

The Secretary
NSW Department of Planning, Industry and Environment

7 August 2021

ATTENTION: James Groundwater

Dear Sir or Madam

I refer to the Department's below email of 2 August 2021 regarding the notice of exhibition of the Environmental Impact Statement (EIS) for State Significant Development SSD-15882721 Doran Drive Plaza Precinct for Construction of a 20-storey mixed-use development, comprising retail, commercial and community spaces, 431 residential units and a public plaza at 2 Mandala Parade, Castle Hill (Lot 55 DP 1253217) in The Hills Shire Council Local Government Area. Submissions need to be made to the Department by 30 August 2021.

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:

- No easements benefitting Endeavour Energy (active easements are indicated by red hatching).
- Low voltage underground cables to all four road verges / roadways for streetlighting and a low voltage pillar.

Please note the location, extent and type of any electricity infrastructure, boundaries etc. shown on the plan is indicative only. In addition it must be recognised that the electricity network is constantly extended, augmented and modified and there is a delay from the completion and commissioning of these works until their capture in the model. Generally (depending on the scale and/or features selected), low voltage (normally not exceeding 1,000 volts) is indicated by blue lines and high voltage (normally exceeding 1,000 volts but for Endeavour Energy's network not exceeding 132,000 volts / 132 kV) by red lines (these lines can appear as solid or dashed and where there are multiple lines / cables only the higher voltage may be shown). This plan only shows the Endeavour Energy network and does not show electricity infrastructure belonging to other authorities or customers owned electrical equipment beyond the customer connection point / point of supply to the property. This plan is not a 'Dial Before You Dig' plan under the provisions of Part 5E 'Protection of underground electricity power lines' of the Electricity Supply Act 1995 (NSW).

Endeavour Energy has noted the Statement of Environmental Effects indicates there is a '0 metre podium setback (northern and western street frontages)' as well as 'The proposed awning will have a width of approximately 3m. The awning has been extended to the corner of Prince Street and Third Avenue' which is shown in the following extract of the Level 1 plan.

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

- Network Capacity / Connection

Endeavour Energy has noted the following in the Electrical, Mechanical & ASP3 Services and Infrastructure Report addressing the suitability of the site for the development in regard to whether electricity services are available and adequate for the development.

4.3.2 APPLICATION FOR POWER CONNECTION

An Application for Connection has been submitted to the supply authority Endeavour Energy to initiate the power application process.

Endeavour Energy has since provided a Design Brief indicating that Level 3 design for substation infrastructure will be required to facilitate the required electrical load of the new development. The Brief also indicates that the solution for the future permanent supply of the site can be moulded to best fit the Client's needs whilst complying with Endeavour Energy's standards and in accordance with the Terms and Conditions of the Model Standing Offer for a Standard Connection Services.

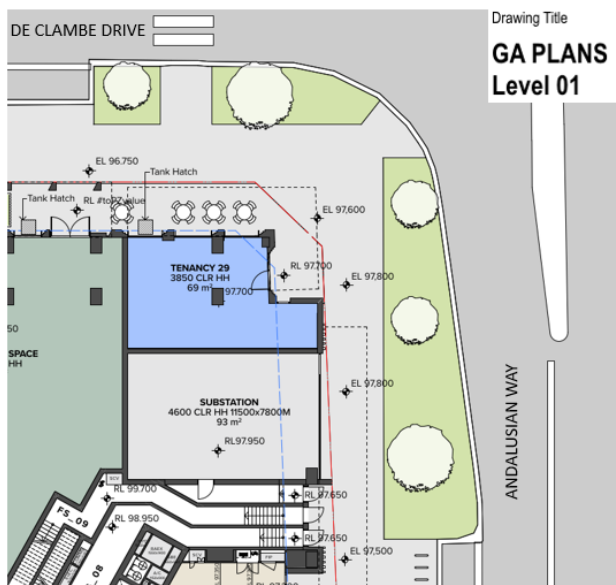
4.3.3 PROPOSED NEW 3 x 1500kVA CHAMBER SUBSTATION

To cater for the new electrical load expected for the development, new substation infrastructure is proposed to be installed within the confines of the property boundary along Andalusian Way incorporated into the proposed building envelope at ground level.

Preliminary substation spatial designs have been undertaken by the JHA Level 3 Team to provide planning advice and consideration to the surrounding building elements.

A complete Level 3 design and subsequent certification of the design by the Endeavour Energy will be conducted at later stages of the project.

As shown in the following extracts of the Architectural Plans there is provision for an indoor substation to the north eastern corner of the Andalusian Way frontage.



Traditionally Endeavour Energy's preference has been for the utilisation of padmount substations. For new developments particularly within town centres and central business districts for commercial / office type development 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, 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 indoor substations where a padmount substation is not practicably possible.

From Endeavour Energy's perspective the fact that provision is being made for an indoor substation is a positive. Endeavour Energy's general requirements is for an indoor substation to be at ground level and have direct access from a public street.

As shown in the following Clause 5.3.5 'Indoor substations', from Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights', indoor substations require the following:

5.3.5 Indoor substations

The boundaries of an easement for indoor substation must be defined by the internal face of the walls, ceiling, floor, and cable trenches of the substation room.

An easement for the cables that enter and exit the substation room will also be required if they are not installed within public roads and/or existing Endeavour Energy easements.

A right of access may also be required to give Endeavour Energy employees, vehicles, and equipment unrestricted access to the indoor substation at all times.

Generally it is the Level 3 Accredited Service Provider's (ASP) responsibility (engaged by the developer) to make sure that the substation location and design complies with Endeavour Energy's standards the suitability of access, safety clearances, fire ratings, flooding etc. As a condition of the Development Application consent 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 Subdivision Certificate / commencement of works.

As well as the provision / capacity of distribution substations, other factors such as the size and rating / load on the conductors and voltage drop (which can affect the quality of supply particularly with long conductor runs) etc. need to be assessed.

Accordingly an extension and / or augmentation of the existing local network will be required. However the extent of the works 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 development of areas continues to occur.

Accordingly the applicant and their Accredited Service Provider (ASP) should continue with the application for connection of load process with 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 who are responsible for managing the conditions of supply. Further details of the entire range of connection services including temporary builder's supply; asset relocation and removal; subdivisions; meeting the requirements of development approval etc; are available on Endeavour Energy's website under 'Home > Residential and business > Connecting to our network' via the following link:

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

- Network Asset Design

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

5.11 Reticulation policy

5.11.1 Distribution reticulation

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

In areas with the potential for significant overhanging foliage, CCT is used to provide increased reliability as it is less susceptible to outages from wind-blown branches and debris than bare conductors. CCT must only be used in 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.

- Flooding and Drainage

Endeavour Energy has noted the EIS indicates 'potential flooding at the site results from overland flow from the upstream catchment in the immediate vicinity of the proposed development'.

Endeavour Energy requires the electricity network needed to service an area / development to 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 flood prone site. Risk control has focused typically on avoiding the threat, but where this is not possible, reducing the negative effect or probability of flood damage to assets by implementing good design and maintenance practices.

- Earthing

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

Inadequate connection to the earth to allow a leaking / fault current to flow into the grounding system and be properly dissipated places persons, equipment connected to the network and the electricity network itself at risk from electric shock, fire and physical injury.

The earthing system is usually in the form of an earth electrode consisting of earth rods or mats buried in the ground. It should be designed by a suitably qualified electrical engineer / ASP following a site-specific risk assessment having regard to the potential number of people could be simultaneously exposed, ground resistivity etc. For details of the ASP scheme please refer to the above point 'Network Capacity / Connection'.

- Prudent Avoidance

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

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

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

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

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

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

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

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

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

As part of the further acoustic assessment consideration should also be provided to the indoor substation required to facilitate the proposed development. The transformers in substations may emit a hum – especially when under heavy load say in the summer peak when use of air conditioning is at its highest. The noise is usually not perceptible enough to be regarded as disruptive and/or to the point where amelioration measures are required. As noise levels, frequency and timing can vary and people perceive sounds differently, to minimise any potential exposure to intrusive noise, the siting towards the electricity infrastructure of less sensitive uses or parts of the building not regularly occupied is recommended.

- 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). Larger trees should be planted well away from electricity infrastructure and even with underground cables, be installed with a root barrier around the root ball of the plant.

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

- 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.

- Excavation

The applicant should be aware 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 July 2019 to date (accessed 24 October 2019 at 14:19)

[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.
- (3) A notice under subsection (2) must specify the excavation work that is to be modified or not carried out.

With the increased number of developments incorporating basements often being constructed to (or close to) the property boundaries (as is the case in this instance) 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 Field Operations Branch via Head Office enquiries on business days from 9am - 4:30pm on telephone: 133 718 or (02) 9853 6666 or alternately email Construction.Works@endeavourenergy.com.au .

- Site Remediation

Endeavour Energy has noted the Detailed Site Investigation does not appear to identify the previous easement over the site benefitting Endeavour Energy for a padmount substation and associated underground cables (as advised in Endeavour Energy's submission to the Department for the request for the Secretary's Environmental Assessment Requirements) as a potential area of environmental concern (AEC) and associated contaminants of potential concern (COPC).

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 – please refer to the above point 'Network Capacity / Connection'.

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.

- Public Safety

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

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

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

- Emergency Contact

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

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

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

With the 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

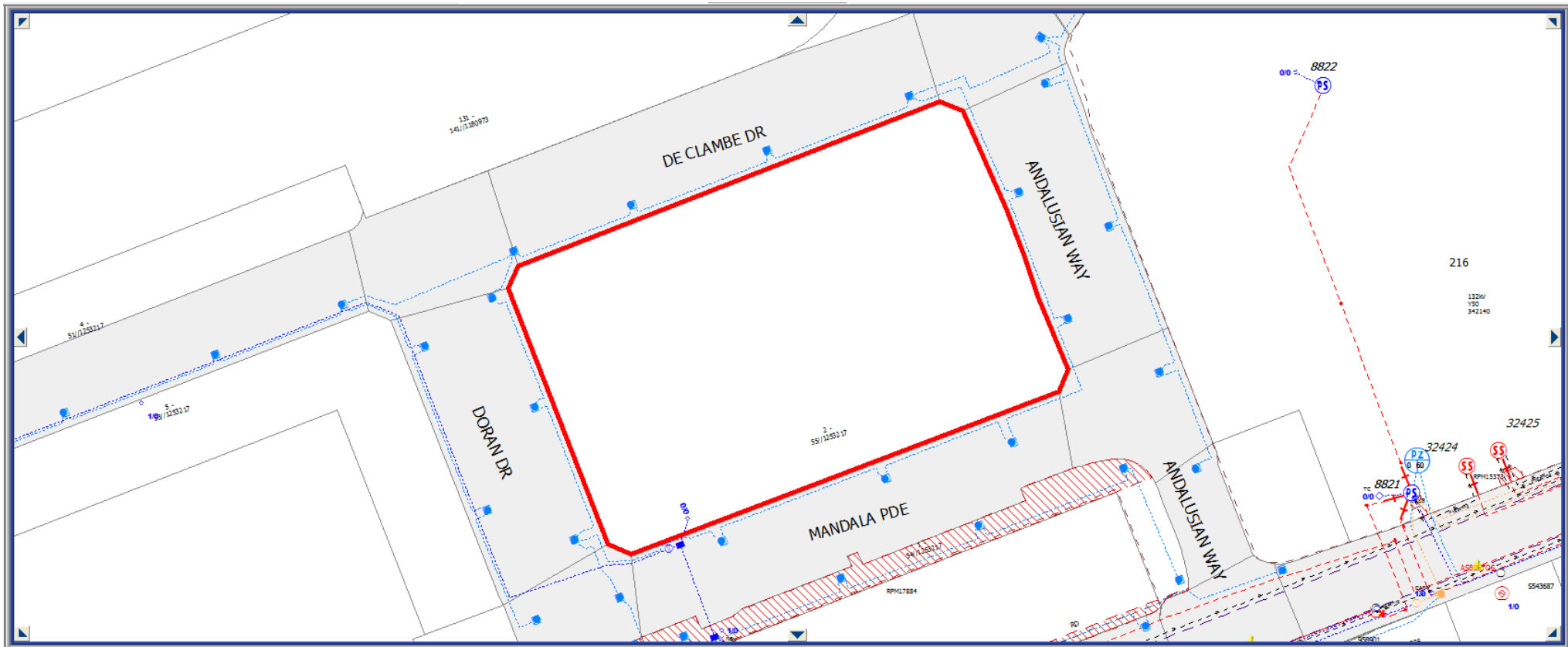
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G3E_FID	Feature Name	Component Name	G3E_CID	G3E_ID	LOT	SECTION	DP
82368479	Crown Parcel	Crown Parcel Find	1	2358401	55		1253217



Low voltage pillar and streetlighting to Mandel Parade.