

General Manager
Liverpool City Council

11 September 2019

ATTENTION: Maddison Spiteri

I refer to the below email of 5 September 2019 from NSW Planning, Industry & Environment regarding NSW Government concurrence and referral request CNR-1511 for Liverpool City Council's development application DA-262/2019 at 77 BATHURST STREET LIVERPOOL 2170 [Lots 7,8,9,10,11 DP 7451, Lot 4 DP 800326 and SP 38492 (also known as Lot 5 DP 800326)] for 'Demolition of existing building and structures, excavation and remediation of the site, construction of a mixed use development comprising a 4-storey commercial and retail podium including a two level restaurant, two residential towers of 14-storey and 20-storey in height comprising a total of two hundred and sixty four (264) units, above three (3) levels of basement car parking and associated landscaping and services.'. Submissions need to be made to Council by 26 September 2019.

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

- No easements over the site benefitting Endeavour Energy (active easements are indicated by red hatching).
- Low voltage overhead power lines to the Castlereagh Street road verge / roadway.
- Low voltage and 11,000 volt / 11 kilovolt (kV) high voltage underground cables to the Bathurst Street and Norfolk Street road verges / roadways.
- Low voltage underground cables to the Memorial Avenue road verge / roadway.

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).

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

- Network Capacity / Connection

Endeavour Energy has noted that the Statement of Environmental Effects does not appear to address in detail the suitability of the site for the development in regard to whether utility services are available and adequate for the development.

8.7. SUITABILITY OF THE SITE FOR DEVELOPMENT

The site is well suited to accommodate the proposed development for the following reasons:

- The site is in close proximity to existing services and infrastructure. Buses and Liverpool train station are within close proximity to the site.

However Endeavour Energy has noted that as shown in the following extracts of the Architectural Plans that provision has been made for a 'Kiosk Substation' (two padmount substations) to the Castlereagh Street road frontage of the site.



The fact that provision is being made for the substation from Endeavour Energy's perspective is a positive. Endeavour Energy's general requirements is for a padmount substation easement to have a minimum size of 2.75 x 5.5 metres and also have the additional restrictions for fire rating (which usually extends 3 metres horizontally from the base of the substation footing, and 6 metres vertically from the same point and also has regard to any structures etc. attached to the building that may spread a fire) and possibly swimming pools and spas (which in this instance does not appear to be applicable). For further details please refer to the attached copy of Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights'

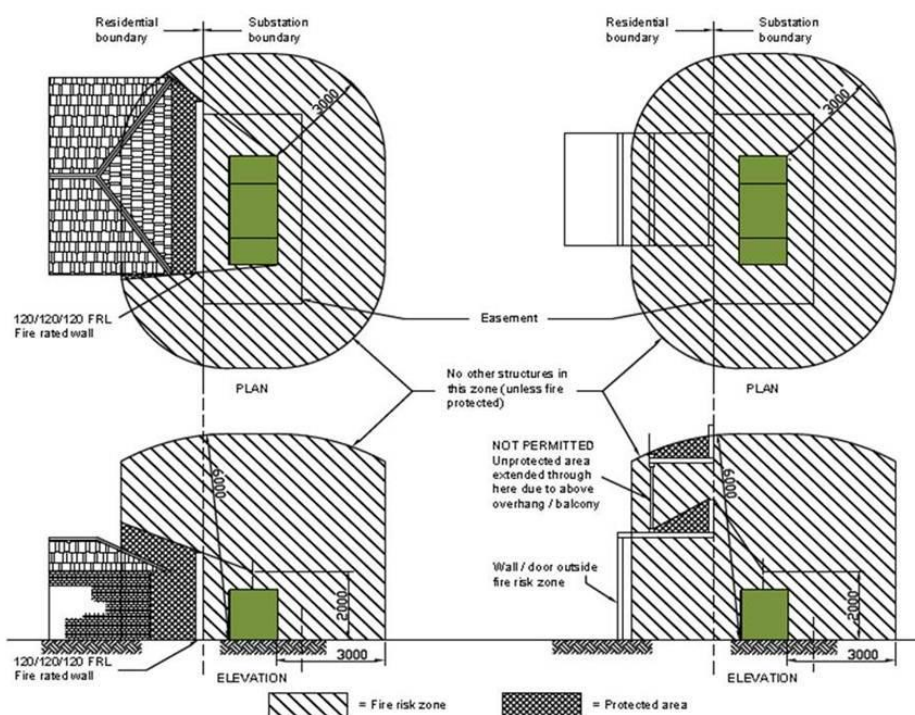
The easement and restriction/s should not affect any adjoining property (unless supported by an appropriate easement / restriction). The substation should be at ground level and have direct access from a public street (unless provided with a suitable easement for right of access). Generally it is the Level 3 Accredited Service Provider's (ASP) responsibility (engaged by the developer) to make sure that the substation location and design complies with Endeavour Energy's standards the suitability of access, safety clearances, fire ratings, flooding etc.

The proposed substation location on a site will require a detailed assessment to consider these issues. 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 at 18 Copeland Street 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 and possibly an alternative indoor substation may be considered / warranted.



Fire wall constructed for padmount substation at 18 Copeland Street Liverpool. Source: Google Maps Street View.

Figure 47 from Endeavour Energy's Mains Construction Instruction MCI0006 'Underground distribution: Construction standards manual' explains the fire restriction and the typical effect of screen / fire walls.



This is also outlined in Endeavour Energy's Mains Design Instructions MDI0028 'Underground distribution network design' and the Australian Standard AS2067: 2016 'Substations and high voltage installations exceeding 1 kV a.c.'. This excludes any constructions with non-fire rated materials being allowed within the fire restriction area.

As a condition of the Development Application consent Council should request the submission of documentary evidence from Endeavour Energy confirming that satisfactory arrangements have been made for the connection of electricity and the design requirements for the substation, prior to the release of the Construction Certificate / commencement of works.

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 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 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, Industry & 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-yourelectricity-service> .

Endeavour Energy is urging applicants /customers to engage with an Electrical Consultant prior to finalising plans to in order to assess and incorporate any required electricity infrastructure eg. should a distribution substation be required on the site, the minimal building setbacks will make it difficult to incorporate a padmount substation on site. In so doing the consideration can also be given to its impact on the other aspects of the proposed development. This can assist in avoiding the making of amendments to the plan or possibly the need to later seek modification of an approved development application.

- 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 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.

- 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. 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 applicants and 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.

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

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

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

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

- 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

- Safety Clearances

Endeavour Energy has noted that the Statement of Environmental Effects indicates 'Street alignment from Castlereagh Street is 2.5m, consistent with the Liverpool DCP', being the road frontage of the site with existing overhead power lines. However the Architectural Plans show 'Awning Over' from the building setback to the boundary.

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, Industry & 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’.

These distances must be maintained regardless of the Council’s allowable building setbacks etc. under its development controls.

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. Work within the safe approach distances requires an authorised or instructed person with technical knowledge or sufficient experience to perform the work required, a safety observer for operating plant as well as possibly an outage request and/or erection of a protective hoarding.

Endeavour Energy’s recommendation is that whenever reasonably possible buildings and structures be located and designed to avoid the need to work within the safe approach distances for ordinary persons 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. 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 – which in this instance is likely to be required and could be undertaken as part of the contestable works for the provision of electricity supply to the site.

SafeWork NSW document *Guide to Work Near Overhead Power Lines Code of Practice 2006* states the following when work in proximity to overhead service lines:

TABLE 4

Approach distances for work near low voltage overhead service lines

Ordinary Persons (m)				
Hand held tools	Operation of crane or mobile plant	Handling of metal materials (Scaffolding, roofing, guttering, pipes, etc)	Handling of non-conductive materials (Timber, plywood, PVC pipes and guttering, etc)	Driving or operating vehicle
0.5	3.0	4.0	1.5	0.6

In addition the developer / builder should consider ‘tiger tailing’/matting the overhead service lines to provide a distinct visual of the location of overhead construction ie. these are still not regarded as insulated conductors and safe approach distances need to be maintained.

- Vegetation Management

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

Landscaping that interferes with electricity infrastructure 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.

Endeavour Energy's recommendation is that existing street trees which are of low ecological significance in proximity of overhead power lines be replaced and any proposed planting of new trees within in the proximity of overhead power lines be replaced by an alternative smaller planting to ensure appropriate clearances are maintained whilst minimising the need for future pruning.

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

- 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 Health, Safety & Environment Assurance Section via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm.

- 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.

- 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 telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm) 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.

For details of the ASP scheme please refer to the above point ‘Network Capacity / Connection’.

- 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. Endeavour Energy's contact details should be included in any relevant risk and safety management plan.

I appreciate that not all the foregoing issues may be directly or immediately relevant or significant to the Development Application. However, Endeavour Energy's preference is to alert proponents / applicants of the potential matters that may arise should development within closer proximity of the existing and/or required electricity infrastructure needed to facilitate the proposed development on or in the vicinity of the site occur.

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

Yours faithfully

Cornelis Duba

Development Application Specialist

Network Environment & Assessment

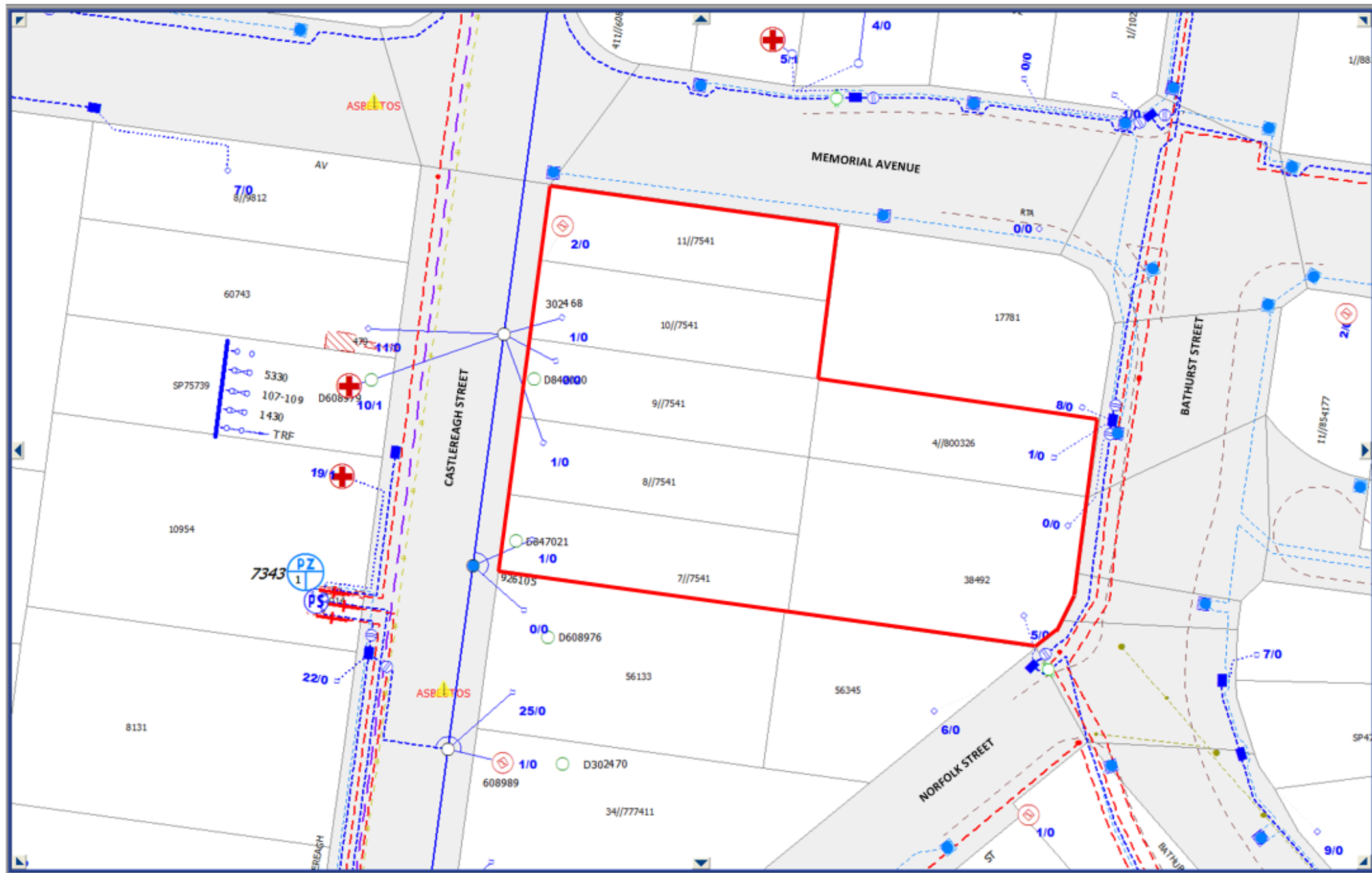
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76 Memorial Ave

Liverpool, New South Wales

 Google

Street View - Sep 2015





From: NSW Planning <planning.apps@planning.nsw.gov.au>

Sent: Thursday, 5 September 2019 11:07 AM

To: Property Development <Property.Development@endeavourenergy.com.au>

Subject: NSW Government concurrence and referral request CNR-1511(LIVERPOOL CITY COUNCIL)

○ **Concurrence and referral request**



A request for NSW Government agency consideration of an application DA-262/2019 at 77 BATHURST STREET LIVERPOOL 2170 was submitted to your agency on 05 September 2019 .

Pre-assessment of this application is required.

Please log into the [NSW Planning Portal](#) to progress your assessment of the request, reference number CNR-1511.

You can find general information about the online concurrence and referral system [here](#) or call our help line on 1300 305 695.

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