K.

Lighting

K.01

Street Lighting

Waverley Council is adopting a plan to provide a modern and sustainable lighting network in its key business precincts, main roads and Local Centres. This lighting plan will facilitate for safer lighting levels in these high use areas, reduce the number of street assets with the use of Multi- Function Poles by incorporating signage and traffic control devices. Waverley Council has key objectives in the Environmental Action Plan (EAP3) to adopt sustainable street lighting with the use of LED.

Where new public roadworks and private developments are being constructed within the MFP precincts, the applicant shall pay (undertake) for the cost of under grounding electrical and communications infrastructure. Then new street lighting in the form of MFP's will need to be paid for in accordance with the planned layout of lighting.

Artist Impression showing MFP's on Campbell Pde

Objectives

- To illuminate high use areas in the LGA to provide adequate visibility for pedestrian and vehicular traffic. This includes conflict locations where there is safety concerns like: pedestrian crossing, intersections, changes of alignment (on sharp bends) and along vehicular/ pedestrian routes
- Support use of parks
- Activating public spaces
- Showcasing urban features
- Safe walking, cycling, public transport and driving
- To develop a network plan outlining lighting locations, power sources, inventory information and energy consumption estimates
- To use Multi- Function Poles for facilitating the new LED lighting. These Multi- Function Poles will also reduce clutter by housing signage, banners, traffic control devices etc. (de-cluttering the streetscape)
- To upgrade lighting levels for both Pedestrian (Category P) and Vehicular (Category V) to meet Australian standards as per AS/NZS 1158.
- To reduce intrusive light on neighbouring properties. This is both a measure for comfort and reduction of lost energy by illuminating areas that are not needed
- To include supplementary lighting is areas of high use. This may include spotlighting and pedestrian crossing lighting
- To utilise current lighting technologies for reduced power consumption, minimising green house gas emissions. This may include LED lighting, integrated control systems etc
- Street lights are to be located 10m from face of kerb at corners and spaced evenly along the dimensions of a block; nominal distance 30m apart, staggered spacing on opposite sides of the street.
- Light poles are to be located 400mm - 600mm from the face of the kerb.
- Pedestrian lighting should generally be mounted under awnings, with pole lighting in larger public spaces or where awnings are absent.

System Components

Luminaires

Luminaires will be determined by the SSROC Tender (TBA) Minimum performance requirements are as follows:

- Ingress Protection Ratings IP65 Minimum
- Lumens Per Watt - >100lm/W
- Led category Class 1
- Minimum Performance 70% at 50,000Hr
- Meet exterior lighting standards: To AS/NZS 1158.0, AS/NZS 1158.1.1, AS/NZS 1158.1.2, AS/NZS 1158.2 and AS/NZS 1158.3.1

Electrical

The Electrical Services work shall comprise the provision of the following major items:

- Incoming supply service mains
- Metering
- Main switchboard(s)
- Earthing
- Light and power sub circuit wiring
- Luminaires
- Lighting columns
- Control systems
- Conduit and pit system
- Spare conduits x2
- Miscellaneous works and equipment

Control Systems

The lighting control system shall be the Sylvania SLV CMS (Streetlight Vision Central Management

System) provided with the Echelon RF lighting control interface. (TBA for Procurement)

The supply of the lighting control system shall include equipment as follows (as well as all other equipment necessary to facilitate the required control):

- Echelon CPD4000 outdoor lighting controller to be provided for each luminaire
- Sylvania Control Box Wireless – control box quantities to be provided to suit luminaire quantities

The Control system shall be capable of, but not limited to the following:

Control

- ON / OFF / Step Dimming
- Time Scheduling and programming
- Web user interface for PC and MAC
- Remote software updates (where necessary)

Roads and Maritime Services Signals

The MFP's are to have the capability of carrying RMS traffic signals and house all associated electrical equipment, including pedestrian push buttons.

Cable Pits

Cable pits are to have the following:

- Cable draw-in pits: Provide cable draw-in Pits ≤ 1200 x 1200 mm. Sizes given are internal dimensions
- Provide pit covers to suit external loads. Fit flush with the top of the pit. Covers to have paving infill. Standard: To AS 3996
- Pavers are to weigh < 40 kg for any section of the cover
- Lifting handles: Provide a lifting handle for each size of cover section
- Provide drainage from the bottom of cable pits, either to absorption trenches filled with rubble or to the stormwater drainage system

MFP General Technical Specifications

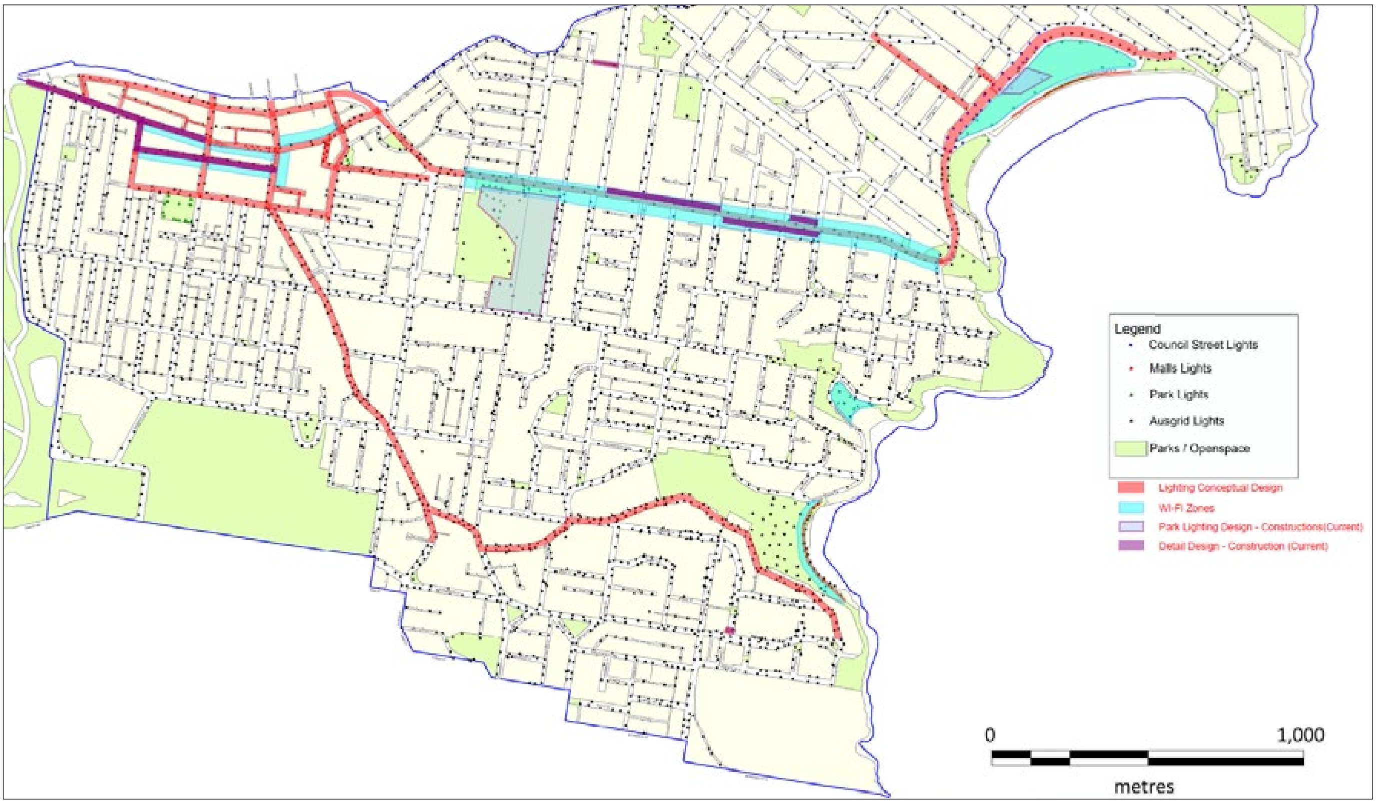
Luminaire height is to be set at 9m

- Luminaire arms are to be set at 3m
- A set of access keys (drill attachments) will be provided to Waverley Council for the removal of cladding to access the termination boards
- Manufacturers' warranties and certificates are to be supplied to Waverley Council with all required accredited engineering signoffs
- Certification from a Structural Engineer that the standard footings have been designed to meet Australian standards for all loading types and general site conditions
- Pole layout at signalised intersections is to follow RMS requirements
- All poles, cubicles etc are to be labelled with the location of supply in accordance with the 2006 Service and Installation Rules of NSW. The label shall be engraved Aluminium or Stainless steel and shall be permanently fixed to the pole immediately above the door (Council will provide Asset number & contact details to be included on the label)
- Assume LED luminaires with 4000k
- Include provision for centralised control systems at meter/switchboard locations

- Include provision for central override switches for circuits

MFP General Functional Specifications

- Pole layout along street lengths is to follow staggered pattern as shown in the lighting layout plans.
- To incorporate changes to any capital works projects within the specified zones to include multi-function poles, this includes any works undertaken within public domains by projects from private developers where ownership of the assets will be handed onto Council.
- The front face of poles is to have minimum allowable setback as allowable by RMS. Any poles with RMS signals will need to meet the strict designs of “Design for signalised intersections”
- Include provision for co-location of other assets on the poles e.g. signage and Wi-Fi
- Include supplementary lighting for pedestrian crossings and other significant locations
- Lighting to be generally compliant with P2, V3 lighting for high use/main roads and P3 lighting for lower pedestrian trafficable areas. To be compliant with AS/NZS 1158
- Meter box to be compliant with Ausgrid requirements and meet the general design specifications shown
- Place as many circuits as possible on one meter, whilst also trying to minimise road crossings (especially on main roads)
- Take account of any shop awnings that may be in the way
- Include provision for spare conduits (power, lighting and CCTV)
- Meter boxes placed against boundaries



Map showing streets where MFP's will be installed - Under Review

K.02

Multi-Function Pole

Function

- This pole will be used on all streets within business districts, main roads and Local Centres.

Supplier

- Under review

Materials and Dimensions

Street Lighting Poles are to be of 9.6m High Multipole Series 300 pole. Details of the poles include:

- LED street light (type TBA)
- Traffic Signals where at intersections
- Signage
- Banners
- Wi-Fi wireless access points
- Spare power sockets
- Hanging baskets
- Other attachments as advised by Council officers

Installation

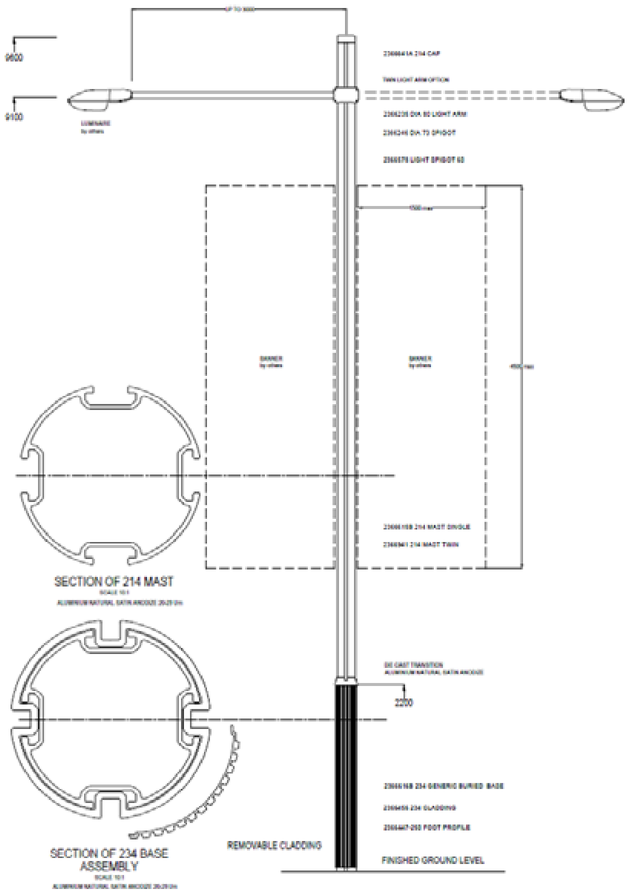
Pole type 1 – pole with street lighting including a range of attachments but without Traffic Signals

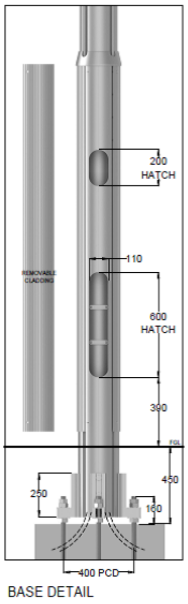
Pole type 2 – Pole with street lighting, Traffic Signals and a range of attachments.

Refer to Council lighting plans for individual street design layouts, general pole locations and luminaire requirements.

Additional components for inclusion on the MFP's will be determined at the design considerations and Council officer approvals.

Image showing Lighting Type 1 & 2 to be provided





Patented Multipole Footing System
Foot Extrusions, 4 off
Aluminum 6005A T5
Anodized 20 Microns
12 x M20 Bolts Galvanized
8.8 Grade Steel

Foundation bolts
M24 @ 400 PCD

NOTE
All poles manufactured in accordance with relevant standards

Pole footings to be engineered by others to suit local environmental and ground conditions.

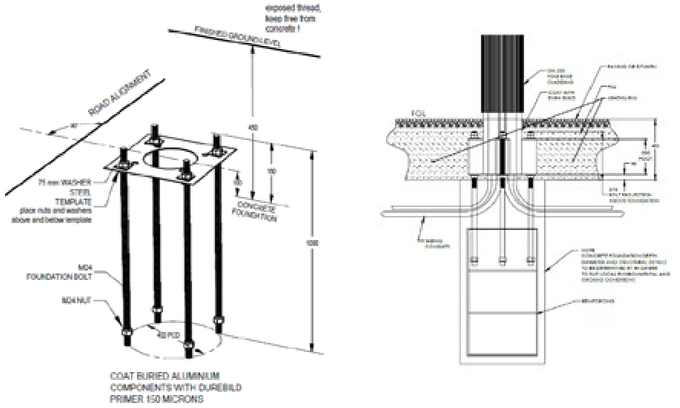
Note
All buried components must be coated
with DUREBILD STE paint 150 microns.
IP 65 rated electrical enclosures to be used for electrical connections.
Stainless steel fixings to be isolated from Aluminium
components with Barium Chromate paste.

01 POLE TYPE 1 & 2

Scale: NTS

02 STANDARD POLE DETAIL

Scale: NTS



03 STANDARD POLE FOOTING DETAILS

Scale: NTS

Note:

1. Standard pole footings are depicted here.
2. No installations are to be undertaken without a structural report and engineering signoff of footings.