

City Manager
Fairfield City Council

26 July 2021

ATTENTION: Lilyan Abosh

Dear Sir or Madam

I refer to the referral of 5 July 2021 from NSW Planning, Industry & Environment regarding NSW Government concurrence and referral request CNR-24648 for Fairfield City Council Development Application DA 234.1/2021 at NEW LEAF ESTATE – 26 BEAN CRESCENT, BONNYRIGG (Lot: 6225 DP: 1242892) for 'Removal of sections of existing infrastructure including roads, drainage, services utilities and trees. Bulk earthworks, road construction and relocation/upgrade of drainage and services infrastructure. Staged residential subdivision to create 219 residential lots, 3 development lots, 4 open space lots and 1 residual lot, landscape embellishment of open space lots and streets'. Submissions need to be made to Council by 26 July 2021.

Please find attached copies of Endeavour Energy's previous submissions made on:

- 6 July 2020 to NSW Planning, Industry & Environment regarding the Notice of Re-Exhibition Modification to Bonnyrigg Housing Estate Concept Plan (MP06_0046 MOD 5).
- 3 September 2019 to NSW Planning, Industry & Environment regarding Notice of Exhibition for the Modification to the Concept Plan for Bonnyrigg Estate (MP06_0046 MOD 5).
- 6 May 2019 to Council regarding the Public Exhibition of Bonnyrigg Town Centre Planning Proposal and Draft Development Control Plan (DCP).

The recommendations and comments provided therein essentially remain valid.

As shown in the below updated site plans from Endeavour Energy's G/Net master facility model there is extensive electricity infrastructure within the Humphries Precinct. Due to the large area of the Precinct the scale required to show the area makes it difficult to see the detail in the plans. However if Council require more detailed plans of any specific area they can be provided upon request.

Endeavour Energy has noted the Statement of Environmental Effects in the background indicates 'A large proportion of the Project has already been constructed including 548 completed dwellings, another 161 approved or under construction as well as over 7 hectares of new and improved parkland and a new community centre'. Endeavour Energy does not appear to have been notified previously in respect to any of the Development Applications resulting from the Modification to Bonnyrigg Housing Estate Concept Plan, until this notification for Stages 8 to 11 (the Humphries Precinct).

Endeavour Energy has noted the following in the Utility Services Report.

6.2 PROPOSED INFRASTRUCTURE

Based upon the Review of Service Infrastructure Report it is expected that the proposed development can be serviced off the existing Bonnyrigg Zone Substation and no upgrades are required to the zone substation. Furthermore, no new 11kV feeders are anticipated and no major works to the existing network are anticipated external to the site.

As mentioned in Section 6.1 of this report, there are existing private dwellings within the proposed development that are to remain and will require an electrical service to be maintained during construction. The existing social housing dwellings will be demolished prior to the construction works and therefore portions of the existing electrical reticulation will be able to be removed.

The electrical design proposes a total of 4 new pad mounted substations, 3 are 500kVA and one is 1000kVA. The design will utilise a portion of the existing high and low voltage network as well as existing street lights where possible, however the existing network will still require a significant amount of demolition of existing electrical services and the construction of high and low voltage cables, electrical pillars and street lights.

An indicative staged electrical design for the site is shown in **Appendix C**.

Endeavour Energy's Network Connections Branch are responsible for managing the conditions of supply with the proponent and their Accredited Service Provider (ASP) (including any required asset relocations / removals). However the applicant will need to contact Endeavour Energy's Network Connections Branch (via Head Office enquiries on business days from 9am - 4:30pm on telephone: 133 718 or (02) 9853 6666) if this Development Application:

- Includes any contestable works projects that are outside of any existing approved / certified works.
- Results in an electricity load that is outside of any 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.

In regard to the foregoing Endeavour Energy's Asset Planning & Performance Branch has provided the following advice.

Asset Planning & Performance Branch in 2018 prepared a High Voltage (HV) Overlay for the New Leaf Development Community Masterplan.

The last stage processed appears to be for Urban Residential Subdivision URS21144 and generally follows the HV Overlay with the developer making slight deviations with HV feeder cable routes due to positioning of new padmount substations no.s 54236, 54237 and 54238 (as shown in the attached updated site plans from Endeavour Energy's G/Net master facility model) and the unavailability of some masterplan streets. The HV Overlay will be updated with the as-built network.

This proposed new stage(s) must continue to follow the HV Overlay picking up from URS21144 and the Level 3 Accredited Service Provider's designs will be reviewed to ensure the HV Overlay is being (electrically) followed as it progresses towards Humphries Road.

The comment 'no works required to Bonnyrigg Zone Substation' is essentially correct but it is expected the distribution network within the estate will change as the development progresses towards Humphries Road as the case has been so far and as per the HV Overlay.

Subject to the foregoing and the following recommendations and comments Endeavour Energy has no objection to the Development Application.

- Removal of Electricity Supply

Approval for the permanent disconnection and removal of supply must be obtained from Endeavour Energy's Network Connections Branch (contact via Head Office enquiries on business days from 9am - 4:30pm on telephone: 133 718 or (02) 9853 6666) by Accredited Service Providers (ASP) with the relevant class of Authorisation for the type of work being carried out. The work could involve:

- The disconnection and removal of an underground service cable or overhead service line,
- Removal of metering equipment.

The written request must be submitted to Endeavour Energy using Form FPJ4603 'Permission to Remove Service / Metering by Authorised Level 2 Accredited Service Provider' which must be accompanied by Notification of Service Works (NOSW) forms provided as a result of service work activity performed by a Level 2 ASP. The retailer must also provide written agreement for the permanent removal of supply.

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> .

- Site Remediation

Endeavour Energy's Environmental Business Partner Team have advised that the remediation of soils or surfaces impacted by various forms of electricity infrastructure is not uncommon but is usually not significant eg. transformer oil associated with leaking substations, pole treatment chemicals at the base of timber poles etc. The method of remediation is generally the removal of the electricity infrastructure, removal of any stained surfaces or excavation of any contaminated soils and their disposal at a licensed land fill. The decommissioning and removal of the redundant electricity infrastructure will be dealt with by Endeavour Energy's Network Connections Branch as part of the application for the connection of load for the new development.

If the applicant has any concerns over the remediation works related to redundant electricity infrastructure they should contact Environmental Business Partner Team via Head Office enquiries on business days from 9am - 4:30pm on telephone: 133 718 or (02) 9853 6666.

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 (and Council) 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 COVID-19 health risk a significant number of Endeavour Energy staff are working from home. Access to emails and other internal stakeholders can accordingly be somewhat limited. As a result it may sometimes take longer than usual to respond to enquiries. Thank you for your ongoing understanding during this time.

Yours faithfully

Cornelis Duba

Development Application Specialist

Network Environment & Assessment

M: 0455 250 981

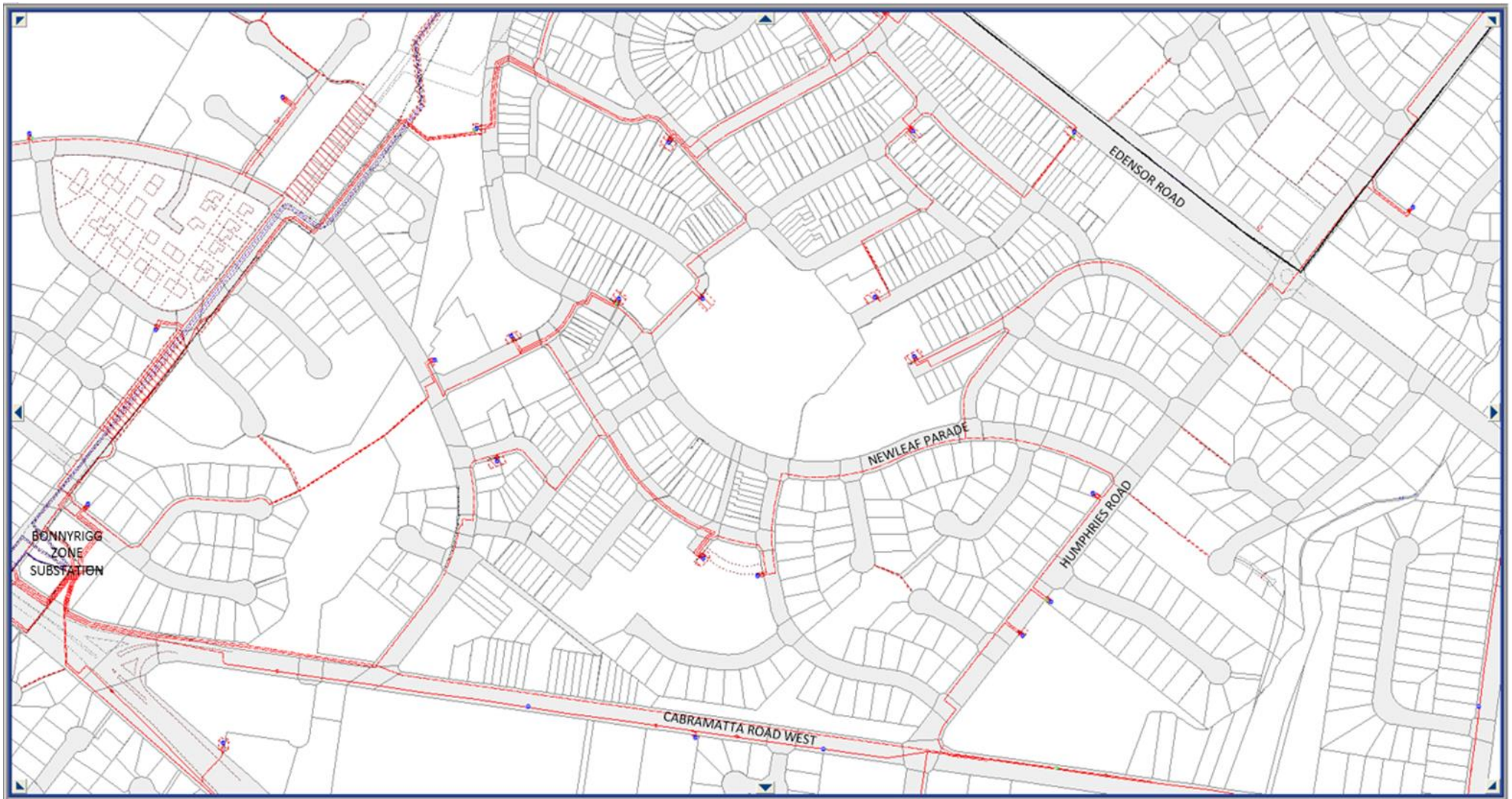
E: cornelis.duba@endeavourenergy.com.au

51 Huntingwood Drive, Huntingwood NSW 2148

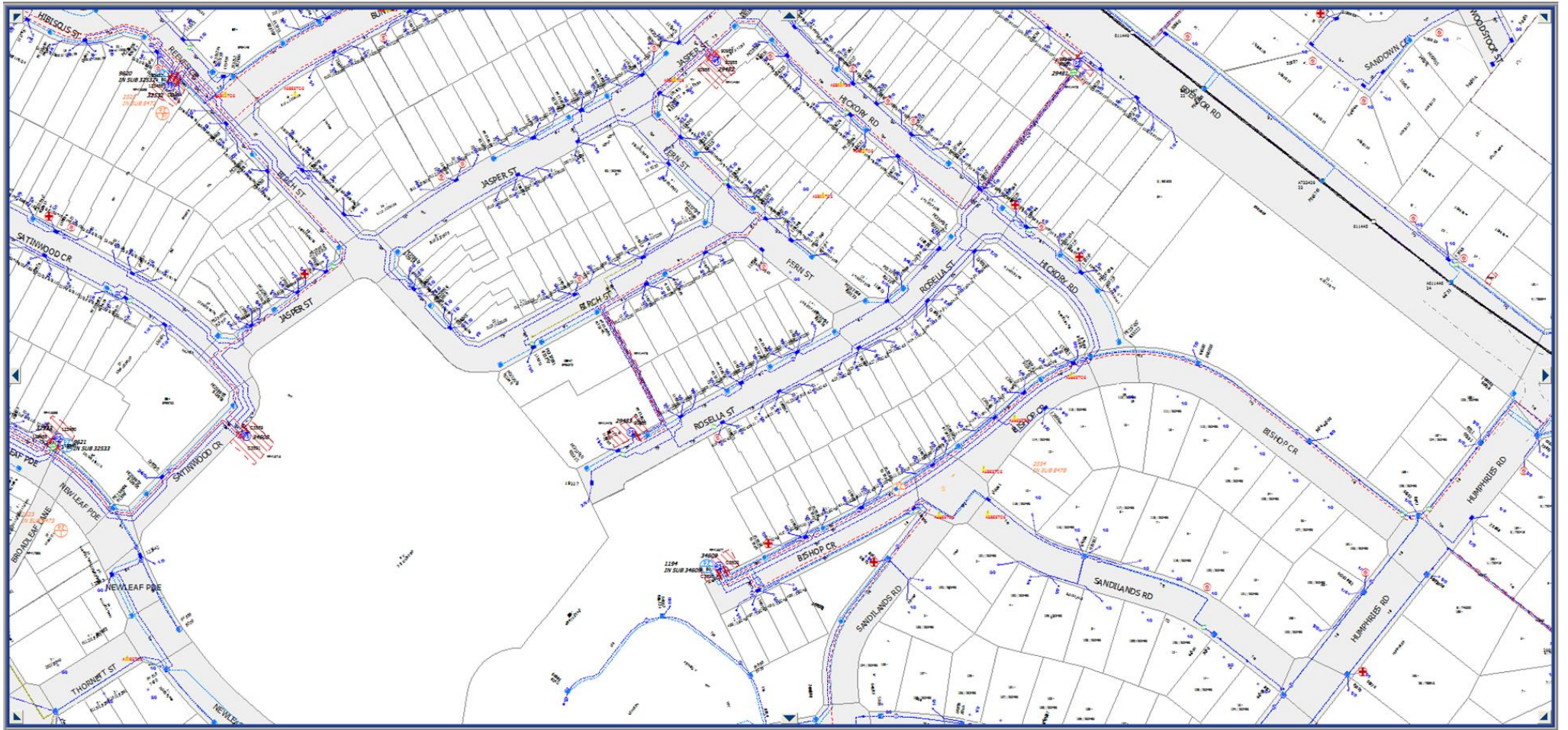
www.endeavourenergy.com.au

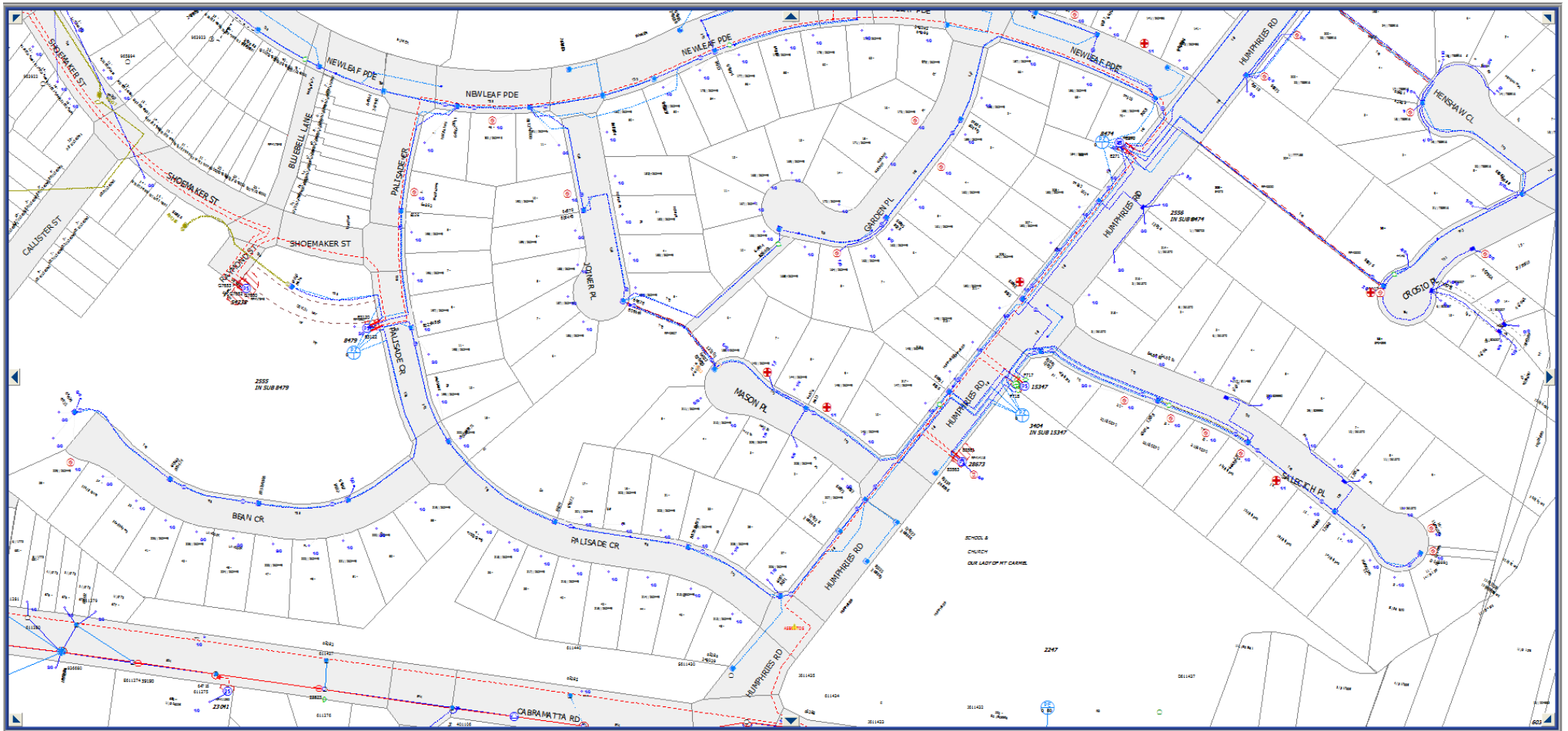






Please note the location, extent and type of any electricity infrastructure, boundaries etc. shown on the plan is indicative only. In addition it must be recognised that the electricity network is constantly extended, augmented and modified and there is a delay from the completion and commissioning of these works until their capture in the model. Easements benefitting Endeavour Energy are indicated by red hatching. 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).





The Secretary
NSW Department of Planning, Industry and Environment

6 July 2020

ATTENTION: Matthew Rosel, Key Sites Assessments

Dear Sir or Madam

I refer to the Department's below email of 18 June 2020 regarding the Notice of Re-Exhibition Modification to Bonnyrigg Housing Estate Concept Plan (MP06_0046 MOD 5) located at the Bonnyrigg Housing Estate, Bonnyrigg, being land bounded generally by Bonnyrigg Avenue, Bonnyrigg public school, Bonnyrigg Plaza, Elizabeth Drive, Cabramatta Road West, Humphries Road and Edensor Road in the Fairfield Local Government Area. Submissions need to be made to the Department by 7 July 2020.

Please refer to Endeavour Energy's previous submission made to the Department on 3 September 2019. The recommendations and comments provided therein essentially remain valid.

Endeavour Energy has noted the following in the Response to Submissions:

3.4.3 Endeavour Energy

- *Zone substation should be regarded as a Key Site Element in the Urban Design Report*
- *It is recommended to consider placing landscape buffers adjacent to Bonnyrigg Zone Substation or the areas used for public open space.*

Response:

The concept plans have been updated to identify the Bonnyrigg Substation (refer to **Appendix R**).

A new Concept Plan control has been included to address this:

A 5m setback is required between any residential development and the Bonnyrigg Substation. This setback is to be landscaped appropriately to enable a green buffer between dwellings and the substation.

Refer to Updated Concept Plan Controls appended at **Attachment N**.

Whilst Endeavour Energy has not sited Appendix R, in regard to Attachment N Modified Bonnyrigg Communities Plus Project Modified Concept Plan 2019, the foregoing new Concept Plan control is included in the section on Built Form Residential Flat Buildings and Buildings 3 Storeys or Greater. However it is not clear where the 5 m setback is required and how it provides an effective buffer ie. the proposed height of the buildings of up to 4 and 6 storeys on the opposite side of the road to the substation ad adjoining the eastern side boundary is 2 storeys.

Built Form - -Residential Flat Buildings and Buildings 3 Storeys or Greater

Controls

- h. A 5m setback is required between any residential development and the Bonnyrigg Substation. This setback is to be landscaped appropriately to enable a green buffer between dwellings and the substation.



A.8 Building Heights



If it is the intent to provide a landscape buffer to the eastern side of Bonnyrigg Zone Substation over Lot 367 DP 262452 Hebblewhite Place (please refer to the following extract of Google Maps Street View), as indicated in Endeavour Energy's 'Guidance Notes for Electricity Distribution' this may impact on the perimeter management requirements under Endeavour Energy's Substation Design Instruction SDI524 'Fencing and Perimeter Security at Zone and Transmission Substations, and Switching Stations' which states the following requirement in relation to the prevention of unauthorised access by any person to a substation by the creation of 'climb points'.

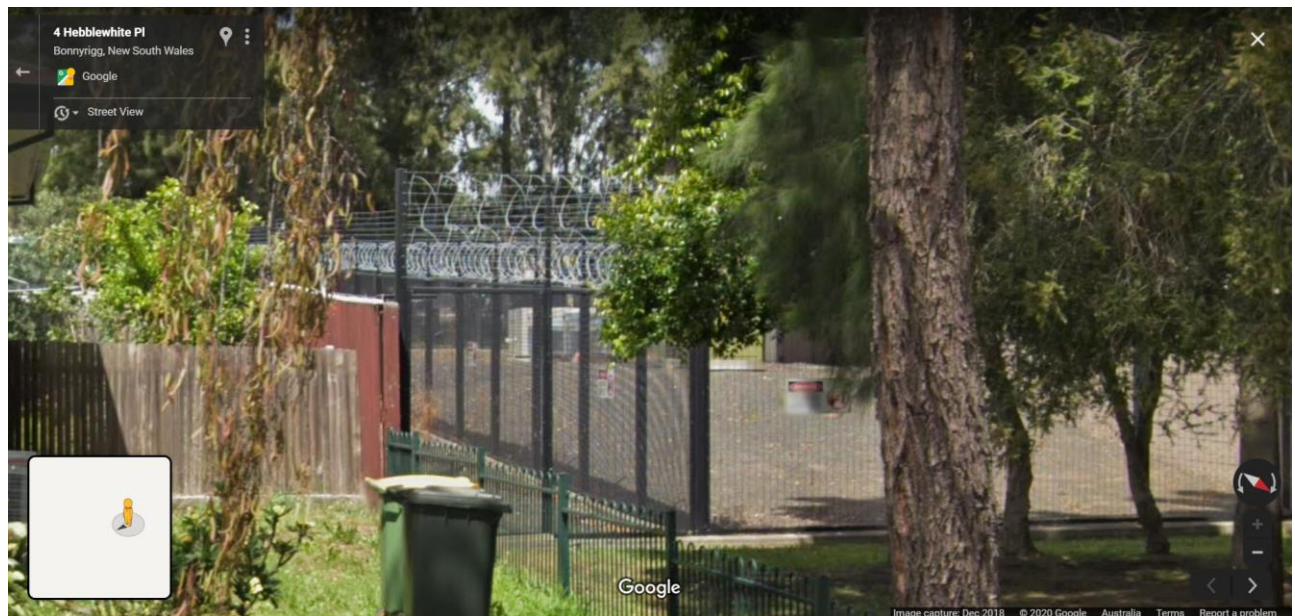
5.11 Perimeter management

Consideration shall be given to the balance between screening with manufactured objects or plants, and the security benefits of uninhibited visibility to staff and the general public.

To prevent people from concealing themselves or aiding their activities, vegetation shall not screen the entire length of the substation perimeter.

Vegetation that could provide a climbing point, and all objects, including equipment and stores, shall not be located within 2000mm of either side of the intruder resistant perimeter fence or intruder resistant barrier.

Accordingly Endeavour Energy's usual requirement is to have a minimum clear area / buffer of 2 metres from the fence with 3 metres preferred, and then depending on what the climb point is, it could increase to 4 metres. Where a permanent structure / object is constructed within these clearances, Endeavour Energy may raise the height of the substation fence. However the clearance may also be relevant in relation to the creation of temporary climb points eg. during construction with temporary site sheds etc.



For advice regarding the creation of suitable landscape buffers to Bonnyrigg Zone Substation the applicant should contact Endeavour Energy's Acting Network Environment Assessment Manager, Clinton Jurd, on direct telephone 9853 5166, mobile 0434 734 626 or alternately by email Clinton.Jurd@endeavourenergy.com.au .

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

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From: Jessica Fountain <Jessica.Fountain@planning.nsw.gov.au>
Sent: Tuesday, 23 June 2020 1:41 PM
To: Property Development <Property.Development@endeavourenergy.com.au>
Cc: Matthew Rosel <Matthew.Rosel@planning.nsw.gov.au>
Subject: Notice or Re-Exhibition – Bonnyrigg Housing Estate Concept Plan (MP06_0046 MOD 5)

Dear Ms Woodbury

Please find attached the notice of re-exhibition for a modification to Bonnyrigg Housing Estate Concept Plan (MP06_0046 MOD 5).

The Department of Planning, Industry and Environment invites you to comment on the proposal by close of business **Tuesday 7 July 2020**.

If you have any questions, please contact Matthew Rosel at matthew.rosel@planning.nsw.gov.au or (02) 8275 1323.

Regards

Jess Fountain
DA Coordinator

Key Sites, Industry and Regional Assessments | Department of Planning, Industry and Environment
T 02 9860 1559 | **E** Jessica.fountain@planning.nsw.gov.au
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The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.



Please consider the environment before printing this e-mail.

From: Cornelis Duba
Sent: Monday, 6 May 2019 1:31 PM
To: mail@fairfieldcity.nsw.gov.au
Cc: AMooney@fairfieldcity.nsw.gov.au
Subject: FAIRFIELD CITY COUNCIL PUBLIC EXHIBITION - BONNYRIGG TOWN CENTRE PLANNING PROPOSAL AND DRAFT DEVELOPMENT CONTROL PLAN (15/12226)

The General Manager
Fairfield City Council

ATTENTION: Andrew Mooney EXECUTIVE STRATEGIC PLANNER

Dear Sir or Madam

I refer to Council's letter of 8 April 2019 regarding the Public Exhibition of Bonnyrigg Town Centre Planning Proposal and Draft Development Control Plan (DCP). Submissions need to be made to Council by 10 May 2019.

As shown in the below site plan from Endeavour Energy's G/Net master facility model (and extracts from Google Maps Street View) there are:

- Easement over the site benefitting Endeavour Energy (active easements are indicated by red hatching while blue hatching indicates a retired / released easement).
- The area is predominantly serviced by underground power lines (with some small sections of overhead power lines such as along Elizabeth Drive) with low voltage shown in blue and high voltage (11,000 volt / 11 kilovolt (kV) shown in red.
- It is in proximity of Endeavour Energy's Bonnyrigg Zone Substation 475-481 Elizabeth Drive Bonnyrigg (Lot 1 DP 536197).

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).

Due to the large area of Bonnyrigg Town Centre the scale needed to be used for the site plan from Endeavour Energy's G/Net master facility model does not allow it to show all the details of the network. If Council requires more detailed plans these can be provided upon request.

Subject to the following recommendations and comments Endeavour Energy has no objection to the Planning Proposal.

- Network Capacity / Connection

Endeavour Energy's Asset Strategy & Planning Branch whilst not having undertaken a detailed analysis of the Planning Proposal have provided the following advice:

Asset Strategy & Planning Branch have noted the following in the Updated Planning Proposal:

Section D – State and Commonwealth interests

Is there adequate public infrastructure for the Planning Proposal?

The subject properties are serviced and have access to the full range of public infrastructure to adequately facilitate the Planning Proposal. This includes access to T-Way Bus service, Smithfield Road (non-classified regional road) road access, water, sewer, electricity and telecommunications services.

The planning proposal will result in infill development that will not place any significant increase in demand for existing infrastructure.

Analysis of the existing network which currently supplies the **Bonnyrigg Town Centre** indicates there is a combined spare capacity of approximately **3 megavolt amperes (MVA)** / 3000 kilovolt amperes (kVA) between the two 11 kV high voltage feeders which supply the town centre. A further breakdown indicates a spare capacity of 1.3 MVA (1300kVA) on feeder 52237/A Bonnyrigg Avenue plus 2MVA (2000kVA) on feeder 8772 Bradfield Crescent.



The spare capacity could supply the following;

1. Proposed 685 Smithfield Road – B4 Mixed Use zone of 17,000m² = estimated at 1.7MVA (1700kVA)
2. Proposed Kmart – B6 Enterprise Corridor zone of 5,512m² = estimated at 0.55MVA (550kVA)
3. The remaining spare capacity of 0.75MVA (750kVA = 3000kVA – 1700kVA – 550kVA) could be utilised for up to 250 high density residential units at an After Diversity Maximum Demand (ADMD) allocation of 3 kVA per unit.

This advice is not a method of supply (MOS) but serves as a preliminary indication that the existing 11 kV high voltage distribution network has limited spare capacity for some further town centre development and is subject to specific load applications at the time. Load applications will determine if additional network augmentation is required from Bonnyrigg Zone Substation.

Capacity is not reserved and may be taken up by other load applications prior to the above proposals.

Based on the foregoing Asset Strategy & Planning Branch have no objections to the Planning Proposal.

In regards to electricity supply to sites within the Bonnyrigg Town Centre, the availability of electricity 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 substation may require a substation to facilitate the development and from which the spare capacity is made available to subsequent nearby development. Areas of the network utilising r padmount substation or indoor / chamber substation (indicated by the symbols  and  respectively on the site plan from Endeavour Energy's G/Net master facility model) 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.

Applicants should not automatically assume that the presence of existing electricity infrastructure or nearby similar development means that adequate supply is immediately available to facilitate their proposed development. Whilst the existing local network is designed to accommodate reasonable load growth, depending on the size of the proposed development, an extension and/or augmentation of the existing local network may be required. However the extent of the work required will not be determined until the final load assessment is completed. Endeavour Energy's preference is to alert proponents / applicants (and Council) of the potential matters that may arise as further rezoning and redevelopment of urban areas continues to occur.

In due course the applicant for the proposed development of the site 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/>

Advice on the electricity infrastructure required to facilitate the proposed development (including asset relocation) can be obtained by submitting a Technical Review Request to Endeavour Energy's Network Connections Branch, the form for which FPJ6007 is attached and further details (including the applicable charges) are available from Endeavour Energy's website under 'Our connection services'. The response to these enquiries is based upon a desktop review of corporate information systems, and as such does not involve the engagement of various internal stakeholders in order to develop a 'Connection Offer'. It does provide details of preliminary connection requirements which can be considered by the applicant prior to lodging a formal application for connection of load.

Alternatively the applicant should engage an Accredited Service Provider (ASP) of an appropriate level and class of accreditation. The ASP scheme is administered by NSW Planning & Environment and details are available on their website via the following link or telephone 13 77 88:

<https://energysaver.nsw.gov.au/households/you-and-energy-providers/installing-or-altering-your-electricity-service> .

- Urban Network 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 treed² 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.

- Streetlighting

With redevelopment of urban areas resulting in the significant increase in both vehicular and pedestrian traffic, the streetlighting for the proposed development should be reviewed and if necessary upgraded to comply with the series of standards applying to the lighting of roads and public spaces set out in with Australian/New Zealand Standard AS/NZS 1158: 2010 'Lighting for roads and public spaces' as updated from time to time.

Whilst the determination of the appropriate lighting rests with the road controlling authority, Endeavour Energy as a Public Lighting Service Provider is responsible for operating and maintaining the streetlights on behalf of local councils, Roads and Maritime Services and other utilities in accordance with the NSW Public Lighting Code, January 2006 (Code). Endeavour Energy recognises that well designed, maintained and managed Public Lighting offers a safe, secure and attractive visual environment for pedestrians and drivers during times of inadequate natural light.

For any Code implementation and administration / technical matters please contact Endeavour Energy's Substation Mains Assets Section via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm or email mainsenquiry@endeavourenergy.com.au.

- Development Application Notification / Concurrence

The Council's notifications of development applications need to comply with Section 45 'Determination of development applications—other development' of *State Environmental Planning Policy (Infrastructure) 2007* (NSW) (please see the following extract) in order to enable Endeavour Energy to provide comments about potential safety risks.

State Environmental Planning Policy (Infrastructure) 2007

Current version for 19 February 2016 to date (accessed 29 February 2016 at 10:50)

[Part 3](#) > [Division 5](#) > [Subdivision 2](#) > [Clause 45](#)

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45 Determination of development applications—other development

- (1) This clause applies to a development application (or an application for modification of a consent) for development comprising or involving any of the following:
 - (a) the penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,
 - (b) development carried out:
 - (i) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or
 - (ii) immediately adjacent to an electricity substation, or
 - (iii) within 5m of an exposed overhead electricity power line,
 - (c) installation of a swimming pool any part of which is:
 - (i) within 30m of a structure supporting an overhead electricity transmission line, measured horizontally from the top of the pool to the bottom of the structure at ground level, or
 - (ii) within 5m of an overhead electricity power line, measured vertically upwards from the top of the pool,
 - (d) development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.
- (2) Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must:
 - (a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and
 - (b) take into consideration any response to the notice that is received within 21 days after the notice is given.

- Easement Management / Network Access

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

- Not install or permit to be installed any services or structures 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 easement areas. Most activities are prohibited within the padmount substation easement area. 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) will encroach/affect Endeavour Energy's easements or protected assets, contact must first be made with the Endeavour Energy's Easements Officers, via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm or alternately by email Easements@endeavourenergy.com.au .

For further information please refer to the attached copy of Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights'.

- 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.

- Safety Clearances

The construction of any building or structure (including fencing, signage, flag poles etc.) whether temporary or permanent must comply with the minimum safe distances / clearances for voltages up to and including 132,000 volts (132kV) as specified in:

- Australian/New Zealand Standard AS/NZS 7000 – 2016: 'Overhead line design' as updated from time to time.
- 'Service and Installation Rules of NSW' which can be accessed via the following link to the NSW Planning & Environment website:

<https://energy.nsw.gov.au/government-and-regulation/legislative-and-regulatory-requirements/service-installation-rules> .

As a guide please find attached a copy of Endeavour Energy Drawing 'Overhead Lines Minimum Clearances Near Structures'.

Even if there is no issue with the safety clearances to the building, ordinary persons must maintain a minimum safe approach distance of 3.0 metres to all voltages up to and including 132,000 volts / 132 kV). For future access and maintenance of buildings and structures, in order to avoid the need to work within the safe approach distances for ordinary persons (which requires an authorised or instructed person with technical knowledge or sufficient experience to perform the work required and a safety observer for operating plant) or possibly an outage request and/or erection of a protective hoarding, the retention of adequate building setbacks and/or suitable building design eg. not having parts of the building normally accessible to persons in close proximity of the overhead power lines, the use of durable / low maintenance finishes to reduce the need to access areas within the safe approach distances, is recommended. Alternatively, in some instances the adoption of an underground solution may be warranted ie. particularly for low voltage which can be more readily (in shorter distances) and comparatively economically be undergrounded.

- 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 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 locating them where exposure to the more sensitive uses is reduced and increasing separation distances. 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 – including any possible future electricity infrastructure required to facilitate the proposed development. Even with less sensitive non-residential development, Endeavour Energy believes that a policy of prudent avoidance should be considered.

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 <http://www.ena.asn.au/>.

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. 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.

- **Demolition**

Demolition work is to be carried out in accordance with Australian Standard AS 2601—2001: 'The demolition of structures' as updated from time to time. 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 power lines and underground cables etc.

- **Asbestos**

Endeavour Energy's G/Net master facility model indicates that the site is in an area identified or suspected of having asbestos or asbestos containing materials (ACM) present in the electricity network. Whilst Endeavour Energy's underground detail is not complete within G/Net in some areas, in older communities, cement piping was regularly used for the electricity distribution system and in some instances containing asbestos to strengthen the pipe; for insulation; lightness and cost saving.

When undertaking works on or in the vicinity of Endeavour Energy's electricity network, asbestos or ACM must be identified by a competent person employed by or contracted to the applicant and an asbestos management plan, including its proper disposal, is required whenever construction works has the potential to impact asbestos or ACM.

The company's potential locations of asbestos to which construction / electricity workers could be exposed include:

- o customer meter boards;
- o conduits in ground;
- o padmount substation culvert end panels; and
- o joint connection boxes and connection pits.

Further details are available by contacting Endeavour Energy's Safety & Environmental Services Branch via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm.

- Excavation

The applicant should be advised of the following object of Section 49A 'Excavation work affecting electricity works' of the of Electricity Supply Act 1995 (NSW) covering the carrying out or proposed carrying out of excavation work in, on or near Endeavour Energy's electrical infrastructure.

Electricity Supply Act 1995 No 94

Current version for 1 August 2018 to date (accessed 4 September 2018 at 08:54)

Part 5 > Division 2 > Section 49A



49A Excavation work affecting electricity works

- (1) This section applies if a network operator has reasonable cause to believe that the carrying out or proposed carrying out of excavation work in, on or near its electricity works:
 - (a) could destroy, damage or interfere with those works, or
 - (b) could make those works become a potential cause of bush fire or a potential risk to public safety.
- (2) In those circumstances, a network operator may serve a written notice on the person carrying out or proposing to carry out the excavation work requiring the person:
 - (a) to modify the excavation work, or
 - (b) not to carry out the excavation work, but only if the network operator is of the opinion that modifying the excavation work will not be effective in preventing the destruction or damage of, or interference with, the electricity works concerned or in preventing those works becoming a potential cause of bush fire or a potential risk to public safety.

With the increased number of developments incorporating basements often being constructed to the property boundaries or immediately adjacent to easements, the integrity of the nearby electricity infrastructure can be placed at risk.

If any excavation work affects Endeavour Energy's electricity infrastructure, prior contact must be made to Endeavour Energy's Regional Service North via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm or alternately email Regional.ServicesCentral@endeavourenergy.com.au .

- 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 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 .

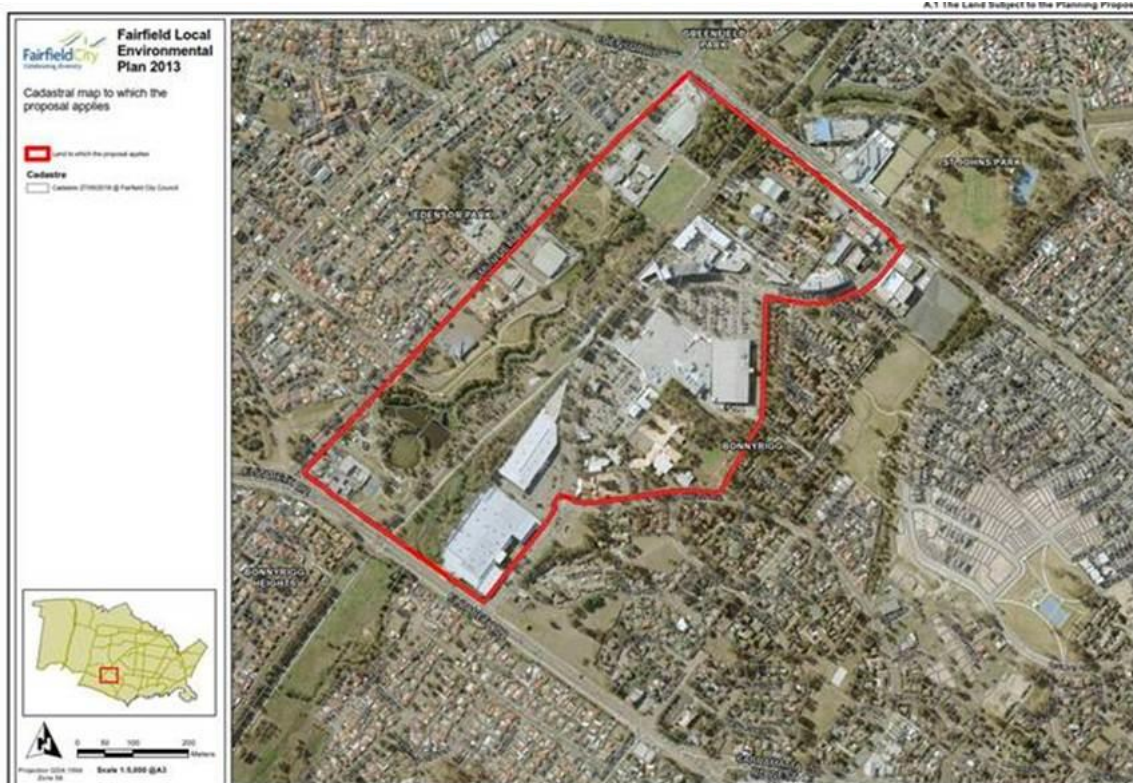
- Emergency Contact

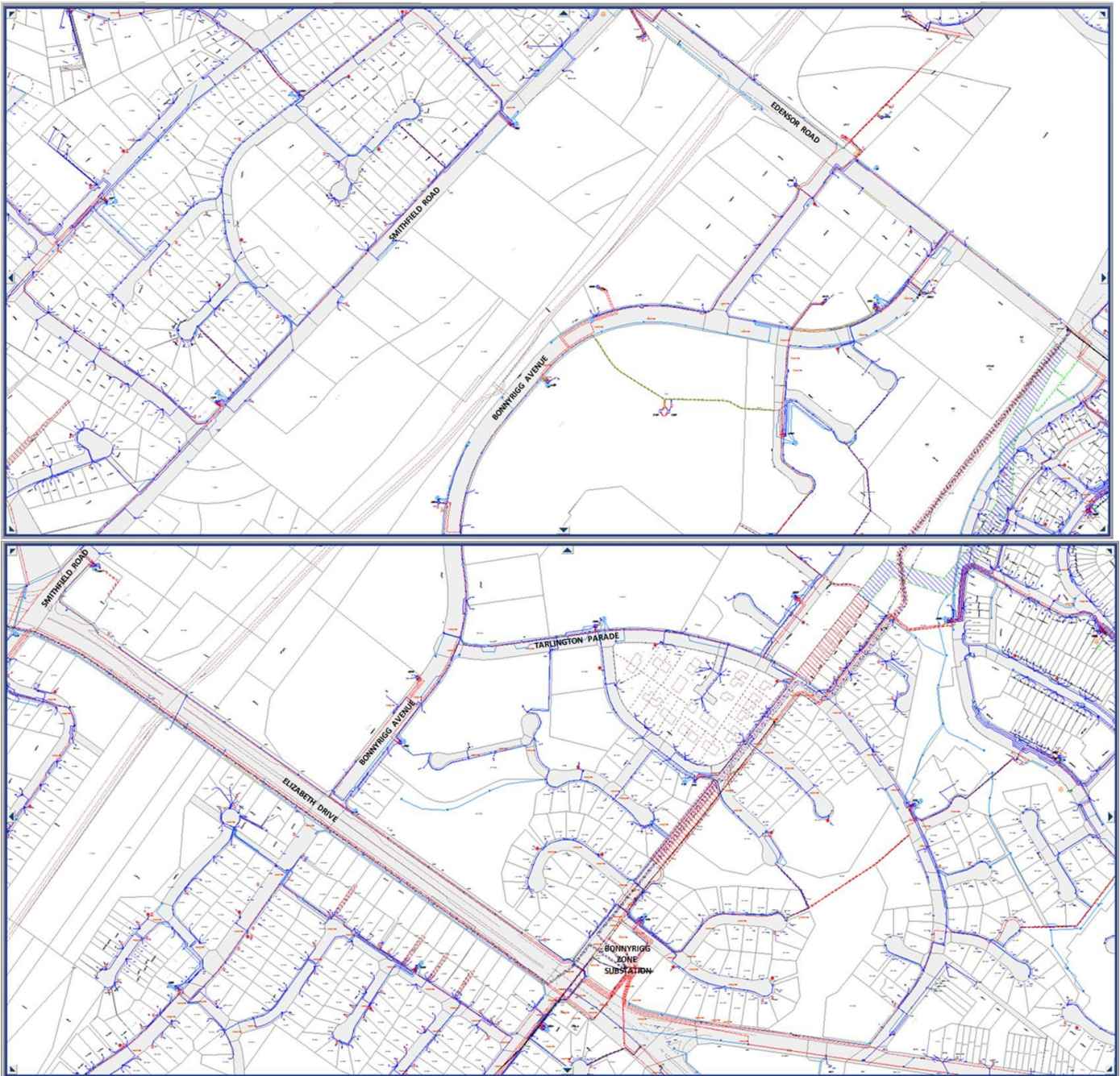
In case of an emergency relating to Endeavour Energy's electrical network, the applicant should note the Emergencies Telephone is 131 003 which can be contacted 24 hours/7 days.

I appreciate that not all the foregoing issues may be directly relevant or significant to the Planning 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 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.

Yours faithfully
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Section of overhead power lines along Elizabeth Drive.