

# RATE 3 PUBLIC LIGHTING STANDARD DRAWINGS

## EQUIPMENT REQUIREMENTS

### LIST OF STANDARD DRAWINGS

- SL.01 List of Standard Drawings and Equipment Requirements
- SL.02 Electrical, Project Documentation & Design Requirements
- SL.03 Single Pole Wiring Diagram
- ~~SL.04 Two Pole Wiring Diagram – DELETED~~
- SL.05 Multiple Pole Installation with Unmetered 3 Phase Supply
- ~~SL.06 Multiple Pole Installation with Metered 3 Phase Supply – DELETED~~
- SL.07 Single Line Diagram & Conduit Installation Details
- SL.08 Streetlight Reticulation Details

All streetlight and associated works are to be carried out in accordance with all legislative requirements and Australian Standards. The standards that will apply shall include but not be limited to:

- AS/NZS 1158
- AS/NZS 2053
- AS/NZS 3000
- AS/NZS 3008
- QLD Electrical Safety Act

The details contained within the standard drawings are to be read in conjunction with the Ipswich City Council (ICC) policy documents; Planning Scheme Policy 3 – General Works, and Planning Scheme Policy 2. Where there is a conflict of requirements then the Planning Scheme Policy documents shall take precedence over the drawings. All equipment shall be selected from ENERGEX or Department of Transport and Main Roads (DTMR) standard equipment.

Warranty for rate 3 streetlight equipment shall be vested with Ipswich City Council at the start of Off Maintenance period.

Ipswich City Council has mandated the use of the Light Emitting Diode (LED) luminaires. The LED luminaire type and associated street light equipment shall be installed as an Energex unmetered rate 3 type. Any luminaire approved for use must be fitted with a NEMA 7 pin socket and associated wiring. Terminal numbers 1 to 5 inclusive of the NEMA 7 pin socket are to have their respective connections made prior to installation. Terminals 6 and 7 of the NEMA 7 pin socket are to have fly leads connected prior to installation. The fly leads are to be 150 mm in length, matching existing wire type, different external colour and terminated with insulated end caps. All luminaires must be operated using a photoelectric (P.E.) cell installed on the luminaire. The external NEMA 7 pin socket must be installed to allow the matching P.E. cell plug connection. Where the NEMA 7 pin socket is not used for a P.E. connection it must be capped with a shorting cap to prevent material ingress.

#### ABBREVIATIONS

- NTS – not to scale
- POS – point of supply
- MCB – miniature circuit breaker

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### STANDARD DRAWING

RATE 3 PUBLIC LIGHTING  
 LIST OF STANDARD DRAWINGS  
 AND EQUIPMENT REQUIREMENTS

### LIGHTING

## SL.01

REV: B | DRAWER: 100

## ELECTRICAL REQUIREMENTS

Any calculations shall use the nominal voltage value of 230/400 Volts. All street light connections shall be balanced across the phases of the supply network.

The value of current draw to be used for cable size calculations and selection of circuit protection devices is to be based on the total rated load of each luminaire installed, including electronic losses, power factor, harmonics and inrush current.

Minimum cable sizes and insulation types are indicated in the drawings SL03 and SL05.

Provide larger separate earth cables where the integral earth conductor is not sufficient size to meet earth fault loop impedance requirements.

Preferred types and values of protection equipment are shown on associated standard drawings. Cable sizes shall be checked for each proposed project for the following criteria:

- i. Continuous current rating as per section 3 of AS 3008.
- ii. Limitation of voltage drop as per section 4 of AS 3008.
- iii. Short circuit performance as per section 5 of AS 3008.
- iv. Earth loop impedance as per appendix B of AS 3000.

Residual current devices (RCDs) shall not be installed for streetlight final subcircuits, in accordance with AS3000 2.6.3.2.1 exception 5 and Ipswich City Council risk assessment.

Select overcurrent/short circuit protective devices in accordance with AS3000 to suit electrical load, prospective short circuit current and earth fault loop impedance.

Any changes in direction of conduit shall use a sweeping bend.

Provide pits for reticulation of electrical services as necessary. Pits shall be provided adjacent to poles to provide cable tee-off joints and at junctions and where conduit reticulation change direction. Generally, space the pits at maximum 50m intervals in local roads. This spacing may be greater in outer urban or rural subdivisions. Provide pit drainage to stormwater system or where not practicable to rubble pits.

## ELECTRICAL ENERGISATION REQUIREMENTS

The Ipswich City Council as of July 2017 uses the Stanwell Corporation as the electricity retailer.

Queries regarding connection of street light should be directed to the following email address:  
Rate3StreetLights@ipswich.qld.gov.au

## PROJECT DESIGN REQUIREMENTS

4.5m outreach arms size shall not be used for minor road installation. 4.5m outreach arms shall be permitted for major road lighting installation.

Where a project is to be constructed in more than one stage then the same style of equipment must be installed across all stages of the same project.

Where a project has been constructed then the same style of equipment must be installed across all subsequent stages of the same constructed project.

In urban developments, each street light shall be supplied directly from the nearest Energex point of supply (i.e. LV pillar) unless approved by ICC. Multiple street lights fed from one supply will only be considered where there are no LV pillars. The number of street lights connected to a point of supply shall be determined by the designer based on the unique installation conditions that may be present.

ICC preference for developments with large frontages and significant distance between service pillar & streetlight locations is to supply multiple street lights from a main switchboard. Where an ICC MSB is utilized, a No.4 cable pit (with junction box, unfused) shall be located within 3mtrs of the base of each streetlight. Pits shall be aligned 125mm from property alignment (to ensure footpaths are not impacted).

HD conduits to be aligned at 870mm from property alignment. A maximum of 3 x 90 degree large radius sweep bends shall be used.

Provide durable and clearly visible permanently fixed weather proof Energex label to all rate 3 streetlights. Label shall be green back with white lettering "ICC3" to indicate a rate 3 Ipswich City Council site. Label shall be affixed on the light pole above the Energex site ID label. Refer Energex Public Lighting Manual for ID location.

Provide durable traffolyte label inside pole access hatch with words to the effect of : "WARNING RCD PROTECTION NOT INSTALLED".

Provide durable Energex type weather resistant permanently fixed 50mm high label to all ICC MSBs. Label shall be green back with white lettering with the MSB asset number, e.g. "ICC MSB XXXXXXXX" where XXXXXXXX is the service pillar supplying the MSB. Confirm asset numbering with ICC prior to installation.

Lighting supplied directly from the overhead network shall remain Rate 2.

## PROJECT DOCUMENTATION REQUIREMENTS

Update all project documentation to be accurate and up to date for the as built installation.

All street light project documentation shall be provided in an agreed electronic format. The agreed electronic format shall allow the electronic transfer of all geospatial and all database information to the Ipswich City Council.

The unmetered rate 3 street light information shall also be made available to the distribution network service provider.

Provide full tabulated equipment schedules for streetlights, cables and equipment for the project.

All project documentation shall reference the following:

- ICC Public Lighting Standard Drawings (SL series)
- ICC Planning Scheme Policy
- Energex Public Lighting: Standard Conditions for Public Lighting Services
- Qld Public Lighting Design Manual (RED00767)
- Qld Public Lighting Construction Manual (RED00796)
- AS/NZS3000 Wiring Rules
- AS/NZS1158 Lighting for Roads & Public Spaces
- Manufacturer's installation requirements

Completion of the construction certificate for streetlights is required for the Ipswich City Council.

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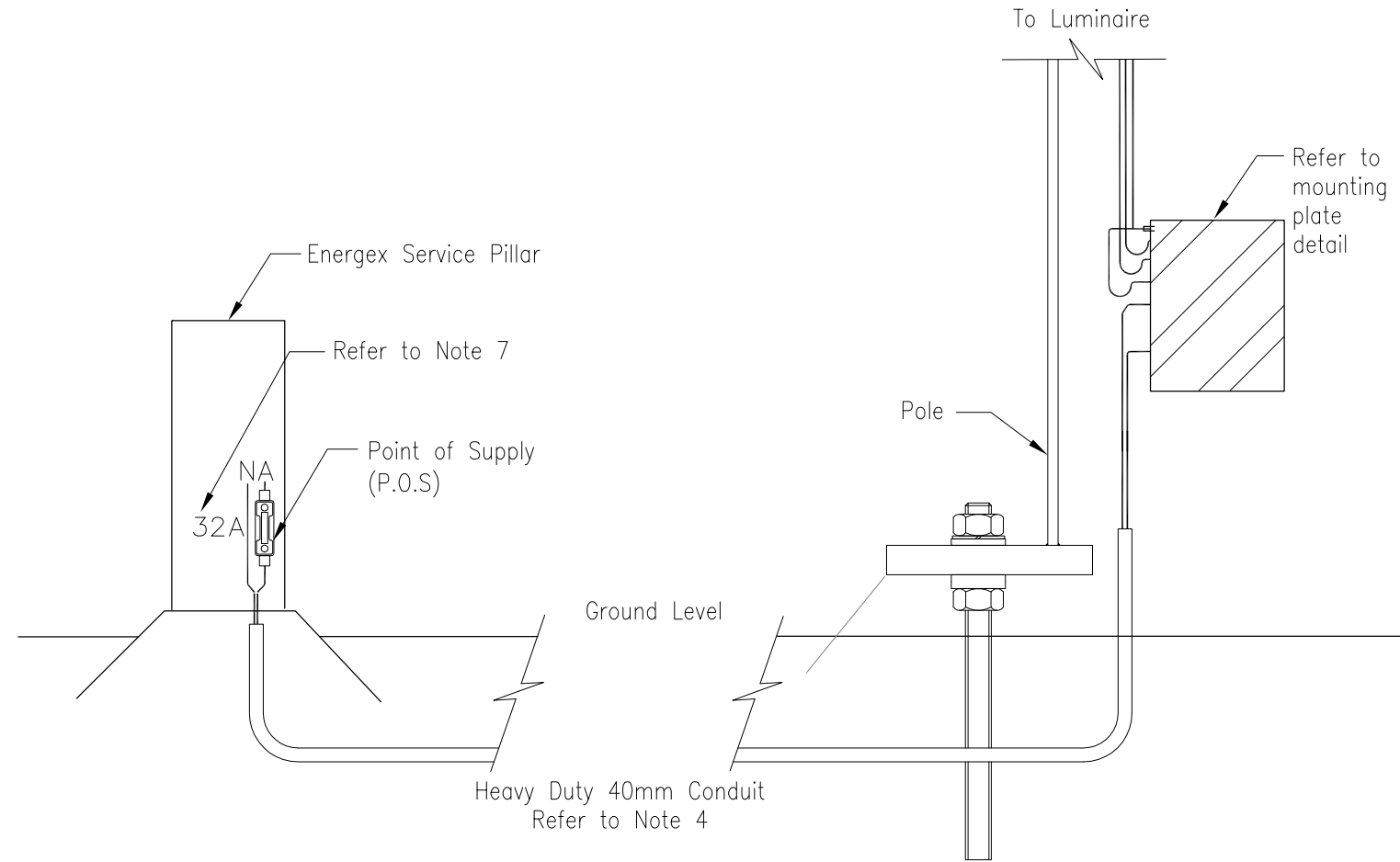
### STANDARD DRAWING

**RATE 3 PUBLIC LIGHTING  
ELECTRICAL PROJECT DOCUMENTATION  
AND DESIGN REQUIREMENTS**

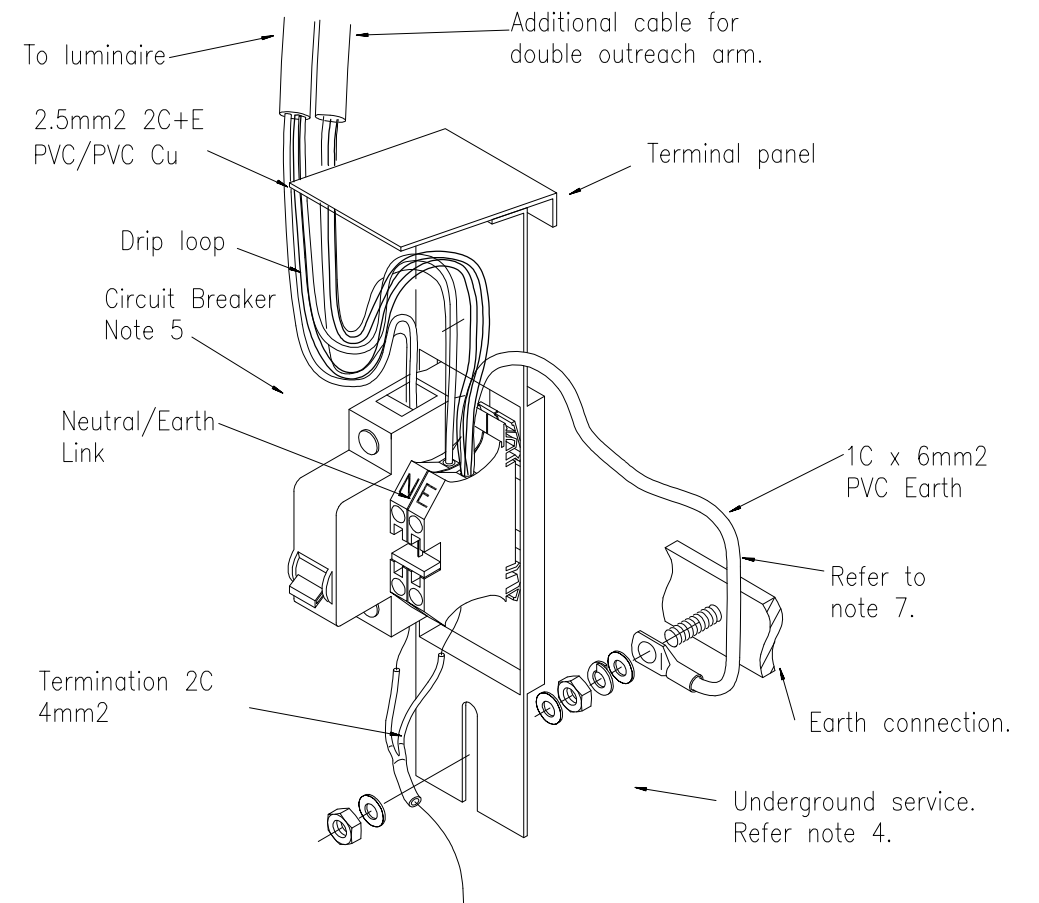
LIGHTING

**SL.02**

REV: C DRAWER: 100



CROSS SECTION  
(N.T.S)



MOUNTING PLATE DETAIL  
(N.T.S)

## RATE 3 STREET LIGHT CONNECTION

### NOTES

1. All dimensions shown are in mm.
2. Dimensions shown are minimum only.
3. RCD protection on lighting final subcircuit not required as per Ipswich City Council risk assessment and AS3000 2.6.3.2.1 Exception 5.
4. Cable shall be a minimum of 4sqmm XLPE/TPE Cu and suitable for underground installation.
5. Circuit breaker type and rating shall be determined by the designer. Circuit breaker ratings depicted on the drawings are indicative only. To be labelled as "MAIN SWITCH".
6. Include drip loops of nominal 100mm radius.
7. Provide tag 'MAIN EARTH - DO NOT DISCONNECT'.
8. Fuse rating indicative only.
9. Provide drip plate above the circuit breaker in the pole.
10. Use conductivity grease for screwed and bolted electrical connections.

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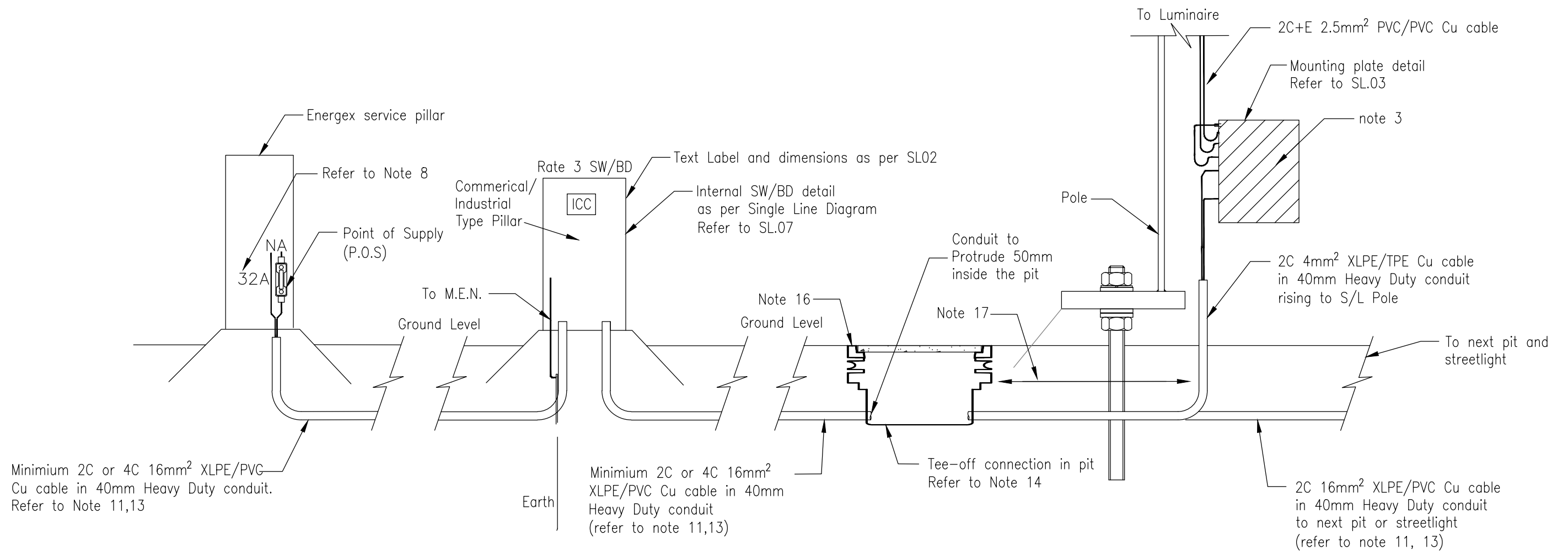
### STANDARD DRAWING

RATE 3 PUBLIC LIGHTING  
 SINGLE POLE WIRING DIAGRAM

LIGHTING

SL.03

REV: B DRAWER: 100

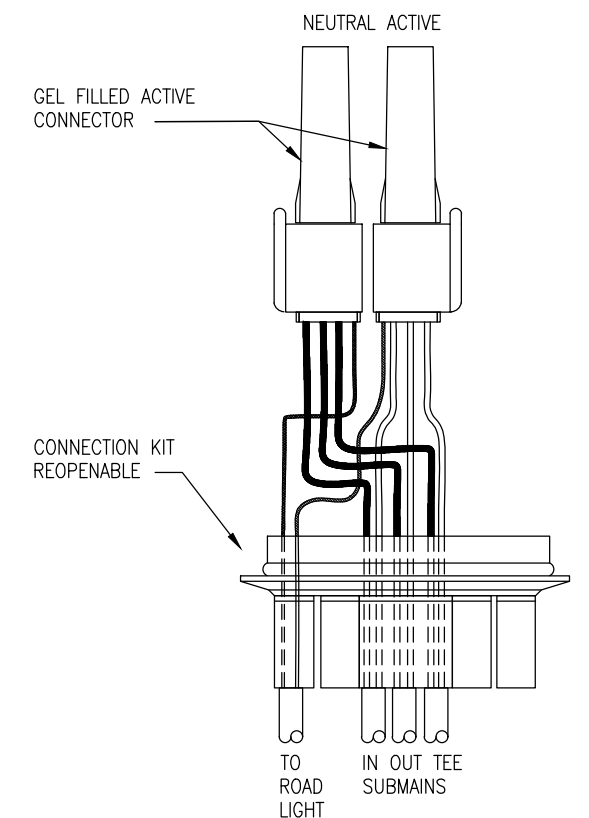


CROSS SECTION  
(N.T.S)

## RATE 3 STREET LIGHT CONNECTION FOR MULTIPLE STREET LIGHTS FROM UNMETERED RATE 3 SWITCHBOARD

### NOTES

- All dimensions shown are in mm.
- Dimensions shown are minimum only.
- RCD protection on lighting final subcircuit not required as per Ipswich City Council risk assessment and AS3000 2.6.3.2.1 Exception 5.
- Cable shall be suitable for underground installation.
- Circuit breaker type and rating shall be determined by the designer. Circuit breaker ratings depicted on the drawings are indicative only.
- Include drip loops of nominal 100mm radius.
- Provide tag "MAIN EARTH – DO NOT DISCONNECT".
- Fuse rating indicative only.
- Provide drip plate above the circuit breaker in the pole.
- Use conductivity grease for screwed and bolted electrical connections.
- Outgoing circuits may be single phase or three phase.
- Balance the street light electrical load across the phases of the supply.
- Cable size shown is the minimum allowable. Cable size to be determined by designer.
- Use bell joint method or other approved equal.
- Provide 1m service loop for each cable joined inside the pit.
- Maximum distance between the pits shall not exceed 50m.
- Maximum distance between the pole and the nearest pit shall be 3m.



BELL TYPE CABLE JOINT DETAIL  
SCALE N.T.S

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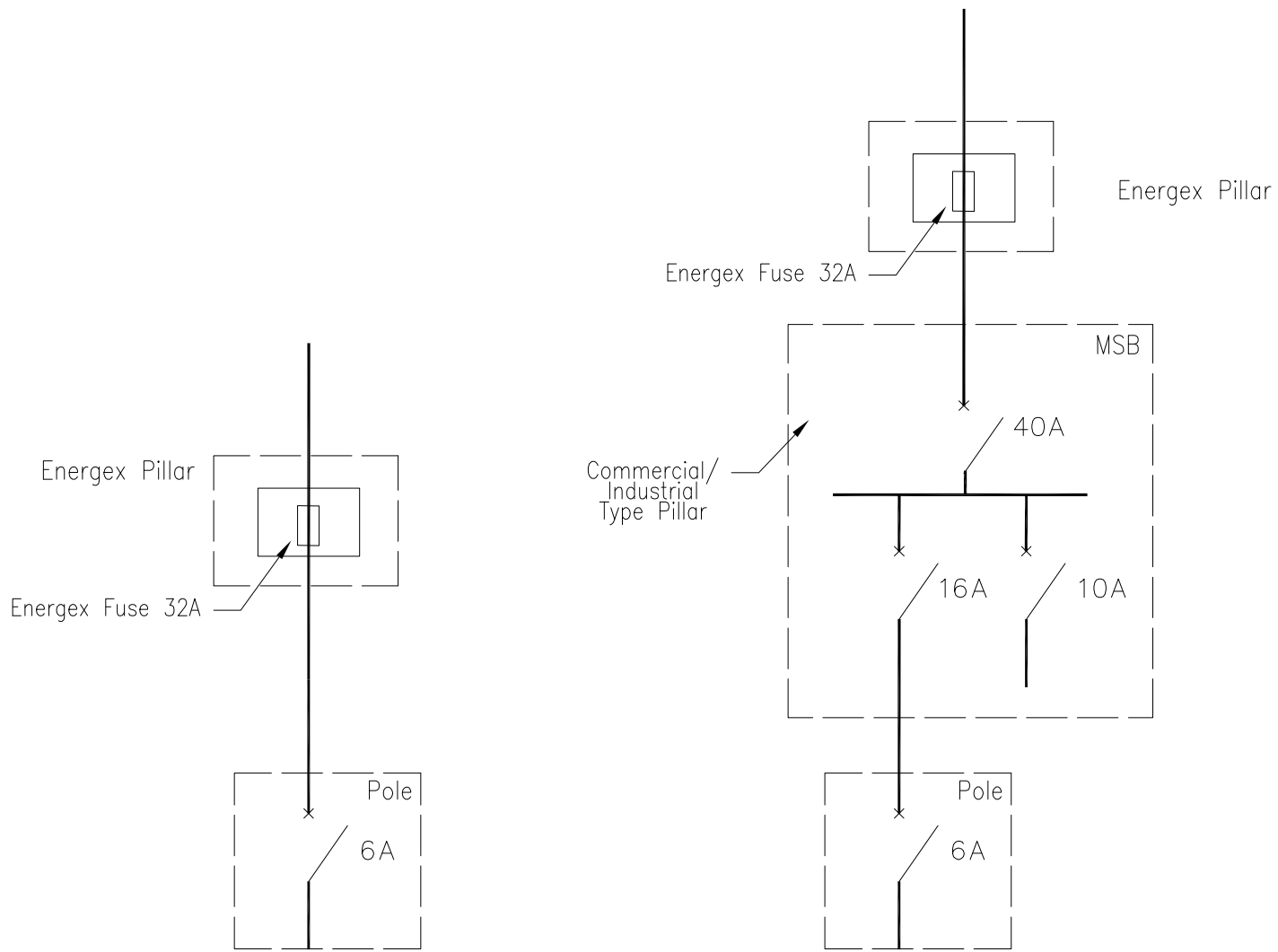
**STANDARD DRAWING**

RATE 3 PUBLIC LIGHTING  
MULTIPLE POLE INSTALLATION WITH  
UNMETERED 3 PHASE SUPPLY

LIGHTING

**SL.05**

REV: C DRAWER: 100

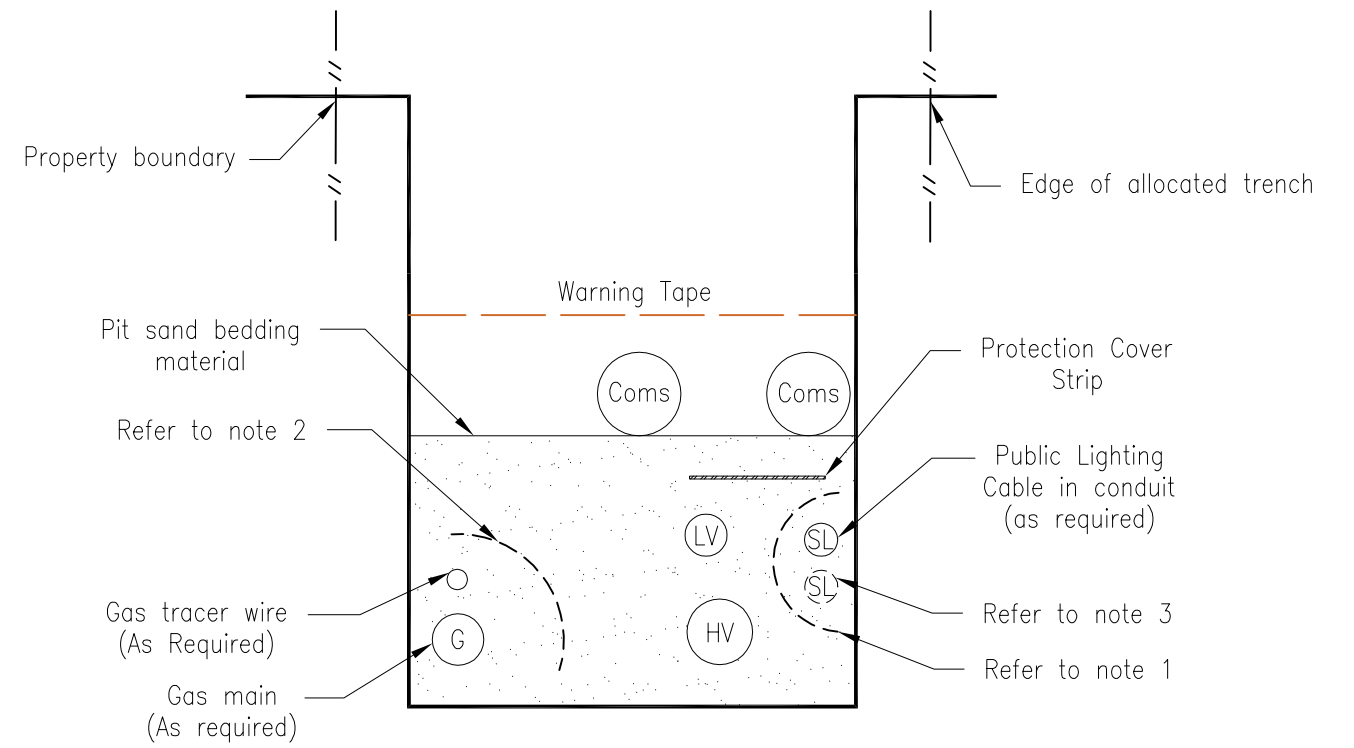


SINGLE LINE DIAGRAM  
SINGLE POLE INSTALLATION  
(N.T.S)

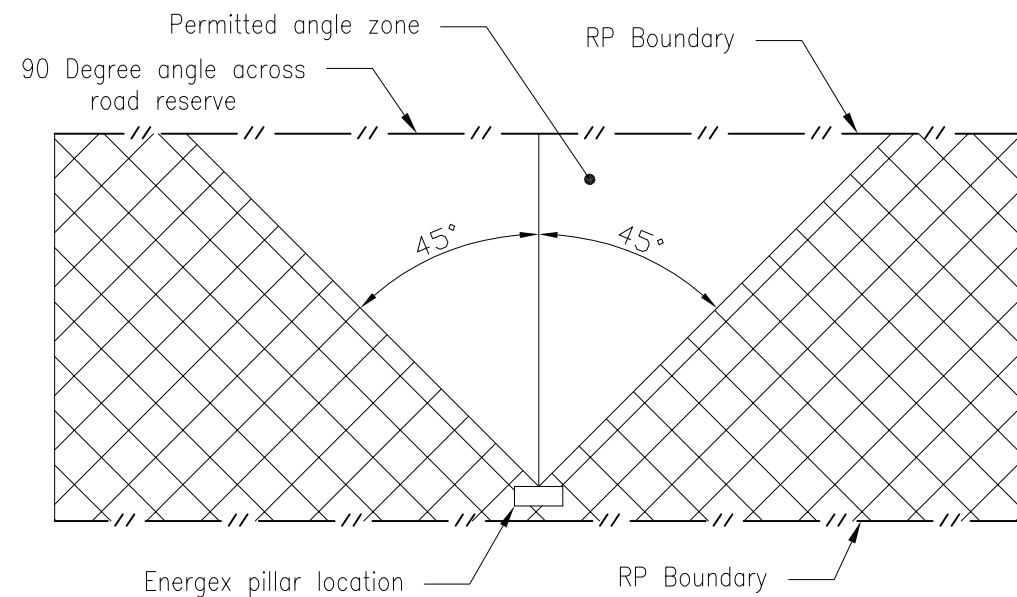
SINGLE LINE DIAGRAM MAIN  
SWITCHBOARD AND MULTIPLE  
POLES INSTALLATION  
(N.T.S)

**NOTES**

1. Minimum of 100mm separation to be maintained between street light conduits and other services.
2. Minimum of 250mm separation to be maintained between Gas Pipes and other services.
3. Additional 100mm street light conduit to be installed where required.
4. Circuit breaker type and rating shall be determined by the designer. Circuit breaker ratings depicted on the drawings are indicative only.
5. Number of circuits as required for project plus 50% spare for each switchboard
6. Fuse rating indicative only.



TYPICAL TRENCH CROSS SECTION  
(N.T.S)



ROAD CROSSING CONDUIT ANGLE LIMITS  
(N.T.S)

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**STANDARD DRAWING**

RATE 3 PUBLIC LIGHTING  
SINGLE LINE DIAGRAM &  
CONDUIT INSTALLATION DETAILS

LIGHTING

**SL.07**

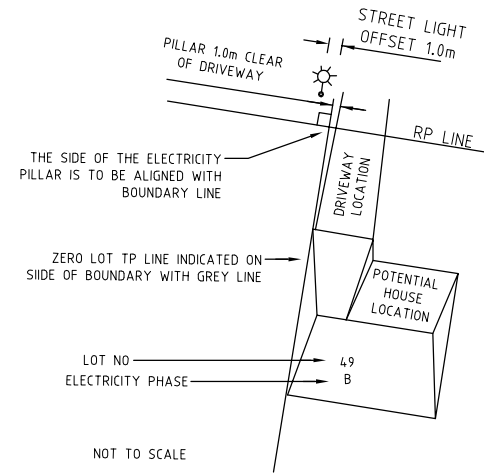
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REQUIREMENTS FOR ELECTRICAL, GAS AND COMMUNICATIONS CONTRACTORS

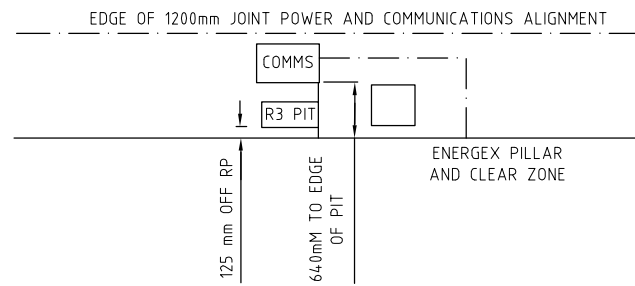
THE PROPOSED PILLAR SHALL BE OFFSET, AS INDICATED, AT THE ZERO LOT LINE BOUNDARY. THE SIDE OF THE PILLAR SHALL BE ALIGNED WITH THE LOT BOUNDARY, TO PROVIDE AT LEAST 1.0m CLEARANCE FROM THE FUTURE DRIVEWAY.

COMMUNICATIONS PITS SHALL NOT CLASH WITH POTENTIAL DRIVEWAY POSITIONS INDICATED

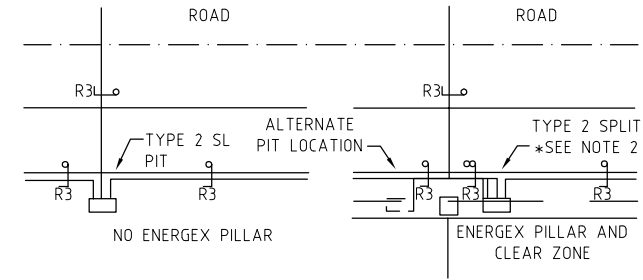
GAS DOMESTIC SERVICE TEE-OFFS SHALL BE ADJUSTED TO REMAIN OUTSIDE 60mm PILLAR EXCLUSION ZONE IF PILLAR IS OFFSET TO ALIGN WITH ONE SIDE OF A SURVEY PEG.



PILLAR ON ZERO LOT BOUNDARY

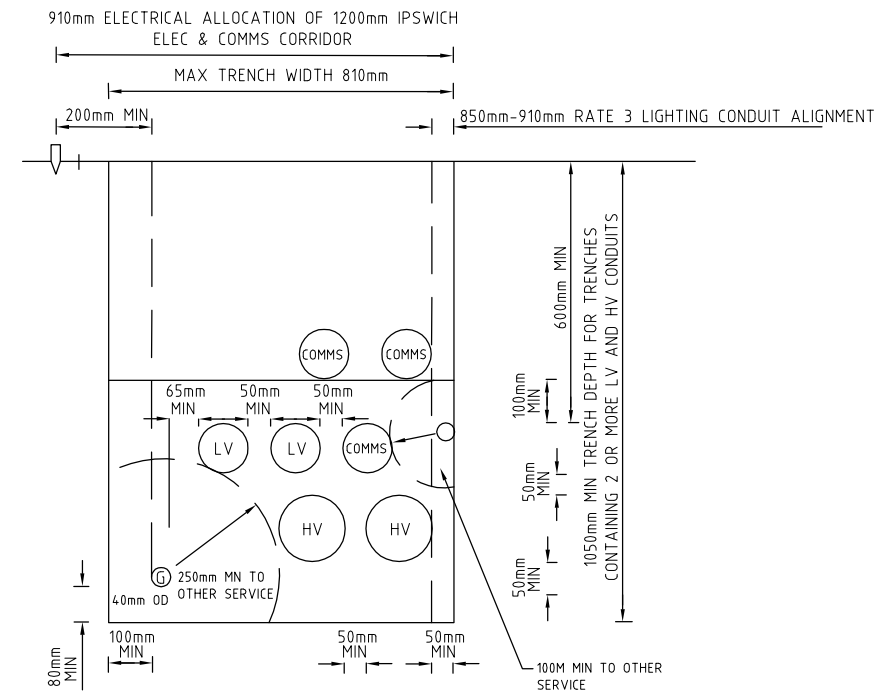


TYPICAL RATE 3 SL TEE-OFF AND PIT POSITION DETAIL (N.T.S)



- NOTES
1. PIT TO BE INSTALLED 125mm OF RP BOUNDARY.
  2. INSTALL PIT ON OPPOSITE SITE OF PILLAR TO COMMUNICATIONS PIT.

TYPICAL RATE 3 SL TEE-OFF AND PIT POSITION DETAIL (N.T.S)



TYPICAL RATE 3 PIT SERVICES COORDINATION DETAIL (N.T.S)

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STANDARD DRAWING

RATE 3 PUBLIC LIGHTING  
 STREETLIGHT RETICULATION DETAILS

LIGHTING

SL.08

REV: A DRAWER: 100