

Making the most of our lighting assets

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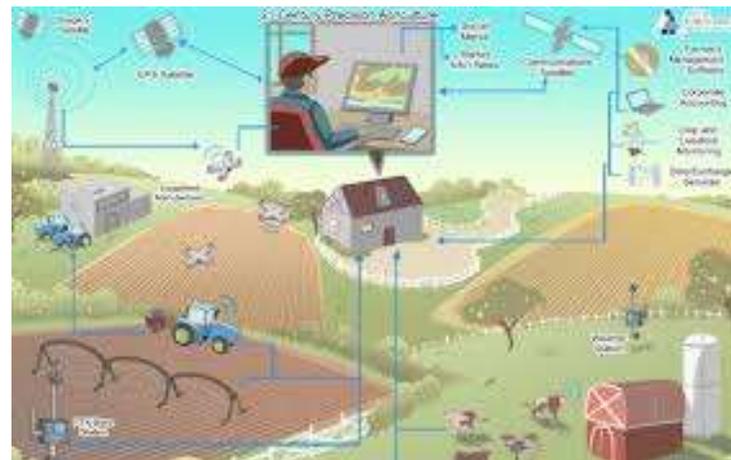
A Connected Environment

Employment ESOL
Housing Early Years
Community Groups

Connected local services

Autonomous vehicles

Connected emergency services



Connected farming

Vehicle charging



Content

- Lighting columns as attachments



- On-street electric vehicle charging

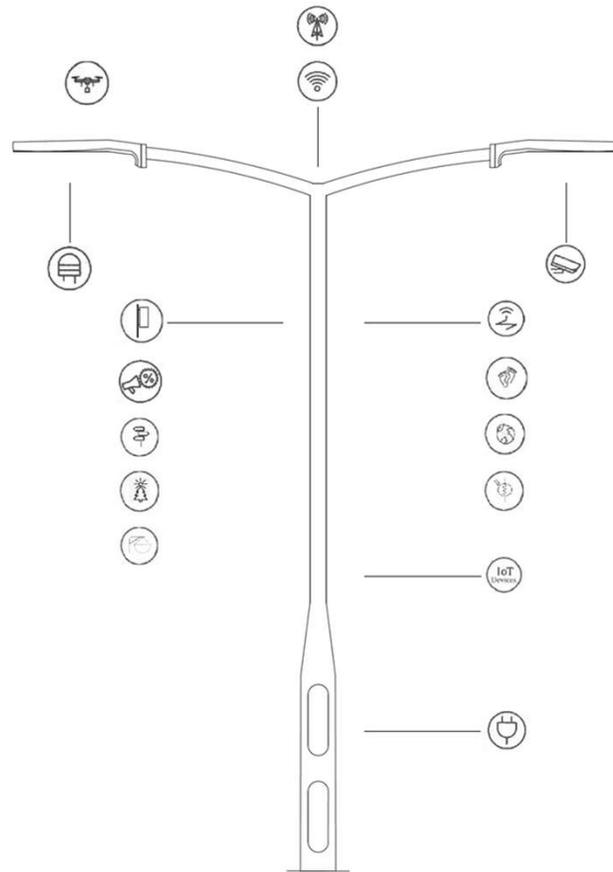


Street Lighting

- Provision:
 - Power not a duty
 - Can it be removed?
 - Does it have to be lit all night?
- Highway Authority & devolved nations
 - Adopted roads
 - S38, S278 & S106
- Local Lighting Authority
 - Public & private roads
 - Provision for ongoing maintenance



A Convenient Asset?



1. Exists in the street
2. Height
3. Electrical supply
4. Lots of them
5. Convenient locations

	TASK/EVENT CONTROLLED ADAPTIVE LIGHTING		WIRELESS E.G. MOBILE PHONE
	BANNER		FOOTFALL
	CCTV		HANGING BASKETS
	CMS/PHOTOCELL		IoT DEVICES
	DRONE CHARGING		PUBLIC ADDRESS SYSTEMS
	ELECTRIC CHARGING INFRASTRUCTURE		SENSORS
	ENVIRONMENTAL		SIGNAGE
	FESTIVE DECORATIONS		COMMUNICATION WIFI

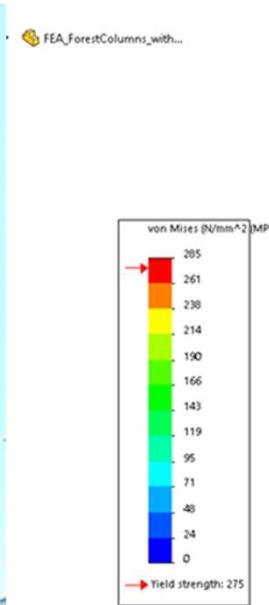
Sharing Lighting Assets: Reward

- Income stream
- Access to third party networks
- Reduced street clutter (WMHI)
- Improved visual guidance & removes obstacles



Sharing Lighting Assets: Issues

- Asset Strength:
 - Attachment 'creep'
 - Original specification
 - Measurement & testing
 - Drilling holes
- Electrical Supplies:
 - Supply number (MPAN)
 - Unmetered supplies UMSUG
 - Space!
- Legal Agreement:
 - Column with attachment
 - Equipment with light
 - Access restrictions
 - Emergency arrangements
 - Replacement



S	01	111	222
	12	1234 5678	345



5G & Communications Act 2003

- Replaced Telecommunications Act 1984
- Ofcom, replacing Oftel
- Community radio
- More flexibility in media ownership
- Malicious communications offence
- Schedule 3A: Communications Code
- Part 8: Conferral of street work rights and their exercise
- Streets and Roads:
 - Scotland: a public road
 - Northern Ireland: a road
 - England and Wales: a maintainable highway (Part 3 of NRSWA 1991)
- A lighting column is highway land



On-street Electric Vehicle Charging

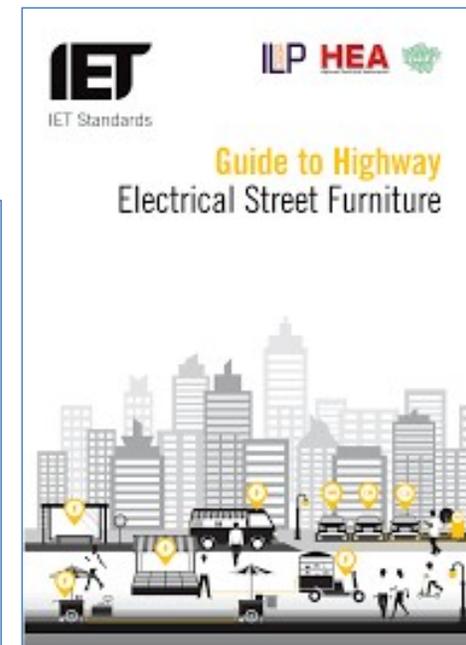
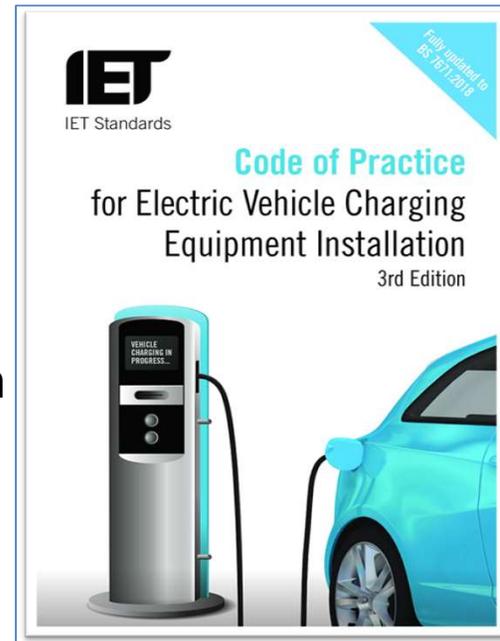


IET Standards, based on;

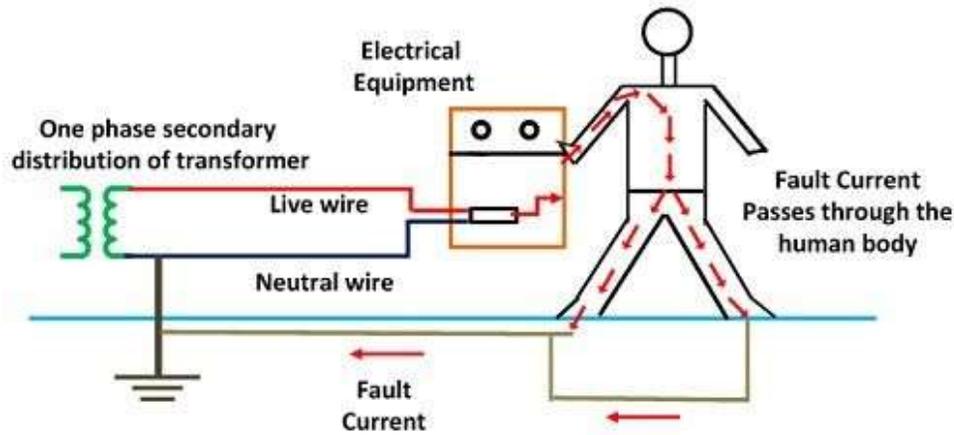
- BS 7671:2018 and where necessary;
- Electricity Safety, Quality and Continuity Regulations 2002

Details of;

- Integration of smart metering
- Commercial and industrial installation
- On-Street installation
- Domestic installation

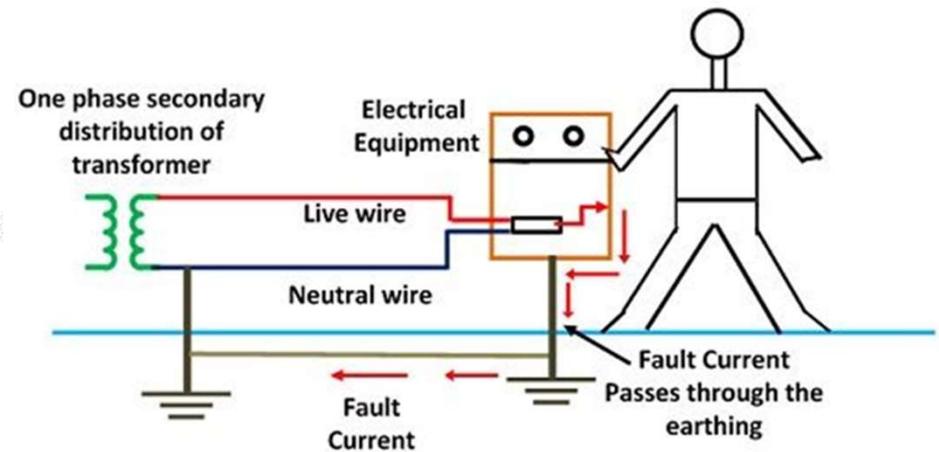


Electrical Supplies: the earth connection



Electrical System Without Earthing

Circuit Globe

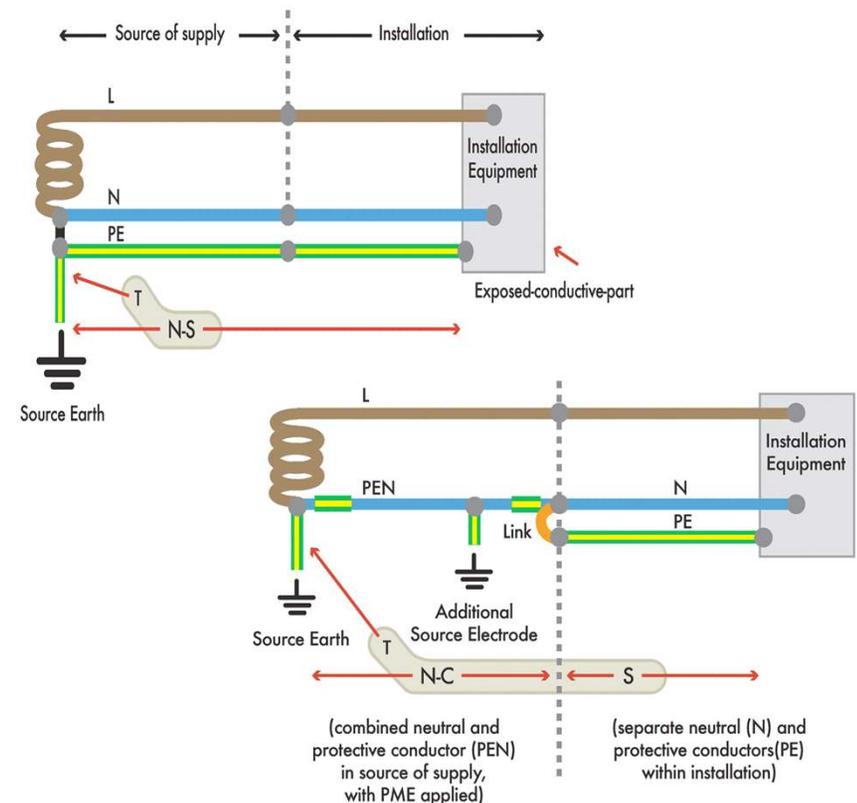


Electrical System With Earthing

Circuit Globe

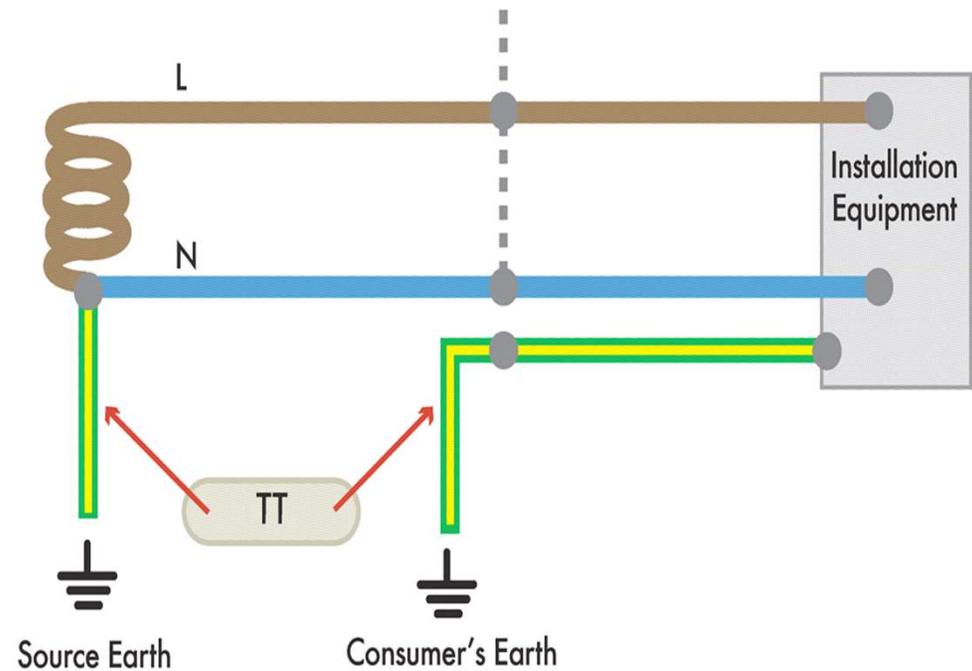
TN-S & TN-C-S (PME) Supplies

- T = Earth (from French *Terra*-earth)
 - N = Neutral or return path
 - S = Separate
 - C = Combined
- Both have an DNO earth connections
 - Most popular types of supply
 - Used in 'contained' environments
 - Open circuit neutral current could flow through earth
 - Touching equipment may be lower resistance path

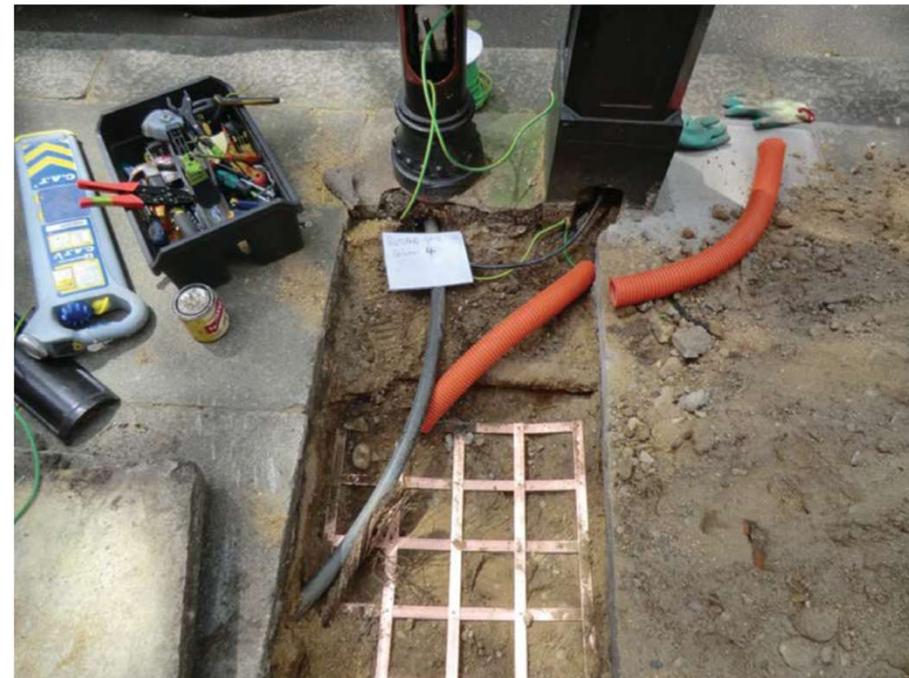
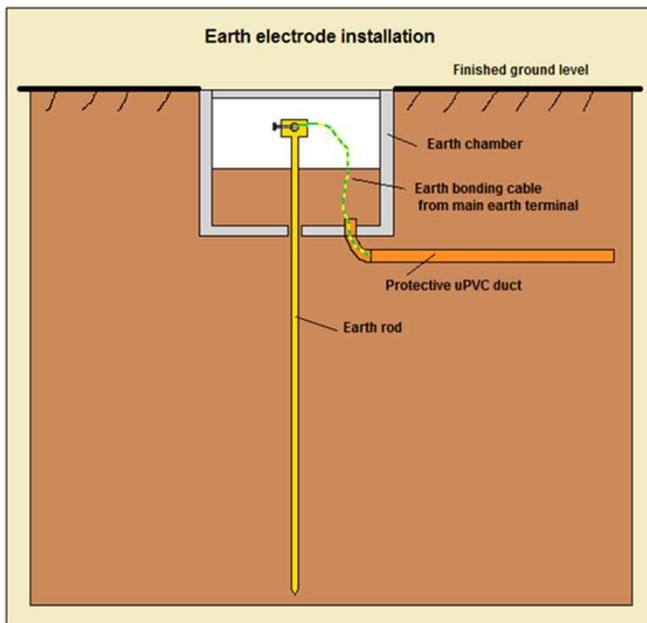


TT Supply

- Line Neutral mains connection
- Source earth (Terra) and Consumer earth (Terra) separate
- Consumer makes their own earthing arrangements
- Requirement for on-street chargers



Earth Rods & Earthing Mats



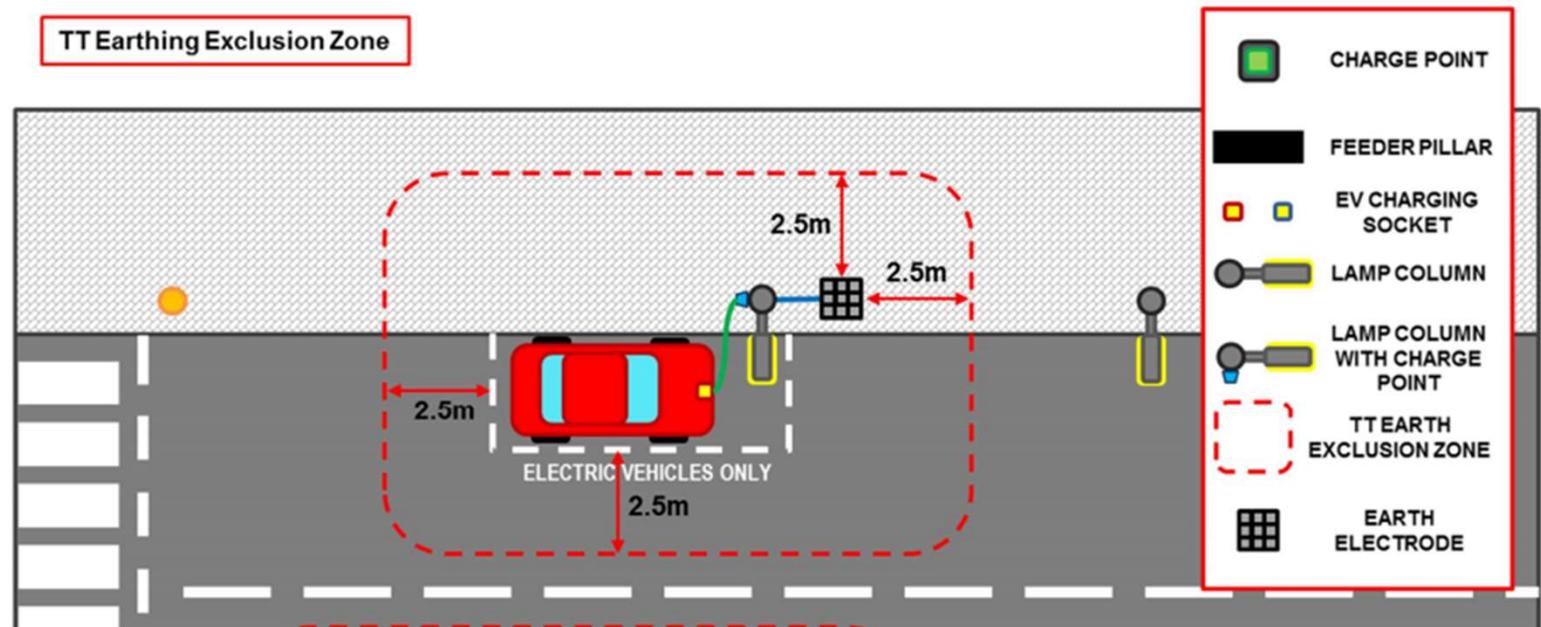
Residual Current Device (RCD or RCCB)

- Uses current balance between line and neutral
- Protects by detecting earth leakage currents
- Automatically disconnects the supply
- Various tripping currents normally 5-30 milli-amps



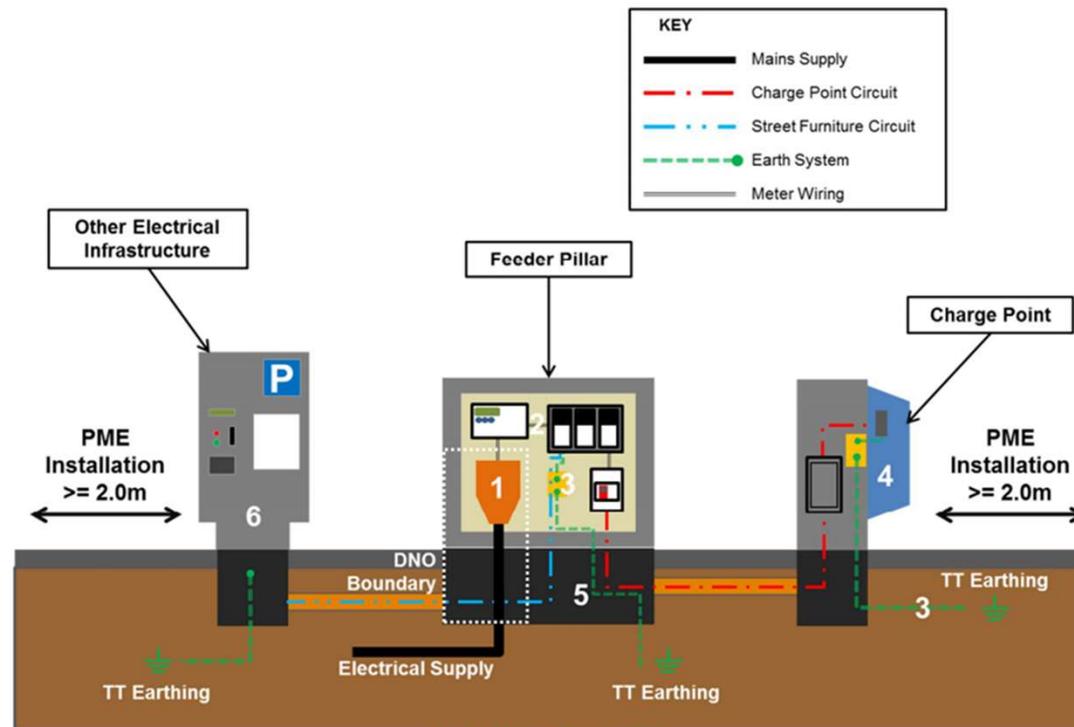
TT & TN-C-S (PME) Exclusion Zone

TT & PME Earthing Exclusion Zones Diagram



Source: Electrical Guidance for London Boroughs. London Councils March 2019 V1

TT & TN-C-S (PME) Exclusion Zone



For Illustrative Purposes Only

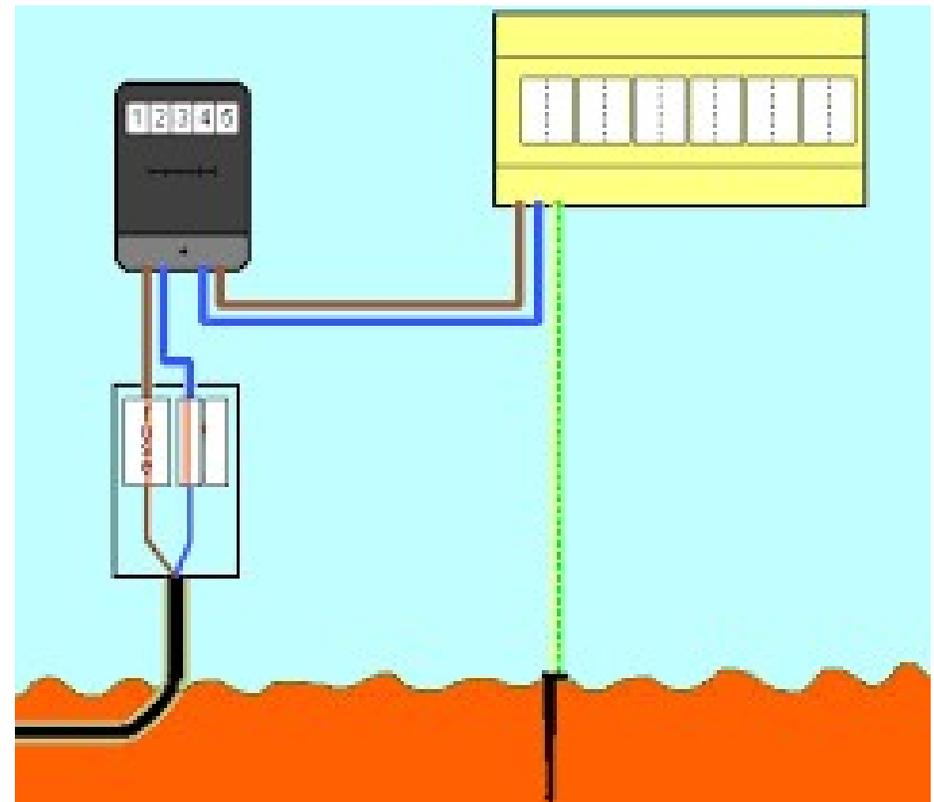
Source: Electrical Guidance for London Boroughs. London Councils March 2019 V1

Is this an acceptable solution?



TT Supplies: Issues

- All equipment in exclusion zone must be TT
- Exclusion zone 'creep'
- RCD testing & operation
- RCD tripping
- Earth rod testing & inspection
- Damage to earth rod or mat
- Who pays?



Column Mounted EV Chargers

- Charge rate 16A
- Parking issues?
- Limited stay
- Space inside column
- Separation of supplies
- Charge cable faults
- Emergency arrangements
- Replacement arrangements
- Drilling holes
- Attachment creep



Images: EV Street Charge

Making the most of our lighting assets



Something to think about:

- Embrace change
- Welcome opportunities
- Be careful entering into agreements
- Don't share your MPAN
- Get whatever money you can; just don't expect to keep it!
- Group switched assets
- Asset valuation

Possible actions:

- Look at your column specification
 - Move the sign load to the top of the column
 - £10 to £20 per column
 - Double door columns?
- Standard agreement templates
 - Shared access
 - EV charging: shared asset and free standing
 - Asset supply modifications