicates that 'Parts of the site are identified as "Category 1 Bushfire Prone Vegetation" and "100 metre wide buffer zone to the Category 1 Bushfire Prone Vegetation" under the Blacktown Bushfire Prone Land Map'. The accompanying Bushfire Protection Assessment assessing the impacts of the proposal against the NSW Rural Fire Service (RFS) publication Planning for Bushfire Protection 2006 providing the following advice (please also refer to the above point 'Urban Residential Subdivision'):

> **5.3 Bushfire Protection Assessment for the proposed Medium Density Residential Development.**
>
> The performance criteria for the proposed medium density residential [infill] component of the development are:
>
> ***(5) Water & Utility Services:***
>
> Gas & electricity services are located underground.

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 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 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 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 3000:2007 'Electrical installations' to ensure that there is adequate connection to the earth. Inadequate connection to the earth places persons and the electricity network at risk.

Endeavour Energy is committed to ensuring that its activities and assets conform to all relevant International and Australian Standards, Energy Networks Association (ENA) Standards and NSW legislation. Whilst the earthing of the rouse Hill Switching Station has accordingly been designed within the site boundaries, adjoining properties still need to ensure that any building or structure is adequately earthed to prevent electromagnetic induction and transferred voltage hazards.

- Prudent Avoidance

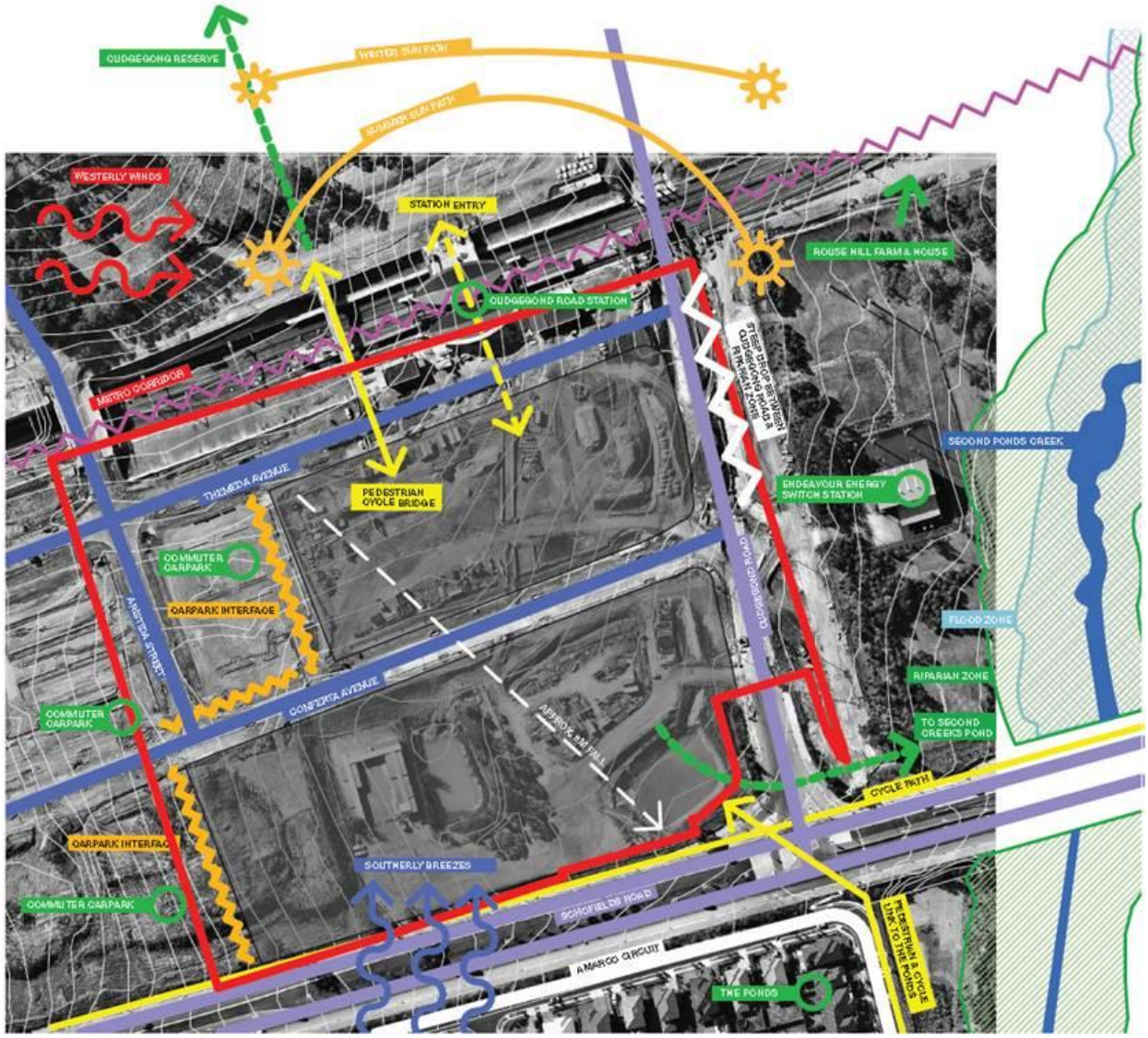
The electricity network is operational 24/7/365 ie. all day, every day of the year. The electricity industry has adopted a policy of prudent avoidance by doing what can be done without undue inconvenience and at modest expense to avert the possible risk to health from exposure to emissions form electricity 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 locating them where exposure to the more sensitive uses is reduced and increasing separation distances. These emissions are generally not an issue but with Council's permitting or encouraging development with higher density, reduced setbacks and increased building heights, new development can impact on existing electricity infrastructure. Where development is proposed in the vicinity of electricity infrastructure, Endeavour Energy is not responsible for any amelioration measures for such emissions that may impact on the nearby proposed development. Endeavour Energy believes that likewise Council should also adopt a policy of prudent avoidance by the siting of more sensitive uses away from any electricity infrastructure.

Please find attached a copy of ENA's 'Electric & Magnetic Fields – What We Know, January 2014' which can also be accessed via the ENA's website at http://www.ena.asn.au/ and provides the following advice:

> *Localised EMFs may also be encountered in specific situations such as near substations, underground cables, specialised electrical equipment, or at elevated locations near lines. Note that the strengths of EMFs decrease rapidly with distance 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.

Endeavour Energy has noted that the Environmental Impact Statement does not appear to mention the proximity to Rouse Hill Switching Station or Feeder 9JA. The Urban Design Report as shown in the following extract of the Site Analysis Plan shows 'Endeavour Energy Switch Station' but there appears to be no detail / discussion about a 'complimentary interface' between the Rouse Hill Switching Station / Feeder 9JA and the buildings to the opposite side of Cudgegong Road.



- 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. 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 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.

In regards to the future padmount substations required to facilitate the proposed development please refer to the attached copy of 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 or other utility infrastructure across the site, but also to identify them as a hazard and to properly assess the risk.

- Demolition

Demolition work is to be carried out in accordance with Australian Standard AS 2601—2001 ' The demolition of structures'. All electric cables or apparatus which are liable to be a source of danger, other than a cable or apparatus used for the demolition works shall be disconnected ie. the existing customer service lines will need to be isolated and/or removed during demolition. Appropriate care must be taken to not otherwise interfere with any electrical infrastructure on or in the vicinity of the site eg. streetlight columns, power poles, overhead and underground cables etc.

- Public Safety

As the proposed development will involve work near electricity infrastructure, workers 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, as part of a public safety initiative Endeavour Energy has set up an email account that is accessible by a range of multiple 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

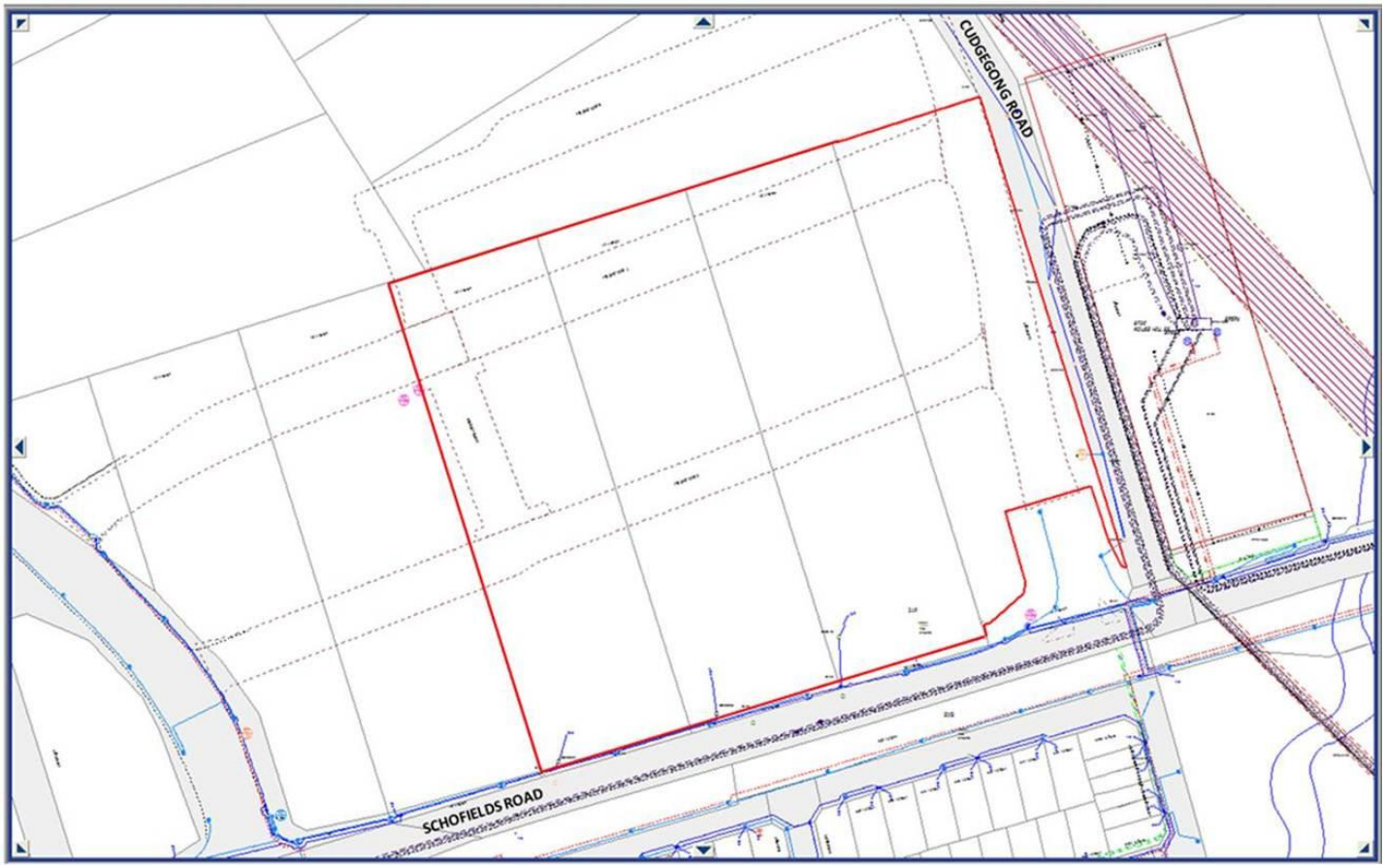
In case of an emergency relating to Endeavour Energy's electrical network, the applicant should note the Emergencies Telephone is 131 003 which can be contacted 24 hours/7 days.

I appreciate that not all the foregoing issues may be directly relevant or significant to the rezoning proposal, 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 proposed electricity infrastructure required to facilitate the proposed development on or in the vicinity of the Precinct occur.

Should you wish to discuss this matter, or have any questions, please do not hesitate to contact me or the telephone numbers identified in the above in relation to the various matters. As I am working on different projects across the company's franchise area, to ensure a response contact by email is preferred.

Yours faithfully
Cornelis Duba
Development Application Review
Network Environment & Assessment
T: 9853 7896
E: cornelis.duba@endeavourenergy.com.au
51 Huntingwood Drive, Huntingwood NSW 2148
www.endeavourenergy.com.au

Endeavour Energy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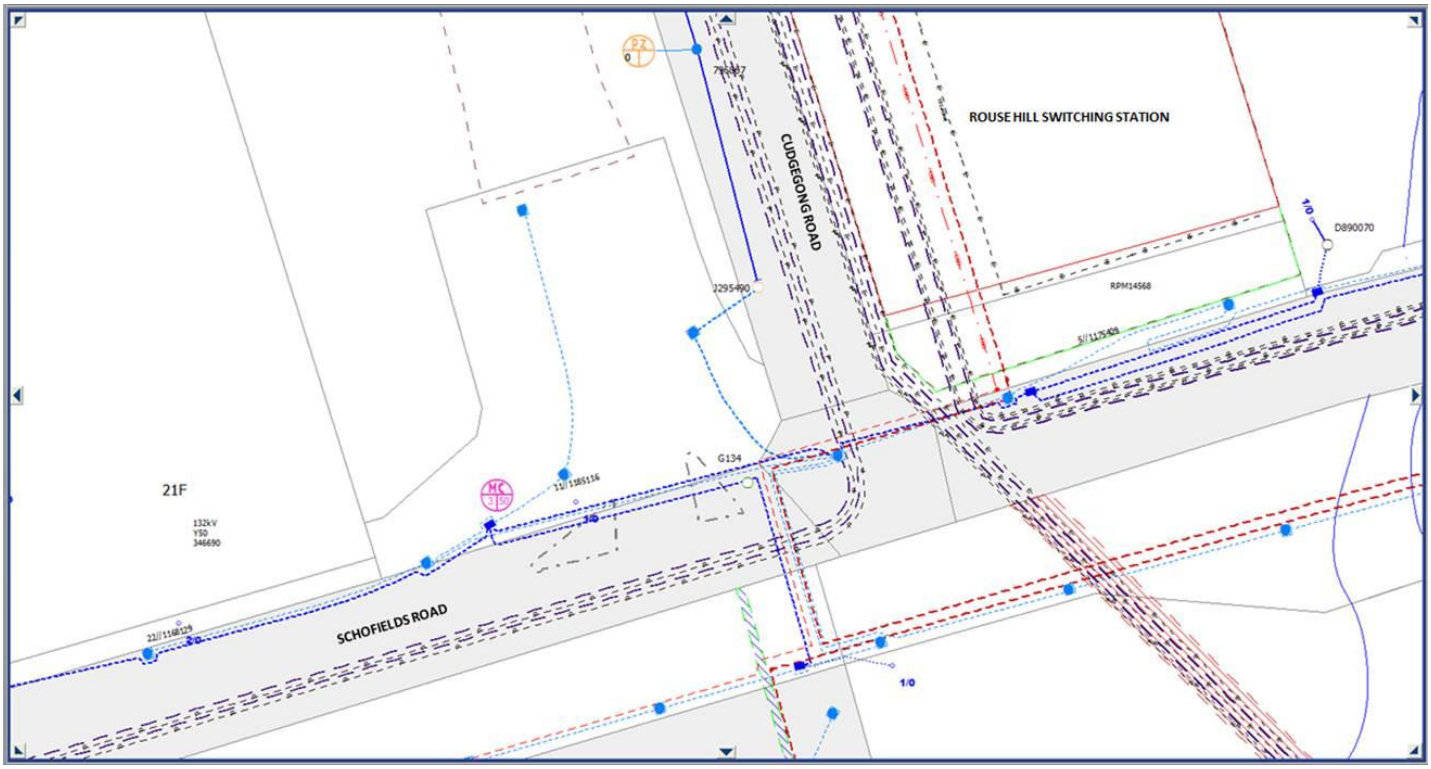
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RPM14568
G134
21F
132kV
YS0
346690
1/0

From: Cornelis Duba
Sent: Friday, 16 November 2018 11:17 AM
To: 'paula.bizimis@planning.nsw.gov.au' <paula.bizimis@planning.nsw.gov.au>
Cc: 'information@planning.nsw.gov.au' <information@planning.nsw.gov.au>
Subject: NSW Department of Planning & Environment Response to Submissions for Sydney Metro Tallawong Station Precinct South (SSD 9063) - Rouse Hill

Hello Paula

I refer to the Department's letter of 8 November 2018 regarding the Response to Submissions for Sydney Metro Tallawong Station Precinct South (SSD 9063) - Rouse Hill for which submissions need to be made by 21 November 2018.

I have been to the Department's website and reviewed the Response to Submissions documents and noted that as shown in the following extract of the Appendix I 'Engineering Issues' that all the items included in the attached copy of Endeavour Energy's submission of 9 August 2018 have been noted and / or addressed.

AECOM

Cudgegong Engineering
Tallawong Station Precinct South – Response to Submissions: Engineering Items

Table of Contents

In regards to the further assessment and determination of SSD 9063, Endeavour Energy's major priorities are addressing:

- Access to the Rouse Hill Switching Station has previously been affected by the road widening and/or realignment of both Schofields Road (the original site access) and Cudgegong Road.

- The creation of a 'complimentary interface' between the Rouse Hill Switching Station / Feeder 9JA and the buildings to the opposite side of Cudgegong Road.

Should you wish to discuss this matter, or have any questions, please do not hesitate to contact me or the contacts identified in the attachment 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.

Kind regards
Cornelis Duba
Development Application Specialist
Network Environment & Assessment
T: 9853 7896
E: cornelis.duba@endeavourenergy.com.au
51 Huntingwood Drive, Huntingwood NSW 2148
www.endeavourenergy.com.au

Endeavour Energy

From: Paula Bizimis <Paula.Bizimis@planning.nsw.gov.au>
Sent: Thursday, 18 June 2020 10:01 AM
To: Paula Bizimis <Paula.Bizimis@planning.nsw.gov.au>
Subject: Public exhibition of Tallawong Station Precinct South - Modification Application and Stage 2 Detailed Design Application

Dear Sir/Madam

The Department of Planning, Industry and Environment has received a Modification Application (SSD-9063-Mod-1) and the Stage 2 – Detailed Design Application (SSD-10425) for the Tallawong Station Precinct South development.

The Modification Application and Stage 2 – Detailed Design Application will be publicly exhibited from **25 June 2020** to **22 July 2020**.

The Modification Application and Stage 2 Detailed Design Application can be viewed on the Department's Major Projects site from **25 June 2020**.
If you wish to view the documents prior to this date, you will need to register an account on the Major Projects site. A User Guide is attached for your reference.

The Department invites you to comment on the applications, including advice on recommended conditions by **22 July 2020**.

If you have any enquiries, please contact Paula Bizimis on 92746254 or at paula.bizimis@planning.nsw.gov.au.

Paula Bizimis
Senior Planning Officer
Key Sites Assessments | NSW Planning, Industry & Environment
4 Parramatta Square |12 Darcy Street | Parramatta NSW 2150
T 02 9274 6254 **E** paula.bizimis@planning.nsw.gov.au
www.dpie.nsw.gov.au

NSW GOVERNMENT | Planning, Industry & Environment

The Department of Planning, Industry and Environment acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.